

Teacher's Manual
for
Patent Law and Policy

Fourth Edition

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Teacher's Manual

for

Patent Law and Policy

One of the problems in writing a teacher's manual for a patent casebook mirrors a major problem in teaching the course itself: the diversity of backgrounds people bring to the subject. Some are complete neophytes, drawn by the surge of interest in the field. Others are experienced scientists or engineers, perhaps even patentees themselves, who are familiar at the operational level with many details of the system. And most are somewhere in between, bringing some stock of knowledge and perhaps folklore to their study of the field. We will try to address the concerns of each group in this manual, but a word of advice is in order. Where we felt it necessary to make a choice, we chose to slant the presentation toward the neophyte. The obvious explanation is that this is the group who we felt would need to rely most on the contents of this manual. As for the others, we emphatically do not mean to suggest that there is nothing in this manual for you. Far from it; you will find much of the chapter-by-chapter explanation useful even if you already are familiar with patent law.

The basic aim of this manual is to describe what is covered in each chapter and of course why it's in there. Thus no matter how well you know patent law in general, you might find this useful in understanding how we put this book together.

Two final notes: First, the following website makes available addition teaching materials such as powerpoint slide, updated versions of this teacher's manual and yearly updates to the casebook:

http://www.law.berkeley.edu/institutes/bclt/pubs/Patent_Law.html

Second, we are always in the process of revising the book, and we appreciate all suggestions, critiques, questions, and comments. Please feel welcome to send us your thoughts via email or to the addresses listed below:

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THE PATENT COURSE

A prefatory word on the place of the patent course is in order. We think that an ideal intellectual property curriculum would contain three levels of courses: introductory; subject-specific; and advanced/specialized. At the introductory level is the basic Intellectual Property Survey course, covering copyright, trademark, trade secret, and a bit of patents. Next comes the subject-specific courses: Patents; Copyright; Trademarks and Unfair Competition; Trade Secrets and perhaps Business Torts. Finally the courses at the advanced level might include courses and seminars on topics such as Patent Prosecution Practice, Chemical Patent Practice, Copyright and the Internet, International Intellectual Property, Intellectual Property in the Entertainment Industry, etc.

We recognize, however, that not all schools offer this sequence and that, even where schools do have all of these offerings, students are usually not required to follow a particular sequence. Indeed, many students and schools view IP survey courses as substitutes for subject-specific courses. Thus, while the book contains some references to other fields of IP, we have designed the book to be accessible to students who have not yet had any other IP class. Unfortunately, it was not possible to include an entire chapter comparing patent law to other forms of IP protection but, if a teacher wants to include a class comparing the various forms of IP protection, we believe the same effect can be achieved by combining (1) an introductory lecture on that topic, with (2) recommended background reading (perhaps on reserve in the library) on the nature and purpose of copyright and trademark law (e.g., the opening chapters of R. Merges, P. Menell, & M. Lemley, *INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE* (Aspen Law and Business, 4th Revised Ed., 2007) or similar reading from another book designed for a general IP survey class). If you do not want to devote class time to comparing patents with the other branches of IP law, you could simply say to the class at the first meeting: "This is a course on Patents. If you have already had an overview or survey course on Intellectual Property, you probably know something about patents and are ready to start. If you have not had such a course, and want some context, to compare Patent law to the other major branches of intellectual property, read the following chapters from these books on reserve: . . ." That way, students who have had an introductory course will not be bored by a comparative overview they already know, but the others will not be lost when you compare novelty or nonobviousness with the originality standard of copyright law, for instance.

Patent Law: Not Just for the Technically Trained

A major obstacle in “selling” the need for a patent law course, and in recruiting students to take it, is the impression that a science or engineering background is necessary to understand the subject and enjoy the course. We have labored to make our book as accessible to the non-technically trained as to those with traditional patent law qualifications. We have done so partly on the ground that even non-patent specialists are being drawn increasingly into patent-related matters (e.g., patent litigation, licensing, “title clearance” in joint ventures, takeovers, etc., and general counsel-level advising for corporations from start-ups to large, established companies). These people need to know the basics of patent law, and it is up to you to convince them that they are capable of learning the subject even without technical training. If they need convincing, point to the simple nature of many of the inventions at issue in cases collected in the casebook, and to diagrams and discussions preceding the cases and the notes. Show them Chapter 1 and ask, “Are you telling me you can't figure out from these drawings how coffee cup holders work?” Show them *Graham v. John Deere* in Chapter 7 and ask, “If your great-grandparents could figure out how a plow works, can't you too?” In other words, try to convince them the subject is not as scary as it seems.

PATENT COURSE STRUCTURE AND COVERAGE

We have organized the case book in a way that we believe a course should be organized. Much of the book follows the order of the statutory sections in the Patent Act. After a brief introduction and overview of the field in Chapter 1, Chapters 2 and 3 focus on patentable subject matter and utility, which are based on § 101 of the Act. Chapters 5 and 6 cover novelty and the statutory bars, both of which are governed by § 102, and Chapter 7 addresses § 103 and the obviousness doctrine. Infringement (§ 271) and remedies (§§ 283-84) are covered in Chapters 8 and 9, respectively.

As you review these chapters, you will notice that the issues of novelty, statutory bars and priority receive very extensive coverage. The choice here is deliberate. In copyright law, originality is the only real threshold requirement for obtaining rights, and the emphasis in litigation is often on issues of infringement. Patent law, by contrast, does not confer any rights unless an inventor meets several fairly stringent requirements, most notably novelty and nonobviousness. Thus, accused infringers typically engage in extensive prior art searches that produce obscure references like student theses and testimony about long-ago research activities, and the relevance of these materials often turn on highly technical priority and prior art rules. Validity issues are thus very important and very complex, and therefore we believe that even an introductory course in patent law should cover these issues in depth.

The most obvious departure from the organization of the Patent Act comes in Chapter 4, which covers § 112's disclosure requirements. In earlier editions, the disclosure chapter was later in the book, but we thought it better to move the chapter to this earlier placement. The most compelling reason for the new

placement is the deep connection between patentable subject matter, utility and disclosure. Many patentable subject matter cases turn on utility concepts (see, e.g., *State Street*), and utility is directly linked to the enablement requirement. Thus, the order of the book seemed to flow naturally: Patentable subject matter points to utility which in turn points to disclosure. The early placement of the disclosure chapter also seemed warranted by the increased importance that § 112 issues have assumed in recent years.

After Chapter 9, the book does not follow the structure of the Patent Act. Chapter 10 is a collection of issues relating to legal process. As we state in the book's preface, this chapter is one of innovations in this edition of the book. We hope that the collection of these process issues in a single treatment will assist teachers and students in formulating an overarching vision of patent process. Indeed, some teachers may find it useful to experiment with covering chapter 10.A earlier in their course than the chapter's placement might suggest, as the overview of process issues might give students a better grounding in the institutions that are rendering the decision covered in the rest of the book.

Chapters 11 and 12 deal with more advanced associated with patents, including the relationship between inventors and assignees, the ownership and sale of patent rights, and the antitrust restrictions on obtaining and enforcing patent rights. These issues are placed toward the end of the book because many teachers might choose to limit or even to omit coverage of these topics in two- or three- credit courses.

One of the difficulties of teaching patent law, which you will discover first hand in preparing to teach it, is that the subject is so deeply intertwined. It is very difficult to find a case or article that isolates a single topic for treatment. Topics flow into each other, so that, for example, although Chapter 2 is concentrated on patentable subject matter, you cannot cover the cases there without bumping into a host of other issues: utility, enablement, novelty and nonobviousness. New teachers to the subject will likely find it almost impossible to teach a course by following the "two cases ahead of the students" approach sometimes resorted to by over-committed law professors. As a consequence, new teachers (and perhaps those who have not taught the subject for several years) probably should spend at least a few weeks in a comprehensive preparation to teach this material. At the very least, new teachers should try to read Chapters 1-7 before the first class.

Having made these general introductory points, we offer more concrete suggestions for patent course syllabi. We begin with suggestions for a three-credit course syllabus and then suggest modifications for two- and four-credit courses.

A Three-Credit Course

The three-credit syllabus below assumes that the class will meet twice per week for thirteen weeks; minor modifications can be made if the class has a

different schedule. The substance of a three-credit syllabus is below; the appendix to this manual contains a full model syllabus for a three-credit course (complete with page assignments to the book).

Three-Credit Course Syllabus

Class/Topic	Chapter	Coverage
1. Introduction to Patents: History, Architecture and Claims	1.A- 1.C	History of patent law; identification of the major structures in the patent document; patent claim drafting exercises (cup holder technology).
2. Introduction to Modern Policy Issues	1.D & 1.E 2.A	Patent application and enforcement processes; globalization and TRIPs; <i>Diamond v. Chakrabarty</i> and the patenting of living things.
3. Limitations on Patentability, I	2.B.1- 2.B.2	<i>O'Reilly v. Morse</i> , <i>The Telephone Cases</i> and the historical tests for patentable subject matter; the <i>Parke-Davis</i> theory of patenting naturally occurring substances; <i>Funk Brothers</i> , <i>J.E.M. Ag Supply</i> and the patenting of natural products.
4. Limitations on Patentability, II	2.B.3- 2.B.4	<i>Benson</i> , <i>Diehr</i> , <i>State Street</i> (part 1) and the software controversy.
5. Limitations on Patentability III: Field Restrictions	2.C	Patentable subject matter under TRIPs; <i>State Street</i> (part 2) & business method patents; limitations on medical procedure patents; the EPC's prohibition on computer program patents; patents for social, legal and sporting technologies.
6. Utility	3	Operability cases and the burden of proof; <i>Lowell v. Lewis</i> and Justice Story's theory of the utility requirement; <i>Juicy Whip</i> and the

		modern approach to the beneficial utility requirement; <i>Brenner v. Manson</i> , <i>Brana</i> , the PTO Utility Guidelines and practical utility.
7. Enablement I	4.A 4.B.1	<i>The Incandescent Lamp Patent, Fisher, Wands</i> and the relationship between enablement and patent breadth.
8. Enablement II and the Written Description Req't	4.B.2 4.C	Specification examples and <i>Strahilevitz; Vas-Cath v. Mahurkar</i> and the use of drawings as a written description; continuing application practice and the "new matter" prohibition; <i>Gentry Gallery, Regents v. Eli Lilly</i> and the written description revolution.
9. Definite Claims and Best Mode	4.D & E	<i>Orthokinetics, Standard Oil v. American Cyanamid</i> and the definite by art standard; functional claim language and § 112 ¶6; <i>Randomex, Chemcast</i> and "hidden" best modes; the <i>Transco</i> rule for best mode disclosures in continuing applications.
10. Novelty I: Anticipation Analysis	5.A & B	<i>Robertson, Seaborg, Hafner & Titanium Metals</i> ; the "every element" rule; accidental anticipations; differences between § 112 enablement and the enablement standard for anticipation; the enforcement difficulties associated with "new use" patents.
11. Novelty II: 102(a), (e) and (f)	5.C, D & E	The public knowledge standard, printed publications and "patented" prior art; <i>Alexander Milburn</i> , 102(e) and "secret" prior art; problems of derivation; corroboration requirements.

12. Novelty III: Priority	5.F.1 & F.2	<i>Townsend v. Smith, Christie v. Seybold, Peeler v. Miller</i> and the basic priority rules; junior and senior parties and the burdens of proof; the <i>Paulik v. Rizkalla</i> rule; trade secrets as suppressed work.
13. Novelty IV: Finer Points, Rule 131 Practice and International Issues	5.F.3 5.G 5.H	Finer points of priority: <i>Gould v. Schawlow, Griffith v. Kanamaru</i> and <i>DSL Dynamic Sciences; Estee Lauder</i> and the subjective component of reduction to practice; the multiple interference problem; proving a date of invention, <i>Moore, Stempel</i> and antedating parts of the invention; foreign priority of filing and the Paris Convention; territorial restrictions on proving invention, <i>Westinghouse Machine v. G.E.</i> and the imported knowledge conundrum.
14. Novelty V; Statutory Bars I	5.H 6.A & B	<i>Hilmer</i> and the limitations on using § 119 to create prior art; the Patent Cooperation Treaty; policies underlying the statutory bars; public use, abandonment and the <i>Pennock v. Dialogue</i> decision; critical dates and “grace” periods; <i>Egbert v. Lippmann</i> and “hidden” public uses.
15. Statutory Bars II: Public Use, On-sale Bar and Experimental Use	6.B.1 - B.3	<i>Moleculon</i> , confidentiality and the limits of private uses; <i>Metallizing Engineering</i> and the nonpublic use vs. abandonment distinction; the on-sale bar, <i>Pfaff, Abbott Laboratories v. Geneva Pharmaceuticals</i> and the “ready for patenting” standard; <i>City of Elizabeth v. American Nicholson Pavement</i> , experimental use and the relationship between priority claims and the statutory bars; the cautionary tale of <i>Lough v. Brunswick</i> .
16. Statutory Bars III:	6.B.4	<i>Baxter, Gore</i> and third party activity

Third Party Activity and Party Specific Bars	6.C	as a statutory bar; <i>Macbeth-Evans</i> and secret use as an abandonment; <i>Kathawala</i> and the rare facts of a § 102(d) bar.
17. Obviousness I: History and the Graham Trilogy	7.A	The function of nonobviousness; the <i>Selden</i> controversy; <i>Hotchkiss v. Greenwood</i> and the historical “invention” standard; codification of the invention standard in § 103; the <i>Graham</i> trilogy.
18. Obviousness II: The Suggestion Test and Secondary Factors	7.B & C	KSR, plus some Federal Circuit cases (<i>Dembiczak</i> , <i>Arkie Lures</i> , etc.) a comparison the Supreme Court and Federal Circuit precedent on obviousness; the “suggestion test
19. Obviousness III: The Prior Art Tableau	7.D	The <i>Winslow</i> tableau and the superperson in the art; <i>Hazeltine Research</i> , <i>Bass</i> , <i>Oddzon Products</i> , <i>Foster</i> and the categories of § 102 prior art considered under § 103; <i>Clay</i> and nonanalogous art.
20. Obviousness IV	7.E	<i>Papesch</i> , <i>Dillon</i> , <i>Deuel</i> and the relevance of chemical structure to obviousness determinations.
21. Infringement I: Literal Infringement	8.A & B	<i>Merrill v. Yeomans</i> and the function of claims in infringement analysis; <i>Autogiro Co. of America v. United States</i> , <i>Markman v. Westview Instruments</i> , <i>Unique Products v. Brown</i> and the difficulties of claim interpretation.
22. Infringement II: Equivalents	8.C	A trilogy on equivalents: <i>Winans v. Denmead</i> , <i>Graver Tank</i> and <i>Warner-Jenkinson</i> ; central and peripheral claiming; <i>Exhibit Supply Company</i> , <i>Festo</i> and prosecution history estoppel; reasonable expectations for claim

		drafters; <i>Johnson & Johnson v. R.E. Service</i> and the dedication to the public theory.
23. Infringement III: Equivalent and Reverse Equivalents	8.C.2 - C.4 8.D	<i>Corning Glass</i> and the meaning of the “all elements” rule for equivalents; <i>Wilson Sporting Goods</i> and hypothetical claim analysis; <i>Al-Site Corp. v. VSI International</i> and equivalents for functional language; <i>Westinghouse v. Boyden Power Brake</i> , <i>Scripps Clinic v. Genentech</i> and the reverse doctrine of the equivalents.
24. Infringement IV: Experimental Use, Contributory Infringement and Territoriality	8.E, F & G	<i>Roche Products v. Bolar Pharmaceuticals</i> and the experimental use defense to infringement; experimental uses overseas; <i>Aro v. Convertible Top</i> and the repair-reconstruction dichotomy; <i>C.R. Bard v. Advanced Cardiovascular Systems</i> , substantial noninfringing uses and the intent requirements for inducement and contributory infringement; <i>Brown v. Duchesne</i> and the territorial limitations of the patent system.
25. Remedies	9.A, B & C	<i>Orr v. Littlefield</i> , <i>Amazon.com v. Barnesandnoble.com</i> on the standard for obtaining a preliminary injunction; <i>eBay</i> on injunctions generally; <i>Panduit Corp. v. Stahlin Bros.</i> and the hypothetical royalty agreement; punitive royalties; perhaps <i>Rite-Hite v. Kelley</i> and the causation standard for proving lost profits on patented and unpatented products.
26. Legal Process Issues: Power Allocation and Inequitable Conduct	10.A 10.D	<i>Dennison Manufacturing v. Panduit</i> , <i>Dickinson v. Zurko</i> , <i>Merck v. Kessler</i> , <i>Cybor Corp. v. FAS Technologies</i> and the fact/law distinction in patent legal process; <i>Holmes Group v. Vornado Air</i> and the jurisdiction of the Federal

		Circuit; <i>J.P. Stevens v. Lex Tex</i> and the duty to disclose material information to the PTO.
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This suggested syllabus embraces two choices that you might reject. First, the above syllabus is aggressive in terms of the volume of assigned readings. If you want to assign fewer pages, please consult the two-credit course for suggested omissions.

Second, the syllabus provides limited coverage to the material after Chapter 8. This choice was made because many schools now offer a two- or three-credit advanced patent class in sequence after an introductory class. Thus, we have assumed that the material after Chapter 8 plus the omitted material from earlier chapters can form the basis of the advanced class. If, however, no advanced class is offered at your school, you might consider adding at least one class on the material in Chapter 11 and perhaps also an additional class on patent remedies. To make room for these classes, we suggest you reduce coverage of Chapter 2 (patentable subject matter), Chapter 5.F.3 (the finer points of priority), Chapter 7.D (prior art for § 103) & 7.E (chemical nonobviousness) and Chapter 8.C (the doctrine of equivalents). For suggestions on how to make cuts in these areas, please see the corresponding classes in the two-credit syllabus below.

A Two-Credit Course

For a two-credit course, the key question is what to omit from the list above. We believe that the basic structure of two-credit course should be largely the same, although if the class meets only once per week, pairs of classes should be combined. Our suggested omissions are listed below:

Two-Credit Syllabus

Class/Topic	Chapter	Suggestions/Omissions
1. Introduction to Patents: History, Architecture and Claims	1.A- 1.C	Spend less class time on coffee cup claim drafting exercises; otherwise most of this introductory material should remain in a two credit class.
2. Introduction to Modern Policy	1.D & 1.E	Again, most of this material should remain in a two-credit class.

Issues	2.A	
3. Limitations on Patentability, I	2.B.1 - B.2	Omit the historical materials (<i>O'Reilly v. Morse</i> , <i>The Telephone Cases</i> and the historical tests for patentable subject matter) and <i>J.E.M. Ag Supply</i> ; keep <i>Parke-Davis</i> , <i>Funk Brothers</i> and the notes on the patenting of natural products.
4. Limitations on Patentability, II	2.B.3 - B.4	<i>Benson</i> might be omitted altogether; if not, it should be covered only briefly in class; keep <i>State Street</i> and possibly <i>Diehr</i> .
5. Limitations on Patentability III: Field Restrictions	2.C	Omit the EPO case on computer programs. Keep TRIPs, <i>State Street</i> (part 2) & business method patents. Materials on medical procedure patents and patents for social, legal and sporting technologies are optional.
6. Utility	3	Keep most of this material. Omit the note on patent racing at the end of the chapter and possibly the case study on cDNA.
7. Enablement I	4.A 4.B.1	Keep most of this material with the possible exception of <i>Wands</i> .
8. Enablement II and the Written Description Req't	4.B.2 4.C	Omit <i>Strahilevitz</i> . Keep <i>Vas-Cath v. Mahurkar</i> and <i>Gentry Gallery</i> . <i>Regents v. Eli Lilly</i> might also be omitted.
9. Definite Claims and Best Mode	4.D & E	Omit <i>Transco</i> . Keep <i>Orthokinetics</i> , <i>Standard Oil v. American Cyanamid</i> , <i>Randomex</i> and <i>Chemcast</i> .
10. Novelty I: Anticipation	5.A & B	Omit notes on "new use" patents. Otherwise keep most of this material, including <i>Robertson</i> , <i>Seaborg</i> , <i>Hafner</i>

Analysis		& <i>Titanium Metals</i> .
11. Novelty II: 102(a), (e) and (f)	5.C, D & E	Omit <i>Reeves Bros.</i> (explain that most patents now constitute prior art as publications long before patenting); omit note on the economics of search; omit comparative note.
12. Novelty III: Priority	5.F.1 & F.2	Possible omissions include <i>Townsend v. Smith</i> and the note on trade secrets. Alternatively, all of this material could be retained.
13. Novelty IV: Finer Points, Rule 131 Practice and International Issues	5.F.3 5.G 5.H	Omit all of the finer points of priority, including <i>Gould v. Schawlow</i> , <i>Griffith v. Kanamaru</i> , <i>DSL Dynamic Sciences</i> and accompanying notes. Omit <i>Westinghouse Machine v. G.E.</i> and the imported knowledge conundrum. Keep <i>Moore</i> , rule 131 practice and the discussion of new § 104.
14. Novelty V; Statutory Bars I	5.H 6.A & B	Possibly omit <i>Hilmer</i> . All material from Chapter 6.A & B should probably be retained, although <i>Pennock v. Dialogue</i> could be covered quickly via a short lecture.
15. Statutory Bars II: Public Use, On-sale Bar and Experimental Use	6.B.1 - B.3	Omit <i>Lough v. Brunswick</i> and <i>Abbott Laboratories v. Geneva Pharmaceuticals</i> (the facts of each case could be used as in class "hypotheticals" to test the students' understanding of the principal cases. Both <i>Moleculon</i> and <i>Metallizing Engineering</i> are also good candidates for omission if needed. Keep <i>Pfaff</i> , and <i>City of Elizabeth v. American Nicholson Pavement</i> .
16. Statutory Bars III: Third Party Activity and Party	6.B.4 6.C	Omit <i>Baxter</i> and notes on international considerations. Keep <i>Gore</i> , <i>Macbeth-Evans</i> and <i>Kathawala</i> .

Specific Bars		
17. Obviousness I: History and the Graham Trilogy	7.A	Omit <i>Hotchkiss v. Greenwood</i> and the other materials on historical “invention” standard. Keep the introduction on the function of nonobviousness and the <i>Graham</i> trilogy.
18. Obviousness II: The Suggestion Test and Secondary Factors	7.B & C	Omit <i>Sakraida</i> . Keep <i>Dembiczak</i> , <i>Arkie Lures</i> and <i>Hybritech v. Monoclonal Antibodies</i> .
19. Obviousness III: The Prior Art Tableau	7.D	Omit <i>Bass</i> and probably <i>Oddzon</i> too. Keep <i>Winslow</i> , <i>Hazeltine Research</i> , <i>Foster</i> and <i>Clay</i> .
20. Obviousness IV	7.E	Omit this section entirely.
21. Infringement I: Literal Infringement	8.A & B	Omit <i>Merrill v. Yeomans</i> and possibly <i>Autogiro Co. of America v. United States</i> too. Keep <i>Markman v. Westview Instruments</i> and <i>Unique Products v. Brown</i> .
22. Infringement II: Equivalent	8.C	Omit <i>Exhibit Supply</i> . Keep the other four S.Ct. cases, <i>Winans v. Denmead</i> , <i>Graver Tank</i> , <i>Warner-Jenkinson</i> and <i>Festo</i> .
23. Infringement III: Equivalent and Reverse Equivalent	8.C.2 - C.4 8.D	Omit <i>Wilson Sporting Goods</i> and probably <i>Al-Site Corp. v. VSI International</i> too. Keep <i>Corning Glass</i> . For reverse equivalents, consider omitting <i>Westinghouse v. Boyden Power Brake</i> and relying solely on the <i>Scripps Clinic v. Genentech</i> note.
24. Infringement IV: Experimental Use, Contributory	8.E, F & G	Possibly omit experimental use defense subchapter or, if retained, omit Eisenberg selection and

Infringement and Territoriality		remaining notes. Omit <i>C.R. Bard v. Advanced Cardiovascular Systems</i> but keep <i>Aro v. Convertible Top</i> . <i>Brown v. Duchesne</i> is a fair candidate for omission but the two pages of notes on territoriality should probably be retained.
25. Remedies	9.A, B & C	Omit <i>Orr v. Littlefield</i> , but otherwise keep the rest of this material. At any rate, be sure to cover <i>Amazon.com</i> and <i>eBay</i> .
26. Legal Process Issues: Power Allocation and Inequitable Conduct	10.A 10.D	Omit <i>Dennison Manufacturing v. Panduit</i> , <i>Dickinson v. Zurko</i> and <i>Holmes Group v. Vornado Air</i> . Keep <i>Merck v. Kessler</i> , <i>Cybor Corp. v. FAS Technologies</i> and the note on the fact/law distinction. Keep <i>J.P. Stevens v. Lex Tex</i> and the material on the duty to disclose to the PTO.

As can be seen from the suggested cuts, we have suggested almost no omission for some classes (e.g., the class on utility) while for others, we have suggested very significant cuts or even elimination of the topic altogether (e.g., chemical nonobviousness). Because of this pattern, the class structure needs to be altered somewhat; indeed, the three classes on patentable subject matter might be condensed into two or even one (if further cuts to the material are made). Classes with few suggested omissions (e.g., on remedies) may have to be divided into two classes to account for the shorter class time available for each meeting.

The cuts listed above are suggestions only. We have tried to suggest more rather than fewer omissions on the theory that it is easier to add back material than to select a candidate for omission in the first place. Thus, if you find yourself thinking “how could they suggest cutting such-and-such a case,” don’t hesitate to retain that case. Indeed, because the suggested omissions tend to leave each area somewhat shallow, it might be useful to select one or two areas (priority fights or the application of the doctrine of equivalents to functional claims) to be “high coverage areas”—topics where you retain all of the materials. Such an approach has at least two benefits. First, it allows students to appreciate the complexity of the law in this field. You can warn your students that such complexity is pervasive in patent law but that the time constraints of a two-credit course preclude showing them that complexity for other patent doctrines. A second reason to include deeper coverage on some areas is that the

class examination can then cover those areas in more detail. The approach thus permits more sophisticated exam questions that may more closely resemble real-world legal problems.

A Four-Credit Course

In a four-credit course, we expect most teachers would try to cover at least part of every chapter in the book. That strategy would be particularly appropriate if no further advanced class was available at the school. Nevertheless, even if you might want to cover every chapter in the book, you probably would still want to omit portions of some chapters because the book was designed to contain enough material for both an introductory and an advanced class in patents (i.e., enough material for five or six credits worth of patent law).

Thus, the question is once again what to cut. Our suggestion here is to develop the course along the following lines: (1) For coverage of the first eight chapters, use the three-credit syllabus as the baseline but make some omissions in the following areas Chapter 2 (patentable subject matter), Chapter 5.F.3 (the finer points of priority), Chapter 7.D (prior art for § 103) & 7.E (chemical nonobviousness) and Chapter 8.C (the doctrine of equivalents). (2) For coverage of the last four chapters in the book, follow the suggestions below:

Additions for a Four-Credit Course Syllabus

Chapter/Topic	Coverage
9. Remedies	Injunctions, reasonable royalties, lost profits, and wilful infringement. Patent marking materials are optional.
10. Legal Process	Cover the allocation of power, correction and reissue (perhaps omitting <i>Seattle Box</i> and intervening rights), reexamination and inequitable conduct.
11. Inventors and Owners	Cover inventorship and misjoinder, assignment and ownership and some of double patenting (<i>Miller v. Eagle Manufacturing</i> plus one other case is probably enough).

12. Antitrust	Most of this material could be omitted as too advanced for a single four-credit class. If it is included, we think the most important cases are <i>Morton Salt</i> , <i>Dawson Chemical</i> , <i>Brulotte</i> , <i>Transparent-Wrap Machine</i> and <i>Walker Process</i> .
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An Advanced Course on Patent Law

The rapid increase of student interest in intellectual property—which tracks job prospects and developments in the economy in general—has produced more advanced courses in law school curricula. This casebook is complete enough to form the basis of a course entitled Patent Law II or Advanced Issues in Patent Law. In general, the best approach for such a class is to try to teach everything not covered in the introductory course. If you follow the outlines above, that means that the advanced course will include more extensive treatment of the following topics from the three credit syllabus:

- Advanced disclosure (Chap. 4), if any omissions were made;
- Advanced priority (Chap. 5), particular § 102(g) issues;
- Chemical nonobviousness (Chap. 7); and
- Refinements to the doctrine of equivalents analysis (Chap. 8).

In addition, Chapter 8-12 should be covered in at least as complete a fashion as discussed above in the table for the four-credit class.

Although we believe such a course could be taught successfully using only the casebook, some additional materials might prove helpful. We would consider supplementing this course with the following:

- More extensive material on international practice: PCT issues, European Patent Office practice; and general patent portfolio management issues;
- Additional cases on inventorship, ownership, patents as loan collateral (perfecting interests, etc.), and perhaps patent misuse; and
- Secondary literature on details of patent trials and patent drafting.

If we can be of help in selecting particular materials to serve these ends, please contact us using the above addresses, phone numbers or e-mails in the Introduction to this manual.

CHAPTER 1: INTRODUCTION

Chapter 1 has five parts, each of which provides some essential introductory material for understanding patents and patents. With the exception of the material on patent claims, most of the material in this chapter can be assigned as background reading. Students are likely to find some of the material—particularly “The Architecture of a Modern Patent” in part B—useful as a reference tool that can be skimmed quickly early in the course and then revisited through the semester.

A. HISTORICAL OVERVIEW OF PATENT LAW

In the belief that students need to understand something about the origins and conceptual underpinnings of patent law, we begin Chapter 1 with a historical overview of patents. Some find this kind of essay helpful in getting a grip on what the patent system is and what it is trying to accomplish. If this material is covered in class, we suggest that it be covered in a lecture. Powerpoint slides for such a lecture are included in the book’s website.

The overarching theme of the lecture might be that patent law is still a very young field. It has developed only in the last five hundred years, and indeed, even just two hundred years ago, patent systems were so embryonic as to be largely ineffective and radically different from today’s systems. The field is still evolving rapidly, and thus students should be aware that today’s accepted rules could change within the time of their professional careers.

Beyond the more general theme of patent law’s youth, other important themes of historical developments in patent law include:

- The Rise of Disclosure as the key quid pro quo for patent rights;
- The Rise of Examination Systems (and more generally the trend toward greater administrative & judicial specialization and expertise);
- The Rise of the Claim to Define Rights;
- The Origins and Evolution of the Nonobviousness Doctrine; and
- The Globalization Trend.

There are many important events and dates in the history of patent law, but we think the following deserve special mention in any lecture covering the development of patent law:

- The classical world rejected the idea of patents.
- Aristotle voiced two objections:
 - “Harassments” (hard to define innovation).
 - “Changes of regime” (social change).
- Venetian Republic’s 1474 Act: Really the 1st general patent statute.

- Idea of patents spreads throughout Europe *from* the Venetian Republic. The spread of patent law was very much a case in which one jurisdiction (Venice) innovated in its law, and then others copied.
- England: Idea of innovation patents becomes mixed up with monopoly grants.
- 1623: Statute of Monopolies: Bans crown monopolies, but excepts monopolies for innovations.
- Patent systems remain embryonic in 17th and 18th centuries.
- Examination System (Admin. & Judicial Expertise).
- The Late 18th Century sees significant developments in England and in U.S.
 - *Liardet v. Johnson* (1778): English Judge Mansfield recognizes disclosure of information as the chief justification and function of the patent system.
 - U.S.: Frames include IP clause in the Constitution with stated goal: “To promote the Progress of Science and useful Arts.”
- 1790: First US patent system. It includes an examination requirement, but high govt officials are burdened with the task of examining.
- 1793: The U.S. switches to “registration” system then used in England.
- In the very early 1800's, “claims” begin appearing in US patents. The development appears to be an innovation of patent attorneys who want to define their clients’ rights with more precision, and with greater breadth.
- 1836: U.S. goes back to examination system and establishes a modern Patent Office with a corps of professional examiners. Claims are required by law.
- 1851: The doctrine of “invention” is first recognized in U.S. Supreme Court case law; it will evolve into the “nonobviousness” requirement of modern law.
- Patent controversies of the late 19th century in Europe: Some nations even abolish patents altogether, but the trend is later reversed.
- 1883 Paris Convention: This treaty marks the first attempt to reconcile national patent laws and practice with the need for transnational protection of intellectual property. It marks the beginnings of globalization in IP.
- Early to mid 20th Century: Hostility to patents at U.S. Supreme Court.
- 1952: Recodification of the patent laws; codification of the nonobviousness requirement.

- 1970: The Patent Cooperation Treaty attempts to provide a streamlined process for obtaining patent rights throughout the world. It is of limited success.
- 1982: Creation of the Federal Circuit. In US law, the creation of this specialized court is a signal event. Its effect on the legal process of the patent system can be compared only to the 1836 creation of the Patent Office.
- 1994: The TRIPs Agreement begins a era of global harmonization of national patent laws.

B. THE ARCHITECTURE OF A MODERN PATENT

This section of the text is designed primarily to serve as a reference for students. Very little class time should be devoted to this section as the book explains the components of the patent in a fairly concise manner. If you do decide to cover this material in class, you should summarize the structure of a patent as encompassing three major parts:

- The First Page: This part includes lots of general information like the inventor's name, the priority dates, the inventor's attorney, etc. For purposes of teaching patent law, the most important information on the first page includes:
 - The filing date and foreign filing information (which, of course, is highly relevant for determining priority).
 - The list of references cited, which provides a window into the examination process. You might note that the prosecution history or "file wrapper" is publicly available and can be obtained from the Patent Office.
- The Specification: This part encompasses the bulk of the patent. It includes the drawings, the written description of the invention, and the description of how to make and use the invention.
- The Claims: Technically, claims are part of the specification, but their function is so different from the rest of the specification that they should be discussed separately.

An important point to stress in discussing the patent structure is that patents are written by the inventors and their attorneys. The Patent Office only approves or disapproves the application, and the application is essentially just a draft of the patent.

C. PATENT CLAIM DRAFTING EXERCISES

The next section describes what a patent claim is and how one is drafted. It is intended as a simple introduction to the elements of a claim, drafting choices, etc. Its purpose is straightforward. If claims are not introduced in the very beginning of the book, then a teacher who begins a course with, say, § 101 issues will inevitably have to stop and define what a claim is the first time one is encountered (as in *Chakrabarty*). And of course the claim is the basic foundation for most if not all patent doctrines. It also serves as a basic orienting device throughout the course. In teaching, instruction will often ask, for instance, “how could this claim have been drafted to avoid the prior art reference?”, or “what aspects of the infringing device could be changed to make it fall outside the claims?” Such questions and discussions presuppose some basic familiarity with claims.

The website for the class contains slides on claims. In general, we envision the discussion of claims as including four parts. First, the students should be introduced to the statutorily required function of a claim (as specified in section 112 of the Patent Act). Second, they should review the parts of a claim, including the introductory phrase, the preamble, the transition, and the elements. Third, the students should be given the opportunity to review a few claims just so that they learn how to read claim language. Fourth, the instructor should review the claim exercises (the pencil and cup holder) that are set forth in the book.

The slides on “Claims” cover these four topics. The introduction to the statute is in slide 1, which stresses the statute as well as the form of current practice:

- Goal: Claims must “particularly point[] out and distinctly claim[] the subject matter which the applicant regards as his invention.” 35 U.S.C. § 112. In other words:
 - A claim provides as precise (and, hopefully, from the inventor’s perspective, as broad) of a description of the invention as possible, and yet...
 - It must not cover (i.e. describe) anything previously known in the world.
- Claims “must be the object of a sentence starting with...I (or we) claim”... (or the equivalent).” PTO Manual of Patent Examining Procedure § 608.01(m).
- Remember: CLAIMS DO NOT HAVE TO ENABLE!!!

The last point is particularly important: Students must learn that claims provide only define the invention; they don’t have to provide a blueprint for building the invention.

The claims at issue in the *Chakrabarty* case are then used as examples to illustrate to students the parts of claims. Chakrabarty’s first claim read:

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A bacterium from the genus *Pseudomonas* containing therein at least two stable energy-generating plasmids, each of said plasmids providing a separate hydrocarbon degradative pathway.

The slides dissect this claim into its constituent parts.

The accompanying slides then include examples of famous patents including Bell's patent on the telephone, Seldon's patent on the car, etc.

Finally, students should have attempted to write claims for the pencil and the cup holder. These drafting examples and exercises were chosen because they involve simple technology. Let's consider the pencil exercise first.

Claiming the Pencil

The basic goal here is to illustrate the difference between broad, intermediate and narrow claims to the same basic invention, by having students draft some sample claims themselves. The claims might be as follows, based on the problem in the text:

1. A writing instrument, comprising a composition soft enough to leave marks on a writing surface, and means for holding said composition in a position to mark a writing surface.
2. A writing instrument according to claim 1, wherein the composition includes a substantial amount of either lead or graphite. [The specification would broadly define lead and graphite.]
3. A writing instrument according to claim 1, wherein the composition is comprised of approximately 60% graphite and 40% clay, and the base has attached to it a deformable eraser capable of substantially erasing marks made by the writing instrument.

There are many, many variations on these claims. But it is only one goal of the exercise to show that claims can be drafted in many ways. Another goal is to illustrate the effect of particular claim language.

Take claim 1 above. Whatever its merits or problems, a few things can be said about it for instructional purposes. (This is one model for using the exercises in class, by the way: take some of the sample claims drafted by students and critique them.) First, it uses the term, "composition soft enough to leave marks on a writing surface." The two key phrases here – "soft enough to leave marks" and "writing surface" must be discussed in the specification. This is a matter of claim definiteness. While this will not be covered until Chapter 6 of the book, it is helpful to introduce the concept via the common sense question, "how would someone know what such a composition is?" Likewise, one would ask, "what writing surfaces did the drafter have in mind?" Answers to both questions should be found in the specification. Hence one of the purposes of the exercise should be to reveal the interaction between claim and specification.

On the other hand, this point must be contrasted with the idea that somehow even the first claim covers only the precise embodiments disclosed in the specification. The generality of the language, e.g., “composition” and “base” must be contrasted with the specification's examples, which involve clay/graphite/lead mixtures, and soft wood stylus holders, respectively. Note especially the tendency of many students to focus when drafting even broad claims on the specific graphite/clay mixtures in the invention disclosure. The pitfalls of this—an example of not conceiving of the principle of the invention in broad terms—should be pointed out. In the same vein, Figure 1-1, showing the typical metal band method for attaching an eraser to a pencil may mislead some students into drafting the pencil and eraser combination too narrowly. When confronted with a combination claim that recites only this metal band method, you might ask if a combination including an eraser which attaches to the end of the pencil by means of a cylindrical opening into which the end of the pencil is stuck (remember those “replacement erasers” you could buy at the dime store?) would infringe the student's claim. Figure 1-1, incidentally, is a good vehicle for discussing claim language such as “adjacent to,” “attached to,” and the like. Again the goal is to focus on broadening the language to include as many possibly infringing variants as can be imagined.

Note that the first claim does not specifically cover the combination of pencil and eraser. But it does use the key transition, “comprising,” so that a pencil that includes an eraser should still infringe.

Finally, you should point out the many variants of the invention, and the many possible situations, that these claims do not cover. For instance, the third claim is extremely narrow. A competitor who excludes the eraser, or who uses a different mixture of clay and graphite, would not infringe (at least literally; see Chapter 8). Hence a variety of claims with ranges intermediate those of claims 2 and 3 can be imagined that capture different embodiments according to the parameters in the problem. This is especially true of the graphite/clay mixtures. The point is to show the wide variety of potentially infringing devices that must be imagined to draft effective claims. This also has the effect of making students more attuned to the precise language of claims in the cases, and perhaps more forgiving of those who drafted those claims!

A New Cup Holder

The cup holder example provides a real-world problem in claim drafting. The chart on page 45 in the book (table 1-1) catalogues the relevant prior art. The best way to approach this exercise in class may be to start with the actual solution reached by the attorney who prosecuted this patent and then to proceed to consider variations. One of the actual claims in this patent reads:

I claim:

4. A holder for encircling a liquid-containing cup to reduce the rate of heat transfer between the liquid contained in the cup and a hand gripping the holder encircling the cup, comprising

a band of material formed with an open top and an open bottom through which the cup can extend and an inner surface immediately adjacent the cup, the band including

a plurality of discrete, spaced-apart, approximately semi-spherically shaped depressions distributed on substantially the entire inner surface of the band so that each depression defines a non-contacting region of the band creating an air gap between the band and the cup, thereby reducing the rate of heat transfer through the holder.

A good exercise is ask students why each part of this lengthy claim was included. Note, in particular, claim's long preamble (which identifies the "work piece" of the invention—a cup); the identification of the "inner surface" of the band but not the outer surface (which is not necessary for the functioning of the invention); and the reference to the "air gap" (which had to included in the claim to distinguish the Miller cup).

A simpler version of this claim would be:

I claim:

4. A cup holder for encircling a cup comprising

a band of material formed with an open top through which the cup can extend and an inner surface immediately adjacent the cup, the band including

a plurality of discrete approximately semi-spherically shaped depressions distributed on substantially the entire inner surface of the band so that each depression defines a non-contacting region of the band creating an air gap between the band and the cup.

This shorter claim reduces the overly long preamble and eliminates the "open bottom" language from the description of the band. Yet the claim still includes narrowly language such as "discrete approximately semi-spherically shaped depressions." Students should recognize that this language may be necessary to distinguish the Coffin cup holder.

D. OVERVIEW OF THE PATENT SYSTEM

The section, "Overview of the Patent System," defines many terms of art that students will encounter in reading the cases. Students should at least skim this material so that it can be used as a reference throughout the course.

The section also provides an overview of the legal process for (i) obtaining patent rights and (ii) enforcing them in infringement actions. Figure 1-5 summarizes the major components of the process; it is reproduced in the

accompanying slides. While the basic components of the patent system are well known to any instructor, they should be explained the students in any introductory course.

Finally, one point to stress in explaining the patent system is that the infringement action always involves a comparison between a legal document—the patent, or more accurately, the patent’s claims—and a real world process or device, generally called the accused devices. It is important to stress that the *inventor’s* patent defines the legal rights and that, in almost all cases, what the inventor has or has not constructed is irrelevant to defining the scope of patent rights.

You may wish to emphasize current scholarly and practitioner interest in structural reforms in the patent system: patent reform legislation, proposals for greater deference by the Federal Circuit to the PTO, and proposals to end the federal Circuit’s exclusivity in patent appeals.

E. GLOBALIZATION AND PATENT RIGHTS

The final section in the introductory chapter discusses a frequent theme in the book—that the process of international lawmaking has always been important to the field of patent law and that its importance is only growing. This section divides the international developments into three major pieces: (i) the Paris Convention of 1883; (ii) the process consolidation of the 1970’s, including the adoption of the Patent Cooperation Treaty and the European Patent Convention; and (iii) the substantive harmonization begun in earnest by the TRIPs Agreement.

TRIPs agreement is the most important of these international developments, and yet even this need be covered little at the beginning of the course because the important provisions of TRIPs will be discussed elsewhere in the book, particularly in the patentable subject matter of Chapter 2. Still, if TRIPs is mentioned in class, students should be aware that TRIPs had significant impact even on the law of a developed nation such as the United States. In particular, TRIPs required the U.S. to make at least three major changes to U.S. law:

- It required the expiration date of U.S. patents to be 20 years from the date the patent application is filed, rather than 17 years from the date of issuance.
- It required the U.S. to eliminate geographic discrimination and to allow the introduction of foreign activities for purposes of establishing a date of invention.
- It required the U.S. to extend the definition of infringement to include the acts of unauthorized offering for sale and importing.

These changes, of course, were accomplished by legislation; the TRIPs agreement is not a self-executing treaty.

CHAPTER 2: PATENTABLE SUBJECT MATTER

Patentable subject matter is both a natural beginning to the student's introduction to the Patent Act and an excellent tool to start the student's critical thinking about the purpose and challenges of the U.S. patent system.

The student should complete Chapter 2 with an understanding of the foundations for § 101, the historical roots of patentable subject matter doctrine, and the current jurisprudence that limits patentable subject matter. Specifically, the student should understand how the debates over biotechnology, software, and business methods have served to develop the doctrine of patentable subject matter to its current state.

A. INTRODUCTION TO THE PATENT ACT

Diamond v. Chakrabarty, 447 U.S. 303 (1980).

Dr. Chakrabarty, a microbiologist, sought patent rights covering (i) the process for making a human-engineered, oil-eating bacterium; (ii) an inoculum comprising a carrier medium and the bacterium; and (iii) the bacterium itself. The examiner allowed the process and inoculum claims, but disallowed the claim to the bacteria themselves, arguing (in the alternative) that 1) the bacteria were non-patentable "products of nature," and 2) living things were not patentable under § 101. The case reached the U.S. Supreme Court on the issue of whether the bacteria, as living things, were patentable under § 101.

In reaching its decision in support of patentability, the five-member majority rejected the argument that, by enacting the 1930 Plant Patent Act and the 1970 Plant Variety Protection Act, Congress indicated its understanding that § 101 of the general Patent Act did not cover living things. The majority stresses that § 101 is a dynamic provision intended to cover new invention that could not have been foreseen at the time of the statute's enactment. The Court emphasized the purpose of patent law in rewarding innovative advances to human knowledge and the statute's broad, sweeping language in support of that purpose. Finally, the Court declined to introduce bioethical considerations into its determination of patentable subject matter, deferring to the greater institutional competence of the Executive and Legislative branches for such matters.

Instructor Talking Points

- *Chakrabarty* serves several purposes in this chapter. The *Chakrabarty* opinion is a good exposition of the historical development of the law of patentable subject matter, beginning with the U.S. Constitution and the Patent Act of 1793 through to the modern Patent Act.

- Importantly, the *Chakrabarty* majority ties together the traditional categories of non-patentable subject matter, “laws of nature, physical phenomena, and abstract ideas,” by identifying their collective lack of human agency.
- The opinion’s assertion that “anything under the sun made by man” is patentable has set the standard for modern courts’ human agency test for patentable subject matter under § 101.
- The decision serves as the cornerstone for the U.S. biotechnology industry. *Chakrabarty* remains bedrock law for biotechnology patents in simple and complex life forms and their derivatives.

Class Discussion

- Why are “discovered” things not patentable? Does the Constitution require this limitation on patentable subject matter? Would a biologist’s discovery of a new medicinal plant be patentable under the Constitution? The Patent Act of 1952? The discussion here should focus on the language of Article 1, Section 8, clause 8 of the Constitution and § 101. Arguably, the constitutional text permits the patenting of mere discoveries, while § 101 in its judicial interpretation poses stricter standards.
- Why are newly discovered laws of nature not patentable? While the “law of nature” limitation on patentability is also judicially created, it could also be based on the text of § 101. The statute allows patents to be granted on “useful process, machine, manufacture, or composition of matter,” and § 112 requires the utility to be disclosed so that a person of ordinary skill in the art can practice the invention. Even without the judicial gloss on § 101, a law of nature without more is just an explanation. It is not in itself “useful” and is not a “process, machine, manufacture, or composition of matter.”
- Why isn’t Chakrabarty’s invention just a newly discovered principle of nature? This question requires students to recognize that Chakrabarty’s invention could be viewed merely as an exploitation of the principle of nature that hydrocarbon degrading plasmids can be inserted into a living bacterium. At some level, all inventions can be viewed as “principles of nature” because all inventions abide by, and exploit, the laws of nature. If the invention is, however, useful and falls within a category of § 101, it will not be viewed as unpatentable merely because it could be viewed as an exploitation of natural phenomena.
- Why don’t the Plant Patent Act and the PVPA show that Congress assumed living things to be unpatentable? This question allows the students to review the reasoning in the majority opinion, which explains that the PPA and PVPA were enacted because Congress believed plant cultivators could not satisfy § 112 of the statute.

- Why is this decision so important if Chakrabarty could have obtained process claims anyway? Students should recognize that the Chakrabarty's composition of matter claims offer more intellectual property protection than his process claims alone.
- Would a cloned human be patentable under the holding in *Chakrabarty*? What is the decision's actual breadth? Students should be able to identify the broad holding of *Chakrabarty*. The case is most frequently identified with the statute "anything under the sun that is made by man" is patentable.

B. The Bar to Patenting Laws of Nature, Physical Phenomena and Abstract Ideas

1. Historical Foundations

The instructor should cover *O'Reilly v. Morse* and *The Telephone Cases* together.

O'Reilly v. Morse, 56 U.S. 62 (1854)

Samuel Morse received patents on eight claims addressing the mechanism and use of the telegraph. The appellant defended an infringement action brought by Morse by challenging the validity of Morse's patents. The eighth claim, in particular, claimed "the use of . . . electro-magnetism, however developed for marking or printing intelligible characters, signs, or letters at any distance."

The Morse Court upheld seven of Morse's claims, but held the eighth claim invalid. The Court emphasized that electromagnetism's ability to transmit information was a principle of nature not patentable. The Court reasoned that Morse's invention was not that electromagnetism could be harnessed to print letters at a distance, but a particular method for doing so.

The Telephone Cases, 126 U.S. 1 (1888)

The Court consolidated five actions into *The Telephone Cases* and sustained the validity of Alexander Graham Bell patent for an "Improvement in Telegraphy." Bell's opponents asserted that Bell's broadest claim, for a "method of . . . transmitting vocal or other sounds . . . by causing electrical undulations," was little different from Morse's sweeping, and invalidated, claim for using electricity to mark or print letters at a distance. However, the Court distinguished Morse from Bell's case by pointing out that Bell did not claim the use of electricity in general for telegraphy, but a method of manipulating the current (by "undulation") to transport speech. The Court emphasized that Bell was the first to modulate current in this manner, making his patent a valid claim on his invention.

Instructor Talking Points

- The Court's opinion points out other problems with Morse's claim beyond its subject matter. In particular, claim eight was beyond the scope of Morse's contribution to the art. The concept of using electricity to transmit information was widely known in the art at the time, and numerous inventors were working to harness that power in a practical mode.
- The *Morse* opinion also makes the point that a patentee's specification, or disclosure, must enable the scope of what the patentee claims. The *Morse* opinion is often interpreted as holding that Morse failed to satisfy the enablement requirement for claim eight.
- A comparison of *Morse* and *The Telephone Cases* shows that patentable subject matter issues often blend into what today are considered enablement issues, especially the requisite fit between an inventor's disclosure and claim breadth.

Class Discussion

- If Morse had been the first to discover that electricity could be used, in the abstract, to transmit information at a distance, would his eighth claim have survived judicial scrutiny? If Morse had disclosed the only known manner of using electricity to transmit information at the time of his discovery, then Morse might have merited a pioneering patent as requested in claim eight. Note that such a patent would not have catastrophic consequences for the infant electronic communications field because the patent would have expired long before even telegraph communications were perfected.
- Could Bell have patented "the transmission of vocal sounds with electricity? Probably not. The claim would have been beyond the scope of his contribution, e.g., the method involving undulations of the current.

2. Patenting of Natural Substances and Living Things

a. Patenting of Purified Natural Substances

Parke-Davis & Co. v. H.K. Mulford & Co., 189 F. 95 (S.D.N.Y. 1911) (L. Hand, J.)

The inventor claimed (i) a form of adrenaline in base form; and (ii) an adrenaline salt, extracted from animals and purified to a level greater than that

achieved by other prior efforts. The inventor obtained patents on both the base adrenaline and purified adrenaline salt. He assigned the rights to Parke-Davis. In a subsequent infringement action, H.K. Mulford challenged the validity of the adrenaline patents, arguing, among other objections, that as a naturally-occurring substance adrenaline was not a proper subject for a patent.

In reaching his decision, Judge Hand took note of the significant efforts researchers in the biomedical field had been making to improve adrenaline compounds and the almost immediate and widespread impact the patented product had made in the field. In holding the patents valid, Judge Hand emphasized the significant commercial and therapeutic uses for the patented adrenaline, noting that the product was “for every practical purpose a new thing commercially and therapeutically.” Judge Hand found the purified adrenaline both a nonobvious and unanticipated advancement over the prior art, and a distinct product from its naturally-occurring alternative.

Instructor Talking Points

- *Parke-Davis* holds that purified adrenaline is a “new” (and therefore patentable) substance because its commercial and therapeutic applications go beyond preexisting forms, including the natural material. In so holding, the case treats naturally occurring substances as prior art which the inventor must overcome under novelty and nonobviousness analyses.
- Before *Chakrabarty*, there was *Parke-Davis*. *Parke-Davis* is another foundational case for the biotechnology industry. The well-reasoned opinion distinguished a 19th century line of cases that prohibited the patenting natural substances. That older line of cases had, however, always equivocated on the very issue that Learned Hand tackles in this case—whether a natural substance could be patented if it had merely been purified.
- *Parke-Davis*’s definition of “newness” in industrial and practical terms shows the close connection between patentable subject matter and the utility requirement.

Class Discussion

- Based on *Parke-Davis*, could the discover of a medicinal plant in the Amazon patent its extract? A concentrated form of its extract? Patentability under *Parke-Davis* depends on whether the extract or its concentrated form are practically different and whether the steps of extraction, concentration or purification are nonobvious advances.
- What if it can be proven that an indigenous population had been using the plant for the treatment of illness by boiling large quantities of the plant down to a thick paste and then consuming the paste? The

important point to see here is that *Parke-Davis* merely establishes the concentrated paste or purified extract to be patentable for purposes of § 101. The applicant must still be able to clear problems of prior art under § 102 and nonobviousness under § 103. Thus, if the indigenous population were within this country, their use might constitute prior art under § 102(a). If the indigenous population is in a foreign country, their use might not be prior art. Still, the “discoverer” of the plant could not copy the extraction method from the indigenous population because copying is impermissible under § 102(f).

- Can an inventor ever get a patent on the genes of a human? This question is raised in the notes following *Parke-Davis*. The question is so important that it should be reviewed in class. The answer is, of course, “No!” An inventor can patent only the isolated and purified gene sequence, not the gene as it exists in the human body (which is a naturally occurring substance).

a. Patenting of Simple Organisms and Plants

Funk Bros. Seed Co. v. Kalo Inoculant Co., 333 U.S. 127 (1948)

The inventor sought patent protection for the combination of certain naturally occurring bacteria proven beneficial to farmers. The resulting product enabled farmers to make a single application of the patentee’s product in lieu of several applications of different beneficial bacteria to their crops. Prior to the inventor’s work, it had been assumed that the different bacteria could not be packaged together, since prior combinations had shown mutually inhibitive behavior, limiting the combination’s effectiveness. The patentee, however, had discovered that selected strains of the bacteria did not produce such interference and sought protection for both his demonstrated combinations and any future combinations demonstrating non-inhibitive behavior.

The Court held the patent invalid, but its reasoning is complicated and bound up in the then-existing view of the “invention” doctrine (the precursor to nonobviousness). The Court first decided that the bacteria themselves and their non-inhibiting behavior were natural phenomena. This did not decide the case, however, because the inventor’s claims were for “an inoculant”—i.e., the inventor was claim the bacteria packaged together as a commercial product for inoculating crops. That commercial product was *not* a product of nature, and the Court recognized that the creation of the commercial product (the packaged non-inhibiting bacteria) was a “product of skill”—i.e., it was a product of human intervention. However, the Court decided that combination of the bacteria was not a “product of invention” because “once nature’s secret of the non-inhibiting quality of certain strains of the species of [bacteria] was discovered, the state of the art made the production of a mixed inoculant a simple step.”

Instructor Talking Points

- *Funk Brothers* is often misread. The case actually consists of two parts, one which is not controversial and one which is. The holding that the bacteria are products of nature is straightforward; no one would disagree. That holding does not, however, decide the case because the inventor was claiming an “inoculant” which the Court plainly recognizes as a “product of skill”—i.e., it is a product of human intervention. Thus, under *Chakrabarty*, the inoculant passes the § 101 threshold. *Funk Brothers* does not hold the inoculant to fail a § 101 analysis—i.e., it is not inconsistent with *Chakrabarty*. Rather the Court holds that, given the natural discovery, the creation of the inoculant is too simple to constitute “invention.” In modern parlance, the Court concludes that the inoculant is obvious. It is this second step in the Court’s reasoning that is highly controversial, and may no longer be good law.
- *Funk Brothers* raises an interesting issue about the relationship between §§ 101 and 103 analyses. The question is whether an inventor can point to the discovery of a newly discovered natural phenomenon as the nonobvious feature of his invention. *Funk Brothers* suggests he cannot, but that approach is almost surely wrong today under modern § 103 analysis. The key problem is that the *Funk Brothers* Court treats the inventor’s core insight about nature as if that insight were part of the “prior art” of nature. Once that natural principle is discovered (the noninhibiting quality of certain bacteria), the exploitation of the principle (packaging the bacteria into an inoculant) is simple and obvious.
- An alternative basis for invalidating the inventor’s claims in this case is found in Justice Frankfurter concurring opinion. Frankfurter was concerned about the scope of the inventor’s claims—he claimed all non-inhibiting combinations even though he had found only a few combinations and he did not have a general formula for predicting which additional combinations would be non-inhibiting. This basis for invalidating the claims falls under the “enablement” doctrine, which is covered in Chapter 4. Frankfurter concurrence is similar to the *Incandescent Lamp Patent* case.

Class Discussion

- Given the state of telegraphy by the time of Bell’s patent application, could his claim for a “method of . . . transmitting vocal or other sounds . . . by causing electrical undulations” survived the Funk Bros. test? Isn’t it a “principle of nature” that undulations of electric current can transmit vocal sounds? Once that “natural principle” is known, isn’t it a simple matter to construct a device exploiting that principle? Does it make sense to treat principles of nature as prior art (as opposed to actual products of nature)?

- What is the difference between a product of nature and a principle of nature? Policy rationales against removing something tangible from the public domain caution against allowing patents for naturally occurring products. The rationale differs, however, with principles of nature, since all insights can be classified, at some level, as merely elucidating a principle of nature.

c. Patenting Multicellular Creatures and Higher Life Forms

Instructor Talking Points

- *Ex Parte Allen* removed any doubt that higher life forms were eligible for patent protection. One year later, Doctors Leder and Stewart of the Harvard Medical School garnered a patent for their “onco-mouse,” a transgenic mouse useful as a cancer model in medical research.

Class Discussion

- How far do *Chakrabarty* and *Ex Parte Allen* indicate that the PTO should go in granting patents to higher life forms? Should all animals be patentable if a human has somehow altered their genetic structure?
- Note that in 2004, Congress enacted an appropriations rider (a legal limitation found in an appropriations bill) that precludes the patenting of a human organism. The rider—popularly known as the “Weldon Amendment”—reads: “None of the funds appropriated or otherwise made available under this Act may be used to issue patents on claims directed to or encompassing a human organism.” Consolidated Appropriations Act, 2004, Pub. L. No. 108-199, Division B, Title VI, § 634 (Jan. 23, 2004). What constitutes a “human organism” for purposes of this law? Consider Dr. Newman’s animal-human chimera discussed in note 6 in the book.
- Is there a difference between granting a patent for a farm animal and a patent for a new variety of household pet? Imagine that genetic engineering has produced a new variety of a Labrador Retriever without the well-known health risks the breed usually carries, such as hip dysplasia. Should a patent be granted? Should you have to pay a royalty to the inventor when your patented puppy has puppies of its own? Or is this second generation somehow different?

3. The Software Controversy of the Late Twentieth Century: Benson and its Progeny

Gottschalk v. Benson, 409 U.S. 63 (1972)

The applicant sought a patent on a new method for converting binary-code decimal numbers into their equivalent pure binary form. The process had significant benefits and prospects for use in the newly developing digital computer programming field, although it could also be performed manually. The patent office rejected his application, but the Court of Customs and Patent Appeals reversed the patent office and granted the process claims.

In reviewing the applicable case law, the Court noted that patentable processes were typically embodied in a machine or apparatus or directed to the transformation of a physical substance. The opinion treated the claimed method as a pure mathematical formula, and analogized it to an unpatentable principle of nature. In reversing the lower court, the Court characterized the claimed process as an unpatentable algorithm or abstract idea.

Instructor Talking Points

- *Benson* was the first case involving software to reach the Supreme Court. At the time, the Patent Office was consistently rejecting applications for software patents.
- The opinion in *Benson* is, to put it mildly, not an example of clear judicial reasoning. Its author is Justice Douglas who, by the end of his career, had gained a reputation for writing quickly and sometimes not carefully. Students should be encouraged to try to state the holding of the case; it is maddeningly difficult to do so. On page 135, the Court says that a patent cannot be obtained if the “practical effect” would be to patent the “idea” of a “mathematical formula.”
- One of *Benson*’s many flaws is that it fails to distinguish between the two claims at issue. Claim 13 is a broad claim on the process of transforming data; literally, it would cover data processing done by a human with pencil and paper. Claim 7, however, is clearly a process directed to a computer; it is not infringed unless the process uses a “re-entrant shift register.” Justice Douglas glides over this point by reasoning that, because the formula would have “no substantial practical application except in connection with a digital computer,” the patent claims should be treated as if they were a “patent on the algorithm itself.”
- While the *Benson* decision technically remains good law, *Diamond v. Diehr* and *Chakrabarty* have surely limited the decision at the Supreme Court level. At the Federal Circuit level, *Benson* has been eviscerated. Even before the *State Street* decision, *Diehr* and lower court precedents allowed applicants to rely on “machine claims,” in which applicants characterized their algorithms as embodied within a machine that performs the claimed function. *State Street* makes even this fiction unnecessary.
- Underlying issues in *Benson* may have been the broad scope of the applicant’s claims and the newness of the field at the time. Policy

considerations (rightly or wrongly) surrounding the infancy of the field may have swayed the Court against patentability. The reasoning in the opinion is highly unclear, but the Court goes out of its way to emphasize that the holding is narrow and specifically avoids holding that process patents must “either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing” or that that patents cannot cover programs for a digital computer.

Class Discussion

- Under *Benson*, could an applicant claim a new method for converting roman numerals to arabic numbers? The *Benson* Court would view the method as a mere algorithm and find it not patentable. How about a claim for the method as embodied in a computer? Under subsequent case law, the method as embodied in a computer is almost certainly patentable (assuming novelty, nonobviousness, and utility) (see *In re Alappat*, in the Notes after *Diehr*).

Diamond v. Diehr, 450 U.S. 175 (1981)

Respondents sought to patent a process for curing synthetic rubber. The process improved on past practices through the use of a computer and well-known mathematical relationships to provide continuous feedback throughout the curing process on cure temperature and time to completion. The patent examiner rejected the claims on the grounds that they included computer programs, a nonpatentable subject matter. The Patent and Trademark Office Board of Appeals affirmed the examiner’s decision, but the Court of Customs and Patent Appeals reversed and the Patent Office sought certiorari.

In a five to four decision, the Court upheld the patent and distinguished *Diehr* from *Benson* by noting that the respondents were not seeking to patent a mathematical formula, but a process directed at a particular end product—the curing of synthetic rubber. The inclusion of a computer program utilizing known mathematical formulae within the process did not make the process as a whole unpatentable. The Court emphasized that the claims were directed on a whole to patentable subject matter, and that the algorithms inherent in the respondents’ process would still be available to the world for uses other than those covered by the respondents’ patented computerized process.

Instructor Talking Points

- *Diehr* was the end of a line of cases in which the Supreme Court invalidated patents under § 101. In fact, the Court took no cases on the meaning of § 101 for 20 years after *Diehr* until *J.E.M. AG Supply*, in which it upheld the patents at issue.

- Note that the dissent in this case—which *four Justices joined!*—would have precluded all patenting of software. A single vote in this case could have dramatically affected the course of the law.
- The Federal Circuit was established shortly after the Court decided *Diehr*. The Federal Circuit has relied on *Diehr* and *Chakrabarty* to build a line of cases that has gradually narrowed the application of *Benson*'s “abstract ideas” exception to patentable subject matter.

Class Discussion

- Would a computer program that translated languages be patentable under *Diehr*? The answer depends on the interpretation of *Diehr*'s holding. The more expansive interpretation—that software generally is patentable—would indicate yes, a translation program is patentable. A more restrictive view of *Diehr* is that only processes that transform tangible things are patentable. The Federal Circuit and the Patent Office have plainly adopted the broader interpretation and, in fact, many patents have issued on computer speech recognition and translation processes.
- How restrictive could the patentable subject matter doctrine become if the Supreme Court, in future cases, chose to interpret *Diehr* narrowly and *Benson* broadly? The answer, of course, is “very restrictive.” While the Federal Circuit's case law charts a clear path that broadly permits patenting of software, the Supreme Court case law is much more ambiguous. The Court could dramatically restrict patenting of software without overruling any of its precedents.

4. The Demise of the Limits: *State Street*

State Street Bank & Trust Co. v. Signature Financial Group, Inc., 149 F.3d 1368 (Fed. Cir. 1998)

Signature held the rights to a patent directed at a financial investment structure, management, and tracking scheme as embodied in a computer program. State Street brought a declaratory judgment action against Signature and argued that Signature's patent was invalid for failure to claim patentable subject matter. The district court interpreted Signature's claims as process claims and held them unpatentable as nonstatutory subject matter under section 101.

The Federal Circuit interprets Signature's claims as a machine claims but ultimately holds that the distinction between machine and process claims “is of little relevance” for determining whether the claims are patentable subject matter because both machines and processes are statutorily permissible

categories for patenting under § 101. The court then relies on *Diehr* and *Chakrabarty* to interpret § 101 broadly. The court emphasizes that algorithms are ineligible for patent protection only to the extent that they are merely expressions of abstract ideas. Sweeping away even the modest limits in prior Federal Circuit case law, the court holds that a data transformation through a series of mathematical calculations (in a machine or by a process) is within patentable subject matter so long as the transformation “constitutes a practical application of a mathematical algorithm” in the sense that it produces a “useful, concrete and tangible result.” The court reversed the district court and held that Signature’s financial scheme resulted in the tangible transformation of financial assets with practical utility to its users, and therefore was validly patented.

Instructor Talking Points

- State Street is the culmination of modern § 101 interpretation. The opinion indicates that only pure math, unconnected to an application, remains unpatentable under § 101. The opinion strongly indicates that software is broadly patentable and does not require couching as a “machine” claim. The emphasis on a useful, tangible application essentially collapses the patentable subject matter inquiry into a utility analysis.
- • The cases related to principles of nature have broad dicta but narrow holdings. *Morse* holds that the claim is too broad, and that holding is easily justified, though today it might be viewed primarily as an enablement problem. *Morse*’s treatment of the Neilson case suggests that a patent could cover all practical uses of a principle of nature provided that the claim goes to a machine or process otherwise patentable. The Telephone Case shows again that a claim may cover broadly all or nearly all known practical uses of a particular natural principle (e.g., in that case, that current undulations can carry speech). *Diehr* is narrowly directed to an industrial process for changing a tangible substance; the Court leaves undecided other software patents. *Diehr* does hold that the claim as a whole should be evaluated for 101 purposes, without regard to novelty; thus a claim could be patentable even if the only new element would itself be unpatentable. Breyer’s dissenting opinion in *LabCorp* states a broad rule of unpatentability and would have cut back on *Diehr*. *State Street* attempts to limit 101 issues largely to the utility doctrine. A broad list of factors seem to sway the courts in 101 analysis, including (1) the degree of connection to tangible elements (2) the extent to which the claim covers mental processes, (3) the degree to which the claim could be viewed as “basic” science, and (4) the extent to which the claim is mathematical.

Class Discussion

- After *State Street*, does it matter whether claims for computer programs are phrased as machine claims or process claims? No, at least as a matter of Federal Circuit law, *State Street* held this distinction immaterial. Of course, the Supreme Court could disagree. Practitioners looking to secure patent rights for 20 years might still hedge their bets against the possibility that the Supreme Court could reenter this area and change the law.
- Could an applicant successfully claim an algorithm used only in computer programs, without an application beyond software? Under *Diehr* and *Benson*, the answer is arguably no. Under *State Street*, however, the algorithm is likely “useful” inasmuch as it transforms information in a manner beneficial to computer function and hence the computer user. The Federal Circuit seems to interpret *State Street* broadly so, for example, it held in *AT&T v. Excel Communications* (in notes) that a computerized process based on a “simpl[e] mathematical principle” was patentable because the process resulted in the storage of data useful to a company.
- What would be unpatentable under *State Street*? The answer is, of course, very little. Nevertheless, it is interesting to ask the question to the class and to listen to examples proposed by students. Most examples that students are likely to propose can probably be patented under *State Street*. Examples that might have problems under *State Street*—e.g., a claim to computer use of all applications of a mathematical formula—will most likely raise serious questions under the utility doctrine.
- Although the Supreme Court has never explicitly held that software is patentable subject matter, the Court’s decision in *Microsoft v. AT&T* indicates implicit acceptance. In *Microsoft*, the Court held that the export of “gold master” disks of software for copy and distribution abroad did not violate the prohibition on supplying “components” of patented invention in 35 U.S.C. § 271(f). By entirely bypassing validity under section 101, which would have obviated the need for deciding the 271(f) issue, the Court seemed to indicate that the issue of software patentability under section 101 was settled.

C. Field Restrictions on Patenting: Business Methods, Medical Procedures, and Other Disfavored Areas

1. Business Methods: Part 2 of State Street

State Street Bank & Trust Co. v. Signature Financial Group, Inc., 47 U.S.P.Q.2d (BNA) (Fed. Cir. 1998)

In invalidating Signature's patent, the district court in *State Street* also relied on an historical judicial exception to patentable subject matter, the business method. In overruling the district court on its business method analysis, the Federal Circuit rejected the business method exception in its entirety. The court noted that neither it nor its predecessor had ever invalidated a patent because it was directed to a business method. The court agreed with the Patent Office that claims for business methods should be treated equally with other process claims, and the determining factors for patentability of business method process claims should be utility, novelty, disclosure, and nonobviousness.

Instructor Talking Points

- The somewhat elusive business method “exception” arose from pre-1952 case law, which required a patentee to show “invention,” instead of the more discrete inquires of patentable subject matter and nonobviousness. This case law often blended together the analysis of whether the method was patentable and whether it was nonobvious.
- The world does not necessarily share the United States’ new-found openness to patenting business methods. Europe, in particular, excludes business methods from its concept the “technology” that can be the subject of a patent.
- Congressional response to *State Street* impliedly recognized the validity of its business method holding. Congress passed legislation allowing a prior user defense for business method patent infringement actions, carving out such patents for special treatment.

Class Discussion

- Under *State Street*, would a business method unrelated to a computer program be patentable, for example, a step-by-step approach to sales that proves to increase buyers’ receptivity to offers? The *State Street* doctrine does not appear to place a patentable subject matter barrier to such a claim.
- Does the congressional creation of a prior user defense violate the TRIPs Article 27 requirement that patent rights be available without discrimination to all fields of technology? Perhaps. The European response would be to say the business methods are not a field of technology. The U.S. approach, however, appears to treat business methods as a field of technology.
- What would happen if the Supreme Court addressed the issue of whether business methods were patentable? The court would have to address both the statutory language of section 101 and the congressional recognition of business methods in the new section 273. Do *Benson* and earlier cases define “process” too narrowly to include business methods? Would the

case be like *Chakrabarty* (where the court refused to create a new exception for living matter)? Or is that case different? What policy arguments can differentiate or assimilate business with engineering?

- New cases have raised fresh questions of patentability under section 101. *In re Nuijten*, 500 F.3d 1346 (Fed. Cir. 2007), concerned a patent application claiming a signal that contained a “watermark” without being tied to a particular type of signal or technology. When it upheld the rejection on subject matter grounds, the Federal Circuit held that claims to a signal are unpatentable under section 101 because a signal, even if tied to a transitory form (e.g. a radio broadcast), does not fall within the section 101 categories of “process, machine, manufacture, or composition of matter.” *In re Comiskey*, 499 F.3d 1365 (Fed. Cir. 2007), concerned a patent application claiming a method of arbitration that could be performed without any particular technology. The Federal Circuit held the claims unpatentable on the ground that they covered mental steps and “the use of human intelligence in and of itself.” In *Ex parte Bilski*, Appeal No. 2002-2257, slip op. at 32 (B.P.A.I. Mar. 8, 2006), the BPAI held that a managing method of risk at a reduced cost was unpatentable because the method could be performed without “transformation of physical subject matter from one state to another.” Taken together, these cases suggest that subject matter may have renewed importance as a bar to patentability.

2. Medical Procedures

Instructor Talking Points

- Medical techniques have a spotty patent history. *Morton v. New York Eye Infirmary*, 17 F. Cas. 879 (C.C. S.D.N.Y. 1862), is an early example of the courts’ hesitation to permit the patenting medical procedures. Yet *Morton* did not hold that all medical patents were invalid; it merely found that the process at issue there was not a patentable advance over the prior art. Two decades later, the Patent Commissioner relied on *Morton* in declaring medical procedures unpatentable in *Ex parte Brinkerhoff*, 24 Comm’n Manuscript Decision 349 (Pat. Comm’n 1883).
- *Ex parte Scherer*, 103 U.S.P.Q. (BNA) 107 Pat. Off. Bd. App. 1954), officially overturned the disfavor given medical procedures in the Patent Office, but the office had granted several medical procedure patents even before *Scherer*.
- While medical procedures are still patentable, the ability of the inventor to receive any return on his or her patent has been severely limited. Litigation over a patented procedure to perform eye incisions, see *Pallin v. Singer*, 36 U.S.P.Q.2d (BNA) 1050 (D. Vt. 1995), sparked controversy over the policy to permit such patents. Congress responded by exempting

medical practitioners and their associated medical facilities from liability for infringement on such patents. See 18 U.S.C. § 287(c) (2000).

Class Discussion

- What is the value of a surgical procedure patent? Could anyone be successfully sued for damages? One common use of surgical procedure patents is to protect a market in the tools to accomplish the surgery. For example, consider an inventor who finds a new technique for accomplishing a particular type of surgery. The surgery requires specially designed tools but, let's assume, the tools themselves cannot be patented because they are disclosed in the prior art or are obvious extensions of the prior art. If the inventor patents the surgical technique, she may be able to sue the provider of the specialized tools for contributory infringement. Of course if the tools for performing the surgery are common tools with many noninfringing uses, then the inventor will not be able to succeed against the tool supplier.
- What is the reach of TRIPs article 27(3)(a)? Can a nation deny a patent to a process of treating a human disease with a previously known drug? The answer here is arguably yes. Some nations have begun asserting that TRIPs article 27(3)(a) allows denying patents on so-called second medical indications or uses for known drugs. Of course, nations must make patents available for new drugs, but once the drug is known, subsequent uses of the drug could be viewed as a "therapeutic ... method for the treatment of humans." Does limiting patentability in this way make sense? What incentives does this provide for pharmaceutical firms to test known drugs for new beneficial properties?

3. Software

Computer Program Product/IBM, T 1173/97-3.5.1 (EPO Bd. of Appeals July 1, 1998)

IBM sought patent protection for a claim to a "computer program product." The claim seemed to fall squarely within the EPC's exclusion from patentability of "programs for computers." Nevertheless, the EPO Board of Appeals here interprets—one might say eviscerates—the computer program exclusion so as to allow IBM's claims.

Class Discussion

- Why does this case turn on the meaning of "technical character"? Is this a phrase used in the EPC? It is important for students to see that the EPO

Board of Appeals has itself created the concept of “technical character” or “technical effect”; it is not a phrase used in the EPO itself.

- What constitutes an effect having a “technical character” as defined in this opinion? Students should try to identify the point in the opinion where the EPO Board of Appeals defines “technical character.” Inevitably, the students will fail because the EPO never does provide a definition of “technical character.” In paragraph 6.3 and again in 6.6, the Board makes clear that a “technical character” cannot be found merely because the program runs on a computer and controls the functioning of hardware in the computer. Yet nowhere does the Board define what a technical effect *is*. In paragraph 6.4, the Board is already referring to “technical character *in the above sense*” and yet nowhere prior to paragraph 6.4 does the Board tell us what that sense is.
- What is the technical effect produced by IBM’s program? Again, the opinion obfuscates. However, the result in the case is plainly broader than a decision such as *Diehr* because IBM’s claims did not relate to the processing of a physical substance (such as rubber) but instead concerned an process for controlling other computer programs and processes.
- Note that, in the end, IBM receives a patent on a “computer program.” Has the EPO interpreted out of existence the EPC’s limitation patenting computer programs?
- Why does the EPO believe that computer programs such as IBM’s may have technical effects but that business methods such as a new pension system (see note 4 page 192) generally do not? Why aren’t advances in economics, finance and business “technical”? There’s no good answer to this question other than to say that the EPO does not view economics, finance and business as technical. Perhaps the real split between the US and the EPO comes down to this point: The US has seen an extensive and complicated financial industry blossom within its borders. To support this industry, numerous schools of business have arisen and gained stature. The US therefore views these fields as technical in the same sense as other fields of science and applied science. Europe is taking a more traditional stance and views business more as an art than as a science or applied science.

4. Sports Methods and Other Traditionally Disfavored Areas

Class Discussion

- What should remain unpatentable? In the United States after *State Street*, this question is the hard one. The class should be made to consider the periphery of patenting. Good examples are a new method (or style) of

painting; a new legal structure; and sports moves. Should any of these be unpatentable?

- Will the expansion of patentable subject matter lead to the creation or expansion of other patent law doctrines? For example, could sports moves or tax planning methods be excluded from patentability because they produce no **net** social benefit and thus have no net utility? (One person's gain is another's loss.)

Chapter 3: Utility

A. Introduction

The courts have traditionally sectioned their analysis of utility under § 101 into three components: operable utility, beneficial utility, and practical (or specific) utility. Operable utility only requires that the device do what the patentee claims it will do, and the practice of the Patent Office, which takes the inventor's claims as to operability as presumptively true, combines to make operability a low bar indeed. Beneficial utility, on the other hand, requires that the invention produce some positive rather than negative for society. This doctrine was invoked favorably by the courts in the late nineteenth and early twentieth centuries but, as shown in *Juicy Whip*, it is frequently used today. Practical utility represents the most important and controversial limit on patentability. As *In re Brana* shows, that bar is not very high today. Still, practical utility remains highly important in biotechnology cases, where researchers frequently discover new chemical and biological compositions but still have little understanding of their ultimate function.

Class Discussion

Students typically enjoy trying to distinguish between the three strands of utility doctrine through a series of hypothetical inventions. Which strand of utility doctrine (if any) would provide a basis for withholding a patent for the following inventions:

- A new method for freebasing cocaine? Answer: Even the narrow modern form of beneficial utility doctrine would probably preclude patenting of this invention. Freebasing cocaine is illegal throughout the United States and may be considered a matter of public morality. Note that TRIPs Article 27 (page 220) does not allow a nation to withhold patentability merely because “the exploitation [of the invention] is prohibited by domestic law.” Why does TRIPs impose this limit? Why would an inventor want a patent in a nation where the exploitation of the invention is illegal? Answer: The law may change.
- A business method for running a bordello? Answer: The modern doctrine of beneficial utility is so narrow that this invention probably *is* patentable. For better or worse, at least one jurisdiction in the United States (Nevada) does not prohibit all bordellos.
- A method for traveling backward in time? Answer: The Patent Office would almost certainly raise an “operability” objection here because time travel is thought to be impossible under currently accepted science. This hypothetical leads to two further questions:
 - 1) Why does the Patent Office bother denying patents on such inventions? After all, if the invention isn't operable, it can hardly

impose any bad economic effects, right? The only possible answer to these questions is that the Patent Office is in some small part motivated by a fear of fraud. Some unsophisticated people look upon a patent as a governmental judgment that the invention is workable and important. Those people might be hoodwinked into investing in the invention or in purchasing one.

- 2) How should the Patent Office respond if the inventor seeks more time to respond to an operability objection so that the inventor can undertake the time-consuming process of building her invention? This question shows a good reason why the Patent Office should generally *not* enforce the operability doctrine very stringently. Where the Patent Office does raise an operability objection, the inventor surely must be given the opportunity to respond. Yet often the inventor may need a great deal of time to prove operability—after all, the inventor will now have to build her invention. The patent system does not want to get into a position where it effectively denies patents to breakthrough inventions that would have been thought impossible.
- A new method for cooking chicken using a cyclotron (a multimillion dollar apparatus generally used for researching sub-atomic particles)? The Patent Office should probably allow this patent. True, it seems unlikely to succeed in the marketplace, but the economics of the invention should be determined by the market not the PTO.
- A new isolated and purified fragment of DNA which can be used in large quantities as a paper weight (assume that isolating and purifying this DNA fragment costs \$1 million per gram). The PTO would deny this patent. The problem here is that no one really wants this DNA for paper weights. The inventor is hoping that some other further utility will be found and then that further utility will be economically significant. This case is arguably different than the cyclotron hypothetical because a patent on cooking chicken is, by its terms, more limited. The patent on a composition of matter covers *all* uses of that composition. If the PTO allows the patent on the raw DNA with no serious practical utility, then the PTO has in effect given that first inventor some share in the royalties of a future inventor who ultimately finds the practical utility for the DNA.

B. Beneficial Utility

Lowell v. Lewis, 15 Fed. Cas. 1018 (C.C.D. Mass. 1817)

The defendant contended that the plaintiff's patent for a new form of mechanical pump was invalid for lack of utility because plaintiff did not demonstrate his patented pump was better than pumps previously in use. In rejecting the defendant's argument, Justice Story explained that the patent act required only that the invention have some practical use not "injurious to the

well-being, good policy, or sound morals of society.” Story’s interpretation of the utility requirement established morality as a primary concern and practical utility as a relatively modest standard.

Instructor Talking Points

- *Lowell* represents the 19th century view on beneficial utility, a view that prevailed into the twentieth century in the courts, but lapsed in general application over the last decades of the twentieth century, as embodied in *Juicy Whip*.
- Justice Story’s view of the utility requirement is both permissive and demanding. For practical purposes, an invention need not be generally useful, profitable, or even an actual improvement over prior art. On the other hand, the invention must comply with society’s morality standards to merit patent protection, even if a large number of people would profit from its use. Note, however, that Justice Story was not trying to establish a stringent beneficial utility standard. He was more concerned with rejecting the defendant’s argument that an economic benefit or usefulness must be proven.
- Recent debate about the morality of patenting certain biotechnology advancements such as human cell lines, transgenic animals, and cloning techniques and products has resuscitated at least a debate about the beneficial utility doctrine. In 1998, the PTO publicly stated that human/animal chimeras might not be patentable under the beneficial utility doctrine, but the agency ultimately rejected a patent application to a human/animal chimera on the ground that human hybrids do not constitute patentable subject matter under § 101. See Note 5, p. 218.
- In 2004, Congress enacted an appropriations rider (a legal limitation found in an appropriations bill) that precludes the patenting of a human organism. The rider—popularly known as the “Weldon Amendment”—reads: “None of the funds appropriated or otherwise made available under this Act may be used to issue patents on claims directed to or encompassing a human organism.” Consolidated Appropriations Act, 2004, Pub. L. No. 108-199, Division B, Title VI, § 634 (Jan. 23, 2004). What constitutes a “human organism” for purposes of this law? Does this new law show that the beneficial utility doctrine should be reinvigorated? Or does it show that matters of morality are properly left to the legislature, which can act when it sees fit?

Class Discussion

- Under Justice Story’s construction of the utility requirement, would a claim for a device designed to “allow a motorist to send electronic signals that interrupt traffic cameras, preventing such cameras from imaging

their vehicle” have beneficial utility? Probably not. The device’s sole purpose is to interfere with law enforcement, a purpose likely “injurious to the well-being, good policy, or sound morals of society.”

- How appropriate would it be for patent examiners to pass on the morality of inventions? Are examiners qualified for this role, or should such a challenge only arise in litigation over a patent’s validity, i.e., in the courts? Recall that the patent right is a negative right—a right to exclude others—and provides no affirmative right to practice the invention yourself if such practice is prohibited by other laws (e.g., the criminal code).

Juicy Whip, Inc. v. Orange Bang, Inc., 185 F.3d 1364 (Fed. Cir. 1999)

Juicy Whip sued Orange Bang for infringement of Juicy Whip’s patent on a drink dispenser, the usefulness of which derived from the dispenser’s appearance of dispensing the drink from a top, visible reservoir, when the device actually drew the drink from concentrate hidden beneath the countertop. The district court held that Juicy Whip’s patent was invalid for lack of beneficial utility under § 101 because its purpose was deception.

In overturning the district court’s decision, the Federal Circuit rejected a older line of cases refusing patent protection to deceptive technologies. The court pointed to other cases in which utility had been found for products designed to mimic more expensive alternatives. The court specifically found utility in a product’s ability to look like another product. The court’s decision was a refusal to use patent law to police deceptive trade practices, absent a specific directive from Congress to do so.

Instructor Talking Points

- *Juicy Whip* is widely acknowledged as representing the modern courts’ liberal interpretation of the beneficial utility requirements. The opinion essentially collapses the beneficial utility requirements into the practical utility inquiry. If there exists a practical use for the invention, then the invention is good for society.
- *Juicy Whip* may reserve one category of inventions for rejection under the beneficial utility doctrine: inventions illegal in all 50 states. Of course, under the court’s formulation, one could argue that an invention incapable of use within the patent law’s jurisdiction has no specific utility either, and could be similarly rejected on that ground.

Class Discussion

- Imagine again the device that interferes with traffic cameras. Assume the device is illegal in 49 states. Does the device have beneficial utility under

Juicy Whip? Probably yes. The device may be used in one state. If, however, all 50 states prohibited the device, *Juicy Whip* probably does not preclude a finding that the invention lacks beneficial utility.

- What if one state decides to change its laws five years after the patent office rejects an applicant's claim for the device? Should the applicant be allowed to reapply? Note that he may be barred from doing so under other areas of patent law, such as the statutory bars covered later in the course. What are the pros and cons of allowing the applicant to reapply once the device is legal, versus granting the patent in the first instance (which the patentee can't capitalize on until a state changes its laws). The students should address the policy behind the patent system, the nature of the patent right, and the implications for the how soon the device will enter the public domain under both scenarios.
- Does it make any difference that the states, and not Congress, have made the device illegal? The Federal Circuit said absent a specific directive from Congress, it would not use the patent laws to police technologies. Does the Weldon Amendment, discussed above, show that Congress will give very specific instructions when it finds an area of immoral inventions?

C. Practical or Specific Utility

Brenner v. Manson, 383 U.S. 519 (1966)

Manson was a Johnny-Come-Lately applicant who was trying to obtain patent rights to a process for making a known steroid even though the PTO had already awarded a patent on the same process to another group of inventors, Ringold and Rosenkranz. The sequence of events relevant to the case was as follows:

November, 1956: Ringold and others publish an article revealing that a number of compounds, including the steroid at issue, were being tested for tumor inhibiting effects. The article also shows that a compound closely related to the relevant steroid was effective in inhibiting tumors.

December 17, 1956: Ringold and Rosenkranz file a patent application seeking a patent on the new process for making the known steroid.

October 13, 1959: Ringold and Rosenkranz receive a patent on the process.

January, 1960: Manson files a patent application for the same process.

In order to get a patent, Manson needed to show that he had invented the process *and established a utility for it* prior December 17, 1956 (Ringold's date of constructive reduction to practice). Manson made two arguments. First, he

argued that the utility of the *process* was found merely in the production of the steroid. The lower court (the old CCPA) had adopted this argument and had reversed the Patent Office's rejection of Manson's application. Second, Manson argued that, if he needed to establish a utility for the steroid, then Ringold 1956 article disclosed the utility because it showed that a related steroid had tumor inhibiting effects.

The Supreme Court rejects both arguments and holds that Manson did not know a utility prior to December 1956. Thus, Manson had not invented prior to Ringold and Rosenkranz and could not obtain a patent. The Court required the claimed process to produce a product with demonstrated utility beyond as an object for scientific research. The Court pointed to the less than average homogeneity of the steroid class and an associated lack of evidence showing a sufficient likelihood that the produced steroid would have similar tumor-inhibiting characteristics to its proven classmate. In reaching its decision, the Court reasoned that the utility requirement was especially pertinent in the expansive field of chemical research, where a patent on a process or product without a demonstrated utility would grant a "monopoly of knowledge" unjustified by the contribution to the field.

Instructor Talking Points

- Manson is essentially the Supreme Court's only decision on the utility requirement, and the decision is more than four decades old.
- The most controversial part of Manson is its rejection of the reasoning of the Court of Customs and Patent Appeals. Assume that a firm is in the business of producing chemicals; it has no idea why its customers buy the chemicals. Can it patent an improvement in its processes for producing the chemicals? The answer Manson seems to give is that the firm cannot patent the improvement unless the firm knows of the use in which its customers employ the chemical. Moreover, if the customers are merely researching the properties of the chemical, then perhaps process improvement cannot be patented. Does this holding make sense from a policy perspective?
- The less controversial part of Manson is its holding that a chemical will not be viewed as having a utility merely because it is the subject of scientific inquiry. In other words, if this case had been about whether a patent could issue on the steroid, then the case would be easy because there was not yet any demonstrated utility for the steroid.
- The Court's decision aims to ensure that the utility requirement will not be rendered meaningless. The Court seems particularly concerned that wide-ranging product and process claims could have an inhibiting effect on the chemical industry, and the Court wants to limit an inventor's claims to the scope of the inventor's contribution to the field. We saw this concern before in Morse and The Telephone Cases.

- Note that the Court required Manson to have come up with a utility for the steroid as of his date of invention. By 1960, when Manson files, he surely must have known of a utility for this steroid. Indeed, the Patent Office already issued a patent on the process for making the steroid in 1957, so a utility must exist. Manson shows that the utility requirement affects the timing of patenting.

Class Discussion

- How much did the posture of the case influence the Court's treatment in Manson? Was Manson an appealing inventor?
- What would have been the adverse consequences (if any) of sustaining the reasoning of the Court of Customs and Patent Appeals? Could the Court have still ruled that composition of matter claims must demonstrate a practical utility other than research interest?
- Why are games and amusements patentable and yet not compositions of matter that are the subject of scientific curiosity? This comparison shows the real economic basis of the utility doctrine in this area. If an invention is designed solely to be a curiosity and nothing more, then the invention's ability invoke wonder will itself be viewed as a utility. On the other hand, if an invention sparks scientific curiosity—perhaps because it might have some other great utility (like curing tumors)—then the invention's ability to spark curiosity and wonder alone will not be considered a utility. Permitting a patent on the item of scientific curiosity is more likely to lead to *excessive reward* for the patent holder (who will obtain some benefits from future researchers). Also the initial and subsequent researchers will face *bargaining problems* as each individual's patents may foreclose the effective exploitation of the other's work (the "blocking patents" problem). The doctrine can only be understood in terms of the relationship between the asserted utility and the potential utility that the invention may have in the future.
- How did the field of research influence the Court's decision? The Court cited the relative unpredictability of the applicant's class of compounds over other chemical families. The predictability of the art can have a significant impact on how far an inventor needs to go before he or she can reliably assert a specific utility. A mechanical device, for example, may have prima facie utility, such as a new insulated cupholder, without evidence of consumer tests or trials. In this case, while the applicant suspected—even believed—his compound would prove useful, he could not rely on inference and his field's predictability to make the case for him.

In re Brana, 51 F.3d 1560 (Fed. Cir. 1995)

The patent applicant sought protection for antitumor substances, the efficacy of which the applicant had tested *in vitro* (e.g., in an artificial environment, not in live test subjects). The applicant also made favorable comparisons between the claimed substances and compounds previously found effective against specific human tumor models. While the applicant overcame an initial rejection by the patent examiner under § 103, the examiner ultimately rejected the claims for lack of utility. The examiner reasoned that the applicant had failed to identify a specific disease against which the claimed substances were active. The Board of Patent Appeals and Interferences affirmed the examiner's decision and the applicant appealed.

The Federal Circuit reversed the Board's decision, finding an implicit claim to efficacy against specific diseases in the applicant's favorable comparison of his substances to known antitumor agents found to be effective against two specific murine (i.e., mouse) tumor models. The court rejected the patent office's reasoning that efficacy in such tumor model was merely an intermediate step in proving ultimate utility in humans themselves. The court found that efficacy in accepted clinical models known to hold predictive value was sufficient to satisfy the implicit utility requirement of § 112, noting that human testing was an impractical—and unnecessary—requirement for patent protection.

Instructor Talking Points

- Notably, the *Brana* court did not cite the Supreme Court's *Manson* decision, even though the PTO appeared to have been following the teaching of *Manson* that compositions of matter are not patentable even if they are the subjects of active research. The tenor of *Brana* and *Manson* seem quite different.
- *Brana* and *Manson* can be reconciled. The *Manson* Court specifically noted that the applicant there had failed to support his argument that his compounds would behave similarly to proven compounds and that the chemical class at issue was known for its lower-than-average predictability. The applicant in *Brana*, however, produced test results on his claimed substances that buttressed his claims that his compounds would behave in the manner predicted by its proven chemical classmate.

Class Discussion

- In *Manson*, the Supreme Court held that the patent applicant's comparison to similar compounds was insufficient to establish utility, but in *Brana*, the Federal Circuit places considerable weight on the applicant's comparison. Why? The difference in treatment may depend, in part, on the class of compounds at issue in each case. The *Brenner* decision cites the relative unpredictability of the class of compounds at issue there. In addition, the applicant in *Brana* did not just cite the

success of similar compounds; he had tested his compounds in human cells in vitro and found them to have “good action.”

- How far into the testing regime would you go if you were the inventor of a new chemical compound you believe would prove useful in cancer treatments before you patented it? As soon as you had a structure to report? How about after in vitro testing? Animal testing? In many cases, simply having a structure would be too soon, unless the behavior of the chemical family was so predictable that the outcome would widely be considered a foregone conclusion. In most instances, if the compound belongs to a well-known class, some in vitro testing is probably sufficient. On the other hand, if a compound represents a new class, some animal testing may be required. The difficulty with proof of antitumor activity in vitro against human tumor cells is that many substances that kill cells in vitro may also kill the entire organism and thus have no value.
- Can you file for a patent and continue your testing in hopes of showing a utility by the time the examiner starts to ask questions? No. Utility has to be shown at the time of filing. While the assertion of utility must be made in the specification, the proof to overcome the PTO’s disbelief *can* be submitted after filing. See note 16 on p. 235. But see p. 290 note 2 on the limits of prophesy.
- What is the utility in *Branan*? Is it curing mice of tumors? Or is it curing humans? The court leaves this point ambiguous. At one level, this decision can be ridiculed as holding that curing mice of an artificial disease constitutes utility. But, of course, that’s not the real utility of these compounds. The court is plainly aware that these murine tumor models are used in predicting efficacy against human tumors.

In re Fisher, 421 F.3d 1365 (Fed. Cir. 2005)

Fisher appealed a PTO rejection of its application for a patent covering purified nucleic acid sequences commonly known as “expressed sequence tags,” or ESTs on the ground that the invention lacks utility. The Federal Circuit affirmed the PTO’s rejection.

Each of the ESTs corresponded to a “single gene from which it was transcribed.” The patentee could not demonstrate any particular utility for the ESTs and admitted that the purpose of the underlying genes remained unknown. The ESTs thus served only as “research intermediaries,” and “granting a patent to Fisher . . . would amount to a hunting license because the claimed ESTs can be used only to gain further information about the underlying genes and the proteins encoded for by those genes.”

Class Discussion

- Why are patents being sought on so many DNA sequences? Note: over 32,000 sequences here! One big reason is that *In re Deuel* has interpreted the nonobviousness doctrine such that, even if the technique for isolating a new chemical composition is obvious, the chemical composition is

nonobvious if its structure is nonobvious. This ruling leads to patenting “machines” which can automatically isolate DNA fragments. Is this invention? What’s the cost of allowing these DNA fragments to be patented? How will resources be misallocated if these patents were allowed?

- Is the doctrine designed to prohibit patents that claim “merely starting points for further research”? Or is it trying to prohibit patents on subject matter that does not have “a significant and presently available benefit to the public?” If the latter, why do we allow patents on drugs to cure mice of artificial diseases or on embryonic inventions that obviously cannot succeed in the marketplace in current form? If the former, should patents be allowed on machines that isolate new DNA fragments? An alternative is that perhaps the substantiality of a use should be measured against the range of other possible uses that are likely to be discovered.

Chapter 4: Disclosure and Enablement

Earlier editions of this casebook included disclosure and enablement later in the book. The third edition includes the material earlier in part because of the increased importance of these issues in modern litigation and in part because of the pervasive connections between issues of patentability and disclosure issues. Indeed, older cases such as *O'Reilly v. Morse* are often cited today as cases about enablement even though at the time lawyers would have viewed them as more about the patentable subject matter. By addressing enablement issues early in the course, students can more quickly gain an appreciation for the scope of patent rights that an inventor can obtain from a particular discovery.

A. Introduction

Today disclosure is widely viewed as the currency the inventor provides in exchange for patent rights. Students should understand that disclosure issues have a central importance in the structure of the patent system. Also, students should be able to recognize that § 112 of the Patent Act imposes four distinct requirements: 1) enablement of what is claimed, 2) a written description of the invention, 3) disclosure of the best mode contemplated by the inventor of the invention, and 4) sufficient definiteness in the claim.

B. Enablement

1. “Undue Experimentation”

The Incandescent Lamp Patent, 159 U.S. 465 (1895)

This case was an infringement action brought by the assignee of a patent granted to inventors Sawyer and Man for the use of “carbonized fibrous or textile material” as the filament in an electric lamp. The defendants in the case include an electrical company that was also licensed to practice the Thomas Edison’s electric light technology, which used light bulbs made with a bamboo filament. (Though the case mentions Edison’s patents, those patents are of course legally irrelevant to the outcome of the case.) The Sawyer and Man assignee argued that the lights with bamboo filaments infringed the Sawyer and Man patent, which claimed all lights having filaments made “of carbonized fibrous material.” Although the specification in the Sawyer and Man patent disclosed a short, thick filament of carbonized paper exhibiting low resistivity, the first two claims of the patent were not limited to carbonized paper. The Edison lamp used a long, thin filament of high resistivity, carbonized bamboo. By the time the suit was

brought, the Edison lamp had become the standard in the industry, lasting a commercially reasonable length of time, unlike the unsuccessful Sawyer and Man lamp. The defendant in this case asserted that the Sawyer and Man patent was invalid, and the circuit court agreed, reasoning that the Sawyer and Man lamp lacked novelty.

In affirming the circuit court's decision, the Supreme Court relied on different grounds. The Court looked to the substance of Sawyer and Man's disclosure in their patent application and compared their disclosure with their claim for all "carbonized fibrous or textile material" as filaments. The Court reasoned that Sawyer and Man's claim was an unwarranted expansion of their actual invention, which used carbonized paper, to all fibrous materials. In so finding, the Court concentrated on the inconsistent performance of natural fibers as electric filaments, noting especially Edison's extensive experimentation with plant materials, which produced only a handful of workable filaments. The Court reasoned that if Sawyer and Man discovered a "quality common to them all" that made fibrous materials good filaments, their broad claims may have been warranted. Given the lack of uniformity in the class, however, the broad claims could not be viewed as enabled and thus they were was unacceptably broad.

Instructor Talking Points

- Incandescent Lamp is a good vehicle for talking about enablement as a defense to patent infringement. It is important to point out that, even though the Patent Office must find the claims enabled in order for the patent to issue, the courts can review the Patent Office determination of enablement, as the Supreme Court did in this cases.
- Students sometimes become confused about the role of the accused infringer's own research. Indeed, this case is particularly confusing because the Court repeatedly mentions Thomas Edison in this case. Yet legally, Edison and his patents are irrelevant here. One way to point this out is to ask students what result the Court would have reached if the defendants in the case were not licensed by Edison—in other words, the defendants were infringing Edison's patents. The answer is, of course, that this case would be decided in precisely the same way. Edison would have a valid suit against these defendants, but that fact wouldn't be relevant in this case.
- One way to determine whether Sawyer and Man are claiming too much here is to ask whether the inventor of the accused light (here, Edison) would have been helped in his research if he had the specification of the Sawyer & Man patent in front of him when he was trying to construct his light. Of course, it does not matter whether Edison actually had the specification (he certainly did not), nor does it matter that it was Edison himself who "proved" (through his own research) the inadequacy of the specification. The specification would not have been enough to guide anyone "skilled in the art" to make and use all or even a substantial

number of the embodiments encompassed by the claim (“all textile and fibrous material”).

- In terms of the claim, be sure to note the Court's emphasis on the lack of any teaching in Sawyer and Man's patent of “quality common” to all carbonized fibrous and textile materials. If Sawyer and Man had discovered such a quality, then the Court says they might have been entitled to the broad patent claims found in their patent.
- Finally, be sure to point out the policy rationale, and the slight inaccuracy, in the Court's question: “Was everybody then precluded by this broad claim from making further investigation?” The inaccuracy is of course that, even if the Sawyer and Man patent claims were valid, Edison and other inventors would not be precluded from making further investigation and from patenting improvements on the technology. However, the policy insight is that Edison would have been precluded from practicing his invention without a license from Sawyer and Man. Students see that one harm the enablement doctrine is designed to avoid is the overrewarding of one inventor at the expense of another.

Class Discussion

- Does it matter whether Edison's patent was valid or not? No. Patents are a negative right only—they give the holder the right to exclude others, but do not confer an affirmative right to practice the invention. Even if Edison's patents were invalid, or these defendants were not licensed by Edison, the case would be decided in the same way. Also both Sawyer and Man's and Edison's patents could have been valid. In that case, Edison's patent would have been an improvement patent, but he or his assignee would have needed permission from the holder of the Sawyer and Man patent to actually put the Edison invention into practice.
- Was there something about the language in Sawyer and Man's patent claims themselves that made them too broad or insufficiently specific? No. Broad, pioneering patents are a permissible, and even key, feature of the patent system. What matters is whether the applicant truly enabled the broad field which is claimed. Here, the Court determined that Sawyer and Man claimed beyond their contribution to the field, but that determination requires comparing Sawyer and Man's technical contributions to the scope of their claims. Indeed, the Court even noted that claims of this breadth could have been sustained if Sawyer and Man's technical contributions had been different.
- Do the drawings in Sawyer and Man's patent determine whether the Edison light infringe Sawyer and Man's patent? The answer is largely no. Drawings may aid in interpreting claim language, but the scope of patent rights is determined from the claims themselves. Students should recognize that this case shows the power of claims—they can be used to

state the invention at a very high level of generality and thereby to abstract away from the particulars of the embodiments shown in the drawings and specification. Of course, this case also shows that such broad general claims will require broad, general enablement.

- What concerns should we have, if any, about broad patents? How might we address these concerns? Students might discuss the propriety of exclusive rights in socially important fields, such as medicine and pharmaceuticals, including the patentee's incentive to continue making improvements even after the patentee has obtained a broad initial patent. Note in particular that even a pioneering patent holder will still be in competition with other researchers for finding and patenting improvements to the basic technology. Thus, pioneers still have incentives to continue to innovate.

Amgen, Inc. v. Chugai Pharmaceuticals, Inc., 927 F.2d 1200 (Fed. Cir. 1991)

Plaintiff Amgen held a patent on a recombinant DNA (rDNA) encoding a version of erythropoietin (EPO), a biological protein related to red blood cell production. In an infringement action by Amgen, the district court held invalid a number of Amgen's claims, including a claim to essentially all rDNA sequences that performed the same function as the disclosed sequence. The district court found that of the potentially thousands of analog proteins, even the fifty to eighty sequences made by Amgen were unpredictable in exhibiting the claimed properties.

The Federal Circuit affirmed the district court's decision. The court highlighted the lower court's factual finding and noted that while some experimentation to produce alternative, but claimed, analogs was acceptable, the experimentation must not be "unduly extensive." The court found that Amgen had failed to enable someone skilled in the art to pinpoint and produce all erythropoietin analogs.

Instructor Talking Points

- Amgen is a composition of matter claim; note that it uses a "Parke-Davis" format, claiming only "a purified and isolated DNA sequence." Amgen's problem was that it claimed both the rDNA sequence and any others that could do the same job.
- The Amgen decision constrained the trend in the biotechnology industry to push for greater claim breadth in rDNA claims. The claim here would be valid only if the specification disclosed a unifying principle that permitted straightforward discovery of the other sequences.

Class Discussion

- In the Amgen case, what language in claim 7 signals the possibility of an enablement problem? “Having an amino acid sequence sufficiently duplicative of that of erythropoietin to allow possession of the biological property . . . ” This language claims many different sequences and identifies the sequences solely by *function*. For this claim to be valid, the specification must teach one skilled in the art how to make the subject matter without “undue experimentation.” See page 273. In other words, the disclosure must be “commensurate with the scope of the claims” (p. 274). Here the standard is not met.
- What would the inventors in Amgen have needed to disclose in order for the court to have upheld their claim? A unifying principle such that creation of the other rDNA sequences would not have required undue experimentation, in sufficient detail as appropriate to the field.
- Is it permissible to claim a composition of matter by its properties? Yes, but such claims should be treated with caution. A careful reader will look to see if the size of the claimed class is evident from the specification and whether an adequate unifying principle has been identified so that the researcher has enabled the scope of the claims.

In re Goodman, 11 F.3d 1046 (Fed. Cir. 1993)

The plaintiff appealed the rejection of his claims for the production of mammalian peptides by integrating the relevant DNA into plant cells. The PTO had rejected the applicant’s claims for lack of enablement under § 112, noting that although the applicant claimed the process for all plant cells, his specification revealed only one example using tobacco plants and that one skilled in the art could not readily extrapolate from the applicant’s example to all plants.

The Federal Circuit affirmed the PTO’s rejection citing the “extensive investigation” an investigator would require in order to apply the applicant’s process to the family of monocot plants, which were especially problematic for this type of manipulation. The court rejected the applicant’s attempt to show the applicability of his process to all plants by referencing a published article in the field; the article itself dealt with only a single plant species and had invited more “investigation” into whether the general type of process inherent in the applicant’s claims was applicable to all monocot plants.

Instructor Talking Points

- *Goodman* is another good example of an *Amgen*-type problem. The specification did not make it clear that similar levels of success could be anticipated with other plant types. In fact, a person skilled in the art would expect difficulties, as the court intimated.

- *Goodman* makes the point that when claiming a process on a class of products, the specification must enable the process for the entire class, not merely select members of the class.

Class Discussion

- Could the applicant have cured the defect in his application by including more examples in the specification? Probably not. First, an applicant may not add new matter to the specification after filing. See § 132. Second, the specification's inadequacy stems not from its lack of examples, but from the inventor's failure to contradict the presumption in the art regarding the differences in plant types. A larger number of examples might have allowed the inventor to claim more broadly; at the least, he could have claimed the method as applied to the other plant types used in his other examples. But unless he can prove predictability, he could not claim more examples would not allow him to claim his method as applied to all plants.
- How does the *Goodman* situation differ from the patent granted for the Harvard onco-mouse (as discussed on pages 294-295)? The specification in the Harvard case detailed the transgenic process and result only with a mouse, but the patent was granted on a claim for all non-human mammals. With the onco-mouse, the applicants submitted evidence "suggest[ing] that those skilled in the art might very well be able to carry out the invention on non-human mammals other than mice." See p. 294.

In re Wands, 858 F.2d 731 (Fed. Cir. 1988)

The PTO rejected the applicants' claims for a method for detecting an antigen for hepatitis B using high-affinity monoclonal antibodies. The applicants had discovered the particular monoclonal antibody had an unusually high sensitivity for the targeted antigen, with significant applications in the medical field. The examiner cited the experimentation necessary to produce the needed monoclonal antibodies as the basis for the rejection, noting that the applicants themselves were able to produce the needed antibodies only a fraction of the time they undertook the process and had failed to provide sufficient evidence that one skilled in the art would be able to produce the antibodies with any degree of certainty.

The Federal Circuit overturned the rejection, distinguishing between experimentation or screening expected in a given field and that which would be considered "undue." The court looked to the normal practice of researchers engaged in antibody production, taking note of the low yield accepted by researchers for antibody production generally. The court specifically rejected the Board's reasoning that the applicants had failed to prove that the antibodies could be produced with any degree of regularity. The court looked to the general success of the applicants in producing the antibodies necessary for their work

and reasoned that such the work that went into such success was in line with the expectations of someone skilled in the art.

Instructor Talking Points

- *Wands* is a tough case, since it deals in the highly empirical art of monoclonal antibody production. Be sure to review carefully in class the procedures, well described in the case, for generating the antibodies claimed.
- It is crucial for students to recognize that *Wands* was claiming only a *process* for using the antibodies, not the antibodies themselves. Nevertheless, the decision here shows that, as part of the disclosure of how to practice an invention, applicants must reveal how to make or obtain the *starting materials* for their invention if such materials are not readily available.
- By requiring inventors to enable the starting materials as part of the disclose of the invention, the courts prevent inventors from simultaneously garnering both the protection inherent in patent rights and the benefits of a trade secret. Were inventors not required to enable the starting materials, a savvy inventor could “disclose” the process of practicing her invention by referencing trade-secret protected starting materials, effectively circumventing the quid pro quo of the patent system.

Class Discussion

- Could an inventor truly enable an invention if no one else could access the starting materials? Arguably no. The full test for enablement is whether a reader of the specification can make and use the claimed invention, which would imply access, in some form, to the starting materials. Without enabling starting materials, inventors could simultaneously garner both the protection inherent in patent rights and the benefits of a trade secret.
- Why, if the yield from the revealed process for making the antibodies was only on the order of 1-2 %, was this enablement sufficient? The court emphasizes the degree to which the field of art influences the “undue experimentation” standard. Here, yields of 1-2% are considered standard for the field.
- Imagine that a “space rock” falls to Earth. No one knows how to make such a rock, but pieces of the rock can be purchased on the open market. An inventor discovers a new and nonobvious process for using the rock. Can the inventor patent the process even though she cannot enable the creation of the space rock? The answer to this question seems like it should be “yes.” A person skilled in the art would know how to obtain

pieces of this rock; pieces can be purchased on the open market. Where there is such a market in the starting materials, then an inventor can rely on that market as a sufficient enablement of the starting materials. *Wands* is a slightly different situation because it was unclear whether a person skilled in the art could obtain this particular type of monoclonal antibody. In those circumstances, the inventor has to enable the starting material.

- The Patent Office permits an inventor to enable starting materials by depositing them in a publicly available database. In fact, patent deposits were first used for starting materials and only later were permitted for elements actually claimed (recall the plant patent discussions from Chapter 2). What policy distinctions can you see between the deposit of starting materials versus that which is claimed? Disclosure is the quid-pro-quo of patent rights. Since patent rights are granted for that which is claimed, the inventor (it can be argued) has an obligation under the statute to reveal how to make his or her invention, but not the starting materials themselves, since patent rights do not attach to the starting materials. But if the inventor cannot enable the claimed invention other than through a deposit of the materials, then the inventor would seem to be unable to make the sort of disclosure necessary for obtaining patent rights. Recall the discussion in *Chakrabarty* in which the Court noted that the PPA was enacted precisely because Congress believe plant inventors would not be able to satisfy the requirements of section 112.

2. The Uses of Examples in the Specification

***In re Stahilevitz*, 668 F.2d 1229 (C.C.P.A. 1982)**

The examiner and then the Board rejected the applicant's claim for a process of removing a hapten—a type of molecule—from the blood of living mammals by introducing the hapten to a relevant antibody and using a dialysis procedure to extract the joined pair from the blood. The examiner pointed to the complete lack of experimental data in the application, while the Board focused its rejection on the applicant's failure to specifically describe how to build and operate any apparatus for practicing the claimed invention, reasoning that absent any such guidance, the practice of the invention by one skilled in the art would require undue experimentation.

The Court of Customs and Patent Appeals rejected the reasoning of both the examiner and the Board and held the method patentable. The court noted the specification's repeated reference to external literature to describe how to perform the various techniques necessary for the claimed invention. While the court acknowledged that the applicant may have made it difficult for himself by relying on external references to elucidate how to practice his invention, he was within his rights to do so. The court reasoned that when the claim relied on

putting together techniques well known in the art for a unique purpose, as the applicant did, relying on others' description of the actual, individual techniques was acceptable, so long as the applicant explained how to combine the techniques to constitute the overall invention, which the applicant had done.

Instructor Talking Points

- It may be difficult to tell, but the invention here is designed to “detoxify” people with too much artificial stimulant (e.g. LSD) in their systems. The puzzling thing for students sometimes is trying to see how the court could be convinced of the technique's promise, given the lack of real testing. The key is to focus on the “off-the-shelf” nature of the invention's components. Note, too, that the practical limitations on the invention—it seems expensive to build, surely—are properly kept out of the decision.
- *Strahilevitz* makes the point that examples in the specification need not reference the inventor's own research. Here, the inventor's contribution was conceptual. When the concept relies on techniques known in the art, reference to such techniques is sufficient guidance to enable the invention's practice.
- Finally, note that there is a risk to relying on such “prophetic” examples. If the examples prove not to work, then the patent is invalid. This will be true even if the inventor's basic concept is correct and, with additional experimentation, a way can be found to make the concept work.

Class Discussion

- What are the benefits and drawbacks of allowing inventors to rely on “wholly prophetic” examples in the specification? Allowing applicants to claim an invention based on techniques that are “wholly prophetic” encourages early filing. The earlier an application is filed, the earlier the patent right expires and the invention enters the public domain. Without a working example, however, both the inventor and the patent examiner may make mistakes. Since the initial burden is on the Patent Office to prove that an invention is insufficiently enabled, inevitably some patents may be granted based on prophecies that may prove wrong. But of course, if a patent is inoperable, it will be invalid and no one will infringe on it.
- How reliably must the “prophecy” prove true? The answer depends on the level of expected predictability in the field. In *Atlas Powder*, discussed in the notes, the prophecies had an acceptable 60 percent rate of realization. At some point, however, too many failures introduce doubt in the prophecy, causing “undue experimentation.”
- Prophetic specifications are allowed under PTO rules provided that the applicant does not falsely represent experiments as having been

previously completed. However, *Purdue v. Endo* shows that the Federal Circuit is fairly quick to find misrepresentation.

3. Problems in Enablement, U.S. and Abroad

The Harvard Onco-Mouse

The inventors created a transgenic mouse that was extremely sensitive to carcinogens by injecting fertilized mouse eggs with a mammalian oncogene. First, the inventors claimed all mammalian onco-animals. The examining division limited the claims to mice, but the appellate body allowed all mammals. As a result of post-grant opposition procedures, the patentee narrowed the claim to all “rodents.” Are the inventors entitled to a patent on an onco-mouse or on any onco-animal?

The EPO test is whether the person skilled in the art could carry out the invention as claimed. Other countries have similar doctrines to limit the scope of rights to the disclosure. Canada, for example, calls the problem of overly broad claim “covetousness” but the test is highly similar to U.S. law: claims are invalid where they are broader than the invention as described in the disclosure.

C. The Written Description Requirement

The Gentry Gallery, Inc. v. The Berkline Corp., 134 F.3d 1473 (Fed. Cir. 1998)

The Berkline Corp. appealed from a district court ruling that Gentry Gallery’s patent for a sofa recliner was not invalid (Gentry Galley also appealed from a finding of no infringement). Gentry’s patent claimed a sofa with i) two recliners on the same section of the sofa, ii) a center console between the two recliners, and iii) a pair of recliner controls (one for each recliner) “mounted on the double reclining seat sofa section.” Berkline asserted that the patent’s written description could support only a sofa having the recliner controls *on the center console*, as opposed to anywhere on the recliner section of the sofa. Gentry’s original patent specification referred only to permutations of the sofa that included the recliner controls somewhere on the center console.

The Federal Circuit agreed with Berkline. The appeals court found that the specification contemplated only versions of the sofa in which the recliner controls were on the center console. The court referenced the written description’s role in communicating the inventor’s scope of invention, noting that “the right to exclude may be limited by a narrow disclosure.” The court looked to the original specification, which the court found taught only to place the controls on some element of the center console. Claims going beyond the inventor’s own conception of the invention were therefore invalid.

Instructor Talking Points

- *Gentry Gallery* is a good counterpoint to *Vas-Cath*. While *Vas-Cath* indicates that drawings may be sufficient for a written description, *Gentry Gallery* demonstrates that *somewhere* in the applicant's specification—either in the pictures or the narrative—the claimed elements must be disclosed.

Class Discussion

- Applying *Vas-Cath*, what would someone skilled in the art understand from the specification's drawings? This is a hard question because, while drawings in the patent show the controls on the center console, the center console is a part of the "double reclining seat sofa section." Thus, the drawings here do show the controls *on the double reclining seat sofa section.*" In *Vas-Cath*, the court allowed the inventor to claim a range of permutations even though the drawings showed only one point in the range. Shouldn't then the inventor here be able to claim a range (controls on *anywhere* on the reclining section, including controls on the console part of the reclining section) between the single position show in the drawings? The answer to this question must come from the court's finding, at page 306 in the text, that the inventor in *Gentry Galley* stated in his specification that the location of the controls on the console was "an essential element of his invention." Thus, unlike in *Vas-Cath*, a person skilled in the art reading the original specification would not recognize the range of possibilities claimed.
- Since it is a factual issue whether the inventor has satisfied the written description requirement, why didn't the Federal Circuit defer to the findings of the district court? The best answer here is that the Federal Circuit thought the matter clear because of the statements in the specification. Note, however, that expert testimony was not used to establish how a person skilled in the art would have interpreted the drawings and disclosure narrative.
- Why not claim a sofa with two recliners facing in the same direction? What is the technical achievement with *Gentry Gallery's* invention?

Regents of the Univ. of Cal. v. Ely Lilly & Co., 119 F.3d 1559 (Fed. Cir. 1997).

The University of California appealed from a district court ruling that its patents to a microorganism containing the complementary DNA (cDNA) sequences for human, mammalian, and vertebrate insulin were invalid. The specification disclosed the cDNA structure for rat insulin and included an example stating generally how to obtain the cDNA sequence for human insulin.

The Federal Circuit upheld the district court's ruling, finding that the University had failed to provide an adequate written description under § 112.

The court emphasized that although a description of every species within a genus is not always necessary to provide an adequate written description of the genus, the field of DNA sequencing and coding required such individual descriptions. The court distinguished the DNA sequences from more general chemical compounds, where a family of compounds communicates its actual structure through its familial affiliations. A DNA “family” on the other hand, such as the various species of mammalian insulin, while similar in structure, contains no such inherent regularity. The court stated that “a description which renders a claimed invention obvious is not sufficient to satisfy the written description requirement.”

Instructor Talking Points

- *Eli Lilly* is credited with stemming the rush to patent DNA sequences that typified the 1990s, but has been generally criticized for its reasoning.
- The case may have been one about enablement. Even one skilled in the art would have to invest significant time and effort in isolating the other sequences.

Class Discussion

- Based on the inventor’s specification, would people skilled in the art recognize the DNA sequence for human insulin if they saw it? Probably not. The sequence would need to be tested for its properties. Unlike certain areas in chemistry and even biology, “families” of DNA sequences are not readily identifiable from common, shared features. Here, the variations between fields of art again influence the detail necessary in the specification.
- Would the inventor have been unduly rewarded had the patent been upheld? This is a very hard question. Still students should note that the inventors wanted to claim all mammalian insulin even though they had isolated only rat insulin.
- How would you cast the appropriate role of the written description requirement? Is it to prove the inventor recognizes his or her invention (see Gentry Gallery)? If this is so, is Regents wrongly decided? What other reasons might the court have found to invalidate the cDNA patent?

University of Rochester v. G.D. Searle & Co., Inc., 358 F.3d 916 (Fed. Cir. 2003).

In the early 1990s, scientists discovered the existence and separate functions of enzymes known as “COX–1” and “COX–2” (or PGHS–1” and “PGHS–2”). Aspirin and other anti-inflammatory drugs known at the time inhibit both COX–1 (stomach) and COX–2 (inflammation), while new drugs such as Vioxx and

Celebrex inhibit only COX-2. Rochester scientists developed a screening assay for use in determining whether a particular drug inhibited COX-2 but not COX-1. Rochester obtained a patent (“479”), which is not at issue, for methods “for identifying a compound that inhibits prostaglandin synthesis catalyzed by mammalian prostaglandin H synthase–2 (PGHS–2).” It also obtained a patent (850), which is the patent at issue in the suit, directed to methods “for selectively inhibiting PGHS–2 activity in a human host” by “administering a non-steroidal compound that selectively inhibits activity of the PGHS–2 gene product to [or in] a human host in need of such treatment.” The University of Rochester appealed the district court decision granting summary judgment that the ’850 patent was invalid.

The Federal Circuit affirmed the ruling of invalidity. The court held that § 112 requires both enablement and written description. A person skilled in the art must be able to “recognize” what is claimed. Later, the court uses the word “identify” in place of “recognize.” Other portions of the opinion use the concept of “possession” (i.e., did the inventor “possess” the invention?) Because “[t]he claimed methods . . . cannot be practiced based on the patent’s specification, even considering the knowledge of one skilled in the art,” the claims are invalid.

Instructor Talking Points

- Could the inventors have demonstrated “possession” of the invention? Probably not. Even now, one cannot recognize what chemicals will inhibit COX-2. The only claims supported are the assay methods, which issued in the 479 patent.

D. Definite Claims

Orthokinetics, Inc. v. Safety Travel Chairs, Inc., 806 F.2d 1565 (Fed. Cir. 1986).

Orthokinetics sued the appellee for infringement on its patent pertaining to a collapsible pediatric wheelchair. The wheelchair’s general design allowed the user to place it over a car seat without having to discharge the chair’s passenger. The appellee charged that the Orthokinetics patent was invalid for failure to particularly point out and distinctly claim the subject matter of the patent, as required under § 112 ¶2. Orthokinetics had not specified the exact dimensions of the wheelchair, instead indicating that such dimensions should be provided by product manufacturers to configure the wheelchair to fit the desired passenger vehicle. Orthokinetics appealed the district court’s judgment notwithstanding the verdict for the appellee.

The Federal Circuit reinstated the jury verdict for Orthokinetics. The court determined that the district judge had improperly applied the requirement of a “full” description and enablement from § 112 ¶1 to the claims of the patent. Claims have to satisfy only the requirement of § 112 ¶2; they need only particularly point out and distinctly claim the subject matter of the invention. The court emphasized that a sufficiently definite claim was one which allowed a

person skilled in the art to “understand what is claimed when the claim is read in light of the specification.” The court rejected the district court’s suggestion that Orthokinetics needed in the claims to specify the exact dimensions of the wheelchair or to provide a full description of how to determine the appropriate dimensions. The court reasoned that Orthokinetics’s reliance on manufacturers of its patented product to dimension the wheelchair to fit in various passenger vehicles was both reasonable and expected, given the general nature of the invention.

Instructor Talking Points

- Every instructor should stress that “CLAIMS DO NOT HAVE TO ENABLE!!!” Students in an introductory class frequently confuse enablement with the function of claims. This case is designed to clarify that relationship.
- Claim definiteness does not necessarily require incredible detail, as seen in Orthokinetics. So long as someone skilled in the art would understand the scope of the invention from the claim, the standard is met. As a prophylactic rule, the PTO generally requires language in claims to be supported by language in the antecedent specification, though this rule is also designed to avoid written description problems.
- Sufficiently definite claims help others know the extent of the inventor’s rights. Taken in the aggregate with the other disclosure requirements, claim definiteness works to balance the bargain between society’s grant of patent rights and the inventor’s contribution.

Class Discussion

- As a practical matter, could the inventor in *Orthokinetics* have included more specific language in his claims without articulating the dimensions for every make and model vehicle on the market? Probably not. If the inventor included the exact dimensions for one or more models in the actual claim, he might have significantly curtailed the scope of his patent rights.
- Did the inventor enable the wheelchair for all vehicles? Yes. The inventor's key insight lay in the basic design and not the exact dimensions of the wheelchair. Witnesses for Orthokinetics testified that, based on the specification, a person skilled in the art could “easily” determine the appropriate dimensions for any particular automobile.
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Standard Oil v. American Cyanamid Co., 774 F.2d 448 (Fed. Cir. 1985).

This patent infringement action involved a more efficient process for producing a valuable industrial chemical. The patent's claim definiteness was at issue. The claim used the term "partially soluble" to describe a necessary chemical precursor for the claimed process. "Partially soluble," however, had no accepted definition in the field, and the patent specification provided no specific definition to help the court interpret the claim. The district court reasoned, and the Federal Circuit agreed, that the patent's claims were invalid for lack of definiteness because they had failed to use terms defined in the specification or with specific, well-accepted meanings in the field.

Instructor Talking Points

- Standard Oil returns us to Chapter 1's exercise in claim drafting. All terms should be either known in the field of art or defined in the specification. The drafter could have avoided the patent's infirmity by including a definition of "partially soluble" in the specification.
- Despite the *Standard Oil* ruling, the law does not preclude all fuzzy language from claims as *OrthoKinetics* shows. Thus, "approximately five inches" may be definite if the person of ordinary skill in the art would appreciate how close to "five inches" the dimension must be in order to accomplish the purposes of the invention.

Class Discussion

- If the patent claim containing the words "partially soluble" had not been invalidated, how would it be enforced? This question is intended to point out to students the difficulties of enforcing patents of uncertain scope.
- If you are prosecuting a patent, and the patent examiner objects to some language in the claim, should you simply amend the claim to reflect the examiner's concerns? You should probably cross-reference the new language with previous patents and check with the inventor to ensure the new language is well understood in the art. If in doubt, you should include appropriate definitions in the specification. Of course, once the application has been filed, an applicant cannot add new matter to the application, so terms of art must have support in the original specification.
- Why isn't means-plus-function language considered indefinite? Means-plus-function language is expressly allowed by the statute (section 112, para. 6) and the definiteness of that language is determined by, and the scope limited by, the specification.

E. The Best Mode Requirement

Randomex, Inc. v. Scopus Corp., 849 F.2d 585 (Fed. Cir. 1988).

Randomex sued Scopus for infringing on its patent for a cleaning device for the magnetic memory disks found in mainframe computers. Practicing the invention required the use of a cleaning fluid, which Randomex had disclosed in the specification as either (i) “a 91 percent alcohol solution” or (ii) “a non-residue detergent solution such as Randomex Cleaner No. 50281.” The “91 percent alcohol solution” was a common cleaning solution for magnetic disks, but it was admittedly the worst mode for Randomex’s invention because it could cause an explosion. The “non-residue detergent solution such as Randomex Cleaner No. 50281” was also well-known in the industry, but the exact formula of Randomex’s cleaner was not disclosed in the specification.

Scopus defended that the patent was invalid for failure to disclose the invention’s best mode. Scopus argued that Randomex’s failure to distinguish between the worst mode and best mode of its invention coupled with the company’s reliance on a trade secret-protected product—amounted to no best mode disclosure. The district court agreed with Scopus and held the patent invalid.

The Federal Circuit overturned the district court’s ruling and held Randomex’s disclosure adequate. The court pointed to earlier reasoning of the Board of Patent Appeals and Interferences which had found that the test for best mode was whether a person of ordinary skill in the art “could readily determine the best operating mode.” In the case before the court, the court held that the alcohol solution is merely an inferior substitute indiscriminately disclosed along with the preferred cleaning fluid. Furthermore, a “non-residue detergent such as” the Randomex cleaner would be understood to person skilled in the art to encompass a range of prior art detergents that were easily obtainable. Because Randomex had revealed the best mode in a manner discernable by people skilled in the art, the disclosure was adequate.

Instructor Talking Points

- *Randomex* is a good best mode case, because the invention is straightforward and the applicant's conduct raises some interesting borderline issues. The footnote on the internal combustion engine example provides good insight into the court's thinking, as well as a good hypothetical.
- *Randomex* both tells us that an inventor can disclose the best mode alongside the worst mode and many other modes, at least so long as someone skilled in the art “could readily determine” the best operating mode. It also holds that brand names can be used as part of the best mode disclosure, so long as someone skilled in the art readily knows the brand name's composition, or at least so long as the inventor is not withholding some significant information that would not be known to a person skilled in the art.

- Additional case law tells us that even in the cases of brand names which cannot be re-engineered, an inventor may use a brand name in best mode disclosure so long as 1) it not the inventor's brand (of the assignee's), and 2) the brand is readily available. The test is whether a user of the invention would have to come back to the inventor of the inventor's assignee. If the answer is yes, then the best mode disclosure using a brand name is inadequate. This approach makes sense given that the purpose of the best mode requirement is to force the applicant to divulge all known information about best mode. If the applicant doesn't know some piece of information, there's no disclosure obligation.

Class Discussion

- Assume that the specification for a patented engine listed 1,000,000 different lubricants for the engine. All the lubricants work, but the inventor knows that one is best. The best lubricant is listed indiscriminately with all other lubricants. Has the inventor satisfied the best mode requirement? The answer is that *Randomex* does not provide a clear answer here. Certainly, if a person skilled in the art can "readily determine the best operating mode," then the best mode requirement has been satisfied. But the court does not say that *all* indiscriminate disclosures will be viewed as satisfying the requirement.
- If someone skilled in the art of baseball bats could not immediately say which of the two metal alloys disclosed in a new baseball bat patent specification would perform the best, but the inventor had a preferred metal, would the inventor violate the best mode requirement if she failed to distinguish between the two possibilities? *Randomex* suggests that the answer might be "no," although in *Randomex* itself the person skilled in the art would have probably been able to tell which of the two modes would work best. *Chemcast* gives additional insight into this question, though it too is not clear.

Chemcast Corp. v. Arco Industries, 913 F.2d 924 (Fed. Cir. 1990).

Chemcast sued Arco for infringing on its patent for a type of grommet designed to seal openings in thin metal surfaces. The grommet was composed of two elements—a base portion and a locking portion—that were different in hardness. The question in *Chemcast* was whether the inventor disclosed his preferred level of hardness for the "locking portion" of the grommet. Both the claim language and the specification stated that the locking portion was to have durometer hardness reading of "70 Shore A" or more. The inventor knew that his best mode of practicing the invention was to have the locking portion be hardness of 75 +/- 5 Shore D, but he did not disclose this hardness level. The inventor also knew, but did not disclose, that his best mode of practicing the invention was to make the locking portion from a specific material sold under the

trade name R-4467, though he did not know the composition of R-4467. The district court found the patent invalid for failure to disclose its known best mode.

The Federal Circuit agreed with the district court's findings. The court found both that the inventor knew of a preferred embodiment of the grommet when the patent application was filed and that a person skilled in the art could not discern this embodiment in the specification. In its reasoning, the court relied on the unique hardness and manufacturing requirements the grommet's components evidently entailed. The court rejected Chemcast's argument that the revelation of its use of R-4467 would be immaterial to potential practitioners of the invention because the sole source of R-4467 had granted Chemcast the exclusive to purchase that compound. Thus, the court held that the specific hardness of the component (75 ± 5 Shore D) as well as the specific substance (R-4467) should have been disclosed in the specification.

Instructor Talking Points

- *Chemcast* is a good case demonstrating the relationship between enablement and best mode. While enablement is a purely objective inquiry, best mode contains a subjective component (whether the inventor's knew of a best mode) coupled with an objective component (whether the disclosure was sufficient to enable one skill in the art to practice the best mode). Here the inventor did not disclose sufficient information. Why?
- Best mode can be thought of as a requirement to reveal both the best process to make the invention and the best starting materials for the invention. However, an inventor need not disclose the best manner of making the starting materials, as discussed in the *Eli Lilly v. Barr Labs.* case in note 1 on page 353.

Class Discussion

- If you were to seek a patent on an engine which runs best on ethanol of 99.95% purity, would you need to disclose how to make the fuel with your proprietary (and much cheaper) process when the fuel is otherwise widely available? No. If a user of the invention can otherwise obtain the materials from third-party sources, then you need not reveal your process for making the optimum fuel, since it is not the fuel for which you are seeking a patent. See note * in Randomex.
- If you were to seek a patent on an engine which runs best on ethanol of 99.95% purity, would you need to disclose how to make the fuel with your proprietary process, when the fuel is not otherwise available? To satisfy the enablement requirement, you would need to disclose *some* process to create the fuel. According to *Eli Lilly v. Barr Labs.*, you would not have to reveal your best mode for making the fuel.

- Consider the following hypothetical: Joe invents a new form of gasoline which he decides to exploit as a trade secret. Later Joe invents a new gasoline engine, which he chooses to patent. At the time he files his patent application, Joe knows that his new engine runs best using his own trade-secret protected gasoline blend. Must Joe disclose the formulation of his gasoline blend in his patent application on the engine? If *Eli Lilly v. Barr Labs.* is read very broadly, then the inventor would not have to disclose the composition of the gasoline because it is not claimed subject matter. However, in *Randomex* the court assumed that the best mode requirement did apply to a cleaning fluid needed to use the invention. If the gasoline formulation is analogized to the cleaning fluid and the best mode requirement does apply, then the applicant would have to disclose the formulation.
- Consider the following hypothetical: Texaco researchers invent a new form of gasoline called Tex-X, which the company decides to exploit as a trade secret. Later other Texaco researchers invent a new gasoline engine, which the company chooses to patent. At the time of filing, these Texaco researchers know that their new engine runs best using the Tex-X gasoline blend. Must the formulation of Tex-X be disclosed in the patent application on the engine? Here the answer depends on whether the engine inventors know the formulation of Tex-X. If they do not, then they must disclose that the engine runs best on Tex-X but they need not disclose the formulation because, subjectively, they don't know it. This hypothetical shows that an assignee's knowledge is not relevant in the best mode inquiry. If, of course, the engine researchers do know the formulation, then they must disclose it unless it is considered unclaimed subject matter under *Eli Lilly v. Barr Labs.*

Chapter 5: Novelty

Novelty is a conceptually simple issue that has enormous complexity in its details. To master this chapter, students must (1) gain a basic understanding of the structure of § 102; (2) appreciate the standard for anticipation and the difficulties associated with that standard; and (3) master the rules governing novelty analysis contained in the various provisions in § 102.

A. Introduction to Novelty and § 102

This subchapter is designed to introduce students to the structure of § 102 and to the technical terminology used by patent courts and practitioners in evaluating novelty issues. Students should be encouraged to memorize the basic functions of each subsection of § 102. Various mnemonics can help. Here are three:

- (1) True novelty subsections in § 102 can be remembered with the mnemonic “AGE”—for subsections (a), (e) and (g) are all concerned with novelty of the invention;
- (2) The statutory bars are all clustered together—(b), (c) and (d); and
- (3) Derivation is covered by subsection (f), which is easy to remember because copying in school merits an “F,” and the patent system is no different.

B. The Standard for Anticipation

This subchapter addresses three issues. First, students are introduced to the “every element” standard for anticipation. The case here is *In re Robertson*, which involves a simple technology but nonetheless shows the difficulty of applying every element analysis. *Robertson* is not intended to be an easy case. The case was selected to demonstrate to students that even a seemingly straightforward issue such as novelty can be very hard to resolve because of the difficulties associated with interpreting claims and with matching the claims to objects in the physical world.

The second part of this subchapter introduces the problem of unappreciated or unknown anticipations—an area in which the law appears to have changed in recent times. Finally, the third part of the subchapter addresses the level of enablement that must accompany a prior art reference.

1. The Identity Requirement

Novelty analysis requires a comparison between the claims of a patent (or patent application) and pieces of prior art (including objects in the physical world, articles in journals, prior patents, etc.). The difficult part of the analysis is

often a problem of claim interpretation. It is the same problem that courts confront in determining infringement. *Robertson* is a good case to introduce students to this problem.

In re Robertson, 169 F.3d 743 (Fed. Cir. 1999).

Robertson invented a diaper fastening and disposal system, and this case addressed whether Robertson's claimed invention was anticipated by a diaper fastening system disclosed in a pre-existing patent to Wilson. The Board of Patent Appeals and Interferences (Board) held that the diaper fastening system disclosed in Wilson's patent anticipated Robertson's invention, so Robertson appealed to the Federal Circuit. The Federal Circuit overturned the Board's determination of invalidity, holding that Robertson's invention satisfied the 35 U.S.C. § 102 novelty requirements.

Instructor Talking Points

- The key question is whether the Wilson diaper teaches a “third fastening element” that attaches to the “first fastening element.” That question cannot be answered simply by comparing the language in Wilson's patent to the claim language in Robertson's application because different language could describe the same thing. Instead, the correct comparison is between Robertson's language and all of Wilson's disclosure.
- The analysis could also be characterized by noting the symmetry between anticipation and infringement: The question is whether the Wilson diaper would fall within Robertson's claim. This is the analysis that would be used in infringement litigation, except that because the Wilson diaper is prior art, a finding that it falls within Robertson's claim would result in the invalidation of Robertson's claim.
- The PTO Board ruled that one of the fastening means for attaching the diaper to the wearer also could operate as a third fastening means to close the diaper for disposal and that therefore the Wilson reference inherently contained all the elements of Robertson's claim. The court majority reversed reasoning that:

the Board failed to recognize that the third mechanical fastening means in claim 76, used to secure the diaper for disposal, was separate from and independent of the two other mechanical means used to attach the diaper to the person.

- Judge Rader dissented; he reasoned that:

The specification explicitly teaches that the first and third fastening elements can be the same so long as they are complementary, as they are in Wilson. Accordingly, I agree with

the Board that Wilson teaches the claimed “third fastening element.”

- Rader’s dissent seems pretty well grounded. Robertson’s specification (which has now issued as U.S. Pat. No. 6,736,804) explicitly states:

the disposal means 68 may be either a discrete separate element joined to the diaper 20 or a unitary element that is a single piece of material that is neither divided nor discontinuous with an element of the diaper 20 such as the topsheet 26, the backsheet 28, or one of the first fastening elements 62. (For example, one of the first fastening elements may comprise a disposal means if the fastening material is an identical complementary element since the first fastening element of one tape tab may be secured to the first fastening element of the other tape tab.)

Class Discussion

- Students should note that the disagreement between the majority and Judge Rader concerns not what Wilson *discloses* but what *Robertson is claiming*. This kind of disagreement is very common in both infringement and anticipation analysis.
- Students could be asked whether this result is really a great victory for Robertson. The problem, from Robertson’s perspective, is that his claims have now been definitively interpreted as NOT covering a diaper where the first fastening means serve a dual purpose—to close the diaper while it is being worn and to close the diaper when it is being disposed.

The note cases in this section—particularly *In re Schreiber*—provide additional examples of the difficulties of novelty analysis. *Schreiber* is particularly interesting because, if Schreiber’s claims had been found to be novel, there is a very good chance that the popcorn top could have been found nonobvious on the theory that oil tops are not analogous prior art.

2. Accidental and Unknown Anticipations

In re Seaborg, 328 F.2d 996 (C.C.P.A. 1964)

Seaborg applied for a patent on his invention of the new atomic element 95, also known as Americium. Seaborg’s claims were a model of simplicity, with the first of the two claims at issue reading simply:

I claim:

1. Element 95.

The problem in the case was that, prior to Seaborg's work, element 95 must have been produced in Fermi's nuclear reactor even though Fermi did not know that his reactor was producing the element. It is also nearly impossible to find the element 95 produced by Fermi's reactor because it would have been mixed together with tons of nuclear waste.

The Patent Office rejected Seaborg's application on the grounds that the Fermi reactor must have produced element 95. Seaborg appealed to the U.S. Court of Customs and Patent Appeals, which reversed.

Instructor Talking Points

- The court begins with Hand's statement:

“No doctrine of the patent law is better established than that a prior patent or other publication to be an anticipation must bear within its four corners adequate directions for the practice of the patent invalidated.”
- The court then reasons that:

“the claimed product, if it was produced in the Fermi process, was produced in such minuscule amounts and under such conditions that its presence was undetectable.”
- The court also agrees with Seaborg's argument that:

“The possibility that although a minute amount of americium may have been produced in the Fermi reactor, it was not identified (nor could it have been identified) would preclude the application of the Fermi patent as a reference to anticipate the present invention.”
- There are two possible interpretations of the court's holding in *Seaborg*:
 - 1) Anticipation requires that the prior art have appreciated that it was creating the invention.
 - 2) Anticipation does not require appreciation but merely requires that the claimed subject matter has had some significant existence prior to the applicant's date of invention. If the claims would cover (and therefore enjoin) an activity that was previously practiced, then the claim cannot be allowed because the claim would detract from the public domain and patents cannot do that.
- Though *Seaborg* and other earlier opinions contain much language to support theory 1, recent cases make it clear that theory 2 is more sound. To understand why theory 2 is more sound, consider this question: Should Seaborg now be able to use his claim to “Element 95” to enjoin Fermi-style nuclear reactors? These reactors “make” element 95. Yet if Seaborg gets the right to enjoin the reactors, then the patent system has

allowed an inventor to gain rights over something in the prior art—an impossibility!

- To avoid granting exclusive rights to something that exists in the prior art, the patent system must take one of two possible courses:
 - (1) The patent system could grant a claim such as Seaborg's claim to element 95, but then not allow Seaborg to enjoin the operation of nuclear reactors even though those reactors are "making" element 95.
 - (2) Alternatively, the patent system could deny Seaborg's claim to element 95 and require Seaborg to narrow the claim slightly, perhaps claiming only "element 95 separated and isolated from nuclear waste." Such a claim makes it clear on its face that Seaborg will not have the right to enjoin all nuclear reactors even though their operation will inherently produce element 95.
- Though the result in *Seaborg* supports option (1), a modern court might very well follow option (2). There is no substantive difference between the two options, but under option (2), the limitation of Seaborg's rights (his inability to enjoin prior art nuclear reactors) is clear on the face of the claim.

3. The Enablement Standard for Anticipation

In re Hafner, 410 F.2d 1403 (C.C.P.A. 1969)

The following timeline is useful for understanding this case:

1959: Klaus Hafner files German patent applications on new chemicals; no use is described.

1960: Hafner files in the U.S.; no use is disclosed.

1961: Hafner's applications are published in Germany, and another publication describes the chemicals.

1964: Hafner refiles in the U.S. after the PTO rejects his first application for failing to satisfy § 112 because no use is disclosed for the chemicals.

The PTO rejected Hafner's 1964 application on the basis of, among other things, his own 1961 publication of his patent specification. (Note: Hafner's published German applications qualify as prior art under the statutory bar provisions of 102(b)). The 1961 publication enables for purposes of anticipation even though it does not enable for purposes of § 112.

Instructor Talking Points

- The key point of this case is that enablement for anticipation does NOT require a known use, even though section 112 does. If this asymmetry between 112 and the enablement standard for anticipation purposes did not exist, Hafner would have received a patent.
- The holding in *Hafner* is consistent with theory (2) set forth above—that anticipation does not require any appreciation of the subject matter (or its usefulness) but merely requires that the claimed subject matter had some significant existence prior to the applicant’s date of invention. Thus, anticipation prevents any “backsliding” for the public domain., and prior art cannot be patented even if the prior art does not yet have a use!

C. References Under Section 102(a)

Section 102(a) provides that an applicant is not entitled to a patent if “the invention was known or used by others in this country [domestic inquiry], or patented or described in a printed publication in this or a foreign country [global inquiry], before the invention thereof by the applicant for patent.” Therefore, § 102(a) requires two principal inquiries, the first of which is directed to knowledge and use in this country, and the second regarding all patents and printed publications.

1. The Domestic Inquiry: “Known or Used by Others”

a. “Known . . . by others”

Nat’l Tractor Pullers Ass’n v. Watkins, 205 U.S.P.Q. (BNA) 892 (N.D. Ill. 1980)

The National Tractor Pullers Association brought an action to declare the invalidity of Mr. Billy Watkins’ patent for a tractor-pulling sled on the grounds that the invention previously had been “known or used,” thereby failing to meet § 102(a) novelty requirements.

1963-64: Huls, Harms and Sage allegedly draw the invention at issue on the back of a tablecloth in Huls’ mother’s kitchen.

Sometime later: Watkins invents and patents.

1977: Huls tries to recreate tablecloth drawing from memory.

The court holds that “[p]rior knowledge as set forth in 35 U.S.C. § 102(a) must be prior public knowledge, that is knowledge which is reasonably accessible to the public.”

Instructor Talking Points

- The most basic question here is: Why does the court interpret § 102(a) to encompass only *public* information when the text of the statute explicitly does not include such a requirement? The statute says only that the prior art must be known by “others.”
- Of course, there are very good policy reasons for limiting the reach of § 102(a) to public knowledge.
- Significance for Trade Secrets: Students should be aware of one significant implication of limiting § 102(a)'s knowledge requirement to public knowledge: Existing trade secrets that are known and used by others can be patented if independently discovered by another inventor.

b. “Used by others”

Rosaire v. Baroid Sales Division, National Lead Co., 218 F.2d 72 (5th Cir. 1955)

The relevant timeline for this case is:

1935 to early 1936: Gulf Oil uses the method at issue. Gulf Oil later stops using the method.

Later in 1936: Horvitz conceives of the method. He later patents it and assigns the patent to Rosaire.

Gulf Oil Corporation employees had used the prospecting method "in the field under ordinary conditions without any deliberate attempt at concealment or effort to exclude the public and without any instructions of secrecy to the employees performing the work."

Rosaire brought a claim alleging the infringement of his patent on a method for prospecting oil and other hydrocarbons. Based on the theory that hydrocarbon deposits trapped in the earth have altered the surrounding soil, Rosaire's prospecting method involved taking soil samples, treating the samples so that any hydrocarbon gas present in the soil would be released, and tracing the samples with gas back to the specific location from which they were taken. The defendant claimed, however, that employees of the Gulf Oil Corporation had used similar methodology prior to Rosaire's invention, invalidating Rosaire's patent because of the § 102(a) novelty requirement that an invention cannot have been “known or used by others in this country.” Gulf Oil Corporation employees had used the prospecting method in the ordinary course of their attempts to locate oil without attempting to conceal their efforts from the public.

Instructor Talking Points

- The Fifth Circuit held that where “work was done openly and in the ordinary course of the activities of the employer,” the work qualifies as a prior use for purposes of § 102(a) even though Gulf had discontinued use of the method and had not made any “affirmative act to bring the work to the attention of the public at large.”

Class Discussion

- Why doesn't this court follow *National Tractor Pullers*? Even though Gulf Oil's practice does not seem much better known than the tablecloth drawings in *National Tractor Pullers*, the court found that Gulf Oil's prior practice constituted “public use” based on at least three factors.
 - 1) Because Gulf Oil has benefited by using its prospecting method in its business, there is at least some public benefit from Gulf Oil's use.
 - 2) From a fairness perspective, it would seem unfair to enjoin Gulf Oil from practicing a method that the company has already used in a non-secret manner. Even though the patent is not being enforced here against Gulf Oil, the patentee could stop Gulf Oil from practicing the invention if the patent were held valid.
 - 3) Information about Gulf Oil's method was accessible to the public in the sense that its employees were not prohibited from discussing the company's method. Those employees can spread information about the method to coworkers who can then spread the knowledge to subsequent companies where they work.

2. Global Inquiries: Patents and Printed Publications

a. “Printed publications”

Jockmus v. Leviton, 28 F.2d 812 (2d Cir. 1928)

The relevant timeline for this case is:

1908: At least fifty copies of a catalogue are circulated in Europe.

More than two years later: Patentee invents.

Leviton sued the defendant for infringing his patent on an adjustable lightbulb holder in the shape of a candle. In response, the defendant claimed that the invention lacked novelty because the holder had been anticipated by a picture in a commercial catalogue distributed by a German firm. In considering this defense, the Second Circuit found that even a publication with an ephemeral

existence, such as a catalogue, could constitute a “printed publication” for the purposes of foreclosing novelty under § 102(a). In addition, the court found that the inclusion of an invention in a “printed publication” did not have to be in the form of text because pictures of an invention could provide adequate disclosure. Finally, the court noted that “printed publications” do not have to be distributed to a particular number of individuals, and the intent to broadcast this catalogue evidenced by the cost paid for its production was sufficient. Therefore, the Second Circuit held that the catalogue was a “printed publication” under § 102(a) and Leviton’s patent was invalid because of the anticipation of his invention.

Class Discussion

- Why is the catalogue a printed publication? The court holds that a printed publication must have “enough currency to make the work part of the possession of the art.” Note: a single copy in a library may be enough. Later cases hold that a single copy is enough if the copy is indexed by subject (*In re Hall*) but not if indexed by author and kept in a shoebox (*In re Cronyn*).

b. “Patented”

Reeves Bros. v. United States Laminating Corp., 282 F. Supp. 118 (E.D.N.Y. 1966)

The relevant timeline for this case is:

Jan. 1955: Germany issues a Gebrauchsmuster (GM), which the U.S. Laminating Corp. claims as anticipation of the plaintiff’s patent.

1965: The United States Patent Office issues a directive to examiners stating that GMs may qualify as patents for the purposes of anticipation in Section 102 of the Patent Act.

John Dickey received three patents on inventions related to the use of flame heat for the lamination of polyurethane foam to fabric and then assigned his patents to the plaintiff, Reeves Brothers, Inc. The defendant, however, claimed that Germany’s issuance of the GM invalidated these patents pursuant to Sections 102(a) & (b), which provide that inventions “patented...in a foreign country” preclude novelty. Therefore, the district court analyzed: (1) whether a GM is a patent for the purposes of Sections 102(a) & (b) and (2) whether “the GM as a patent constitutes anticipation only for what is claimed or also for what is disclosed.”

Instructor Talking Points

- Because the application of Sections 102(a) and (b) is not limited to certain types of patents, the district court held that when a “foreign document grants a patent right to exclude others from producing, using, or selling the invention,” that document is a patent for the purposes of novelty determinations. The GM grants some such exclusive rights, so therefore it is considered a patent.
- Regarding the second issue of anticipation, the court found that while both the claims and the specification disclosures in U.S. patents are components of a patent’s anticipatory reference, foreign patents are treated differently. For anticipation purposes, foreign patents “are limited to their claims.”
- Therefore, the court concluded that when foreign documents qualify only as patents and fail to meet the definition of “printed publications,” like the GM in this case, the patents “cannot be used as references for the disclosures in their specifications” and are “a reference only for what is patented.”

Class Discussion

- “Patented” references are not an important category of references. Why? This category of prior art could be wiped out of § 102 and change the outcome of almost no litigation because almost all prior patents also count as printed publications. Every country publishes its patents almost immediately upon issuance, so this category of prior art is almost completely subsumed by the “prior publication” category. Furthermore, because a foreign printed publication is prior art for all it *discloses* while a foreign patent is prior art only for what it *claims*, litigants relying on a foreign patent as prior art have strong incentives to treat it as a printed publication.
- Why are U.S. patents treated as prior art for all that they disclose rather than only for what they claim? The language of section 102 provides a good legal answer: Subsection (e) makes the full disclosure of U.S. patent part of the prior art. As a matter of policy, it might seem odd to exclude from the prior art matters disclosed in a foreign patent specification, but it is not so odd once one realizes that this rule has importance only if the foreign patent can’t qualify as a printed publication. For such rare, inaccessible patents, it is reasonable to keep the prior art rules narrow.

3. Novelty and the Economics of Search

Even parties who do not want to patent their developments need to know the publication rules because they may want to prevent other parties from obtaining patents on those developments. Patent lawyers thus may sometimes advise their clients to make a “defensive” publication—a publication that will prevent others

from seeking patent rights on a development that the client has made but does not want to patent. Some firms specialize in making such publications quickly and at low cost.

Many other firms specialize in searching the prior art. These searches help attorneys to advise their clients whether a development is patentable in light of the prior art and help attorneys to draft patent claims that are patentable. The cost of prior art searches starts at approximately \$275.

A prior art search is not, however, a prerequisite for filing a patent application. Many inventors do not conduct a prior art search but instead simply rely on the PTO's search. That practice can be dangerous because, if the PTO does not find some relevant art, those references could invalidate claims in infringement litigation. Also narrowing claims during prosecution can raise issues of prosecution history estoppel.

C. Section 102(e): Disclosures in Earlier-Filed U.S. Applications

Alexander Milburn Co. v. Davis-Bournonville Co., 270 U.S. 390 (1926)

The relevant timeline for this case is:

Jan. 31, 1911: Clifford files an application for a patent that discloses, but does not claim, an improvement in welding and cutting apparatus.

Mar. 4, 1911: Whitford files an application claiming the improvement disclosed in Clifford's application. Whitford's filing date was his date of invention because, as the Court noted, "there was no evidence carrying Whitford's invention further back [of his filing date.]"

Feb. 6, 1912: Clifford's patent is issued.

June 4, 1912: Whitford's patent is issued.

Whitford's assignee, the Davis-Bournonville Company, sued Alexander Milburn Company for infringing Whitford's patent. Alexander Milburn argued that Whitford's patent was invalid because Clifford's earlier patent application disclosed Whitford's improvement. At issue was the statutory provision that a patent is invalid if the patentee "was not the original and first inventor of any material and substantial part of the thing patented." Both the district court and the Second Circuit held Whitford's patent to be valid. Milburn appealed, and the Supreme Court reversed.

The Court, per Justice Holmes, agreed that Clifford's failure to claim the improvement precluded him from being the inventor of the improvement, but the Court noted that Clifford's right to claim the improvement was not the issue. Rather, the issue was "whether Clifford's disclosure made it impossible for

Whitford to claim the invention at a later date.” According to the Court, “one really must be the first inventor in order to be entitled to a patent,” and the improvement first originated with Clifford, not Whitford. If Whitford had filed his application after Clifford's patent was issued, Clifford's patent “would have had the same effect as “[a] publication in a periodical” and would have barred Whitford's invention. Therefore, the Court reasoned that “[t]he delays of the patent office ought not to cut down the effect of what has been done,” and so Clifford's disclosure should be considered effective as of its filing date. However, the Court noted, “the Patent Office has made no search among abandoned patent applications.” The Court assumed that this practice was designed to “avoid laborious investigations” and stated that it is “not disposed to disturb” the practice. The result of the case was thus to add to the prior art the entire disclosure in a patent application *if and only if* the application ultimately issued as a patent.

Instructor Talking Points

- Section 102(e) codifies the Milburn rule, except that 1999 amendments make applications part of the prior art as of their filing date *if they are published under the PTO's 18-month publication rule* (not just if they are issued).

Class Discussion

- In *Milburn*, why does Holmes invalidate the patent? He relies on the statutory command that the patent applicant “must be the original and first inventor or discoverer...of the thing patented.” Whitford was not the inventor because Clifford had disclosed the invention more than a month before Whitford's invention.
- Does a patent application always become part of the prior art under Holmes' ruling? No! It will only become part of the prior art if the patent actually issues. The Patent Office did not search abandoned applications (which were then secret), and Holmes does not disturb this practice.
- How is a § 102(e) objection different from an interference? Interferences occur when both inventors claim the subject matter. A § 102(e) objection can occur only where the earlier filer disclosed the subject matter that is being claimed by a later filer.
- How is § 102(e) different from publication prior art under § 102(a)? Publications enter the prior art only upon publication—i.e. when the public receives the information. The delays of the publisher count against the publication. By contrast, patent filings become part of the prior art as of the date of filing if they ultimately become public.
- Do any international filings qualify as prior art under § 102(e)? Generally no, though there is one exception. Here are the important rules to

remember about foreign filings and 102(e):

- 1) Disclosures in a foreign application for a foreign patent do not get § 102(e) treatment. They become part of the prior art only when they are published.
 - 2) If an applicant files overseas first and then files at the U.S. PTO within one year, then the U.S. application is entitled to be treated as if it had been filed in the U.S. at the time of the foreign filing (see 35 U.S.C. § 119) *except* that the § 102(e) rule applies from the date of the *actual* US filing (see *In re Hilmer*).
 - 3) **Exception:** If the applicant files a PCT application anywhere, it qualifies for § 102(e) treatment if it “designates” the U.S. as a country wherein patent rights are sought and it is published in the English language.
- Why have the rule in 102(e)? Here are two reasons:
 - 1) Patent applications provide a good storehouse of knowledge that the PTO can easily search. If something is disclosed but not claimed in an application, that applicant must have thought it not new or nonobvious, or not worth the trouble to claim. Very few high-value inventions are likely to fall into this category.
 - 2) If the information is disclosed in the applicant’s specification, then it is probably necessary for that applicant to make or use her invention (or necessary for using it in the best mode). Granting a patent on that information to a later applicant is not fair to the first applicant because it will cut down on the value of the first applicant’s patent rights and will quite likely create blocking patents against the first applicant’s technology.
 - Consider the following hypothetical: On Jan. 1, 2004, I file an application claiming A but also disclosing B. On June 1, 2004, Smith files an application claiming B.
 - Q: Can Smith obtain a patent on B?
 - A: Yes, maybe. If my application never issues and is never published, then Smith can patent B.
 - Q: Will Smith and I get into an interference?
 - A: Not unless I amend my claims to seek a patent on B too.
 - Q: What does the PTO do with Smith’s application?
 - A: The PTO cannot reject it until my application has been issued or published.
 - Another problem:
 - 1/1/04: Jones files a U.S. application.

7/1/05: Jones' application is published by the PTO; it claims A but fully discloses B too.

12/1/05: Jones' patent issues. As issued, it claims A and B too.

5/1/06: I file an application seeking a U.S. patent on B.

12/1/06: U.S. courts invalidate Jones' patent for failure to comply with the Best Mode requirement.

Q: Can I get a patent on B?

A: Maybe, if I can prove an invention date prior to 1/1/04. (Jones' work may also qualify as prior art under § 102(g), and that provision may push the reference date of his work earlier.)

- Another problem:

1/1/04: Jones files an application in India.

7/1/05: Jones' application is published by the Indian patent office; it claims A but fully discloses B too.

12/1/05: Jones' Indian patent issues. As issued, it claims A and B too.

5/1/06: I file an application seeking a U.S. patent on B.

12/1/06: Indian courts invalidate Jones' patent. Jones never seeks U.S. patent rights.

Q: Can I get a U.S. patent on B?

A: Maybe, if I can prove an invention date prior to 7/1/05. (Jones' work cannot qualify as prior under § 102(g)(2) if it did not occur in the U.S.)

D. Section 102(f): Derivation from Another

Campbell v. Spectrum Automation Co., 513 F.2d 932 (6th Cir. 1975)

The relevant timeline for this case is:

Early 1958: Campbell Machines Company receives a purchase order for storage feeders, and Zimmerman is tasked with preparing the manufacturing information for the feeders. To fulfill the order, the company designs Open-Flex, a new style of flexible feed track.

Post-design of Open-Flex: Zimmerman leaves Campbell to form his own company, Spectrum Automation Company.

Later: Milford Campbell, the manager of Campbell Machines, files for a patent on the invention. Campbell receives a patent in 1961 and then tries to enforce the patent against Spectrum and Zimmerman.

Campbell sued Spectrum Automation Company for infringing its patent on Open-Flex, and in defense Spectrum alleged that Campbell's patent was invalid because Zimmerman, and not Campbell, had invented Open-Flex. Spectrum based its defense on Section 102(f) of the Patent Act, which states that a "person shall be entitled to a patent unless...he did not himself invent the subject matter sought be patented." Both Zimmerman and Campbell testified that they had conceived of the Open-Flex invention, but the district court found that Campbell's testimony lacked credibility while declaring that "[t]he Court believes the testimony of Mr. Zimmerman." The corroboration of Zimmerman's testimony consisted mostly of a belt buckle and photo that Zimmerman submitted to support the claim that he conceived of the flexible feed track when he first viewed the spring tension belt buckle worn by his father in the evidentiary photo.

The district court "recognized that this corroboration was circumstantial, but found that...Spectrum had met the 'heavy burden' of proving that Zimmerman...was the true inventor." Section 282 of the Patent Act requires that "[a] patent shall be presumed valid," and the Sixth Circuit articulated that the party alleging invalidity is subject to a "clear and convincing standard" of proof. Still, based on its determination that "in the present case there is not a complete lack of corroboration," coupled with the lower court's factual findings, the Sixth Circuit affirmed the district court's determination that Campbell's patent was invalid.

Instructor Talking Points:

- The rule of § 102(f) is timeless and global: If the alleged inventor copied from someone else, the patent is invalid.
- *Agawam Co. v. Jordan*, 74 U.S. (7 Wall.) 583 (1869). Suggestions can defeat an issued patent only if they "embraced the plan of the improvement" and "would have enabled an ordinary mechanic, without the exercise of any ingenuity and special skill on his part, to construct and put the improvement in successful operation."
- Corroboration Rule: Oral testimony alone cannot defeat an *issued* patent; there must be some corroboration, though a rule of reason is applied in determining the sufficiency of corroboration. Also the evidence must be "clear and convincing" to invalidate.

Class Discussion

- Why should there be a corroboration requirement?

- Is the requirement worth having if it can be satisfied as easily as it was in *Campbell*?

F. Timing Issues: § 102(g) & Priority of Invention

1. Section 102(g): The Basic Rules of Priority

Peeler v. Miller, 535 F.2d 647 (C.C.P.A. 1976)

The relevant timeline for this case is:

Mar. 14, 1966: Miller reduces to practice an improved hydraulic fluid.

Apr. 1966: Miller discloses the invention to his employer, the Monsanto Company.

Jan. 4, 1968: Peeler files a patent application on a fluid identical to Miller's discovery.

Oct. 1968: Two and a half years after Miller's discovery, the Monsanto Company restarts work to acquire patents on this and other company discoveries.

Apr. 27, 1970: Miller files a patent application.

July 6, 1971: The PTO issues a patent to Peeler.

After awarding Peeler's patent, the PTO declared an interference between Peeler's patent and Miller's application. The Board of Patent Interferences granted priority to Miller based on determining that in April 1966, Miller had reduced his invention to practice first. Peeler appealed to the Court of Customs and Patent Appeals. The issue before the court was whether after reducing his practice to invention, Miller "abandoned, suppressed, or concealed" the invention, which would disqualify him from receiving a patent under Section 102(g).

The court's analysis centered on whether the delay between Miller's reduction to practice and Monsanto's filing of a patent application had suppressed Miller's discovery. No one at the Monsanto Company appeared to have intended suppression, which generally is required under Section 102(g). The court, however, found that the four years between Miller's reduction to practice and Monsanto's filing was "prima facie, unreasonably long," and unreasonable delays can "raise an inference of intent to suppress." Although "mere delay" cannot establish suppression, the definition of "mere" rests on a

“case-by-case” policy analysis. Monsanto’s only justification for the delay was the long time it took his attorney to file the company’s patents, but Monsanto waited to hire the attorney until more than two years after Miller’s invention. The court held this to be more than “mere delay” and therefore “inadequate to overcome the inference of suppression,” so the court denied priority to Miller.

Instructor Talking Points:

- The court rejects the argument that Miller’s March 1966 results were just an “abandoned experiment.” An abandoned experiment would mean that there was no reduction to practice. It would also mean that the experiment was not enabling. See *Rosaire*, however, where the court refused to find that a limited use of a process was merely an abandoned experiment.

2. Prior Art Uses of § 102(g)

Dow Chemical Co. v. Astro-Valcour, Inc., 267 F.3d 1334 (Fed. Cir. 2001)

The relevant timeline for this case is:

Apr. 19, 1968: Non-party Japanese Styrene Paper Company (JSP) receives a patent for a process to produce foam using non-CFC blowing agents (the “Miyamoto patent”).

Aug. 22, 1984: After purchasing a license to the Miyamoto patent, Astro-Valcour, Inc. (AVI) makes foam with isobutane using the Miyamoto process.

Aug. 1984-Sept. 1986: AVI builds facility to produce the invention.

Aug. 24-28, 1984: Dr. Chung Park with the Dow Chemical Company conceives a similar process and product.

Sept. 1984: Park reduces to practice.

Dec. 1985: Park files.

Sept. 1986: AVI begins commercial production of its new foam.

In 1996, the PTO concluded that the Park invention “was patentable over the Miyamoto patent.” In an infringement suit later brought by Dow against AVI, the district court found the Park patent to be invalid under Section 102(g) because AVI made its foam before Park’s reduction to practice in September 1984. On appeal, the Federal Circuit noted that the party challenging a patent’s validity “must establish prior invention by clear and convincing evidence.” If this

standard is met, “the burden...shifts to the patentee to produce evidence...as to whether the prior inventor abandoned, suppressed, or concealed the invention.”

The circuit court first addressed Dow’s contention that AVI was not a “prior inventor” under Section 102(g) because AVI failed to realize it could patent the foam production process that it had licensed from JSP. The court disagreed, holding that “[w]hether AVI understood that it had produced a legally patentable invention is immaterial” and AVI qualified as an inventor because its employees “immediately appreciated what they had made, and indeed its significance.” In response to Dow’s second contention that AVI suppressed its invention by delaying to make it known, the court stated that “in cases in which an invention is disclosed...by commercialization, courts have excused delay upon proof that the first inventor engaged in reasonable efforts to bring the invention to market.” Because “AVI actively and continuously took steps towards the commercialization of the foam,” AVI’s commercialization efforts were “reasonable” and Dow lacked proof of suppression. Therefore, the court affirmed the district court’s determination that the Park patent was invalid pursuant to Section 102(g).

Instructor Talking Points:

- AVI is an inventor of the process and product even if AVI’s employees did not think they were inventive. There is no requirement in the statute that an inventor must recognize the inventive nature of the creation. From a policy perspective, only relatively trivial inventions are likely to have this problem.
- AVI did not abandon provided that, during the 2+ years between its reduction to practice and disclosure, it was taking “reasonable efforts to bring the invention to market.” Compare this to the four-year delay in *Peeler*. Note that in *Peeler* reasonable efforts were not being made to bring that invention to the public during the delay.
- Section 102(g)(2) backdates prior art to a time prior to publicity; it is only a domestic inquiry.

G. Establishing a Date of Invention: Rule 131

In re Moore, 444 F.2d 572 (Fed. Cir. 1987).

The relevant timeline for this case is:

Before Dec. 1963: Moore prepares a new compound. He does not yet know a use for it.

Dec. 1963: A British chemistry journal publishes an article describing the new chemical compound without describing a use for it.

Nov. 24, 1964: Moore files a U.S. patent application claiming the compound. Note: He must now have a use for it.

The Patent Office rejected Moore's 1964 application on the ground that the 1963 article was a prior art reference defeating the novelty of Moore's invention. To overcome that rejection by proving his prior invention pursuant to Rule 131, Moore submitted an affidavit, which demonstrated that he identified and prepared the compound prior to December 1963. However, the patent examiner again held against Moore because his affidavit did not demonstrate the discovery of a use for the compound, required by *Brenner v. Manson*, 383 U.S. 519 (1966), for the issuance of a patent. Although the issue here was defeating a prior art reference and not fulfilling the requirements for a patent, *Brenner's* utility requirement had been extended to interference proceedings under § 102(g). Based on his perception that the § 102(g) requirements to prove invention paralleled Rule 131, the examiner applied *Brenner* to hold that Moore's affidavit did not establish prior invention pursuant to Rule 131.

On appeal, however, the Federal Circuit determined that *Brenner's* utility requirement does not necessarily apply to Rule 131 attempts to defeat prior art references. The court disagreed with the finding below that "the proof of 'prior invention' to remove a reference, whether it be cited under 35 U.S.C. § 102(a) or § 102(e), necessarily requires prior completion of every element of the act of invention." In contrast, the court noted there are "certain basic important distinctions" between ex parte proceedings to which Rule 131 applies and interference proceedings. For example, ex parte proceedings address an applicant's "right to a patent" as opposed to interferences from which patents almost always issue, and prior art references under sections 102(a) and (e) might not disclose utility unlike competing patent applications. Therefore, the Federal Circuit applied *In re Wilkinson*, 304 F.2d 673 (CCPA 1962), which held that a patent applicant must "prove only that he had prior possession of 'the thing itself' in order to remove a reference which shows no more than that to the public." When a reference fails to disclose utility, like in this case, an inventor only has to demonstrate the discovery of a compound and how to make it. Accordingly, the Federal Circuit reversed the denial of Moore's application.

Instructor Talking Points:

- The rule in *Moore* permitting proof of partial invention to antedate a reference applies generally. In *In re Stempel*, 241 F.2d 755 (C.C.P.A. 1957), for example, the inventor was claiming a genus of chemicals and a reference disclosed one species of the genus. Stempel was allowed to antedate that reference by showing that he had discovered that particular species prior to the reference's date.

- Rule 131 does not require corroboration, though the affidavit must convince the PTO that the applicant had invented prior to the date of the reference.
- Rule 131 practice uses the same standards for determining dates of invention as § 102(g)(1) interferences: reduction to practice or conception + diligence prior to the reference date.

Class Discussion:

- Can Moore “antedate” the British journal by proving he invented the compound first? Yes. In effect, the court allows a Rule 131 affidavit to prove a date of “partial” invention. This rule applies outside of interferences—i.e., where the alleged prior art reference is NOT another inventor seeking to claim patent rights over the same invention.

H. International Considerations**1. Foreign Activities to Establish Priority****a. The Paris Convention and § 119 of the Patent Act**

An inventor’s filing date in a foreign country may constitute an effective U.S. filing date pursuant to the Paris Convention as implemented in 35 U.S.C. § 119—but only for priority purposes. An application filed in another Paris Convention country “shall have the same effect as the same application would have if filed in this country on the [foreign filing date], if the application in this country is filed within twelve months from the earliest [foreign filing] date....”

b. TRIPs and the Reformation of § 104 of the Patent Act

Previously, all inventor work outside of the United States was ignored. The new rule pursuant to § 104 is that all inventive work inside the U.S. and any other WTO country is treated equally. Work in non-WTO countries is still ignored (excepting special circumstances—e.g., working in a non-WTO country on behalf of the government of a WTO country).

While TRIPs forbids countries from discriminating as to the place of invention for parties seeking patent rights, it does not forbid geographic discrimination in defining prior art. Thus, the U.S. still limits some prior art categories based on geography, such as § 102(a) regarding prior art inventions

“known or used in this country,” § 102(g)(2) regarding prior art inventions “made in this country, and § 102(e), which applies only to actual U.S. filings.

2. Foreign Activities to Create Prior Art

a. § 102(a): Knowledge and Use “In This Country”

Westinghouse Machine Co. v. General Electric Co., 207 F. 75 (2d Cir. 1913)

The relevant timeline for this case is:

1901-02: Armstrong conceives an improved control for railcar induction motors.

Spring 1904: De Kando constructs the same invention, which he then implements on a railway in Italy.

May 5, 1904: After viewing De Kando’s invention in Italy and receiving from him a detailed written description of the control, Waterman brings this information to the United States.

June 19, 1905: In the U.S., Waterman explains De Kando’s invention to the American Institute of Electrical Engineers. Waterman had spent the previous year explaining the invention to numerous U.S. engineers who were capable of understanding the technology.

June 28, 1905: Armstrong files his U.S. patent application for an invention similar to De Kando’s. General Electric is Armstrong’s assignee.

July 3, 1906: De Kando files his patent application. His assignee is Westinghouse.

Upon De Kando’s loss of an interference proceeding between him and Armstrong, De Kando appealed to the D.C. Court of Appeals, which also ruled against him. Next, De Kando filed an equity action in district court to adjudicate whether he was “entitled, according to law, to receive a patent,” and the district court ruled against Westinghouse and De Kando. Therefore, they appealed to the Second Circuit, which examined whether Armstrong actually was entitled to the patent that he had been granted. To make this determination, the court interpreted two statutes governing whether De Kando’s invention had been “known” in the United States in a manner that would preclude the novelty of Armstrong’s application. The court found that prior to Armstrong’s filing, Waterman communicated his knowledge of De Kando’s invention to individuals who “became persons in this country by whom the De Kando device was known.”

Based on these facts, the court examined sec. 4886 that entitles to a patent any person who invented something “not known or used by others in this country, before his invention or discovery thereof.” The second statute, sec. 4923, provides that “[w]hensoever it appears that a patentee, at the time of making his application for the patent, believed himself to be the original and first inventor or discoverer of the thing patented, the same shall not be held to be void on account of the invention...having been known or used in a foreign country.” The court interpreted sec. 4886 as simply a general parameter for patent rights but found sec. 4923 specifically applicable to this situation regarding knowledge and use in a foreign country. The court determined that sec. 4923 precluded any knowledge originating in a foreign country from destroying a U.S. patent application. Therefore, the court held that Armstrong was entitled to his patent, thereby affirming the denial of De Kando’s application.

Instructor Talking Points:

- In *Westinghouse*, the court held that “reduction to practice in a foreign country can never operate to destroy a patent applied for here, however widely known such reduction to practice may be...among persons living here, unless the invention be patented or described in a printed publication.”
- The importance of this case is vastly reduced by the TRIPs Agreement, which requires the U.S. to consider for purposes of priority all inventive activity in WTO countries. Thus, today, DeKando would be able to win a priority fight against Armstrong.
- Who would get a patent if the court in *Westinghouse* had allowed imported knowledge to constitute prior art? Answer: Probably no one. DeKando would lose a priority fight against Armstrong, but Armstrong would have his patent invalidated due to the knowledge that was imported into the country prior to his invention. The only possibility for Armstrong to save his patent would be if he could establish a date of invention prior the importation of the knowledge. Perhaps the court ruled the way it did precisely because it realized that no one would get a valid patent on the invention unless imported knowledge were excluded from the prior art.

b. § 102(e): “Filed in the United States”

c. § 102(g)(2): Third Party Prior Art Inventions “In This Country”

Only inventive work conducted within the United States can form the basis for a prior art reference pursuant to § 102(g)(2), which is expressly limited to inventions “within this country.”

Class Discussion:

- Why does 102(g)(2) not violate TRIPs Article 27? Answer: Article 27 states only that “patents shall be available and patent rights enjoyable without discrimination as to the place of invention.” This rule does not foreclose discrimination in defining the prior art based on the location of the prior art, and U.S. law is rife with such geographic discriminations in defining prior art. Thus, knowledge and use under 102(a) are only domestic inquiries, and 102(e) applies only to applications filed in the U.S.

Chapter 6: Statutory Bars.

A. Introduction

Chapter 6 covers the three statutory bar provisions within Section 102—subsections (b), (c), and (d). The policy goals underlying the statutory bars are directed toward encouraging the early filing of patent applications. These policies include (i) maintaining the reliability of public information, (ii) distributing the information discovered by an inventor quickly (which cuts down on duplicative research and increases the public's benefit from the information), and (iii) facilitating the early termination of patent rights. This last policy is especially furthered in today's patent system, which sets the patent expiration date twenty years from *filing*.

Pennock v. Dialogue, 27 U.S. 1 (1829)

The relevant timeline for this case is as follows:

1811: Plaintiffs/patentees complete invention of a method for making better hoses.

1811-July 1818: Thirteen thousand feet of hose constructed using the plaintiffs' method are sold by Samuel Jenkins, whom the plaintiffs had authorized to use their method.

July 1818: Plaintiffs file patent application and receive their patent on the method for making the hose.

Note: This is a classic case where, if the patent is valid, the plaintiffs would get a period of effective exclusivity longer than the statutory patent term (i.e., seven years of trade secret protection + the statutory patent term).

In the plaintiff's patent infringement suit, the circuit court held that the plaintiff's patent was invalid because he filed his application after the public had been using his invention. The circuit court reasoned that "if an inventor makes his discovery public, looks on and permits others freely to use it, without objection or assertion of claim to the invention...he abandons the inchoate right to the exclusive use of the invention, to which a patent would have entitled him." On appeal, the Supreme Court affirmed the circuit court's decision based on its interpretation of the statutory law governing patents at that time, consistent with the public policy underlying the patent law.

The Court established that an inventor's "voluntary act or acquiescence in the public sale and use [of his invention] is an abandonment of his right" to a patent. The issuance of a patent after such use would deprive the public of the use of an invention from which they had already benefited and would prolong the

delay of the invention's public accessibility, ultimately discouraging innovation.

Instructor Talking Points

- Justice Story uses two possible bases for invalidating the patent (and sustaining the trial court's instruction):

1) Common law abandonment theory: "[A]n inventor may abandon his invention, and surrender or dedicate it to the public. This inchoate right, thus once gone, cannot afterwards be resumed at his pleasure."

2) Statutory basis: The first section of the Patent Act requires that the applicant have invented a new and useful art, machine, &c. "not known or used before the application." Story interprets this to mean known or used by the public.

- Under either theory, the patent here is invalid.
- Story was not entirely clear which of these two bases he was using. Today, both theories survive in the Patent Act.
 - (1) Abandonment is codified in 102(c) and can still be used to invalidate patents where an inventor has practiced the invention as a trade secret prior to seeking patent rights.
 - (2) 102(b) is analogous to the statutory basis that Story used, although modern 102(b) includes a one-year grace period.
- The policy of requiring fast communication as explained by Justice Story is as follows:

If an inventor ...should for a long period of years retain the monopoly, and make, and sell his invention publicly, and thus gather the whole profits of it, relying upon his superior skill and knowledge of the structure; and then, and then only, when the danger of competition should force him to secure the exclusive right, he should be allowed to take out a patent, and thus exclude the public from any farther use than what should be derived under it during his fourteen years; it would materially retard the progress of science and the useful arts, and give a premium to those who should be least prompt to communicate their discoveries.

Class Discussion

- How long is the "grace period" under the old U.S. statute at issue in *Pennock*? There is no grace period. The applicant cannot disclose the invention to the public prior to the application filing date. Today, § 102(b) has a one year grace period.

B. Section 102(b): The General Statutory Bars

1. Review of Patents and Printed Publications

In § 102(b), the terms “patented” and “printed publication” have the same meaning as these terms are given in § 102(a). In other words, these two types of prior art references in § 102(b) are interpreted similarly to the corresponding prior art references in § 102(a). In both subsections of § 102, the “patented” and “printed publication” categories are applied globally.

2. “In Public Use or On Sale”

a. Public Use

Egbert v. Lippmann, 104 U.S. 333 (1881)

The relevant timeline for this case is as follows:

Jan.-May 1855: Samuel Barnes gives his friend Frances Lee a pair of corset-steels constructed with corset-springs that he has invented. For years, Egbert wears both this pair and a second pair received from Barnes in 1858.

1863: Barnes shows his invention to one Sturgis.

1866: Barnes applies for a patent on his improved corset-springs. Barnes receives a patent based on this application.

1873: The patent is reissued to Frances Lee Barnes [later Egbert].

Ms. Egbert sued the defendant for the infringement of her patent on Barnes’ invention. The defendant argued that the patent was invalid on the ground that Barnes applied for the patent more than two years after the invention had been in public use, violating the 1839 act regarding patents. According to the court, the act rendered “letters-patent invalid if the invention which they cover was in public use, with the consent and allowance of the inventor, for more than two years prior to his application.” The Supreme Court considered whether Barnes’ donation of his corset-steels to an individual who then wore them amounted to “public use” of the invention. The Court first noted that for public use, “it is not necessary that more than one of the patented articles should be publicly used.” Additionally, the Court clarified that whether use is public “does not necessarily depend upon the number of persons to whom its use is known.” Even an invention that “cannot be seen or observed by the public eye” can be used publicly, as long as the inventor allows the use of his invention “without

restriction or limitation.” Ultimately, the Court concluded that “if [an] inventor sells a machine of which his invention forms a part, and allows it to be used without restriction of any kind, the use is a public one.” Therefore, the Court held that Egbert’s patent was invalid based on Barnes’ donation of the corset-steels to Egbert with unrestricted freedom to use them in their final form approximately eleven years before Barnes applied to patent his invention.

In dissent, Justice Miller emphasized that Egbert’s private use, “which could lead to no copy...of the machine,” “left the public at large as ignorant” of the improved corset-steels as it was prior to Barnes’ invention. Therefore, Justice Miller concluded that Egbert’s use should not have defeated Barnes’ right to a patent.

Class Discussion

- Did Frances Lee’s use constitute a public use? Yes. Why? Note that if this decision were to have gone the other way, then the court would have to decide how many people need to use the invention before the use(s) will constitute use by the “public.” Would the magic number be two people? Three? Ten? Compare this case to *Rosaire*—both cases allow a single use to constitute public use, provided there is no obligation of secrecy.

Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261 (Fed. Cir. 1986)

The relevant timeline for this case is as follows:

Summer 1957: Nichols conceives of a three-dimensional puzzle capable of rotational movement in a 2x2x2 arrangement.

1957-62: Nichols constructs several paper models of the puzzle that are seen by a few of his friends.

1968: Nichols constructs a wooden model of his puzzle, which he sometimes brings to his office.

Jan. 1969: Dr. Obermayer, the president of Moleculon, views a wooden model of the puzzle constructed by Nichols in 1968.

Mar. 1969: Nichols assigns his rights in the invention to Moleculon in return for a share of the profits from the puzzle’s commercialization.

Mar. 3, 1970: On behalf of Moleculon, Nichols applies for a patent on the puzzle, which is issued on April 11, 1972.

Moleculon sues CBS, Inc. for infringement of its patent based on the defendant’s Rubik’s Cube products. In defense, CBS argued that Moleculon’s

patent lacked validity because of the § 102(b) statutory bar against patenting inventions that were “in public use” or “on sale” in the United States more than one year prior to the inventor’s patent application. The district court disagreed with CBS, finding that none of the use or availability of Nichols’ patent prior to the critical date of March 3, 1969, had been public use and also that Nichols’ invention had not been “on sale.”

The Federal Circuit affirmed the district court’s finding that the *Moleculon* patent was valid. The circuit court agreed with the lower court’s distinguishing of *Egbert v. Lippmann*, 104 U.S. 333 (1881), on the ground that “Nichols had not given over the invention for free and unrestricted use by another person.” Even though Nichols showed his puzzle to several friends and Obermayer briefly used the puzzle, the circuit court agreed it was significant that Nichols always “retained control over the puzzle’s use and the distribution of information concerning it”—control that was not relinquished by Nichols’ failure to enter a confidentiality agreement with Obermayer. The absence of such an agreement was “not determinative of the public use issue” because the existence of confidentiality agreements is “only one factor” to be assessed as part of the “totality of evidence” surrounding the alleged public use of an invention. Regarding sale of the invention, the circuit court agreed with the district court that “an assignment or sale of the rights in the invention and potential patent rights is not a sale of ‘the invention’ within the meaning of section 102(b).” In addition, the court found no evidence indicating that Nichols had attempted to sell to *Moleculon* the wooden embodiment of his puzzle. Therefore, the Federal Circuit affirmed the validity of Nichols’ patent and found that one of CBS’s Rubik’s Cube models, the 2x2x2 cube, infringed that patent.

Class Discussion

- Why did the court hold that there had been no public use of Nichols’ invention? “Nichols had not given over the invention for free and unrestricted use by another person.”
- Would it have made a difference if the defendant had shown that friends frequently played with the puzzle on Nichols’ desk? This is difficult to answer. *Egbert* suggests that this factor should affect the outcome of a court’s decision regarding public use, but *Moleculon* suggests that Nichols would still be entitled to a patent as long as the friends did not gain control over the invention.
- Why did the court in *Moleculon* not hold that Nichols’ invention had been “on sale”? Because assignment of an invention does not constitute a sale.

Metallizing Engineering Co. v. Kenyon Bearing & Auto Parts Co., 153 F.2d 516 (2d Cir. 1946)

The relevant timeline for this case is as follows:

Before Aug. 6, 1941: John Meduna invents an improved method for conditioning metal surfaces. Prior to Aug. 6, 1941—the critical date for Meduna’s invention—the invention was used commercially while the conditioning process itself remained secret.

Aug. 6, 1942: Meduna applies for a patent on his inventive process, which is issued on May 25, 1943, and assigned to Metallizing Engineering.

Metallizing Engineering sued the defendant for infringement of its patent. Before the district court, the defendant alleged the invalidity of this patent based on the statutory bar regarding the invention’s public use prior to the critical date of August 6, 1941. The district court disagreed and held the patent to be valid because although the invention was used commercially, the invention’s use was secret. Although the Second Circuit agreed that in reaching its finding the district court had correctly interpreted circuit precedent in *Peerless Roll Leaf Co. v. Griffin & Sons*, 29 F.2d 646, the circuit court overruled this case and ultimately found the Metallizing Engineering patent to be invalid. Judge Learned Hand overruled his previous opinion in *Peerless Roll Leaf* based on his perception that the opinion had confused two doctrines, both of which qualify as prior use: (1) “[t]he effect upon his right to a patent of the inventor’s competitive exploitation of his machine or of his process” and (2) “the contribution which a prior use by another person makes to the art.”

Instructor Talking Points

- Because Meduna’s invention was used for commercial gain more than one year prior to his application for a patent, the circuit court held the patent to be invalid, reversing the district court’s judgment.
- Regarding competitive exploitation, Judge Hand noted that if an inventor competitively exploits his discovery after it is patentable, the inventor needs to be satisfied with either secrecy or the legal monopoly of a patent.
- Unlike prior use by other individuals, this competitive exploitation can prevent an inventor from receiving a patent “regardless of how little the public may have learned about the invention,” even though “[s]uch a forfeiture has nothing to do with abandonment.”
- Prior use and competitive exploitation “may at times overlap,” but they are two separate concepts, the latter of which is based on Congress’ desire “that the public shall as soon as possible begin to enjoy the disclosure.”

b. On Sale

Pfaff v. Wells Electronics, Inc., 525 U.S. 55 (1998)

The relevant timeline for this case is as follows:

Mar. 17, 1981: Pfaff shows a sketch of his concept to representatives of Texas Instruments.

Apr. 8, 1981: TI reps provide Pfaff with a written confirmation of a previously placed oral purchase order for 30,100 of his new sockets for a total price of \$ 91,155.

Apr. 19, 1981: Pfaff's "critical date" (one year before filing).

Apr. 19, 1982: Pfaff files for a patent.

In this case, the Court considered "whether the commercial marketing of a newly invented product may mark the beginning of the 1-year period [triggering the § 102(b) on-sale bar] even though the invention has not yet been reduced to practice." Because the Court found that the word invention in § 102(b) should not receive any "special interpretation," the Court noted that "the word 'invention' in the Patent Act unquestionably refers to the inventor's conception rather than to a physical embodiment of that idea" and there is no "express requirement that an invention must be reduced to practice before it can be patented." In establishing a test to determine when an inventor's activities trigger the § 102(b) on-sale bar, the Court concluded "that the on-sale bar applies when two conditions are satisfied before the critical date[:]. [f]irst, the product must be the subject of a commercial offer for sale....[s]econd, the invention must be ready for patenting." The Court stated that the second element of this test can be satisfied in at least two ways: (1) by proof of reduction to practice; or (2) "proof that prior to the critical date the inventor had prepared drawings or other descriptions of the invention that were sufficiently specific to enable a person skilled in the art to practice the invention." Here, the Court found that even though Pfaff did not reduce his invention to practice until the summer of 1981, "the drawings Pfaff sent to the manufacturer before the critical date fully disclosed the invention"—demonstrating that his invention was ready for patenting. This in conjunction with "[Pfaff's] acceptance of the purchase order for his new sockets prior to [the critical date]" caused the Court to hold that Pfaff's activities violated the § 102(b) on-sale statutory bar.

Class Discussion

- If Pfaff had been involved in a priority fight, how early could he have pushed his date of invention? Pfaff's invention date could be as early as the date of his drawings because Pfaff was confident that the drawings of his invention constituted a complete conception—i.e., that they would allow a person skilled in the art to build the invention.

“Q. It was in a drawing. Is that correct?”

“A. Strictly in a drawing. Went from the drawing to the hard tooling. That’s the way I do my business.

“Q. ‘Boom-boom’?”

“A. You got it.

“Q. You are satisfied, obviously, when you come up with some drawings that it is going to go—it works?”

“A. I know what I’m doing, yes, most of the time.”

- What is the difference between the Court’s test for determining when an invention is on sale and the Solicitor General’s test, which the Court rejects in note 14? The Court’s test requires that the invention have been “ready for patenting” before the one-year clock can be running. The Solicitor General’s test merely requires that the sale or offer “embodies the invention.” As the Court notes, the Solicitor General’s test would seem to be satisfied at the time of the offer/sale even if the inventor had not yet completed the invention. *See, e.g.*, the example in note 5(d) in the book.
- When is an invention ready for patenting for *Pfaff* purposes? The Court states that the test can be satisfied in at least two ways: (1) by proof of reduction to practice; or (2) “proof that prior to the critical date the inventor had prepared drawings or other descriptions of the invention that were sufficiently specific to enable a person skilled in the art to practice the invention.”
- Does this mean that drawings or other writings are required? Or is a conception in detail sufficient? Note the Court’s opinion stresses that the word “invention” in § 102(b) should not receive any “special interpretation.” Thus, one would assume that an invention can be “ready for patenting” even without blueprints if the inventor can prove conception in detail. Of course, without drawing and notes, it may be very hard to prove conception in detail.

Abbott Laboratories v. Geneva Pharmaceuticals, Inc., 182 F.3d 1315 (Fed. Cir. 1999)

The relevant timeline for this case is as follows:

1989-1991: Non-party Byron Chemical Company, Inc. sells to Geneva Pharmaceuticals a form of a pharmaceutical compound that is later claimed in a patent application by Abbott Laboratories. Neither Byron nor Geneva know the identity of the crystalline form involved in the sale, but later tests reveal that the item sold is a crystalline form claimed by Abbott.

1992: Byron makes a third sale of this crystalline form.

Oct. 18, 1994: Abbott Laboratories files its patent application.

In this infringement suit, Abbott claimed that its patent was not invalid under the § 102(b) on-sale bar because “[f]or an ‘invention’ to be on sale...the parties must ‘conceive,’ or *know* precisely, the nature of the subject matter with which they are dealing.” In response, the defendants argued that under *Pfaff*’s two-part test, “it is irrelevant that the parties to the sales did not know that they were dealing with [one particular]...crystalline form.” The court agreed with the defendants and found that “[t]he invention at issue in this case clearly meets the *Pfaff* test.” The court noted that “it is undisputed that [the form] was the subject matter of at least three commercial sales in the United States before the critical date” and that “the invention was ‘ready for patenting’ because at least two foreign manufacturers had already reduced it to practice.”

Instructor Talking Points

- The court found that proof of conception was not required in this case to prove a violation of the on-sale statutory bar because “the claimed material was sold under circumstances in which no question existed...that it was reduced to practice,” and such a sale “obviates any need for inquiry into conception.”
- Additionally, the court noted that “[i]f a product for sale inherently possesses each of the limitations of the claims, then the invention is on sale” regardless of the seller’s recognition that the product has the characteristics claimed by the patent applicant.
- Because “[o]ne of the primary purposes of the on-sale bar is to prohibit the withdrawal of inventions that have been placed into the public domain through commercialization,” the court found that Byron’s sales prior to Abbott’s application caused Abbott’s patent to be invalid.

3. The Experimental Use Exception

City of Elizabeth v. American Nicholson Pavement Co., 97 U.S. 126 (1877)

The relevant timeline for this case is as follows:

1847: Caveat filed in the Patent Office in which the improved wood block pavement discovered by Nicholson is “fully described.” (A caveat was a 19th century procedural device that entitled the filer to notice if others filed patent applications covering similar subject matter; it was not a patent application.)

June or July 1848: Nicholson constructs a portion of pavement.

1850: English patent issued to Hosking on the same or similar type of pavement.

1854 (six years after the construction of the road): Nicholson files for, and receives, a patent.

Note: At this time, the statutory bar allowed two years of public use—i.e., a two-year “grace” period.

Based on Nicholson’s activity, which included six years of public travel over Nicholson’s pavement on a public street in Boston, the Court considered whether Nicholson’s invention “was in public use or on sale.” At this time, the statutory bar allowed two years of public use before an inventor’s application for a patent. Based on testimony that “Nicholson would examine the pavement [almost daily],...mak[e] particular examination of its condition...and ask[]...very often how people liked it,” the Court found the evidence to indicate that Nicholson intended the pavement to be an experiment to test the pavement’s durability.

Instructor Talking Points

- The court held that “use is not a public use, within the meaning of the statute, so long as the inventor is engaged, in good faith, in testing [the invention’s] operation.”
- “Whilst the supposed machine is in such experimental use, the public may be incidentally deriving a benefit from it.”
- Because Nicholson did not allow others to use the pavement by laying it down in other places and “did not let it go beyond his control,” the Court found that Nicholson’s activities did not trigger the statutory bar.
- Sales will also not trigger the statutory bar, if the sold invention remains experimental and subject to the continued observation of the inventor.

Class Discussion

- If experimental use precludes a reduction to practice, how can Nicholson prove that he invented prior to 1850 (the date of the English patent to Hosking)? He can use conception + diligence to antedate the reference.
- Assume two inventors, Hare and Tortoise, conceive at the same time. Hare files an application without testing. Tortoise first tests carefully until certain of success and then files his application. Who gets the patent? Answer: Hare because Hare is the first to reduce to practice. Note that diligence does not matter here. If Tortoise had been the first to

conceive, however, Tortoise could still beat Hare if Tortoise remains diligent throughout testing.

Lough v. Brunswick Corp., 86 F.3d 1113 (Fed. Cir. 1996)

The relevant timeline for this case is:

Spring 1986: Lough designs and constructs six prototypes of a new seal assembly for boat motors. After testing one on his own boat, Lough installs the remaining prototypes on the boats of friends free or charge.

June 6, 1988: Lough files a patent application on his invention.

July 18, 1989: Lough's patent is issued.

1993: Lough files this infringement suit against Brunswick, which designed and installed its own seal assembly after learning about Lough's invention.

In response to Brunswick's defense that Lough used his invention prior to filing his patent application, Lough claimed that his use had been experimental.

Instructor Talking Points

- The court held that to determine whether a use is "experimental," the totality of the circumstances must be considered, including various objective indicia of experimentation...such as the number of prototypes and duration of testing, whether records...were made concerning the testing, the existence of a secrecy agreement...whether the patentee received compensation for the use...and the extent of control the inventor maintained over the testing."
- If the inventor either "has no control over the alleged experiments...[or] does not inquire about the testing or receive reports concerning the results,...he is not experimenting." Because "Lough kept no records of the alleged testing...[and] did not maintain any supervision and control over the seals during the alleged testing," the court found that "it cannot be reasonably disputed that Lough's use...was not 'experimental.'"
- The court concluded that its holding was "consistent with the policy underlying the experimental use [doctrine], that of providing an inventor time to determine if the invention is suitable for its intended purpose...."
- "When one distributes his invention to members of the public under circumstances that evidence a near total disregard for supervision and control concerning its use, the absence of these minimal indicia of experimentation require a conclusion that the invention was in public use."

Class Discussion

- What if the inventor had asked his customers to report how much they would pay for the seal? This fact would seem merely to confirm that the inventor was engaged in *market* testing (which starts the statutory bar clock) rather than testing of the invention (which does not).

4. Third Party Statutory Bar Activity

Baxter International v. Cobe Laboratories, Inc., 88 F.3d 1054 (Fed. Cir. 1996)

The relevant timeline for this case is:

Before May 14, 1975: Ito designs a sealless centrifuge. Suaudeau builds it and successfully tests it and NIH and Mass General. NIH has no secrecy policy.

May 14, 1975: Cullis's critical date.

May 14, 1976: Cullis/Baxter files application.

The court held that a third-party use not authorized by the inventor can trigger the § 102(b) statutory bar regarding public use, even where the use would be hard to discover by the applicant. Here Suaudeau used the invention in a lab, and it is unclear that the invention was ever used for the purposes intended by the inventor because Suaudeau's lab activities were aimed more at trying to improve the centrifuge rather than to use it. Still the court affirmed the district court's finding "that Suaudeau's use was not experimental" because Suaudeau "[was] not trying to further refine the invention and prove that it would work for its intended purpose." Rather, his "experiments" were "directed to fine-tuning the centrifuge to work for Suaudeau's particular purpose of heart preservation, not to determining if it would work as a centrifugal blood processing apparatus...as recited in the claims." Regarding these efforts, the court found that "[f]urther refinement of an invention to test additional uses is not the type of experimental use that will negate a public use." Additionally, the court found that "[t]he inventor's lack of direction or control over [this third party] use of the invention also support[ed] a conclusion that the use was not experimental." Therefore, the court "[held] that public testing before the critical date by a third party for his own unique purposes of an invention previously reduced to practice and obtained from someone other than the patentee, when such testing is independent of and not controlled by the patentee, is an invalidating public use, not an experimental use." On this ground, the court held that Suaudeau's activities caused the Baxter patent to be invalid.

Class Discussion

- How is this case different from *Rosaire*? They are similar in that the courts in both cases find public uses by third parties in circumstances where the use would be hard to discover by the applicant. There are two differences:
 - 1) *Baxter* is a statutory bar case. Thus, the prior public use cannot be defeated by proof of earlier invention; it creates problems for Ito's patent application too.
 - 2) In *Rosaire*, the invention was used in the ordinary course of business. Here Suaudeau used the invention in a lab. It is not clear that the invention was ever used in the ordinary course of a business (even accepting that research could be a business).
- How is this case different from *Egbert*? They are similar in that the courts in both cases find public uses that raise statutory bars. There are two differences:
 - 1) *Baxter* involved a use by a third party, not a use authorized by the inventor. Applying the statutory bar may seem more unfair in *Baxter* than in *Egbert* because in *Egbert* the inventor knew about the "public" use.
 - 2) Again, in *Baxter* it is not clear that the invention was ever being used for its intended purpose. Though the opinion is not entirely clear on this point, Suaudeau may have been trying to improve the centrifuge rather than to use it.
- Hypothetical: Inventor conceives of a new widget on 1/1/2000. Thief steals the plans, builds the widget and, unknown to the inventor, sells a copy on 2/1/2000. The inventor meanwhile sells some prototypes to determine if the new widget works. She requires customers to report on the performance of the invention. The inventor is satisfied with the tests on 3/1/2001 and then files an application.

Q: Can she get a patent?

A: Probably not. Sales by thieves *do* start the one-year clock of 102(b) running. *Evans Cooling Sys. v. General Motors Corp.*, 125 F.3d 1448 (Fed. Cir. 1997). Here the inventor's own sales were probably experimental, but the thief's was not. Perhaps, however, the inventor could argue that the invention was not yet "ready for patenting" at the time of the thief's sale because she was not yet convinced that the invention worked.

W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540 (Fed. Cir. 1983)

The relevant timeline for this case is:

1966: John Cropper of New Zealand develops a machine for producing stretched and unstretched PTFE thread seal tape.

1967: Cropper sends a letter to a company in Massachusetts offering to sell his machine, describing its operation, and enclosing a photo. Nothing comes of that letter. "There is no evidence and no finding that the present inventions thereby became known or used in this country."

1968: Cropper sells his machine to Budd in the U.S. but requires Budd to keep the operation of the machine a secret, which Budd does. Budd uses the machine to produce seal tape.

May 21, 1970: Gore files a patent application on a process for stretching PTFE material that is similar to Cropper's process.

The Federal Circuit reversed the district court's holding that Gore's process patent was invalid "because 'the invention' was 'in public use [and] on sale' by Budd more than one year before Gore's application for patent." In contrast to the district court, the circuit court noted that "Budd's activity with the Cropper machine...was [not] a 'public' use of the processes claimed in the...[process] patent, that activity having been secret, not public." The court found that if Budd sold anything, it was just the tape, "not whatever process was used in producing it...and there was no evidence[] that the public could learn the claimed process by examining the tape." Although Budd and Cropper's commercialization could prevent them from receiving a patent on their process for making the tape, "[t]here is no reason or statutory basis...on which [their] secret commercialization of a process...could be held a bar to the grant of a patent to Gore on that process." In conclusion, the court noted that "[a]s between a prior inventor who benefits from a process by selling its product but...keeps the process from the public, and a later inventor who promptly files a patent application from which the public will gain a disclosure of the process, the law favors the latter." Therefore, the third party "secret" use of the process claimed by Gore did not preclude the validity of Gore's patent.

Class Discussion

- Why doesn't Gore have a novelty problem? The process was not publicly known, so it does not qualify under § 102(a). Additionally, there is no § 102(e) issue. Finally, Cropper's process could not be considered under § 102(g)(2) because Cropper was concealing/suppressing the process.
- Why isn't Cropper's 1967 letter an offer to sell? Probably because he was not offering to sell the process, only the machine. Moreover, as we know from his later activity with Budd, the sale of the machine would have been subject to a secrecy restriction.

- Why isn't Budd's use of the machine a bar? Budd's use of the machine is not a "public" use of the process because he kept the process secret.
- Could Cropper have applied for a U.S. patent in 1970? No! "[A]n inventor's own prior commercial use, albeit kept secret, may constitute a public use or sale under § 102(b), barring him from obtaining a patent." *Woodland Trust v. Flowertree Nursery*, 148 F.3d 1368, 1370-71 (Fed. Cir. 1998). *Pennock* also supports this rule.

5. International Considerations

The relevant time period in which statutory bar material can arise under § 102(b) is "more than one year prior to the date of the application for a patent in the United States." This refers to the **actual US filing date**, not an effective filing date gained through a foreign filing in a Paris Convention country. This limitation on the effectiveness of a foreign filing is noted in § 119, which repeats the language of § 102(b) and explicitly requires that the relevant filing date be the "actual filing" date in this country.

6. Summary

It may help to think of § 102 as containing variations along four dimensions: (1) *type* of prior art reference (publication, use, etc...); (2) *persons* covered (inventor, inventor and others, only others); (3) *place* where prior art takes place (U.S. or elsewhere); and (4) *date* of prior art reference. The "prior art chart" (p. 589) summarizes how §§ 102(a) and (b) vary along these dimensions.

<u>102</u>	<u>Was Invention:</u>	<u>By:</u>	<u>In:</u>	<u>Before:</u>	<u>If yes:</u>
					N
a	known	others	U.S.	date of invention	O
a	used	others	U.S.	date of invention	
a	patented	others	any country	date of invention	P
a	published	others	any country	date of invention	A
b	patented	anybody	any country	1 year prior to filing	T
b	published	anybody	any country	1 year prior to filing	E
b	in public use	anybody*	U.S.	1 year prior to filing	N
b	on sale	anybody*	U.S.	1 year prior to filing	T

* Exception: Under *Metallizing Engineering, W.L. Gore* and associated cases, secret uses and sales by one inventor create a bar but only for that inventor.

C. Party-Specific Statutory Bars: §§ 102(c) & (d)

1. Section 102(c): Abandonment

Macbeth-Evans Glass Co. v. General Electric Co., 246 F.695 (6th Cir. 1917)

The relevant timeline for this case is:

Fall 1903: George Macbeth begins to market and sell glass products made using a new process that he invented.

May 1910: A Macbeth-Evans employee aware of the “secret glass-making process” leaves the company and discloses the process to the Jefferson Glass Company.

Dec. 1910: The Jefferson Glass Company begins secretly using Macbeth’s process to make glass products sold in the United States.

May 9, 1913: Macbeth files a patent application on his process, which issues on July 14, 1914.

The court considered “whether one who has discovered and perfected an invention can employ it secretly more than nine years for purposes only of profit, and then, upon encountering difficulty in preserving his secret, rightfully secure a patent, and thus in effect extend his previous monopoly....” The court noted that Macbeth “possessed the right to practice his invention in secret and for profit, though the secret was the sole source of [his] protection...He had no right to exclude others from legitimate discovery and use of the invention, but he had an inchoate right to the exclusive use of the invention, which right...he might have perfected and made absolute by proceeding in the manner required by the patent laws...yet he failed to take this step.” Macbeth’s secret use along with his knowledge that he lacked protection against use by others “inevitably concedes an intent either to abandon the right to secure protection under the patent laws, or to retain such right and if necessity should arise then to obtain through a patent a practical extension of any previous exclusive use....”

The court found that “[i]t would be a contradiction to say that an inventor could both give up and hold the right to secure a patent” and concluded that Macbeth’s secret use was not “reconcilable with a subsisting purpose to adhere to the right to secure a patent.” Even if Macbeth did not intend abandonment, “it certainly did contemplate an indefinite delay in disclosure of the invention and a...substantial enlargement of any period of monopoly recognized by statute,” which is against the public policy behind the limit on patent terms. Therefore, the court held that “at the time the patent in suit was applied for, the invention had been abandoned” and therefore Macbeth’s patent was void.

Instructor Talking Points

- Under the 1952 Patent Act, abandonment—section 102(c)—is a party-specific bar. It might be the better statutory basis for barring inventors from obtaining patents where they first practice the invention as a trade secret.
- Few modern cases, however, rely on § 102(c). Instead they use § 102(b) and simply make § 102(b) into a party-specific bar where an invention is practiced as a trade secret—i.e., the person who practices the invention as a trade secret for more than one year is barred from getting a patent but no one else is.
- In modern patent law, abandonment might still matter in two scenarios:
 - 1) An inventor expressly abandons her invention to the public but then changes her mind and files.
 - 2) An inventor practices the invention as a trade secret for less than one year and then files. Section 102(c) does not have a one-year grace period; nevertheless, a court might balk at finding abandonment if the inventor filed within one year after commencing trade secret use.
- Abandonment does not seem to be a problem where:
 - 1) The inventor keeps the invention secret and uses it for his own non-commercial purposes.
 - 2) The inventor files an application and then “abandons” the application. Later the applicant refiles and begins prosecution again.

2. Section 102(d): Prior Foreign Filing**In re Kathawala, 9 F.3d 942 (Fed. Cir. 1993)**

The relevant timeline for this case is:

Nov. 22, 1982: Kathawala files an application in the U.S. seeking rights to new compounds.

Nov. 21, 1983: Kathawala files in Greece and Spain. These applications include claims covering ester derivatives of his original compounds.

Oct. 2, 1984 & Jan 21, 1985: The Greek and Spanish patents issue.

Apr. 11, 1985: Kathawala files a continuation-in-part application in U.S. seeking to claim the ester derivatives. The PTO rejects the CIP application

under § 102(d).

The § 102(d) bar at issue in this case prevents an inventor from receiving a patent when (1) an inventor applies for a patent in a foreign country more than one year before her U.S. filing date, and (2) the foreign patent issues prior to the U.S. filing date. Here, Kathawala's 1985 application satisfied both tests. Kathawala argued, however, that rejection of its U.S. patent application was improper based on three grounds.

Instructor Talking Points

- Kathawala argued that:
 - 1) The ester compounds were not “patented” in Greece because the Greek patent was invalid.
 - 2) The Spanish patent was not yet publicly available.
 - 3) The ester compounds were not “patented” in Spain because they were not covered in the claims.
- The court held:
 - 1) “[T]he controlling fact for purposes of section 102(d) is that the Greek patent issued containing claims directed to the same invention as that of the U.S. application. When a foreign patent issues with claims directed to the same invention as the U.S. application, the invention is “patented” within the meaning of section 102(d); validity of the foreign claims is irrelevant to the section 102(d) inquiry.”
 - 2) The date of patent enforceability is determinative.
 - 3) “What is controlling is that the application that Kathawala filed in Spain disclosed and provided the opportunity to claim all aspects of his invention, including the compounds.”
- The court's holdings on points 1 and 2 seem sound. In particular, it would be very difficult for a U.S. court to decide that it knew foreign patent law better than that country's own Patent Office. The court's holding on point (3) seems much more questionable, and it is not consistent with the interpretation of “patented” given in *Reeves* for 102(a) and (b) purposes.
- Students should be able to recognize that the factual predicate of 102(d) is very rare. Essentially, the situation cannot arise unless the attorneys prosecuting the U.S. and foreign patent applications are negligent: They have to file the U.S. application outside of the one year period afforded by the Paris Convention. Moreover, even if the attorney commit that blunder, they still must be unlucky enough to have the foreign patent office actually *issue* the foreign patent before they get around to filing in the U.S. In short, this situation can arise only if the attorneys are both negligent *and* unlucky!

Chapter 7: Nonobviousness

A. Introduction: Nonobviousness and “Invention”

Courts and commentators agree with near uniformity that the nonobviousness doctrine is designed to screen out patents on “trivial” inventions. Nonobviousness is generally considered a higher bar than utility, where “[W]hether [an invention] be more or less [important] is a circumstance very material to the interests of the patentee, but of no importance to the public. If it be [trivial], it will silently sink into contempt and disregard.” *Lowell v. Lewis*.

Nonobviousness is a higher bar because it is focused on *technical triviality*, NOT *economic triviality*. Technically trivial but economically valuable developments (e.g. Selden) will develop without granting a patent, so granting a patent will only lead to social costs of monopoly with no benefits. As well, granting obvious patents may compromise the incentives to make nonobvious inventions. Finally, granting obvious patents may lead to “thickets” of patents, increasing search costs for other inventors and businesses and generating a great deal of litigation due to accidental infringement.

The *Selden* case illustrates the importance of nonobviousness. Selden’s claims cover nearly every car on the road. Selden’s combination may have been novel, since gasoline engines were relatively new, and Selden may have been the first to mount one on a car. However, the development was trivial – many individuals independently thought to use gasoline engines for cars. Granting a patent would impose an unnecessary output constraint and decrease royalties to inventors. Thus, a lax nonobviousness doctrine is not necessarily pro-inventor.

Introduction to the History and Policies of the Doctrine

- 1790: The 1790 Patent Act conferred discretion on the members of a patent board to grant a patent “if they shall deem the invention or discovery sufficiently useful and important.”
- 1793: 1793 Patent Act stated that “simply changing the form or the proportions of any machine, or composition of matter, in any degree, shall not be deemed a discovery.”
- 1793-1836: Court built on the statutory language; they held that a patentable improvement must involve a change in the “principle of the machine,” not “a mere change in the form or proportions.”
- 1836: 1836 Patent Act eliminated the statutory basis for holding unpatentable mere changes in “form” or “proportions.”
- 1836-1851: Courts continue to hold that patentable discoveries are required to exhibit a change in “principle.”

- Hotchkiss: Establishes a doctrine of “invention” as a general requirement of patentability. The decision uses as a benchmark of invention the “ingenuity or skill ... possessed by an ordinary mechanic acquainted with the business.”
- 1851-1950: The Supreme Court applies an increasingly stringent “invention” test.
 - By 1876, the Court was requiring “inventive genius.”
 - In the infamous Cuno decision of 1941, the Court described the test as requiring a “flash of creative genius.” The Court also begins to say that this standard was a constitutional standard!
 - 1949: Justice Jackson lamented in a dissent that, under the its invention standard, the Court had developed such a “strong passion” for striking down patents “that the only patent that is valid is one which this Court has not been able to get its hands on.”
- 1952: Congress codifies the obviousness test.
- 1952-1966: The Court avoids interpreting the new statute.
- 1966: The Court decides Graham and its companion cases. It follows the statute faithfully even though it states that the new statute is merely a codification of existing precedents.
- 1969-76: The Court decides three more cases and invalidates the patent in each case. In the last case (Sakraida), the Court cites its pre-1952 precedents in interpreting the statutory standard of nonobviousness. After 1976, the Court abandons the field for at least a quarter century.
- 1982-2006: The Federal Circuit develops a more lenient “suggestion” test for determining obviousness.
- 2006-2007: Supreme Court hears and decides the KSR case

Hotchkiss v. Greenwood, 52 U.S. (11 How.) 248 (1851)

Hotchkiss v. Greenwood concerned a patent for manufacturing porcelain knobs using a dovetailed structure. The Court held the patent invalid as obvious because “the improvement is the work of a skillful mechanic, not that of the inventor.”

At the time of the alleged invention, both porcelain knobs and the dovetailed structure for attaching a shank to knobs of metal or wood were in the prior art. The only difference between the prior art and the claimed invention was the combination of those two elements. A full review of the record suggests that, while porcelain knobs were very old in the art, the dovetail structure had just been created (quite possibly from some innovator who lived in the neighboring town.)

Class Discussion:

- What standard does the Hotchkiss articulate for determining whether an innovation is patentable? The Court holds that: “[U]nless [there is proof of] more ingenuity and skill ... than were possessed by an ordinary mechanic acquainted with the business, there was an absence of that degree of skill and ingenuity which constitute essential elements of every invention. In other words, the improvement is the work of the skilful mechanic, not that of the inventor.” Is this different from an “obviousness” standard?

B: Section 103 and the Basic *Graham* Inquiry

Graham v. John Deere Co., 383 U.S. 1 (1966)

The Graham-Hoeme Chisel Plow was designed by Fred Hoeme to leave large clods of soil resistant to wind erosion. Graham had previously invented a spring clamp that increased flexibility in the shank so that the plow shank and frame would not break when the plow shank struck a rock. However, the shank rubbed against the fixed upper plate of the clamp, and the upper plate was expensive to replace because it was a large piece and was connected directly to the plow frame. Also, the spring rode passed through a slot in the shank and was the only part holding the shank within the clamp. As the shank pivoted under strain, it would slide against and damage the spring rod.

The patent at issue in *Graham* claims an invention that solves these problems by (1) moving the hinge plate above the shank so that the shank does not touch the fixed upper plate and (2) securing the shank to the hinge plate by a nut and bolt arrangement at the forward end and a stirrup at the rear. The Court held the patent invalid as obvious on the ground that the features in the *Graham* patent were present in a similar structure created by Glencoe, which was prior art that was not before the examiner during prosecution.

Instructor Talking Points

- What standard does the Graham Court apply? The Court holds that (p. 638):
“Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy.”

This passage has been read as authorizing a five-part analysis: three predicate issues; the legal evaluation of obviousness; and secondary considerations.

- Is the Graham standard different from Hotchkiss? Hotchkiss is ambiguous enough that it can be interpreted to be consistent with Graham, but one could find two differences. First, Hotchkiss says only that the invention

cannot be found if the combination show only the skill of the ordinary mechanic, but the case does say how much skill is required to have invention.

Perhaps “genius” is needed. Second, Hotchkiss could be interpreted so that the product of difficult but persistent “ordinary” efforts would be unpatentable.

Class Discussion

- The court held that the flexing feature of the Graham 798 device is an “afterthought” that was not “hinted at in the specifications of the patent” or “raised in the Patent Office.” The Court also notes that Graham’s own expert had testified that “the flexing advantages ... are not, in fact, a significant feature in the patent.” Is there a requirement to identify the nonobvious quality? Should there be?

Calmer v. Cook Chemical

The Supreme Court decided two other cases in its *Graham* opinion, one of which was *Calmer v. Cook Chemical*. Cook Chemical patented a plastic sprayer with a hold-down lid used to dispense liquid products, such as pesticides. In a declaratory judgment action brought by *Calmer*, the district court upheld the patent, and the Court of Appeals affirmed.

As in *Graham*, the Patent Office did not consider the most relevant prior art (the Livingstone patent). Livingstone is 102(e) type prior art. The patent application was filed in 1953, and Livingstone did not claim the relevant features of the cap.

Livingstone was not granted until August 16, 1955. Thus, Cook’s researcher (Scoggin) could not have known about this cap for most of the period when he was searching for a better hold-down cap.

Cook Chemical argued that its cap was distinguished by two differences: (1) a space between the hold-down cap and the shoulder of the container top, and (2) the use of a rib seal rather than just a gasket. The Court held that both of these features were present in the Livingstone reference.

Cook’s only hope was to have the Livingstone patent excluded from the “pertinent” prior art on the ground that it was a cap for a pour spout not a sprayer top. However, the Court rejected this argument as well on the ground that “[t]he problems confronting Scoggin and the insecticide industry were not insecticide problems; they were mechanical closure problems. Closure devices in such a closely related art as pouring spouts for liquid containers are at the very least pertinent references.”

Instructor Talking Points

- While obviousness is tested from the perspective of the person of ordinary skill in the art, it is tested against all of the relevant prior art. As Judge Rich describes it in *Winslow* just a few months after *Graham* was decided, the section 103 test hypothesizes a person skilled in the art “working in his shop with the prior art references — which he is presumed to know — hanging on the walls around him.” The test thus is very stringent in terms of knowledge; the person of skill in the art is presumed to have perfect knowledge of the

whole tableau of pertinent references. But, unlike some formulations of the pre-1952 standard, the test is forgiving as to the standard of effort and creativity necessary to achieve patentability: If the person of skill in the art would not find the invention “obvious,” then it is patentable even if the person of skill in the art could have come up with the invention but only after inventing significant efforts.

- In the Cook Chemical case, the tableau of relevant references includes a piece of “secret” prior art – the Livingstone patent application, which was filed in 1953 but did not issue until August of 1955. The case thus shows that the obviousness test uses a hypothetical person of ordinary skill in the art (POSITA) who possesses more knowledge than ordinary researchers in the real world. The existence of secret prior art also helps to explain why Cook Chemical could make a good showing on the “secondary factors” of nonobviousness but still fail the legal test: Real world researchers at Cook Chemical and other insecticide firms did *not* have access to the Livingstone patent application during 1953-1955, which is when the need existed and remained unsolved
- In explaining the failure of Scoggin and others to hit upon the “obvious” variation of Livingstone’s cap, the Supreme Court suggests that Scoggin and other researchers can be faulted because “no one apparently chose to avail himself of knowledge stored in the Patent Office and readily available by the simple expedient of conducting a patent search — a prudent and nowadays common preliminary to well organized research.” But this isn’t correct, because a patent search would not have uncovered Livingstone’s patent until late in 1955. Scoggin started his research in 1954.

C. Subtests of Nonobviousness

Tests Developed Pre-*KSR*

- Combination Rule (*Sakraida v. Ag Pro*) – An alleged invention is deemed obvious and therefore unpatentable if the alleged invention is nothing more than: (1) a combination of old elements (2) where each element performs its known function (3) and where end result is not synergistic, that is, “result[ing] in an effect greater than the sum of the several effects taken separately.” *Anderson’s-Black Rock v. Pavement Co.*, 396 U.S. 57, 61 (1969).
- Federal Circuit’s Suggestion Test – The CAFC had held that courts must adhere to a “rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.” This test was designed to guard against “hindsight” reasoning. Other cases require evidence of teaching, suggestion or motivation was “essential” to avoid hindsight reasoning. But... The CAFC had also stated that the required teaching/suggestion/motivation “may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved...” Thus, a suggestion may

be implicit, not explicit, in the art. When is a suggestion implicit? When is it obvious?

- Dembiczak (Pumpkin Bags) – The patent in Dembiczak was directed to a decorative trash bag with the outside “simulating the general outer appearance of an outer surface of a pumpkin having facial indicia thereon.” The PTO denied the patent application as obvious, citing as prior art craft books for children and “conventional” trash bags. However, the CAFC reversed holding that the agency had not found a true suggestion to combine the prior art elements in precisely the way done by the applicant.

KSR International Co. v. Teleflex Inc., 2007 U.S. LEXIS 4745 (Apr. 30, 2007)

The technology at issue in KSR, which relates to pedals, is fairly simple. The patent at issue is directed to a pedal with an electronic sensor. The prior art included at least one pedal (by Asano) that included all elements of the invention except for an electronic position sensor (which were readily available and were being added to pedals as car manufacturers switched to electronic throttle control). The only difference in the KSR patent was the addition of the sensor.

The District Court invalidated the patent on summary judgment, holding that the switch from mechanical to electronic throttle control provided the “motivation” to combine prior art pedals with electronic sensors. The Federal Circuit reversed, saying that there had to be more “specific findings” to show that the person of ordinary skill in the art would have been motivated to make the combination in “the particular manner claimed by [the relevant claim].”

Instructor Talking Points

- Why was the invention not invented earlier? Prior to the mid-1990’s pedals were designed to send mechanical signals to engine because engine was controlled mechanically. In mid-1990’s, the industry was switching to electronics because computers were being installed in automobiles to control throttle, gas-air mixture, etc. Pedals thus had to be redesigned to send an electrical, not mechanical, signal into the engine compartment. As the Court notes on page 678, “technological developments made it clear” that electronic throttle control would soon become standard.

Class Discussion

- In what ways did *KSR* change the law of obviousness that had been applied in the Federal Circuit? The TSM test is no longer an *exclusive* test (and that’s huge change).
- *KSR* discusses several “principles” that should guide the obviousness inquiry. What are those principles? Do they make sense?
 - Test should be flexible;
 - Predictable results are generally unpatentable;
 - PHOSITA is creative and generally has the ability to combine insights

- from other fields;
- Combination inventions should be scrutinized with special care;
- Inferences are permissible;
- Obviousness is analyzed based on the claims, not the “preferred embodiment” found in the patent (p. 678);
- Obvious to try might be useful in deciding obviousness;
- Weak patents can stifle rather than promote progress.
- Should “combination patents” of a particular sort be suspect? Compare second paragraph of part II.A (p. 673) with first paragraph of II.B (675). Combinations are not suspect unless the functions of the parts are not new and the result combination produces predictable results.
- Should patent validity always be decided by a judge, not a jury? See page 679 (part IV) and also p. 674 (“analysis must be made explicit”). Also note that the presumption of validity may be significantly weakened where PTO has not seen the relevant prior art.

Akie Lures, Inc. v. Gene Larew Tackle, Inc., 119 F.3d 953 (Fed. Cir. 1997)

Gene Larew invented a plastic fishing lure that tasted salty so that fish would hold on to the lure longer than normal fishing lures, giving a fisherman more time to set the hook. *Akie Lures* filed for declaratory judgment on obviousness grounds, claiming that the lure was insufficiently different from the prior art to be nonobvious. Larew presented evidence that potential manufacturers were skeptical of his plans because mixing salt with plastic would roughen the surface of the lure, weaken the structure, and require a dangerous manufacturing process due to a heightened risk of explosion. The district court invalidated the patent as obvious.

The CAFC reversed on the ground that although it was possible to use salt in a lure prior to Larew’s invention, both experts and the prior art taught away from such a course. Additionally, Larew’s invention garnered substantial commercial success, an important secondary consideration for nonobviousness.

Instructor Talking Points

- *Akie Lures* shows that skepticism of others can weigh strongly in favor of finding nonobviousness, even for a relatively simple invention (prior art salt as a lure + prior art plastisol fishing lures).
- The key question after KSR is what caselaw from the CAFC remains viable. *Arkie Luries* is a good example of a case that probably survives because the combination of the prior art pieces was not predictable and the patentee had strong evidence of secondary considerations.
- See also dissent pp. 691-92 – cites the timing evidence but draws the wrong conclusion. If lots of similar things had been mixed with plastic lures previously, why wasn’t salt mixed too?

Summary of Nonobvious Analysis

Graham has been read as authorizing a five-part analysis: three predicate issues; the legal evaluation of obviousness; and secondary considerations.

- Step 1: Determine the scope and content of the prior art
 - Decide which subsections of 102 qualify as prior art. Oddzon, Foster.
 - Determine whether a particular reference fits within at least one subsection of 102. Chapters 5 + 6.
 - Determine whether the reference is a pertinent piece of prior art. Clay; Cook Chemical; Winslow.
- Step 2: Ascertain the differences between the prior art and the claims at issue.
- Step 3: Find the level of ordinary skill in the pertinent art.
 - Winslow: Person of ordinary skill knows all of the art.
- Step 4: Determine the obviousness or nonobviousness of the subject matter.
 - KSR + other subtests.
- Step 5 (?): “Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized ... [a]s indicia of obviousness or nonobviousness, these inquiries may have relevancy.

Final Questions

- What subsections of section 102 provide prior art for purposes of section 103 analysis? Every provision of 102 that has ever been considered by a court has been included (though current dicta states that 102(c) and (d) material would not be included).
- How does the “analogous” arts limitation help patent applicants? What is the statutory justification for imposing such a limitation on the prior art considered for purposes of obviousness analysis? What is the policy justification for imposing such a limitation? The doctrine excludes art, and therefore makes it easier to patent. The doctrine is based on the statutory words “in the art to which said subject matter pertains” in section 103. The doctrine recognizes that invention is sometimes drawing an nonobvious analogy between seemingly dissimilar things.

Chapter 8: Infringement

Section 154 provides the statutory basis for a patent grant, but it does not define the “invention” that is the subject of the patentee’s rights. The statute does, however, refer the reader to the “specification” for the “for the particulars thereof” – i.e., for the particulars of the “invention.” The requires for the specification are set forth in section 112.

Section 112 requires the “invention” to be described in the written description of the specification and distinctly claimed in the claims at the end of the specification. The statute does not say whether the claims or the specification should have primacy in defining the invention. The overarching issue in patent infringement law is what might described as the “balance of power” between the claims and the rest of the specification: Which part of the patent document should have more weight in determining the patentee’s rights?

History

- 1898: Supreme Court holds that even where an accused device is covered literally by claim language, still infringement does not occur if the accused device is substantially different than what is described in the specification.
- Early 20th Century: Infringement analysis is similar to today’s analysis though with probably more weight given to the specification than is afforded currently by the Fed. Cir.
- 1996: *Markman v. Westview Instruments*: Supreme Court holds claim interpretation to be an issue of law.
- 1997: *Warner-Jenkinson*: S.Ct. reaffirms the doctrine of equivalents, though the doctrine is now applied to each element of the invention as defined by the claims.
- 2002: *Festo*: S.Ct. stops the Federal Circuit from limiting the doctrine of equivalents with an expanded doctrine of prosecution history estoppel. Still, the Federal Circuit is largely successful in erecting significant barriers to the application of the doctrine of equivalents.
- 2005: *Phillips v. AWH Corp.*: After several years of emphasizing the importance of literal claim language as the most important means to define the patented invention, the Federal Circuit tries to add a bit more emphasis on importance of the specification. Nevertheless, the court continues to hold that claims may reach beyond all equivalent structures found in the specification.

A. Introduction: The Primacy of Patent Claims

Merrill v. Yeomans, 94 U.S. 568 (1877)

The plaintiff’s patented included a claim for new “manufacture of the deodorized heavy hydrocarbon oils . . . by treating them substantially as is hereinbefore described.” The Court confronted two issues. First, should this

claim be interpreted to cover a product or a process? Second, should the patentee receive any “liberal construction” to cover the accused products?

As to the first issue, the Court holds that the claim covers a process. The court begins with the language of the claim and also considers standard definitions of the relevant words in the claim. The Court resolves ambiguity by reading the patent specification and finding contextual clues as to which meaning fits best within the document. As to the second issue, the Court holds that there is “no excuse for ambiguous language or vague descriptions.”

B. Interpreting Claims

1. Basic Doctrine

Phillips v. AWH Corp.

The patented invention is an allegedly innovative type of wall with “internal steel baffles extending inwardly from the steel shell walls.” The wall is designed to be used in jails and other high security areas. The specification of the patent shows steel baffles set at angle between the inner and outer wall faces. The steel baffles are designed to prevent things (e.g., bullets) from passing through the walls. The accused structure included steel structures running perpendicular to the wall faces.

The district court ruled that, for purposes of the ’798 patent, a baffle must “extend inward from the steel shell walls at an oblique or acute angle to the wall face.” p. 789. Thus, accused products do not infringe if their internal load bearing structures are perpendicular to the wall face. In reaching its decision, the district court decided that the word “baffles” should be interpreted as a “means-plus-function” element. Such elements are authorized by section 112 ¶ 6, but the statute requires such elements to be construed to “cover the corresponding structure, material, or acts described in the specification and equivalents thereof.”

The initial CAFC panel held that “baffles” was not a means-plus-function element but that nonetheless the word had to be interpreted as the district court had: Baffles had to be at other than 90 degree angles. The patent specification “is intended to support and inform the claims, and here it makes it unmistakably clear that the invention involves baffles angled at other than 90 [degrees].” Dissenting from the panel decision, Judge Dyk argued that claim terms should be defined primarily with dictionaries and thus, since standard definitions of baffles do not include a limit on the angle of the baffle, no such limit should be read into the claim.

The CAFC takes the case en banc to decide the extent to which infringement courts should rely upon dictionaries in interpreting claims. The result is that the CAFC disavows an approach (which the court had seemingly embraced *Texas Digital Systems, Inc. v. Telegenix, Inc.*, 308 F.3d 1193 (Fed. Cir. 2002)) that stressed the importance of dictionaries in interpreting claims.

Instructor Talking Points

- The court concludes that the term “baffles” refers to objects that check, impede, or obstruct the flow of something. See p. 797 (part IV.A). The majority of the court then believes that “the flow of something” being impeded by the baffles may include a flow of insulating material from compartment in the wall to another. However, the court’s statement that “[w]hen material is placed into the wall during installation, the baffles obstruct the flow of material from one compartment to another” has no basis in the specification.

Class Discussion

- Based on the Federal Circuit’s opinion, can you tell what was the nonobvious advance associated with the invention in Phillips? No. Nothing anywhere in the opinion mentions why the wall described in the claims and specification is patentable. That approach to claim interpretation seems radically inconsistent with Supreme Court precedent, which hold that, in construing a patent, a court should “first look[] into the art to find what the real merit of the alleged discovery or invention is and whether it has advanced the art substantially.” *Eibel Process Co. v. Minnesota & Ontario Paper Co.*, 261 U.S. 45, 63 (1923) (Taft, C.J.).

Claim Interpretation Canons

- 1. Impose a narrow construction to save validity. This rule used to be more important but at the Federal Circuit, it is relegated to being the tie breaker “of last resort.”
- 2. Don’t “read in” limitations from the specification. This rule is frequently invoked by the Federal Circuit but it is naturally in tension with the next canon.
- 3. Contextual meaning may trump ordinary meaning. If the specification shows that, in context, a particular word in a patent was meant to have a meaning more narrow than its ordinary meaning, then such a meaning may be imposed by the court.
- 4. Patentees may be their own lexicographers. Perhaps it is merely a corollary of the last canon: Patentees are free to define words to have special meanings within their patents.
- 5. Patentees may also disclaim a broad scope of meaning for terms, and such disclaimers may come in the specification or in representations made during prosecution.
- 6. The rule of so-called “claim differentiation” is that claims should be interpreted to give each claim some scope different from the scope given to other claims.
- 7. A claim may be interpreted in light of the purpose or goal of the invention.

2. Equivalents and Means-Plus-Function Claims

Means-Plus-Function Claims, defined in 35 U.S.C. § 112 ¶ 6, provide a method of claiming equivalents to structures disclosed in the specification. The word “combination” in the statute means that means-plus-function elements must be used in combination with at least one other element (which may be another means-plus-function element).

Federal Circuit doctrine on means-plus-function claims includes two controversial points:

- (1) The rule of claim interpretation found in 112 para. 6 applies only to the means-plus-function element, not to the whole claim. Note that this approach seems in tension with the plain language of the statute.
- (2) The rule of claim interpretation found in 112 para. 6 is a more narrow approach to claim interpretation than the usual approach applied to non-means-plus-function elements.

What’s not controversial is that, at the least, means-plus-function elements are interpreted to cover the structures disclosed in the spec. + equivalents.

Wright Co. v. Paulhan, 177 F. 261 (C.C. S.D.N.Y. 1910) (L. Hand, J.)

The patent at issue in *Wright v. Paulhan* concerned an invention by the Wright Brothers to maintain stability of a glider or aircraft. The Wright Brothers found that by balancing the amount of lift on each side of the plane by making adjustments to the wings (e.g. by warping a portion), and by making a necessary rudder correction, the plane would be more stable. The Wrights’ disclosed design makes the rudder adjustment automatically through a system of ropes and pulleys connecting the wing warping mechanism with the tail rudder. The Wright patent included a claim for a flying-machine with “a vertical rudder, and means whereby said rudder is caused to present to the wind that side thereof nearest the side of the aeroplane having the smaller angle of incidence and offering the least resistance to the atmosphere.”

Instructor Talking Points

- (1) “To an intelligent understanding of the invention and the question of how essential is the attachment of the tiller ropes to the warping rope, the method of maintaining equilibrium under the patented combination must first be set forth.” → The questions of equivalents and infringement cannot be approached intelligently without an understanding of the technology.
- (2) “In the patent in suit any skilled operator . . . finding the automatic connection unsatisfactory, would at once disconnect it and attach the tiller ropes to a lever or to a foot pedal which he could directly control. . . . The machine would be changed, but the combination would remain, because there would remain the means of causing the rudder to operate upon the side of lesser incidence. The defendant urges very vehemently that the means must be the means specified. All that the specifications need contain is so clear a description that any skilled mechanic may use the invention.” → This is a key part of the equivalency analysis.

- (3) Hand applies the rule that a “pioneer” patent “under the well-known rules is entitled to a broad construction.” This too is an essential part of the analysis. Thus, Hand looks both at (i) how hard it would be to modify the Wrights’ plane (see point (2)); and (ii) how large a contribution was made by Wrights to this field of technology.
- (4) Hand ultimately conclude that it is “a fair equivalent to operate the tiller ropes independently by a mechanism under the direct control of the aviator.” Note that this allows the Wrights to claim pedals controlled by an aviator, who operates the plane with a knowledge of flying, as an equivalent to an automatic system using ropes and pulleys. That interpretation of the patent claim seems fair given that the Wrights are pioneers, and the pilot owes to the Wrights the knowledge of how to fly.

Class Discussion

- Was Hand too generous to the Wrights or was the decision appropriate given the Wrights’ contribution? Note that if Hand rules the other way, the Wrights’ patent is economically worthless.
- The Wrights used wing-warping; Glenn Curtiss used wing flaps or ailerons. *See* Glenn Curtiss, Alexander Graham Bell, and others, U.S. Pat. No. 1,011,106 (issued Dec. 5, 1911). Does an airplane with ailerons infringe claim 7 of the Wrights’ patent? Can you determine what language in the Wrights’ claim can be construed to cover ailerons? (Hint: The question was not difficult and was uniformly decided in favor of the Wrights.) Answer: The question of infringement turned on whether Curtiss’s ailerons were “lateral portions” of the wing.

3. Procedural Aspects of Claim Interpretation

Markman v. Westview Instruments, Inc., 517 U.S. 370 (1966)

The claim at issue in *Markman* was directed to “an inventory control and reporting system.” Westview claimed that Markman’s patent was not infringed, in part because the term “inventory” required that an infringing system track not only invoices and accounts receivable, but also physical articles of clothing. After a jury verdict for infringement, the district court nonetheless decided that, as a matter of law, the term “inventory” in Markman’s patent encompasses “both cash inventory and the actual physical inventory of articles of clothing.” The Federal Circuit affirmed.

The Supreme Court granted certiorari to determine whether issues of claim interpretation were factual, and thus the province of the jury under the 7th Amendment, or legal, and thus to be decided by the judge. The Court held that, although claim interpretation involves factual inquiries, it is ultimately a question of law.

Instructor Talking Points

- The main holding of *Markman* is that claim construction is an issue of law for courts, not an issue of fact for juries. The Supreme Court does not hold

that claim construction is devoid of factual inquiries. Rather, the Court describes the issue as a “mongrel,” involving a legal determination that may be based on facts. The Court does not decide the level of deference owned by an appellate court in reviewing a claim interpretation by (i) a trial court, or (ii) by the PTO. The CAFC (in *Cybor Corp. v. FAS Technologies, Inc.*) has held that the appellate court reviews de novo, but that holding is controversial. *Markman* also provides a good example of the problems in claim construction.

Class Discussion

- (Note 2, p. 839) *Markman* decided that claim interpretation was a matter of law, but it did not determine the standard of review. What is the standard of review for claim construction? The Federal Circuit has generally held that it will review claim construction issues de novo, without any deference to other institutions that must interpret claims. The rule has been articulated most forcefully in infringement litigation, where the CAFC in *Cybor Corp. v. Fas Technologies, Inc.* (p. 839) refused to give any deference to district court interpretations. What are the reasons for or against greater deference to district court claim interpretations?

C. The Doctrine of Equivalents

Winans v. Denmead, 56 U.S. 330 (1854)

The plaintiff in *Winans* claimed a car for the transportation of coal “in the form of a frustrum of a cone, whereby the force exerted by the weight of the load presses equally in all directions.” The defendant’s product was not in the form of a perfect cone, which has a circular cross-section. Instead, it is in the form of a multi-sided shape.

The Court allows a variation from the language of the claim, holding that the defendant’s device would infringe if it is “so near to a true circle as substantially to embody the patentee’s mode of operation, and thereby attain the same kind of result as was reached by his invention.” According to the Court, “patentees sometimes add to their claims an express declaration, to the effect that the claim extends to the thing patented, however its form or proportions may be varied. But this is unnecessary. The law so interprets the claim without the addition of these words.”

Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17 (1997)

The claim at issue in *Warner-Jenkinson* relates to an ultrafiltration process that takes place “at a pH from approximately 6.0 to 9.0.” That phrase was added to distinguish a previous patent (the “Booth” patent) that disclosed an ultrafiltration process operating at a pH above 9.0. The parties disagree as to why the low-end pH limit of 6.0 was included as part of the claim. The accused ultrafiltration process operates at a pH of 5.0. The district court ruled the patent valid and infringed under the DOE, and the Federal Circuit affirmed.

The Court reversed and remanded to the CAFC for further consideration. Here the plaintiff narrowed the claims through amendment during prosecution. Although the DOE remains relevant, prosecution history estoppel limits its application, including in cases where there is no reason apparent for the amendment during prosecution. The plaintiff bears the burden of proof for demonstrating that an amendment did not relate to a substantial element of patentability.

Instructor Talking Points

- The Court reaffirms the vitality of the doctrine of equivalents, but the Court is also concerned that the doctrine of equivalents has been too liberally applied. The Court limits DOE in two ways:
 - (i) It also requires DOE analysis to proceed on an element-by-element basis. It describes the “essential inquiry: Does the accused product or process contain elements identical or equivalent to each claimed element of the patented invention?”
 - (ii) It places the burden of disproving prosecution history estoppel on the plaintiff.
- The Court also rejects imposing any intent requirement. Evidence of “copying” is unnecessary. Indeed, “intent plays no role in the application of the doctrine of equivalents.”

Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., 535 U.S. 722 (2002)

The Federal Circuit held that a narrowing amendment during prosecution functioned as a complete bar to asserting against equivalents on that element. The Supreme Court reversed, holding that a flexible bar is appropriate for prosecution history estoppel.

The Court held that a patentee’s decision to narrow claims through amendment during prosecution creates a presumption that the subject matter between the original and amended claim is disclaimed. However, the patentee can rebut the presumption of prosecution history estoppel by showing that “at the time of the amendment one skilled in the art could not reasonably be expected to have drafted a claim that would have literally encompassed the alleged equivalent.”

Instructor Talking Points

- The Future of the DOE: Recent developments have contracted the DOE substantially. Limitations added during prosecution are subject to prosecution history estoppel. The DOE generally will be available in cases where (1) the patentee had broader claims that were judicially invalidated (the narrower claims might then be broadened); (2) the claim language does not capture some newly developed technology; (3) the claim drafter could not reasonably be expected to have drafted better claims.

- Relationship between literal infringement and DOE: Festo Corp attempted to apply the DOE with respect to a “magnetizable” sleeve that was an element in Festo’s claims. The parties agreed that the sleeve in the accused product was not magnetizable. But that was probably a mistake by the plaintiff’s attorneys. The sleeve in the accused product was of an “aluminum alloy” having sufficient magnetic properties to “form[] a magnetic circuit in substantially the same way as the sleeve of the patent” and thereby to “serve the function of reducing magnetic leakage.” Festo Corp. could have argued that the alloy was “magnetizable” within the meaning of claim. A standard dictionary definition of “magnetizable” is “capable of being magnetized” and, in turn, “magnetize” can mean either “to attract like a magnet” or “to communicate magnetic properties to.”

D. The Reverse Doctrine of Equivalents

Westinghouse v. Boyden Power Brake Co., 170 U.S. 537 (1898)

The Court in Westinghouse held that despite the fact that the Boyden device fell within the letter of the claims of the Westinghouse patent, the Boyden device did not infringe. The court held that “if the [defendant] has so far changed the principle of the device that the claims of the patent, literally construed, have ceased to represent his actual invention, he is as little subject to be adjudged an infringer as one who has violated the letter of a statute has to be convicted, when he has done nothing in conflict with its spirit and intent.”

Instructor Talking Points

- One confusing statement in the case: The court says (p. 886) that Boyden is entitled to the status of an “independent inventor.” It is not true that Boyden’s brake will be held non-infringing simply because the Boyden brake is inventive and therefore patentable. Improvement patents are issued all the time, and they provide no defense to an action by a patent holder of a more basic technology.
- Reverse DOE at the Federal Circuit – The CAFC viewed reverse DOE as a defense that is separate from claim interpretation (is this consistent with S.Ct. precedent?) and accused infringer bears the burden of establishing that defense. *See Smithkline Diagnostics, Inc. v. Helena Labs.*, 859 F.2d 878, 889 (Fed. Cir. 1988).

1. A Modern Case Study: *Scripps Clinic v. Genentech*

The reverse DOE defense is successfully asserted only on rare occasions. The issue can only arise where the PTO has granted a relatively broad patent (rare) and the accused infringer has made some significant leap beyond the patented technology.

Scripps Clinic (p. 889) case might be a good example where the doctrine could have been used. The claim, as it so happens, was very broad because it literally encompassed both purified human clotting factor and ultra-pure, genetically engineered human clotting factor (“substantially free of” an impurity; activity

“greater than” a particular level). The breadth of the claim was probably not apparent when it was granted.

Note that the difference in the technology used to produce the purified clotting factor has immense significance. One product can transmit AIDs; the other can't.

E. The Experimental Use “Exception”

Madey v. Duke University, 307 F.3d 1351 (Fed. Cir. 2002)

Madey worked as a physics professor at Duke University and used several devices patented by him in a lab at Duke. After Madey resigned, Duke continued to use some of Madey's patent equipment. Madey sued for infringement, and the district court granted summary judgment for Duke on the ground that the use was experimental.

The Federal Circuit reversed, holding that the experimental use defense is unavailable “so long as the act is in furtherance of the alleged infringer's legitimate business and is not solely for amusement, to satisfy idle curiosity, or for strictly philosophical inquiry. . . . Moreover, the profit or non-profit status of the user is not determinative.”

Instructor Talking Points

- Madey v. Duke holds the “experimental use” exception to be “very narrow and strictly limited.” It has no application if the “inquiry has definite, cognizable, and not insubstantial commercial purposes.” In other words, the exception has no practical application. In other countries, the law is different.
- If your client wants an experimental use exception, the solution is to conduct the research in ... Canada (or the UK, Germany, Japan, etc.). Note that the results of the research can be patented here in the U.S.
- The recent decision of Merck v. Integra expands the reach of section 271(e)(1) to experiments related to the development of data for the FDA, and thus in the medical area, U.S. law has a rather broad exemption for FDA data development.

Chapter 9: Remedies

A. Injunctive Relief

1. Permanent Injunctions

Permanent injunctions were once routinely granted because a patent, as a “property” right, is fundamentally a right to exclude. Moreover, if injunctions are denied, courts must set a rate for future “damages,” which is a form of government price regulation. Only in rare cases, such as *Foster v. American Mach. & Foundry Co.* (p. 1064), did courts balance the equities.

However, commentators within both the patent community and the public at large (*see e.g.*, NY Times Op Ed on Mar. 22, 2006) were concerned that some non-practicing patentees were exploiting the patent system to extract inefficiently high rents from companies that actually produced products or performed services. The Supreme Court’s decision in *eBay v. MercExchange* gives district courts more discretion to deny injunctions.

eBay v. MercExchange, L.L.C., 126 S. Ct. 1837 (2006)

MercExchange sued eBay and its subsidiary Half.com for infringing its business method patent for an electronic market designed to facilitate the sale of goods between private individuals by establishing a central authority to promote trust among participants. A jury found that MercExchange’s patent was valid, that eBay and Half.com had infringed the patent, and that an award of damages was appropriate. The trial court, which seemed skeptical of business method patents in general, refused to award a permanent injunction on the ground that because the plaintiff did not practice the invention and expressed willingness to license its patents, it would not suffer irreparable harm in the absence of an injunction.

The Federal Circuit reversed, holding that injunctions issue automatically after a patentee wins an infringement case because the right to exclude is “the essence of the concept of property.” The additional leverage that an injunction yields “is a natural consequence of the right to exclude,” and “general concern regarding business-method patents” does not justify denying injunctive relief.

The Supreme Court reversed the Federal Circuit’s decision, holding that permanent injunctions should not be granted automatically. However, the Court also held that patentees may “reasonably prefer to license their patents” rather than practice them, and patentees who choose to license should not be categorically denied injunctions. Thus, district courts should apply the traditional four-factor equitable test to determine whether to grant permanent injunctions rather than automatically granting or denying injunctive relief.

Class Discussion

- Does simply applying the four-factor test resolve the controversy as to when courts should grant injunctions? How do the concurring opinions differ? Answer: Chief Justice Roberts (with Scalia and Ginsburg) supports the traditional pro-injunction rule on the basis that patents confer property right

(“a right to exclude”). Kennedy (and three others) seems willing to depart from the traditional rule where (i) firms are merely engaged in licensing; (ii) the patent component is a “small” part of a larger product; (iii) the injunction provides “undue leverage”; and/or (iv) rights are vague or have uncertain validity.

Instructor Talking Points

- Traditional property rights analysis tends to refuse injunctions where trespassing party lacked notice of rights and has already invested heavily in the property. An injunction is most likely to be granted when the patentee and infringer are direct competitors in the marketplace and the validity and infringement of the patent are relatively clear. An injunction will most likely be denied when the patentee merely licenses the patent, the patented component is a small part of a larger product that cannot be easily changed, and the validity and infringement of the patent are uncertain.
- District courts are now denying injunctions in circumstances similar to those articulated by Kennedy (e.g., *z4Techs. v. Microsoft*), but the CAFC has not yet spoken. Note that the government (PTO) supported injunctions in the eBay case. Thus, in the future, the Supreme Court may not be as aggressive in overturning the CAFC doctrine on injunctions (where the government supports the CAFC) as the Court has been in other doctrinal areas (where the government has opposed the CAFC).

z4 Techs, Inc. v. Microsoft Corp., 434 F. Supp. 2d 437 (E.D. Tex. 2006)

Z4 Technologies sued Microsoft for infringing its patents on product activation and sought “to enjoin Microsoft from making, using, selling, offering for sale, and/or importing” its Windows XP and Office products. The district court denied the injunction and held that patent infringement “does not inevitably lead to the conclusion that a patent holder cannot be adequately compensated by remedies at law such as monetary damages.” The court relied on Justice Kennedy’s concurrence in *eBay*, where he stated that monetary damages were sufficient compensation when the “patented invention is but a small component of the product the companies seek to produce.”

2. Preliminary Injunctions

Amazon.com, Inc. v. Barnesandnoble.com, Inc., 239 F.3d 1343 (Fed. Cir. 2001)

Amazon.com sued Barnesandnoble.com for infringing Amazon’s patented method and system for requesting to order an item “without using a shopping cart ordering model” “in response to only a single action being performed.” In Amazon’s patent, “[t]he server system uses the identifier to identify additional information needed to generate an order for the item and then generates the order.” The district court granted Amazon.com’s request for a preliminary injunction that barred barnesandnoble.com from using a one-click ordering system. However, the court said that barnesandnoble.com could avoid infringing “by simply requiring users to take an additional action to confirm orders.”

On appeal, the Federal Circuit held that the district court erred in ignoring the Compuserve Trend prior art (see p. 1049), which created doubt about Amazon's "reasonable likelihood of success on the merits." The case subsequently settled.

Instructor Talking Points

- The Federal Circuit has usually identified the public interest as being in favor of patent enforcement. One exception was *eSpeed v. BrokerTec*, in which a district court held that "the public interest strongly outweighs any private interest eSpeed may have in obtaining a preliminary injunction." In *eSpeed*, the plaintiff also failed to demonstrate irreparable harm in the absence of an injunction.

B. Reasonable Royalty Damages

Patentees may recover retrospective damages under section 285 for the period between issuance and the preliminary injunction hearing. If patented articles were not appropriately marked as required by section 287, then the infringer must have had actual notice of infringement for damages to accrue. Under section 285, these damages should be "adequate to compensate for the infringement but in no event less than a reasonable royalty." Of course, actual damages (i.e. "Lost Profits") can be difficult to prove, as is demonstrated by *Panduit*. Courts may also award prejudgment interest, treble damages for willful infringement, and (in exceptional cases) attorney fees.

Panduit Corp. v. Stahlin Bros. Fibre Works, Inc., 575 F.2d 1152 (6th Cir. 1978)

Panduit sued Stahlin for infringing Panduit's patent on a covering duct for wiring of electrical control systems. After a finding of infringement, a special master in the district court determined that the Stahlin should pay damages of a 2.5% royalty on all sales during the infringement period. Panduit argued that lost profits should be calculated not based on Stahlin's sales, but rather on its own sales. Because it would have been a monopolistic supplier, this damages metric encompasses "price erosion" profits deriving from the increased consumer surplus and reduced deadweight loss that resulted from a more competitive market.

On appeal, the 6th Circuit affirmed the district court's denial of lost profits as a measure of damages. Panduit was not entitled to lost profits because it had not established the amount of profits it would have made. The court reversed the 2.5% royalty award because the special master failed to consider elements necessary to the determination of reasonable royalty, such as the absence of noninfringing substitutes, Panduit's policy of not licensing the patent, and the effect of licensing on Panduit's future business and other products.

Class Discussion

- What does the patentee have to show to prove it would have made sales actually made by the infringer? Answer: The “absence of acceptable noninfringing substitutes.”
- What did the *Panduit* court hold that the patent owner must prove in order to receive lost profits as a damage measure? Answer: (1) Demand, (2) Absence of noninfringing substitutes, (3) Capability, and (4) Amount of profit lost.

Instructor Talking Points

- Reasonable royalties are calculated from the date infringement began using a hypothetical bargaining procedure. The court should take into account the relevance of the competitive situation facing the firms, including substitutes. There are two approaches to substitution: (1) Patented products are unique, so there are therefore no substitutes; and (2) Under antitrust law, substitution is a function of cross-elasticity of demand, so there will usually be substitutes. In addition to substitutes, courts also consider whether the infringer makes a profit, as courts prefer to avoid rewarding infringement.
- Calculation of a reasonable royalty also depends on cross-elasticity of demand. Price elasticity of demand is the responsiveness of demand to changes in price. Demand can be elastic, where a percent change in demand is greater than a percent change in price, or inelastic, where a percent change in demand is less than a percent change in price. Cross elasticity is defined as the responsiveness of demand of one good to changes in the price of a related good, either a substitute or a complement. Cross elasticity is negative (i.e. an inverse relationship) for complementary goods and positive (i.e. a positive relationship) for substitute goods. Substitute goods are typically the goods of concern in patent damage calculations. The greater the number of substitutes, the more elastic the demand for a given product will be.

C. Lost Profits

Rite-Hite Corp. v. Kelly Co., 56 F.3d 1538 (Fed. Cir. 1995) (en banc)

Rite-Hite sued Kelly for infringing its patent on a device for securing a truck to a loading dock. The district court found the patent valid and infringed and awarded damages to Rite-Hite. The court held that Rite-Hite was entitled to lost profits for sales of its products that were not covered by the patents but were in direct competition with Kelly’s infringing products.

The Federal Circuit affirmed. The court held that damages can be awarded for any injury “reasonably foreseeable by an infringing competitor in the relevant market, broadly defined.”

Class Discussion

- *Rite-Hite* tests principles of patent damages. What is the relationship between the infringing act and the harm to the patentee? Answer: One possibility is that “but for” the infringement, the patentee would not have

been harmed. An alternate formulation is that the harm was caused “proximately” by the infringement.

Instructor Talking Points

- There is a limit to the stories that patentees can tell. For example, the patentee cannot argue that extra profits would have yielded money that would have been reinvested into R&D, which would have yielded cold fusion and a Nobel Prize, thus saving humanity. Proximate cause cuts off this long chain of causation somewhere.
- The principle goal of the patent damages doctrine is to find “the difference between [patentee’s] pecuniary condition after the infringement, and what his condition would have been if the infringement had not occurred.” *Yale Lock Mg Co. v. Sargent*, 117 U.S. 536. The question to be asked in determining damages is “how much had the Patent Holder and Licensee suffered by the infringement. And that question [is] primarily: had the Infringer not infringed, what would Patent Holder-Licensee have made?” *Livesay Window Co. v. Livesay Industries, Inc.*, 51 F.2d at 471.
- Numerous cases approach this from the patentee’s perspective. How much would the patentee have been able to charge in the absence of infringement? How many units would it have sold? Courts evince growing sophistication in this determination. “[T]o determine a patentee’s market share, the record must accurately identify the market. This requires an analysis which excludes alternatives to the patented product with disparately different prices or significantly different characteristics.” *Crystal Semiconductor Corp. v. Tritech Microelectronics Int’l, Inc.*, 246 F.3rd 1336, 1356 (Fed. Cir. 2001).

Grain Processing Corp. v. Am. Maize Products, 185 F.3d 1341 (Fed. cir. 1999)

Following a trial on damages, the district court, with Easterbrook, Circuit Judge, sitting by designation, awarded patent holder reasonable royalty, 893 F.Supp. 1386, and the patent holder appealed. The Federal Circuit, 108 F.3d 1392, remanded for reconsideration of lost profits issue. On remand, the district court, Easterbrook, Circuit Judge, 979 F.Supp. 1233, again held that the patent holder was not entitled to lost profit damages and awarded royalty instead. The Federal Circuit affirmed.

There were 4 production processes, with one of them non-infringing (Process 4). The transition from a noninfringing process to a noninfringing process was “practically instantaneous.” Process 4 was not actually used, but it easily could have been. The fact that the competitor’s product, as made by an alternative, noninfringing process, was not sold on the market during the period that the patent was infringed by the product as it was made by infringing processes did not render the product as made by the noninfringing process unavailable, for purposes of patent holder’s claim for lost profits. According to judge Easterbrook, “A product that is within a firm’s existing production abilities but not on the market--in this case, Lo-Dex 10 made by Process IV (see 893 F.Supp. at 1389-

90)--effectively constrains the patent holder's profits. Potential competition can be as powerful as actual competition in constraining price. William J. Baumol, John C. Panzar & Robert D. Willig, *Contestable Markets and the Theory of Industry Structure* (1982).”

Instructor Talking Points

- *Grain Processing* represents a major step in the development of *balanced* counterfactual infringement analysis. How would an infringer respond to the presence of a valid patent in the market space?
- When basing alleged lost profits on lost sales, patent owner has an initial burden to show a reasonable probability that he would have made the asserted sales but for the infringement; once the patent owner establishes a reasonable probability of "but for" causation, the burden then shifts to the accused infringer to show that the patent owner's "but for" causation claim is unreasonable for some or all of the lost sales.

State Industries v. Mor-Flo Industries, 883 F.2d 1573 (Fed. Cir. 1989)

Mor-Flo represents an application of the market share rule. The district court calculated damages by apportioning the infringer's sales across the (1) patentee and (2) all noninfringing substitute sellers in the market using a "pro rata" allocation rule. That is, the court split the infringer's share among the other companies according to existing (actual) market shares.

The Federal Circuit affirmed. The court held that the district court acted within its discretion by awarding damages based on the patent owner's share of the insulated water heater market. The district court also properly concluded that a royalty of three percent of infringer's net sales was a reasonable royalty – sales of infringing products that the patentee would not have made.

Instructor Talking Points

- The market share rule rests on two important assumptions. First, everyone knows of and respects the patent. Second, there are no enforcement, assertion, or infringement costs for the patentee that would reduce available funds or encourage rival entry.
- The Federal Circuit applied *Mor-Flo* in *WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339 (Fed. Cir. 1999). There the plaintiff held a 75% market share. The Federal Circuit affirmed the district court's award of lost profits of \$2413 per unit on sales of 75% of the infringing machines, and a reasonable royalty of \$550 per unit on sales of the remaining 25% of the infringing machines.

D. Willful Infringement and Attorney's Fees

Section 284 permits courts to increase "damages up to three times the amount found or assessed." Section 285 permits courts to award attorney fees "in exceptional cases." Under *Aro Mfg. v. Convertible Top Replacement*, 377 U.S. 476 (1964), Courts may increase damages upon a finding of "willful or bad-faith

infringement.” Typically courts look for evidence of (1) knowledge of the patent and (2) knowledge that the defendant’s product infringed the patent.

Historically, actual notice of patent rights triggered “an affirmative duty to exercise due care to determine whether or not [one] is infringing,” including “the duty to seek and obtain competent legal advice from counsel before the initiation of any possible infringing activity.” *Underwater Devices*, 717 F.2d 1380, 1389-90 (Fed. Cir. 1983). If an infringer did not produce evidence of such an opinion at trial, courts were “free to infer that either no opinion was obtained or, if an opinion were obtained, it was contrary to the infringer’s desire to initiate or continue its use of the patentee’s invention” *Fromson v. Western Litho Plate & Supply Co.*, 853 F.2d 1568, 1572 (Fed. Cir. 1988). All of this changed in *Knorr-Bremse*.

Knorr-Bremse Systeme Fuer Nutzfahrzeuge GMBH v. Dana Corp., 383 F.3d 1337 (Fed. Cir. 2004) (en banc)

The Federal Circuit overturned the rule that an accused infringer’s failure to obtain and produce the advice of counsel created an adverse inference of willful infringement. The court held that “implementation of this precedent has resulted in inappropriate burdens on the attorney-client relationship.” Courts should determine willfulness based on “the totality of the circumstances.”

Class Discussion

- The court failed to direct innovators on how to demonstrate “due care” in the absence of an exculpatory legal opinion. In what ways could an alleged infringer demonstrate due care? What factors should affect a court’s determination of what constitute due care? (i.e., procedures for evaluating infringement notices, the size of the infringer, the likelihood of validity of the patent)

Chapter 10: The Legal Process of the Patent System

B. Administrative Correction and Reissue

1. Correction Versus Reissue

Superior Fireplace Co. v. Majestic Products Co., 270 F.3d 1358 (Fed. Cir. 2001)

Superior patented a gas log fireplace and sued competitor Majestic Products. When Majestic pointed out that claim 1 of the patent recited “rear walls,” Superior successfully petitioned for a certification of correction under section 255, which applies to mistakes made by the applicant, to change the language to “rear wall.” The district court held that Superior’s certificate of correction was invalid and that Majestic did not infringe the original patent.

The Federal Circuit held that a patent can be broadened by way of correction under section 255 only when “it is clearly evident from the specification, drawings and prosecution history how the error should appropriately be corrected.” The described three categories of minor errors – obvious mistakes, non-apparent mistakes, and unclear mistakes. The error Superior sought to correct was an unclear mistake, and thus uncorrectable, because “wall” was singular in certain parts of the claim and plural in other parts.

2. Errors Correctable in Reissue Proceedings

Section 251 permits patentees to reissue patents with mistakes made “through error without any deceptive intention.” Here deceptive intention encompasses both plans to broaden or recapture subject matter as well as strategic decisions during prosecution. Reissues that broaden the scope of the claims are limited to two years from issuance.

Mentor Corp. v. Coloplast Inc., 998 F.2d 992 (Fed. Cir. 1993)

Patentee Mentor successfully petitioned for a reissue patent that included claims to subject matter it had deliberately surrendered in order to obtain allowance. Mentor argued that although the claims were broader in some respects, they were narrower in others.

The Federal Circuit reversed a district court ruling that the reissue was valid. Because the reissue claims were broader in a way that claimed subject matter previously surrendered, the reissue was invalid.

Class Discussion

- What are the doctrinal analogs to the recapture rule? Answer: Prosecution history estoppel prevents applicants from claiming subject matter under the doctrine of equivalents that was surrendered during prosecution. See note 1 on page 1082.

3. Intervening Rights and the Enforcement of Reissue Patents

Seattle Box Co. v. Industrial Crating & Packing, Inc., 756 F.2d 1574 (Fed. Cir. 1985)

Seattle Box patented a shipping bundle of pipes. The original claim included spacer blocks having height “greater than diameter of the pipe.” The reissue claim included spacer blocks having height “substantially equal to or greater than diameter of the pipe.” To avoid infringing the original patent, Industrial Crating made 2 models with spacer blocks 1/4 and 1/16th inch less than the pipe diameter. The district court held that there were no intervening rights for 224 bundles made with the 1/4 inch less spacer blocks that remained in Industrial’s inventory after the reissue patent because the bundles were not made before the reissue.

The Federal Circuit reversed. The 224 bundles were made with pre-reissue spacer blocks, and the public has a right to what was not claimed in the patent at the time. Industrial was specifically attempting to design around the original patent and modified its design to avoid the reissue patent as well. “Recapture of profits” through reissue is not allowed.

Class Discussion

- What was the holding regarding claim interpretation and infringement? Do you agree with this? Answer: The 1/16th inch – less model infringed the reissue claim, but not the original claim. The 1/4th inch – less model did not infringe either claim.

C. Reexamination

Under section 301, reexamination requests are granted only for newfound prior art patents or printed publications.

1. Ex Parte Reexamination.**Quantum Corp. v. Rodine, PLC, 65 F. 3d 1577 (Fed. Cir. 1995)**

Rodime’s patent originally claimed a track density of “at least 600 tpi” and was altered in reexamination to claim a track density of “at least approximately 600 tpi.” The district court held that claims of Rodime’s patent were impermissibly broadened contrary to section 305 during reexamination.

The Federal Circuit affirmed. The addition of the word “approximately” “eliminates the precise lower limit of that range, and in so doing extends the scope of the range.”

D. Inequitable Conduct

Inequitable conduct, a doctrine largely based on lower court law, permits courts to hold a patent unenforceable (not invalid) where the patent applicant (1) failed to disclose material evidence to the PTO and (2) acted with an intent to deceive the PTO. Intent and materiality are “balanced.”

2. Laches**Symbol Techs., Inc. v. Lemelson Med., 277 F.3d 1361 (Fed. Cir. 2002)**

When sued by Lemelson, Symbol Techs. asserted prosecution laches a defense. According to Symbol Techs., Lemelson's prosecution delays made enforcement of the patent inequitable. The district court disagreed, holding that laches was not a defense to Symbol Tech's infringement of Lemelson's patents.

The Federal Circuit reversed. The Supreme Court established that prosecution history laches (i.e. inequitable delay in prosecution) is a viable defense to infringement. Courts may "bar enforcement of patent claims that issued after an unreasonable and unexplained delay in prosecution even though the applicant complied with pertinent statutes and rules." Upon remand, the district court held Lemelson's patents unenforceable, a ruling that the Federal Circuit affirmed.

Instructor Talking Points.

- Jerome Lemelson is named as an inventor on more than 500 patents and earned more than \$1.5 billion in revenue. Lemelson often kept applications pending at the PTO instead of allowing them to issue, a controversial practice that yielded "submarine" patents, so called because they could surface (i.e. issue) and surprise unsuspecting infringers. The practice was controversial because the applicant could amend the claims to cover a competitor's products, which would not be possible if the application had already issued.
- An early laches case, *Woodbridge v. United States* (1923), was decided by Justice Taft. There a patentee delayed for 9 1/2 years in securing a patent for rifled cannon and did not request its issuance until after the beginning of the Civil War. The Court held that by so delaying, Woodbridge had forfeited his patent rights.

Chapter 11: Inventors and Owners

In the absence of assignment, each co-inventor is a co-owner under section 262. Each co-owner owns an undivided interest (i.e. “tenancy in common”) in the entire patent that is not subdivided by claims and is not related to the “percentage contribution” of each inventor.

A. Inventorship and Misjoinder

1. The Basics of Inventorship

Burroughs-Wellcome Co. v. Barr Labs., Inc., 40 F.3d 1223 (Fed. Cir. 1994)

Burroughs-Wellcome owned 6 patents for a AZT, drug treatment for HIV. When researching the drug, Burroughs-Wellcome sent samples to NIH researchers Broder and Mitsuya for testing. Barr Labs began producing a generic version of AZT. When sued for infringement, Barr Labs filed a counterclaim seeking to add Broder and Mitsuya as coinventors to the patent and asserted as a defense that it had a license from the government to produce AZT. The district court held the patents valid and infringed and concluded that Burroughs-Wellcome’s inventors had conceived of the invention without the assistance of the NIH scientists.

The Federal Circuit affirmed. Coinventorship, along with a license from the coinventors, is a defense to infringement. In this case, however, the NIH scientists did not contribute to the conception of the invention. They did not act merely as a “pair of hands,” but they contributed to the reduction of the invention to practice rather than to its conception.

Class Discussion

- How would you prevent a Burroughs-Wellcome situation? Typically, by contract. Ensure assignment of any interest that may flow from those who assist in making an invention. The two typical assignments are prospective (i.e. “pre-assignment” of interest) and retrospective (i.e. after an invention has been made).

Instructor Talking Points

- U.S. law seems very pro-employer. After all, a billion dollar invention may be assigned for as little as \$1. However, potential inventors often have a de facto “exit option” of leaving prior to the time of proof of conception, which is difficult for employers to prevent. Moreover, invention incentive programs are very common, and career rewards are often tied to successful inventions. Finally, strong property rights, such as defensible patents, create incentives for startup companies to form.

2. Judicial Correction of Inventorship

Stark v. Advanced Magnetics, Inc. 119 F.3d 1551 (Fed. Cir. 1997)

AMI and Dr. Stark collaborated to develop MRI technologies, which yielded six patents that failed to list Dr. Stark as a co-inventor. Stark later sued to

correct inventorship. The Federal Circuit granted an interlocutory appeal to determine the standard for correction of inventorship. The court had earlier rejected AMI's theory that Stark's failure to diligently correct inventorship estopped him from challenging inventorship and held that the issue could be resolved solely by interpreting section 256.

Section 256 allows district courts to require the PTO to correct inventorship if inventorship is erroneous. However, it was unclear from section 256 whether the clause requiring the absence of deceptive intent applies to both misjoinder and nonjoinder cases, or instead to nonjoinder cases alone. The Federal Circuit held that in misjoinder cases, the intent of the inventors is irrelevant. In nonjoinder cases, only the intent of the non-joined inventor is relevant.

Instructor Talking Points

- Note that section 116 provides an administrative remedy at the PTO. Here the presence of an additional comma suggests that the absence of deceptive intent applies to both misjoinder and nonjoinder cases.

Eli Lilly and Co. v. Aradigm Corp., 376 F.3d 1352 (Fed. Cir. 2004)

Lilly and Aradigm engaged in a joint venture/research project. Aradigm's business focuses on drug delivery through the inhalation of aerosols. Both Lilly and Aradigm filed patent applications relating to the insulin analog "lispro." Lilly filed suit, alleging that Aradigm had omitted Lilly's inventors from its application. The jury agreed that one of Lilly's inventors had been omitted.

The Federal Circuit reversed. According to the court, an inventor must demonstrate by clear and convincing evidence a contribution to the conception of at least one claim, a standard that was not met here. The evidence that Lilly's scientists participated in the conception of Aradigm's patented inventions was only circumstantial.

Instructor Talking Points

- The *Lilly* court also held that mere explanation of the state of the art is insufficient to qualify for co-inventorship. (p. 1159). A contribution that is too abstract also fails to qualify. As well, a mere "pair of hands" carrying out instructions is not enough.
- In *Lilly*, both parties had copending applications at the PTO. However, copending applications do not lower the burden of proof in a 256 action challenging inventorship.

Chapter 12: Antitrust and Patent Misuse

A. Control Over Goods Beyond a Patent's Scope

Illinois Tool Works Inc. v. Independent Ink, Inc., 547 U.S. 28 (2006)

Illinois Tool Works's subsidiary Trident manufactures both printheads and ink. Trident owns a patent directed to printhead technology, but the ink is not protected by patents. Its standard license agreement conditions the right to right to "manufacture, use and sell . . . ink jet printing devices" on using the devices in combination with Trident's ink. Independent Ink also manufactures ink useable in Trident's patented printheads. Independent filed suit in the Central District of California against Trident and Illinois Tool Works alleging, among other things, an illegal tying arrangement in violation of section 1 of the Sherman Act and monopolization in violation of sections 1 and 2. The district court, however, dismissed the case on summary judgment.

The Federal Circuit then reversed and remanded the district court's grant of summary judgment in favor of Trident on the tying claim. Trident's licenses are "explicit tying agreement[s]." The court held that in tying cases, it is bound by *International Salt* and *Loew's* to presume market power when the tying good is patented.

On appeal, the Supreme Court reversed the Federal Circuit and remanded for consideration in line with normal antitrust analysis. The Supreme Court eliminated the presumption that a patent provides market power in a licensing agreement involving a tie-in. Because of Congressional, academic, and administrative consensus that "a patent does not necessarily confer market power upon the patentee[,] . . . the plaintiff must prove that the defendant has market power in the tying product."

Instructor Talking Points

- One theoretical basis for patent misuse is "leverage theory." Patents may be improperly leveraged by various licensing practices. For example, a tie-in.
- There is now a broad consensus that patents are property rather than monopolies. For example, the USDOJ/FTC Antitrust Guidelines for Licensing of IP distinguish between the power to exclude under IP and market power. Also, the Patent Misuse Reform Act (35 U.S.C. § 271(d)(5)) states that tying arrangements do not constitute patent misuse in the absence of market power. Finally, the evolution of the Areeda/Hovenkamp treatise suggests that a presumption of market power is not warranted.

B. Other Licensing Conditions

1. Temporal Extensions

Brulotte v. Thys Co., 379 U.S. 29 (1964)

Thys owned several patents on hop-picking equipment. It sold several machines for a flat sum and issued licenses for their use. However, its patents on

the machines expired before the termination of the license agreement, and the licensees refused to continue payment. The trial court held that the license was valid, and the Washington state Supreme Court affirmed.

The Supreme Court reversed. The Court held that license terms that purport to restrict use of the patented product or require royalty payments after the expiration of the patent is per se illegal. "If that device were available to patentees, the free market visualized for the post-expiration period would be subject to monopoly influences that have no proper place there."

Class Discussion

- What would be the economic effect of a rule allowing royalties beyond the expiration of the patent? How would competitors of the licensee react? So what will patent holders do?
- Does this rule make sense? See Justice Harlan's dissent: "Consider the situation as of the day the patent monopoly ends. Any manufacturer is completely free to produce Thys-type hop-pickers. The farmer who has previously purchased a Thys machine is free to buy and use any other kind of machine whether or not it incorporates the Thys idea, or make one himself if he is able. Of course, he is not entitled as against Thys to the free use of any Thys machine."