



Part II: Patentability

Dan Hussain

STATUTORY SUBJECT MATTER

- 35 U.S.C. § 101

- Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.

DIAMOND V. CHAKRABARTY

- "Congress intended statutory subject matter 'include anything under the sun that is made by man.' " Diamond v. Chakrabarty, 447 U.S. 303, 309, (U.S.,1980).

DIAMOND V. CHAKRABARTY

- "This is not to suggest that § 101 has no limits or that it embraces every discovery. The laws of nature, physical phenomena, and abstract ideas have been held not patentable. Thus, a new mineral discovered in the earth or a new plant found in the wild is not patentable subject matter. Likewise, Einstein could not patent his celebrated law that $E=mc^2$; nor could Newton have patented the law of gravity. Such discoveries are 'manifestations of . . . nature, free to all men and reserved exclusively to none.' " Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980) (internal citations omitted).
- The Court held that a man-made microorganism was patentable. Id.

DIAMOND V. DIEHR

- The Federal Circuit explained the holding in Diehr as follows: "mathematical algorithms are not patentable subject matter to the extent that they are merely abstract ideas." State St. Bank & Trust Co. v. Signature Financial Group, Inc., 149 F.3d 1368, 1373 (Fed. Cir. 1998).

USEFUL, CONCRETE, AND TANGIBLE RESULT

- The Federal Circuit explained the difference between patentable computer programs and abstract mathematical principles, while holding a computerized process patentable:
 - "this is not a disembodied mathematical concept which may be characterized as an 'abstract idea,' but rather a specific machine to produce a useful, concrete, and tangible result." In re Alappat, 33 F.3d 1526, 1544 (Fed. Cir. 1994).

ONE-CLICK SHOPPING

- The trend seems to be that processes that can be tied to a computer are patentable.
- See Amazon.com, Inc. v. Barnesandnoble.com, Inc., 239 F.3d 1343 (Fed. Cir. 2001) (holding patent, directed to a method of one-click shopping over the internet, valid).

STATUTORY BASIS FOR INOPERABILITY

- Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1359 (Fed.Cir.1999)
 - **§ 101 Utility**
 - The impossible is not useful
 - **§ 112 Enablement Requirement**
 - Whatever is impossible cannot be enabled

EXAMPLES OF IMPOSSIBILITY

- Claims found inoperable because they require violating the principle of conservation of mass
 - Process Control Corp. v. HydReclaim Corp., 190 F.3d 1350, 1359 (Fed.Cir.1999)
- Claims to a perpetual motion machine ruled inoperable
 - Newman v. Quigg, 877 F.2d 1575 (Fed.Cir.1989)

35 U.S.C. §101: Subject matter eligibility, utility

- Three-prong test for utility:
 - Specific for the claimed invention?
 - Substantial utility? Does the claimed invention have real world value?
 - Credible utility?
 - Would someone skilled in the art accept that the disclosed invention is in currently available form?
 - Lack of credible utility normally arises where the invention is inoperative or would not be expected to function in the disclosed manner based upon current scientific understanding

U.S. v. Europe: Subject Matter Eligibility, Utility

EP Art.52(1): European patents shall be granted for any inventions which are susceptible of industrial application, which are new and which involve an inventive step.

U.S. v. Europe: Subject Matter Eligibility, Utility

EP Art.52(2): The following shall not be regarded as inventions within the meaning of paragraph 1:

- (a) discoveries, scientific theories, and mathematical methods;
- (b) aesthetic creations;
- (c) schemes, rules, and methods for performing mental acts, playing games or doing business, and programs for computers;
- (d) presentations of information.

SECTION BY SECTION: § 102(a)

§ 102(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent

- Knowledge or Use by others prior to invention in the U.S.
- Patented or Published prior to invention anywhere
- "Known or used" = publicly known or used – knowledge or use is public if there has been no deliberate attempt to keep it secret. *W.L. Gore & Assoc. v. Garlock, Inc.*, 721 F.2d 1540 (Fed. Cir. 1983)
- "In this country" = in the United States, even if there exists widespread knowledge or use in a foreign country.
- "By others" = any combination of authors or inventors different than the inventive entity.
 - The inventive entity need only differ by one person to be "by others."
- "Patented or described in a printed publication in this or a foreign country" = patents that are not secret or private and printed publications that have been disseminated or otherwise made available to the public (including electronic publications)

SECTION BY SECTION: § 102(b)

102 (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States

- "Patented or described in a printed publication in this or a foreign country"
 - Printed publication
 - Cataloged or disseminated to the relevant public
 - Thesis in University library
- "Public use or on sale in this country" = use is public if there has been no deliberate attempt to keep it secret, but sales may be secret and may still constitute a statutory bar. *Hobbs v. U.S.*, 451 F.2d 849, 859-60 (5th Cir. 1971); M.P.E.P. § 2133.03
- "More than one year prior to the date of the application for patent in the United States"
 - One year time bar is measured from the U.S. filing date

PRINTED PUBLICATION = PUBLICLY ACCESSIBLE

- *In re Cronyn*, 890 F.2d 1158, 1159 (Fed. Cir. 1989)
 - The key to printed publication is public accessibility.
 - A thesis located among thousands of student thesis in a college library indexed by individual cards that contained only a student's name and the title of his or her thesis was not publicly accessible

SECTION BY SECTION: § 102(c)

Statutory Text:

A person shall be entitled to a patent unless:

- (c) he has abandoned the invention

Translation:

- Abandonment must be intentional.
 - Intention to dedicate the invention to the public.
 - Delay alone is insufficient for a finding of intent.

SECTION BY SECTION: § 102(d)

Statutory Text:

A person shall be entitled to a patent unless:

- (d) the invention was first patented or caused to be patented, or was the subject of an inventor's certificate, by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application for patent or inventor's certificate filed more than twelve months before the filing of the application in the United States

Translation:

- Four conditions which, if all are present, establish a bar against the granting of a patent in the United States (see M.P.E.P. § 2135.01):
 - (1) The foreign application must be filed more than 12 months before the effective U.S. filing date
 - (2) The foreign application must have been filed by the same applicant as in the United States or by his legal representatives or assigns
 - (3) The foreign patent or inventor's certificate must be actually granted before the U.S. filing date. Publication is NOT required.
 - (4) The same invention must be involved.

SECTION BY SECTION: § 102(e)

Statutory Text:

A person shall be entitled to a patent unless –

- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language

Revision Details:

- Revised & amended by the American Inventors Protection Act of 1999 (AIPA), and further amended by the Intellectual Property & High Technology Technical Amendments Act of 2002 (retroactive to 2000)
- Amended 102(e) has two significant features:
 - In addition to U.S. patents, certain publications of U.S. and international applications may be applied as of their filing dates in a prior art rejection
 - Certain international filing dates are now U.S. filing dates for prior art purposes under 102(e), and U.S. patents and certain application publications may now be applied as of these international filing dates in a prior art rejection

SECTION BY SECTION: § 102(e) (cont.)

Prior Art Effect of 102(e)



Published application and patent have prior art effect date under §102(e) as of PCT application date IF:

- (1) PCT application was filed on or after November 29, 2000, and
- (2) U.S. is designated in PCT application, and
- (3) PCT application is published in English language.

SECTION BY SECTION: § 102(f)

Statutory Text:

A person shall be entitled to a patent unless:

- (f) he did not himself invent the subject matter sought to be patented

Translation:

- Where it can be shown that an applicant "derived" an invention from another, a rejection under 102(f) is proper. M.P.E.P. § 2137.
- Inventor must contribute to the conception of the invention
- Inventor is not required to reduce the invention to practice
- Joint-inventorship is allowed if each inventor contributed to at least one claim in the application
- The inventor must be a human being, not a corporation. Inventions made by human beings are usually assigned to corporations as required by contract.
- Intentional omission of an inventor may give rise to unenforceability due to inequitable conduct
- Each inventor has a right to grant licenses without the other's permission

SECTION BY SECTION: § 102(g)

Statutory Text:

A person shall be entitled to a patent unless:

- (g) (1)** during the course of an interference conducted under section 135 or section 291, another inventor involved therein establishes, to the extent permitted in section 104, that before such person's invention thereof the invention was made by such other inventor and not abandoned, suppressed, or concealed, or
- (2)** before such person's invention thereof, the invention was made in this country by another inventor who had not abandoned, suppressed, or concealed it. In determining priority of invention under this subsection, there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

SECTION BY SECTION: § 102(g) (cont.)

Translation of 102(g)(1):

- Basis for ex parte rejection under 102(g)(1) if:
 - (1) Subject matter at issue has been actually (NOT constructively) reduced to practice (conception alone is insufficient) by another before the applicant's invention, and
 - (2) There has been no abandonment, suppression or concealment
- Actual reduction to practice requires:
 - (1) the party constructed an embodiment or performed a process that met every element of the interference count, and
 - (2) the embodiment or process operated for its intended purpose. *Evans v. Eaton*, 204 F.3d 1094, 1097 (Fed. Cir. 2000)
- "Abandoned, suppressed, or concealed" = within a reasonable time after conception and reduction to practice, no steps are taken to make the invention publicly known; e.g., failure to file a patent application, to describe the invention in a publicly disseminated document, or to use the invention publicly. *Correge v. Murphy*, 705 F.2d 1326, 1330 (Fed. Cir. 1983).
 - Suppression or concealment need not be attributed to the inventor (e.g., employee, assignee, or attorney)

SECTION BY SECTION: § 102(g) (cont.)

Translation of 102(g)(2):

- "Invention was made in this country" = conception and reduction to practice (actual or constructive) in the United States.
- "By another" = ANY difference in inventorship (even one inventor).
- "Abandoned, suppressed, or concealed" = see above
 - A previously abandoned application which was not copending with a subsequent application is evidence only of conception, and does not provide an earlier filing date based upon a constructive reduction to practice. M.P.E.P. § 2138.04.
- Constructive reduction to practice requires compliance with 35 U.S.C. § 112, ¶ 1.
- "Reasonable diligence" = reasonable attorney diligence and engineering diligence
 - Critical period for establishing diligence for one who was first to conceive but later to reduce to practice the invention begins not at the time of conception, but just prior to the entry into the field of the party who was first to reduce to practice and continues until the first conceiver reduces to practice. M.P.E.P. § 2138.06.
 - Affirmative acts or acceptable excuses required to show diligence for entire critical period.
 - Critical period ends with actual or constructive reduction to practice.

SUMMARY OF 35 U.S.C. § 102 PRIOR ART

| § | What? | When? | Where? |
|---------------|--|--|---|
| 102(a) | Knowledge or Use by others OR Patented or Published | Prior to invention | Knowledge and Use = U.S. Patented or Published = anywhere |
| 102(b) | Patented or Published OR Used or On Sale | More than one year prior to U.S. application | Patented or Published = anywhere Used or On Sale = U.S. |
| 102(c) | Abandoned | Any time | Anywhere |
| 102(d) | Patented or subject of inventor's certificate | More than one year prior to U.S. application | Foreign Country |
| 102(e) | Described in a published application by another OR Described in a patent granted in the to another | Prior to invention | U.S., but foreign applications filed prior to November 29, 2000 receive special treatment |
| 102(f) | Incorrect Inventorship | Any time | Anywhere |
| 102(g) | Invention by another and not abandoned, suppressed, or concealed | Prior to applicant's invention | Anywhere for 102(g)(1) U.S. for 102(g)(2) |

Prior Art Searching

- Google Patents:
<http://www.google.com/patents>
- USPTO: <http://www.uspto.gov>
- Scientific and Technical Literature
- MIT Libraries
- Online search engines

OBVIOUSNESS

35 U.S.C. § 103: THE STATUTORY BASIS FOR OBVIOUSNESS

- An applicant is not entitled to a patent "if the difference between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."

WHAT "OBVIOUS" REALLY MEANS

- "An invention which has been made, and which is new in the sense that the same thing has not been made before, may still not be patentable if the difference between the new thing and what was known before is not considered sufficiently great to warrant a patent." Graham v. John Deere Co. of Kansas City, 383 U.S. 1, 14 (1966).

GRAHAM V. JOHN DEERE

- The 1952 Patent Act (The Act) codified an obviousness requirement
- The Act also destroyed the “flash of genius” test
- Developed the modern § 103 framework

THE MODERN § 103 FRAMEWORK

- The background, against which the obviousness or nonobviousness of the subject matter is determined:
 - “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.

SECONDARY CONSIDERATIONS

- 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.” Graham, 383 U.S. at 694.

OBVIOUSNESS: WHERE WE ARE GOING

- Recently, in KSR v. Teleflex, the Supreme Court granted certiorari to hear arguments on whether the Federal Circuits Teaching-Motivation-or-Suggestion test should be abolished.
- Many commentators believe that the standard for obviousness is too high and too many “junk” patents issue.

KSR

- Many of the companies filing amicus briefs also feel the obviousness standard is too high.
- At oral argument, the Justices seemed to agree that the test needed to be changed.
- None of the justices proposed an alternative test that seems satisfactory, however.

PRECEDENTIAL STANDARDS FOR OBVIOUSNESS

The Supreme Court

- Nonobviousness is ultimately a question of law that turns on "several basic factual inquiries" such as:
 - the scope and content of the prior art;
 - differences between the claims and the prior art;
 - the level of ordinary skill in the pertinent art; and
 - secondary considerations.

See *Graham v. John Deere Co.*, 383 U.S. 1, 12 (1966)

PRECEDENTIAL STANDARDS FOR OBVIOUSNESS (cont.)

The Federal Circuit

- The Motivation-Suggestive-Teaching Test
- When obviousness is based on multiple prior-art references, there must be some "suggestion, teaching, or motivation" that would have led a person of ordinary skill in the art to combine the relevant prior art in the manner claimed.

See *Abbott Labs. v. Andrx Pharmaceuticals, Inc.*, 452 F. 3d 1331 (Fed. Cir. 2006) *In re Kahn*, 441 F. 3d 977 (Fed. Cir. 2006)

PRECEDENTIAL STANDARDS FOR OBVIOUSNESS (cont.)

The Federal Circuit (cont'd)

- The Motivation-Suggestion-Teaching Test
- Teaching, suggestion, or motivation may be found explicitly or implicitly:
 - in the prior-art reference themselves
 - in the knowledge of the skilled artisan that certain disclosures are of special importance in the field
 - from the nature of the problem to be solved

WRITTEN DESCRIPTION

- 35 U.S.C. § 112, First Paragraph
- “The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.”
- Whether a specification complies with the written description requirement is a question of fact – Gentry Gallery.

PURPOSE OF WRITTEN DESCRIPTION

- “The purpose of the written description requirement is to prevent an applicant from later asserting that he invented that which he did not. . . .” Amgen, 314 F.3d 1313.
- “The purpose ... is to ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor's contribution to the field of art as described in the patent specification.” Reiffin II.

INDEFINITENESS

- **35 U.S.C. 112, paragraph 2:**
 - The claims must “particularly point[] out and distinctly claim[] the subject matter the applicant regards as his invention.”

ENABLEMENT

- 35 U.S.C. § 112, First Paragraph
 - “The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.”

ENABLEMENT AND WRITTEN DESCRIPTION ARE DISTINCT

- We have interpreted [35 U.S.C. 112, paragraph 2] as requiring a “written description” of an invention separate from enablement

CONSIDERATION OF THE FULL SCOPE OF THE CLAIMS

- Enablement is determined as of the effective filing date of the patent
- “[T]o be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without ‘undue experimentation.’” Genentech, Inc. v. Novo Nordisk, 108 F.3d 1361 (Fed. Cir. 1997).

FACTORS THE COURT CONSIDERS IN ENABLEMENT

- (1) the quantity of experimentation necessary,
- (2) the amount of direction or guidance presented,
- (3) the presence or absence of working examples,
- (4) the nature of the invention,

FACTORS THE COURT CONSIDERS IN ENABLEMENT

- (5) the state of the prior art,
- (6) the relative skill of those in the art,
- (7) the predictability or unpredictability of the art, and
- (8) the breadth of the claims.
- In re Wands, 858 F.2d 731, 737 (Fed. Cir. 1988); Enzo Biochem, Inc. v. Calgene, Inc., 188 F.3d 1362 (Fed. Cir. 1999).

Genentech

- The standard for enablement of nascent technology:
- "Where ... the claimed invention is the application of an unpredictable technology in the early stages of development, an enabling description in the specification must provide those skilled in the art with a specific and useful teaching. Genentech has not shown that the '199 patent provides that teaching." Genentech, 108 F.3d at 1367-68.

BEST MODE

- 35 U.S.C. § 112, ¶ 1
 - "The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention."

BEST MODE

- "Whether an applicant has complied with the best mode requirement of section 112 is a question of fact. . . ." Bayer AG v. Schein Pharmaceuticals, Inc., 301 F.3d 1306, 1312 (Fed. Cir. 2002).

BEST MODE IS A SUBJECTIVE INQUIRY

- "Unlike enablement, the existence of a best mode is a purely subjective matter depending upon what the inventor actually believed at the time the application was filed. Because of the subjective nature of the best mode inquiry, the best mode disclosure requirement-unlike enablement-cannot be met by mere reference to the knowledge of one of skill in the art. The reason is pragmatic.

SCOPE OF BEST MODE REQUIREMENT

- “[T]he best mode disclosure requirement only refers to the invention defined by the claims.” Id. at 1315.
- Patentee was not required to disclose a “best mode” of creating two starting materials for creating the claimed compound. In re Brebner, 455 F.2d 1402 (C.C.P.A. 1972)

INEQUITABLE CONDUCT

- 37 C.F.R. § 1.56(a) imposes a duty on patent prosecutors to disclose information material to patentability.

Intellectual Property Blogs

- The Invention Blog: <http://nip.blogs.com/>
- Patently-O: <http://www.patentlyo.com/patent/>
- Just a Patent Examiner: <http://just-n-examiner.livejournal.com/>
- PHOSITA: <http://just-n-examiner.livejournal.com/>
- Patent the Progress: <http://www.promotetheprogress.com/>
- The Peer to Patent Project: <http://cairns.typepad.com/peertopatent/>

Patent Blogs Continued

- IP Litigation Blog: <http://www.iplitigationblog.com/>
- Patent Prospector: <http://www.patenthawk.com/blog/>
- Patent Pending Blog: <http://patentpending.blogs.com/>
- A Patent Blog: <http://www.apatentblog.com/>
- Mises Blog on Patents: <http://blog.mises.org/archives/006055.asp>
- Public Knowledge: <http://www.publicknowledge.org/articles/56>

**Socratic Dialogue: "Are patents and copyrights morally justified? The philosophy of property rights and ideal objects."
Tom G. Palmer, *Harvard Journal of Law & Public Policy* (vol. 3, no. 3, Summer 1990)**

Thank you!

American Pioneer Ventures, Ltd.
Email: dhussain@alum.mit.edu
Phone: (646) 290-5092