35 U.S.C. §101

Patentable Subject Matter

What Can Be Patented?

- New mathematical algorithms to calculate any item's length?
- Cloned sheep?
- Rubber-like materials found within newly discovered plants in the Amazon?
- A song written by your daughter?
- Great ideas?

Statutes

- 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 therefor, subject to the conditions and requirements of this title.

Diamond: “ . . . Anything Under the Sun that is Made by Man . . .”

- As the Supreme Court has recognized, Congress chose the expansive language of 35 U.S.C. §101 so as to include "anything under the sun that is made by man" as statutory subject matter. *Diamond v. Chakrabarty*, 447 U.S. 303, 308-09, 206 USPQ 193, 197 (1980). In *Chakrabarty*, 447 U.S. at 308-309, 206 USPQ at 197, the court stated:
  - In choosing such expansive terms as "manufacture" and "composition of matter," modified by the comprehensive "any," Congress plainly contemplated that the patent laws would be given wide scope. The relevant legislative history also supports a broad construction.
  - The Patent Act of 1793, authored by Thomas Jefferson, defined statutory subject matter as "any new and useful art, machine, manufacture, or composition of matter, or any new or useful improvement [thereof]." Act of Feb. 21, 1793, ch. 11, § 1, 1 Stat. 318. The Act embodied Jefferson's philosophy that "ingenuity should receive a liberal encouragement." V Writings of Thomas Jefferson, at 75-76. See *Graham* v. *John Deere Co.,* 383 U.S. 1, 7-10 (148 USPQ 459, 462-464) (1966).
  - Subsequent patent statutes in 1836, 1870, and 1874 employed this same broad language. In 1952, when the patent laws were recodified, Congress replaced the word "art" with "process," but otherwise left Jefferson's language intact.
  - The Committee Reports accompanying the 1952 Act inform us that Congress intended statutory subject matter to "include anything under the sun that is made by man." S. Rep. No. 1979, 82d Cong., 2d Sess., 5 (1952); H.R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952).

In re: Alappat (“Any” with a capital “A”)

- *In re Alappat*, 33 F.3d 1526, 1542, 31 USPQ2d 1545, 1556 (Fed. Cir. 1994) (*en banc*) states:
  - The plain and unambiguous meaning of section 101 is that any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may be patented if it meets the requirements for patentability set forth in Title 35, such as those found in sections 102, 103, and 112.
  - The use of the expansive term "any" in section 101 represents Congress's intent not to place any restrictions on the subject matter for which a patent may be obtained beyond those specifically recited in section 101 and the other parts of Title 35.
  - Thus, it is improper to read into section 101 limitations as to the subject matter that may be patented where the legislative history does not indicate that Congress clearly intended such limitations.

Four Categories of Inventions

- 35 U.S.C. §101 Defines Four Categories of Inventions:
  - Processes (series of steps or acts to be performed)
    - 35 U.S.C. §100(b) "The term 'process' means process, art, or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material."
  - Machines (physical things that operate in some manner).
  - Manufactures (physical items made by man or machine).
  - Compositions of Matter (physical materials not naturally ocurring in nature).

Exceptions to the Four Categories

- Exceptions that are not patentable subject matter (*Gottschalk v. Benson*, 409 U.S. 63, 71-72, 175 USPQ 673, 676 (1972)):
  - Abstract Ideas;
  - Laws of Nature; and
  - Natural Phenomena.

Abstract Ideas

- Abstract Ideas are not patentable subject matter:
  - *Le Roy v. Tatham*, 55 U.S. 156, 175 (1852) states "A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right.";
  - *Rubber-Tip Pencil Co. v. Howard*, 87 U.S. (20 Wall.) 498, 507 (1874) states an “idea of itself is not patentable, but a new device by which it may be made practically useful is".
  - *Warmerdam*, 33 F.3d at 1360, 31 USPQ2d at 1759 states "steps of 'locating' a medial axis, and 'creating' a bubble hierarchy . . . describe nothing more than the manipulation of basic mathematical constructs, the paradigmatic 'abstract idea'".

Laws of Nature

- Laws of Nature are not patentable subject matter:
  - *Diamond v. Chakrabarty*, 447 U.S. 303, 309, 206 USPQ 193, 197 (1980) states: "Likewise, Einstein could not patent his celebrated law that $E=mc^2$; nor could Newton have patented the law of gravity."
  - *Mackay Radio & Telegraph Co. v. Radio Corp. of America*, 306 U.S. 86, 94, 40 USPQ 199, 202 (1939) "While a scientific truth, or the mathematical expression of it, is not patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be.“

Natural Phenomena

- Natural Phenomena are not patentable subject matter:
  - “A new mineral discovered in the earth or a new plant found in the wild is not patentable subject matter" under Section 101. *Diamond v. Chakrabarty*, 447 U.S. 303, 309, 206 USPQ 193, 197 (1980).
  - "Phenomena of nature, though just discovered . . .are not patentable, as they are the basic tools of scientific and technological work." *Gottschalk v. Benson*, 409 U.S. 63, 67, 175 USPQ 673, 675 (1972).
  - *Funk Brothers Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 132, 76 USPQ 280, 282 (1948) (combination of six species of bacteria held to be nonstatutory subject matter).

Practical Applications of Abstract Ideas, Laws of Nature, or Natural Phenomenon

- Claims may be eligible for patent protection if the claim is for a practical application of an abstract idea, law of nature, or natural phenomenon.
- *Diamond v. Diehr,* 450 U.S. 175, 187, 209 USPQ 1, 8 (1981) states "application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection."
- *Gottschalk v. Benson*, 409 U.S. 63, 71, 175 USPQ 673, 676 (1972) rejecting formula claim because it "has no substantial practical application."

Must Be Useful

- 35 U.S.C. §101 also requires that the subject matter sought to be patented be a “new and useful” invention.
- Accordingly, a complete definition of the scope of 35 U.S.C. §101, reflecting Congressional intent, is that any new and useful process, machine, manufacture or composition of matter under the sun that is made by man is the proper subject matter of a patent. MPEP §2106(IV)(A).

Gottschalk v. Benson

- Accordingly, one may not patent every "substantial practical application" of an idea, law of nature or natural phenomena because such a patent would "in practical effect be a patent on the [idea, law of nature or natural phenomena] itself." *Gottschalk v. Benson*, 409 U.S. 63, 71-72, 175 USPQ 673, 676 (1972).

101 Applies Equally to All Categories of Inventions

- The scope of 35 U.S.C. 101 is the same regardless of the form or category of invention in which a particular claim is drafted. AT&T, 172 F.3d at 1357, 50 USPQ2d at 1451.
- See also *State Street*, 149 F.3d at 1375, 47 USPQ2d at 1602 wherein the Federal Circuit explained:
  - The question of whether a claim encompasses statutory subject matter should not focus on which of the four categories of subject matter a claim is directed to -- process, machine, manufacture, or composition of matter -- [provided the subject matter falls into at least one category of statutory subject matter] but rather on the essential characteristics of the subject matter, in particular, its practical utility.
- However, method claims have recently come under increasing scrutiny.

Previous “Useful, Concrete, and Tangible Result” Method Standard

- *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d 1368, 1373-74, 47 USPQ2d 1596, 1601-02 (Fed. Cir. 1998) stated:
  - The claimed invention as a whole must be useful and accomplish a practical application. That is, it must produce a "useful, concrete and tangible result."
  - The purpose of this requirement is to limit patent protection to inventions that possess a certain level of "real world" value, as opposed to subject matter that represents nothing more than an idea or concept, or is simply a starting point for future investigation or research (*Brenner v. Manson*, 383 U.S. 519, 528-36, 148 USPQ 689, 693-96 (1966); *In re Fisher*, 421 F.3d 1365, 76 USPQ2d 1225 (Fed. Cir. 2005); *In re Ziegler*, 992 F.2d 1197, 1200-03, 26 USPQ2d 1600, 1603-06 (Fed. Cir. 1993)).

Current "Machine or Transformation" Method Standard - Bilski

- The law in the area of patent-eligible subject matter for process claims has recently been clarified by the Federal Circuit in *In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008) (en banc).
- The en banc court in *Bilski* held that "the machine-or-transformation test, properly applied, is the governing test for determining patent eligibility of a process under § 101." *Id*. at 956.
- The court in *Bilski* further held that "the useful, concrete and tangible result inquiry is inadequate [to determine whether a claim is patent-eligible under § 101.]" *Id*. at 960.

Bilski Continued

- The court explained the machine-or-transformation test as follows:
  - The machine-or-transformation test is a two-branched inquiry; an applicant may show that a process claim satisfies § 101 either by showing that his claim is tied to a particular machine, or by showing that his claim transforms an article. *See Benson*, 409 U.S. at 70, 93 S. Ct. 253.
- Certain considerations are applicable to analysis under either branch.
  - First, as illustrated by *Benson*, the use of a specific machine or transformation of an article must impose meaningful limits on the claim's scope to impart patent-eligibility. *See Benson*, 409 U.S. at 71-72, 93 S. Ct. 253.
  - Second, the involvement of the machine or transformation in the claimed process must not merely be insignificant extra-solution activity. *See Flook*, 437 U.S. at 590, 98 S. Ct. 2522. *Id*. at 961-62.

Bilski Continued

- The court declined to decide under the machine implementation branch of the inquiry whether or when recitation of a computer suffices to tie a process claim to a particular machine.
- As to the transformation branch of the inquiry, however, the court explained that transformation of a particular article into a different state or thing "must be central to the purpose of the claimed process." *In re Bilski*, 545 F.3d 943, 960 (Fed. Cir. 2008).
- As to the meaning of "article," the court explained that chemical or physical transformation of physical objects or substances is patent-eligible under § 101. *In re Bilski*, 545 F.3d 943, 960 (Fed. Cir. 2008).

Bilski Continued

- The court also explained that transformation of data is sufficient to render a process patent-eligible if the data represents physical and tangible objects, i.e., transformation of such raw data into a particular visual depiction of a physical object on a display. *In re Bilski*, 545 F.3d 943, 962 (Fed. Cir. 2008).
- The court further noted that transformation of data is insufficient to render a process patent-eligible if the data does not specify any particular type or nature of data and does not specify how or where the data was obtained or what the data represented. *In re Bilski*, 545 F.3d 943, 962 (Fed. Cir. 2008) (citing *In re Abele*, 684 F.2d 902, 909 (CCPA 1982) (process claim of graphically displaying variances of data from average values is not patent-eligible) and *In re Meyer*, 688 F.2d 789, 792-93 (CCPA 1982) (process claim involving undefined “complex system" and indeterminate “factors” drawn from unspecified “testing” is not patent eligible).

Are Data or Writings Statutory Subject Matter?

- MPEP §2106(IV)(B) states: a claim reciting only a musical composition, literary work, compilation of data, signal, or legal document (e.g., an insurance policy) *per se* does not appear to be a process, machine, manufacture, or composition of matter.
- Further, the patentability distinction goes to the functionality of the data or writing.

Functionality of Data or Writings Controls

- Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." Per MPEP §2106.01:
  - “Functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component.
  - The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions."
  - The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993) defines that "Nonfunctional descriptive material" includes but is not limited to music, literary works, and a compilation or mere arrangement of data.”

Functionality of Data or Writings Controls

- In re *Warmerdam*, 33 F.3d 1354,1360-61, 31 USPQ2d 1754, 1759 teaches that when functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. (Claim to a data structure *per se* held nonstatutory).
- A claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035.

Music, Literature, Art

- MPEP 2106.01 (II) states:
- Certain types of descriptive material, such as music, literature, art, photographs, and mere arrangements or compilations of facts or data, without any functional interrelationship is not a process, machine, manufacture, or composition of matter.

Algorithms

- Claims to processes that do nothing more than solve mathematical problems or manipulate abstract ideas or concepts do not define patentable subject matter (MPEP §2106.02).
- A claimed process that manipulates only numbers, abstract concepts or ideas, or signals representing any of the foregoing, is not appropriate subject matter. *Gottschalk v. Benson*, 409 U.S. 63, 71 - 72, 175 USPQ 673, 676 (1972).
- Thus, a process consisting solely of mathematical operations, i.e., converting one set of numbers into another set of numbers, does not manipulate appropriate subject matter and thus may not constitute a statutory process (there needs to be some claim to practical application).

Examination Requirements

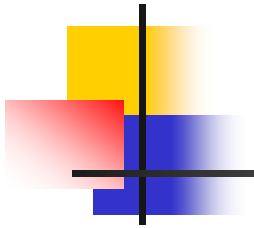
- MPEP §2106 (IV)(C)(2)(3) states:
  - Even when a claim applies a mathematical formula, for example, as part of a seemingly patentable process, USPTO personnel must ensure that it does not in reality "seek patent protection for that formula in the abstract." *Diehr*, 450 U.S. at 191, 209 USPQ at 10.
  - One may not patent a process that comprises every "substantial practical application" of an abstract idea, because such a patent "in practical effect would be a patent on the [abstract idea] itself." *Benson*, 409 U.S. at 71-72, 175 USPQ at 676; *cf*. *Diehr*, 450 U.S. at 187, 209.
  - "To hold otherwise would allow a competent draftsman to evade the recognized limitations on the type of subject matter eligible for patent protection." *Diehr*, 450 U.S. at 192, 209 USPQ at 10.

Examination Requirements

- MPEP §2106(IV)(B) states:
  - The burden is on the USPTO to set forth a prima facie case of unpatentability. Therefore, if USPTO personnel determine that it is more likely than not that the claimed subject matter falls outside all of the statutory categories, they must provide an explanation.
  - If USPTO personnel can establish a prima facie case that a claim does not fall into a statutory category, the patentability analysis does not end there. USPTO personnel must further continue with the statutory subject matter analysis as set forth below.
  - Also, USPTO personnel must still examine the claims for compliance with 35 U.S.C. 102, 103, and 112.

Examination Requirements

- MPEP 2106 (subparagraph B) states:
  - If the invention as set forth in the written description is statutory, but the claims define subject matter that is not, the deficiency can be corrected by an appropriate amendment of the claims.
  - In such a case, USPTO personnel should reject the claims drawn to nonstatutory subject matter under 35 U.S.C. 101, but identify the features of the invention that would render the claimed subject matter statutory if recited in the claim.



THANK YOU