PATENTS IN BUSINESS: A PRIMER FOR BANKERS

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Not all inventions designed to function in the world of banking and business are patentable. The author explains the three primary legal requirements that must be met before such inventions can be patented: newness, sufficient disclosure, and potential commercial value. He then gives examples, drawn from banking and business, of business machines and business processes that were either granted or denied patent protection.

The Patent Portfolio

The most valuable assets of a business are often the firm's patent portfolio, which can provide both operational advantages and collateral for financing. Patents are typically considered important for engineering and scientific businesses. They may also be important for nontechnical businesses. For example, software and machinery control systems developed inside a firm may be patentable. Financial firms and investors may patent their proprietary program-trading strategies. Investment banks may protect novel derivative securities. Management consulting firms may protect proprietary manufacturing control models and expert systems. Proprietary manufacturing systems may be patentable for systems as high-tech as computer-guided laser machinery or as low-tech as a fast-food restaurant kitchen.

Patents prevent competitors from using the patented technology. This protection avails regardless of how competitors obtain the technology. Competitors acquiring the technology from the patenting company directly or indirectly (e.g., via ex-exployees) or obtaining it independently of the patenting company (e.g., re-inventing the patented technology) are prevented from using it. Patents may also be used to obtain preeminent rights to an invention

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independently developed by multiple inventors; in such a case, the patenting party may be able to block competitors from using the technology.

In this article, the key legal requirements for a patent are reviewed. Next, examples of the availability of patents for business, as opposed to science or engineering, functions, are examined.

Patent Policy

Patents are intended to foster economic development. Economic development is driven by technological development. Technological development is promoted by disseminating technical knowledge. This includes knowledge of new discoveries and inventions. Disclosing inventions enables others to learn from them and hastens development of next-generation products. The fundamental purpose of patent law is to encourage inventions, their disclosure, and their commercialization,[1] and, thereby, drive economic development.

Economic development, however, is also driven by a free market economy. Patents grant the power to exclude others from using an invention. Such power hampers market freedom.

The patent law balances these countervailing policies by limiting patent protection to only those inventions that are "useful," (i.e., that may foster economic development). To this end, patentable discoveries must meet several requirements. The most important requirements are the following:

- *The discovery must be new.* Patents are intended to encourage innovation. Granting patents to old inventions rewards plagiarism, not innovation.
- *The discovery must be adequately disclosed.* The inventor must disclose enough of the discovery to allow other inventors to reproduce, and, thereby, learn from, the discovery.
- *The discovery must be proper subject matter.* It must be a concrete technological innovation with potential commercial value, or "usefulness." It cannot be a mere concept of the mind.

[1] In re Sarkar, 200 U.S.P.Q. 132, 137 (C.C.P.A. 1978).

The First Requirement: Newness

To be patentable, an invention needs to be new. Newness must be adequate both qualitatively and quantitatively. Qualitatively, an invention must be in some way different from that which is already known to the world. If an invention is the same as that which is already known, the invention is not "new" at all; rather, it is the same as what others have already invented. Where an invention is not qualitatively new, that invention is barred a patent by black-letter law.[2]

Being somehow different from what is already known is necessary for patenting. This factor alone, however, is not sufficient; rather, an invention must be *significantly* different from what is already known. This is the "quantitative" requirement for newness. An invention must be so new that its development is not obvious in light of inventions already known in the United States.[3] In contrast to the black-letter bar for qualitative newness, the contours of the requirement for quantitative newness are fact-intense. Thus, just how much quantitative newness is required for a patent is determined on a case-by-case basis.

The effect of sufficient newness can be seen by contrasting two similar inventions. Both involve nationwide distribution networks. However, only one is new and only one is, thus, patentable. The new network consists of an electrical network linking operative machines. The new network, patented in 1987, is a nationwide network of telephone outlets and remote coupon terminals.[4] The coupon terminals are used for dispensing product coupons and are often located in grocery stores, so that shoppers can get coupons as and where they need them the most. This network has an apparatus, including unique coupon-dispensing terminals. It, thus, merits patent protection.

An analogous network, lacking newness, was denied a patent in the early 1940s. The non-new network was another nationwide distribution network and was installed to distribute not coupons, but fire-fighting services.[5] The invention consisted of mobile fleets

[2] 35 U.S.C. § 102 (1988).

[3] 35 U.S.C. § 103 (1988).

[4] Chester L. Lemon and Bill A. Kelly, *Method and Apparatus for Controlling the Distribution of Coupons*, U.S. Patent No. 4,674,041 (June 16, 1987).

[5] In re Patton, 127 F.2d 324 (C.C.P.A. 1942).

of fire-fighting units and a nationwide network of electrical outlets. The outlets powered the mobile units, which were designed to patrol the nation and protect it from fires due to aircraft attack during World War II.

The inventor claimed the equipment used in the network. This equipment was not new, neither qualitatively nor quantitatively. Some of the equipment consisted of known combinations of known physical components. One claim, for example, called for "nothing more than a fire truck and detachable trailer units."[6] As of 1942, when the case arose, this lacked qualitative newness; fire trucks and detachable trailers were already known.

Some other aspects of the invention lacked quantitative newness. Several claims recited elements disclosed in prior patents, with a mere substitution of equivalent components. A substitution of equivalent components is, for example, using screws where a prior patent calls for nails. Mere substitution of equivalents, such as screws for nails, is not sufficiently new for a patent. Substitutions, thus, lack quantitative newness. Thus, the contested claims, all drawn to fire-fighting system apparatus, were rejected as insufficiently new.

Lack of newness has rendered other business-related inventions not patentable. An example is an old municipal bond accounting system.[7] The system accounted for outstanding municipal bonds and entailed pasting the outstanding bonds in a ledger book. As coupons on the bonds were received and paid, the paid coupons were pasted in the ledger book along with the underlying bond. An issuing municipality could, thus, account for the coupons.

The inventor claimed to have invented the ledger book used. The inventor also claimed to have invented the method of accounting for outstanding bonds by pasting them in a ledger book. However, even in 1888 when this case arose, keeping track of things by pasting them into a ledger book was not seen as a new concept. The invention was found insufficiently new. The Supreme Court, thus, held the invention not patentable.

Insufficient newness was also seen in an early attempt at patenting a contract.[8] The inventor asserted that he invented a novel

[6] Id. at 328.

[7] Munson v. City of New York, 124 U.S. 601 (1888).

[8] In re Moeser, 27 App. D.C. 307, 310 (1906).

burial insurance contract. His patent application, however, claimed something significantly more broad. The patent application claimed, inter alia:

> An instrument embodying a contract to be executed by a company and an individual, with a series of provision and agreement clauses, a draft attached to and made a part of the instrument, in which draft a depository agrees to pay a designated party or parties the sum involved in the contract, an acceptance attached to said draft to be executed by said designated party or parties . . . , a release clause . . . , and a notarial certification as to the genuineness of the signatures of the certifying statements and release clause, substantially as described.

At the time of this case, the insurance industry had "grown to immense proportions."[9] The industry used several types of contracts. These were all "generic in character, and require[d] in their final performance some kind of certificate or proof of loss as well as ordinary drafts for payment." Thus, the contested contract was not new.[10]

Another early case invalidated a restaurant accounting system patent as insufficiently new.[11] These cases and others like them demonstrate that a lack of newness is fatal to a patent.

The Second Requirement: Disclosure

A patent application must have adequate disclosure. To be adequate, disclosure must enable others to reproduce or replicate the invention, so they may learn from it. The invention disclosed must be the best version known to the inventor at the time of the patent application.[12]

Disclosure may be impaired by an unartfully drafted patent application. An example is drafting a discrepancy between a patent application's disclosure and the invention's actual function. Such a discrepancy invalidated a patent on a *Means for Securing Against Excessive Losses by Bad Debts*.[13] The invention consisted of a novel format of rulings and headings printed on bookkeeping paper. The novel format enabled an insurer to more easily account for bad-debt guarantees extended to insured parties.

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[9] Id. at 310.

[10] N.B., the court did not rest its holding on newness grounds.

[11] Hotel Sec. Checking Co. v. Lorraine Co., 160 F. 467 (2d Cir. 1908).

[12] 35 U.S.C. § 112 (1988).

[13] United States Credit Sys. v. American Credit Indem. Co., 59 F. 139 (2d Cir. 1893).

The ruling and heading format did not, however, achieve the function claimed, that of securing against excessive losses. The court noted:

> The sheets described in the claims may be printed by the ream, and may even be filed [sic] in interminably with details appropriate to each heading, "the several details of the transaction hereinbefore described," as the patentee expresses it, and yet not a single dollar of loss by bad debts will be secured against. Nor are the "sheets," the "forms of contract," or "guaranty" referred to in the specifications. The three claims of the patent are concerned solely with the providing of sheets with appropriate headings, adapted to be used in preparing historical records of certain business transactions.

Such security was affected not by the format of the paper itself, but by the insurer's management of risk inherent in the portfolio of insurance contracts. Such risk management may be made easier with the clearly defined format of the bookkeeping paper, but it is actually effected by the specification of covered events of loss or the matching of future revenues and expenses. The bookkeeping sheet format was merely an accounting tool that did nothing to teach a financial hedging method by which an insurer could secure against excessive losses. For this inadequacy of disclosure, the patent was invalidated.[14]

The Third Requirement: Patentable Subject Matter

The Statutory Classes. For a discovery to be patentable, it must be patentable subject matter. The patent statute enumerates what is patentable subject matter.[15] However, the express wording of this statute has a significant common-law overlay. For example, the patent statute expressly allows for patenting "discoveries." Many things we think of as "discoveries," however, are not patentable. For example, the discovery of an efficient nitrogen-fixing combination of soil bacteria has been held not patentable subject matter.[16]

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[14] Note that discrepancies between an invention's specification and its title would not invalidate a patent. Rather, where the title of an invention is not descriptive of the invention, the patent examiner should merely require that the inventor substitute a more representative title. Patent and Trademark Office, *Manual of Patent Examining Procedure* § 606.01 at 600–624 (Oct. 1989).

[15] 35 U.S.C. § 112 (1988).

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

The best way to approach this seminal area of the patent law is to recall the fundamental purpose of patents. The Patent Office is part of the Commerce Department. The Commerce Department promotes economic development and the Patent Office shares this mission. Its mission is not to promote science per se, but rather to promote *economic development*. Thus, economic development is a central theme in defining what types of discoveries are patentable. A pretty good nutshell summary of this area of the law is that a patentable invention is a discovery of a type that may be economically valuable or "useful." It should be noted that the law here does not require that the invention actually have economic value. It is sufficient that the invention *may* have value and that it be of a class that includes potentially valuable members.

For example, laws of nature, mathematical formulae, and the like, in and of themselves do not promote economic development. Laws of nature do not produce revenues. Rather, these must be applied in some concrete way (e.g., to the operation of a machine or chemical reaction) to promote economic growth.

For example, Albert Einstein posited that $E=mc^2$. Discovering this relationship merits Mr. Einstein a place in history but it does not merit Mr. Einstein a patent. This relationship, of itself, does nothing to promote economic development. It does not change the speed of light or the quantum of energy obtainable from a given mass. It does not change Con Edison's cost of generating power. This relationship has economic impact only when applied in some concrete, economic embodiment: a nuclear power plant design, for example. The economic embodiment, the plant design, is patentable. The purely theoretical relationship is not. Thus, an economically useful process created with the aid of a scientific principle may be patentable subject matter.[17]

Examples of purely theoretical, and, thus, not patentable, discoveries include a law of nature,[18] a scientific principle,[19] a mathematical algorithm,[20] and mere ideas or advice. Nonpatentable

[17] Diamond v. Diehr, 450 U.S. 175 (1981) (process patent); Mackay Radio & Tel. Co. v. Radio Corp. of Am. 306 U.S. 86, 94 (1939) (article of manufacture patent).

[18] See Gottschalk v. Benson, 409 U.S. 63, 67 (1972).

[19] See Mackay Radio & Tel. Co. v. Radio Corp. of Am. 306 U.S. 86, 94 (1939).

[20] Gottschalk v. Benson, 409 U.S. 63, 67 (1972); Ex parte Meinhardt, 1907 C.D. 237, 129 O.G. 3503 (1907) (mathematical algorithm for calculating calligraphy dimensions).

discoveries also include a process consisting of nothing more than a law of nature or scientific principle.[21]

To have economic value, an invention must also be a concrete item, replicable by another manufacturer. Disclosing unique, non-replicable events does not promote economic development. Unique events do not allow others to apply the event in some economic activity. Thus, nonrepeatable discoveries are not patentable.

This principle is often confused with the requirement for disclosure adequacy. Disclosure must enable another inventor to replicate the discovery. Where there is only partial disclosure of a fully-known discovery, inadequate disclosure may prevent patenting. Where there is full disclosure of a discovery that is by its nature not replicable, the patent may in practice be invalidated under either of two grounds. First, the discovery would not aid economic development, and thus would not be appropriate subject matter. Second, the disclosure would not satisfy the disclosure standards because the disclosure, by definition, would not suffice to allow others to practice the invention. Cases addressing this issue invariably deal with discoveries that may, in fact, be replicable but for the inventor's lack of full knowledge regarding how the discovery functions.

The general policy of economic development is codified in the patent statute. The patent statute enumerates specific classes or types of discoveries accorded patent protection. To promote the policy underlying the patent system, Congress employed broad language in enumerating which types of inventions are patentable.[22] The statutory classes are "compositions of matter" (chemical compounds and the like), manufactured articles (including machines), and processes (also called "methods") using either or both of these.

This statute should be given a broad scope, even when assessing new technologies.[23] Congress is not expected to foresee or annually amend the patent statute to incorporate every future breakthrough into new technology.[24] If an invention falls within a statutory class,

[21] O'Reilly v. Morse, 56 U.S. (15 How.) 62, 113 (1853). See also Funk Bros. Seed Co. v. Kalo Inoculant Co., 333 U.S. 127, 130 (1948) (product of nature is unpatentable); Armour Pharmaceutical Co. v. Richardson-Merrell, Inc., 396 F.2d 70 (C.A. Del. 1968) (same).

[22] In re Sarkar, 200 U.S.P.Q. 132, 137 (C.C.P.A. 1978).

[23] Id.

[24] Id.

neither the Constitution nor the patent statute otherwise limits the type of invention that is patentable.[25] Thus, any invention within a statutory class is patentable subject matter unless it falls within an exception.[26] It has, thus, been said that patentable subject matter includes "anything under the sun that is made by man."[27]

The statutory list is exhaustive. Patents avail only for the enumerated classes. Discoveries not in any statutory class are not patentable. Thus, not every discovery is patentable.[28]

For example, forms of contracts are not patentable because they do not fall within a statutory class.[29] Forms of contracts are not manufactured goods. A piece of paper with a functional arrangement of markings (e.g., lines to make a ticket easier to use) is a manufactured article and, thus, is patentable. Arrangements of words, however, of themselves are not manufactured goods; the functioning of the words derives not from their physical construction, but from their linguistic symbolism.

Similarly, forms of contracts are not considered processes with a concrete, replicable embodiment. The process of contracting, even for a standard, boilerplate agreement, is unique to the parties. Each party must accept its terms, either personally or by agent. Disclosure of a contract's contents in a patent, thus, does not enable others to replicate the contract. The contract cannot be replicated—other persons' acceptances cannot be forced to be—by mere publication of the words on the paper. Replicating the contract always depends on the parties' personal consent. Thus, contracts are not replicable and are, therefore, not statutory processes.

Exceptions. Even within the statutory classes, there are some exceptions to patentability. Some exceptions are mandated by statute. For example, certain inventions relating to atomic weaponry are by statute denied patent protection.

It is also allegedly possible to create common-law exceptions to the statutory classes.[30] These common-law exceptions, to the

[25] See Park-In Theaters v. Rogers, 130 F.2d 745, 747 (9th Cir. 1942).

[26] See In re Gelnovatch & Arell, 595 F.2d 32, 38, 201 U.S.P.Q. 136, 142 (C.C.P.A. 1979); In re Sarkar, 200 U.S.P.Q. 132, 137 (C.C.P.A. 1978).

[27] Diamond v. Chakrabarty, 447 U.S. 303, 309 (1980).

[28] Id.

[29] In re Moeser, 27 App. D.C. 307 (1906).

[30] See, e.g., In re Alappat, 1994 U.S. App. LEXIS 21129, *43 (Fed. Cir. July 29, 1994).

extent that they exist, seem founded on the general policy that patents are reserved for inventions that promote economic development, not for mere ideas or relationships.[31]

Common-law exceptions limit the broad scope of the statute. Thus, they should be created with restraint, if at all. The Supreme Court has said, "courts should not read into the patent laws limitations and conditions which a legislature has not expressed."[32] Excepting an invention from patent protection facilitates a "consequent relegation to the caves of secrecy [and] must be approached with great care lest the intent of the patent statute be thwarted."[33] Thus, exceptions should be created with restraint.

An example of this restraint is seen in the creation of, and subsequent retreat from, a specific common-law exception. An early decision indicated that inventions in the field of architecture were not patentable.[34] A later court, however, upheld an architecture patent. This later case addressed a patent on a system of arranging automobiles in a drive-in movie. With this system, autos would not enter the line of sight of other autos.[35] The patent for the drive-in system was upheld. The court reasoned that the earlier case "did not and could not properly say that there could be no possible building or structure which could be properly classified as a manufacture within the meaning of the patent law."[36] Thus, if the invention is sufficiently new, the mere fact that it might be classified as "architecture" does not make it unpatentable.

Common-law exceptions, to the extent they now exist, are determined by the policy underlying patent law. The sine qua non of patentability is economic usefulness. Economic embodiments are patentable subject matter; non-economic embodiments are not.

Examples of Patentable Business Inventions

Discoveries may be patentable where they are new, disclosed, and are of a type that is "useful," that is, promote economic development. We now turn to how this general legal framework applies to real-world business inventions.

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[31] Cf. id. at *56–57 (Newman, J., concurring).
[32] Diamond v. Diehr, 450 U.S. 175, 182 (1981).
[33] See In re Sarkar, 200 U.S.P.Q. 132, 137 (C.C.P.A. 1978).
[34] Disappearing Bed Co. v. Arnaelsteen, 182 F. 324 (9th Cir. 1910).
[35] Park-In Theaters v. Rogers, 130 F.2d 745 (9th Cir. 1942).
[36] Id. at 747.

Patentable subject matter includes machines and processes. Thus, machines for business are patentable. So are processes for business. Such processes must be reduced to a concrete economic embodiment, as seen above. Thus, business processes that lack any concrete, replicable embodiment may not be patentable.

We first review how business inventions with a concrete, replicable embodiment are clearly patentable. We then discuss potential difficulties with obtaining patent protection.

Check Marking System

Inventions are seen as having a concrete, replicable embodiment when they include a physical apparatus such as a computer. Thus, they are patentable. An example was seen in the patenting of a system for marking checks.[37] The system entailed marking checks with magnetic ink to denote account classifications, reading the ink classifications with a machine, and storing and processing the information in a data processor.

The Board of Patent Appeals and Interferences (the Board)[38] found the claimed invention went solely to the personal relations between a bank and its customers. The Board held the invention was not patentable subject matter.

This decision comports with general patent policy. The discovery of banking relations does have an economic-development impact. The personal relationships were not, however, reduced to a replicable, concrete embodiment. Interpersonal relations are not replicable; other bankers are not able to form good interpersonal relationships merely by reading the patent's disclosure. Further, the relations are not concrete; good interpersonal relationships are enjoyable, but of themselves personal relations do not create revenues or profits. The patent application was, thus, rejected by the Board.

This decision was reversed on appeal.[39] The appeals court

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[37] In re Johnston, 502 F.2d 765 (C.C.P.A. 1974) reviewing Patent Office Board of Appeals decision Serial Number 624,741 (March 21, 1967).

[38] The Board of Patent Appeals and Interferences is an administrative court within the Patent and Trademark Office. The Board is empowered to, inter alia, review a patent examiner's denial of a patent application.

[39] Application of Johnston, 502 F.2d 765 (C.C.P.A. 1974), rev'd on other grounds sub nom., Dann v. Johnston, 425 U.S. 219 (1976) (disallowance of claims solely on novelty grounds; no analysis of subject matter patentability).

found that the invention was a *machine* system. It was not merely a system of personal relations. Machines, and the systems for operating them, are patentable. Machine systems may have the object of enabling or improving a method of business, such as banking.[40] The use of an otherwise patentable machine system in a business process does not bar its patenting.

Notably, the appeals court did not reverse the Board's holding regarding personal relations. Such relations remain nonpatentable. Rather, the appeals court found new facts. Such new facts rendered the Board's prior ruling inapposite. These new facts indicated that the invention was not a system of personal relations, but rather a system for using a machine.

These two decisions demonstrate the cogency of the existence of machinery. The Board found no machinery in the bank's personal relations. The Board, thus, disallowed the patent. The appeals court found the invention was a "machine system," and, thus, allowed the patent. Thus, where a physical apparatus is involved, patents may avail for significant areas of business. Examples include back-office operations and trading systems.

Securities Firms Operations Systems

The operations department of a securities firm may benefit by patent protection. For example, several accounting systems have been patented. A patent was issued on a *Transaction Tracking Data Processing System*.[41] This system monitors a client's business orders over time and, based on predetermined criteria, determines the client's vested interest in funds deposited into special client accounts.

Another fairly broad patent issued on a *Data Processing System and Method*.[42] This data management system can apparently "encompass the totality of banking transactions of a traditional institution."[43] It also may be used in diverse nonbanking businesses.

More narrowly drafted operations system patents have also

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[40] Application of Johnston, 502 F.2d 765, 771 (C.C.P.A. 1974).

[41] Larry Wolfberg, Brent A. Wolfberg and Jan E. Rhoads, *Transaction Tracking Data Processing System*, U.S. Patent No. 4,994,964.

[42] William K. Bone and John M. Giannini, *Data Processing System and Method*, U.S. Patent No. 4,918,602 (April 17, 1990).

[43] Id. at column 1, line 68.

issued. These narrower patents cover special-purpose systems. An example is the *Financial Data Processing System Using Payment Coupons*.[44] This is a check-writing system. This system uses machine-readable coupons to generate conventional checks.

A credit card accounting system has been patented.[45] So has a network to provide financial information to banks that issue debit cards to owners of life insurance policies.[46]

These accounting systems are "dumb" in that they simply record decisions made external to the system, that is, by a person. However, expert systems containing a certain amount of reasoning capacity can also be patented. For example, a patented expert system supervises and processes trades for an investment portfolio.[47] This system manages a portfolio consisting of both revenue generating and negotiable draft investments. This system goes further than the "dumb" accounting systems discussed earlier. It is not a mere reactive bookkeeping system. Rather, it is an expert system that manages risk exposure and ensures that the present values of the portfolio components are continually hedged.[48]

Another patented expert system automatically allocated a customer's deposits among multiple financial institutions.[49] The allocation ensures FDIC or FSLIC coverage for the full aggregate amount of the deposits, regardless of amount. This system incorporates and automatically responds to federal deposit-insurance regulations. It is, thus, capable of making proactive business decisions, rather than mere reactive bookkeeping activity.

Expert systems such as these do more than passively track decisions. These systems actually made decisions. In so doing, they approach the capabilities of some of the patented securities trading systems.

Proprietary Trading Systems

Novel securities and commodities trading systems may be patented. An early case held that a non-new trading system was

[44] Stanley M. Josephson, *Financial Data Processing System Using Payment Coupons*, Patent No. 4,974,878.

[45] Larry R. Clouse, *Financial Data Processing System*, U.S. Patent No. 4,914,587.

[46] Vincent Cuerro, *Method and System for Providing Verifiable Line of Credit Information*, U.S. Patent No. 5,025,138.

[47] Robert L. Alldredge, *Processing System for Managing Bi-Media Investments*, U.S. Patent No. 4,910,676.

[48] See id., at Claim 1.

[49] John E. Oncken, *Extended Coverage Monetary Regulation System*, U.S. Patent No. 4,985,833.

unpatentable.[50] This case is simply an example of the rule requiring sufficient newness. This case, however, has been cited by the U.S. Patent Office for a much different proposition: that processes used in business are common-law exceptions to the statutory class of methods and are, thus, inherently unpatentable.[51] Such citation is misplaced. The case held only that a *non-new* commodity trading system was unpatentable. Commodities and securities trading systems that *are* new may be patented, and many already have been.

The simplest patented trading systems merely transfer data among securities or commodity exchanges. For example, the patented *International Commodity Trade Exchange*[52] consists of a computer that collects and disseminates market data to exchanges around the globe via satellite. This invention is somewhat misnamed. The broadest claims are not drawn to an "international commodity trade exchange" such as the COMEX. Rather, the broadest claims encompass a Quotron-like system that disseminates data, but is not an "exchange" in itself.

A more sophisticated example of a patented securities exchange is the *Automated Securities Trading System*.[53] This system actually makes trading markets in securities. It qualifies trading orders to determine whether the order comports with predetermined trading limits. This feature is reminiscent, for example, of the accounting systems that are responsive to FDIC regulations.

Another securities trading system, for derivative securities trading, has likewise been patented.[54] This patent covers an options-trading system. It includes the capacity to value options contracts and to automatically roll over maturing hedges.

Several other patents have issued on trading systems that incorporate and automate legal requirements. For example, a commodity exchange verifies compliance with Commodities Futures Trading Commission regulations, automatically executes trading orders, and stores order data.[55] Another patented trading system

[50] *In re Wait*, 73 F.982, 24 U.S.P.Q. 88 (C.C.P.A. 1934).

[51] Patent and Trademark Office, *Manual of Patent Examining Procedure* § 706.03(a) at 700-14 (Oct. 1989).

[52] H. C. Sibley, Jr., *International Commodity Trade Exchange*, U.S. Patent No. 4,677,552.

[53] Leslie P. Kalmus et al, *Automated Securities Trading System*, U.S. Patent No. 4,674,044 (16 June 1987).

[54] George E. Nelson, *Renewable Option Accounting and Marketing System*, U.S. Patent No. 4,823,265.

[55] Susan W. Wagner, *Automated Futures Trading Exchange*, U.S. Patent No. 4,903,201.

automatically creates title evincing the new ownership of traded goods.[56]

Hedging systems may also be patented. Such systems may be limited to hedging the financial risk of investment portfolios. Hedging system patents may be substantially broader. A system for insuring against any uncertain future service or commodity price has been patented.[57] This hedging system may be used wherever there is exposure to fluctuations in future prices. It is, thus, useful in, for example, securities hedging. It is also useful in commodity purchasing operations for manufacturing companies. It may also be useful for bulk purchasers of engineering, consulting, medical, or legal services.

Management Expert Systems

Patents avail for any manufacturing or business system based on a computer or other machinery. Such systems may incorporate proprietary methods or formulas. The earliest patents in this field issued on fairly simple manufacturing processes, such as rubber curing. More recent patents cover fairly complex processes.

An example of a more complex manufacturing method is a method for operating a group of manufacturing plants facing variable production levels. A patented process maximizes economic efficiency in the group of plants.[58] The process does this by allocating the variable manufacturing level among the plants with maximum efficiency. Given variable materials and energy costs, product prices, and process data, the method calculates optimal production levels for each plant.

Several other expert systems capable of performing higher-level business analysis have been patented. One analyzes insurance data (e.g., health data) to determine the cost of extending insurance to a given risk.[59]

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[56] James D. Lindsey, Charles D. Hutton, Joe W. Tubb, Carol L. Shipman and Albert S. Kyle, III, *Goods Database Employing Electronic Title or Documentary-Type Title,* U.S. Patent No. 5,063,507 (Nov. 5, 1991).

[57] Peter A. Roberts, *Method and Apparatus for Funding a Future Liability of Uncertain Cost,* U.S. Patents 4,642,768 and 4,722,055 (The latter is a c-i-p of the former and carries a terminal disclaimer).

[58] *Application of Deutsch,* 553 F.2d 689 (C.C.P.A.1977).

[59] Arthur W. DeTore, *Method and Apparatus for Evaluating a Potentially Insurable Risk,* U.S.Patent No.4,975,840.

Another is a *Securities Valuation System*.[60] This system uses a computer to store, retrieve, and edit securities pricing information. The title and specification disclose a "securities valuation system." However, the broadest claims are not limited to the securities industry, nor to valuation procedures. The broadest claims are drawn simply to a computerized data-management system. This system may be used to store, retrieve, and edit data for any database including, for example, mailing lists, inventory records, or test results.

The above patents all contain some type of machine. Thus, the jurisprudence underlying the above patents is not particularly revolutionary. They are, nonetheless, important precedents when one is pursuing the patenting of inventions for which no physical limitation is desired. In such a case, even narrowly-drawn apparatus patents may prove valuable as precedent.

For example, a patent was issued on a system that allocates awards to incentive-program participants.[61] This patent on its face may seem fairly narrow, pertaining merely to employee bonus programs and the like. However, it establishes a valuable precedent. It establishes that systems that allocate future cash-flows according to a predetermined mathematical model may be patentable. Such a precedent may prove important, for example, for the patenting of new derivative securities.

Are Business Processes Non-Statutory?

It is a firmly rooted doctrine that in determining patentability, an invention's use is immaterial. A use in business, however, may raise patentability objections. Such objections are rooted in a line of cases addressing business processes. This line of cases asserts that processes used in business fall in a common-law exception to the statutory class of processes.

This line of cases is not fully developed, however. There is a dearth of on-point precedent. On-point cases are rare because it is rare to find a business process new enough to be patentable. Most cases addressing business processes hold the processes not

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[60] Frederic C. Towers, *Securities Valuation System*, U.S. Patents 4,334,270 and 4,566,066 (The latter is a c-i-p of the former and carries a terminal disclaimer).

[61] J.F. Burton and D.L. Henke, *System and Method for Administration of Incentive Award Program*, U.S. Patent No. 5,025,372.

patentable because they are not sufficiently new. Thus, courts rarely have the opportunity to address whether processes used in business are excepted from the statutory class of processes.

However, some courts have occasionally mused on this subject. For example, one court[62] stated (in dicta) that

> a system of transacting business, apart from the means for carrying out such system, is not within the purview of [the patent statute], nor is an abstract idea or theory, regardless of its importance or the ingenuity with which it was conceived, apart from the means for carrying such idea or theory into effect, patentable subject matter.

This passage merely reaffirms the principle that replicable, economic embodiments (the "means for" in the above-quoted passage) are patentable, while mere ideas are not. This case involved a machinery, not process, patent. The court, thus, did not actually hold on the patentability of a process, including a process used in business.

However, some later courts have expanded this proposition beyond its patent policy underpinning. These courts expand the above result into a generalization that "[s]ome inventions, however meritorious, do not constitute patentable subject matter, *e.g.*, . . . methods of doing business."[63] This view would create a common-law exception to the statutory class of processes. It would except from protection those processes with a business purpose or use. Common-law exceptions to the statute are created with great reserve. Thus, this view has been expressed often in dicta, but only rarely in holding.

This author has found only two cases holding directly on the issue of whether business processes are a patentable kind of process. The earlier of the two cases[64] involved a method of pricing merchandise. This method reduced the amount of manual handling required to price retail grocery items. The Court of Customs and Patent Appeals (the CCPA) found that the method was not sufficiently new. The court, thus, denied the patent. The majority based its decision solely on insufficient newness. The majority, thus, found

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[62] *In re Patton*, 127 F.2d 324, 327 (C.C.P.A. 1942) (dicta).

[63] *In re Chatfield*, 545 F.2d 152, 157 (C.C.P.A. 1976) (dicta). *See also In re Alappat*, 1994 U.S. App. LEXIS 21129, *39 (Fed. Cir. July 29, 1994).

[64] *Application of Howard*, 394 F.2d 869 (C.C.P.A. 1968).

it "unnecessary to consider the issue of whether a method of doing business is inherently unpatentable."

However, a fifth judge on the panel issued a concurring opinion.[65] This concurrence was not based on newness. It was based squarely and solely on the ground that "the [patent] application discloses merely a method of doing business and is therefore for an unpatentable invention." This is as close as any Article III federal court has ever come to holding on methods of business as unpatentable subject matter.

The latter of the two cases is the only one this author has found to hold directly on business method patentability. It is a decision by an Article I administrative court, the Board of Patent Appeals and Interferences.[66] This case addressed the patentability of an accounting method. The method comprised the steps of entering, sorting, debiting, and totalling expenditures, and then printing and issuing an expense analysis statement.

The Board disallowed the patent. In so doing, the Board struggled to find an appropriate analytic framework to justify the disallowance. The Board advanced two independent holdings for the case. The Board held: "[the] claimed method is not proper subject matter . . . either because (1) it constitutes a method of doing business or (2) it preempts an algorithm."[67]

The first alternative holds directly that methods of business are nonstatutory subject matter. The Board, however, lacked precedent to support this proposition. The Board relied on two cases. Neither case directly supported the Board's proposition because both precedents upheld the patents contested therein. One case held that a machine-based accounting system is patentable.[68] The other case held that a computer operating system that prioritizes program execution is patentable.[69] Neither case held any invention unpatentable. Thus, neither provides direct support for the Board's proposition that certain processes are not patentable.

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[65] *Id.* at 872 (Kirkpatrick, J., Senior District Judge, E.D. Pa., sitting by designation) (concurrence).

[66] *Ex parte Murray*, 9 U.S.P.Q.2d 1819 (Bd. Pat. App. and Int. 1988).

[67] *Id.* at 1821.

[68] *In re Johnston*, 502 F.2d 765, 772 (C.C.P.A. 1974), *rev'd on other grounds, Dann v. Johnston*, 425 U.S. 219 (1976).

[69] *In re Chatfield*, 545 F.2d 152, 159 (C.C.P.A. 1976).

This case could have used a different approach for a decision based on subject matter. The only tangible product of this process is the expense statement. Note that the statements' physical embodiment, the pieces of paper, is not the product of the process; rather, the product is the textual content of the papers. Such writings rarely suffice as a replicable product able to promote economic development, where the sole product of a process is writings. Thus, it may be argued that this discovery lacked a replicable embodiment and was, thus, not patentable.

A simple approach would have analyzed newness. The invention was an accounting method. It entailed codifying bookkeeping documents and then compiling these documents into an expense analysis statement. For example, the broadest claim provides:

> An accounting method utilizing a financial institution's documents, having an account number and other information preprinted thereon, and a designated area for a user entry, comprising
>
> a. entering into said designated area one of a plurality of pre-selected identifying indicia to identify the nature and the purpose of the expenditure made with a particular document,
>
> b. converting said user's pre-selected identifying expenditures into a periodic expense analysis statement, further including the steps of:
>
> c. sorting said expenditures in accordance with said user's account number or identifying indicia entered by said user in said designated area on said documents, and thereafter,
>
> d. correlating, tabulating, and storing said sorted identified expenditures in sequence and operational function as predesignated by said financial institution for verification of the validity of said expenditures.
>
> * * *
>
> h. sub-totalling each of said amounts of said expenditures for like identifying indicia and entering said subtotals on said statement adjacent to said sorted indicia entered in said subdivided column,
>
> i. totalling said sub-totals and said totals on said statement and entering below said subtotals,
>
> j. printing and issuing said expense analysis statement to said user.

This describes a basic process for compiling any income or cash flow statement. It reads on a process as old as bookkeeping itself. This process is bookkeeping. It would have been more clear to have

invalidated the claims as not new, rather than as not proper subject matter.

The Board's decision in this case is less than satisfactory. The ultimate outcome is agreeable enough. The method is not-new, and, thus, does not merit a patent. The reasoning behind the decision, however, tries to create a common-law exception to a statutory class. It has, in large part, failed to do so. This is perhaps the decision's greatest merit.

However, one may be justifiably reluctant to underwrite the appellate-level litigation required to clarify the law here. Fortunately, reliance on this unsettled law may be minimized with a responsive patent strategy. Such a strategy can minimize entanglements in unsettled law, while obtaining maximum protection of proprietary technology in whatever form.

Conclusion

Patents are useful to protect proprietary business processes and machinery. Using patent protection may protect against the skill losses associated with employee mobility. Patents may better enable firms to increase earnings by developing licensing revenues. Patent protection may also provide a useful marketing strategy to deal with competitors using similar technology.

Patents provide several valuable remedies. Obviously, patent infringers are liable in damages. Intentional infringers may be liable for treble damages plus attorney fees. Perhaps the most important remedy, however, is the pretrial injunction. Once granted, patents enjoy a rebuttable presumption of validity. This presumption often enables patent owners to obtain pretrial injunctions. In such cases, injunctions can stop competitors' activities dead in their tracks. Given the fast-moving nature of the banking business, this power to enjoin may encourage settlements as prompt as they are attractive.