



What Kinds of Computer-Software-Related Advances (if Any) Are Eligible for Patents? Part II: The “Useful Arts” Requirement

RICHARD STERN
rstern@khhte.com

..... Part I of this column discussed the setting in which the *Bilski* case arose, and traced back to mid-19th century Supreme Court decisions the two “clues” to patent-eligibility¹ based on substance-transformation and device-implementation. These clues are in turn based on the rule that ideas cannot be patented, because doing that would more hinder than promote the progress of technology.

The substance-transformation rule makes a process patent-eligible even though it is not limited to any particular implementing apparatus or device, so long as the process transforms one substance into another (for example, as in the vulcanization of rubber by heating it in the presence of sulfur). The device rule involves the fact that most processes (and other inventions) are based on an underlying scientific principle, phenomenon of nature, or abstract idea (collectively, a principle). The clue to the patent-eligibility of processes that do not involve substance-transformation is whether the process implements its underlying principle nontrivially with a machine or other device specifically adapted to carry out the process.

Although the Supreme Court has left open the possibility that a process might be patent-eligible that did not transform one substance into another and that was not implemented in a nontrivial manner with a device specifically designed to

carry out the process, no such example has yet been recognized. These clues to patent-eligibility do not, however, fully exhaust the subject. There are at least two other clues to the patent-eligibility of products and processes.

The categories of patent-eligible things

One of these clues need not detain us long. It is that the patent statute (35 *U.S. Code* § 101) lists specific categories of patent-eligible things: machines, articles of manufacture, compositions of matter, and processes. This is something Congress could change, if it wanted to, but since 1790 the only notable change in this field that Congress has made has been to say that a new use of a known process, machine, article of manufacture, composition of matter, or material may be patented as a process. The Federal Circuit recently interpreted this list of categories as excluding signals, because they are intangible, incorporeal, and ephemeral, and the terms used in § 101’s list (other than *process*) have, at and since the time of the first patent law in 1790, been interpreted to refer only to tangible, corporeal, physical objects having some degree of permanence.²

The useful arts limitation

The other clue to patent-eligibility has received insufficient attention: the US

Constitution’s limitation of congressional power in the patent field to what it termed “the useful Arts.” The rest of this column explores that limitation and in closing points out how it affects business-method patents.

The preamble of Article I, § 8, clause 8 of the Constitution—the patent clause—provides that Congress shall have power “To promote the Progress of useful Arts” by passing patent laws. This requirement necessarily limits patent grants to processes (and devices) within the useful arts. It could not promote the useful arts, for example, to grant patents on poetry or songs.³ Some have argued that the quoted phrase is merely an incidental comment, not a deliberate limitation. But the Supreme Court has ruled several times that the quoted words specifically limit congressional power.⁴

Advances outside the useful arts, no matter how meritorious, valuable, or concrete, even if brought about by using specific machinery, cannot be protected under statutes that the Constitution has limited to the promotion of progress of useful arts. Since the Supreme Court’s decision in the *Graham* case, it is no longer open to any doubt that Article I, § 8, clause 8 acts as a limitation on, as well as a grant of, congressional power to legislate as to patents. In *Graham* the Supreme Court said:

At the outset it must be remembered that the federal patent power stems from a specific constitutional provision which authorizes the Congress "To promote the Progress of...useful Arts, by securing for limited Times to...Inventors the exclusive Right to their...Discoveries." Art. I, § 8, cl. 8. The clause is both a grant of power and a limitation. This qualified authority, unlike the power often exercised in the sixteenth and seventeenth centuries by the English Crown, is limited to the promotion of advances in the "useful Arts." It was written against the backdrop of the practices—eventually curtailed by the Statute of Monopolies—of the Crown in granting monopolies to court favorites in goods or businesses which had long before been enjoyed by the public. The Congress in the exercise of the patent power may not overreach the restraints imposed by the stated constitutional purpose. ...This is the standard expressed in the Constitution and it may not be ignored.⁵

Just as the *Graham* Court held that the word "obvious" in § 103 of the patent law must be interpreted with "reference to a standard written into the Constitution,"⁶ so too must "process" in § 101 be interpreted with reference to the constitutional limitation to "useful Arts." Congress may no more authorize patents on things outside the useful arts than it can enact nonuniform bankruptcy laws,⁷ or protect nondiscoveries and nonwritings under the patent-copyright clause.⁸ Thus, a patent on a process for making or doing something not within the useful arts exceeds Congress's power.

It is thus possible for a process (or device) to satisfy all of the requirements of patent-eligibility discussed so far and yet be patent-ineligible because it is outside the useful arts. The process

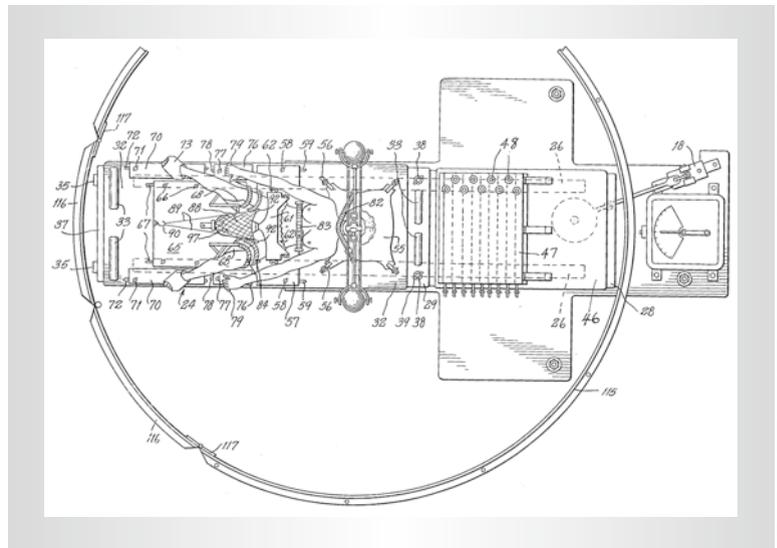


Figure 1. US Patent 3,216,423, Figure 1.

may be tied to a machine; the process may be more than merely a facially trivial or concededly old implementation of a scientific principle, natural phenomenon, or abstract idea; the process may even cause a substance-transformation.⁹ Yet, even if the result is tangible and useful, the claimed subject matter may still be patent-ineligible. Some examples will illustrate intuitively the point that being within the useful arts is a *sine qua non* of patent-eligibility.

The Kafka machine

Consider the machine of Franz Kafka's "In the Penal Colony." It is a machine that cuts into the skin of culprits words appropriate to the crimes they committed, and its process continues until the culprits expire from loss of blood. The subject matter of the machine is (my interpretation, here, not Kafka's):

A *machine*, said machine adapted to hold a person immobile, said machine comprising:

- a programming unit, said programming unit adapted to be programmed with instructions corresponding to preselected words, said unit adapted to transmit signals representative of said instructions; and

- a writing module, said module coupled to said programming unit and adapted to receive said signals therefrom, said module comprising a needle adapted to contact, penetrate, and traverse the skin of the person, said module capable of causing said needle to inscribe said preselected words on the skin of the person, responsively to said signals from said programming unit.

A *process* for administering to a culprit a punishment appropriate to a crime that the culprit committed, said process comprising:

1. strapping the culprit into a machine (repeat substance of above machine claim);
2. programming said programming unit with a name or a verbal description of the crime;
3. initiating operation of said writing module; and
4. continuing said operation of said writing module until the culprit expires.

Such a machine, whose function is "to make the punishment fit the crime," is not within the useful arts, and the

process version of the machine claim, tied to the machine and claimed as a process for imposing a punishment that fits the crime, would equally be outside the useful arts. The machine and process meet the usual nonconstitutional tests of patent-eligibility, but the function of the machine and process (making punishment fit crime) is outside the useful arts, and promoting accomplishment of that function does not promote progress of useful arts.

Ovidian, Casanovian, and Youngmanian processes

Consider next Ovid's long poem *Ars amatoria* or Casanova's *Memoirs*, from either of which can be derived processes for the seduction of young women, comprising such-and-such steps.¹⁰ Those processes may be deemed useful, concrete, tangible, valuable, and other things that might seem to make them patent-eligible, but the processes are unquestionably not within the useful arts as that term is used in Article I, § 8, clause 8.

Similarly, claims to processes for making people laugh that comprise telling them anecdotes beginning, "Take my wife, please," must be patent-ineligible.¹¹ So, too, are claims to slapstick-comedy routines.¹²

It is manifest, therefore, that the legal tests that have heretofore figured in patent-eligibility litigation, including even those derived from the Supreme Court's patent-eligibility trilogy—*Benson*, *Flook*, and *Diehr*,¹³ are incomplete and incapable of addressing some processes (and devices) that we "know it when [we] see it" are patent-ineligible.¹⁴ Moreover, the standards that the Federal Circuit enunciated in the *State Street* and *Excel* cases are at least equally incapable of dealing satisfactorily with such subject matter.¹⁵ A further test based on the constitutional requirements for patent-eligibility must be added.

Determining what are the useful arts

Accordingly, the courts must find a way to determine whether given human

activities are within what the Constitution means by the "useful Arts." The usual approach of consulting legal precedents will not help, because there are few or none on what are or aren't useful arts.

One legal approach that some analysts have favored is to look to the policies that are furthered or hindered by one or another interpretation of the statutory or constitutional words—here, "useful Arts." The analyst then compares the respective regimes that follow from one or another interpretation choice, and fastens on the choice that leads to a regime that the analyst prefers. This is likely to be an amorphous project, however, requiring agreement on a hierarchy of values for weighting pros and cons: such an agreement is not easy to come by. Are we better off with a regime that channels entrepreneurial and engineering talent into the creation of patented tax avoidance schemes or one that channels it into creation of patented devices for exercising cats?¹⁶ Or something completely different? In the *Bilski* case, *amicus curiae* briefs of different representatives of the financial services industry came up with diametrically opposite conclusions as to whether society would be more benefited by allowing or disallowing patents on financial and business-method software. This approach is unpromising, here.

Textualism

The approach that I propose to explore here is known as *textualism*. A textual analysis relies on the ordinary meaning of the relevant passage, as it would have been understood at the time that the legal instrument—such as a statute or constitutional clause—was created. In this case, that would mean the 18th century. Wikipedia describes textualism as follows:

Textualism is a formalist theory of statutory interpretation which holds that a statute's ordinary meaning should govern its interpretation, as opposed to inquiries

*into non-textual sources such as the intention of the legislature in passing the law, the problem it was intended to remedy, or substantive questions of the justice and rectitude of the law.*¹⁷

Justices Hugo Black and Antonin Scalia have been termed advocates of textualism. Textualism is not exactly the same as "plain meaning," for the sense of a term in a text in the English language may vary in different contexts and therefore vary from text to text. Justice Scalia pointed out, in a 1988 opinion, which attempted to interpret a law that excluded articles of foreign manufacture from the US,¹⁸ that recourse to dictionaries in order to find the "plain meaning" may often not help, because dictionaries cannot identify for users the particular context at issue in the text in question. "Foreign manufacture" could mean made by a foreigner (as the majority thought) or made in a foreign country by anyone (as Scalia thought), and "foreign" means still something else when you refer to having a foreign object in your eye. Which dictionary meaning should apply?

Unitary concept

In the present case, there is a further reason why dictionaries do not help. The principal dictionaries used in and around the 18th century do not address what are the useful arts.¹⁹ Even worse, it does no good to look up "useful" and then look up "arts," in order to combine the definitions. Like the fine arts and the liberal arts, the "useful arts" is one of those terms whose meaning is not the sum of its constituents. It is a unitary concept—*usefularts*—with its own, independent meaning. A useful art is more than an art that is useful, although that is a clue. But merely being useful does not put an art within the useful arts. "Take my wife, please" is useful but not within the useful arts, and the same applies to other previous examples such as Casanovian methods.

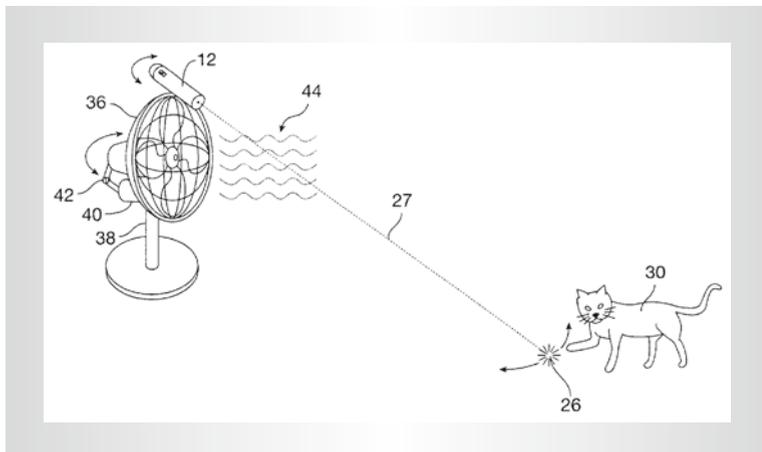


Figure 2. US Patent No. 6,701,872, Figure 2.

Take my process instead, please?

Another dead-end should be eliminated at the outset. You might think it would be sufficient to figure out what “process” means, for that is the specific problem of the *Bilski* case. *Bilski* claimed a process (see Part I, *Micro Law, IEEE Micro*, Jul./Aug. 2008). Maybe it’s enough to find out what process meant in 1789, and never mind the rest of the useful arts. But that won’t work.

First, the exercise is futile because the Supreme Court has already held, in *Flook*, that the meaning of “process” for purposes of § 101 of the patent law is not the ordinary or literal meaning of the word.²⁰ It is a term of art. Second, even if *Bilski*’s process is the kind of process that passes muster in the term-of-art sense—under the regular tests of device-implementation and the like—it can still fail, as does the process of operating the Kafka machine. The process still needs to be one within the useful arts to be patent-eligible. We therefore still must ascertain what are the useful arts. We can turn only to the Constitution and seek to ascertain what the term “useful arts” meant in and around 1789.²¹

Determining what were useful arts around the time of the Constitution’s adoption

Literary sources may be of some value. We can look to books and other

writings of the 18th century. For example, George Washington explicitly distinguished commerce from useful arts in a January 29, 1798, letter to Lafayette, by stating, “While our commerce has been considerably curtailed for want of that extensive credit formerly given in Europe, and for default of remittance; the useful arts have been almost imperceptibly pushed to a considerable degree of perfection.”^{22,23}

This is an important distinction, because trade, commerce, and business were regarded as quite distinct from the useful arts in the 18th century. If sufficiently well supported, this usage may be dispositive for business-method patents, although not necessarily for other “peculiar” patents of the kind that have recently been springing up, such as methods for exercising a cat (see Figure 2).

Colonial and early patents

It is even more useful to consider the kinds of patents that issued in the period near and preceding the adoption of the Constitution. The first two patents that issued under the first federal patent statute were on manufacturing processes—potash making and candle making.²⁴ Earlier colonial patents were for similar processes. In 1641 and 1656, the Massachusetts Bay Colony granted patents on new methods of making salt,

and in 1646 on machinery for making scythes and other edged tools.

In 1716, South Carolina granted a patent on a tar-oil derivative that prevented wood from rotting. In 1728, Connecticut granted a patent on a process for making steel from iron. In 1732, 1733, and 1756, South Carolina granted patents on rice-cleaning machines. In 1780, New York and Pennsylvania granted patents on an oil for currying horses. Maryland issued a patent on a steam-propelled horseless carriage in 1787. Pennsylvania granted a patent on improvements in steam engines in 1789.²⁵

These early patents indicate the kinds of thing on which patents were considered appropriate in the 18th century. By the same token, we can recognize by their absence from this laundry list other categories of human endeavor. These include dancing, fencing, flower arrangement, portrait painting, rhetoric, music composition, musical performance, composition of drama and poetry, and geometry. At least some of these are arts, but they are not useful arts, and they do not appear to have been the subject of patents.

Can a general organizing principle be articulated at this time for distinguishing between useful arts and all other arts and things, other than to say that useful arts are what practical artisans do? It may be possible only to make two lists—a catalog of arts (artisanal arts) clearly recognized as useful arts²⁶ and one of arts and other human endeavors clearly recognizable as not within the useful arts, at the time of the adoption of the Constitution. It does seem clear that buying, selling, and otherwise engaging in trade or business were not considered part of the useful arts.

The monopoly backdrop

It is useful, too, to consider what the *Graham* decision terms the “the backdrop of the practices” that led to the passage of the Statute of Monopolies and ultimately to the patent clause and its built-in restraints on power.²⁷ Not

only that, but some kinds of business endeavor were part of the “backdrop” (as the Supreme Court called it) of the patent system. Some features of the patent system—such as the limitation of patents to new forms of manufacture in which the public had not previously engaged—reflect hostility to Crown-granted monopolies to those persons whom the Crown favored.

Two examples illustrate the point. One is the East India Company’s tea monopoly, which had led to the Boston Tea Party a few years before the adoption of the Constitution. The East India Company did not invent or discover an improved way to process tea, for which it was awarded a patent monopoly. The Crown simply favored the company with a royal grant of a monopoly over trade with the American Colonies, which gave it a franchise to mulct the colonists by extracting monopoly rent from them in order to enrich the company’s shareholders. The monopoly in tea trade stands at the opposite pole from what the patent clause of the US Constitution seeks to establish.

A second example is the *Case of the Playing Card Monopoly*,²⁸ nearly two centuries before the adoption of the US patent clause. The Crown gave a monopoly on the sale of playing cards, which ended up in the hands of Darcy, a royal favorite. Darcy did not receive a patent for having invented an improved way to manufacture playing cards; his patent gave him the exclusive right to sell playing cards, simply as a royal favor from the Queen,²⁹ again a franchise to mulct the public by extracting monopoly rent from it.

The controversy over Darcy’s monopoly led to the passage by Parliament of the Statute of Monopolies, one provision of which permits patents for new manufactures but prohibits other patent monopoly grants—what were called the “odious monopolies.” The Statute of Monopolies is considered an ancestor of our own patent and antitrust systems. The playing card patent monopoly also stands at the opposite pole from what the patent clause seeks to promote.

Neither engaging in trade with the Colonies nor the exclusive right to sell playing cards is a useful art. Both are paradigmatic examples of things not useful arts—things that the framers intended to exclude from the operation of any system granting exclusionary rights. Just as the catalog of artisanal arts informs us what are useful arts, the catalog of odious monopolies helps inform us what are not useful arts.³⁰ Legal history thus informs courts of practices that should be considered outside the useful arts.

A general theory of useful arts?

Clearly, it would be preferable to articulate a general principle than to extrapolate from an enumeration of specific examples. But efforts to do so have as yet been unsuccessful. An effort of this kind was based on a proposed equation of the useful arts to the “technological arts,”³¹ but it foundered.³² Although the technological-arts test has great intuitive appeal, it also has severe difficulties. First, the Constitution and the patent statute do not mention “technology” or “technological arts.” Accordingly, it is difficult to frame a plausible, principled argument for imposing this requirement on patent-eligibility.

Further, equating useful arts to technological arts simply pushes the search for a satisfactory legal definition to the next level, where it continues to resist definition. For example, is making pot-ash by boiling wood-ash in water a technological art? Is candle making? Shoemaking? Tanning? Are all of the things that we know were considered useful arts in and before 1789 in the technological arts? That is doubtful. Yet, surely it is impermissible to interpret constitutional language to exclude things that we know were included within the concept in 1789.

Finally, the technological arts are only a subset of the useful arts. If one accepts that technology is the application of the sciences (such as physics and chemistry) to the useful arts, the resulting technological arts are only those

useful arts derived from scientific knowledge. But some useful arts are purely empirical and nontheoretical. As yet, Congress has not chosen to narrow the patent-eligible useful arts to only those that are technological—at least in the sense used here.

Similar difficulties attend equating useful arts to industrial arts. Neither the technological arts nor the industrial arts provides the clue to defining the useful arts. And that throws us back to defining by enumeration and extrapolation. (See the “Future Technology” sidebar.)

Conclusion

Although it has not figured so far in the evolution of legal thought on patent-eligibility, the constitutional requirement that candidates for patent grants be within the useful arts is unavoidable. Determining the boundaries of this requirement is not without difficulty. But it seems that a methodology based on extrapolating from known and conceded examples is workable and logically supported.

I have not so far addressed in any detail the practical consequences of recognition of this legal rule. The most noticeable consequence would be barring the door against business-method patents, because of the 18th century’s exclusion of trade and commerce from the useful arts, as Washington’s letter to Lafayette illustrates. In point of fact, however, until the Federal Circuit’s *State Street* decision in the mid-1990s, it was universally accepted that the US patent system did not extend to business methods. For example, one court of appeals decision denied patent-eligibility to a method of determining optimal whiskey blends by blind-testing samples of different blends because “to give appellant a monopoly, through the issuance of a patent, upon so great an area in the field of marketing and determination of consumer preference would in our view impose without warrant of law a serious restraint upon the advance of science and industry.”³⁴ A return to this principle in the name of constitutional

Future Technology

A reasonable question to pose in considering this proposal to define the content of the useful arts by extrapolating from a catalog of known useful arts is whether using that principle can successfully sweep up advances in the useful arts as they occur and thus promote progress of useful arts. Surely, the framers did not intend to freeze promotion of the progress of the useful arts by excluding new categories of artisanal inventions.

Perhaps correct application of the principle, at times proceeding incrementally through intermediate arts, will sweep up all artisanal advances. That is how technology and the useful arts operate: they build accretionally on earlier developments. Let us test that by exploring possible examples.

- Integrated circuits are akin to the ceramics and silica-products arts known in 1789, such as glassmaking and porcelain making. Therefore, integrated circuits could be brought within the useful arts as an extrapolation from conventional arts.
- The manufacture of automobiles is an outgrowth or development of, and akin to, the wagon-making art.³³ Another success for the accretive method.
- The manufacture of electric lightbulbs, an example of accretional evolution, is functionally akin to candle making, allied perhaps with glassmaking; and—to take things a step farther—the vacuum tube is historically an outgrowth of and akin to the electric lightbulb.



These examples show that there may be some difficulties (as in the last example) in applying the incremental approach of extrapolating from agreed-upon instances of useful arts. But the difficulties are not insurmountable. Therefore, until a better proposal is advanced, this seems to be the most useful way to approach the problem of determining whether something is within the useful arts.

wisdom would thus not be far from the mainstream of thinking.

Notes

1. *Patent-eligibility* refers to being the kind of thing on which a patent might be granted if the novelty, utility, and other statutory requirements for pat-

- ent grant are met. Patentable things are a subset of patent-eligible things.
2. *In re Nuijten*, 500 F.3d 1346 (Fed. Cir. 2007). Congress could make signals patent-eligible if it wanted to, without creating any constitutional problem. It simply didn't choose to do so. It is, essentially, an arbitrary omission without seeming policy significance.

3. Poetry and songs can be the subject of copyrights, however. Congressional power to pass copyright laws also comes from Article I, § 8, clause 8 of the US Constitution.
4. *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 146 (1989) ("As we have noted in the past, the Clause contains both a grant of power and certain limitations upon the exercise of that power."); *Graham v. John Deere Co.*, 383 U.S. 1 (1966). See also *Feist Publications, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 349 (1991) (copyright is limited to original works of authorship).
5. *Graham v. John Deere Co.*, 383 U.S. 1, 5-6 (1966).
6. *Graham*, 383 U.S. at 6.
7. The Supreme Court held that Congress could not enact nonuniform bankruptcy laws in *Railway Labor Executives Ass'n v. Gibbons*, 455 U.S. 457 (1982), because the Constitution authorizes Congress to enact uniform bankruptcy laws.
8. The Supreme Court held that Congress could not protect nondiscoveries and nonwritings under the patent-copyright clause in *The Trademark Cases*, 100 U.S. 82, 94 (1879).
9. These patent-eligibility requirements were discussed in Part I of this column, *Micro Law*, *IEEE Micro*, vol. 28, no. 4, July/Aug. 2008, pp. 96, 92-95.
10. Ovid suggests that he will teach the reader such processes and terms himself the "professor of love" (*ego sum praeceptor amoris*). See, for example, *Ars Amatoria*, Book I, opening lines.
11. Henny Youngman is usually credited as the inventor of this expedient. See, for example, http://en.wikipedia.org/wiki/Henny_Youngman.
12. Slapstick-comedy routines ordinarily have specific device limitations, such as a paddle or cream pie, while the take-my-wife-please routine can be revised to add a nominal apparatus limitation, if that makes any difference, by designating the process one

- for making a large room of people laugh and by adding a microphone and sound system. Users of such processes are financially well rewarded for performing them, making the processes economically valuable (a supposed badge of patent-eligibility).
13. *Gottschalk v. Benson*, 409 U.S. 63 (1972); *Parker v. Flook*, 437 U.S. 584 (1978); *Diamond v. Diehr*, 450 U.S. 175 (1981). See Part I.
 14. The language is that of Justice Stewart in *Jacobellis v. Ohio*, 378 U.S. 184, 197 (1964). This criterion should be not so much a positive legal test as an intuitive reality check.
 15. *State Street Bank & Trust Co. v. Signature Fin. Group Inc.*, 149 F.3d 1368 (Fed. Cir. 1998); *AT&T Corp. v. Excel Communications, Inc.*, 172 F.3d 1352 (Fed. Cir. 1999). See Part I.
 16. See Method and apparatus for automatically exercising a curious animal, US Patent 6701872, <http://www.freepatentsonline.com/US6701872.html>; Method of exercising a cat, US Patent 5,443,036, <http://www.freepatentsonline.com/5443036.html>; Cat exercise toy, US Patent 5,657,721, <http://www.freepatentsonline.com/5657721.html>.
 17. <http://en.wikipedia.org/wiki/Textualism>.
 18. *K-Mart v. Cartier*, 486 U.S. 281, 319 (1988) (Scalia, concurring in part and dissenting in part).
 19. Neither Samuel Johnson nor Noah Webster, the principal lexicographers, defined “useful arts” in their dictionaries.
 20. *Flook*, 437 U.S. at 588–89 (“The plain language of § 101 does not answer the question. It is true, as respondent argues, that his method is a ‘process’ in the ordinary sense of the word. But that was also true of the algorithm, which described a method for converting binary-coded decimal numerals into pure binary numerals, that was involved in *Gottschalk v. Benson*. The holding that the discovery of that method could not be patented as a ‘process’ forecloses a purely literal reading of § 101.”).
 21. This is the approach that the Supreme Court’s decision in *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 376–82 (1996), suggests for deciding whether judges or juries should interpret the words of patent claims: You should look to practice in and preceding the 18th century.
 22. *The Writings of George Washington from the Original Manuscript Sources, 1745–1799* (ed. J.C. Fitzpatrick, Library Reprints, 2007). Several other literary sources are collected in the PTO Supplemental Brief in *Bilski* at 11 n.4 (supporting proposition that useful arts are manufacturing processes).
 23. Other 18th-century sources equate the useful arts to manufacturing techniques. See, for example, T. Coxe, “An Address to an Assembly of the Friends of American Manufactures,” in *Calling for More Domestic Manufacturing* (1787) at 17 (equating “useful arts” to “manufactures”); and at 18 (describing progress in the useful arts as having produced improvements in numerous kinds of manufactures); G. Logan, M.D., “A Letter to the Citizens of Pennsylvania, on the Necessity of Promoting Agriculture, Manufactures, and the Useful Arts,” (1800) 12–13 (equating “useful arts” to manufacturing processes).
 24. The first United States patent, granted to Samuel Hopkins (No. X1, issued July 31, 1790), was on a method of making potash. The next patent (No. X2, Aug. 6, 1790) issued to Joseph Sampson on a method of making candles. The only other 1790 patent (No. X3, Dec. 18) issued to Oliver Evans for flour-milling machinery.
 25. See V.S. Clark, *History of Manufactures in the United States*, 1916, pp. 48–50; J. Leander Bishop, *History of American Manufactures*, 3d ed., 1868, p. 476.
 26. A partial list follows of arts clearly recognized as within the useful arts in and around 1789: brick-making, manufacture of ceramics and silica-based products (including glass, porcelain, pottery, tiles), milling, shoemaking, smelting of metals, tanning, the arts of many kinds of smith (for example, blacksmith, goldsmith, silversmith, tinsmith), and many textile-related arts (for example, cloth-making, dyeing, fulling). See, for example, J. Bigelow, *Elements of Technology* (1831) (lectures on application of science to the useful arts).
 27. See *Graham*, 383 U.S. at 5–6 (quoted in text).
 28. *Darcy v. Allen*, 11 Co. Rep. 84b, 77 Eng. Rep. 1260 (K.B. 1603).
 29. See *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225, 229 (1964) (commenting on *Darcy v. Allen*).
 30. An extensive list of “odious monopolies” is found in D. Hume, *History of England*, ch. 44, at 458 (1810 ed.). Another part of the *Graham* “backdrop” is the set of practices that common-law courts regarded as having pernicious effects similar to those of monopolies and therefore similarly abhorred and condemned. For example, engrossing—preempting the sale of goods or securing a monopoly of their sale. See *Standard Oil Co. v. United States*, 221 U.S. 1, 53–54 (1911). The Boston Tea Party, which *Graham* singles out, was a Yankee response to engrossing. See *Standard Oil*, 221 U.S. at 53–54.
 31. See *In re Toma*, 575 F.2d 872 (CCPA 1978); *In re Musgrave*, 431 F.2d 882, 893 (CCPA 1970).
 32. See *Ex Parte Lundgren*, 76 USPQ2d 1385, 1388 (Bd Pat Apps & Ints 2005) (precedential) (“Our determination is that there is currently no judicially recognized separate ‘technological arts’ test to determine patent eligible subject matter under § 101. We decline to create one.”).
 33. See H.L. Barber, *Story of the Automobile*, pp. 58–59 (1917) (1787 Maryland patent on steam-propelled horseless carriage).
 34. *Joseph E. Seagram & Sons v. Marshall*, 180 F.2d 26, (D.C. Cir. 1950).

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