

Chapter 12 Utility and subject matter

**Draft for
comments**

12.01 Scope of this chapter

This chapter outlines the Office's practice concerning subject matter and utility requirements under section 2 of the *Patent Act*, divorced from considerations of novelty and obviousness ¹.

The expression "business methods" refers to a broad category of subject matter which often relates to financial, marketing and other commercial activities. These methods are not automatically excluded from patentability, since there is no authority in the *Patent Act* or *Rules* or in the Jurisprudence to sanction or preclude patentability based on their inclusion in this category. Patentability is established from criteria provided by the *Patent Act* and *Rules* and from Jurisprudence as for other inventions. Business methods are frequently implemented using computers. Guidelines regarding computer-implemented inventions are expanded on in more detail in Chapter 16 of MOPOP.

12.02 Definition of a statutory invention

Section 2 of the *Patent Act* defines invention. It reads in part:

"invention" means any new and useful art, process, machine, manufacture or composition of matter, or any new and useful improvement in any art, process, machine, manufacture or composition of matter.

From this statutory definition and other sections of the *Patent Act*, the criteria for a patentable invention are ²:

- 1) **Novelty.** The invention must not have been "anticipated" by another patent or a publication that would deem it to lack novelty under that statute.
- 2) **Utility.** The invention must be operative, controllable and reproducible.
- 3) **Statutory.** It must fit in a recognized category, for not all subject-matter is patentable.

- 4) Inventive ingenuity. There must be an inventive step. This is a question of fact and degree. The fact concerns the advance in the art whereas the degree entails that the advance is neither "obvious" nor merely a "workshop improvement".

Even when subject matter is novel and unobvious, it can still be non-patentable if it does not fit in a recognized category (sections 12.02.01 and 12.04 of MOPOP), or is not useful (section 12.03 of MOPOP).

12.02.01 Subject matter defined in section 2 of the *Patent Act*

Art means a mode, or method, or manner of accomplishing a certain result as distinct from the result. An art includes a process having an essentially economic result relating to trade, industry or commerce³, which is beneficial to the public⁴, provided that the process is an innovative method of applying skill or knowledge⁵. "*An art or operation is an act or series of acts performed by some physical agent upon some physical object and producing in such object some change either of character or of condition*"⁶.

A process may be defined as a mode or method of operation by which a result or effect is produced by chemical action, by the operation or application of some element or power of nature or of one substance to another. It implies the application of a method to a material or materials⁷.

A machine is the mechanical embodiment of any function or mode of operation designed to accomplish a particular effect.

Manufacture is anything made by the art [labour?] or industry of man and connotes the making of something which must be a vendible product of a process.

Composition of matter includes chemical compounds, compositions and substances.

12.03 Utility

Section 2 of the *Patent Act* requires an invention to have utility. The use of the invention is not necessarily stated in the claims⁸, but must be apparent from the description to one skilled in the art⁹ (see also chapter 9 of MOPOP on Description and subsection 27(3) of the *Patent Act*). However, where the invention is a new use for an old product,

the claims must indicate the new use ¹⁰.

In practice, subject matter, for which the utility is not apparent from the specification to one skilled in the art ⁵, that is inoperative ¹¹ or has results that cannot be reproduced, will be considered not to comply with the definition of invention under section 2 of the *Patent Act*. A claim defining subject matter that is, in view of the description, lacking some of the features or elements that are necessary or essential for the subject matter to be useful as taught will be considered to lack support for utility under section 84 of the *Patent Rules* (see Chapter 11 of MOPOP). Also, subsection 27(5) of the *Patent Act* states that when a claim defines subject matter in the alternative, each alternative is interpreted as a separate claim. Therefore, if an embodiment in a claim lacks utility, the whole claim may be held invalid.

12.03.01 Predicted utility

If the utility of the subject matter which forms the basis of a claim is not apparent or is in doubt, then the onus is on the applicant to establish utility, at the claim date, either by demonstration (i.e. testing the invention and conclusively proving utility) or by sound prediction ¹². It is not necessary for an inventor to provide a theory of why the invention works, but the Doctrine of Sound Prediction must not be diluted to include "a lucky guess or mere speculation" ¹³.

An application that relies on sound prediction must satisfy three requirements:

- 1) *there must be a **factual basis** for the prediction;*
- 2) *the inventor must have at the date of the patent application an articulable and "**sound**" line of reasoning from which the desired result can be inferred from the factual basis; and*
- 3) *there must be **proper disclosure** by a full, clear and exact description of the nature of the invention and the manner in which it can be practised.*

The Doctrine of Sound Prediction applies not only to patent applications containing broad classes of chemical compounds, but also to new uses of known compounds and new uses of novel compounds. As long as the utility of the claimed subject matter relies on sound prediction, the requirements of the doctrine must be fulfilled.

The *Monsanto* and *Burton Parsons* ¹⁴ decisions dealt with novel compounds and novel electrocardiograph creams, respectively. The factual basis in these cases was supplied

by tested compounds, but other factual underpinnings, depending on the nature of the invention may suffice. The line of reasoning was based on “structure-activity relationship” but other lines of reasoning, depending on the subject matter, may suffice.

12.03.02 Operability

The subject matter must be operable ¹⁵ by the means described by the inventor so that the desired result inevitably follows whenever it is put into practice ¹⁶. The subject matter will be considered to lack utility if the invention does not work ¹⁷, either in the sense that it will not operate at all or, more broadly, that it will not do what the specification promises that it will do ¹⁸. The specification has to include the information, terminology, and means available at the time of the claim date, to provide sufficient description to enable the making of the invention, when read by a person skilled in the art.

12.03.03 Reproducibility

The invention must be controllable ¹⁹ and its result reproducible by the means described so that the desired result inevitably follows whenever the invention is put into practice ²⁰. However the expression “desired result inevitably follows” can refer to an accepted degree of success of a particular repetitive mass production method. For example, if a method is known and universally recognized in a particular art of having a success rate under a certain ratio or percentage of rejects, the desired result inevitably follows if this method is inside such parameters.

Subject matter that accomplishes a result by means of a person's reasoning, in which the quality or character of the result may vary depending upon the individual skilled in the art performing the process or method, cannot form the basis of a patent. Human factors induce variation in the results due to different level of intuition, creativity, conjecture, approximation and therefore lead to non-reproducible results. A person's reasoning may include judgement ²¹ and interpretation.

12.04 Categories not recognized as statutory subject matter

Not all subject matter is patentable. Some subject matter is excluded by subsection 27(8) of the *Patent Act*, and under section 2 of the *Patent Act* based on clarifications of the definition of invention by Jurisprudence.

12.04.01 Living matter

Uni-cellular life forms which are new, useful and inventive are patentable²². In general, a process to produce or which utilizes these organisms is patentable. Uni-cellular life forms comprise:

- microscopic algae;
- fungi (including yeasts), excluding fungi colonies of differentiated cells
- bacteria;
- protozoa;
- viruses;
- cells in culture;
- transformed cell lines; and
- hybridomas.

Multi-cellular life forms are not patentable subject matter²³. However, a process for producing a multicellular life form may be patentable provided the process requires significant technical intervention by man and is not essentially a natural biological process which occurs according to the laws of nature, for example, traditional plant cross-breeding²⁴. Multi-cellular life forms comprise:

- animals²⁵;
- plants²⁶;
- seeds²⁶;
- tissues, organs, embryos²⁵, and parts of plants and animals; and
- colonies of differentiated cells.

Plant varieties that are distinct, uniform and stable may be protected under the Plant Breeders' Rights Act, administered by the Canadian Food Inspection Agency.

12.04.02 Medical treatment

A method or process of surgery or therapy on living humans or animals is not considered to be within the scope of "invention" as defined by section 2 of the *Patent Act*, because such methods do not produce an essentially economic result in relation to trade, industry, or commerce²⁷. The exclusion does not cover methods of treating animals to derive economic benefit²⁸. If, when used for its leading purpose, a claimed method does not produce an essentially economic result, then that method is non

statutory even if it could have other purposes ²⁹. Articles or apparatuses designed for use in the treatment of humans or animals are patentable, provided they conform to all other conditions of the *Patent Act* ³⁰.

Methods of diagnosing a physical disease or physical medical condition in a human being, provided that the methods do not contain any step of surgery or therapy, may be patentable ³¹. The Patent Office practice regarding medical treatment is explained in more detail in Chapter 17 of MOPOP (currently under revision).

12.04.03 Scientific principle or abstract theorem

Subsection 27(8) of *Patent Act* specifically precludes mere scientific principle or abstract theorem from patentability. Mathematical formulae ³² and algorithms are considered equivalent to mere scientific principles or abstract theorems.

12.04.04 Computer-implemented invention

Software expressed as lines of code or listings in a patent application or claims are not considered as patentable subject matter, but may be protected as literary works under the *Copyright Act*. Software in the form of an abstract theorem or algorithm is automatically excluded from patentability under subsection 27(8) of the *Patent Act*, but software that has been integrated with a traditionally patentable subject matter may be patentable. The Patent Office practice regarding computer implemented invention is explained in more detail in Chapter 16 of MOPOP.

12.05 Examples of subject matter lacking utility or not recognized as statutory subject matter

To summarize, in assessing whether subject matter falls within the definition of invention under section 2 of the *Patent Act* and by Canadian Courts, the Patent Office will determine:

- (a) whether the subject matter relates to a useful art (as distinct from a fine art where the result produced is solely the exercise of personal skills, mental reasoning or judgment, or has only intellectual meaning or aesthetic appeal);

- (b) whether the subject matter is operable, controllable and reproducible by the means described by the inventor so that the desired result inevitably follows whenever it is worked;
- (c) whether the subject matter has an essentially economic result relating to trade industry or commerce, which is beneficial to the public, provided that the process is an innovative method of applying skill or knowledge, and
- (d) whether it is more than a mere scientific principle or abstract theorem (subsection 27(8) of the *Patent Act*).

Some examples of subject matter lacking utility or subject matter not recognized as statutory subject matter are as follows:

- Process or the product of a process, that depends entirely on artistic, personal skills, performing purely mental acts, mental reasoning³³ or judgment, or has only intellectual meaning or aesthetic appeal³⁴, such as: procedures for exercising, teaching, cosmetological procedures, hair dressing, pedicure, flower arranging, painting pictures or playing musical instruments. However, materials and instruments used in these arts may be patentable. The subject matter must relate to a useful art, as distinct from a fine art where the result produced is solely the exercise of the preceding.
- Intermediate transitory product with no inherent commercial use per se³⁵, or to internal convenience of a particular manufacturer³⁶.
- New rules for playing games or the like³⁷, printed matter, design matter or presentation of information having intellectual connotations or aesthetic appeal. However, structural features of printed matter and arrangements specially adapted to produce a new mechanical function or purpose may be patentable.
- Mere scheme³⁸, plan³⁹, speculation⁴⁰ or idea⁴¹ such as a rule for doing business, a method of accounting or providing statistics, a personality or I.Q. test and the like.

Endnotes for Chapter 12

1. Utility, novelty and unobviousness have to be present to constitute a patentable invention:
Langlois v. Roy (1941) ExCR 197 at p. 203
Northern Electric Co. v. Brown's Theatres Ltd. (1941) SCR 224
Wright v. Brake Service Ltd. (1925) ExCR 127 at 131, aff'd (1926) SCR 434 at 444
2. Cochlear Corp. v. Cosen Neurostim Ltee (1995) 64 C.P.R. (3d) 10 at 33
3. Lawson v. Commissioner of Patents (1970) 62 C.P.R. 101 at 110-111
Tennessee Eastman v Com of Patents (1970) 62 CPR 117 at 130-152, (1974) SCR 111
4. Commissioner of Patents v. Farbwerke Hoechst Aktiengesellschaft Vormals Meister Lucius & Brunning, (1963) 41 C.P.R. 9 at 16, reversing 39 C.P.R. 105
Re Application 3,389 of N.V. Organon (1973) 15 C.P.R. (2d) 253 at 258-259
5. Shell Oil v Comm. of Patents (1982) 67 C.P.R. (2d) 1 at 15, also indexed as (1982) 2 SCR 536
6. Lawson v. Commissioner of Patents (1970) 62 C.P.R. 101 at 109
7. Commissioner of Patents v. Ciba Ltd. (1959) 30 C.P.R. 135 affirming 27 C.P.R. 82
8. Marzone Chemicals Ltd. v. Eli Lilly & Co. (1978) 37 C.P.R. (2d) 37 at 38 & 39
Monsanto Canada Inc. v. Schmeiser (2001) 12 C.P.R. (4th) 204 at 216 (see paragraph 26), aff'd (2002) 21 C.P.R. (4th) 1 at pp. 16-18 (see paragraphs 40 to 46)
9. Consolboard Inc. v. MacMillan Bloedel (Saskatchewan) Ltd. (1981) 56 C.P.R. (2d) 145 at 153 to 160, also indexed as (1981) 1 SCR 504
Metalliflex Ltd. v. Rodi & Wienenberger AG (1961) 35 C.P.R. 49 at p. 53, also indexed as (1961) SCR 117
Feherguard Products Ltd. v. Rocky's of BC Leisure Ltd. (1995) 60 CPR (3d) 512 at p. 518
Burton Parsons Chemical Inc. v. Hewlett-Packard (Canada) Ltd. (1976) 17 CPR (2d) 97 at p. 104, also indexed as 1 SCR 555
Monsanto Co. v. Commissioner of Patents (1979) 42 CPR (2d) 161 at p. 165, also indexed as (1979) 2 SCR 1108
10. Apotex Inc. v. Wellcome Ltd. (2000) 10 C.P.R. (4th) 65 at para. 81-85, aff'd (2002) 21 C.P.R. (4th) 499
11. Hoechst Pharmaceuticals of Canada Ltd. v. Gilbert & Co. (1966) S.C.R. 189 at p. 194,
Lubrizol Corp. v. Imperial Oil Ltd. (1990) 33 C.P.R. (3d) 1 at pp. 27 & 28, varied (1992) 45 C.P.R. (3d) 449
12. Apotex Inc. Wellcome Foundation Ltd. (2002) 22 C.P.R. (4th) 499 at pp. 501-502
13. Apotex Inc. Wellcome Foundation Ltd. (2002) 22 C.P.R. (4th) 499 at p. 501
14. Burton Parsons Chemical Inc. v. Hewlett-Packard (Canada) Ltd. (1976) 17 CPR (2d) 97, 1 SCR 555
Monsanto Co. v. Commissioner of Patents (1979) 42 CPR (2d) 161 at p. 165, (1979) 2 SCR 1108
These two preceding decisions were cited to support the definition of sound prediction in Apotex Inc. v. Wellcome Foundation Ltd. (2002) 22 C.P.R. (4th) 499

15. Commissioner's Decision No. 703, Application 312,909 (1980)
16. Northern Electric Co. v. Brown's Theaters Ltd. (1940) ExCR 36 at 56, aff'd (1941) SCR 224
Wandscheer et al. V. Sicard Limitée (1944) 4 C.P.R. 5 at p.15-16, aff'd (1947) 6 C.P.R. 35
Corning Glass Works v. Canada Wire & Cable Ltd. (1984) 81 C.P.R. (2d) 39 at p. 42
Wellcome Foundation Ltd. v. Apotex Inc (1991) 39 C.P.R. (3d) 289 at 338, aff'd (1995) 60 C.P.R. (3d) 135
Feherguard Products Ltd. v. Rocky's of BC Leisure Ltd. (1994) 53 C.P.R. (3d) 417 at 424-425, aff'd (1995) 60 CPR (3d) 512
Procter & Gamble Co. v. Bristol-Myers Canada Ltd. (1978) 39 C.P.R. (2d) 145 at pp. 159-160, aff'd (1979) 42 C.P.R. (2d) 33
Commissioner's Decision No. 337, Application 114,647, (Now patent 1,013,190) (1976)
Commissioner's Decision No. 1256, Application 2,145,007 (2003)
Commissioner's Decision No. 1159, Application 474,156 (1990)
Radio Corporation of America v. Hazeltine Corporation (1981) 56 C.P.R. (2d) 170
17. Noranda Mines Ltd. v. Minerals Separation North American Corp. (1947) 12 C.P.R. 102 at pp. 111-112, (1947) Ex. C.R. 306 aff'd (1950) 12 C.P.R. 99, (1950) S.C.R. 36
Société des usines chimiques Rhone-Poulenc et al. v. Jules R. Gilbert et al. (1968) 55 C.P.R. 207 at pp. 207 & 208, affirming (1968) 55 C.P.R. 209
Commissioner's Decision No. 509, Application 213,113 (1978)
18. Consolboard Inc. v. MacMillan Bloedel (Saskatchewan) Ltd. (1981) 56 C.P.R. (2d) 145 at 160, also indexed as (1981) 1 SCR 504
19. Re Application No. 003,389 of N.V. Organon (1973) 15 C.P.R. (2d) 253 also indexed as Commissioner's Decision No. 144, Application 3,389, (Now patent 937,498)(1973)
Harvard College v. Canada (Commissioner of Patents) 7 C.P.R. (4th) 1 at paragraphs 68 to 85, Reversed on other grounds 21 C.P.R. (4th) 417
20. Northern Electric Co. v. Brown's Theaters Ltd. (1940) ExCR 36 at 56, aff'd (1941) SCR 224
Wandscheer et al. V. Sicard Limitée (1944) 4 C.P.R. 5 at p.15-16, aff'd (1947) 6 C.P.R. 35
Corning Glass Works v. Canada Wire & Cable Ltd. (1984) 81 C.P.R. (2d) 39 at p. 42
Wellcome Foundation Ltd. v. Apotex Inc (1991) 39 C.P.R. (3d) 289 at 338, aff'd (1995) 60 C.P.R. (3d) 135
Feherguard Products Ltd. v. Rocky's of BC Leisure Ltd. (1994) 53 C.P.R. (3d) 417 at 424-425, aff'd (1995) 60 CPR (3d) 512
Procter & Gamble Co. v. Bristol-Myers Canada Ltd. (1978) 39 C.P.R. (2d) 145 at pp. 159-160, aff'd (1979) 42 C.P.R. (2d) 33
Commissioner's Decision No. 337, Application 114,647, (Now patent 1,013,190) (1976)
Commissioner's Decision No. 1256, Application 2,145,007 (2003)
Commissioner's Decision No. 1159, Application 474,156 (1990)
Radio Corporation of America v. Hazeltine Corporation (1981) 56 C.P.R. (2d) 170
21. Re Application for Patent containing claims that read on mental steps performed by a human operator in deciding to transmit a signal (1972) 23 CPR (2d) 93
22. Re Application of Abitibi Co. (1982) 62 C.P.R. (2d) 81
23. President and Fellows of Harvard College v. Commissioner of Patents (2002) SCC 76, also indexed as (2002) 21 C.P.R. (4th) 417
Pioneer Hi-Bred v. Commissioner of Patents (1987)14 C.P.R. (3d) 491, (1989) 25 C.P.R. (3d) 257
24. Pioneer Hi-Bred Ltd. v. Canada (Commissioner of Patents) (1989) 25 C.P.R. (3d) 257 at p. 264

25. President and Fellows of Harvard College v. Commissioner of Patents (2002) SCC 76, also indexed as (2002) 21 C.P.R. (4th) 417
Pioneer Hi-Bred v. Commissioner of Patents (1987)14 C.P.R. (3d) 491, (1989) 25 C.P.R. (3d) 257
26. Monsanto Canada Inc. v. Schmeiser (2004) 31 C.P.R. (4th) 161 at para. 128
27. Tennessee Eastman v. Commissioner of Patents (1970) 1 C.P.R. 117, (1974) S.C.R. 111
28. Commissioner's Decision No. 33, Application 862,758 (now patent 882,618) (1970)
Commissioner's Decision No. 63, Application 954,851 (now patent 890,188) (1994)
29. ICI v. Commissioner of Patents (1986) 9 C.P.R. (3d) 289, (1986) 3 FC 40
30. Commissioner's Decision No. 1191, Application 527,445 (now patent 1,332,440) (1994)
31. Re Application 3,389 of N.V. Organon (1973) 15 C.P.R. (2d) 253
Re Application of Goldenberg (1988) 22 C.P.R. (3d) 159
Re Application 880,719 (1973) 18 CPR (2d) 114
32. Re: Mobil Oil 1,254,297(1988) 24 C.P.R. (3d) 571 at 576, "the applicant's system is useful and does not relate solely to calculations or algorithms"
33. Commissioner's Decision No. 896, Application 269,230 (now patent 1121640) (1981)
34. Commissioner's Decision No. 605, Application 245,995 (1979)
Commissioner's Decision No. 80, Application 44,282 (1971)
35. Commissioner's Decision No. 821, Application 298,822 (Now patent 1,116,380)
36. Mailman v. Gillette Safety Razor Co. of Canada, (1932) SCR 724 at pp. 731-732
37. Progressive Games, Inc. v. Canada (Commissioner of Patents) (2000) 9 C.P.R. (4th) 479 at paragraph 1: "*changes in the method of playing poker did not amount to a contribution or addition to the cumulative wisdom on the subject of the game*", affirming (1999) 3 C.P.R. (4th) 517 and (1997) 3 C.P.R. (4th) 526.
38. Commissioner's Decision No. 493, Application 159,204 (1978)
39. Lawson v. Com of Patents (1970) 62 C.P.R. 101 at p. 116
Commissioner's Decision No. 878, Application 253,122 (1981)
Commissioner's Decision No. 937, Application 310,519 (now patent 1,163,822) (1982)
40. Apotex Inc. v. Wellcome Foundation Ltd. 22 C.P.R. (2002) (4th) 499 at p. 501
41. Visx Inc. v. Nidek Co. (1999) 3 C.P.R. (4th) 417 at p.452 (para. 134), aff'd (2001) 16 C.P.R. (4th) 251