

Patentable subject matter 2023

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Statute of Monopolies 1624

Section 6:

Provided alsoe That any Declaracion before mencioned shall not extend to any tres Patents and Graunt of Privilege for the tearme of fowerteene yeares or under, hereafter to be made of the sole working or makinge of any **manner of new Manufactures within this Realme**, to the **true and first Inventor and Inventors of such Manufactures**, which others at the tyme of makinge such tres Patents and Graunts shall not use, soe as alsoe they be not contrary to the Lawe nor mischievous to the State, by raisinge prices of Commodities at home, or hurt of Trade, or generallie inconvenient...

Introduced by Sir Edward Coke. Remains part of the law in Canada, Australia and New Zealand.

Influential on US law since “manufacture” is a category within 35 USC §101

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US Constitution

Article I, Section 8, Clause 8

To promote the Progress of Science and useful Arts,
by securing for limited Times to Authors and
Inventors the exclusive Right to their respective
Writings and **Discoveries**.

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TRIPs Agreement, a.27

Patentable subject-matter

1. Subject to the provisions of paragraphs 2 and 3, patents shall be available for **any inventions**, whether products or processes, in **all fields of technology**, provided that they are new, involve an inventive step and are capable of industrial application... patents shall be available and patent rights enjoyable without discrimination as to the place of invention, **the field of technology** and whether products are imported or locally produced.
2. Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect **ordre public or morality**, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law.
3. Members may also exclude from patentability:
 - (a) **diagnostic, therapeutic and surgical methods** for the treatment of humans or animals;
 - (b) **plants and animals other than micro-organisms**, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof...

Note 5: For the purposes of this Article, the terms “**inventive step**” and “**capable of industrial application**” may be deemed by a Member to be synonymous with the terms “**non-obvious**” and “**useful**” respectively.

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US Patent Statute

35 USC 100

When used in this title unless the context otherwise indicates—

- (a) The term “invention” means invention or discovery.
- (b) The term “process” means process, art or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.

35 USC 101

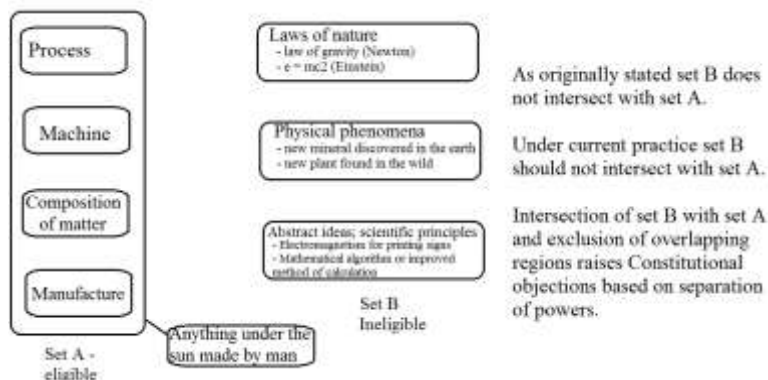
Whoever invents or discovers any new and useful **process, machine, manufacture, or composition of matter**, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Judicial exceptions

- Laws of nature
- Abstract ideas
- Natural phenomena (allegedly includes products of nature)

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35 USC 101 and exceptions – Venn diagram



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35 USC 101 “Process”

- Process – an act, or a series of acts or steps.
- *Gottschalk v. Benson*, 409 U.S. 63, 70, 175 USPQ 673, 676 (1972)
 - "A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be **transformed** and reduced to a different state or thing." (emphasis added).
- *Gottschalk quotes Cochrane v. Deener*, 94 U.S. 780, 788, 24 L. Ed. 139, 1877 Dec. Comm'r Pat. 242 (1876))

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35 USC 101 - Machine

- Machine – a concrete thing, consisting of parts, or of certain devices and combination of devices. *Burr v. Duryee*, 68 U.S. (1 Wall.) 531, 570, 17 L. Ed. 650 (1863).
- This includes every mechanical device or combination of mechanical powers and devices to perform some function and produce a certain effect or result. *Corning v. Burden*, 56 U.S. 252, 267, 14 L. Ed. 683 (1854).

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Meaning of composition of matter

- Chief Justice Berger in *Chakrabarty*:

"[C]omposition of matter" has been construed consistent with its common usage to include "**all compositions of two or more substances** and . . . **all composite articles**, whether they be the results of **chemical union**, or of **mechanical mixture**, or whether they be gases, fluids, powders or solids." *Shell Development Co. v. Watson*, 149 F. Supp. 279, 280 (DC 1957) (citing A. Deller, *Walker on Patents*, **14**, p. 55 (1st ed. 1937))

- Pair of single-stranded DNA primers – qualifies as a composite article. *University of Utah v Ambry Genetics* (CAFC, 2014) arguably in gross error for failure to consider the statute.
- An isolated naturally-occurring DNA segment e.g. gBRCA1 arguably not within the above definition. It a single substance and is not the result of chemical union (i.e., synthesis by the hand of man) but instead is merely an otherwise unchanged fragment of a larger naturally-occurring molecule.

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Manufacture - Justice Burger:

Guided by these canons of construction, this Court has read the term "manufacture" in § 101 in accordance with its dictionary definition to mean

"the production of articles for use from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by hand labor or by machinery."

American Fruit Growers, Inc. v. Brogdex Co., 283 U. S. 1, 283 U. S. 11 (1931).

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Hartranft v. Wiegmann 121 U. S. 609, 121 U. S. 615 (1887).

- Blocks of marble – not manufactures
- Washed and scoured wool; cleaned and ginned cotton - not manufactures.
- Hay packed in bales – not manufactures.
- Copper plates with upturned edges – not manufactures.
- Shoes from the sap of a rubber tree hardened in a mould – manufactures

An article does not become a manufacture simply on change of form or on isolation from impurities **but** such a change suffices if accompanied by the additional reason of new utility. **KEY: DIFFERENCE + NEW UTILITY**

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Indian Patents Act 1970 (as amended)

Section 3: The following are not inventions within the meaning of this Act —

(d) the **mere discovery of a new form of a known substance** which does not result in the enhancement of the known efficacy of that substance or

the **mere discovery of any new property** or new use for a known substance or of the mere use of a known process, machine or apparatus unless such known process results in a new product or employs at least one new reactant.

Explanation.—For the purposes of this clause, salts, esters, ethers, polymorphs, metabolites, pure form, particle size, isomers, mixtures of isomers, complexes, combinations and other derivatives of known substance shall be considered to be the same substance, unless they differ significantly in properties with regard to efficacy;

(e) a substance obtained by a **mere admixture** resulting only in the aggregation of the properties of the components thereof or a process for producing such substance;

(f) the **mere arrangement or re-arrangement or duplication of known devices** each functioning independently of one another in a known way

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EPC provisions

a.52 EPC

(1) European patents shall be granted for any inventions, in **all fields of technology**, provided that they are **new, involve an inventive step** and are **susceptible of industrial application**.

(2) The following in particular shall not be regarded as inventions within the meaning of paragraph 1:

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

(3) Paragraph 2 shall exclude the patentability of the subject-matter or activities referred to therein only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such.

a.53EPC

European patents shall not be granted in respect of:

(a) inventions the commercial exploitation of which would be contrary to "**ordre public**" or **morality**; such exploitation shall not be deemed to be so contrary merely because it is prohibited by law or regulation in some or all of the Contracting States;

(b) **plant or animal varieties or essentially biological processes for the production of plants or animals**; this provision shall **not apply to microbiological processes or the products thereof**;

(c) **methods for treatment of the human or animal body by surgery or therapy and diagnostic methods practised on the human or animal body**; this provision shall not apply to products, in particular substances or compositions, for use in any of these methods.

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Current legal developments

US law in a state of flux

- *Bilski v Kappos* (commodities trading – hedging risk_
- *Prometheus v Mayo* (see related European patent)
- *Myriad* (see oppositions in EPO and Australian decision)
- *CLS Bank v Alice* (see file history in the EPO)
- *Ariosa v Sequenom* (2015)(cert denied 2016)
- *Genetic Technologies v Merial* (Fed Cir., 2016)
- *Enfish, LLC v. Microsoft Corp* (Fed. Cir., 2016)
- USPTO Patent-eligibility guidance

Is UK and European law in a better state?

- *G 3/08 Programs for computers/PRESIDENT'S REFERENCE*
- Non-acknowledgement by UK IPO and UK courts

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EPC, UK: patentable subject matter

- An industrially applicable invention s.1(1)(c)
- Specifically included:
 - Inventions that can be made or used in agriculture s.4(1)
 - Substance or composition for treatment of the human or animal body s.4A(3)
 - Substance or composition for new specific pharmaceutical use s. 4A(4)

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EPC, UK: first group of prohibitions s. 1(2)

- Discovery
- Scientific theory
- Mathematical method
- Aesthetic creation: literary, dramatic or musical work
- Scheme rule or method for performing a mental act
- Scheme, rule or method for playing a game
- Scheme, rule or method for doing business
- Program for a computer
- Presentation of information

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Further group of prohibitions

- Invention whose commercial exploitation is contrary to public policy or morality. s.1(3),(4)
- Method of treatment of the human or animal body by surgery or therapy. s.4A(1)(a)
- Method of diagnosis practised on the human or animal body. S.4A(1)(b)
- Biotechnological invention falling within the prohibitions of **European Biotechnology Directive 98/44/EC (1998)**

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Patent-eligibility approaches

- Contribution
- Technical effect
- Any hardware
 - BUT disregarding non-technical features

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Contribution approach

Is the inventive contribution resided only in excluded subject matter? - *Merrill Lynch's Application* [1988] R.P.C. 1

Rejected in *Genentech's patent* [1989] R.P.C. 147:

“Such a conclusion, when applied to a discovery, would seem to mean that the application of the discovery is only patentable if the application is itself novel and not obvious, altogether apart from the novelty of the discovery. That would have a very drastic effect on the patenting of new drugs and medicinal or microbiological processes.”

BUT in US see *Prometheus v Mayo*

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Prometheus v Mayo US 6,355,623 and 6680302 – claim considered by the US Supreme Court

“A method of optimizing therapeutic efficacy for treatment of an immune-mediated gastrointestinal disorder, comprising:

(a) administering a drug providing 6-thioguanine to a subject having said immune-mediated gastrointestinal disorder; and

(b) determining the level of 6-thioguanine in said subject having said immune-mediated gastrointestinal disorder,

wherein the level of 6-thioguanine less than about 230 pmol per 8×10^8 red blood cells indicates a need to increase the amount of said drug subsequently administered to said subject and

wherein the level of 6-thioguanine greater than about 400 pmol per 8×10^8 red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject.”

- Italicised features already known, novelty in the bold type features.
- Bold wording is purely information, nothing more.
- Claim as a whole held to be ineligible (law of nature exception)

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Viable European claim (not in the granted patent)

An azopurine drug for administration to a subject having an immune-mediated gastrointestinal disorder at a dosage providing a level of 6-thioguanine is in the range of about 230 pmol per 8×10^8 red blood cells to about 400 pmol per 8×10^8 red blood cells, said level being maintained by periodically determining in vitro a level of 6-thioguanine in a sample from said subject and adjusting the dosage to maintain said level.

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G 1/19 Pedestrian simulation/BENTLEY SYSTEMS

- A method of simulating movement of an autonomous entity through an environment, the method comprising
- providing a provisional path through a model of the environment from a current location to an intended destination;
- providing a profile for said autonomous entity;
- determining a preferred step towards said intended destination based upon said profile and said provisional path;
- determining a personal space around said autonomous entity;
- determining whether said preferred step is feasible by considering whether obstructions infringe said personal space

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Referred questions

- 1. In the assessment of inventive step, can the computer-implemented simulation of a technical system or process solve a technical problem by producing a technical effect which goes beyond the simulation's implementation on a computer, if the computer-implemented simulation is claimed as such?
- 2. [2A] If the answer to the first question is yes, what are the relevant criteria for assessing whether a computer-implemented simulation claimed as such solves a technical problem? [2B] In particular, is it a sufficient condition that the simulation is based, at least in part, on technical principles underlying the simulated system or process?
- 3. What are the answers to the first and second questions if the computer-implemented simulation is claimed as part of a design process, in particular for verifying a design?

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Answers

- 1. A computer-implemented simulation of a technical system or process that is claimed as such can, for the purpose of assessing inventive step, solve a technical problem by producing a technical effect going beyond the simulation's implementation on a computer.
- 2. For that assessment it is not a sufficient condition that the simulation is based, in whole or in part, on technical principles underlying the simulated system or process.
- 3. The answers to the first and second questions are no different if the computer-implemented simulation is claimed as part of a design process, in particular for verifying a design.

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T 0489/BENTLEY (Refused)

- ... in the case of a computer-implemented invention, a technical effect relevant for the assessment of inventive step exists if the features of the claim directly achieve a (real) technical effect on physical reality (including both external physical reality and the "internal" physical reality of the computer system in which the invention is implemented).
- In addition, an "implied" technical effect relevant for the assessment of inventive step is present if the claimed invention or the data produced by it necessarily achieves a real technical effect when it is put to its intended (and only relevant) use.
- In contrast, merely providing calculated data which corresponds closely to technical effects of physical entities is not a technical effect relevant for the assessment of inventive step.
- It follows that the data produced by the method of claim 1, which reflects the behaviour of a crowd moving through an environment, does not contribute to a technical effect for the purpose of assessing inventive step. Indeed, the potential use of such data is not limited to technical purposes, as it can be used in computer games or presented to a human for obtaining knowledge about the modelled environment, to give just two examples of non-technical uses that are within the scope of the claim.

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Technical effect approach

Follows EPO Appeal Board in T 208/84

VICOM/Computer-related invention:

“Generally speaking, an invention which would be patentable in accordance with conventional patentability criteria should not be excluded from protection by the mere fact that, for its implementation, modern technical means in the form of a computer program are used. Decisive is what **technical contribution** the invention as defined in the claim when considered as a whole makes to the known art.”

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Any hardware approach

EPO; rejected by US Sup. Court in *Prometheus v Mayo*
T 931/95 *PBS PARTNERSHIP/Controlling pension benefits system*.

- **Main request** - method of controlling a pension benefits program rejected - business method as such.
- **Auxiliary request** - suitably programmed computer or system of computers for carrying out the method – patent-eligible subject matter:
 - “This distinction with regard to patentability between a method for doing business and an apparatus suited to perform such a method is justified in the light of the wording of Article 52(2)(c) EPC, according to which “schemes, rules and methods” are non-patentable categories in the field of economy and business, but the category of “apparatus” in the sense of “physical entity” or “product” is not mentioned in Article 52(2) EPC.”

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Current UK approach to patentability

Following *Merrill Lynch's Appn* [1989] RPC 561, *Gale's Appn* [1991] RPC 91 and *Fujitsu Limited's Appn* [1997] RPC 608, Jacob LJ in *Aerotel/Macrossan* proposed a “four step approach”:

- Construe the claim
- Identify the actual contribution.
- Ask whether it falls solely within the excluded subject matter.
- Check whether the actual or alleged contribution is technical in nature.

The fourth step is intended to be a check, used only when an application has passed the three previous steps.

Approach approved by the Court of Appeal in *Lantana v Comptroller* [2014] EWCA Civ 1463 - see GB-A-2470521

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Symbian Limited v. Comptroller **[2008] EWCA Civ 1066**

- Dynamic link library – GB-B-2407655
- Patent Office objected that a. 52(20)(c) excludes patentability unless claimed program has a novel effect outside the computer.
- Applicants responded that a. 52(c) and a. 52(3) only exclude programs that do not provide a technical solution to a technical problem.
- TRIPS a. 27: “Patents shall be available for inventions ... in all fields of technology”

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Decision in *Symbian*, confirmed in *HTC Europe v Apple*

- Important question was whether the claimed subject matter made a “technical” contribution.
- For “technical” see
 - *Computer-related invention/VICOM* T 0208/84
 - *Data processor network/IBM* T 0006/83
 - *Computer-related invention/IBM* T 0115/85
 - UK decisions in *Merrill Lynch* and *Gale*.
- Each case must be decided on its own facts based on the guidance in the above decisions.
- Technical innovation within or outside the computer normally suitable for patentability.

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AT & T Knowledge Ventures LP and CVON Innovations Ltd [2009] EWHC 343 (Pat)

Lewison J: useful signposts:

- (i) a technical effect on a process outside the computer;
- (ii) a technical effect at the computer architecture level; i.e. irrespective of the data being processed or the applications being run;
- (iii) the computer is made to operate in a new way;
- (iv) there is an increase in the speed or reliability of the computer; and
- (v) the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.

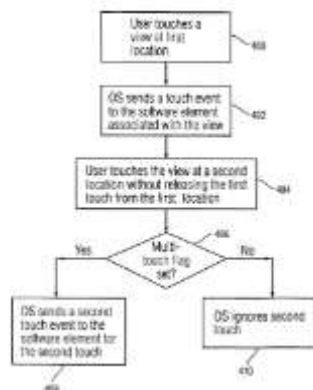
Additionally, even if there are several ways of putting a method of doing business into practical operation that does not mean not mean that the selection of one of them is relevantly technical. Each way of practical implementation might itself be a method of doing business [57].

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HTC Europe v Apple

[2013] EWCA Civ 451

Touch event model – patent eligible but obvious



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HTC Europe v Apple ctd

- Switch for iPhone – patent eligible but
- Held to be obvious in UK
- Unobvious in US, see *Apple Inc. v. Samsung Electronics Co.* (Fed. Cir. Oct. 7, 2016) (MUST READ)

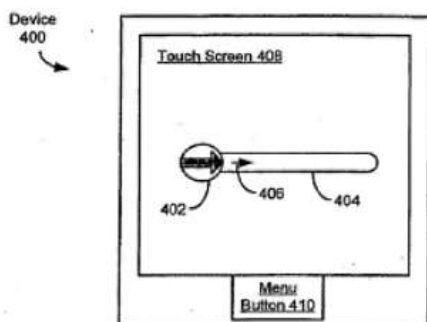


Figure 4A

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HTC v Apple

- Camera roll – novel method of image manipulation, but obvious

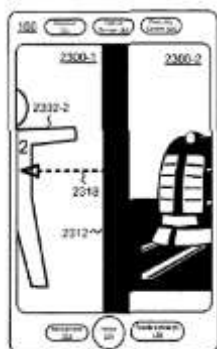


Figure 23G

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EPO Approach

T 931/95 *PBS PARTNERSHIP*

T 258/03 *HITACHI*

T641/00 *COMVIK*

All approved in T 154/04 *DUNS* and in G 3/08
PRESIDENT'S REFERENCE/ Program for Computers.

- From *COMVIK*:
 - “An invention consisting of a mixture of technical and non-technical features and having technical character as a whole is to be assessed with respect to the requirement of inventive step by taking account of all those features which contribute to said technical character whereas features making no such contribution cannot support the presence of inventive step.”

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G 0003/08 PRESIDENT'S REFERENCE

- Treatment of excluded features

- An elaborate system for taking that effect into account in the assessment of whether there is an inventive step has been developed, as laid out in T 154/04, *DUNS*. The list of "non-inventions" in Article 52(2) EPC can play an important role in determining whether claimed subject-matter is inventive
- The Board can only speculate that the President could not identify any divergence in the case law on this issue, despite the fact that (at present) approximately **seventy** decisions issued by a total of **fifteen different Boards** (in the sense of organisational units) cite T 641/00, *COMVIK* (OJ EPO 2003, 352), and over **forty** decisions by **eight Boards** cite T 258/03, *HITACHI*, the decisions which essentially defined the approach. Nor is the Enlarged Board aware of any divergence in this case law, suggesting that the Boards are in general quite comfortable with it. It would appear that the case law, as summarised in T 154/04, has created a practicable system for delimiting the innovations for which a patent may be granted.”

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Halliburton Energy Services Inc **[2011] EWHC2508 (Pat)**

Patents Court (Judge Birss) declined to follow EPO approach

- Excluded matter goes hand in hand with the approach to inventive step
- Not clear that EPO's approach any more favourable to patentees than EPO's approach
- Differences based on genuine jurisprudential concerns

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Computer programs

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ACE computer at NPL (1957)

- Design originated by Alan Turing
- Thermionic valves
- Mercury delay line storage



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Software cases – claims allowable

Particular areas of recent interest in the UK and Europe have been the allowance of:

- claims to a computer program on a storage medium
- claims to the transmission or electronic distribution of a program on the internet.

Technical Board 3.5.1 has decided that such claims are in principle allowable. T 1173/97 *IBM/Computer related product*

20. A computer program product directly loadable into the internal memory of a digital computer comprising software code portions for performing the steps of claim 1 when said product is run on a computer."

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EPO Appeal Board in VICOM

- Invention related to an improved method for digitally filtering images by convolution.
- Advantage: the volume of calculations required to be carried out was significantly reduced compared to the prior art.
- Key difference : conventional operator matrix was replaced by a “*small generating kernel*” e.g. of dimensions 3 elements by 3 elements which was scanned over the data matrix a plurality of times.
- Original claim was to “*A method of digitally filtering data...*”
- Held to be an abstract notion not distinguished from a mathematical method so long as it was not specified what physical entity was represented by the data and formed the subject of a technical process.
- Allowable: “*A method of digitally processing images in the form of a two-dimensional data array having elements arranged in rows and columns ...*”

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Mechanical calculators

- Friden (1962)
- Square root key



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Gale's Application

- Retired private inventor
- Represented himself in Patent Office, Patents Court and Court of Appeal
- Described in Patent Office decision as a difficult character.
- Amicus appointed in Court of Appeal
- But inevitably there must have been deficiencies in the presentation of the case.

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Gale GB-A-2174221

- Calculating a square root

“The principle of operation of the invention is arranged so that an accumulative root is built up by trying successive increments which may be added onto this accumulative root in order to produce a more accurate root. It arranges that each of the prospective increments is selected so as to provide that a **multiplication process**, which the method incorporates, is in the form of a **simple shift of binary places** i.e. it is a process of moving the "Binary Point" in the same manner as multiplying by a power of ten is of moving the "Decimal Point".

Although binary mechanisms are usually much faster in operation than analogue or digital decimal means, economy of operations or simplicity of operations are yet a further means of providing that a binary system shall operate more efficiently.”

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Gale claim

1. Electronic circuitry, in the form known as "ROM",
 -- to provide controlling means whereby four binary manipulative entities, of the type known as "registers", shall derive the square root of an arbitrary number, and
 -- whereby such controlling shall so function that only such numbers shall be selected by the said controlling means, for use in deriving the square root, as shall eliminate recourse to the process of division, and
 -- shall further only perform the process of multiplication insofar as is accomplished by the use of the binary operations of "shift" and "test", without the binary function of "add", such as is usually required within the general form of multiplication of arbitrary numbers.

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Potential benefits in Gale

- Program simpler.
- Runs faster because simpler processing facilities needed.
- Potentially simpler and smaller chip using less "silicon real-estate"
- Inventions of this kind could have been of great value to manufacturers of chips for pocket calculator (more chips per wafer)
- Both *Vicom* and *Gale* automated functions previously performed by electrical or mechanical components. So why was *Vicom* patentable when *Gale* was not?

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Business methods

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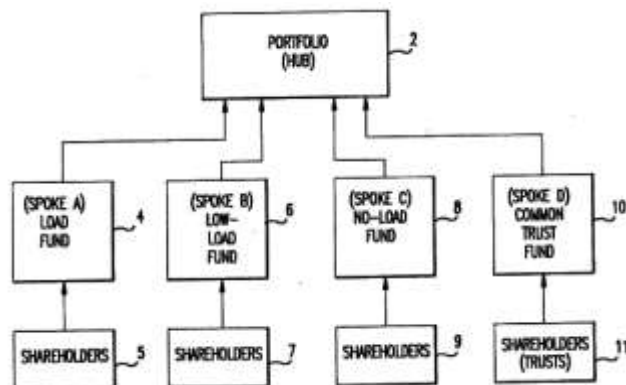
State Street Bank v Signature Financial Group
149 F. 3d 1368 (Fed. Cir. 1998); US-A-5193056 -
now of historical interest only

- Data processing system for administering and accounting for mutual funds.
- Claimed exclusively in means + function format.
- 35 USC 112(6) “An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.”
- Absent disclosure of “corresponding structure”, patentability resembles Mr Praline’s parrot.

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From US-A-5193506

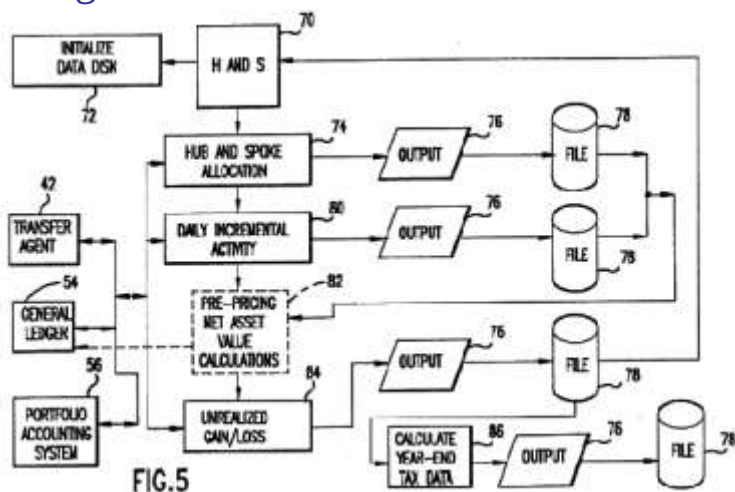
Overall structure



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From US 5193506

Block diagram



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Possible objections to State Street

- Potential objection: Boxes not populated as required by 35 USC 112(6)
- Mere indication of a box inadequate: language simply indicates function to be performed not the algorithm by which it is performed, *Aristocrat Technologies v IGT, CAFC, 28 March 2008 and cases cited.*
- Non-enablement?
- Actual objection: no statutory subject matter, reversed by the CAFC with well-known consequences.

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In re Bilski – Federal Circuit/US Supreme Court

A method for managing the consumption risk costs of a commodity sold by a commodity provider at a fixed price comprising the steps of:

- (a) initiating a series of transactions between said commodity provider and consumers of said commodity wherein said consumers purchase said commodity at a fixed rate based upon historical averages, said fixed rate corresponding to a risk position of said consumer;
- (b) identifying market participants for said commodity having a counter-risk position to said consumers; and
- (c) initiating a series of transactions between said commodity provider and said market participants at a second fixed rate such that said series of market participant transactions balances the risk position of said series of consumer transactions

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Bilski decision - CAFC

- From Supreme Court in *Benson* (BCD-binary transformation, refused): “A claimed process is surely patent-eligible under § 101 if: (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.” (“machine or transformation test”)
- “Useful, concrete and tangible result” (*State Street*) inadequate.
- No categorical exclusions e.g. no business method exception, but mental processes and newly discovered natural phenomena excluded.
- Claim in issue fails the machine or transformation test.

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Bilski v Kappos (Supreme Court, 2010)

- Petition for Certiorari granted 1 June 2009
- Claimed subject matter held unpatentable as an abstract principle.
- But business methods not excluded per se
- Split decision – does not appear to lay down any novel principle of law.
- US law now less favorable than formerly to business method patents, see also *CLS v Alice*.

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Federal circuit on business methods

Increasing tendency to treat business method cases as mere abstract ideas:

- *Ultramercial v. Hulu*, 657 F.3d 1323 (Fed. Cir. 2011) - distribution over the Internet – monetising copyright products – not manifestly abstract
- *CyberSource Corp. v. Retail Decisions*, 654 F.3d 1366 (Fed. Cir. 2011) – validating online credit purchases – unpatentable mental process remains unpatentable even when computer implemented
- *Dealertrack v. Huber* (Fed. Cir. 2012) 09-1566 - computer aided method of managing a credit application

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UK IP Office cases

- A computer system for optimising an investment portfolio to reflect the investor's wishes on risk, investment spread and investment limits - [O/215/04](#)
- An internet-based system for allowing individuals to club together to benefit from bulk purchase discounts: those who commit themselves early get a better price - [O/208/04](#)
- A reminder system which sends a single consolidated reminder for all the actions necessary in the next week or month, rather than sending lots of separate reminders - [O/193/04](#)
- A reverse auction system which also monitors a purchasers purchasing history so as to recommend further purchases that are likely to be of interest - [O/195/04](#)
- An online betting system that automatically adjusts the odds to ensure that payouts will be of rounded amounts - [O/199/04](#)
- An online trading system which allows a bid to have visible and concealed portions, so a bidder can enter the market without distorting it - [O/147/04](#)
- A system for automatically optimising the scheduling of airline crew - [O/125/04](#)
- An internet-based grocery shopping system which tells customers how much freezer space their order will require - [O/121/04](#)
- A system for sharing information about semiconductor product design - [O/031/04](#)
- A system for managing a debt-recovering process - [O/030/04](#)

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EPO Cases on business methods

- T 0931/95 *PBS PARTNERSHIP/ Controlling pension benefits system* – Non-technical features cannot contribute to inventive step.
- T 0641/00 *COMVIK/Two identities* – differences did not relate to technical aspects of the telephone network but were of a financial and administrative character
- T 0258/03 *HITACHI/Auction method* - refused
- T 01284/04 *KING/Loan System* - Method of and computer-based apparatus for creating financial instruments, administering an adjustable rate loan system. Refused on the ground that inventive step could only result from features having a technical character, see also T 1161/04 *NASDAQ/Stock index*.
- Gaming apparatus: T 1543/06 *GAMEACCOUNT/Game machine*; T 366/07 *IGT/Electronic multi-play poker*; and T 859/07 *DEQ SYSTEMS CIRP/Multi-player bet auxiliary game*.

57

Scheme, rule or method for performing a mental act

58

UK decisions on mental acts

- *Wang's Application* ([1991] R.P.C. 463), - Expert system – not patentable – advising a person whether he or she had acted tortiously - still remained a method for performing a mental act, whether or not the computer program adopts steps that would not ordinarily be used by the human mind.
- *Raytheon's application* [1993] RPC 427 – automatically identifying ships from their silhouettes – refused.

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Mental acts - EPO Decisions

- T 0914/02 *GENERAL ELECTRIC COMPANY/Nuclear core loading* - held that the involvement of technical considerations was not sufficient for a method which may exclusively be carried out mentally to have technical character. Doubtful whether mere complexity could be used to disqualify an activity as a mental activity. However, by specifying using a suitably programmed computer the amended claim contained a definition of technical means to be used in the method which no longer related to a mental act as and was therefore, not excluded from patentability.
- T 0453/91 *INTERNATIONAL BUSINESS MACHINES/VLSI chip design* – claims to method of designing a computer chip refused – allowed when step of manufacturing the chip added – claims now directed to physical entity.

60

Presentation of information

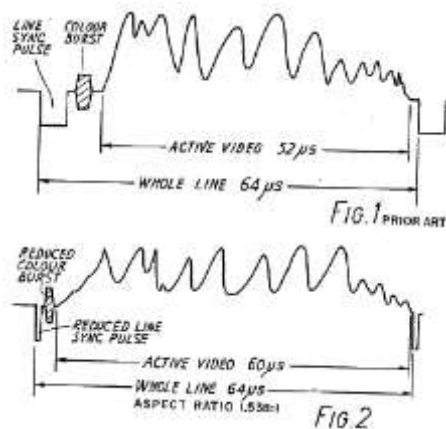
61

EPO Decisions

- Two cases of special significance:
 - T 0163/85 *BBC/Television signal*
 - T 1194/97 *PHILIPS/Data structure product*

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BBC Case



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BBC Case

- Claim to signal for analog television system
- A color television signal adapted to generate a picture with an aspect ratio of greater than 4:3, and in which the active-video portion of a line constitutes at least 85% and preferably 90% of the line period.
- Patentable – physical reality detectable by technical means

64

Philips case

- Disc with information recorded using a special data structure
- Distinction between data which encodes cognitive content e.g. a television picture in a standard manner and functional data which relates to the technical features of the system.
- “complete loss of the cognitive content resulting in a humanly meaningless picture like ‘snow’ on a television screen has no effect on the technical working of the system, while loss of functional data will impair the technical operation and in the limit bring the system to a complete halt. In particular the board sees no reason to ascribe less technical character to a synchronisation signal recorded as digital data, e.g. a predetermined binary string, than to an analog synchronisation signal transmitted or recorded as a pulse having a distinctive shape.”

65

Mathematical methods

66

UK and EPO case law

- Prohibition normally avoidable by specifying an associated physical device or field of use, see
 - *Gale's application* (UK Court of Appeal)
 - T 0208/84 *VICOM/Computer-related invention*
 - T 0471/05 *PHILIPS/Lens design*
 - T 0212/94 *AT&T/Channel noise*
 - T 1227/05 *INFINEON TECHNOLOGIES/Schaltkreissimulation (computer simulation)*
 - T 0027/97 *FRANCETELECOM/ Cryptographie à clés publiques*

67

BL O/116/09 *Schlumberger Holdings*

- Provision of quality control indicators of improved reliability by processing sonic well logging data to generate a slowness against frequency dispersion curve at each of a number of depths, and from that a projection log of curve data against depth. The specification did not contemplate anything more than visual inspection of the data.
- Unpatentable: the invention was concerned with the information content of an image rather than the physical properties of the image as in *VICOM*.

68

Aesthetic creations literary, dramatic, musical or artistic works

69

EPO Guidelines

- Tyre tread.mixture of aesthetic and technical features. - patentable.
- Book claimed solely in terms of the aesthetic or artistic effect of its information content, of its layout or of its letter font - not patentable.
- Book defined by a technical feature of the binding or pasting of the back may be patentable, even though it has an aesthetic effect also

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UK and EPO decisions

- *Virginia-Carolina.s Application* ([1958] R.P.C. 35) claim to a squash ball characterized by its blue color allowed as having a technical rather than mere, aesthetic effect.
- T 0 119/88 *FUJI/Coloured disk jacket* – color alone unlikely to provide a distinguishing feature - resistance to fingerprints mere aesthetic effect.
- T 244/00 *MATSUSHITA/Remote-control* - invention concerned remote control apparatus for an audio-visual system in which diagonal cursor moves were permitted in order to facilitate the selection of menu items. Refused - normally the arrangement of menu items on a screen was artistic rather than technical, and the same was true for the permitted directions of cursor movement.
- T 125/04 *COMPARATIVE VISUAL ASSESSMENTS/Assessment system* ([2007] E.P.O.R. 33) - in general the task of designing diagrams is non-technical even if the diagrams arguably convey information in a way which a viewer may intuitively regard as particularly appealing, lucid or logical.

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T 50/07 APPLE

- Transitioning a window on a computer screen between an open state and a minimized state.
- The objective problem to be solved was how to achieve the specific aesthetic effect, i.e. its technical implementation.
- The steps in the claim of defining the set of curves and displaying the window as successive positions within the curves while scaling it to fit within the curves imply some not further specified data processing as well as driving the computer screen.
- Hence, the technical implementation as claimed was merely limited to such implied data processing and driving, which was considered to be a straightforward, if not the only solution for obtaining this specified **aesthetic effect on the computer screen**, and would be obvious to a skilled person in the field of computer graphics and in particular of graphical user interfaces [3].

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Discoveries

73

***Tate & Lyle v Roquette Freres* [2009] EWHC 1312**

- The patent explained *why* maltitol crystals take the habit that they do, but it did not add anything else to the sum of human knowledge.
- In Molière's play *Le Bourgeois Gentilhomme*, Monsieur Jourdain asked something to be written in neither verse nor prose. A philosophy master said to him, "Sir, there is no other way to express oneself than with prose or verse". Jourdain replies, "By my faith! For more than forty years I have been speaking prose without knowing anything about it, and I am much obliged to you for having taught me that."
- That was the situation here: the industry had been using maltotriitol to control or determine crystal habit without knowing it. Consequently, what was left of the patent as granted was no more than a discovery as such [74]-[46].

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EPO Examination Guideline

- C-IV, 2.3.1:

“If a new property of a known material or article is found out, that is mere discovery and unpatentable because discovery as such has no technical effect and is therefore not an invention within the meaning of Art. 52(1). If, however, that property is put to practical use, then this constitutes an invention which may be patentable. For example, the discovery that a particular known material is able to withstand mechanical shock would not be patentable, but a railway sleeper made from that material could well be patentable.”

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EPO cases on discovery

- **G 2/88 MOBIL OIL III/Friction reducing additive** - Claim whose wording defines a new use of a known compound - the proper interpretation of the claim will normally be that attaining a new technical effect which underlies the new use is a technical feature of the claimed invention and is not a mere discovery.
- **T 279/93 AMERICAN CYANAMID/Melamine derivatives** - noticing that an old product had a lighter color was a mere discovery. To convert that discovery into a patentable invention, and to show a new technical effect, a use claim would have to exploit the discovery for some *new* technical purpose.
- **T 319/88 BP Chemicals/Acetic acid** - Newly discovered property gave rise to a new use not correlated with the known use and independent thereof.
- **T 1642/06 SPRUCE BARBAR ET AL/Sigma receptor** - undisclosed technical effect identified a new clinical situation.

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Scientific theory

77

UK and EPO decisions

T 1358/05 ZAGYANSKY/New atomic scale physics

Observed that a Board of Appeal cannot be a discussion forum for new physical theories unless these are unambiguously proven, are of a technical nature and capable of industrial application.

Blacklight Power Inc v Comptroller [2008] EWHC 2763 – inventor claimed to have found a new hydrogen species called the hydrino which he alleged existed in a lower energy state than the lowest possible such state recognized by standard physical laws. He claimed the novel hydrogen species and a power-generating plasma reactor, but his patent applications were rejected as contrary to the laws of physics.

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Aesthetic effect

79

UK and EPO decisions

- *Virginia-Carolina.s Application* ([1958] R.P.C. 35) claim to a squash ball characterized by its blue color allowed as having a technical rather than mere, aesthetic effect.
- T 0 119/88 *FUJI/Coloured disk jacket* – color alone unlikely to provide a distinguishing feature - resistance to fingerprints mere aesthetic effect.
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Scheme, rule or method for playing a game

81

EPO decisions on games

- T 0717/05 *LABTRONIX CONCEPT INC/Auxiliary game* - technical problem can include maintaining player interest, but see T 1281/10 *BAYESIAN SCORING/Microsoft* and T 0042/10 *Determining relative skills/MICROSOFT*
- T 0928/03 *KONAMI/Video game* - Guide mark (ball) of enlarged size to avoid the risk of its being concealed behind a neighboring playing character. Not excluded from patentability. But shape of the guide mark mere aesthetic creation.
- T 0012/08 *NINTENDO/Computer game* – maintaining player interest by increasing unpredictability. Varying the probability of a character appearing in a game is *innately* technical, see also T 2127/09 *Game apparatus/BANDAI* (unsearched invention)

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T 1281/10 *BAYESIAN SCORING/Microsoft*

2.7 The appellant's second argument is based on paragraph 5.9 of T 717/05, in which it is stated that "amusement is the psychological purpose of a gaming apparatus and is the relevant objective technical problem to the extent that the enhanced amusement is achieved by technical features of the claim".

2.8 ... the Board has strong doubts that amusement, even if achieved by technical (in particular computing and displaying) means, really is a technical problem. If it were, any dull computer game could be regarded as posing a technical problem that could be solved by any less dull game. The difficulties involved in such a view are evident (the skilled person need not be skilled in a technical art; the effect would be subjective), and the decision has been largely ignored in the jurisprudence of the Boards of Appeal. T 528/07, *Portal system/ACCENTURE*, not published in the OJ EPO, expressly declined to follow the approach taken in T 717/05.

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T 0336/07 *Electronic multi-play poker/IGT*

1. The mere fact that subject-matter, which is excluded *per se* under a. 52(2) (c) EPC, is technically implemented cannot form the basis for inventive step. Inventive step can be based only on the particular manner of implementation of such subject-matter. To this end it is therefore necessary to ask how the *per se* excluded subject-matter (e.g. a game or business method) is implemented (reasons 2.4)
2. A consideration of the particular manner of implementation must focus on any further technical advantages or effects associated with the specific features of implementation over and above the effects and advantages inherent in the excluded subject-matter (reasons 2.5)
3. A set of game rules defines a regulatory framework agreed between players and concerning conduct, conventions and conditions that are meaningful only in a gaming context. It is perceived as such by players involved, and as serving the explicit purpose of playing a game. As such an agreed framework it is a purely abstract, mental construct, though the method and means for carrying out game play in accordance with such a set may well be technical in nature (reasons 3.3.1).
4. (Reasons at 4.3.6) The fact that the present invention may actually have required some form of ingenuity - in the colloquial sense of the word - is not disputed by the Board. Such ingenuity however resides in a modification of the game rules, which is non-technical in nature by virtue of Article 52(2)(c) EPC and, for this reason, cannot contribute to the "technical" inventive step required by Article 56 EPC. This fundamental deficiency cannot be remedied by the claimed invention's commercial success. This factor may play a role as secondary indicia in cases of doubt where novel subject-matter rests squarely in the technical domain, as for example in T 1212/01. However, in the Board's view, it is unsuitable for demonstrating inventive step where the contested finding of lack of inventive step is based solely on the exclusion under Article 52(2) EPC of subject-matter that may otherwise represent a genuine mental achievement. Thus, for example, a paperback novel is no more inventive in the sense of Article 56 EPC for being a bestseller.

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