Intellectual Property for Computer Personnel and Businesses

Adrienne B. Naumann, M.S., J.D.
Law Office of Adrienne B. Naumann
adrienne.b.naumann@att.net
847-329-8185

Patents - Introduction

- A United States patent gives the owner of the invention the right to exclude others from using, selling, importing or producing the invention in the United States.

Blackberry case: Illustrates the right of the U.S. patent holders to exclude the Canadian company, although the U.S. patent holders were not producing, selling or using the patented invention.

Patents (cont.)

- Without a patent, the owner (patentee) cannot file a lawsuit for infringement in the U.S.

- Defensive or deterrent purpose

  A patent is important if a third party accuses the true owner of the invention of

  1. misappropriation; or
  2. infringement.

Patentability Requirements for U.S. Utility Patents

- Patentable subject matter

A. An invention must be a

(i) machine

(ii) composition of matter;

(iii) article of manufacture; or

(iv) method or process.

B. Improvements to, and new combinations of, existing methods, devices, and compositions of matter are patentable.

C. A computer related invention must contain at least one tangible component and not solely:

Patentability (cont.)

1. a mathematical computation, abstract idea, natural phenomenon; or
2. descriptive matter

a. functional

(1) data structure and computer programs which
(2) are functional as a computer component but
(3) by themselves are not patentable subject matter

where a data structure is: a physical or logical relationship among data elements which support specific data manipulations.

b. non-functional

(1) music
(2) compilation or arrangement of data

Patentability (cont.)

3. Computer related inventions-devices.

a. Example of patentable subject matter: data structure stored on a computer readable medium which increases computer efficiency.

(1) Reason: A computer readable medium encoded with a data structure defines

(2) a structural and functional interrelationship between

(3) the data, structure, computer software and hardware components which

(4) permit the data structure to be functional.

Patentability (cont.)

b. Example of patentable subject matter

(1) a machine, such as a computer, which contains

(2) a computer program, and

(3) other tangible features (such as associated physical components exterior to the computer); and

(4) has a practical application in the technological arts.

.

Patentability (cont.)

c. Example of non-patentable subject matter: computer programs which are solely computer listings.

(1) Reason: there is no tangible component which qualifies as an article of manufacture or machine and

(2) no functional element.

Patentability (cont.)

4. Computer related processes

a. non-patentable subject matter

(1) consists solely of mathematical operations; and

(2) does not manipulate appropriate subject matter; and

(3) has no practical application.

Patentability (cont.)

b. a patentable subject matter computer related process

(1) requires a pre- or post computer process activity; or

(2) must be limited to a practical application within the technical art.

c. Examples of patentable subject matter methods with post-computer activity:

(1) Curing rubber in a mold using a computer process to determine the time period for curing the rubber and thereafter opening the mold.

(2) Controlling a robot which requires storing data in a computer to initiate the robot's movements.

Patentability (cont.)

d. Examples of patentable process subject matter with pre–computer activity

(1) Using a computer processor to analyze electrical signals which represent human cardiac activity

(2) Using a computer processor to receive data from scanned images of a patient

(3) Using a computer process to determine seismic exploration by generating a plurality of reflected signals in response to seismic energy waves.

Patentability (cont.)

e. Examples of patentable subject matter computer related processes which are limited to a practical technological art

(1) A computerized method of

optimally controlling transfer, storage and retrieval for data

between cache and hard disk storage devises

such that the most frequently used data is readily available.

Patentability (cont.)

(2) A digital filtering process for removing noise from a digital signal comprising the steps of

(i) calculating a mathematical algorithm to

(ii) produce a correction signal and

(iii) subtracting the correction signal from the digital signal to remove the noise.

Patentability (cont.)

f. Examples of non-patentable subject matter processes:

(1) Updating alarm limits

(2) Equating process outputs to the values of the last set of process inputs

(3) Step of transmitting electrical signals representing the result of calculations

(4)The step of displaying a calculation as a gray code scale.

Patentability (cont.)

D. The invention must also be new, non–obvious, useful, and operable for its intended purpose.

1. Utility for computer related inventions: There must be a concrete tangible application of the invention with significant functionality.

a. Example of absence of patentable utility:

computer-related process which consists solely of manipulating numbers.

Patentability (cont.)

b. Examples of patentable utility

(1) long distance telephone billing process containing mathematical functions

(2) a machine through which mathematics generates a final share price

Patentability (cont.)

- An offer to sell or sale in the United States, public use or display in the United States, description in a printed publication, or filing for protection in a foreign country, triggers a one–year non-extendable filing period.

- Patentability is not equivalent to marketability.

United States Utility Patent

A. Title page: inventor, patent number, date of issue, prior art citations, filing date, serial number, examiner, attorney of record
B. Abstract
C. Background of the Invention
D. Summary of the Invention
E. Brief Description of the Drawings
F. Detailed Description of the Invention
G. Claims
H. Drawings (depends upon invention)
I. Tables and Charts (optional)

Substantive Requirements of Utility Patent Applications

- The written description of the invention must technically support the claims.

- The written description must enable a person skilled in that particular art to create and use the invention without undue experimentation

Patentability (cont.)

A. Enablement requires sufficient information to configure the computer

1. to possess the requisite function, or

2. to integrate the programmed computer with other invention elements,

3. unless skilled computer personnel could do so without such disclosure.

Patentability (cont.)

B. Block diagrams and descriptions of the desired function are sufficient for enablement, but only if

1. the represented structure is conventional; and

2. can be determined without undue experimentation

Patentability (cont.)

C. The written description must provide information which adequately describes

1. each element of hardware, or hardware and its associated software, and

2. how these elements are interrelated.

Patentability (cont.)

- The written description must disclose the best version (mode) of the invention at the time the application is filed, including the

  (i) best manner for producing the invention; and

  (ii) best manner of using the invention.

Patentability (cont.)

- Substantive description requirements for computer programming

  1. Where software is part of the best version, best mode requires:

     a. disclosure of software function because

     b. writing software code is

     (1) within the skill of routine programmers and

     (2) does not require undue experimentation, once functions are disclosed.

Patentability (cont.)

2.Timing charts

a. without a timing chart for the time sequence of each element,

b. an unreasonable amount of experimentation may be required for detailed relationship in invention.

Patentability (cont.)

3. Complex hardware or software components must be precisely coordinated with other complex assemblages.

a. inclusion only of prior existing art patents or publications in the written description for improvement inventions is risky because

(1) the technical integration of the prior device and the improvement is

(2) not always self-evident with respect to

(3) how prior existing components interconnect with the inventive improvement

Patentability (cont.)

b. for a computer programming method with specific apparatus

(i) written description requires a technical disclosure of the apparatus,

(ii) if the apparatus was not previously available.

Patentability (cont.)

c. the written description should contain

(1) the computer program itself; or

(2) a reasonably detailed flow chart for the operations sequence the program must perform.

- New technical information cannot be added to the application after filing.

- Technical Information cannot be corrected or added to the application after filing.

- However, claims can be modified.

Inventorship

- In the United States, inventorship is not equivalent to ownership of the Invention.

- Inventorship requires:

  (1) Conception
  - Defined as the definite and permanent idea of the complete and operative invention.
  - The original inventor is the natural person(s) who acquired or synthesized the knowledge to conceive the invention from his (their) own mental processes;

  and

  (2) Reduction to practice
  - actual (e.g., creation of an operable prototype); or
  - constructive (filing of a utility patent application).
  - a third person can reduce to practice under the inventor's direction.

Inventorship (cont.)

- In the United States, whoever is first to invent is entitled to the patent (and not necessarily the first to file the application).
- The application or subsequent patent must identify the true inventor(s), because otherwise the patent is invalid.

Inventorship (cont.)

- The true and first inventor is the one who:

  (1) was first to conceive; and

  (2) was diligent in reducing the invention to practice, by either

  (a) producing a working prototype; or

  (b) filing a patent application.

- Abandonment, concealment and suppression may preclude invention ownership

Inventorship (cont.)

- Joint inventorship

  (1) Each inventor owns an equal undivided interest in the invention, application and patent.

  (2) One joint inventor can personally use the patent without consulting the others.

  (3) The joint inventor can also transfer his right to use the patent to third parties.

Inventorship (cont.)

- Inventorship is a legal determination and not an agreement between parties.
- Correction of inventorship for an application or patent requires
  - (1) due diligence; and
  - (2) absence of deceptive intent.

Ownership of Inventions

- Employment

(1) An Illinois employment contract cannot effectively transfer ownership of an employee's inventions to the employer if

(a) the employer did not supply resources; and

(b) the invention was developed during the employee's own time unless

- the invention relates to (i) the employer's business, or (ii) the employer's research/development; or
- the invention results from work performed by the employee for the employer.

(2) Illinois shop right - the employer can use any invention, for which

(a) an employee has applied company resources to develop,

(b) in the employer's business without payment to the employee.

Ownership (cont.)

- *Equitable ownership* results whenever

  (1) an officer, director, shareholder, partner, etc.

  (2) uses his or her company's resources to develop and prosecute a patent;

  (3) and that patent is solely owned of record by that individual, and not the corporation or partnership.

  Example: two 50% shareholders of an Illinois corporation

Invention Ownership (cont.)

- While an inventor must be a natural person, an owner may be an organization.

  (1) Transfer of ownership can be by agreement of non-inventor entities.

  (2) In contrast, only the natural person(s) who conceived the invention can be the inventor(s).

- An assignment is the transfer of all, or an undivided share of, rights to an invention, application and/or patent.

  (1) small entity status and government fees.

  (2) an obligation to assign an invention may result in loss of small entity status.

Patent Duration and Publication

- For a utility patent:
  Twenty years from the filing date of the application.

- The application is available to the public approximately eighteen months after the filing date.
  (1) Request for Non-Publication
  (2) Withdrawal of Request for Non-Publication

- Maintenance fees for utility patents are payable to the patent office and are due
  (1) 3.5 years;
  (2) 11.5 years; and
  (3) 13.5 years after a patent issues,
  to prevent patent expiration.

Trade Secrets

- Under Illinois law, a trade secret is information which
  - (1) is sufficiently confidential to provide economic value to the owner, and
  - (2) from which other persons could obtain economic value from its disclosure; and
  - (3) is the subject of reasonable efforts to maintain its secrecy.
- Novelty is not required.

Trade Secrets (cont.)

- Information can qualify for trade secret status unless it is

  (1) already generally known in the trade; or

  (2) readily accessible from a public or well-known source in the trade.

- A trade secret disclosed in a published patent application, patent or copyright registration loses its trade secret status.

Trade Secrets (cont.)

- Ownership of Trade Secrets

  (1) An employer has property rights to trade secrets of his business.

  (2) Many courts apply the ownership rules for patentable inventions to ownership decisions of trade secrets (whether or not the trade secret also qualifies for copyright registration or a patent(s)).

- Trade secret misappropriation is the basis for monetary recovery and injunctions (and perhaps criminal penalties).

- Without trade secret status, there is no legal remedy except by

  (1) contract; and/or

  (2) patent/copyright protection if legal requirements exist.

- Trade secret duration is potentially indefinite and depends upon measures to preserve confidentiality.

Trade Secrets (cont.)

- The Illinois Trade Secret Act covers both actual and threatened misappropriations.
- Confidentiality, non-compete and non – disclosure agreements are necessary for

  (1) protection of confidential information and know-how which do not qualify for trade secret status, patent protection or copyright protection, and

  (2) as evidence of efforts to maintain confidentiality.

Copyright

- Copyright law protects “original works of authorship fixed in any tangible medium of expression.”

and

- Includes
  a. Literary works
  b. Musical works (and accompanying words)
  c. Dramatic works
  d. Pictorial, graphic and sculptural works
  e. Audiovisual works
  f. Sound recordings
  g. Architectural works, and
  h. Computer programs.

Copyright (cont.)

- Copyright does not protect ideas, processes or concepts which are not in tangible form.
- Complete copyright ownership in the United States includes the right to:
  a. reproduce the work;
  b. distribute the work;
  c. perform the work publicly;
  d. display the work publicly;
  e. prepare derivative works; and
  f. for sound recordings, perform publicly by means of digital audio transmission.

Copyright Ownership and Authorship

- In the United States, notice, publication or registration are no longer required for copyright ownership.

  (1) Generally, the actual creator of the work is the author as well as the initial owner of all copyright to the work.

  (2) However, ownership of copyright is not equivalent to authorship.

- Works for Hire: exceptions to authorship/ownership rule

  (1) By law, employers are the authors and owners of all copyright in works created by employees within the scope of their employment.

Copyright Authorship and Ownership (cont.)

(2) However, copyright authorship and ownership in certain commissioned works belongs to a commissioning party only if

(i) the commissioned party and commissioning party expressly agree

(ii) in a signed written agreement that

(iii) the work is made for hire.

Copyright Authorship and Ownership (cont.)

(a) The necessity for a written agreement depends in large part upon whether the party creating the commissioned work is an independent contractor.

(b) The most important requirement for independent contractor status is

(i) no control by the commissioning party over

(ii) the manner in which the work is performed.

Copyright Authorship and Ownership (cont.)

- A transfer of exclusive copyright ownership is effective only by written agreement or operation of law.
- Copyright ownership can be transferred in part, such as the right to distribute and produce a book.
- Ownership of a tangible item does not automatically convey copyright ownership in that item.
  - Example: photograph

Duration of Copyright

(1) For works created on and after January 1, 1978: Natural life of author plus 70 years.

(2) For works created before January 1, 1978: A first term of 28 years from
(a) first date of publication; or
(b) date of registration of unpublished work, and
(c) with a potential renewal of
- sixty-seven years, and
- with maximum total protection of 95 years, and
- which includes automatic renewals.

(3) Works for hire : 95 years from publication or 120 years from creation, whichever is shorter.

(4) Works created prior to January 1, 1978, but not published or registered by that date:
(a) Natural life of author plus 70 years; or
(b) 95 years from publication or 120 years from creation, whichever is shorter.

Copyright (cont.)

- Fair Use

  (1) For non-commercial purposes.

  (2) Permissions, consents, releases and acknowledgements.

- Derivative Works

  (1) A derivative work is based upon an existing work, but it also contains its own new authorship components.

  (2) The new authorship components are entitled to their own copyright registration if these components are sufficiently original and creative.