



Introduction to Patents and Their Applications

Boston College Office of Technology Transfer and Licensing

What is a Patent?

A legal right to exclude others from making, using, selling, or importing the technology in the country of issuance

Sanctioned monopoly for a limited time

Does not give the inventor the right to make, use or sell the patented invention – the invention might fall under a broader patent owned by others

Patent claims are the legal definition of an inventor's protectable invention

Important Points

A patent permits the owner to prohibit someone from using the invention without a “license”

Having a patent doesn't necessarily allow the patent owner the right to use the invention because the use of any invention may infringe *someone else's* patent

A patent is neither necessary nor sufficient to commercialize a technology. The patenting decision does not affect the scientific merit of the invention.

Some technologies are unpatentable but can be protected through copyright and know-how licensing.

Some technologies are too costly to develop into a commercial product and a patent doesn't provide sufficient incentive.

Some patents are hard to track, such that it isn't possible to detect infringement, and are thus not valuable assets.

Types of Granted Patent Rights

Utility Patent: works to produce a useful result

- Process (ex. making a new chemical or a new business method)

- Machine (ex. camera)

- Article of Manufacture (ex. carpet)

- Composition of matter (ex. adhesive)

Design Patent: ornamental appearance of an article of manufacture

- Design and the applied object are inseparable

- E.g., surface ornamentation of flatware

Plant Patent: distinct & new variety of asexually propagated plant

- Not by tuber propagation, found in an uncultivated state, or by seeds

- E.g., hybrid rose plant with a novel color

Why Patent an Invention?

Showcase your technology

Asset when looking for funding (startup)

Protect against imitators

Incentive to invest in product development

Licensing revenue

Source of recognition for inventors

Bayh-Dole Act

Encourages Universities to commercialize products of government-funded research

What Can Be Patented?

Any process, machine, manufacture, or composition of matter, or improvement thereof

Must be:

Novel: not previously known or used by others

Useful: have a known use or produce a concrete and tangible result

Non-obvious: to a person having ordinary skill in the art

Cannot be:

Idea

Law of nature

Scientific principle

Novelty (Requirements for Patentability)

For the United States:

Must file within one year following publication, public use, on sale, or otherwise publicly available

For the rest of the world:

Absolute novelty is required - must file before first public disclosure

Public disclosure: publication, conference presentation, non-confidential conversation

Once a U.S. patent is on file, public disclosures are okay
Boston College Intellectual Property Policy obligates inventors to disclose technologies to OTTL *before* public disclosure

Prior Art (barrier to novelty)

Information or knowledge publicly available before the filing date of the application

Printed Publications

- U.S. patents and published applications

- Foreign published patent documents

- Poster presentations

- Handouts at meetings

- Abstracts

- Material posted on the internet

- Articles, books

- Thesis or dissertation

Usefulness and Non-Obviousness (Requirements)

Usefulness (utility) is generally not difficult to establish
Non-Obviousness is subjective, often difficult to establish
Consider the person having ordinary skill in the art – is it obvious?

Cannot be the combination of existing inventions

Factors considered

- Commercial success attributable to inventive feature

- Filling a long-felt need

- Doing what others said could not be done or would not work

Inventorship

Inventorship is a legal determination, often made during the patent drafting process (considering contribution to claims)

The inventor must contribute to the conception of an invention

Not the same as co-authors of a paper

Incorrect inventorship can invalidate a patent

All collaborators – even those from other institutions – must be recognized

Ownership of Patents at Boston College

Per the University Intellectual Property Policy, Boston College owns patentable inventions which:

“result from activities related to an individual’s employment responsibilities or conducted with support, in whole or in part, from University-administered funds, facilities, or personnel, including student employees”

are “developed in the course of, or resulting from, work supported, in whole or in part, by a grant or contract with a governmental entity or a nonprofit or for-profit nongovernmental entity”

Students generally may own patentable inventions developed during coursework or in makerspaces, unless:

A University staff or faculty member is a co-inventor

The invention is based on an existing piece of Boston College-owned technology

A sponsored project agreement applies (including course sponsorship)

“Substantial Resources” were used in the development of the invention

All questions about invention ownership should be addressed to OTTL

Patenting Process at Boston College

Invention report (Invention Disclosure Form)

Documents date of invention, inventors, sponsorship. Provides no protection.

Literature and prior art search

To evaluate patentability and market potential

Non-confidential disclosure prepared (marketing)

Provisional application prepared and filed

Non-provisional application filed if marketing efforts are encouraging

Inventor involvement is critical

Technology Assessment



After the Provisional Filing

A provisional patent application is not examined by the USPTO, but allows inventors to preserve a priority date – to know they filed their application first

Once a provisional application is filed, OTTL will focus on marketing the technology and identifying potential licensees

One year after the provisional application is filed, OTTL must make the decision whether to file a non-provisional application or a Patent Cooperation Treaty (PCT) application, which preserves foreign rights

Under most circumstances, OTTL will choose to file a follow on patent application only if there is a licensee or if a company has expressed overwhelming interest in an invention

If the inventors disagree with the OTTL decision whether to file a patent application, arrangements can be made for the inventors or the inventors departments to assume patenting costs for the invention, while OTTL continues to market the technology.

Inventor Involvement

The process of obtaining a patent through the OTTL occurs in three major stages:

- submitting an Invention Disclosure Form;

- working with a patent attorney and OTTL to prepare and file a patent application;

- prosecuting the patent application to secure patent rights.

Inventor involvement with outside patent counsel throughout this process is critical to successfully obtaining a patent.

The Boston College Intellectual Property Agreement obligates inventors to support OTTL's prosecution efforts, even after they've left Boston College

Patent Prosecution

Patent prosecution is the back and forth between the USPTO and Boston College during which the patent office determines if the claimed invention meets the necessary criteria to be awarded a patent.

During prosecution, it may be necessary to amend claims or present arguments to overcome an examiner's rejections in order to obtain an issued patent.

USPTO responses directed from outside counsel to OTTL ("Office Action")

- First Office Action generally about 17 months from date of filing

- Reply to Patent Office – inventors are directly involved in patent office responses

Continued prosecution dependent on market traction

Patent issued - typically 3 years after application was filed, if prosecution continues

Total average cost of US patent: \$20 - \$40K. International portfolios can cost upwards of \$100,000.

Total average time to obtain a US patent: 3-6 years

Overview of Pathway to Commercialization

