Inventor's Handbook

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(Lemelson-MIT Program)



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This handbook was created by the Lemelson-MIT Program to address the independent inventor's and aspiring entrepreneur's most frequently asked questions regarding United States patents. We hope that this handbook will provide some helpful information on the patenting and commercialization processes.

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Chapter 1: What is Intellectual Property?

To encourage the creation of valuable ideas, and protect them from being stolen, the U.S. legal system developed the concept of intellectual property.

The four key classes of intellectual property are:

Patent: A grant issued by the federal government giving an inventor the right to exclude others from making, having made, using, leasing, offering to sell, selling, or importing an invention in the United States. A patent, however, does not necessarily guarantee inventors the right to make, use or sell their inventions; in some cases, utilizing a patented invention depends on another person's prior, unexplored patent. Violating patent rights is known as infringement and can be litigated. Patent infringement occurs when one violates each element of at least one claim in a patent.

Trademark/^{\mathbb{M}} **(P)** : A non-functional word, logo, slogan, symbol, design—or any combination of these—that distinguishes a product or service. Essentially brand names, trademarks promote competition by giving products corporate identity and marketing leverage. Trademarks do not need to be registered, but federal registration can help to protect the mark legally.

Copyright/© : A right that protects original works of authorship fixed in a tangible medium of expression. Copyrights can include published and unpublished works—literary, dramatic, musical and dance compositions, films, photographs, audiovisual works, paintings, sculpture, and other visual works of art, as well as computer programs—from being copied. Copyright protects the expression of ideas, not the ideas themselves, and gives their authors exclusive rights to reproduce the copyrighted material.

Trade Secret: A formula, pattern, manufacturing process, method of doing business, or technical know-how that gives its holder a competitive advantage. Trade secrets cover a wide spectrum of information, including chemical compounds, machine patterns, customer lists and software. No federal law protecting trade secrets exists; legal definitions vary from state to state so inventors should make careful note of the requirements depending on the location.

Chapter 2: What Can Be Patented?

Patents are products of the legal system. As such, they apply only to inventions, and then only if the invention falls within legally defined categories. Anything outside these categories cannot be patented. The U.S. has a "first to invent" policy regarding invention, meaning that the first originator of an invention receives credit for it. The first person to patent an invention will not receive credit unless they were also the first to invent it. Also, in the United States you have 12 months from the first enabling disclosure, in which you describe your invention in significant detail so that someone reasonably skilled in your field can reproduce your invention, without undue experimentation to actually claim your invention in a patent application.

In the United States, the date that is 12 months from the date of the first enabling public disclosure is the bar date for filing a patent application. If an application is not filed before or on the bar date, the invention is generally no longer patentable. In most foreign countries, however, patent rights to an invention are generally destroyed if an inventor does not file a patent application before the invention's first enabling public disclosure, in the United States or overseas. The three legal classes of patentability are:

Utility Patents: Granted to inventions that involve a new and useful process, device, machine, manufactured item, chemical compound or formula. Utility patents, which apply to virtually anything that can be made, are granted for a period of 20 years from the date of filing a patent application, after which the patent to an invention becomes public property.

Design Patent: Granted to a new, original or ornamental design for a

manufactured item. Patents on ornamental designs last 14 years, and they protect only the appearance of the item.

Plant Patent: Granted to an invented or discovered new plant variety that can be asexually reproduced. Plant patents are granted for a 20-year period.

Also, the United States allows its inventors to file provisional patent applications. Provisional patent applications are described in <u>Chapter 6</u>

Chapter 3: Is My Idea Patentable?

To be patented, your invention not only must fall within one of the three statutory classes, it also must fulfill three other requirements:

Novelty: Your invention must be new. If it has been publicly known, used or sold anywhere in the U.S., or described in printed material available anywhere in the world more than one year before the date of your patent application, your invention cannot be patented. A note of caution: Even if you yourself use the invention publicly or describe it on e-mail, at a conference or in published form more than a year before your patent application, you've likely disqualified your invention from receiving a patent. Furthermore, secret efforts toward commercialization by an inventor can constitute a public use that can disqualify a patent.

Utility: Being new isn't enough nor is being different. For your invention to be patentable, it also must be useful. The invention must perform a function, do what you say it does, and benefit society in some way. A machine that doesn't perform its intended purpose is not useful, and therefore cannot be patented.

Nonobvious: To be patentable, your invention must give new and nonobvious results compared to known approaches. Ordinary differences in size, materials or other obvious modifications are generally not patentable.

Determining patentability is a complicated undertaking. A reputable patent attorney or agent can be consulted to sort out the legal and technical complexities.

Chapter 4: How Do I Conduct a Patent Search?

A patent search is a subset of the prior art search in which you look for mention of similar ideas in academic and technical literature, etc. You must conduct a prior art search, including a patent search, and submit your findings along with your application to the USPTO. An inventor has a legal obligation to disclose relevant information of which they have knowledge. You can be sued if it is discovered that you knew about other similar inventions or relevant information, and did not submit that information to the USPTO. This is called inequitable conduct or fraud on the patent office.

If, however, you search for and submit relevant prior art, and the USPTO accepts how you have distinguished your invention over the prior art, such acceptance in an issued patent application carries a legal presumption of validity. This is extremely difficult for others to challenge. Many parties that infringe a patent will attempt to challenge a patent's validity by searching for prior art that the patent holder did not include in the patent application. Including and distinguishing prior art in the patent application, which will be noted in a patent if and when a patent ultimately issues, entitles the patent holder to this tremendous presumptive advantage, by law.

Additionally, if an inventor seeks funding (see <u>Chapter 11</u>), sophisticated investors will always perform due diligence and evaluate the strength of a patent should anyone ever challenge it. Conducting an adequate prior art search and distinguishing your invention from the prior art strengthens any ultimately issued patent.

You'd be astonished how many "new" ideas already have been patented,

even if you've never seen anything remotely resembling them on store shelves or in catalogues. Before you spend time and money filing for a patent—even before you develop a prototype—conduct a patent search. It's a critical investment to assess your invention's commercial potential and to avoid inadvertently infringing on someone else's patent. You'll also gain valuable technical insight into your invention, which you can use to refine your idea, and possibly gather information about companies that may be potentially interested in licensing your patent.

Conducting a patent search, however, is painstaking. If you're new to the game, you're likely to get less comprehensive results than those of experienced searchers. For the most thorough and expert job, consider hiring a patent agent or attorney, who is bound by a professional code of conduct to maintain the invention's confidentiality and not make use of it for personal gain.

You may, however, reduce your expenses by conducting the search on your own or performing a preliminary survey with the US Patent and Trademark Office (USPTO) prior to meeting with an attorney.

To conduct a patent search, you may access:

Online databases: The USPTO has made online searching of its databases available to the public at no charge at <u>http://www.uspto.gov</u>. A few other free online search systems are CASSIS (a CD-ROM based search engine), the Delphion Research Intellectual Property Network (formerly the IBM patent site), and the Source Translation and Optimization (STO) Internet Patent Search System.

The Public Search Room of the USPTO in Crystal City, Virginia: Your local patent depository library, <u>http://www.uspto.gov/go/ptdl/index.html</u>, describes the US Patent and Trademark Depository Library Program, as well as gives the names and locations of patent depository libraries, state by state. Note: not every patent depository library has a complete record of USPTO information.

A reputable patent practitioner or professional organization: Patent attorneys and agents who meet specific legal, technical and ethical qualifications are registered by the USPTO. Be aware, though, that the USPTO has no control over patent practitioners or organizations, and reputable search firms use the same advertising techniques as unscrupulous ones. That's why it's advisable to check the reputation of any invention promotion firm.

A few dollar-wise tips:

- Find out early the total cost of services, which vary with the complexity of the subject matter.
- Be cautious of extremely low-cost searches; a slapdash search yielding false or limited information could end up costing you a lot of money.

Consumer protection agencies, the Better Business Bureau and your state's Attorney General's Office can provide information on any complaints filed against the practitioner or company.

Chapter 5: Is My Invention Worth Patenting?

"Anything that won't sell, I don't want to invent." - Thomas Edison

Before spending a small fortune on patenting an ingenious idea, consider several market issues. Does your invention offer a unique and better solution to a real problem? Can it be easily manufactured or integrated into an existing product? Is there a market for the product? How big is the market? Will it grow? What is the competition? Will the product be obsolete by the time the patent is issued? How much will it cost and how long will it take to bring the invention to market? How will it be sold?

The answers to these questions rely on market research. Professional firms provide this service for a fee, or to get low-cost help in this arena, consider contacting business faculty or entrepreneurial groups at local colleges. They are often willing to have their students take on entrepreneurial projects. Retired business executives also may provide business and marketing perspectives for little or no money. Call your Small Business Administration or local government agencies for contacts in the business and academic communities. National and local inventors clubs are also a rich source of information and advice, as are local distributors of products similar to your invention.

If, after thorough investigation, the answers to critical marketing questions lead to the conclusion that your invention has no commercial potential, you may want to forego patenting. If your goal, however, is not profit, but to make a contribution to society's body of technical knowledge, consider filing a Statutory Invention Registration (SIR) application with the USPTO, which costs much less than a patent. A SIR puts a patent into the public domain, preventing others from patenting it in the future.

Chapter 6: How Do I Apply for a Patent?

Patent law is highly complex, and drafting patents is among the most difficult of all legal writing. That's why experts caution that preparing and filing patent applications on your own may result in patents that don't give adequate protection. Hiring an attorney can save you grief and money in the long run; in some cases, patent attorneys can also provide guidance in licensing and marketing. You can, however, cut your expenses by drafting the patent application yourself and having the attorney proof your final application.

A patent is granted to the owner/assignee and usually includes:

- All of the names of the invention's inventors. Any patent can be invalidated if any inventor's name is missing. A qualified patent attorney or agent can best determine if there is a question of inventorship—conception of the invention is the touchstone of inventorship, in conjunction with having "reduced to practice" the invention.
- There are two types of reduction to practice:
 - "Actual" reduction to practice: This occurs when the invention is actually made and used, as described in the application's "specification" and included in the application's "claims." A small or pilot scale example of an invention can suffice for actual reduction to practice.
- "Constructive" reduction to practice: This occurs upon the filing of a patent application in which the application covers, in all of its

categories, the ultimate actual invention, as claimed and described in the application and any ultimate patent. Patent practitioners often refer to this kind of patent as a "paper patent," until the invention is "actually" reduced to practice.

- An abstract
- One or more drawings
- The invention's name, background, purpose, and advantages
- Brief descriptions of the drawings
- The specification: a written description of the invention and an explanation of how to make and how to use the invention in the best mode at the time of filing the patent application
- Claims defining the invention. Claim drafting is extremely complex and important, because the claims—what an inventor claims to be their invention—are the most indispensable element of a patent application.

Note that the USPTO posts the entire patent application on the Internet 18 (eighteen) months after the initial filing date.

In the absence of a separate assignment on file at the USPTO or a private contractual arrangement, the inventor owns the patent application and any subsequent patent. Two or more inventors—those who generated the ideas, not simply implemented them—may apply jointly. In such an instance, absent a separate contractual arrangement, each inventor owns an equal, "undivided" portion of the patent application and any subsequent patent. By owning an undivided portion, an inventor's ownership interest is that of the whole invention, not a specific part of the invention. For example, if three inventors apply for and receive a patent, each inventor shares an equal undivided ownership of the entire invention. Notably, in the absence of private contract, each single inventor has independent rights to practice and/or license the whole invention, irrespective of which of the three inventors are responsible for which claims and material in a patent. Thus, if a patent contains fifty claims, and one inventor is responsible for only one of the patent's claims, that inventor could practice or license the entire invention in the absence of private contract stating otherwise. This has actually occurred and been validated by the federal courts. The law of patent ownership highlights the necessity of inventors agreeing on equitable ownership percentages, in writing, prior to filing a patent application. This is of course absent a pre-existing contractual obligation of an inventor to assign rights in an invention to an employer, such as a corporation or a university.

Patent filing fees can change yearly. Once a patent is issued, maintenance fees come into effect. For current fees consult the USPTO <u>http://www.uspto.gov/main/howtofees.htm</u>.

It will likely take up to a year-and-a-half or more for the USPTO to respond to your application and a year-and-a-half to three years for a final patent grant or rejection. Once you file your patent, the term "patent pending" may be applied to the invention until your application is accepted. Although a number of patent applicants use this term, the federal patent statute does not contain the term "patent pending."

Provisional patent application: Another option to consider is a provisional patent application, which allows the term "Patent Pending" to be applied to the invention for one year. It can be filed at a lower cost, but the patent office does not review the content of a provisional patent application during its first year. Rather it expires after its one-year lifetime. Therefore, the provisional application must be replaced with a conventional patent application, such as a utility application, within one year of its filing. A provisional application does not have to satisfy the same legal requirements as a utility application, such as the necessity for patent claims. Nonetheless, the relationship between a provisional patent application and a utility patent application is very complex, especially if an invention changes before

the provisional patent application is converted to a utility application. In this case, a reputable patent attorney or agent should be consulted.

Patent Cooperation Treaty: This treaty allows inventors to obtain patent protection simultaneously in a number of countries by filing an "international" application. The inventor must be a resident of a contracting nation to file. He or she can then file an application within his or her country of residence, indicating in which member States he or she would like the patent to have effect. Currently there are about 117 contracting States. More information is available at the World Intellectual Property Organization's website, http://www.wipo.int/pct/en/index.html

Chapter 7: How Do I Prove the Idea Is Mine?

"Take my word for it." In the world of patent law, this adage holds little weight. The first person to invent an idea—as opposed to the first person to file a patent—is the legal inventor. That's why in cases of dispute, it's imperative to be able to prove the date when you first envisioned the invention. Regardless of what anyone tells you, mailing yourself a registered letter does not constitute legal proof of invention.

To protect your invention from potential challenges, the first thing you need to do is put your idea in writing. Your documentation must be complete, accurate and concise. Create research and development notebooks, and don't leave anything to guesswork. The notebooks should describe the invention in words and pictures, fully explaining how it operates. Your entries also must be sufficient to enable anyone with ordinary skill in the technology to understand the material. Include observations, calculations, sketches, photos and formulas if applicable. Also, write down any unusual or unexpected results, ideas or conversations, and date and witness them. Include receipts of your purchases and records of visits to attorneys.

The pages of your notebook should be consecutively numbered and permanently bound. Entries should be in pen. Never remove pages and don't skip pages. All entries, as well as the conclusion, must be dated. Never backdate your records; this may create some question about your truthfulness or accuracy. If you need to make a correction, date and initial it. Never erase. If you need to correct a portion, draw a line through it, leaving the underlying material legible. Use only one notebook per invention. The notebooks should be witnessed weekly by two people you trust, but are not relatives, and who understand the significance of what they see and read. If you make a change to an original entry that has been witnessed already, the original witness should sign and date the change. The change also should be noted on the page corresponding to the date of the change. In addition, your witnesses should sign a non-disclosure agreement—a statement that binds them to respect the confidentiality of your work and allows you to discuss your invention with some protection. Also, you may want to consider getting the pages notarized by a notary public.

When two or more parties claim the same invention, the patent office can declare what the federal patent law terms an "interference." An interference is a proceeding to determine which party was the "first to invent" (see <u>Chapter 2</u>). The federal patent law terms the inventor who filed an application at an earlier date as the "senior party." The senior party holds the legally presumptive advantage in an interference proceeding, irrespective of which party the patent office ultimately declares as the "first to invent." Disputes over inventorship are extremely complex and inventors should consult a reputable patent attorney or agent.

Chapter 8:

What Are Some Options to Commercialize My Patent?

Persistence and determination are key ingredients in transforming your idea into a product in the marketplace.

Consider several paths to commercialization: Transferring the ownership of your patent outright means you receive an agreed-upon payment, with no future royalties. You may sell all or any part of the invention, though selling is rarely recommended. While your patent may not have a current application, or you may not discern it, the future could hold commercial opportunities unforeseeable today. Selling your invention might deprive you of a potential fortune.

Another route in the commercialization process is licensing, through which you retain ownership of your patent while allowing another party to make, use or sell the invention; in exchange, you receive royalty payments.

If you're highly entrepreneurial, you can tackle the job of launching your own company. This means you'll need to master everything from fundraising to manufacturing, selling and distribution. For assistance in starting your own company, you can contact the U.S. Small Business Administration.

Chapter 9: How Do I License My Invention?

You may license your patent exclusively or to more than one party. Nonexclusive rights allow many entities—including you—to practice the invention simultaneously. Other issues to be considered in a licensing grant include territory covered; how long the license will be effective; how the invention will be used; and royalty rates. You may also create a field of use license, which allows different parties to manufacture the invention simultaneously, but each party manufactures the invention for a different purpose.

To select companies most likely to have an interest in your product, consider the following informational starting points:

- Thomas Register, a resource that alphabetically lists products and services and the companies that produce them
- Standard & Poor's Register of Corporations, Directors and Executives
- Dun & Bradstreet's Million Dollar Directory
- Trade directories and magazines

In addition, Chambers of Commerce, banks and local industrial development organizations may be able to help you locate manufacturers and individuals interested in developing your ideas. Also, for a fee, the USPTO will publish a notice that your patent is available for licensing or sale in its official gazette. For more information about how to approach companies with patented ideas, it is recommended that you read as much as possible on the subject.

Many inventors turn to invention marketers to gain access to manufacturers. Be wary. Many of these organizations are fraudulent; they charge hefty fees and don't deliver on their promises.

A few warning signs that the company is deceitful:

- It offers to evaluate your invention, but refuses to give out details of its evaluation criteria or evaluators' qualifications
- It refuses to disclose its marketing success and rejection rates
- It requires large up front fees and a percentage of the royalties
- It claims special relationships with manufacturers, yet offers no proof

Be sure to ask for references from past clients and check that the marketing firm is registered with the Better Business Bureau.

Chapter 10: What Are Some Guidelines in Developing a Business Plan?

Given the time it takes for a patent to be issued, it may be a good idea to start marketing your invention immediately after you've filed the patent application. Developing a business plan is one of the first items on the agenda.

A business plan offers multiple advantages. It keeps you focused on your goals and timelines, helps identify strategic flaws that need to be ironed out, and it aids in evaluating the market and your product's earning potential. It is also highly beneficial as a planning tool to be used at various stages of the production and marketing process, and as a sales tool, critical to raising capital.

Remember that your business plan is competing with hundreds of others. Make it concise and professional, but detailed enough to convey a sense of credibility. A solid business plan includes:

- A summary of your product—what it does, its advantages and patent status
- A marketing analysis, including market opportunities and competition
- Projected sales, pricing and distribution
- Production plans, methods, costs, capacities and implementation timeline
- Management personnel

- Financial statement, cash flow budget, suggested wholesale and retail prices
- Projected profits

Chapter 11: How Do I Raise Capital?

Perhaps one of the greatest challenges in the entire invention process is raising capital. It's impossible to cover this topic comprehensively in a brochure. We offer a few tips—the first of which is to research the subject thoroughly.

As an entrepreneurial inventor, it's best to have several money-raising strategies. A joint venture—with an individual, group or firm with a vested interest in your product—is one option. You provide the invention and a mix of manufacturing, marketing, management, and distribution know-how, and your partner provides a service free of charge in exchange for profits. To find partners or potential investors, consider running an ad in a newspaper, such as *The Wall Street Journal*—or contact investors organizations, which offer material support of all sorts. Banks and other traditional lenders also may be willing to finance your enterprise, especially after you've achieved a track record.

Another excellent source of start-up funding is venture capital, gained through individual investors, financial institutions or venture capital funds. Financial agents, who work for a finder's fee plus reimbursement of out-of-pocket expenses, may be able to connect you to venture capital. As with invention promoters, check out your potential investors thoroughly.

Local, state and federal government programs that provide businesses with financial assistance are another avenue to consider. Federally funded Small Business Innovation Research Programs and the Small Business Administration (the single largest government agency mandated to make business loans) are valuable sources of funding and information.

Resources for Inventors

Few things in life are as satisfying as translating your creative spark into reality. Stay determined, persistent and above all, enthusiastic. Good luck with your invention and have fun!

Resources for the Inventor

United States Patent and Trademark Office General Information Services Division Crystal Plaza 3, Room 2C02 Washington DC 20231 <u>http://www.uspto.gov</u> Email: <u>usptoinfo@uspto.gov</u>

Also, be sure to check out our site's links and resources!

General Guides for the Inventor

THE INVENTOR'S POCKET GUIDE

Randy C. Moyse

FROM CONCEPT TO MARKET Gary S. Lynn / John Wiley & Sons

GREAT AMERICAN IDEA BOOK, THE Bob Coleman & Deborah Neville / W.W. Norton and Co.

HOW TO DEVELOP & MARKET CREATIVE BUSINESS IDEAS A Step-By-Step Guide To Successfully Bringing New Ideas To The Marketplace Dale A. Davis / Oasis Press INVENTING Creating And Selling Your Ideas Philip B. Knapp

INVENTING FOR FUN AND PROFIT (History of Technology Monographs) Jacob Rabinow / San Francisco Press

INVENTOR'S BIBLE, THE Ronald Louis, et. al / Ten Speed Press

INVENTOR'S NOTEBOOK, THE Fred Grissom & David Pressman / Nolo Press

NEW PRODUCT DEVELOPMENT Managing And Forecasting For Strategic Success Robert J. Thomas / John Wiley & Sons

Legal Protection

COPYRIGHT BOOK, THE A Practical Guide William S. Strong / MIT Press

PATENT IT YOURSELF (Book and Software available) David Pressman / Nolo Press

PATENTS AND HOW TO GET ONE: A Practical Handbook U.S. Dept. of CommerceMarketing and Business Guides

22 IMMUTABLE LAWS OF MARKETING Violate Them At Your Own Risk Al Ries & Jack Trout / Harper Business

BUSINESS PLANS THAT WIN \$\$\$ Lessons From The MIT Enterprise Forum Stanley R. Rich / HarperCollins BUSINESS PLANS TO GAME PLANS A Practical System For Turning Strategies Into Actions Jan B. King / Silver Lake Pub.

DEVELOPING PRODUCTS IN HALF THE TIME Preston G. Smith & Donald G. Reinersten / John Wiley & Sons

ERNST & YOUNG BUSINESS PLAN GUIDE, THE Eric S. Siegel, et al. / John Wiley & Sons

GROWING A BUSINESS Paul Hawken / Fireside

HOW TO WRITE A BUSINESS PLAN Mike McKeever / Nolo Press

IN BUSINESS FOR YOURSELF Bruce Williams with Warren Sloat / Scarborough Press

MARKETING WITHOUT ADVERTISING Creative Strategies For Small Business Success Michael Phillips & Salli Rasberry / Nolo Press

SMALL-TIME OPERATOR How To Start Your Own Small Business, Keep Your Books, Pay Your Taxes, And Stay Out Of Trouble Bernard Kamoroff / Bell Springs Pub

Related Resources

DESIGN OF EVERYDAY THINGS, THE Donald A. Norman / Currency / Doubleday

GETTING TO YES Negotiating Agreement Without Giving In Roger Fisher / Penguin USA

NEW WAY THINGS WORK, THE

David Macaulay / DK Publishing

TECHNOTRENDS How To Use Technology To Go Beyond Your Competition Daniel Burrus / HarperBusiness

YOU CAN NEGOTIATE ANYTHING Herb Cohen /Bantam Books

Original:

http://web.mit.edu/invent/h-main.html