



# Are We Covered?

## Understand the Strengths and Weaknesses of a Patenting Policy

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Laboratory notebooks and provisional patent applications can be valuable components of an engineer's patenting strategy if they are well-prepared, appropriately managed, and diligently followed up with a nonprovisional patent application.

Patent attorneys are often told by their clients “I just want to make sure we are covered,” but the concept of “coverage” can be nebulous. Some clients seeking this assurance are referring to coverage by use of their own patents. Others are referring to coverage against the threat of someone else's patents as they pursue their own inventions. Even if by “coverage” the client means “protection,” and instead asks, “Are we doing what we should to protect ourselves?” the question is still ambiguous.

Protection, in the sense of patents, may be defined as the preservation of one's ability to do business in an environment where others are obtaining patents, or to maintain one's competitive position through the use of patents, or both. Between the conception of an invention and the granting of a patent, an inventor can take various steps to help provide “coverage.”

This article discusses three tools — laboratory notebooks, provisional patent applications, and patents themselves — that each offer a unique type of coverage.

### LABORATORY NOTEBOOKS

An engineer is likely to possess one of the most useful tools for protecting intellectual property: a laboratory notebook. A well-kept laboratory notebook establishes a *date of invention*. The date of invention is a key factor in determining *novelty* and *nonobviousness*, two of the fundamental

requirements of a patentable invention, and in determining who among competing inventors applying separately for patents on the same invention shall be awarded the patent. Although the America Invents Act of 2011 (AIA) replaces the prevailing *first-to-invent* standard with a *first-to-file* standard, the date of invention is still a determining factor in many cases. For those, a laboratory notebook entry can provide certain protections.

Under the AIA, which takes effect on March 16, 2013, the first-to-file rule applies to the claims of patents whose applications are filed on or after that date and that do not have an earlier *effective filing date* (for example, through a provisional application as discussed later). An application filed after March 16, 2013, that is entitled to the benefit of a previous application's filing date will fall under the first-to-invent rule. Applications that are pending on March 16, 2013, will also be subject to the first-to-invent rule. Notebook entries showing an early date of invention will, therefore, continue to be of value for years to come. Thus, it is important to understand the evidentiary role a date of invention plays, and how a laboratory notebook entry can establish this date most effectively.

The date of invention is important to novelty and non-obviousness because both are date-specific. An invention that is novel and nonobvious when it is conceived may not

## THE LANGUAGE OF PATENTS

<b>Abstract</b>	A short written summary of an invention, or a condensed version of a patent.	<b>Nonobviousness</b>	The characteristic of a patentable invention of meeting a certain threshold (depending on the nature of the invention) for the quality of the difference between it and the prior art.
<b>Application</b>	A description of an invention submitted to a patent office with a request for a patent on the invention.	<b>Nonprovisional Patent Application</b>	A patent application that will be examined by the PTO for the possible grant of a utility patent.
<b>Claim</b>	The part of a patent or patent application that defines, in technical terms, the scope or extent of the protection conferred by the patent.	<b>Novelty</b>	The characteristic of a patentable invention of differing from, even if overlapping with or being encompassed by, the prior art.
<b>Date of Invention</b>	The date on which a complete idea of the invention has first been formed in the inventor's mind.	<b>Patent</b>	A property right granted by a country that confers upon its owner the right to exclude others, for a limited period of time and only within that country, from practicing an invention.
<b>Effective Filing Date</b>	A filing date of a first application that is used as the prior art cut-off date of a later application, when certain requirements of the patent law are met.	<b>Prior Art</b>	Published materials, commercial activity, and other patents that can be cited against a patent or patent application to contest the novelty or nonobviousness of the invention claimed in the patent or application.
<b>Filing Date</b>	The date acknowledged by a patent office as the date on which an application was submitted to the patent office.	<b>Provisional Patent Application</b>	A document submitted to a patent office that will not be examined for patentability but is granted a filing date that can be used as the effective filing date of a nonprovisional patent application filed within a year.
<b>First to File</b>	Between competing inventors applying for patents on the same invention, a rule stating that the inventor with the earliest filing date (or effective filing date when the application is entitled to one) prevails.	<b>Specification</b>	The text of a patent application preceding the claims and describing in full the invention and how to make and use it.
<b>First to Invent</b>	Between competing inventors applying for patents on the same invention, a rule stating that the inventor who can show the earliest date of conception prevails.	<b>Utility Patent</b>	Commonly referred to simply as a "patent" (see entry above).
<b>Infringement</b>	The violation of a patent owner's right to exclude without permission from the owner.		

be so at a later date. Novelty and nonobviousness are evaluated against the *prior art*, *i.e.*, published materials, commercial activity, and other patents that predate the invention. Each invention has its own cut-off date for prior art, and only those items that predate the cut-off date can be cited as prior art. Unless a date of invention can be shown, the prior art cut-off date is the date on which a patent application is filed in the U.S. Patent and Trademark Office (PTO). If an inventor can prove an earlier date of invention, that date serves as the cut-off date, and there may be fewer items qualifying as prior art and thus a better chance of obtaining a patent on the invention.

When different parties apply separately for patents on the same invention in cases that still qualify for the first-to-invent rule, each party seeks to show that its date of invention was the earliest. Since this places the parties in competition with each other, evidence of the date of invention is scrutinized more closely than in patentability determinations.

### What constitutes an act of invention?

A laboratory notebook is most effective at establishing a date of invention when the person making the notebook entries understands what constitutes an act of invention. In patent law, an invention includes both the conception of an idea (*i.e.*, the formation of an essentially complete idea of the invention in the mind of the inventor) and its reduction to practice, typically in the form of recorded information showing that the idea was actually tested with successful results.

A notebook entry that shows construction of a prototype or contains experimental data can provide strong evidence of a reduction to practice. Such evidence can be made stronger if the entry includes a comment or explanation by the inventor that indicates his or her recognition of the viability of the prototype or the significance of the data. Because obtaining this type of information — by building prototypes or conducting tests — can take time, the conception itself can establish the date of invention, provided that either a reduc-

## Career Catalyst

tion to practice occurs or a patent application is filed with reasonable diligence (*i.e.*, without a delay so long that it suggests the inventor lost interest, even temporarily, in the invention). The dividing line between diligence and excessive delay may be difficult to identify, but long delays increase the risk that a date of conception may not be sufficient.

### The notebook as evidence of inventorship

Laboratory notebooks are useful in resolving inventorship disputes other than those in first-to-invent scenarios. Inventorship disputes often arise when information is shared among individuals at different locations during either the conception or the reduction to practice of an invention. Later events, such as changes in employment, can give rise to competing interests among those individuals.

For those named as co-inventors on a patent, the co-inventor status can be both a benefit and a limitation. Benefits include the ability of each co-inventor to practice the patented invention without obtaining permission from or paying royalties to the others, and to grant licenses or assign one's ownership interest without seeking the others' consent or sharing any compensation. When co-inventors are employees of the same company, these individual rights rarely raise a concern, since employees typically assign their rights to the company.

However, when co-inventors have different employers, their interests are often in competition. If, for example, Company A obtains a patent naming only its own employee as an inventor, Company B can avoid *infringement* liability under A's patent by establishing that one of B's employees was also a co-inventor, despite A's failure, either intentionally or unintentionally, to list B's employee as a co-inventor. Even if both inventors were listed when the patent application was filed, the claims of the application can change while the application is pending; if the change reflects a shift in the invention's focus, it may also entail a change in inventorship. Depending on the circumstances, co-inventorship can be a means of avoiding infringement liability regardless of the dates when either the commencement of employment or a change in employers occurs.

In inventorship determinations, the laboratory notebook can show who the true inventor was and where an idea originated, as well as who contributed what. The keystone

of inventorship is generally the conception itself, and the individual who merely instructs the other(s) as to the state of the art by providing information that is already known, or who performs routine testing, synthesis, or prototype construction at the request of the other(s), is not a co-inventor. Co-inventorship also requires collaboration; independent conception without conveying the concept to the other(s) does not create co-inventorship.

### Content and form of the entry

Each notebook page must bear the signature of the person making the entries and the date on which the entries were made. The signature of a witness can also be included to verify that the page existed in completed form as of the witnessing date. Many notebook pages contain the words "witnessed and understood by" (or equivalent wording) to indicate that the witness read the entries before signing and confirms their contents rather than simply their existence.

Keep in mind that when notebook pages are presented as evidence, they will be read by people with no connection to the inventor. Thus, the entries should be legible and explanatory, including a narrative of what was conceived or actually done, preferably with explanations of any acronyms, words, or symbols that might not be understood by others.

Electronic records can serve the same purpose as handwritten records, and are often more detailed, since information can be entered more quickly. However, electronic

records tend to lack some of the features that are routinely included in handwritten notebooks, such as identification of the person creating the record, the date on which the record was created, and the contents of the record when it was created (as distinct from modifications or additions made later).

Electronic records must be reproducible in human-readable form long after their creation. Up to 10 years may pass between creation of the record and the need for its use by the PTO as evidence for a pending application. As many as 30 years may elapse if the record is used as evidence in a lawsuit. Since software changes are likely to occur during those gaps, software for reading the original record must be maintained.

Electronic records should be archived in a readily accessible and identifiable form, and maintained in a manner that prevents them



from being modified. Companies can establish a policy for archiving such electronic records, and assign a record custodian to manage the records.

Laboratory notebooks, whether handwritten or electronic, do not cover a company's commercial or proprietary interests by themselves, but they are often valuable for obtaining patent rights, or the right to practice an invention free of patent infringement. The AIA limits but does not eliminate the circumstances in which laboratory notebooks are useful, and patent rights in general still benefit from both the creation of new notebook entries and the preservation of those already made.

### PROVISIONAL PATENT APPLICATIONS

A *provisional patent application* offers a quick and inexpensive way of obtaining a *filing date* that can ultimately serve as an effective filing date for a *utility patent application* — commonly referred to as a *nonprovisional patent application*.

The provisional patent application can be prepared quickly because a provisional does not need to contain all of the parts (such as *claims* and an *abstract*) or any of the organization and formatting features that are required of nonprovisional applications. An extreme example is a cover-sheet provisional, which is a document prepared by the inventor for another purpose, such as publication in a technical journal or presentation to potential investors, that is attached to a cover sheet downloaded from the PTO website and filed as a provisional application.

A provisional application is relatively inexpensive due to its comparatively low filing fee: \$250, vs. \$1,250 for a nonprovisional. Both provisional and nonprovisional applications can qualify for a 50% reduction in the fees if they are filed by small entities (*e.g.*, individuals, nonprofit organizations, or companies with fewer than 500 employees). Higher fees are charged for applications that exceed certain size limits.

In addition to lower filing fees, provisionals often entail lower (or no) attorney fees, because they require less of the procedural expertise normally provided by attorneys. A patent attorney's assistance, however, may add value to the provisional.

Since a provisional application can be prepared and filed relatively quickly, it can provide an early prior art cut-off date under both the first-to-invent and first-to-file rules. Provisional applications also offer benefits that even well-kept laboratory notebooks either cannot provide or can provide only if combined with other facts or evidence. An inventor seeking to rely on the filing date of a provisional application for any purpose need not show diligence between that date and the filing date of a nonprovisional application. The inventor or the inventor's employer does not need to preserve the record of a provisional application other than its application number and filing date,

or to show that the provisional has not been changed since it was filed. And, there is no need for corroboration of the provisional by a witness or for any other proof of its existence or contents as of its filing date.

### Provisional vs. nonprovisional applications

It is important to remember that a provisional application is not an application for a patent, but merely a placeholder for the eventual nonprovisional application. Once a provisional application receives an application number and filing date, the PTO takes no further action on it. The provisional lapses on the one-year anniversary of its filing, without any review by the PTO and without any possibility of an extension.

To convert the provisional application from a placeholder to an application for a patent, a nonprovisional application that explicitly claims the filing date (priority) of the provisional must be submitted while the provisional is pending (*i.e.*, before the one-year anniversary). Without the nonprovisional, the provisional loses its value entirely.

A provisional application is initially held in confidence by the PTO, but is ultimately made available to the public if a nonprovisional application with a claim to it is filed and published. If no nonprovisional is filed (or if one is filed and then withdrawn before it is published), the official record of the provisional remains closed and its contents remain confidential (unless it has otherwise been made public, for example by the inventor or his or her employer).

Once a nonprovisional application is filed with a priority claim to a provisional, the filing fee for the nonprovisional becomes due. No credit is given for the provisional's filing fee. Thus, there is no overall saving in PTO fees by filing a provisional application before a nonprovisional; the total fee paid to the PTO is the sum of the fees for both applications. Also, the preparation of a nonprovisional often takes more time and incurs attorney fees in addition to those spent on the provisional.

These higher costs could be weighed against the value of an early filing date if that value were known. Often, however, the need for and advantage of an early filing date do not become known until years after both applications have been filed. The potential advantage, however, usually justifies an early filing date.

### Other advantages of provisional applications

A patent's expiration date is 20 years from the filing date of the nonprovisional (and in some cases even longer, if delays attributable to the PTO occurred). A nonprovisional application can be filed as late as the lapsing date of the provisional and still claim the benefit of the provisional filing date. If this is done, the time span between the prior art cut-off date and the patent expiration date will be 21 years.

The provisional does not extend the term of enforce-

ability of the patent, since a patent is not enforceable until it issues. A shift of the expiration date a year into the future without loss of an early prior art cut-off date can be an advantage for inventions whose licensing opportunities or royalty income do not typically occur in the first year of enforceability. This is true of inventions for which commercial use is preceded by years of clinical or field testing, or for which market development requires extended periods of time.

A provisional application allows the inventor to postpone the decision on whether to invest in patent coverage. For provisionals filed at the conception stage, this affords the inventor a year to test the concept for efficacy, or to determine, verify, or shift the scope of the concept. It also gives the inventor a year to determine whether the invention has sufficient industrial or commercial appeal to justify the costs, and to raise funds from potential investors before committing to the full costs of applying for a patent. Postponing the decision in this way preserves the inventor's potential patent rights if the prior art cut-off date is a determining factor of patentability.

### Pitfalls of filing a provisional application

Even if a provisional application is filed early enough to eliminate damaging prior art and a nonprovisional is filed within one year, the provisional may not provide the coverage that an invention needs. For example, a provisional drafted quickly when the inventor has only a rudimentary conception of the invention may contain only the bare outlines of the concept, with minimal explanation of how to implement it. In these cases, the description is often inadequate to support a patent claim in the nonprovisional, both in terms of how to make and use the invention and its scope of implementation.

Even provisionals with detailed descriptions, such as some cover-sheet provisionals, may be deficient for patent purposes. For example, technical papers may focus on experiments that have been performed with little or no statement of broader fields of application, or might include statements that compromise patent coverage, such as negative conclusions, identification of inadequacies in the work performed, and recommendations for further investigation to verify conclusions. Trade show presentations tend to highlight the advantages of a new product or service while withholding the underlying details of how the advantages are obtained — details that are essential to patent coverage.

Finally, a hastily drafted provisional application may lack built-in strategies — such as alternative ways of expressing the invention to assert its novelty — that may be useful both during the PTO's examination of the application and in a patent infringement lawsuit. A well-drafted patent application, therefore, reflects an understanding of the many ways in which a patent can be attacked and has the ability to

withstand such attacks. The optimal provisional also takes into account the various persons or entities over whom the patent owner might eventually wish to assert the patent.

A provisional patent application thus entails a balancing of interests — speed and low cost vs. adequacy of support and flexibility for the claims of a later-filed nonprovisional application and the patent that may eventually be granted. Whether or not one's patent interests are covered by a provisional depends on how closely the provisional resembles a well-thought-out nonprovisional application.

## PATENTS

An issued patent is the most direct way to cover an invention. This coverage can be measured both in terms of the activities that constitute infringement and the geographical reach of the patent.

### Infringement

If the patented invention is an article or product, U.S. patent law defines infringing activities as making, using, selling, offering for sale, or importing the article or product. If the patented invention is a process, infringement occurs by practicing the process, although importation of a product made overseas by a patented process can constitute infringement as well. These activities constitute direct infringement; indirect infringement, such as contributory infringement or inducement to infringe, can also give rise to liability.

For any of these activities, the products or processes that the patent owner can control are defined by the claims of the patent (*i.e.*, the numbered paragraphs at the end of the patent that define the scope of coverage), not the *specification* (the descriptive text preceding the claims). This is an important distinction, because the specification may state or suggest a scope of coverage that is broader than the claims — a frequent result of amending the claims during the examination of the patent application at the PTO. Also, patent claims are to be read individually; limitations that appear in narrower claims do not affect the scope of broader claims, and an infringer need only fall within the scope of a single claim to be liable for infringement. Furthermore, if broad claims are determined to be unenforceable because they are too broad, narrower claims may still be viable.

### Geographical reach

A patent is enforceable only where it was granted. Patents are generally granted on a country-by-country basis, but certain groups of countries have enacted treaties by which patent applications can be received and examined by a centralized authority. The European Patent Office is an example of such an authority. Once a European patent is granted, the patentee must then validate the patent in individual European countries for the patent to be enforceable in those countries.

The filing date of a patent application in any country (or at a centralized patent examining authority) is an important factor in determining whether a valid patent can be obtained in that country. International treaties permit a patent applicant seeking multinational coverage to use a filing date in one country (or receiving office) as the effective filing date in other countries or regions if certain procedural and timing requirements are met. This makes it easier to secure early filing dates in multiple countries.

### Freedom to operate

Coverage in the patent sense is the ability to exclude others from practicing an invention by performing any of the infringing activities listed earlier. Often, however, those asking “Are we covered?” are more concerned with whether they can manufacture and sell a product (or practice a process) without being liable for infringement to someone else. This reflects an underlying misconception that obtaining a patent insulates the patent holder from infringement liability under other patents.

It is true that obtaining a patent early enough in the evolution of a particular technology may allow the patent owner to use or commercialize products or processes that are explicitly described in the patent without fear of infringement, and that once the patent expires, others can do the same. In general, however, patents do not have an insulating effect, and practicing under a valid and enforceable patent under certain circumstances can result in infringement of a different patent. This occurs in the case of dominating patents, *i.e.*, patents claiming inventions that are needed to practice inventions of later patents. Improvement-type inventions often fall within the scope of dominating patents.

Overlap also occurs when a patent covers an invention that may be used in (or is the best way of practicing) another invention covered by a different patent. This can be the reverse of the dominating patents — *i.e.*, the owner of the dominating patent is not free to practice a later patented improvement even though the improvement falls within the scope of the dominating patent. The owner of the dominating patent will be able to practice within part of the scope of its own patent without infringement, although with possibly

less favorable performance.


Infringement liability in any of these cases can be eliminated by obtaining a license from the owner of the infringed patent, but the cost of the license may become a factor in the market value of either invention.

The leading claim in a well-drafted patent is generic in scope, extending beyond what the inventor has actually constructed, tested, or otherwise reduced to practice to include all implementations that logically flow from the inventor’s core concept. In reality, an enforceable claim is one that strikes a balance between the inventor’s desire for a broad scope of exclusionary power and the avoidance of over-extending to include variations that differ enough to be acts of invention themselves. This balance is enforced by the PTO at the examination stage. Whatever its scope, claim coverage often exceeds what the patent owner actually intends to manufacture, sell, or use, while the patent owner’s ability to manufacture, sell, or use without liability to another may require further investigation.

### Closing comments

So, are you covered? In patent-related matters, remember that the individual or commercial entity can be covered in different ways:

- in establishing oneself as an inventor or originator in cases of collaboration or the exchange of ideas with other individuals, companies, or vendors
- in establishing oneself as a first inventor in cases of competing inventors working independently
- as an employer establishing itself as an owner by virtue of the records of an employee
- as a commercial entity establishing itself as an early commercial user to allow it to continue the use free of infringement
- as a patentee or patent owner establishing its ability to exclude others from practicing, or to control their practice of, the invention.

Knowing exactly which type of coverage you are seeking will enable you to take appropriate steps to secure it. 

### ADDITIONAL READING

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