Patent Primer

By R. Devin Ricci[1]

The general outlay of this guide is to present some of the *who, what, where, when, and why* of the patent system in order to be able to explain the all-important *how* to obtain a patent. This guide aims to acquaint the reader with various aspects of the patent process, laying a proper foundation that will help the reader make informed decisions regarding patents. It should be stressed that the patent system is very complex – this guide will only touch on some of the *many* rules, nuances and exceptions contained in the United States patent system. Therefore, you should not rely solely on this guide and should consult an attorney.

The patent process is a long and expensive process, and the result of obtaining a patent cannot be guaranteed. However, what awaits a truly novel, non-obvious, and useful[2] invention at the end of the process is one of the most powerful intangible property rights available in the United States.

Disclaimer: This guide does not constitute legal advice and is not intended to supplement the advice that would be obtained from retaining a patent attorney or agent to aid in the patent process. This guide stands as a cursory review of the United States patent system as it relates to utility patents. This primer does not encompass on international patent protection. It is being provided in an effort to better acquaint the reader with some of the major aspects associated with the patent process. It is imperative for those considering or currently undertaking the patent process to understand what to expect when they choose to seek patent protection for an invention.

Why – the Great Incentive for Disclosure

The patent system aims to foster innovation. From single inventors to corporations, the great lure, the carrot of the patent system is the powerful, exclusive rights afforded by a patent. An issued patent grants an inventor the exclusive rights to exclude others from making, using, and selling the patented invention throughout the United States for a period of up to twenty years from the date of filing. In exchange for this right to exclude,[3] an inventor must fully disclose to the United States Patent and Trademark Office ("USPTO") how to make and use the claimed invention. The tradeoff for the public is twofold. First, the information contained in the patent is published at least by the date of issuance. Therefore, the information itself becomes public knowledge, available as information in research and development. Second, the invention becomes part of the public domain once the patent's term ends, free for all to exploit and use.

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[2] There are three types of patents: utility, design, and plant patents. The focus of this guide is to acquaint the reader with utility patents because they are the most common and sought after of the three.

[3] In exchange for these exclusive rights, the patent holder must fully disseminate the invention to the public. Although others are prohibited from exploiting the patented invention during its term, the innovation enters the public domain upon expiration or abandonment, rendering the invention free for all to use.

It may seem counterintuitive that eliminating some competition would actually foster innovation, but it does. Remember, the public or its elected government generally cannot walk into a business, laboratory, home, or garage and force an inventor to disclose his invention to the public. Companies and inventors are free to hide their innovations as trade secrets, which are not subject to term limits. Trade secret rights vary from state to state; however, the gist is that by keeping an invention as a trade secret, an inventor can remain the sole beneficiary of his invention as long as the information does not become public knowledge[4]. The power of a trade secret lies in its potential longevity, but is limited to information that remains secret and cannot be discovered through ordinary use or reverse engineering, i.e., taking apart an object to see how it works in order to duplicate or enhance the object. Technological advancements in the modern marketplace hinder the use of trade secrets. Simply put, it is continuously becoming easier to reverse engineer products and discover the process or machine the inventor attempts to hide through trade secrets. This shift has led many companies and inventors to seek patent protection instead of attempting to keep their innovations as trade secrets.

***What* – Patentability and Components**

Patentable subject matter

There are three types of patents: utility patents, design patents, and plant patents. Utility patents are by far the most common of the three types. Both plant and design patents adhere to their own sets of rules and attributes[5]; however, this guide solely addresses the process of prosecuting a utility patent. Patentable subject matter for a utility patent comprises any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.[6] In addition to fitting into one of these five enumerated categories or "improvements thereof," an invention must also be useful, novel, and non-obvious as determined by the USPTO and/or a court.

Utility – is the innovation useful?

Courts have generally whittled the "utility requirement" into a *de minimus* (minimal) threshold. Under this viewpoint, an invention with any conceivable use or function generally satisfies the utility requirement. The purpose of the utility requirement is to prevent rights which arguably lie under other forms of intellectual property from gaining patent protection. For example, purely aesthetic functionality such as that of a painting would not qualify for patent protection; rather, it may eligible for copyright protection. However, it should be noted that the ornamental look of an otherwise functional item may qualify for a design patent.

Novelty – is the innovation "new"?

The question of novelty asks whether or not the invention is truly inventive; i.e., are the elements of the invention anticipated by the prior art (i.e., already known in the industry). In other words, the

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[4] Trade secrets exhibit great benefits and drawbacks; however, this guide is limited to patent issues so a foray into the pro's and con's of trade secrets will not be discussed.

[5] For example, only asexually reproduced plants may be patented, and design patents can be obtained for any new, original, and ornamental design for an article of manufacture.

[6] *See*. 35 U.S.C. 101; Please note that the United States Supreme Court has recently heard a multitude of cases which impact patentable subject matter. The holdings of these cases are too numerous to detail in this guide; however, it is strongly recommended that the reader consult with a knowledgeable person, such as a registered patent attorney or patent agent, to discuss the various implications these cases may have on patentable subject matter.

question of novelty asks whether or not any single prior art reference exists in the pertinent industry which already discloses the invention at the time of effective filing (i.e, the priority date).

Any public disclosure, regardless of how the disclosure was made, constitutes prior art as of the date it is made publically available. This includes any subject matter that was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention. One notable exception exists to the public disclosure requirement in that the inventor's own disclosures will not count as valid prior art so long as the subject matter is described in a patent application applied for within one year of the public disclosure. Therefore, once the inventor makes any public disclosure, a time clock starts ticking by which the inventor has one year to file an application with the patent office or the subject matter is barred by statute (a "statutory bar") from being novel.

Moreover, as of March 2013, the United States patent system was reformed by the America Invents Act, switching the patent system from the long standing 'first to invent' system to a 'first to file' system. The present system renders any U.S. patent, patent application publication, or a World Intellectual Property Organization (WIPO) published international patent application (Patent Cooperation Treaty – PCT) as prior art as of the date the subject matter was effectively filed in the respective patent office, whether in the U.S. or abroad.

Non-obviousness

Not only must innovations be deemed novel in light of the prior art, but they must also not be found to be obvious improvements of the prior art. Whereas novelty inquires as to whether or not the claimed invention is anticipated by a single prior art reference, obviousness asks whether or not it would have been obvious to a "person having ordinary skill in the art" ("PHOSITA") to combine the elements of multiple prior art references to develop the proposed innovation.

The same prior art relevant to novelty is applicable for obviousness. However, more so than with novelty, the test for obviousness is to be viewed in light of the supposed "person having ordinary skill in the art" or the particular field relevant to the subject matter. For example, a typical organic chemist or electrical engineer would be the relevant PHOSITA for patent applications concerning an organic chemical process or an electrical apparatus, respectively.

Patent Applications

As will be explained in greater detail below, two types of utility patent applications exist– provisional and non-provisional applications. The provisional acts as a place holder while a non-provisional is a full application; however, they can be used in concert to maximize protection.

Provisional Applications: The provisional application is essentially an initial disclosure made to demonstrate that an invention was created. Provisional applications are filed to attempt to to prevent others from later claiming prior invention. The provisional application can be thought of as a place holder or a stake in the ground to claim and lock in a priority date for a claimed invention. However, no substantive rights will be granted from a provisional application. The provisional application will not be reviewed by an Examiner to determine if a patent should be granted; therefore, a provisional application need not meet all of the formal requirements that a non-provisional must meet. Rather, it needs to disclose enough of the invention so that when a full (non-

provisional) application is filed, the applicant can point back to the provisional disclosure to show that the invention was disclosed and that the priority claim is accurate.

Provisional applications are optional. The priority claim of a provisional application lasts one year from its filing date. Essentially, it grants the applicant one year from the filing date of the provisional application to finalize and/or market its invention with patent pending status before the applicant must file a non-provisional application to keep the priority date and patent pending status alive. It should also be noted that the one-year pendency between the provisional and non-provisional filing does not count against the potential twenty-year term of the patent, which commences on the date the non-provisional is filed.
Non Provisional Application: The non-provisional application is the full application for a patent that will be reviewed and prosecuted by the Examiners at the USPTO. A non-provisional application must meet the formal requirements set forth by patent laws and the USPTO. Therefore, it must comport with formal drawings (i.e., tagged drawings and figures which are capable of being reproduced by the UPSTO Printing department), a specification which discloses the invention to a degree that allows a person having ordinary skill in the art to make and use the invention, an abstract, and claims.

Specification: The specification, or disclosure, is a written description of the invention. Patent applications are subject to a written requirement whereby the application must disclose the invention with enough specificity in order for the disclosure to enable a "PHOSITA" to make and use the invention without undue experimentation. These requirements are often satisfied through a background section, a short summary, and a detailed disclosure of the invention in light of the drawings.

The specification also defines the scope of the patent claims. The claims and all potential amendments thereto must find descriptive basis in the disclosure as filed. No new matter can be added to a non-provisional application once it is filed. If the applicant wishes or needs to add new matter, it can be done through a continuation-in part application; however, the new matter would have a new filing date and would not be able to claim priority to the original application.

Claims: By statute, the application must claim a "definite" invention. The definiteness requirement mandates that each patent must "conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as [the] invention."[7] Courts have mandated that definiteness is to be evaluated in light of the specification (the written description of the invention) and prosecution history from the perspective of a person skilled in the relative art at the time the patent was filed.

The claims section is the heart of the patent. As the name designates, this is the section wherein the applicant tells the USPTO and thus the public what is the intended invention. The claims of an issued patent define the scope of protection afforded by the issued patent. Claim drafting can be viewed as a strategy. An ideal claim walks a fine line. The goal is to draft the claim as broadly as possible so as to not unnecessarily limit the scope of protection while keeping the claim within the boundaries set forth by the prior art and the enabling disclosure. Remember, only novel, non-

[7] *See*. 35 U.S.C. 112, Paragraph 2

obvious, and useful inventions are capable of being patented. Therefore, while an ideal claim is drafted to provide broad protection, the claim cannot be too broad such that it is rendered either not-novel or obvious in light of the prior art in order to be accepted. It is typical for claims to be amended and limited during prosecution to obtain protection.

Drawings: Applicants are required to submit drawings when they are useful for the understanding of the invention. The USPTO has determined that applications for methods, processes or compositions of matter may not require drawings. Other applications, particularly applications for apparatuses or widgets, which incorporate component parts, are generally deemed to require drawings for a proper disclosure. The USPTO imposes requirements and formal restrictions on drawings; therefore, it is suggested that trained patent draft-persons be used to draft drawings.

Abstract: the abstract is a formal requirement which the USPTO requires that each and every non-provisional application contain. The abstract is a brief summary of the technical disclosure in the specification in fewer than 150 words.

***Where* – the United States Patent and Trademark Office**

The physical "where" of patent applications is becoming less important in the modern world because most filings for patent applications are conducted online via the patent electronic filing system ("EFS – Web"). That said, the United States Patent and Trademark Office is the federal bureaucratic agency in charge of prosecuting all United States patent applications. The main office itself is located in Virginia; however, satellite offices have been opening around the country in select cities, each housing specialized art units designed to decrease the pendency for applications involving key hotspots of innovation. The URL for the USPTO is www.uspto.gov.

***Who* – Inventors, Applicants and Examiners**

Applicant(s): Generally, the applicant for patent rights is the inventor. Patent rights initially inure to the inventor and remain with the inventor unless he assigns or licenses his rights. Such assignments typically occur via sales or through contractual relationships, such as when an employee develops the innovation as part of his employment with a company. The provisions of the American Invents Act allow a company, to which an invention is assigned, or to which the inventor has a duty to assign, to apply for patent rights to the invention in the name of the company. Therefore, it is possible and rather common for a company to file a patent application.

When two or more inventors contribute to the conception of the invention, they are termed joint inventors. It is important to determine the inventive contributions of each person involved in the creation of the invention. For example, as patent prosecution proceeds, it is possible and even likely that certain claims sought for patenting will be rejected. It is, after all, the USPTO's job to be the gatekeeper ensuring that the monopoly of patent rights is not handed out lightly. Therefore, as claims are removed through prosecution, it is possible for a listed inventor, whose contributions only applied to cancelled or rejected claims, to no longer qualify as an inventor. If that happens, the affected inventor needs to be removed from the application.

Examiners: The USPTO employs examiners separated into art units, each specializing in a particular field. Many of the examiners have specialized degrees in the sciences (chemistry, biology, physics,

engineering etc.), and a juris doctor degree, or other practical experience pertinent to their art units. For example, an application for a computer related invention will likely be assigned to a computer related art group wherein an examiner with a background in computer science will prosecute the application.

When to File

The inventive process commences at conception. Interestingly, all that is required to file a patent application is that the invention be fully conceived. The inventor or applicant must have enough of the invention conceptualized so that he can disclose the invention, in writing, to enable others in the field of the invention to make or use the invention.

The current patent system behooves potential applicants to "file early, file often." As previously discussed, the United States patent system was reformed by the America Invents Act, switching the patent system to a 'first to file' system from the long standing 'first to invent' system. Admittedly, some exceptions to "first to file" exist under the current governing laws; however, the gist of the system is that the first applicant to file an application for a particular invention with the USPTO is deemed the inventor under the patent laws, preventing a later filing applicant from obtaining a patent. The "file early, file often," strategy has been adopted by many corporations. The strategy is to file provisional applications as soon as a potentially marketable invention is conceived and follow up with additional provisional applications as notable improvements are made. This system allows for inventors to claim the earliest possible priority date for the invention while fleshing out the details to determine if a full non-provisional application is warranted.

In addition to the other considerations, the patent laws impose certain time limits or constraints on the filing. As discussed previously, the United States patent system imposes statutory bars that govern the novelty of a proposed invention. If the invention is disclosed to the public such as by use, sale, offer for sale, publication or otherwise, the statutory bar period is triggered. Any of the actions grouped as public disclosures of the invention trigger a one-year countdown by which an application must be filed with the USPTO or no patent protection can be obtained.

***How*- the Patent Process**

The typical patent process described herein involves the use and assistance of a registered patent attorney or patent agent. This process generally commences with an initial consultation in which the attorney explains the patent process to the potential-applicant and the potential-applicant discloses the invention to the attorney. After the initial consultation, a patentability study is often performed to determine the potential likelihood that a patent could be obtained. After a promising patentability study, or otherwise skipping the study entirely, a formal patent application is prepared and filed with the USPTO. In due time, the application will be assigned to an examiner who will review the innovation for patentability. If deemed patentable, the patent process concludes with the receipt of an issued patent. If not, the applicant has opportunity to submit arguments in favor of patentability.

Patentability Study

Patents are often a costly endeavor. Therefore, many applicants elect to "do their homework" before embarking in the process. In other words, before spending considerable sums on the patent process, many applicants order a patentability study to gauge the viability of their proposed patent

application. A typical patentability search seeks relevant prior art which may be used by an Examiner to reject an application based on either novelty or obviousness grounds. These searches are usually conducted through a patent attorney, a patent agent or third-party companies which specialize in prior art searches.

In the patentability opinion, a qualified person, typically the patent attorney or agent, uses the relevant prior art from the patentability study and compares it to the applicant's disclosed invention in order to determine the potential for obtaining a patent. It should be noted that knowledge of the prior art can help to determine the breadth of a potential patent's scope, and thus its overall granted protection. Also, as with most legal matters, issues of patent law require subjective determinations which are many times unpredictable. Therefore, even with a favorable patentability opinion, the applicant may not receive an issued patent.

While extremely useful, patentability searches are inherently limited and it can never be guaranteed that every potential prior art matter will be discovered. By law, the USPTO must keep any application in confidence for eighteen (18) months after the application's earliest priority date (i.e., the date the application was first filed). Applicants can further delay the publication of patent applications by payment of non-publication fees. Furthermore, it should be noted that a majority of searches are conducted via "term searches." Because a patent applicant is allowed to act as his own lexicographer, it is possible that the terms used in the search may be different from those used in patent applications and issued patents; therefore, it is possible that applications and patents exist which did not turn up in the search. Finally, many searches do not include the extensive listings of foreign patents, magazines, trade or technical journals, or other publications that may contain articles that will impact the patentability. Overall, the search acts to exemplify and bring to light the available pieces of prior art that are the most similar to the invention as described by the applicant. However, it is typical that at least a few patents from the preliminary search will turn up and be cited during prosecution of an application.

Draft and File Application

If the patentability search and opinion comes back favorable, the typical next step is to file an application. As previously discussed, there are two general types of utility applications for patent protection in the United States: provisional applications, which act more as place holders than anything, and non-provisional applications which are full-fledged applications for patent rights that are examined by the USPTO. Depending on his or her circumstances, an applicant has the choice to either (1) file a provisional application and then to come back within a year and file a non-provisional application or (2) file a non-provisional application and commence patent prosecution.

International Patent Rights

An applicant may have the ability to file for international patent rights. However, the scope of this guide is to discuss the United States patent system. It is highly suggested that any reader considering foreign or international patent rights seek qualified patent counsel to discuss options for doing so either under the Patent Cooperation Treaty or otherwise inform themselves of international patent rights. Note that a public disclosure is often a bar for most foreign patents.

Patent Pending Status

There is no such thing as a "provisional patent." Once a patent application is filed with the USPTO, the invention covered and claimed by the patent application is deemed to have "patent pending" status. It is important to note that patent pending status does not grant the holder any substantive rights under the law. Indeed, no patent exists during prosecution for others to infringe, let alone be sued upon. The applicant can, however, alert others to the fact that it has claimed priority to an invention and that the applicant will bring an infringement action, if necessary, if and when the patent issues.

Patent Prosecution

Expected Delays: As previously noted, the patent process is long. Typical applications can take anywhere between 2-4 years for the process to be resolved, with many applications taking even longer. The pendency period generally depends on the art class to which the invention is assigned and the backlog that art unit is facing at the time. Often a patent application may sit in a given art unit for one or more years before being assigned to an examiner for prosecution. It has been our experience that the art units for software, business method, and electrical engineering patents have generally experienced a heightened workload compared to many other units, and therefore have longer prosecution period.

It is possible to expedite a patent application under certain circumstances. Applications can be expedited at the USPTO under one of three categories: (1) payment of an additional fee, (2) by statute if the invention involves a certain, recognized class of subject matter, and (3) by statute based on the status (usually health or age) of the inventor. It should be noted that some expedited applications require a great deal of additional work on the part of the applicant.

Office Actions: During prosecution, the USPTO generally communicates with the applicant via one or more office actions which set forth a period of time for the applicant's response. Examiners often object to certain aspects of the application in these office actions based on issues with formality (such as issues with the drawings) or substantive issues which concern the patentability of the claimed invention. If the examiner opines that the application is formally deficient or that the claimed innovation is not novel or is obvious, the examiner will first issue a non-final rejection in an office action. The applicant is allowed to submit an argument to rebut the examiner's position. Depending on the circumstances, applicants may be able to employ several avenues for rebutting the Examiner including arguments rooted in law or fact, amending or cancelling claims in light of objections, or amending the specification to eliminate the formality issues raised by the examiner. In response to the applicant's arguments, the examiner may grant the patent, object to the patent based on new grounds through another non-final rejection or issue a final rejection. It is typical for an application to be met with one or more office actions before a final determination is made by the examiner. In the event that a final rejection is issued, the applicant may still be able to continue prosecution through the filing of an appeal with the Patent Trials and Appeals Board (PTAB), filing a continuation or a request for continued examination (RCE) to further seek protection.

Maintenance Fees: Although patent terms can last up to twenty years from the effective filing date, the USPTO requires the payment of periodic maintenance fees to keep the patent alive and enforceable. The window periods for the three payments are (a) 3 years to 3 1/2 years after the date of issue for the first maintenance fee payment, (b) 7 years to 7 1/2 years after the date of issue for the

second maintenance fee payment, and (c) 11 years to 11 1/2 years after the date of issue for the third and final maintenance fee payment. These payments can be made up to six months after the above-mentioned time periods (4, 8, and 12 years) with the payment of a surcharge fee.

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