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Basic Intellectual Property Concepts

1.1 INTRODUCTION

To develop a patent strategy, a researcher or a research manager must be familiar with certain intellectual property concepts, and this chapter is designed to provide that intellectual property foundation. As stated in the Preface, this book is not a ‘patent law’ book. There are many ‘patent law’ books on the market and many continuing education courses that teach patent law fundamentals. This book will attempt to provide the researcher or research manager with the minimum information required to help develop an intellectual property or patent strategy with a patent professional. Patent professionals – patent attorneys and patent agents that prepare, file, and prosecute patent applications; patent liaisons that coordinate patent filings in larger companies; and information specialists that search the prior art – all play an important part in the development of the overall strategy of a business. The researcher’s exact involvement with these professionals will depend in great part on whether or not the inventor is a private researcher or an employee of a large corporation.

In any case, the researcher will still need to rely on professionals for help with patent law matters. There are three reasons for this. First of all, it is impossible to cover all aspects of global patent law in one chapter. The second reason is that, while one can develop and implement a patent strategy, should there be a need to interpret patents legally, the best person to provide guidance in patent law and negotiate the legal realm is a good patent attorney. Finally, laws are not like fundamental scientific principles; they are at the mercy of governments, and laws change,

sometimes dramatically. Again, a patent agent or attorney should be able to keep up with these changes and advise on how they impact research work. There are no better examples of the need for the help of a knowledgeable patent attorney or agent than the recent developments in high growth areas like biotechnology, software, business methods, and the internet. Change is occurring in these areas at a high rate, not only in the generation of inventions, but also in the methods by which these inventions are protected. Over the last few years, countries around the world have had a constant flow of new laws affecting the patentability of inventions in these areas. Patent offices have also had a steady stream of new guidelines, rules, and regulations affecting patent applications in these same areas. Only a patent attorney or agent can possibly keep up with all of these changes. A researcher can get an idea of the extent of the changes by looking to the internet. A quick check of intellectual property pages will reveal the massive number of new issues involved in these technology areas. It is hoped that the information presented here will be of a basic nature, so that it will not appreciably change in the near future.

1.2 BASIC PATENT LAW CONCEPTS

A patent is a legal grant by a government. Governments establish patent systems and grant patents to encourage innovation, technical development, and ultimately economic prosperity. The terms of the grant are quite simple; in return for disclosing an invention publicly so that others can learn from it, and paying the processing fees, the government of the country will grant the inventor of the invention the right to exclude others from making, using, or selling the invention for a limited period of time.

The first and most fundamental concept to learn about patents is that patents do not give the patent owner the right to practice the invention claimed in the patent, but only to exclude others from practicing this invention. The patent owner may only practice his invention as long as it, or any part of it, is not covered in a valid patent by someone else.

For example, say a researcher hears about a new ceramic material that has been developed, and for illustration purposes, let's say the ceramic material has the chemical name of 'X'. Further, let's say the researcher's commercial interest in this ceramic is in coffee mugs, because when a coffee mug is made from 'X', the coffee can be kept hot indefinitely.

The researcher obtains a patent in many different countries having the following claim:

1. A container for keeping hot liquids hot, comprising the ceramic 'X'.

The practical result of the research obtaining this claim is that in those countries where he has obtained a patent, he can theoretically stop another person or company from making or selling any kind of container made from 'X'. (The word 'theoretically' is used, because the researcher will have to enforce his patent by taking the infringer to court; the court will determine whether or not the patent is valid and infringed.) The claim, however, does not give the researcher the right to make or sell containers containing 'X'. The researcher can legally make or sell containers containing 'X' only if in so doing he doesn't infringe a patent held by another. If the inventor of the ceramic 'X' has a patent, say with claims like:

1. A ceramic comprising 'X'.

The researcher will infringe the ceramic inventor's patent if the researcher makes his own ceramic when he makes his coffee mugs. The inventor's patent is said to dominate the researcher's patent, and if the researcher wants to make coffee mugs using the ceramic, he will need to work out some arrangement with the inventor of the ceramic.

The second basic concept to understand is that a patent is only effective in the country of issue, and legal concepts and questions about 'What is patentable?' and 'What constitutes a valid patent?' can be interpreted differently in different countries. Since patents are grants from the governments of countries, and all countries are different, then it follows that patent laws will be different in every country around the world. However, countries have realized that cooperative treaties that allow inventors to file patents easily are beneficial in that they provide additional revenue in the form of patent fees, and strong cooperative intellectual property laws provide incentive for businesses to invest in these countries. These cooperative treaties have harmonized some of the basic procedures and requirements for obtaining patents from country to country, although substantial differences still remain in the actual patent law.

A third fundamental concept is that while different countries can have different patent laws, all governments attempt to grant patent

rights to the correct inventor(s) or owners of the invention under those laws. However, these patent rights must be claimed by filing a patent application. There have been many stories of the same invention being developed independently by different inventors, with only one inventor obtaining the patent because the government determined that inventor, by law, was due the patent.

In most countries of the world, if two inventors apply for the same invention, the inventor who first submits his application to the government gets the patent. Therefore, in these 'first-to-file' countries there is an obvious premium placed on being the first inventor to the patent office to stake your claim. An inventor needs to file his patent application as soon as possible after making the invention to avoid having another inventor possibly preempt his patent rights.

For many years the law in the United States has been different, likely due to the Constitution's emphasis on 'securing' rights to inventors for their discoveries. The intent of the law was that the first true inventor should receive the patent rights, not necessarily the first inventor to file his patent application. Therefore, the United States has had a 'first-to-invent' system, where the inventor's own personal records of invention could be used to prove an invention date prior to any filing of a patent application. While the 'filing date' was important, the 'invention date' was even more important, should two inventors independently invent and file on the same invention. The United States has been essentially unique with regard to this provision.

However, US patent law was significantly changed on September 16, 2011, when patent reform legislation was signed into law after many years of negotiation and delay. The Leahy-Smith America Invents Act (AIA) makes a number of significant changes to US patent law to be phased in over 18 months after passage. In addition, the patent law is made more complicated in that certain provisions of the old law will continue to apply for patents granted and patent applications filed prior to the enactment of the new laws.

While many of the provisions of the new law can affect patent strategy, none affects the inventor more than the change that comes into effect on March 16, 2013. Starting that day, the United States moves from being a 'first-to-invent' to a 'first-to-file' country, although some believe the proper wording should be the 'first-inventor-to-file' country. This brings the United States into alignment with most other countries, which are 'first-to-file' countries. In any case, this new law adds increased emphasis on the filing of patent applications as soon as possible after an invention has been made.

1.3 PATENT OFFICE OPERATIONS

Countries set up patent offices to handle the processing of patent applications and the granting of patents. As one might expect, each patent office will have its own rules, regulations, and procedures. While some disputes may be resolved within the individual patent offices, in general, any unresolved dispute will ultimately be settled in the court system of the country.

Although the patent offices of different countries have different procedures, the basic steps taken to obtain a patent are fairly uniform. Assuming a researcher has made an invention, the researcher has a patent agent prepare a patent application and send it to a patent office (that is, 'file' the patent application), along with any required filing fees. Depending on the country, the patent office will take one of three actions. The patent office will either (1) start immediately to process the application for patentability, for example, start the examination of the application; or (2) essentially hold the application and wait for the applicant to tell the patent office to examine the application; or (3) register the application without examination. In this last group of 'registration' countries, there is no examination of applications; the validity of the patent remains undecided until the patent owner attempts to exert the patent against another, at which time a court will decide whether or not the patent is valid and infringed. For now, let's assume the country in which the application is filed is in an examination country and examination is either automatic or the researcher's agent has asked for examination.

The examination is made by a patent examiner, who is typically a technically trained individual with knowledge of what has been patented in a particular area of technology and the formal governmental requirements for obtaining a patent. The patent examiner will look to see whether or not the application complies with all of the formal regulations and procedures and meets the requirements for the patent grant. If the application meets these requirements, the examiner will allow the application; that is, send the agent a notice stating that the patent can be granted if the applicant is willing to pay the issue fee. However, if the examiner is not convinced he will send the agent a rejection notice – a written response called an office action. The office action will state why the application has been rejected, and the examiner may make suggestions as to what is required to correct the flaws in the patent application.

The applicant or his agent then has a period of time to respond to the office action, and put forward either (1) changes in how the

invention is claimed, which will address the concerns of the examiner in the form of amendments to the application; or (2) reasons why the examiner has erred and has not considered or interpreted the application properly; or (3) additions or corrections to address formal problems in the application, that is, problems not associated with the patentability of the invention, but the patent application itself, such as appropriate drawings. The applicant's response may or may not convince the examiner, and several office actions and responses may be exchanged between the applicant and the examiner before the patent is allowed.

The applicant may eventually receive a 'final rejection' from the examiner, which means that the examiner does not think the invention is patentable and intends to close prosecution on the application. Normally, the applicant has one final shot at convincing the examiner after a final rejection. If the applicant does not succeed in convincing the examiner, the applicant can either give up, refile the application with changes that improve the patentability of the invention, or appeal the examiner's ruling to a higher authority in either the patent office or the country courts. If an appeal is made, this essentially starts another round of negotiations with a new set of governmental eyes. All of these options require additional fees.

If the patent application is allowed during any of these stages, the applicant will be required to pay an additional fee to have the patent issue; however, the procedure to actually grant or issue the patent will vary from country to country. In addition, some countries provide for a public review period after the patent is granted, and the review procedure varies from country to country. In those countries, after the patent publishes with the granted claims, those that do not think the invention claimed is patentable can oppose the patent grant. This is typically done by filing, within the review period, an opposition document that contains reasons as to why the patent should not issue. If an opposition to the grant is filed, then the patent applicant is given a period of time to answer the assertions of the opposer, there may be an oral hearing, and an appeal is usually possible if the opposer prevails and the patent is to be amended or revoked. Depending on the strength of the opposition, the patent may be totally revoked, may re-issue with modified claims, or may be confirmed with the original claims.

After the issuance fee is paid and the patent has issued, the applicant will normally be required to make additional payments, called maintenance fees, to the country's government. These fees are paid during the term of the patent to maintain the patent in force. If the fees are not paid, the patent will lapse in that country and the technology claimed

will be in the public domain, which means that anyone can now use that invention in that country. Governments, for the sake of economic development, want as much technology in the public domain as possible, so they encourage the abandonment of patents by increasing the amount of the maintenance fees as time goes by. In many countries, the maintenance fee amount due is also dependent on the number of claims that have been granted. A patent having 40 claims would be much more expensive throughout its life than a patent having just three claims. As a result, maintenance fees in the last few years of the patent term can be very costly because of the combination of the fee increase based on the age of the patent, and the multiplier based on the number of claims.

Submarine patents

For many years, the content of patent applications filed in the United States was not disclosed publicly if the patent did not issue. Also, the examination of claims was done privately between the examiner and applicant, and if the claims were allowed the applicant could decide whether or not the patent would then issue. For example, if the applicant's initial claims were severely amended, the applicant might decide not to pay for the patent to issue, and all the technical information in the patent application that would be disclosed when the patent issued would instead be kept secret.

Unfortunately, this private examination also resulted in what were called 'submarine' patents - patents that issued on applications that took many years to examine, normally because the applicant delayed prosecution. The content of the application would remain secret, lurking in the patent office for a number of years, only for the patent to issue without warning like a submarine surfacing from the water. If the time from the filing of the patent to the issuance was a significant period, say 10 to 20 years or more, others without any knowledge of the patent application might independently develop similar technology during this time. Many found that after the issuance of a submarine patent they had to license their independently developed technology from the submarine patent holder or change to a different technology because there was no prior user right defense.

Both of these practices changed with new US laws that took in effect in 1995 and 2000, which first took away any advantage to the applicant to delay prosecution, and second provided for publication of applications filed in the United States. All filed applications are now automatically published 18 months after the priority filing, with the exception that if the application will be filed only in the United States the applicant can petition the USPTO that the application not be published.

To disseminate information about new inventions, most countries require filed patent applications to be published automatically, regardless of the patentability of the invention, 18 months after the first filing of the application. The United States does provide an exception to this, in that if the applicant intends to file the application only in the United States and forego any foreign filings, he can petition the United States Patent and Trademark Office (USPTO) not to automatically publish the application. In addition, in the United States an applicant can also have his patent application published at a time earlier than 18 months after the first filing, if desired.

1.4 REQUIREMENTS FOR OBTAINING A PATENT

The first requirement to obtain a patent is that the invention be 'new'. 'New' is interpreted differently in different countries, but there are some general guidelines that are useful. As one might think, 'new' means the invention has not been known before. In most cases, this means there has been no written public record of the invention, and no public disclosure of the invention. Many countries in the world are 'absolute novelty' countries, the word 'new' and 'novel' being used interchangeably. That is, any public disclosure, written or otherwise, before the filing of the patent application will prevent an inventor from obtaining a valid patent on his invention. Note that the inventor may still be able to obtain a patent on the invention, but the patent might be shown to be invalid if ever challenged in court. If an invention is disclosed at a trade show and then a patent application on the invention is filed the next day, a patent may issue. However, if someone saw the invention at the trade show, this knowledge could be used to invalidate the patent in an absolute novelty country. There can be exceptions and some countries require 'absolute novelty' only within their borders; that is, a simple disclosure of the invention (but generally not a publication) outside the country may not hurt the novelty of the invention.

There are ways to avoid forfeiting rights to a valid patent. In most countries of the world, if the inventor wants to show his invention to another company or individual, the inventor can have the other party sign a non-disclosure or confidentiality agreement that enables the inventor to continue to operate in secret and retain patent rights.

Public disclosure

For many years, the United States has had a unique provision in that an inventor had a one-year grace period to file his patent application after the first commercial offer for sale or public use of an invention in the United States. The new America Invents Act of 2011 makes a bit of a change to this provision. Under the new Act, as of March 16, 2013, a public disclosure of an invention, *made anywhere* up to one year prior to the effective filing date of the application by the inventor or someone who obtained information from the inventor, does not affect the novelty of the invention in the United States. However, if there is any public disclosure of the invention, the inventor likely loses patent rights in other 'absolute novelty' countries. Since many countries are in essence 'absolute novelty' countries, many inventors in the United States still utilize non-disclosure agreements to retain their patent rights.

The second requirement to obtain a patent is that the invention be useful. In some countries this usefulness is a requirement that the invention have some sort of industrial utility. At one time, patent applications were rarely rejected because the inventions were not useful. Almost anything was useful, and normally the things examiners rejected for usefulness were inventions that did not seem as though they would perform as stated in the application. Perpetual motion machines were commonly-cited inventions that were not 'useful' because perpetual motion is not possible.

However, in many countries the invention must have what is called industrial utility. In the United States, recent court rulings have raised the bar for usefulness. The words used by some to describe this higher standard are 'substantial utility' or 'practical utility'.

This has most recently been applied to patents dealing with advances in genetic technology; the whole issue of utility has taken on what appears to be even more stringent requirements in this area. Many patent offices worldwide now require that patents on certain genetic material have 'real-world' utility, a clearly expressed use. From a practical standpoint, this means that one is better off if, in the patent application, an example is included that actually illustrates the utility of the invention. This helps avoid being saddled with what many call an alleged use or 'throw-away' utility that may happen if one simply lists some possible uses for a genetic invention.

The third requirement to obtain a patent is that the invention must not be, in the opinion of the examiner, an obvious extension of previous inventions or technology. In some countries, the invention is required to be a 'technical advance' over the prior art. This third requirement is the most hotly debated requirement in the prosecution of a patent application. The examiner will consider whether what is claimed as the invention is suggested by prior patents, or whether an individual skilled in the technology area would logically develop the invention based on reading the closest prior art. The examiner might also consider the invention as a normal optimization of some other technology. Often the issuance of a patent hinges on the applicant's response to an 'obviousness' rejection by the patent examiner. The formulation of this response is where patent agents quickly earn their fees, since in many cases it can be very difficult to generate a response that convinces the examiner an invention is not obvious.

A fourth requirement to obtain a patent is a patent application must be prepared that has a specific form and specific sections. While each country has its own requirements, normally the patent application will have (1) a list of claims that legally describe the invention for which a patent is desired; (2) supporting information for the invention, normally called a specification, including written examples if needed; (3) drawings of the invention, if these are required for someone to understand the invention; and (4) some declaration of ownership of the invention. Some countries require that the actual inventors be identified; others require that only the patent owner, or patent assignee, be identified. Some countries, like the United States, require disclosure to the patent office of the closest prior art known to the applicant, and any pertinent information relating to disclosures that might impact the validity of the patent. Most countries do not have this disclosure requirement.

A fifth requirement is that the applicant must pay fees. This is becoming a very important consideration, because countries have figured out that they can increase their revenue by increasing the amount and types of required patent fees. Normally, a fee is required to file the application, and a fee is required to have the patent issue. In addition, in most countries of the world, maintenance fees are required on a regular basis throughout the term of the patent or patent application to keep the patent in force or the application pending. While the fees for one country may not be prohibitively expensive, if the application is filed globally, a single invention can quickly generate a tremendous patent bill even before the cost of special patent agents, translations, and other ancillary requirements are added.

Other Requirements

In addition to these requirements, individual countries may have other requirements. Some countries require the issuance of “foreign filing licenses”. When a country requires a foreign filing license, this means an inventor or applicant that develops an invention in that country must obtain governmental approval to file for patents on that invention in foreign countries. In so doing, the government controls the export or dissemination of technology. While the key emphasis might be on military and other sensitive technologies, in most instances the need for a license defaults to all inventions made in that country, even though there is no threat to national security. If an inventor or applicant ignores the foreign filing license requirement, the penalties can vary from country to country and the situation, ranging from invalidity of the patent in the home country to civil or even criminal charges. Foreign filing licenses have become more of an issue as some companies have formed global innovation teams. In particular, when an invention has multiple inventors in multiple countries, patent agents (perhaps agents in all the countries in question) should be consulted to help navigate through the potential maze of foreign filing licenses.

1.5 TYPES OF PATENTS

Utility Patents

When most people talk about patents, they are referring to utility patents, and in this book we will concentrate on utility patents. These have been traditionally viewed as patents on new machines, new compositions of matter, new manufactures, or new methods or processes of making machines, compositions of matter or manufactures. A ‘machine’ is normally thought of as a mechanical invention having moving parts, while a ‘manufacture’ is normally considered a mechanical invention having no moving parts, such as a hammer or screwdriver. ‘Compositions of matter’ are normally new chemicals, polymers, and the like.

In addition to these traditional types of patents, computers and advanced electronics have ushered in patents on the measurement and control of processes where the software is a major element in the invention. While copyrights have been used in an attempt to protect computer code in Europe and the United States, patents offer greater protection in that they cover the concept expressed in the code, not just the code itself. Obtaining useful intellectual property protection in the

area of software-related patents requires the help of an experienced and up-to-date patent agent or attorney. Not only could success in securing intellectual property rely on creative positioning and description of the invention, but also on issues that are very complex and can change due to new legal opinions. Further, the area of software patents includes both traditional forms of computer software and more controversial or unsettled areas such as business methods. As with other issues, different countries have taken different positions on whether or not to recognize these types of inventions.

For many years the official position in the United States was that a procedure for solving a mathematical problem, or an algorithm, could not be patented; however, a process having several steps that used an algorithm as one step might be patentable if the process recited a statutory process if viewed without the algorithm. An important ruling by the Federal Circuit Court of Appeals (CAFC) in 1998 (*State Street Bank & Trust v. Signature Financial Group, Inc.*) further established a 'machine-or-transformation test' for patentability. The 'test' determined that the practical application of a mathematical algorithm to make a tangible and concrete result, even if it involved the abstract transformation of data as in monetary transactions, is patentable subject matter in the United States. The same ruling eliminated a general restriction on software patents related to business methods. However, in a subsequent ruling (*Bilski v. Kappos*) in 2010 the Supreme Court held that the machine-or-transformation test was not the sole determining test for patent eligibility of a process. The implication was that an invention that passed the test was perhaps likely but not assuredly a statutory process; the court considered the test simply one tool to consider. Specifically in regards to *Bilski*, the court found the claimed invention on a method of hedging losses based on an investment strategy was an abstract idea, and was therefore unpatentable. The Court maintained, however, that some business method patents could be patentable because the definition of process does include the word method. This has left the entire area dealing with such patents unsettled, and patent agents and attorneys are left with the task of figuring out how best to protect such inventions for their clients.

The number of applications filed and patents granted on software-related inventions has increased enormously, and clearly numerous court challenges have been and will continue to be initiated to determine validity of these patents. Even so, when some computer companies have been faced with the prospect of infringing a large number of another's computer patents, they have in many cases turned to licensing and cross-licensing agreements versus challenging the validity of the patents

in court. The reason is the sheer number of patents being obtained by these companies means the legal fees alone in proving or disproving validity could be staggering. Therefore, when a large number of patents are involved, paying license fees may be more economically attractive than trying to prove invalidity through multiple lawsuits that could tie up resources for several years.

Likewise, advances in biotechnology have created questions over what can be patented. The area of biotechnology is large and growing. It includes many different technologies in the medical, agricultural, and food processing industries, along with a wide range of other applications. Some of the more widely debated issues in biotechnology deal with genetic engineering to modify organisms, and what inventions in genetic engineering are truly patentable.

Any item that can be found in nature cannot be patented. However, one of the questions in the forefront of the patent debate is ‘how close to nature can one come and still have a patentable invention?’ Patent offices around the world have issued and continue to issue new guidelines around patenting such inventions, such as the ‘real-world’ utility requirement discussed in the previous section. The validity of patents on this type of technology will continue to be debated and challenged in court, and one should anticipate that the rules and guidelines will continue to evolve for this embryonic technology.

Utility Model Patents

Some countries, for example, Japan, Germany, and Korea, allow utility model patents, which can be thought of as small, more specific utility patents. Utility models typically have a shorter life than a utility patent, and were originally intended to provide some quick, inexpensive legal protection for the small inventor. From a practical standpoint, utility models are normally very narrowly claimed, or very specific to a particular product or machine. Utility model patents are sometimes called utility model registrations, because they are not typically examined rigorously by a patent examiner, if they are examined at all, and some systems require the applicant to assert the invention is worthy of a utility model patent. In countries where the time required to obtain regular utility patents is long, utility models can provide some limited protection for the inventor almost immediately. Most countries that have utility model patents also have provisions for converting utility patent applications to utility model registrations.

Design Patents

Design patents, also known as ‘industrial designs’, are used to protect new, original ornamental designs for an article of manufacture. The subject matter of a design patent can relate to the configuration or shape of an object, to the surface ornamentation on an object, or both. Normally design patents consist of a drawing of the ornamental design and a simple claim to the design, which is illustrated in the patent.

Plant Patents

Normally, plant patents refer to asexually reproduced, new and distinct varieties of plant. The word plant is normally used in its ordinary sense, so that things that might be plants, strictly from a scientific sense, such as bacteria, are not accepted as plant patents. The types of plants eligible for patent protection normally include cultivated sports, mutants, hybrids, and new seedlings, other than tuber-propagated plants or those found in an uncultivated state. In some countries, the plant must be capable of industrial application. Some countries do not provide for plant patents.

1.6 PARTS OF A PATENT

A patent application has traditionally been the collection of papers the applicant files in the patent office. However, the idea of ‘a collection of papers’ needs to be rethought because many patent offices have adopted the necessity and inevitability of the filing of electronic or paperless applications. Each country specifies what an applicant needs to include in the patent application. Normally, this consists of a written explanation of the invention in the form of a specification and drawings (if needed to explain the invention), and formal documents such as oaths or declarations as to the owner(s) and inventor(s) of the application. Normally the application is not complete unless it is accompanied by a filing fee. Some countries require the inventors to be designated.

The specification is the written description making up most of the patent application, and this is what is loosely called the ‘patent application’. The specification is constructed in a manner to help explain to the examiner why an invention is patentable. There are some commonly used sections in the application, which all become part of the resulting issued patent. These are:

1. a title;
2. a cross-reference to other related patent applications which have already been filed;
3. a section describing the background and general technical area of the invention, which will sometimes include reasons why prior inventions are lacking;
4. a summary of the invention;
5. a description of the contents in any drawings;
6. a detailed description of the invention;
7. a series of examples used to illustrate how the invention is made, used, or is different from the prior art;
8. a listing of desired claims; and,
9. an abstract describing the invention in a general way so that the invention can be easily searched.

The title is descriptive of the invention, and the cross-reference section, when included, allows the reader of the patent to understand the pedigree of the patent application. The cross-reference section also indicates whether or not the application claims an earlier priority date from another country.

While not required, some patent applications have a background section at the very beginning that describes the general status of technology in the field of the invention, and more importantly describes where the current technology fails to perform or is lacking in some manner. Patent agents use this section to list why previous attempts to solve a certain problem have not been satisfactory and to put forth reasons why a new invention would be of value. The background, along with the summary of the invention and the detailed description of the invention, may or may not be set out in clear sections of the patent application, but many applications follow this form.

The patent agent then concisely describes the invention in the summary of the invention section of the patent application. A detailed description of the invention then follows, which normally defines any new concepts or any unfamiliar terms in the patent application and describes what the inventor believes is his invention. Normally, many of the embodiments of the invention are listed in the detailed description of the invention. Included in this detail is normally some discussion of any figures or drawings included in the patent application.

In many patent applications, there is a section containing examples. Examples are used to show specifically how the invention is made or

used, or may be used to illustrate the differences between the new invention and inventions that were previously known to exist. Examples are almost always present when the patent application is for a chemical process or for a new composition of matter. The examples provide additional detail so that others can duplicate the claimed process or compound.

The listing of claims in a patent application is the legal description of the intellectual property owned, if the claim is in a granted patent; or of the property the applicant wishes to own, if the claim is in a patent application. Claims in published patent applications may change before the application issues as a patent. There are two major types of claims. There are independent claims, which stand alone as a legal description of the owned property. The second type of claim is a dependent claim, which depends on another claim. For example, the following listing of claims might be in a patent application:

1. A molded part containing 80 to 60 weight percent polymeric resin and 20 to 40 weight percent reinforcing fiber.
2. The molded part of Claim 1, wherein the reinforcing fiber is an inorganic fiber.
3. The molded part of Claim 2, wherein the inorganic fiber is a glass fiber.

Claim 1 is an independent claim, while claims 2 and 3 are dependent. Note how the dependent claims describe a more specific invention than the independent claims. Dependent claims restrict the breadth of independent claims, either by adding specificity or new elements. The reason dependent claims exist is because if the main independent claim is found for some reason to be invalid, the dependent claims may not and still provide the patent owner with a measure of protection. For example, if there was a prior disclosure of a molded part having an *organic* fiber as a reinforcing fiber, the main claim would not be valid. However, the second and third claims would still be valid, and the patent owner would still be able to exclude others from these types of molded parts.

In some countries, multiple dependent claims are favored. Multiple dependent claims refer back to more than one other claim, as in ‘The molded part of Claim 1 or 2...’. Multiple dependent claims are also written in what is called alternative form, as in ‘The molded part of any one of Claims 1–3...’. Multiple dependent claims are especially good in some countries because specific support is present in the claims

for multiple versions of the invention, which provides more confidence that amendments that combine certain features will be more likely to be accepted by examiners and not deemed to contain new matter. Multiple dependent claims have some negatives, too. In the United States, there is an additional fee for using multiple dependent claims. Also, in the United States certain fee calculations are based on the number of claims; a single multiple dependent claim is not counted as one claim, but is counted as the number of claims from which it depends.

The claims are normally either at the very end of the patent publication, as is the case for European and US patents, or they are at the very beginning of the publication, as in Japanese patents. Patents approved by the European Patent Office are published in one language, either French, German, or English; the claims section, however, has three sets of claims, one in each language. Therefore, the claims can normally be understood, even if you do not know the language of the application.

The formal abstract is the part of the patent specification that summarizes what the invention is about, and is placed in the application so that the general content of the patent application can be determined quickly by future patent searchers. This is required because if a patent is granted on an application, the patent office will want to use the information contained in the application in the review of other applications. The researcher will come into contact with two types of abstracts in working with patents, the first one being the formal abstract included in the patent application by the applicant. The second type are those generated by online computer abstracting services that provide patent abstracts for a fee to the general public. The inventor will normally see these during the drafting of the application when the patent agent is preparing a prior art search. These two abstracts are normally not the same, but both are used to give the reader or the searcher a general idea about what is contained in the patent specification.

Patent offices around the world have recognized the need for a uniform method of identifying certain information in patents, and making this information accessible even though the reader might not know the language used in the application. The front or first page of patent publications typically contain a great deal of important bibliographic information, so, on the first page(s) of patents and published patent applications, most patent offices print this important information using the 'Internationally agreed Numbers for the Identification of Data' codes, or INID codes.

The most useful INID codes for the researcher are:

10 series – Document Identification

- (11) The Patent Number or Patent Publication Number of the Document
- (12) The Language Used in the Document

20 Series – Domestic Filing Data

- (21) The Application Number(s)
- (22) The Filing Date(s) of the Application(s)
- (23) Other Date(s) Including Date of Filing of Completed Application
- (24) The Date From Which Industrial Property Rights May Have Effect
- (25) The Language in Which the Published Application was Originally Filed
- (26) The Language in Which the Application is Published

30 Series – Priority Data

- (31) The Number(s) Assigned to the Priority Application(s)
- (32) The Date(s) of Filing of the Priority Application(s)

40 Series – Date(s) Patent Publications Were Made Available to the Public

- (41) The Date Made Publicly Available of an Unexamined Document on Which no Patent Grant has Taken Place on or before the Said Date
- (42) The Date Made Publicly Available of an Examined Document on Which no Patent Grant has Taken Place on or Before the Said Date
- (43) The Date of Publication of an Unexamined Document on Which no Patent Grant has Taken Place on or Before the Said Date
- (44) The Date of Publication of an Examined Document on Which no Patent Grant has Taken Place on or Before the Said Date
- (45) The Date of Publication of a Document on Which Grant has Taken Place on or Before the Said Date
- (46) The Date of Publication of Only the Claim(s) of the Document
- (47) The Date Made Publicly Available of a Document on Which Grant has Taken Place on or Before the Said Date

50 Series – Technical Patent Office Identification and Classification Information

- (51) The International Patent Classification
- (52) The National Classification
- (53) The Universal Decimal Classification
- (54) The Title of the Invention
- (55) Keywords Used for Searching
- (56) List of Prior Art Documents Not Included in Descriptive Text
- (57) The Abstract or Claim
- (58) The Field of Search

60 Series – References to Legally Related Domestic Patent Documents (Including Unpublished Applications)

- (61) The Number/Filing Date of an Earlier Application to Which the Present Document is an Addition
- (62) The Number/Filing Date of an Earlier Application from Which the Present Document has been Divided
- (63) The Number/Filing Date of an Earlier Application of Which the Present Document is a Continuation
- (64) The Number of an Earlier Publication which is ‘reissued’
- (65) The Number of a Previously Published Patent Document Concerning the Same Application

70 Series – Identification of Parties Associated with the Patent Document

- (71) The Applicant(s)
- (72) The Inventor(s)
- (73) The Grantee(s)
- (74) The Attorney(s) or Agent(s)
- (75) Any Inventor(s) who is(are) also Applicant(s)
- (76) Any Inventor(s) who is(are) also Applicant(s) and Grantee(s)

80 Series – Identification of Dates Related to International Conventions other than the Paris Convention

- (81) Designated State(s) According to the PCT
- (83) Information Concerning the Deposit of Micro-organisms

- (84) Designated Contracting States Under Regional Patent Conventions
- (85) Date of Fulfillment of Requirements of Article 22 and/or 39 of the PCT for Introducing the National Procedure According to PCT
- (86) Filing Date of the Regional or PCT Application
- (87) Publication Data of the Regional or PCT Application
- (88) Date of Deferred Publication of the Search Report
- (89) Document Number, Date of Filing, and Country of Origin of the Original Document According to the CMEA Agreement on Mutual Recognition of Inventor's Certificates and Other Documents of Protection for Inventions.

A researcher can look for the INID numbers in parentheses and ascertain certain information, regardless of the language of the patent. For example, the priority data for the application will always appear beside a number in the (30)s, and the applicant will always be identified by a number in the (70)s. These numbers can be helpful in sorting out the dates and other information quickly and easily.

1.7 THE TERM OF A PATENT

In return for disclosing a patentable invention to the patent office, an inventor receives a patent grant for a specific period of time. The 'term' of a patent is the maximum possible time the patent can be in force. The length of time can vary from country to country, but for utility patents, the patent grant in most countries is now based on 20 years from the day the application was filed. A few countries have a shorter term. The term includes both the examination time and the time the patent is in force, so the actual enforceable patent grant is something less than 20 years. In other words, if it takes 5 years for a patent to grant, the patent will be in force for only 15 years. Of course, most countries require the patent holder to pay fees during the lifetime of the patent to maintain the patent in force. If the patent owner does not pay these maintenance fees, the patent lapses and the invention become part of the public domain.

Determining the actual date a patent expires would seem to be a simple thing; however, in practice this can be a bit confusing. In addition to checking to see whether the fees have been paid to keep the patent in force, the correct 'filing date' has to be chosen for the 20-year calculation; also, there can be term extensions that can add time and/or there can be terminal disclaimers that can take time away. For example, in the United

States if a provisional application is first filed, and then within one year a 'regular' United States application is filed claiming the priority of the provisional application, the 20-year term starts with the filing of the regular United States application, not the provisional. In other words, filing a provisional first could be thought of as getting the applicant almost another year on the term; however, in essence it just delays the enforceable term, since provisional applications are not examined.

This also applies to the applications filed via the Patent Cooperation Treaty (PCT). Normally the 20-year term starts with the filing of a PCT application. If an earlier US provisional is filed, again, it is like getting almost another year. Many other countries have term extensions that provide for the additional year if the application is first filed in those countries.

One of the new provisions in a law enacted in the United States in 1999 was the extension of patent rights due to patent office delays. The new law extends the expiration date of a patent if the patent office fails to take action on an application within a specified number of months or if delays in the patent office prevent a patent from issuing within three years from filing. Delays in prosecution caused by the applicant reduce these extensions, so applicants have a major incentive to respond to the patent office within the time set by the examiner. Another part of the law extends the expiration date for delays in other types of office activities like appeals and secrecy orders.

Term of a patent

From 1861 until 1995, the length of time a patent was in force in the United States was 17 years from the date of issue. The filing date had no impact on the length of time the patent was in force. Therefore, if it took several years for the patent to issue, the inventor profited because the patent grant was delayed but the enforceable time was not reduced. The inventor got the benefit of the invention during the years the application was being examined plus the limited monopoly granted after examination. This system, however, also allowed applicants to intentionally delay the issue of patents. In 1995, the law in the United States was changed and now patent rights expire 20 years after the filing date of the application. Applications pending or patents in force on the date of the law change get the longer of 20 years from the filing date or 17 years from issuance. Also, if an application in the United States is divided or refiled, the 20-year period starts at the first filing of the patent family, and applies to all divisional or continuations, meaning they should all expire the same day (assuming no delay in the patent office).

 PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION International Bureau		
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)		
(51) International Patent Classification 5 : G01N 33/28	A1	(11) International Publication Number: WO 91/15762 (43) International Publication Date: 17 October 1991 (17.10.91)
(21) International Application Number: PCT/US91/01635 (22) International Filing Date: 5 March 1991 (05.03.91) (30) Priority data: 506.391 9 April 1990 (09.04.90) US (71) Applicant: ASHLAND OIL, INC.[US/US]; P.O. Box 391, BL2, Ashland, KY 41114 (US) (72) Inventor: MAGGARD, Steven, M. ; 106 Broadmoor Drive, Huntington, WV 25705 (US). (74) Agents: WILLSON, Richard, C., Jr.; P.O. Box 391, BL2, Ashland, KY 41114 (US) et al.		(81) Designated States: AT, AT (European patent), AU, BB, BE (European patent), BF (OAPI patent), BG, BJ (OAPI patent), BR, CA, CF (OAPI patent), CG (OAPI patent), CH, CH (European patent), CM (OAPI patent), DE, DE (European patent), DK, DK (European patent), ES, ES (European patent), FI, FR (European patent), GA (OAPI patent), GB, GB (European patent), GR (European patent), HU, IT (European patent), JP, KP, KR, LK, LU, LU (European patent), MC, MG, ML (OAPI patent), MR (OAPI patent), MW, NL, NL (European patent), NO, PL, RO, SD, SE, SE (European patent), SN (OAPI patent), SU, TD (OAPI patent), TG (OAPI patent). Published <i>With international search report.</i> <i>With amended claims.</i>
(54) Title: PROCESS AND APPARATUS FOR ANALYSIS OF HYDROCARBONS BY NEAR-INFRARED SPECTROSCOPY		
(57) Abstract <p>Certain selected wavelengths in the near infrared spectra permit analysis of weight percent, volume percent, or even mole percent of each component, e.g. PIANO (paraffin, isoparaffin, aromatic, naphthenes, and olefins), octane (preferably research, motor or pump), and percent of various hydrocarbons, e.g. alpha olefins. Analysis can be nearly continuous analysis on-line or at-line, as well as batch analysis, e.g. in a quality control laboratory. Preferably the NIR data is converted to a second derivative of the spectra and multiple linear regression performed to model the individual PIANO concentrations, and to predict physical properties of fuel blending components, e.g. research octane of reformat, etc.</p>		

Figure 1.1 The front page of a published PCT patent application

1.8 PROVISIONAL PROTECTION

Most countries that publish patent applications 18 months after the priority date also provide for provisional protection. That is, the applicant



US005188061A

United States Patent [19]
Lombardi

[11] **Patent Number:** 5,188,061
[45] **Date of Patent:** Feb. 23, 1993

[54] **PET AND ANIMAL NURSER** 874535 8/1961 United Kingdom 119/71

[76] Inventor: Diane F. Lombardi, 171 Hichborn St.,
Revere, Mass. 02151

Primary Examiner—Gene Mancene
Assistant Examiner—Thomas Price

[21] Appl. No.: 659,224

[57] **ABSTRACT**

[22] Filed: Feb. 22, 1991

A new and improved pet and animal feeder which provides small pets and animals with nursing means within a surrounding soft material. The present invention provides a container with a plurality of nipples, hollow protuberances simulating the teats depending from a mother. The container is positioned in a cavity within a stuffed cushion having an external shape similar to the adult version of the mammal for which the invention is being used. The nipples protuberances protrude from the cushion, through apertures in the cushion, and are available for suckling by the newborns.

[51] Int. CL⁵ A01K 9/00

[52] U.S. CL 119/71

[58] Field of Search 119/71

References Cited

U.S. PATENT DOCUMENTS

- 2,106,562 1/1938 Bucci 119/71 X
- 2,577,849 12/1951 Henry 119/71
- 3,122,130 2/1964 Brown et al 119/71

FOREIGN PATENT DOCUMENTS

- 109121 3/1899 Fed. Rep. of Germany 119/71

6 Claims, 2 Drawing Sheets

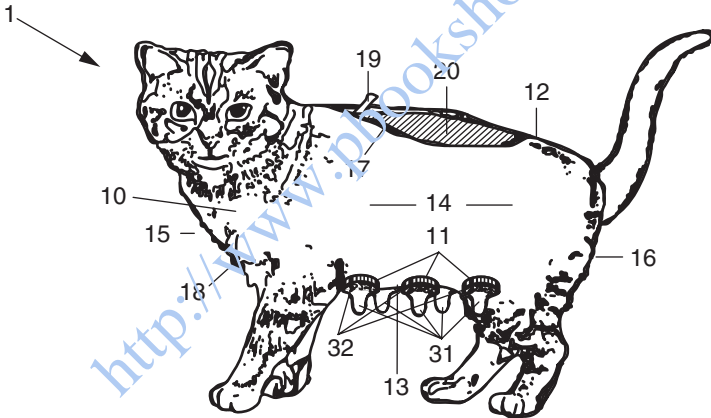


Figure 1.2 The front page of an issued United States patent

can obtain damages from a perceived infringer for actions prior to the issuance of the patent. A provisional patent system relies on the publication of the patent application so that the application for invention is on record. As with many patent matters, the exact rules pertaining to provisional protection can vary from country to country. However, a person that practices another's invention may have to pay a reasonable royalty for any use of that invention prior to patent being issued, and may not be allowed to practice that invention once the patent is issued.

A part of the law change in 2000 in the United States providing for publication of applications was the addition of provisional protection. One may be due a reasonable royalty from an infringer if the infringer is given notice and the infringed claims in the granted patent are substantially identical to those in the published application.

1.9 DEFINITIONS OF COMMONLY USED TERMS

There are some terms used frequently by patent agents and professionals that may be new to the researcher. Here are a few of the most common terms the researcher will be exposed to.

Prior Art

While this term normally means any published references that disclose information which would impact the patentability of an invention, prior art is also known engineering practice or things that are 'known in the art'. A previously published patent can be recognized as prior art if it discloses information which comes close to describing an invention; it does not have to specifically claim the same invention. Also, a patent examiner might also consider a previously-filed and pending patent application as prior art if it claims the same invention. Patent agents will normally use the 'closest prior art' in preparing the patent application. The closest prior art are those references that come closest to disclosing an invention, whether used individually or in combination. The closest prior art will impact the way the patent application is written, for if there is very close prior art, the claims in the new patent application may be very specific and narrow, and the inventor may have to have examples showing how this new invention is different from prior inventions. On the other hand, if there is very little prior art, there is a very good possibility the patent will have broad claims, and the patent application could be written to emphasize and exemplify whatever features are most important to the inventor.

Priority Date

This is the date a patent application was first filed in any country that is a signatory to a cooperative filing treaty (see Paris Convention). This date can differ from later 'actual' dates when the application was filed in other countries under the treaty. The priority date is considered to be the 'effective date of filing' for the examination of the patent application.

In other words, when considering novelty and inventive step or non-obviousness of the invention, the patent examiner will consider any art that is deemed by law to be available before the priority date, not any art made available after the priority date but before any later filing dates in subsequent countries. The period that the priority right exists is normally dictated by the treaty, and is usually 12 months for patents and utility models (called the 'priority year'). The period that the priority right exists for industrial designs is normally six months.

Filing Date

This is the date a patent application was actually filed in a particular country. If the country is a signatory to an international treaty, then the applicant may be afforded the opportunity to use the priority date for examination purposes. The filing date may vary from country to country for the same patentable invention, because international treaties allow for this without the applicant losing any patent rights.

Prosecution

In the patent world, this term is used to describe the efforts by an applicant or patent agent to obtain a patent. While an applicant's patent application is being considered in the patent office, the application is said to be 'under prosecution' in the patent office.

Office Action

This term refers to the written communication sent by the patent examiner in the patent office to the applicant during prosecution of the patent application. The office action will normally consist of standard forms and written text explaining the examiner's position on the patentability of the invention. The office action will normally require a written communication, or 'response', from the applicant or the applicant's agent to continue prosecution of the application.

Rejection

If the examiner does not think the invention is patentable, the applicant will receive an office action from the examiner called a rejection. This type of office action lists specifically why the application is being rejected, and may include suggestions as to what the applicant can do, or how the applicant can amend the application to make the invention patentable.

Objection

If the examiner thinks the applicant's application is incomplete or is in the wrong form, or some formal requirement is not met, the examiner may 'object' to some part of the application. Normally, objections can easily be overcome by the patent agent, since they typically deal with the form of the application.

Amendment

During prosecution, the applicant may want or need to change the scope of the claims, add new claims, or in some way change the application. If this is the case, the applicant will make these changes in the form of an amendment, which is normally included in the response to an office action.

Final Rejection

If the applicant's arguments are not persuasive, the examiner may issue a final rejection. This indicates to the applicant that the examiner intends to close prosecution on the case, and normally the applicant can submit one final argument for patentability, which may or may not be sufficient to overcome the rejection.

Patent Pending

After a patent application has been filed, it is said the patent is pending and active in the patent office. 'Patent pending' is placed on inventions to make sure the public understands a patent has been filed on the invention; this warning has legal implications should a competitor knowingly duplicate the invention before the patent issues. The identification of 'patent pending' serves as a notice to others that damages may be taken from the first day the patent on the invention issues. However, the labelling of 'patent pending' on a device does not mean a patent will actually issue on the device; it just means a patent is pending in the patent office.

Publication

In most countries of the world, the patent laws require the patent application to be published after filing, regardless of the ultimate status

of the application. In addition, the information in the patent application will be published again after examination if the patent is granted. Therefore, there are numerous patent 'publications', some of which are not patents. The status of these publications at the time of printing will either be available on the front page of the publication, or can be inferred from the publication number.

Laid-open

This term is used to describe the process of publishing patent applications, and is normally associated with Japanese patent applications. The term comes from the thought that the application is 'laid open' for public inspection, which serves notice that the patent application is pending in the patent office. Laid-open patent applications are not issued patents, but rather encourage the development of technology by the rapid dissemination of information.

Opposition Proceedings and Post-Grant Reviews

Some countries allow the public to oppose the grant of a patent, generally soon after the patent grant, if it is thought the granted patent claims are invalid. These opposition proceedings are conducted in the country's patent office, allowing questions of validity to be addressed there rather than in litigation in the more costly and complicated judicial systems in the country.

For many years, the European Patent Office (EPO) has had a procedure that provides for this period of public scrutiny. The public is given a nine-month window after the grant date to initiate an 'opposition proceeding' to address whether or not the patentee was due the granted claims. The opposition filing initiates an entire new round of negotiations and communications with the patent office by both the opposer and the patentee. In addition to various submitted written briefs provided by both parties, it is not uncommon for either the opposer or the applicant to request an oral hearing in front of an Opposition Board to debate their position. It is also not unusual for the decision of the Opposition Board to be further appealed, with additional oral hearings heard before an Appeal Board in the EPO.

At one time, the Japanese Patent Office also had a formal, but different, public opposition procedure. In their procedure, the allowed application was 'published for opposition' prior to its grant, and the public again had a period of time to put forth arguments that the patent should not

issue. Japan eliminated this opposition proceeding in 2003, and replaced it with a patent invalidation trial that is heard by appeal examiners on the Board of Appeal in the Japanese Patent Office. A patent invalidation trial can be instituted at any time, and the losing party can appeal the decision in the court system.

The America Invents Act of 2011 adds new procedures for the formal review of patents, and also modifies some of the existing procedures. This is further complicated by applying certain new procedures for applications filed after a certain date. There are three types of patent review procedures. These are the ‘*ex parte* reexamination’ procedure, the new ‘post-grant review’ procedure, and finally the ‘*inter partes* reexamination/review’ procedures. The patent office itself can also initiate a review.

***Ex Parte* Reexamination**

Ex parte reexamination has been available in the United States for a long time, and at one time, this was the only post-grant option in the patent office. ‘*Ex parte*’ has the general meaning of ‘from (by or for) one party’. In an *ex parte* reexamination, the patent owner or a third party can have the patent reexamined by the patent office to confirm the patentability of the granted claims. To initiate an *ex parte* reexamination, prior art must be submitted that raises a ‘substantial new question of patentability’ and a significant fee must be paid. In most cases, from a practical standpoint, this normally means submission of a reference that was not considered by the examiner during the original examination. The reexamination can be filed at any time during the life of the patent. It is not uncommon for a third party who is a defendant in an infringement lawsuit to request reexamination of the patent at issue, in hopes of having the patent office revoke or require amendment of the claims. Likewise, patent owners have requested the reexamination of their own patents, seeking to confirm the claims and strengthen the credibility of their patents in preparation for litigation. In some instances, the trial proceedings are put on hold pending the outcome.

The key factor with *ex parte* reexaminations is that once the initial question of patentability is submitted to the patent office by either a third party or the patent owner and the reexamination is started, all of the prosecution is then conducted between the patent office and the patent owner; third parties have no additional input, even though they will receive copies of the office actions and patent owner responses. Since the patent office only hears the patent owner’s perspective, *ex parte*

reexamination has been used cautiously by third parties, because it could actually strengthen the patent in unintended ways.

***Inter Partes* Reexamination/Review**

Inter partes reexamination has been available in the United States for patent applications filed after the enactment date of November 29, 1999. Unlike *ex parte* reexamination, in an *inter partes* reexamination the third party requester is able to participate in the reexamination prosecution and any appeals that may result. However, if a third party initiates an *inter partes* reexamination, they are limited in initiating any subsequent litigation. Generally, the third party is prevented from initiating invalidity litigation based on any ground 'that was raised or could have been raised' in the course of an *inter partes* reexamination. The restrictions related to this aspect of the procedure deters some parties from initiating an *inter partes* reexamination. *Inter partes* reexamination is also more expensive than *ex parte* reexamination, including higher initial patent office fees, and intuitively more involvement by patent agents and therefore more legal fees. However, this increased cost to third parties is likely well worth the perceived increase in ultimate effectiveness provided by being able to provide comments to the patent office examiner during prosecution.

While reexaminations were already complicated procedures, requiring experienced legal help, the passage of the America Invents Act of 2011 made additional options available and changed certain aspects of existing procedures. For example, the AIA replaces the '*inter partes* reexamination' procedure with an '*inter partes* review' procedure, and the transition from the old procedure to the new procedure provides increased but hopefully temporary complexity. Upon enactment of the AIA, the legal standard the third party has to meet for the patent office to order an *inter partes* reexamination was changed. For requests for *inter partes* reexamination dated as of September 16, 2011, or later, the new legal standard is a 'reasonable likelihood that the requestor would prevail' in the cancellation of one of the claims versus the prior legal standard of raising a 'substantial new question of patentability' of one of the claims.

Further, the new *inter partes* review procedure can only be initiated after the later of nine months after issuance of the patent, or the termination of a 'post-grant review', a new procedure also provided by the passage of the AIA. The request for an *inter partes* review can be filed by anyone but the patent owner, and the review is heard before the Patent Trial and Appeal Board. The real third party must be identified,

unlike the *ex parte* reexamination, which can be done anonymously. The *inter partes* review procedure continues the *inter partes* reexamination provision of limiting any subsequent litigation by the third party should the patent be found valid. However, under *inter partes* review the third party is prevented from initiating invalidity litigation based on any ground 'that was raised or could have reasonably been raised', a slight change from the prior standard of 'that was raised or could have been raised', which no doubt is designed to provide some option for litigation.

There are many issues for the parties to consider with these procedures, and as is the case for any new changes in the law, new questions arise and only time will tell how these will be addressed by rulemaking or in the courts. Therefore having competent legal guidance from a patent agent or attorney is required.

Post-Grant Review

The America Invents Act of 2011 provides a new procedure for post-grant review of US patents. Under the new procedure, any third party may request to cancel any or all claims of a patent, based on the argument at least one of the granted claims is invalid. The reasons for this invalidity can include not only the lack of novelty and/or obviousness of the granted claims, but could include other issues such as a lack of enablement or lack of written description or other defects in the patent. Evidence must be provided that supports the assertion of invalidity and the petition for the review must be filed within nine months of the issuance of the patent. Also, the post-grant review procedure requires a substantial fee.

The legal standard for initiating the new post-grant review procedure is that at least one claim is 'more likely than not' unpatentable, if the supplied evidence of invalidity is not rebutted by the patentee. The new post-grant review is available for any patent issued having an effective filing date as of March 16, 2013. It cannot be used for patents having an effective filing date prior to that date; those patents will use the *inter partes* procedure. If the patent office grants the review, it is supposed to be timely, with the final determination from the Patent Trial and Appeal Board being issued within one year.

If the Patent Trial and Appeal Board provides a written decision of validity for the patent owner, the post-grant review procedure stipulates that the third party bringing the request cannot further request or maintain any proceeding in the patent office or initiate civil legal action based on any ground 'that was raised or could have reasonably been raised' during the review. However, if the parties separately settle the matter

in a written agreement and jointly request the termination of the review prior to the decision, no written decision will be issued by the Patent Trial and Appeal Board, and the government-imposed limitations from further legal action do not apply. Generally the written settlement agreement can be confidential, but there is provision to disclose the agreement to federal agencies and any other person upon showing of good cause.

Appeal

Should the examiner not think an invention is patentable, or should the applicant lose in an opposition procedure, the applicant can appeal either decision by filing additional briefs, and paying additional fees, which in essence keeps the question of patentability alive and under review in the patent office. Should the applicant lose all appeals in the patent offices, in some countries the applicant can further appeal the case in the judicial system of the country. Obviously, appeals take a lot of time and money to resolve.

Infringement

Whenever one makes, uses, or sells a patented invention without permission from the patent owner, that person is said to infringe the patent. Infringement is a very serious issue and the penalties for infringement can be very severe. For example, if it is very clear a patent is being infringed by another, the patent owner may be able to get the courts to issue a summary judgment to stop the infringing activity immediately. This can mean a business that is operating one day is immediately shut down the next. Also, one willfully infringing a patent in the United States could be forced to pay the patent owner three times the damages caused by the infringement. To avoid infringement, normally a patent search is made to determine whether any other patents will be infringed if a new invention is commercially introduced (see also Chapter 5).

Prior User Rights

Some countries allow for prior user rights, or the ability for one to continue to use a secret process one has been using commercially if another party independently obtains a patent on that process. These rights vary from country to country and can be quite complicated and restrictive on how one may continue to operate in the face of the patent.

The America Invents Act of 2011 significantly expands prior user rights in the United States for an alleged infringer of any patented invention.

Under the AIA, prior user rights can be asserted by an accused infringer for ‘subject matter consisting of a process, or consisting of a machine, manufacture, or composition of matter used in a manufacturing or other commercial process’. Some feel this provides an incentive to keep commercially-used inventions secret rather than patent them, especially if one does not expect to make improvements to those inventions. Prior user rights are only available to those commercially using the invention in the United States at least a year prior to the earlier of the effective filing date or first public disclosure by the inventor. The definition of ‘commercial use’ has also been expanded to include such things as some periods of regulatory review, such as certain approvals for a drug and non-commercial use by non-profit laboratories. However, the prior user right cannot be transferred to another unless the entire business is sold, and may be restricted to the geographical location where the prior commercial use was practiced. Worldwide, there are a number of exceptions and variants related to prior-user rights, so actual use of the provision will need close guidance by an intellectual property professional in the country at question.

1.10 INTERNATIONAL TREATIES

An overview of patent law would not be complete without providing information about global treaties, which have made the global acquisition of intellectual property protection easier and more uniform. While there have been a number of agreements, and revisions to those agreements, the researcher needs to be familiar with only the major provisions.

In general, these treaties are used to make the filing of patent applications easier for the applicant. Although the actual filing should be handled by a patent agent, it is helpful for the researcher to understand how the various systems work, since it is likely the researcher will be asked to help respond to office actions from around the world.

1.11 THE PARIS CONVENTION

The Paris Convention for the Protection of Industrial Property, commonly shortened and called the ‘Paris Convention’, is a multilateral treaty that originated in 1883, and has been revised several times since. Over 100 countries have become signatories to this treaty, which is administered by the World Intellectual Property Organization (WIPO) located in Geneva, Switzerland (see Table 1.1). This treaty essentially

Table 1.1 Paris Convention countries

Albania	Democratic Republic of	Lativa
Algeria	the Congo	Lebanon
Andorra	Denmark	Lesotho
Antigua and Barbuda	Djibouti	Liberia
Argentina	Dominica	Libya
Armenia	Dominican Republic	Liechtenstein
Australia	Ecuador	Lithuania
Austria	Egypt	Luxembourg
Azerbaijan	El Salvador	Madagascar
Bahamas	Equatorial Guinea	Malawi
Bahrain	Estonia	Malaysia
Bangladesh	Finland	Mali
Barbados	France	Malta
Belarus	Gabon	Mauritania
Belgium	Gambia	Mauritius
Belize	Georgia	Mexico
Benin	Germany	Monaco
Bhutan	Ghana	Mongolia
Bolivia	Greece	Montenegro
Bosnia and Herzegovina	Grenada	Morocco
Botswana	Guatemala	Mozambique
Brazil	Guinea	Namibia
Brunei Darussalam	Guinea-Bissau	Nepal
Bulgaria	Guyana	Netherlands
Burkina Faso	Haiti	New Zealand
Burundi	Holy See	Nicaragua
Cambodia	Honduras	Niger
Cameroon	Hungary	Nigeria
Canada	Iceland	Norway
Central African Republic	India	Oman
Chad	Indonesia	Pakistan
Chile	Iran	Panama
China	Iraq	Papua New Guinea
Colombia	Ireland	Paraguay
Comoros	Israel	Peru
Congo	Italy	Philippines
Costa Rica	Jamaica	Poland
Côte d'Ivoire	Japan	Portugal
Croatia	Jordan	Qatar
Cuba	Kazakhstan	Republic of Korea
Cyprus	Kenya	Republic of Moldova
Czech Republic	Kyrgyzstan	Romania
Democratic People's	Lao People's Democratic	Russian Federation
Republic of Korea	Republic	Rwanda

(continued overleaf)

Table 1.1 Paris Convention countries (*continued*)

Saint Kitts and Nevis	Sri Lanka	Turkmenistan
Saint Lucia	Sudan	Uganda
Saint Vincent and the Grenadines	Suriname	Ukraine
San Marino	Swaziland	United Arab Emirates
Sao Tome and Principe	Sweden	United Kingdom
Saudi Arabia	Switzerland	United Republic of Tanzania
Senegal	Syrian Arab Republic	United States of America
Serbia	Tajikistan	Uruguay
Seychelles	Thailand	Uzbekistan
Sierra Leone	The Former Yugoslav Republic of Macedonia	Venezuela
Singapore	Togo	Viet Nam
Slovakia	Tonga	Yemen
Slovenia	Trinidad and Tobago	Zambia
South Africa	Tunisia	Zimbabwe
Spain	Turkey	

allows an applicant a year's grace period after filing an application in a signatory country to file the application in other signatory countries while still retaining the original filing date, or priority date. The convention applies to patent applications, utility model applications, design patent applications and trademark applications, although the timing for patents and utility models is 12 months, and the timing for designs and trademarks is six months. Most countries have signed this treaty; a notable exception at the time of writing is Taiwan, although Taiwan has negotiated separate treaties with many countries.

The Paris Convention helps the applicant in two ways. First, it gives the applicant the freedom to openly publicize his invention after filing his first patent application, while still retaining his patent rights in most countries. Since a public disclosure of an invention prior to the filing of a patent application would make a patent issued for that invention invalid in many countries of the world, if the Paris Convention was not in place, an inventor would have to keep his invention secret while he frantically filed patent applications worldwide. However, because the treaty is in place for most countries, an inventor can file his original patent application in his home country and then leisurely file the same application in other countries up to one year later, claiming the original priority date in all countries. It is as if he magically filed patent applications in all of the countries on the same day.

The second advantage the Paris Convention provides is it gives the applicant a year after the initial filing of his patent application to get

some feedback on his invention before he must make his final decision on where in the world to apply for patent protection. Few inventions are true commercial successes. Inventions that seem wonderful in the laboratory may have some flaw, hidden to the inventor's eyes, that makes the invention entirely unworkable. By allowing the inventor to get initial feedback on his invention, the inventor can better decide whether or not he has a salable invention. In some cases, the inventor may receive only limited feedback during the year's grace period, so the inventor may still have to use his best judgment for the global filing. However, in most cases, inventions with major flaws will be apparent almost immediately after a new set of eyes has viewed them. The Paris Convention helps the inventor save money and patent examiners save time when additional applications are not filed on worthless inventions.

Some countries have not signed the treaty. In order to obtain valid patent protection in these countries, the inventor must maintain secrecy until the application is filed in these countries. This inconvenience can be compounded if the country in which the invention was made requires a license to file patent applications in other countries on this technology. For example, the inventor of an invention made in the United States is required to obtain a foreign filing license from the USPTO prior to filing an application for patent outside the United States. For most inventions, once the inventor files for a patent in the USPTO, the USPTO will automatically issue such a foreign filing license, assuming there is no national security issue with the invention. Also, if the USPTO does not automatically issue a license, and also does not impose a secrecy order on the application, the applicant gets an automatic foreign filing license after six months. Further, the applicant can separately petition the USPTO for an expedited foreign filing license.

If one wants to file in a non-Paris Convention country, and still wants to publicize the invention as soon as possible after patent rights have been reserved, one must first file the application in the United States, immediately request a foreign filing license, and then file the application in the other country as soon as the license is received. The invention can then be publicly disclosed after all the patent application filings are completed.

1.12 THE PATENT COOPERATION TREATY

The Patent Cooperation Treaty, commonly referred to as the PCT, dates from 1970 and has become a major method by which patent

applications are filed internationally. The PCT is also administered by the World Intellectual Property Organization (WIPO.)

The most obvious advantage of the PCT is that it provides a convenient mechanism for filing patent applications for the same invention in many different countries at one time. The application can be filed in any of the signatories of the treaty by filing essentially one set of papers in any one of several receiving offices worldwide. The application can also usually be filed in the applicant's native language, although a translation may later be required during the prosecution of the application.

The PCT provides an additional advantage in that applicants have the opportunity to defer the payment of certain filing, translation, and other fees for up to 30 months after the priority date of the application. This can provide the applicant extra time to determine whether or not the invention is worth the money and effort to obtain patents globally. Applications filed via PCT are published 18 months after the priority date. The PCT procedure also provides provisional protection in those countries that provide for such protection, which means an inventor could be able to claim damages for infringement as early as the publication date.

An application filed using the PCT has an international search report provided by one of the international search offices. This search is completed within three months of receipt of the application, or nine months after the priority date, whichever is longer, and the search indicates how pertinent the cited references are to the application.

In addition to the international search, many countries have agreed to additional treaty provisions, called Chapter II, that allow for a preliminary examination of the application, which is essentially an opinion of patentability. Regardless of the preliminary examination, all countries have their own procedures for examining the application, although a favorable preliminary examination is a good indicator of the patentability. The Chapter II provision also provides the 30-month delay mentioned earlier; if the country is not a signatory of Chapter II, then the delay is only 20 months. Member states of the PCT at the time of this writing are shown in Table 1.2, along with the accepted country codes or abbreviations.

It is not unusual for an inventor to file a patent application using both the Paris Convention and the PCT; the Paris Convention is used to establish the priority date for the application, while the PCT is the actual filing mechanism for most of the global applications. In this

Table 1.2 Patent Cooperation Treaty countries and country codes

Country	Code	Country	Code
Albania	AL	Finland	FI
Algeria	DZ	France	FR
Angola	AO	Gabon	GA
Antigua and Barbuda	AG	Gambia	GM
Armenia	AM	Georgia	GE
Australia	AU	Germany	DE
Austria	AT	Ghana	GH
Azerbaijan	AZ	Greece	GR
Bahrain	BH	Grenada	GD
Barbados	BB	Guatemala	GT
Belarus	BY	Guinea	GN
Belgium	BE	Guinea-Bissau	GW
Belize	BZ	Honduras	HN
Benin	BJ	Hungary	HU
Bosnia and Herzegovina	BA	Iceland	IS
Botswana	BW	India	IN
Brazil	BR	Indonesia	ID
Bulgaria	BG	Ireland	IE
Burkina Faso	BF	Israel	IL
Cameroon	CM	Italy	IT
Canada	CA	Japan	JP
Central African Republic	CF	Kazakhstan	KZ
Chad	TD	Kenya	KE
Chile	CL	Kyrgyzstan	KG
China	CN	Lao People's Democratic Republic	LA
Colombia	CO	Latvia	LV
Comoros	KM	Lesotho	LS
Congo	CG	Liberia	LR
Costa Rica	CR	Libya	LY
Côte d'Ivoire	CI	Liechtenstein	LI
Croatia	HR	Lithuania	LT
Cuba	CU	Luxembourg	LU
Cyprus	CY	Madagascar	MG
Czech Republic	CZ	Malawi	MW
Democratic People's Republic of Korea	KP	Malaysia	MY
Denmark	DK	Mali	ML
Dominica	DM	Malta	MT
Dominican Republic	DO	Mauritania	MR
Ecuador	EC	Mexico	MX
Egypt	EG	Monaco	MC
El Salvador	SV	Mongolia	MN
Equatorial Guinea	GQ	Montenegro	ME
Estonia	EE	Morocco	MA

(continued overleaf)

Table 1.2 Patent Cooperation Treaty countries and country codes (*continued*)

Country	Code	Country	Code
Mozambique	MZ	Singapore	SG
Namibia	NA	Slovakia	SK
Netherlands	NL	Slovenia	SI
New Zealand	NZ	South Africa	ZA
Nicaragua	NI	Spain	ES
Niger	NE	Sri Lanka	LK
Nigeria	NG	Sudan	SD
Norway	NO	Swaziland	SZ
Oman	OM	Sweden	SE
Papua New Guinea	PG	Switzerland	CH
Peru	PE	Syrian Arab Republic	SY
Philippines	PH	Tajikistan	TJ
Poland	PL	Thailand	TH
Portugal	PT	The Former Yugoslav Republic of Macedonia	MK
Qatar	QA	Togo	TG
Republic of Korea	KR	Trinidad and Tobago	TT
Republic of Moldova	MD	Tunisia	TN
Romania	RO	Turkey	TR
Russian Federation	RU	Turkmenistan	TM
Rwanda	RW	Uganda	UG
Saint Kitts and Nevis	KN	Ukraine	UA
Saint Lucia	LC	United Arab Emirates	AE
Saint Vincent and the Grenadines	VC	United Kingdom	GB
San Marino	SM	United Republic of Tanzania	TZ
Sao Tome and Principe	ST	United States of America	US
Senegal	SN	Uzbekistan	UZ
Serbia	RS	Viet Nam	VN
Seychelles	SC	Zambia	ZM
Sierra Leone	SL	Zimbabwe	ZW

case, the inventor first files in his home country, and then files the PCT application within a year of that filing date. This allows for the home country to start examination of the application and some additional time to understand the value of the invention before paying the fee for filing the PCT application. Of course, one can file directly in the PCT first; however, this will delay the start of the examination. When one files a patent application through the PCT, one is adding an additional step, for convenience, to the process of obtaining patents in countries. One's application must first follow and satisfy all of the PCT procedures and requirements, and then the application is sent to the patent offices of the various countries for final prosecution.

The PCT provides the applicant with other advantages:

- The individual payments of the national filing, translation, and other fees are delayed for 20 months (or 30 months if the country is a signatory of Chapter II) after the priority date of the application. This provides the applicant with extra time to determine whether the invention will be a commercial success and worth the money and effort to obtain patents globally.
- The applicant can initially file in almost all countries of the world for one fee, and reduce the number of countries at a later date without incurring additional fees. This provides the applicant extra time to determine where in the world a patent will be useful. Since the payments of most fees are delayed, the applicant can keep his options open for a long time after filing. This flexibility can be most welcome if it is unclear whether or not an invention will be successful.
- Applications filed via PCT are published 18 months after the priority date. Publication of the application also serves as a disclosure of the invention claimed, which should prevent another from patenting the same invention.

There are some negatives to the PCT:

- Using the PCT to file patent applications can increase the total global filing bill, especially if one files in only a few countries. The PCT is essentially an additional step in the global filing process; one must still prosecute the application in the individual examining identities as before. The extra cost is for the convenience of getting the application filed and obtaining a preliminary examination.
- The application is not examined for at least 20 months; this delay may not be prudent if one is trying to stop an infringer of the invention. However, if the applicant knows about the infringer at the time of filing, he can still have the possibility of combining the national and PCT filings to try to get an expedited examination in the country where infringement is occurring. So, those in fast-moving technology areas where patents are more valuable near-term than longer term have to weigh carefully how and when they will use PCT.
- The PCT invites indecision. Since there are so many options, the tendency is to put off deciding where to file the application. The deadlines in the PCT procedures are firm; one normally cannot

correct being late by paying a fee. Therefore, if faced with the decision, but with limited time, the tendency is to retain too many countries because of inadequate attention to the decision. It is far better to decide before filing where patents are really desired. One can still 'file' in all of the countries and then restrict later, and if a list of key countries is already known, the final decision will be whether or not to add to that original list. This is a much easier task to accomplish than to consider all countries of the world and try to restrict to only a few.

As is the case with the Paris Convention, there are some countries that have not signed the PCT. To file in the countries that have not signed the PCT normally requires translating the application into the accepted language for the country and filing the application using an agent in the country. If the country has also not signed the Paris Convention, then one normally must also keep the invention totally secret until the patent application is filed. Over the past few years, more countries have signed the PCT, and most industrial countries are now signatories. As of this writing, the PCT has 144 signatory countries. The more notable countries that have not signed the PCT so far include several countries in South America, including Venezuela and Argentina; several countries in Africa and the Middle East including Ethiopia, Saudi Arabia, and Pakistan; and Taiwan.

1.13 THE EUROPEAN PATENT CONVENTION

Since establishment of the Convention on the Grant of European Patents (EPC) in 1973 in Munich, many countries have signed on to establish a uniform patent system in Europe. The aim of the Convention is to make the protection of inventions easier, more reliable, and less expensive in the member states. The patent system, which has a centralized searching and examination authority, is administered by the European Patent Organization (EPO) for the member countries. The headquarters of the EPO is in Munich, with a branch in The Hague and offices in Berlin, Vienna, and Brussels.

The EPC provides a single grant process for all of the EPC contracting states. Under the EPC, applicants that are successful in prosecution receive a 'European Patent'. This European Patent however, is not automatically effective in all contracting states, but in only the EPC countries that the applicant has designated. It is therefore similar to obtaining a

bundle of national patents in Europe. Applicants can still file applications separately in each country. However, if one were to file separately in each country one would not only have to deal with separate applications and the higher cost if many of the European countries were selected, but also some countries do not examine patent applications but only provide a registration system. Therefore, if one uses the EPO, the applicant knows that their granted patent has undergone a substantive examination procedure which should mean the patent is probably more valuable.

The term of a European patent is 20 years from the filing date of the application, and the patent confers the same rights in each country as would be conferred by a national patent in that country. However, any patent infringement is dealt with by national law, and efforts have been made to make uniform the treatment in all the contracting states.

Member states of the EPC at the time of this writing are shown in Table 1.3, along with the extension states. These countries have signed agreements with the European Patent Organization; European patents and patent applications can be extended to these countries.

There has also been an ongoing effort to establish a regional patent in Europe. The Community Patent Convention was first signed in 1975 and would establish a European Community Patent that would be in force in all the European Union countries. Negotiations have continued; however, the Community Patent is not a reality as of the time of this writing.

Table 1.3 European Patent Convention countries

Member States		
Albania	Hungary	Norway
Austria	Iceland	Poland
Belgium	Ireland	Portugal
Bulgaria	Italy	Romania
Croatia	Latvia	San Marino
Cyprus	Liechtenstein	Serbia
Czech Republic	Lithuania	Slovakia
Denmark	Luxembourg	Slovenia
Estonia	Former Yugoslav	Spain
Finland	Republic of Macedonia	Sweden
France	Malta	Switzerland
Germany	Monaco	Turkey
Greece	Netherlands	United Kingdom
Extension States		
Bosnia Herzegovina		Montenegro

1.14 THE AFRICAN INTELLECTUAL PROPERTY ORGANIZATION

The African Intellectual Property Organization, known as OAPI after the French ‘Organisation Africain de la Propriete Intellectuelle’, provides protection for inventions, trademarks, and designs for those states that have signed the Bangui Agreement of 1977 that went into force in 1982. (The organization is also known by AIPO.) The Bangui Agreement is effective in 16 countries of the OAPI, and all adhere to the Paris Convention. Unlike the EPC or ARIPO (see below), patents issued by the OAPI office automatically cover all 16 member states at once, without registration or designation. The one exception to this is that patents obtained via the PCT designating the OAPI extend only to those states which are actually members of the PCT as well as the OAPI. There is a single patent law that extends to all member states. Both French and English are generally accepted by the patent office. The term of the patent is 10 years from the filing date of the application. This can be extended for two additional five-year periods if the patent holder can show that the patent is being worked in a member state or there are legitimate reasons for no working. The OAPI patent office is located in Yaounde, Cameroon. The member countries are shown in Table 1.4.

1.15 THE AFRICAN REGIONAL INTELLECTUAL PROPERTY ORGANIZATION

The African Regional Intellectual (formerly ‘Industrial’) Property Organization, known as ARIPO, is empowered to grant patents and to register industrial designs, through one office, for those states that have signed the Harare Protocol on patents and industrial designs. It has evolved from an organization that resulted from a diplomatic conference involving the English-speaking African countries in 1976 and was for a period

Table 1.4 African Intellectual Property Organization (OAPI) countries

Benin	Congo	Mali
Burkina Faso	Cote d’Ivoire	Mauritania
Cameroon	Gabon	Niger
Central African Republic	Guinea	Senegal
Chad	Guinea-Bissau	Togo
	Equatorial Guinea	

Table 1.5 African Regional Industrial Property Organization (ARIPO) countries

Botswana	Malawi	Sudan
Gambia	Mozambique	Swaziland
Ghana	Namibia	Tanzania
Kenya	Rwanda	Uganda
Lesotho	Sierra Leone	Zambia
Liberia	Somalia	Zimbabwe

of time called ESARIPO (English-Speaking African Regional Industrial Property Organization). Although the name has now changed, even now non-English documents submitted to ARIPO must be accompanied by an English translation. Membership is open to members of the United Nations Economic Commission for Africa or the Organization of African Unity. The headquarters for ARIPO was established in Harare, Zimbabwe, in 1981; the 18 member countries at the time of writing are shown in Table 1.5. (Many other African countries are potentially member states and have observer status in ARIPO meetings.)

The Harare Protocol provides for a simplified procedure where an applicant can obtain protection in several designated states with a single patent application. The amount of fees paid for an ARIPO application is dependent on the number of member states designated. Also, ARIPO is a member of the Paris Convention and any applicant filing a PCT application can designate ARIPO for any member of the ARIPO that is also a member of the PCT.

Once an application is filed, the application is examined by ARIPO who decides whether a patent grant is appropriate. The patents then granted under this system can be designated or registered as patents in the individual contracting states. However, member states have the right to refuse to grant a patent if it conflicts with their national law. An applicant can also get independent patents in many of the member states, separate from the procedures of ARIPO. In most of the member states the patent term is 20 years from the filing date, although some countries have shorter terms and some have the provision for patent extensions.

1.16 EURASIAN PATENT CONVENTION

In September 1994, the heads of nine countries of the former Soviet Union signed the Eurasian Patent Convention in Moscow. The purpose

Table 1.6 Eurasian Patent Convention countries

Armenia	Kazakhstan	Russian Federation
Azerbaijan	Kyrgyz Republic	Tajikistan
Belarus		Turkmenistan

of the Convention was to create a system for obtaining legal protection based on the issuance of a single patent valid in all Contracting States. The Convention would become effective when it had been ratified by three states. Soon thereafter Turkmenistan joined the other countries in signing the Convention and then became the first state to ratify the treaty. When Belarus and Tajikistan ratified the Convention, it entered into force on August 12, 1995.

The Eurasian Patent Organization (EAPO) has been established to handle the administration of the patent system. Membership of the Convention is open for any member of the United Nations that is also bound by the Paris Convention and the Patent Cooperation Treaty. For many years, there were nine Contracting States to the Convention; however, the Republic of Moldova, which was an original signatory to the Convention, denounced the Convention in October 2011 and as of April 26, 2012, is no longer a member. The remaining eight Contracting States are listed in Table 1.6.

The Convention allows an applicant to file, in a central patent office in Moscow, a single patent application in Russian designating all of the member countries. The application is published 18 months from its filing date or any claimed priority date, and within six months of that publication, examination must be requested. Prosecution in the Eurasian Patent Office is similar to that of the European Patent Office; however, once a patent is granted, no additional translations are required. A common patent is granted and is in force in all of the countries designated by the applicant, and the applicant has to pay maintenance fees to the individual countries to keep the patent in force.

The term of the Eurasian patent is 20 years from the filing date. The requirements for a patent is that the invention be new, involve an inventive step, and be industrially applicable. The World Intellectual Property Organization (WIPO) has permanent advisory status in the Administrative Council of the Convention, and it also has the role of mediator among the member states in case of possible disputes concerning the Convention.

1.17 COPYRIGHTS, TRADEMARKS, AND TRADE SECRETS

Intellectual property is not restricted to patents, but also includes copyrights, trademarks, and trade secrets. It is important that the researcher understands and is not confused about what these are and how they differ. The last part of this chapter will briefly review these concepts.

Copyrights

Patents protect inventions. Inventions are ideas that have been reduced to practice. By 'reduced to practice' it is meant an idea must be put in tangible form before it can be patented. In any case, just like patents protect ideas that have been reduced to practice, copyrights protect the expression of ideas. Note that copyrights cannot protect the idea itself, but the way the idea is fixed in a tangible medium like a book or another type of expressive work.

Copyrights are used to protect many types of authorship, including literature, drama, music, and computer software, and other expressions of ideas such as choreographic works, pictorial works, and architectural works. While patents prevent others from practicing an invention, and this protection can be extended to reasonable facsimiles of the invention, copyrights prevent others from strictly copying a work.

In many countries, the copyright lasts for the life of the author plus 50 years. In the United States, the copyright term is now the life of the author plus 70 years; however, if the work was made for hire or was anonymously authored, the duration is the shorter of 95 years from the date of publication or 120 years from the creation date. Clearly copyrights are very valuable long-term properties. The Berne Convention for the Protection of Literary and Artistic Works and the Universal Copyright Convention are multilateral treaties created for the protection of copyrights worldwide.

Trademarks

Trademarks are names used by manufacturers to identify their products. They are based on the concept that some manufacturers make better products than other manufacturers and therefore want to make sure that they differentiate themselves to potential customers. Trademarks

are also used to maintain the reputation of a manufacturer, preventing others from simply copying the product or making a lower quality product and using the other manufacturer's name to pass the product off as being authentic.

Essentially any word or symbol can be used by a manufacturer, assuming there is no conflict with another trademark, and the word or symbol meets the guidelines for the country involved. Trademarks are not necessarily descriptive of the product, but only associate a product with its manufacturer. Service marks are similar to trademarks, differing only in that trademarks generally protect goods, while service marks protect services.

Trademarks are tremendously valuable to companies; in fact, they can be among a company's most valuable assets. Many marks are recognizable worldwide; for example, there are many soft drinks sold worldwide, but almost everyone knows of the specific soft drink called 'Coca-Cola'. When a trademark becomes recognizable, its licensing value increases. Let's say, for example, that you make a very popular additive for polymers that you have trademarked and the trademark is widely known and associated with high quality products. Your customers, who use your additive in their polymers, may want to advertise that their polymers not only contain the additive but have your particular trademarked additive. You can then license the use of your trademark to your customers for use with their products, and you can control how your trademark is used. If for some reason you do not want your trademark associated with that product because it will somehow detract from your mark's reputation, you can also prevent your customers from using your trademark in association with their product.

Trademarks, like patents, must be obtained from individual countries, and fees are required in most countries in order to register and maintain the trademark. However, unlike patents, if the trademark owner continues to pay the associated fees to maintain the mark, trademarks can be kept indefinitely. Therefore businesses should take care that trademark management is a major part of their intellectual property management.

Trade Secrets

A trade secret is critical information and know-how of a business that is kept out of the public domain. Trade secrets can at times be more effective than patents in slowing competition; however, the owner of the trade secret must take extra precautions to maintain the security of the trade secret. Since trade secrets are kept with the organization, they can

hold their value indefinitely. However, once a trade secret is disclosed publicly, its value can quickly diminish because there is essentially no way to protect the secret once it is publicly disclosed.

Trade secrets can be lost in many different ways. They may be inadvertently disclosed in company literature or technical papers. They can be lost when an individual leaves the company. However, much sensitive information is lost through the use of confidentiality or secrecy agreements. This is because of several factors. First, with many agreements the time for which the receiving party is obliged to maintain information as confidential is clearly spelled out, and may only be a few years. After that time the receiving party may be free to disclose that information. Second, the receiving party may inadvertently disclose the confidential information. It is difficult for others to have the same sensitivity to one's own secrets. Finally, once an agreement is in place, most people tend to disclose more confidential information to the second party than is required. One must be very careful to disclose only the information necessary to achieve the desired goal of the agreement.

Many times it is useful to outline what information in a business is deemed especially critical and a trade secret, so that everyone is sensitive to the fact that this specific information should not be disclosed outside the company. When working with other companies under a confidentiality agreement, it is useful to have special meetings within a business to discuss what information will have to be disclosed and what information will not. If especially sensitive information must be disclosed, perhaps special provisions for maintaining the secrecy of that information can be included in the agreement, or the secrecy provision can be extended for a longer period of time.

Trade secrets play a major part in the development of a patent strategy, because patents will disclose information known only to the inventor's company. One critical question that must be answered when considering the filing of a patent application is whether or not the disclosure of the secret information in the patent application will be worth the legal protection obtained by the patent.

This analysis has become more important with the passage of the America Invents Act of 2011, which significantly expands prior user rights in the United States. Since prior user rights can be asserted by an accused infringer for any number of things used commercially in secret, some feel this increases the incentive to keep commercially-used inventions secret rather than patent them, especially if one does not expect to make improvements to those inventions.

1.18 OTHER RESOURCES

Researchers interested in learning more about patents, intellectual property, inventors, innovation, and strategy can refer to the last two sections of this book. The 'References' section contains information about references used in the writing of this book. The 'Further Reading' section contains additional information on a wide variety of intellectual property topics. These two listings are not meant to be complete, but they will direct the interested reader to those periodicals that routinely cover intellectual topics and to books that have been written, which in turn will have additional references. The reader should remember, however, that patent law changes from year to year, and should endeavor to obtain the most recent edition of any book on intellectual property.

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