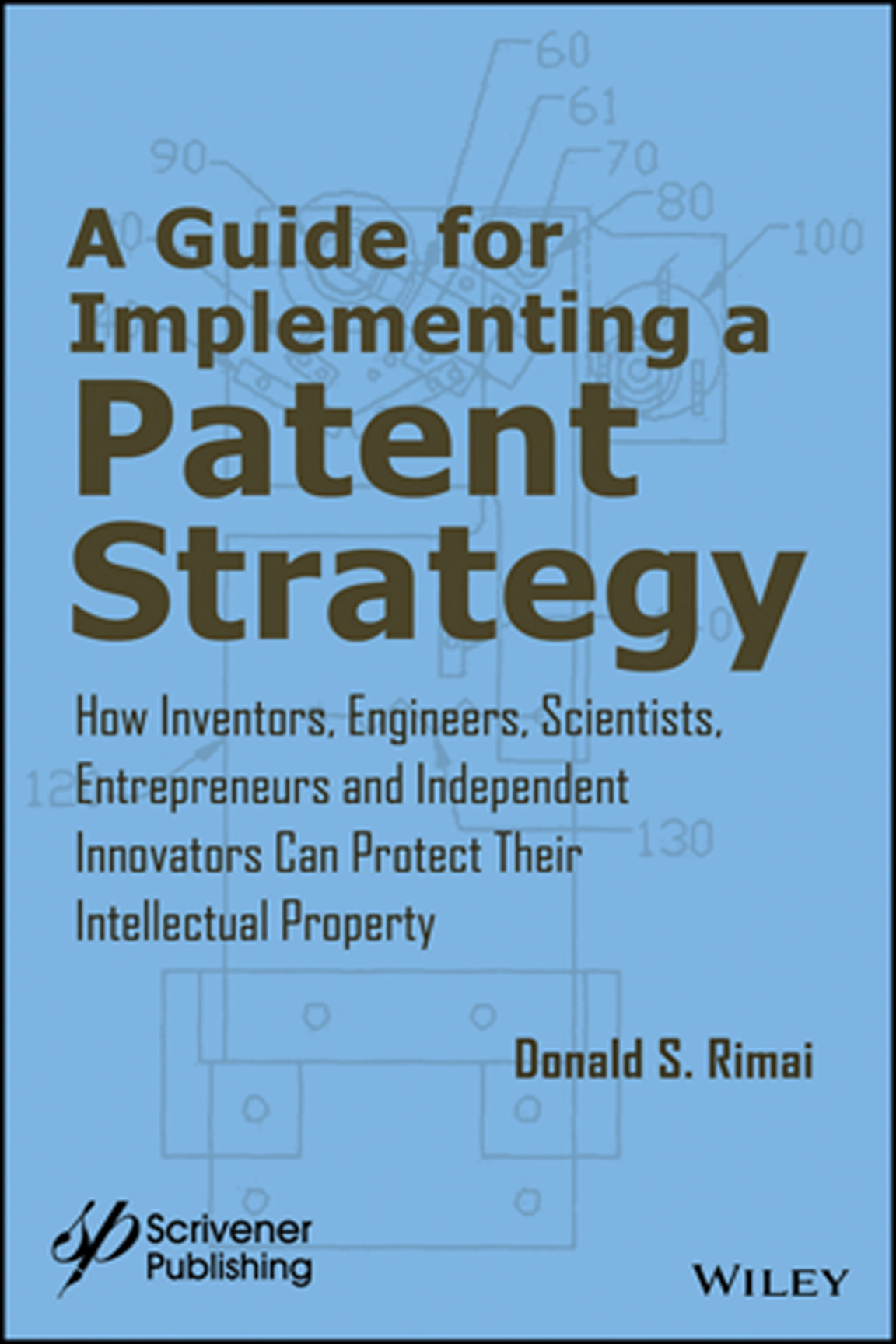




A Guide for Implementing a Patent Strategy

How Inventors, Engineers, Scientists,
Entrepreneurs and Independent
Innovators Can Protect Their
Intellectual Property

Donald S. Rimai

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Dedicated to the memory of my uncle, Emanuel Rimai (1912–1984). From one generation to the next. The lessons you taught me when I was growing up have now been passed on to my son.

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Preface

Several years before retiring from my 33-year career at Eastman Kodak as a researcher in the area of electrophotography, I was asked to assume the responsibilities of an intellectual property manager for digital printing. My responsibilities included devising patent strategies that would protect Kodak's technology, participating in asserting Kodak's patents, improving the quality of our patent portfolio, and producing and prosecuting patent applications.

In this role, I was fortunate to work with a world-class group of scientists, engineers, and technicians, coming from a wide variety of disciplines. The disciplines included physics, chemistry, mechanical, electrical, and computer engineering, mathematical modeling, and imaging science. Educational levels typically ranged from technical staff with associate degrees, to professionals with BS, MS, and PhDs. Most had many years of experience and routinely advanced electrophotographic and ink jet technology by solving almost intractable problems on a routine basis.

The technology advanced by Kodak's technical team members was highly innovative and allowed electrophotography to go from being limited to office copiers to its rivaling both silver halide photography and offset printing in quality, reliability, and speed, while being able to integrate the capabilities of the digital era with hard-copy printing.

Yet, despite the high level of skills of these individuals that routinely led to great innovations, these inventors often failed to recognize that they had inventions. Yes, invention disclosures were submitted by the members of the technical staff and patent applications were filed and prosecuted by the attorneys. Kodak was highly successful in both the quantity of applications filed each year and the number of patents received. Nonetheless, many of the inventors failed to precisely define their inventions and, in fact, very often did not recognize that they even had inventions. This was because the legal concepts of an invention often differ from the perception held by many members of the technical community of what constitutes inventions. Obviously, prioritizing inventions and patent applications into a coherent patent strategy was unlikely to occur. Adding to these complications was the fact that electrophotographic technology was a very mature

field with much ongoing R&D, resulting in much prior art that had to be circumnavigated.

Despite these challenges, I found that the problem of formulating and implementing a coherent patent strategy is not beyond the capability or desire of most members of a technical team. Rather, it occurs because technical people are rarely educated in patents.

This book is the result of the experiences that I had working with these world-class technologists, as well as many patent attorneys. It addresses the questions that have been routinely asked of me by engineers and scientists. It is, in effect, a compilation of my experiences working with a variety of teams and is written as one technical person talking to another, explaining each step of what has to be done and why it is important in order to successfully design and implement a patent strategy that protects your technology and is of value to your company.

Don Rimai
Rochester, NY
August 2018

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I would like to thank my wife Nancy I. and son Dr. Benjamin E. Rimai for their support throughout the writing of this book. I am especially gratified for their discussions, comments, and reading of the drafts. Their questions contributed to my being able to address the needs of members of the technical communities as they formulate and implement their patent strategies.

1

Background for Developing and Implementing a Patent Strategy

Why Should You be Seeking Patents?

You are a scientist or an engineer working for a corporation. The technology that you are developing is very exciting and quite novel and the resulting products should allow your company to outcompete its competitors. It does not matter whether your company is a so-called “high tech” firm, whether you are involved in biomechanical technology, life sciences or pharmaceuticals, or the development of more mundane products such as the gears or tools. The issues are the same. Your technological advances need to be protected.

You are an entrepreneur who has invested your life savings, after also obtaining financial backing from principal investors, into your company and are hoping to see the value of your company grow exponentially. You are, of course, worried about foreign companies pirating your products and, because of their lower labor costs and the fact that they have not invested heavily in R&D or in developing the markets, they may be able

to produce comparable products at substantially lower cost. You need to prevent that, while increasing the value of your company.

You are an innovator who develops neat and novel products in your garage or basement. You are hoping to make millions of dollars from your innovations by producing and selling the products directly or by convincing an established company to produce these products and pay you royalties. However, your proposed products are so unique that you are worried that another company can simply steal them. After all, they can be easily reverse engineered. Concerns over how to protect your innovations keep you awake at night.

While the three specific scenarios presented here differ in many aspects, there are still underlying similarities. Let us address both the similarities and the differences by first focusing on the scientists, engineers, and other technologists who are employed by companies, as these individuals have certain benefits in obtaining patents.

Why Should an Employed Scientist or Engineer Seek to Obtain Patents?

The obvious issue faced by most scientists and engineers is that they are assigned complicated tasks as part of a project team by their managers. These projects have tight schedules and market windows open and close rapidly and a delay in introducing a product can be very expensive. In addition, scientists and engineers are generally much more proficient at solving technical problems than they are at writing detailed descriptions of the problems they have solved and how they have solved them. This becomes even more pertinent as the resulting documents will be intended for a legal, rather than a technical audience.

Despite the pressures placed on these individuals, there are very good personal reasons for them to pursue the obtaining of patents. The benefits to the employer are similar to those of the entrepreneur and, accordingly, will be addressed in the next section of this chapter. Suffice-it to say is that innovative companies should have good patent portfolios, as discussed in *Patent Engineering* [1].

In years past, an engineer or scientist might have served one employer throughout a long career. Those days are gone. The average tenure at a company today is approximately five years and scientists and engineers need to constantly think about their next employer. Most of us who have worked in industry have signed nondisclosure agreements whereby, typically, we have agreed not to disclose company information for a specified

period of time, typically about two years after leaving the company. This serves the company quite well, but how about the employee who has either been laid off or is seeking better opportunities? What accomplishments can one present to a prospective employer? You simply cannot talk about what you are working on.

However, patent applications 18 months after filing and all patents are public record. They are, in fact, your publication record – a publication record that highlights your skills and accomplishments for everyone to see. Your patents clearly distinguish you from all others against whom you are competing for those coveted career opportunities.

In addition to serving as your publication record, many companies have financial incentives to encourage inventors to file patent applications and obtain patents. If your company has such incentives, this is a way to increase your paycheck.

Having to explain what you have accomplished also makes you take a step back and look at the thoroughness of your work. Have you really solved the problem on which you were working? Are there opportunities to enhance your products? Do you know how your advancements and products compare to those of your competitors? The process of filing quality patent applications and building a patent portfolio that protects your technology forces you to address these issues in a more critical manner than how you may address them otherwise. We have all learned about the “scientific method” whereby, when commencing research in an area, one first does a literature search to learn about what was previously done. This certainly is valuable in today’s competitive world where time pressures require that we work as efficiently as possible. This means that we need to know how others previously tried to solve similar problems and what they learned. It does not do either you or your employer any good to reinvent the square wheel. Moreover, as discussed in Chapter 10 of *Patent Engineering* [1], it is very important to know whether or not the products that you plan to introduce infringe upon the patents held by others.

Why Should Entrepreneurs and Companies Seek to Build Patent Portfolios?

There is no question that building and maintaining a solid patent portfolio that protects your intellectual property can be both expensive and labor intensive. However, not having a strong patent portfolio can be even more costly and time consuming as competitors try to force you out of business, sue you for infringing their patents, seek injunctions against your company

to block the sale of your products, and wring expensive licensing fees out of your revenues.

It should be noted that the term “patent portfolio” has been used extensively. As was discussed in *Patent Engineering* [1], a single patent, or even a few patents, does not provide the level of protection needed in today’s market. There are often alternative ways of achieving an objective and, in case you choose to enforce your patents against a competitor (often referred to as asserting your patents or an assertion), there is great strength in numbers as your competitor’s attorneys will seek to have your patents ruled invalid or irrelevant, claiming that their clients are not, in fact, practicing the technology that you have patented. This is far more difficult if your competitor’s attorney has to challenge numerous patents.

In addition, there is marketing value to patents. Although a patent is not a measure of how great a technological advancement is, the fact that a device or process is patented is often used as a marketing tool to entice potential customers to buy your products. And, as will be discussed more fully later in this chapter, a solid patent portfolio can allow your company to have access to the intellectual property owned by others, as well as being able to profit from collecting licensing fees.

Why Should the Independent Innovator Build a Patent Portfolio?

Obviously, the reasons that patent portfolios are valuable to entrepreneurs are also valid for the independent innovator. However, there are reasons that are even more pressing for the individual than for the entrepreneur, assuming that the entrepreneur has already launched a company. The reasons include being able to exclude other, more established companies from simply copying your innovations. Without a proper patent portfolio protecting your advancements, any company which you believe might be interested in producing and marketing your products can simply copy them, perhaps even incorporating some further improvements that may make them more desirable to potential customers. Absent proper patent protection, there is no reason why a company should pay you anything to practice the technology that you so painstakingly advanced.

Moreover, you may be seeking to produce and market your own products. If you are an independent inventor, you probably will have to seek funding from investors. Today, there is a popular television show called *Shark Tank*, comprising several successful businesspeople who are seeking investment opportunities. Individuals with novel products present their ideas to these

businesspeople (known as *Sharks*), seeking to exchange a percentage of the start-up company in exchange for funding. A common question asked by the businesspeople is “What prevents someone else from simply copying the product?”. On more than one occasion, the individual(s) seeking support were able to show that they had either obtained patent protection or had, at least filed, patent applications. This was one factor considered by the sharks when deciding whether or not to invest.

Certainly, an innovator does not have to be prepared to appear on a TV show. However, potential investors are looking to make money and they want some assurances that the novel products will not simply be copied.

What is a Patent?

Thus far, we have argued that it is important for those advancing technology to obtain patents. We have not yet told the reader what a patent is.

A patent is a legal document that allows the owner of the patent to exclude others from practicing the described invention. It should be noted that a patent does not give the owner the right to practice that invention if that practice infringes on patents held by others or if that patent describes an invention that is illegal. For example, suppose you invent a platform attached to a chair that allows someone sitting in the chair to rest one’s arms on the platform. However, if someone had previously patented the chair without the arms, you cannot produce arm chairs because you will be infringing on the prior patent. However, your patent is still valuable because it would allow you to enter into an agreement with the holder of the chair patent that would allow both of you to produce arm chairs while excluding all others from doing so. This type of agreement is frequently referred to as a cross-licensing agreement and can allow you to gain access to technology that you need in order to commercialize your innovations.

Two things that a patent is not. First, a patent is not the equivalent of an academic award, such as a Nobel Prize, that signifies the importance of an invention. Second, although a technical disclosure describing the background of the problem and the invention, itself, must be included in a patent, a patent is not a technical paper such as might be published in a scientific journal or presented at a technical conference.

Popeil was awarded a patent for a fishing rig [2]. I doubt that many would equate either the significance or technological innovation of this invention with that of the transistor [3]. However, Popeil was a successful businessman who marketed the “Pocket Fisherman”, and it is likely that his patent kept potential competitors out of this area.

Indeed, there are many patents that describe technology of dubious importance, either because the item was ill-conceived to begin with or because the world moved away from needing that technology.

It is interesting to note that neither John Bardeen nor William Shockley, who shared the 1956 Nobel Prize in physics for the development of the transistor with Brattain, legally qualified as inventors on these transistor patents. Alternatively, neither Gerald Pearson [4] nor Robert Gibney [5], both of whom made inventionable contributions to the development of the transistor and worked closely with Brattain, Bardeen, and Shockley, shared the Nobel Prize. Scientific advances and patentability are totally different concepts. What constitutes an invention and who are inventors will be discussed more fully in this book. For now, it should be remembered that, rather than being a scientific document aimed solely at educating readers, a patent is a legal document whose principal role is to establish the rights of the owner of the patent to preclude others from practicing the invention without the permission of the owner. It is important to keep these concepts in mind when developing a patent strategy aimed at generating valuable patent applications.

What is an Invention?

If a patent conveys the right to exclude others from practicing your invention, it is then appropriate to ask what an invention is.

Webster's New Collegiate Dictionary [6] offers several definitions of the word “invention”. Perhaps their most apropos definition is “a device, contrivance, or process originated after study and experiment”. Indeed, this definition probably captures what most technical people envision as an invention. Unfortunately, it is, in large measure, incorrect as far as patentability. Just as the term “patent” has a specific legal meaning, so does the term “invention” and it is this legal definition of invention that must be used when filing patent applications.

Legally, an invention is a solution to a technical problem that is novel and nonobvious to one of ordinary skill in the art. This definition introduces three terms that now must be defined: 1) novel; 2) nonobvious; and 3) ordinary skill in the art.

Let us first address what is and is not meant by “novel”. The term novel does not simply connote a new product, no matter how useful or innovative, that was put together using known components so that the components function exactly as expected. As an example, let us consider a window screen, invented by John. The patent states that the invention comprises an

interwoven mesh of wires or fibers with the spacing between the wires or fibers being between 0.1 and 1.5 mm affixed to an opening. The stated purpose of this invention is to prevent insects from entering John's house by affixing the mesh to a window, thereby preventing the insects from passing through the open window while allowing John's house to be ventilated.

Subsequently, Sam discovers that the stream that he has been using to obtain his water has been carrying too many stones and pebbles that he wishes to filter out. He devises a filter comprising an interwoven mesh of wires or fibers with the spacing between the wires or fibers being between 0.1 and 1.5 mm affixed to an opening through which the water flows. Sam files a patent application on his filter, only to have the patent examiner* reject it as not novel in light of John's patent. Sam responded to the examiner's office action by claiming that John did not disclose attaching the mesh to a frame, but, rather, required that the mesh be directly affixed to the window by nails. However, the examiner rejected that argument, stating that it is known to stretch a painter's canvas to a frame prior to painting in order to rigidly attach the canvas. It would have been obvious to affix the mesh to a frame so, therefore, novelty was absent. Sam's arguments and his patent application were again rejected.

Joan had the same problem as did Sam regarding filtering the water. However, she also realized that the filtered sediment would rapidly clog the mesh. She realized, however, that if the mesh were mounted at an oblique angle to the flow of the water, some of the water would pass through the mesh while the rest would wash the sediment from the mesh. She applied for a patent for a self-cleaning mesh to filter sediment from water comprising an interwoven mesh of wires or fibers with the spacing between the wires or fibers being between 0.1 and 1.5 mm affixed to a frame that is mounted obliquely to the flow of the water. As the prior art does not teach the oblique mounting of the mesh, she has a novel concept and is awarded a patent for her invention. What is the invention? She solved the technical problem of filtering the water while preventing the filter from clogging.

Let us now address what is meant by the term "one of ordinary skill in the art". Most of us tend to view ourselves, despite our education, experience, and knowledge, as having ordinary skills in the art in which we are employed. That is not the correct measure. If you have been working in a

* The individual who ultimately receives a patent application at a patent office is called the "patent examiner" or "examiner". This individual, in conjunction with his supervisor, or "primary examiner" will review the application and determine whether or not it meets the criteria for issuing a patent and produce an "office action" that will communicate the findings to the applicant.

field of endeavor, perhaps with other team members, you would probably be considered as one of extraordinary skill in the art. I doubt if anyone would have considered Bardeen, Brattain, and Shockley as having ordinary skill in the art of semiconductors when they invented the transistor. What would be considered ordinary skill in the art at that time? Radios existed and television sets were becoming commercially available. Certainly, a consumer who had the ability to plug in a radio or TV, hook it up to an antenna if necessary, turn it on, and tune in a station of choice would be a person of ordinary skill in the electronics art. Perhaps a service technician who could replace vacuum tubes and solder connections might be considered one of ordinary skill in the art of electronic component fabrication. It would certainly not be the members of the team of highly educated condensed matter physicists who recognized that, by appropriately doping semiconducting crystals and biasing sections of the crystals appropriately that amplification and rectification could be accomplished. It is very important that you not underrate your skills and, a priori assume that you merely possess ordinary skill in the art in which you are professionally engaged.

Let us now discuss what is meant by the term “nonobvious”. Let me illustrate this concept by an actual example in which the author was involved in the field of electrophotography.[†]

In an electrophotographic printer such as a laser printer or office copier, a toner image is transferred from a photoreceptor to a receiver such as paper. This is most often accomplished by applying an electrostatic field that urges the toner from the photoreceptor to the paper. If it is desired to print on both sides of the receiver (e.g. making a duplex print), it is generally necessary to first fix the transferred toner to the first side of the receiver by fusing it. The receiver must then be flipped and sent back through the printer so that a second toner image can be transferred to the second side. The toner is then fixed to the receiver by fusing for a second time.

This is obviously a complicated process that reduces the reliability of the printer by making it more subject to experiencing paper jams and making the entire process more time consuming and expensive.

To improve the process of duplex printing, the author was part of a team tasked with designing a printer that can produce duplex prints with one pass of the receiver through the machine. To do this, the team designed and built a printer that contained a transfer intermediate. For one side of

[†] Throughout this book appropriate examples from the area of electrophotography will be utilized. To make these examples more comprehensible to the reader, I am including a brief description of electrophotography in Appendix 1.

the printed page, the toner image would be electrostatically transferred directly from the photoreceptor to the receiver. For the other side, the toner image would first be electrostatically transferred to a transfer intermediate member and then, by reversing the direction of the applied electrostatic field between the intermediate and the receiver after the first toner image had been transferred to the receiver, the second toner image would be transferred from the intermediate to the second side of the receiver. The resulting invention was awarded a US patent [7].

Producing and transferring a toner image electrostatically in an electrophotographic printer was well known, as was the use of a transfer intermediate. What was not known in the literature was the fact that the polarity of the applied transfer field could be reversed without significantly disrupting either the image on the first side of the receiver or that on the intermediate, thereby allowing both images to be transferred. To a team comprising two Ph.D. physicists and a professional electrical engineer (all of whom had years of experience in this field and would be considered highly skilled), the concept of reversing the field seemed pretty obvious. However, reversing the direction of the applied electrostatic field was not discussed in the prior art and it was not known that this would work. Therefore, this was not obvious to one of ordinary skill in the art and the resulting technology was a novel solution to a technical problem.

With this discussion in mind, let us reexamine the Pocket Fisherman patent [2]. What was the invention for which Popeil was awarded a patent? It was not simply for the idea of producing a small fishing rod. Ideas are not patentable. Only solutions to technical problems are patentable. Popeil solved several technical problems[‡] including how to store tackle, how to reversibly pivot the rod to reduce its size for transport and storage while allowing it to be expanded into a functioning fishing rod, and how to integrate a casting reel and fishing line into the design.

Whereas none of the patented features of Popeil's rod would exhibit the same technical complexity as the transistor, Popeil designed and marketed a product that fit the definition of novel (as a child, I had a drop line for fishing in which the line was wrapped around a wooden frame. It was small and easily stored, but there was no way of to cast the line.) In contrast, a conventional fishing rod is long and often difficult to store. Neither the

[‡] Since the time of Popeil's patent, the US Patent Office has become stricter on limiting a patent to a single invention. It is likely that, if Popeil's application were to be filed today, it would have to be filed as several distinct applications. Alternatively, were it to be filed as one application, it is likely that the examiner, in his office action, would insist that it be broken up into several applications. These are known as divisionals.

drop line nor the conventional fishing rod has a means of storing tackle, thereby also requiring that the fisherman have an auxiliary tackle box. Popeil's invention was deemed to be nonobvious to one of ordinary skill in the art (a fisherman).

Why Do I Need a Patent Strategy?

To paraphrase the above question, if I have what I see as an invention, why can I not simply file a patent application on that invention?

The answer to the above question is that you obviously can file an application on that invention, but it may not be wise to do so. Rather, it is far better to think in terms of all patentable aspects of a project so as to fully protect the technology being developed. By doing so, you can develop a patent strategy that can be of much greater benefit and value to you than just having a collection of individual patents relating to specific innovations within your project.

The importance of a patent strategy is discussed in *Patent Engineering* [1]. The economic value of a patent portfolio has been discussed in *Rembrandts in the Attic* [8]. The message from both these references is that patent portfolios are very important. Specifically, patent portfolios can have great commercial value. They can generate revenues through the sales of licenses to use the patented technology. They can give you access to technology that you need that is owned by others through cross-licensing agreements. Perhaps most importantly, they can provide protection for your intended market by preventing competitors from introducing competitive products. Even when the patents within a portfolio fail to totally block a competitor, they can cause your competitor to face delays in introducing products. They can also result in an increase of the cost of those products. Moreover, properly designed and implemented patent portfolios can limit their effectiveness by having to implement work-arounds to avoid infringing your patents, block piracy of your technology by allowing you to obtain court-mandated injunctions against those products, and allow you to establish a legal monopolistic position in the marketplace. However, the aforementioned benefits can rarely be achieved by a single patent that protects a single solution to a problem. Please remember that, today, a patent is limited to a single invention. You cannot claim multiple inventions in a single patent.

Moreover, there is strength in numbers. You are more likely to obtain beneficial cross-licensing agreements and higher royalty payments if you

can present a stack of patents to your competitor instead of a single patent. In addition, when asserting a patent against a competitor, the competitor will first try to argue that 1) your patent is not valid and 2) that it is not being infringed. In the famous instant photography patent infringement lawsuit filed against Kodak by Polaroid, Polaroid argued that Kodak was infringing eleven of Polaroid's patents. Kodak argued that the patents were obvious and, therefore, invalid. Indeed, two of the eleven were found to be invalid, leaving nine. Kodak lost that lawsuit, had to pay Polaroid over \$900,000,000, and was forced by court order to exit the instant photography business.

There is yet another reason why you need a patent strategy. Despite your best efforts, you will not be awarded a patent for every application you file. Your goal is to protect your technology as best you can and, if you have a holistic strategy, you will be able to build a wall around your intellectual property and your markets. You simply cannot rely on one or two patents providing the degree of protection you need. However, when filing applications, if you do not design an effective strategy, you may undermine your own efforts by prematurely or erroneously disclosing information. It is important to assess the entire technology program and implement a strategy that will benefit you.

As a Technical Innovator, What Do You Need to Do?

As the focus of this book is on how to obtain patents and devise and implement a strategy that will protect your intellectual property and allow you to establish a solid position in the marketplace, the discussion presented herein will focus on this topic. It is clear that you know how to solve problems and innovate. You have a vision of where your technology will lead and how you will get there. This book is aimed at providing the tools so that once you reach your destination, you do not find it crowded with competitors who are taking advantage of your discoveries.

What you need to do and how you go about developing and implementing a good patent strategy will be discussed in detail in this book. At this point, however, it is beneficial to provide a general road map so you see where you will need to go.

First, identify what is the goal of the technology that you and the others working with you are developing. Obviously, you have some innovative product or products in mind. The products may introduce revolutionary technology that changes the way your customers will conduct their lives

or businesses. This is often referred to as disruptive technology because it changes the world. Cell phones have disrupted conventional land lines. Modern computers have transformed all aspects of our lives from the way we communicate and process documents to the way our cars run to the way medical records are kept and shared. Other changes may not be as revolutionary. For example new tools are being introduced each day that facilitate tasks. Hiking clothing that keeps us warm but sheds perspiration is now commonplace, displacing the old woolen garments of years ago. Manila climbing ropes have given way to modern kern mantle ropes made of synthetic fibers that better resist moisture and abrasion. And the list goes on. How well you can maintain your position in the marketplace and how much value you can extract from your intellectual property depends on how well you design and implement your patent strategy. Alternatively, failing to implement a proper patent strategy will result in your simply educating your competitors through their ability to see and reverse-engineer your products, perusing the information you present either on-line or in trade journals and instruction manuals, and from patents and patent applications that either are not allowed or that do not provide enough protection.

Now that you have identified the goals of your technological developments, it is necessary to identify the key problems on which you have been working. The key problems are those that will drive customers to buy your product or which are mandated by law. The solutions to these problems will likely form the basis, but not the totality, of your patent strategy. However, because of prior art search results, this might not be the case. This contingency will also be discussed more fully later in this book.

If you have difficulty identifying what you have that might be considered inventions, ask yourself what prevented you from introducing this product a year or two ago. The issues that prevented you from introducing your product at an earlier time are often are the solutions to the technical problems that you have had to solve and may constitute patentable inventions.

It is very important that you identify the potentially patentable items with your other team members. Please remember that the disjointed filing of applications by individuals who are not working cooperatively with the rest of the team may prematurely disclose information that prevents obtaining a more holistic patent portfolio and may actually contradict statements in the other applications. The latter can set the stage for subsequently having patents declared invalid. It is always important to keep in mind the goal of protecting the technology in the product that you are introducing, rather than just obtaining one or more individual patents.

Above all else, you and the team members should write a detailed draft of the patent application. It is recognized that this is time consuming. In addition, the writing process is often disliked by members of the technical community. However, if you are going to get valuable and accurate patents that protect your technology, you will generally have to do this. What this entails will be discussed in detail in Chapter 2.

Why Do Technical Team Members Need to Do This? Is this not for Legal Counsel to Do?

Legal counsel is absolutely necessary to compose and file patent applications. After all, patents are legal documents and it is vital that all legalities be properly handled if you are to get the protection and value from your patents that you expect. However, obtaining those patents has to be a cooperative effort between the technical and legal experts. Very often inventors write a short description of how they solved a problem, or even communicate orally with their legal counsel and expect their attorney or patent agent[§] to transform the rather cursory communication into a patent application.

Unfortunately, this approach is neither efficient for anyone involved nor does it allow you to obtain the quality patent portfolio that is so important. First, attorneys are legal, rather than technical, experts. Yes, patent attorneys generally have some sort of technical background. Moreover, those of us who have been fortunate to work with in-house attorneys (attorneys who are employed by the same company as you) have had the pleasure of working with attorneys who also have some knowledge of the technology. However, they still do not have the intimate knowledge, nor should they expect to have that knowledge, of the project on which you are working. Smaller companies, entrepreneurs, and independent inventors more often than not have to rely on outside legal counsel – lawyers who hire their services to any appropriate clients. It would be rare that those attorneys would have the specific technical expertise related to your project. Moreover, outside counsel tends to be very sensitive to not running up excessive billing hours for their clients. This often results in all-too-cursory efforts if they have to put together entire applications based on minimal technical input.

§ A patent agent is not an attorney. Rather, a patent agent is an individual who has taken an intensive course in patent law and is licensed by the United States Patent and Trademark Office to practice patent law up to, but not including, arguing in the Patent Court.

Not only do you, as a technical expert, have a much better understanding of the background and the problems on which you are working, but you and your team members have a complete picture of the integrated technology. A legal expert will generally not have this. As previously stated, integrating all aspects of the technology is crucial when implementing a patent strategy. Moreover, the engineering team can define the problems being solved. Properly defining the problem is the first step in the successful prosecution of a patent application. In addition, there will be times, especially when dealing with mature technologies, that the proposed inventions may not constitute novel or nonobvious solutions that are patentable. However, those solutions may solve a different problem in a patentable manner. As the owner of a patent is entitled to the full protection of the technology in that patent, defining multiple or alternative problems can be very important.

Often members of the technical community state that patents sound too legalistic and are hard to understand. There are even times when an inventor will say that he invented one thing, but the final patent application is totally different. Comments like these are very troubling. First, each inventor must sign a declaration, under penalty of law, that he has read and understood the patent application. Although rare, it is conceivable that, if you fail to read and understand the application, you can be prosecuted. Moreover, picture yourself in court. You have been called as an expert witness by attorneys working for your company during an assertion. You need to be able to explain your invention to a jury that probably is not technically oriented. If you do not understand your own patent, or if the issued patent does not accurately reflect your invention, do you think your employer will win the lawsuit? What will happen to your career if your company loses because of your testimony?

Patents are written in legalese because they are legal documents. That being said, there is a reason for this. As a technical person, you are able to bridge implicit statements. Remember all the textbooks in which a derivation is left as an exercise for the reader or a problem in the back of the chapter? When writing a patent application, every aspect of the invention must be explicitly stated so that someone without imagination can follow the teachings laid forth and practice that invention. There can be nothing that is not explicitly stated. This brings forth the use of a language that is somewhat foreign to the way technical books, papers, and presentations are written and takes some getting used to. The good news is that, when putting together a patent application, the inventor must carefully state exactly what the problems and inventions are. If you, as a technical team member, actively participate in the writing of the application, you will develop a

much better understanding of what you have done and what the patent actually says.

There is yet another reason why you should be directly involved in writing the applications. Remember that the focus of this exercise is to formulate and implement a patent strategy that protects your product in the marketplace. This generally involves filing multiple applications, as only one invention is allowed per patent.

In past years, in the United States a patent would be issued to the first person to invent. However, with the United States signing onto GATT[¶], the US began the process of transitioning to the standard used by the rest of the world whereby the patent would be issued to the first person to file the application. In other words, the timeliness of the filing became a more significant issue in obtaining patents. However, when developing technology, not all inventions occur at the same time. Rather, some problems take longer to solve. Moreover, sometimes the existence of important problems is not even realized until after certain advances are made. Premature disclosure can adversely impact your ability to obtain important patents. Sometimes patent applications need to be filed on the same day. Other times, it is important not to discuss a topic as it can constitute a prior disclosure (*i.e.* prior art) that precludes the ability to obtain future patents. There is often a delicate balance between filing in a timely manner and delaying for sound legal reasons. This balance can only be determined by a comprehensive examination of all the advancements made on a project and what has yet to be accomplished. It is really up to the technical team, working with legal counsel, to decide on the proper time to file applications.

It is the goal of this book to provide technical innovators, including engineers, scientists, entrepreneurs, and individual inventors with the tools necessary to design and implement strategies that will result in their being able to obtain valuable patents that allow them to control the marketplace in which they are competing.

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