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# PROTECTING INNOVATION

## Entering the Shark Tank

### *Moving from Concept to Commerce*

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## Entering the Shark Tank

*The path from idea to marketable invention is paved with challenges. For the uninitiated, the dynamics involved in achieving the intellectual property protection that will lay the foundation for your success is one of the most complex yet misunderstood business issues you will face.*

*Failure to invest the time, resources and effort into doing it right can be the difference between success and failure. If you are ready to “enter the Shark Tank” by turning your concept into business, make sure you understand these basics of patent protection.*

### Moving From Idea to Invention

All inventions start out as ideas. Sometimes that idea is part of a concept involving a particular technology. Sometimes it is an approach to solving a problem. Sometimes it is a way to improve something that is already in the marketplace and being sold.

But one thing is for certain: An idea is not an invention.



“Idea” is defined by the Merriam-Webster dictionary as: (1) “a thought, plan or suggestion about what to do,” (2) “an opinion or belief,” and (3) “something that you imagine or picture in your mind.” None of these three definitions seems to require anything particularly precise, but rather imply something that is pretty malleable. For example, while a plan can actually be quite detailed and have a rigid time frame and/or mandatory actions, it can also be exceptionally vague.

Consider the difference between the statements, “Let’s discuss business over lunch,” and, “I’ll see you at lunch at 11:45 a.m. on Tuesday, March 3, 2015, at Firefly on El Camino Real in Encinitas, CA. At noon we’ll discuss recent sales, at 12:15 p.m. we’ll discuss salaries, at 12:30 p.m. we’ll discuss whether we need a new employee, and then we will leave for the office by 12:45 p.m.” Perhaps both statements could be considered an idea or a plan for lunch, but the first statement is amorphous – we don’t know what time, what day, where to go, what will be discussed, etc. It would be hard to organize that



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lunch or be prepared for the discussion without asking many more questions. The first statement is clearly an idea for lunch.

On the other hand, the second statement gives us much more guidance. We have the critical information – where to be and when, and what to expect during the allotted time because we have an agenda. In other words, we have a much better understanding of what our behavior has to be in order to participate in the meeting. So this statement is more akin to an “invention” for a process for a lunchtime meeting.

While the example above is unquestionably an oversimplification of the difference between an idea and an invention, it does illustrate one of the first tenets of inventions: That is, inventions have tangible specifics. An invention means that you, the inventor, have a complete conception of how to bring the invention into being – the necessary know-how so that you can fully describe the invention and teach how it is made and used. You don’t need to actually make and/or use the invention, but you do need to be able to communicate in writing how that is done.

Most entrepreneurs find that when they first sit down and try to communicate their invention in writing, it becomes painfully obvious that they are still in the “idea” stage. That is because without some details that essentially lay down parameters or boundaries, it is difficult to know what is encompassed by the invention and what is not. But because figuring out what details are needed is not always easy, many entrepreneurs find answering a series of questions to be beneficial.

### ***Invention Disclosure Form***

An invention disclosure form generally lists a number of questions that helps the entrepreneur turn the idea into an invention. These questions not only help the entrepreneur to focus his thoughts and move from idea to invention, but also have the added benefit of identifying the information that should be included in a patent application. The following questions are particularly helpful:

- What is the purpose of the invention? What does it do? How does it do it? What problem is it solving?
- What parts/steps define the invention in its best or ideal form? What does each contribute? Are any parts/steps new or used in a new way? Which parts/steps are conventional or old technology and used as they have been in the past? Do any of the parts/steps interact?



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- List all of the parts or steps that are essential/required. Is the interaction of any parts or the order of any steps critical? Ask yourself what would happen if this part/step were left out or changed – would the invention still work?
- Are there any critical ranges required in order for the invention to work? For example length, weight, pressure, temperature, hardness, elasticity, rigidity, distance, size, etc.? Are there any parts that must be made of a particular material(s) (e.g. a knee replacement device made of titanium)?
- Prepare a sketch of the invention that includes all essential parts and give each part a unique label (e.g. 1, 2, 3, etc. or 101, 201, 301, etc.). Focus on the essentials and omit unnecessary details and any measurements unless they are critical to the operation of the invention. If the invention is a process or method, prepare a flow diagram.
- List the alternatives – how could the parts/steps be changed or substituted with equivalent parts/steps without changing the basic invention? Identify any “generic” descriptor for the parts/steps listed (e.g. “fastener” to describe nails, screws, tacks, etc.; “plastic” to describe polypropylene, polyethylene, polyvinyl, etc.).
- Is it possible to combine/change/eliminate any of the parts or steps?
- How could you improve the invention? What would be added? What would be removed?
- Could the invention be used for anything else besides what you intend (e.g. a monkey wrench used for tightening pipe junctures and also as a jar opener)?

After questions such as these have been answered, the idea has normally metamorphosed into an actual invention that can now be described with specificity and in concrete terms. Importantly, this process also helps to identify aspects of the invention that will either simply not work and must be redesigned or aspects that could serve as the starting point for the second generation product/process.

Once the invention has been fully conceived and described, the inventor can begin to figure out whether it meets the novelty and non-obvious requirements for patentability. The essential features of the invention are now apparent and to see whether the invention is actually novel, the inventor can search for those features in the patent, scientific and technological literature. The results of this search will also give the inventor a reasonable idea as to how similar the invention is to other products, devices,



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methods, and procedures that are currently in use or have been used in the past. The more differences that exist in the structure of the invention or the way in which it works, the less obvious (or more non-obvious) the invention becomes.

### Is Your Idea Patentable?

When it comes to patent protection, the decision about whether to file for a patent is equal to if not more important than actually filing the application itself.

Yet all too often entrepreneurs short-cut the patenting process to their peril because they are reluctant to spend precious economic resources on products or activities that they do not consider vital. They mistakenly believe that if there is nothing like their invention on the market then a patent will be standard issue.

In fact, the true test of patentability starts with a determination that the invention makes a contribution over and above what is already known or available to the public. In legal parlance, this information is known as *prior art*. If prior art exists, a patent application may be denied.

### Patentability Searches

Just because no one is selling the invention, or something similar to it, does not mean that the invention has not already been described by someone else. It is entirely possible that the invention was the subject of someone's graduate thesis, or described once in a PowerPoint presentation at a meeting, or perhaps included as part of a YouTube video.

Also possible is that an entrepreneur or start-up company has filed a patent application which is then published – or actually succeeds in becoming a patent – but the entrepreneur/company runs out of money. The invention has never been brought to market, but now a description of the invention is definitely in the prior art.

It is extremely difficult to figure out whether an invention will be considered a true step forward in technology — and thus deserving of a patent — without conducting a patentability search.



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A patentability search provides several benefits:

- (1) A comparison of the invention to similar inventions;
- (2) Identification of feature(s) that make(s) a significant contribution over what has already been described;
- (3) Suggestions as to whether further adjustments need to be made before the feature(s) would qualify as a significant improvement over what has been described before.

Certainly an entrepreneur can conduct a basic search of issued patents and published patent applications on his/her own using the USPTO website <http://patft.uspto.gov/>. An enterprising entrepreneur can also search international published applications and the resulting patents that were filed through the Patent Cooperation Treaty (PCT) using the World Intellectual Property Organization (WIPO) website <https://patentscope.wipo.int/search/en/search.jsf>.

But a professional patentability search will go further, turning up references directed to previously unidentified publications describing inventions and that could make the difference between going forward with an application or going back to the drawing board.

### ***Focus on the Features***

Knowing what critical feature(s) distinguishes the invention from previously described inventions is important. Ideally, that feature is something that is not found in any of the prior art references because that will help ensure that your invention is found to be *novel*. But identifying the critical feature is only step one. Now it becomes important to figure out whether it would have been *obvious* to include or change that feature, which can be tricky and is seldom straightforward. Then the question becomes “should I file a patent application?”

Generally, it does not make sense to move forward with an application if the invention is minimally different from the prior art or if the protection that can be obtained is so narrow that a competitor could easily make a small change and not fall within the boundaries of the claimed invention. For example, if the prior art describes a chair that is constructed using glue and a new patent application for the invention only claims using screws so as to make the chair more sturdy, then if someone makes the chair using nails they would not infringe a patent issuing from that application. In this case it



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probably does not make sense to go forward with a patent application – the protection is too narrow to justify the time and expense.

Assuming that the critical feature is different enough from the prior art so that protection will not be restrictively narrow and a viable market exists for the invention, that feature(s) is what the patent application should focus on. While all features of the invention must be described in a patent application, the critical feature(s) is the one that should be most prominently discussed and discussed in a clear and specific manner.

Why is that? One reason is that focusing on the critical feature(s) means that there will be more description and discussion of that feature(s). This is important because the more specific information provided as to what feature(s) is responsible for: (1) unexpectedly improved results compared to what the prior art teaches, (2) why the feature(s) does not work the way it would be expected to work, and/or (3) how the feature(s) surprisingly interacts with other components of the invention, then the better the chance of moving the application forward to a patent.

Another reason is that by giving more “air time” to the critical feature(s), it is more likely that many variations of that critical feature(s) will be described. This can serve as the basis for broader claims and also provides potentially important “fall back” positions should the claims need to be amended,

Yet another reason is that when the patent application is assigned to a patent Examiner for examination, the Examiner is given only a certain period of time in which to assess the patentability of the invention. By drafting the patent application so that the feature(s) making a significant contribution over the prior art is highlighted, the Examiner can focus on that aspect – he or she does not have to waste time trying to figure out what is different and possibly miss the important feature altogether.

Deciding to file a patent application should be a *BIG* decision. The time and expense involved in the patenting process is considerable and should not be undertaken lightly. A trained professional can help entrepreneurs figure out many of the risks associated with the process. After assessing these risks, the entrepreneur is in a better position to make the business decision whether it makes sense to go forward.

### WHY FOCUS ON CRITICAL FEATURES?

1. More description and discussion.
2. More “Air Time” to the critical features.
3. Help keep the Examiner focused on what matters most.





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## Setting Yourself Up for Success

Once you've determined your idea is patentable, the first step of moving forward with the preparation of a patent application is to draft the claims.

Claims define the scope of protection that the invention will receive. Of course everyone wants the broadest claims possible because that will provide the largest scope of protection. But for many areas of science and technology – particularly for biotech, pharma, and software-based products and applications — the United States Patent and Trademark Office will view broad claims with skepticism.

Successful patent innovations, therefore, require an in-depth understanding of how the claims will be interpreted, careful use of language and a focused legal strategy.

### ***Here's why:***

Up until 2012, the Supreme Court had decreed that “anything under the sun that is made by man” was patent eligible. Since then, the Supreme Court has started to focus on what is not patentable.

Abstract ideas or concepts, naturally occurring products, a natural phenomenon and laws of nature are not patentable. This includes everything from a rock, snow pinnacle, or DNA to making ice by freezing water, scientific theorems ( $E=MC^2$ ) and algorithms.

Given that the foundations of science and technology are rooted in the natural world and ultimately rely on abstract ideas and laws of nature, it is critical to ensure that the invention will not be found to be directed to non-eligible subject matter.

Further complicating the patenting process is the recent shift in patent laws. Because the United States has moved to a First-Inventor-To-File system, the early filing of applications is far more important than it used to be. However, if an application is filed too early, the description of the innovation may be incomplete. This can be particularly problematic if what is missing is needed to place the invention into the eligible subject matter realm.

Consequently, it is more important than ever to consider timing when filing applications.

Provisional applications help address the timing issue. Too often entrepreneurs think that once a provisional application is filed they don't have to think again about protecting the invention until it is time to “convert” the provisional application to a standard utility application. Perhaps this is true if the provisional application was drafted as though it actually were a utility application and contains all aspects of the invention





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except the actual results of the experiments described in the application.

However, this is generally not the case.

Maybe what is missing would remove the innovation from the abstract idea/natural product/natural phenomenon category. Maybe the experiments did not produce the expected results and needed to be redesigned. Maybe it became evident that another feature was critical to the performance of the invention. Perhaps additional prior art was found that necessitated a rather major change in the invention. Or – most frequently – the provisional application was drafted in a “hurry-up” fashion with the thought that “we

can fix it later.” In any of these cases the provisional application filing date may not support what the utility patent actually describes and claims as the invention.



### THE ADAGE FILE EARLY AND FILE OFTEN IS A GOOD ONE.

The adage “file early and often” is actually a good one. The United States Patent and Trademark Office provisional application filing fee is

minimal (\$260/\$130/\$65 depending on the size of the business), so multiple provisional applications can be filed and their priority dates claimed in a single utility application. And if the first provisional application is drafted as though it were a utility application, then the changes made in subsequent provisional applications are minimal and not so expensive.

If it later becomes clear that the first provisional application filed is no longer desirable – either because the invention has changed or because additional time is needed to perfect the invention for a utility application – the first provisional application can be abandoned without losing an entire year and subjecting the invention to another year of available prior art.

This is particularly important when the invention is close to “patent-ineligible” subject matter. As an example, say that the innovation is the discovery that Protein Y, which is produced in extraordinarily low amounts by people having Disease Z, can be chemically synthesized and can actually be used as a treatment for Disease X. Protein Y is not eligible subject matter because it is a naturally occurring protein (at least in people with Disease Z). So it makes no sense to file an application to Protein Y because it will not be recognized as patent eligible subject matter, even if Protein Y is artificially made.

But further experiments show that Protein Y can also be isolated from recombinant *E.coli*, and has a different phosphorylation pattern than Protein Y that is isolated from patients



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with Disease Z. Furthermore, Protein Y is not present in any mammals except for people with Disease Z and is not present in yeast cells.

Entrepreneurs file a provisional application for Protein Y isolated from recombinant *E. coli*. Then entrepreneurs find that recombinant expression of Protein Y in yeast provides a different glycosylation pattern than that found in humans and *E. coli*. So they file a second provisional application directed to Protein Y with the yeast glycosylation pattern. Even further studies show that the effectiveness of Protein Y for treating Disease X is increased when Protein Y is transported into the cell nucleus via an added transmembrane sequence. Entrepreneurs file a third provisional application directed to Protein Y having an added transmembrane sequence. Entrepreneurs then file a utility application approximately three months later at the one year date from provisional application number one. The utility application claims priority to provisional applications 1 – 3.

The claims are directed to (1) Protein Y with *E. coli* phosphorylation, (2) Protein Y with yeast glycosylation, and (3) Protein Y with a transmembrane leader sequence that facilitates transport into the nucleus. Examination begins and the Examiner finds a reference for recombinant Protein Y produced in *E. coli* that predates provisional application number 1. She also finds a reference for Protein Y with yeast glycosylation, but this reference is after the filing date of provisional application number two. Because the second provisional application was filed, the claims to - (2) Protein Y with yeast glycosylation - are “saved” by the earlier filing date.

Had entrepreneurs waited until the original one year date to add all of the other information discovered during the priority year they would have been prevented from obtaining claims to Protein Y with yeast glycosylation, which happens to be the most effective and least expensive treatment.

While changes in the law make it more difficult to obtain broad protection for innovations, a focused approach to application preparation and filing can ensure that an innovation can obtain solid protection without unduly compromising the scope of the protection.

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