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Protecting Technology

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Protecting Technology

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Intellectual Property Protection Programs

Most large companies have well-defined programs for protecting technology. In the employment process, we expect to see detailed company policies, employment agreements outlining certain responsibilities and a complex security program. After all, the corporate attorneys and human resource gurus have to justify their existence, right?

Many smaller companies don't have these fancy trappings. The perception of a friendly and casual work environment takes precedence. Perhaps they don't have a large budget for lawyers and personnel managers. Perhaps the small one-man shop grew before anyone really noticed. The scenarios are endless.

The lawyers don't mind a bit. The stories often end in their office, and well, litigation earns them a rather nice living. The first meeting usually ends with something like, "but no one ever told me. I would have…." Well, we are here today to tell you a bit of what you "should have asked."

Technology happens at an unpredictable rate and in unpredictable ways. Many times engineers stumble upon something new without realizing its utility, its value or its potential. Engineers are always improving, creating, fixing problems, and designing the next state of the art widget or software. It may be months or even years before anyone realizes what they have. It may be months or even years until resources are available to develop or incorporate a technology into existing products.

Failing to protect technology at its inception may have financially and technologically detrimental consequences down the road. Technology is a proprietary asset, and a protectable property interest. For many businesses, it is their very "stock in trade."

Intellectual Property includes patents, trademarks, copyright and trade secrets. There are complementary common law protections for trade dress and unfair competition. Since engineers deal primarily with technology that falls within the scope of patents and trade secrets, we will direct our inquiry to those areas of intellectual property. A trade secret protection plan is provided in the appendix.

Protecting Intellectual Property Assets requires a three step approach:

1. Identify commercially sensitive information;

2. Determine a protection strategy; and

3. Establish reasonable corporate policies and procedures.

Sounds simple, huh? So where do you start? Well, first you have to identify commercially sensitive information that requires protection.

Identifying Commercially Sensitive Information

The key inquiry is to look at the consequence of the information's release. If the information were disclosed,

1. Could it be commercially harmful to my business?

2. Could it be used by a competitor or the public to my detriment?

3. Would it assist a would-be competitor in duplicating sales success?

4. Would it short-cut a would-be competitor's trial and error program?

5. How much would it cost my competitor to create or obtain the information?

6. Does it relate to a competitive advantage I have developed?

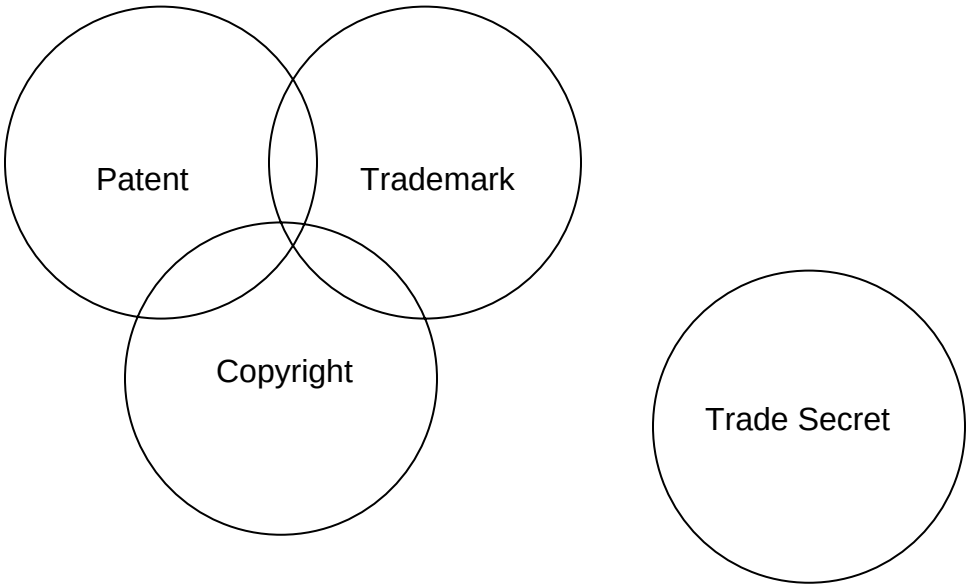
It is important to consider all forms of corporate information. These may include (1) technical, (2) scientific and research, (3) business and customer, (4) personnel, and/or (5) accounting and financial. This is not an exhaustive list, but you get the idea.

It is also important to consider information in all forms: (1) written, (2) oral, (3) magnetically recorded (computer readable), (4) graphic (photos, diagrams, plans, blueprints), (5) computer programs, and/or (6) reproductions/copies/ duplicates.

Determine a Protection Strategy

Some of your information requires a common – sense approach to protection. You should consult with an expert to determine the value and availability of trademark (service) mark and trade dress protection to protect your corporate names, brand names, domain names, product names and packaging designs. You should consult with an expert to determine the value and availability of copyright protection for your website, software, instruction manuals and marketing materials. You should consider the disclosure of technology in publications, conference papers and finance raising activities. This may impact trade secret or patent protection. We will look at these strategies in greater depth.

Is this Technology Better Kept a Trade Secret?



Sharing and disclosure are the hallmarks of patents, trademarks and copyright. Trade Secrets require secrecy.

The word “Patent” means “openly.” The openness required by patent laws is directly opposed to the secrecy required by a Trade Secret. In other words, the benefit of patent protection comes with a price: the inventor must contribute to the public body of knowledge by sharing the technology. The patent laws help move the technology into the public domain by publishing the application, even before the application has been approved and transformed into a patent!

In the absence of an affirmative request not to publish, the United States Patent and Trademark Office "publishes" utility patent applications (not design patent applications) filed on or after November 29, 2000 (including International applications). An application will not be published if an applicant makes a request upon filing the application certifying that the invention has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires eighteen-month publication. If the inventor wishes to pursue foreign patent protection, their patent application must be published. Obviously, such a publication would preclude any hope of keeping a Trade Secret.

There are certain advantages to publishing your patent application. In exchange for the publication of a patent application, patentees may be able to obtain "provisional rights" in the way of a reasonable royalty during the period beginning

on the date of publication of the application by the United States Patent and Trademark Office and ending on the date the patent is issued (i.e. granted). Thereafter, the patentees have non-provisional rights to license their patents for royalties.

Even if you choose to request that your application not be published, the contents of your application will still be made available to the public if a patent is granted. In other words, you can ask the Patent Office to not publish your *pending patent application*. You cannot ask the Patent Office to not publish your *granted patent*. The granted patent must be openly available to the public, for that is the very definition of the word "patent!"

In some cases, companies elect to keep a technology as a proprietary trade secret rather than to obtain patent rights. There are two realties to obtaining a patent: (1) Once a patent term has expired, the technology would be in the public domain; and (2) Once the application has published, others may attempt to design around or improve upon the technology that was disclosed. This may diminish the economic advantage that may be derived from such technology.

The inventor may elect to forego patent protection and maintain the technology as a closely held trade secret. The decision to pursue patent protection or to maintain a trade secret is a business decision, not a legal decision. These business decisions must be made cautiously. First, once the technology is used in commerce for one year, patent protection may no longer be sought on the technology without novel and unobvious improvements. Second, certain technologies may be reverse-engineered by competitors. A patent grants a "limited monopoly" to the owner, allowing the patentee to patrol and seek damages from infringers. However, a reverse-engineered technology that has no patent protection may leave open a small door for competitors to exploit, since inventions that may be reverse-engineered are unlikely to be protected as trade secrets.

Let's look at an example. In the earth moving industry, equipment such as a bucket coupled to a wheel loader captures and hauls materials. In demanding applications, such as hard rock mining and quarrying, the breakout force exerted on a bucket can be tremendous. Buckets may be fitted with purpose-built bucket teeth designed and engineered to facilitate material penetration.

Your team has been tasked to design bucket teeth that last twice as long and withstand breakout forces twice as large as the closest competition. Through months of experiment, your team successfully invented an annealing process so effective that the bucket teeth exceeded your customer's expectation in product life span, performance and cost. Your company has several options. First, your company could take no action in protecting the annealing process invention. Second, your company could patent the invention. Third, your company could keep this invention as a trade secret by actively safeguarding access to the

annealing process of the bucket teeth. If your team determines that there is little likelihood that your competition would be able to reverse engineer the annealing process for the bucket teeth by merely performing (1) visual inspection, (2) mechanical, metallurgical, chemical evaluations or (3) other evaluation methods, then keeping the invention as a trade secret might make sense. If the invention could be duplicated with a reasonable amount of experimentation, then protection might be pursued.

Let's look at another example. Through some experimentation, your team came up with a novel bucket that effectively retains materials at a wide range of digging angles. The bucket could be easily copied by your competition through reverse engineering. In this case, you would want to patent the bucket invention since trade secret protection will not be available. In addition to the benefit of getting intellectual property protection, your company may also enjoy the benefit of licensing the novel bucket invention to other manufacturers.

Trade secret protection has some advantages. It is immediate and the expense is minimal to implement appropriate protection policies and procedures. The protection begins immediately since there is no application or registration process. The coverage can be perpetual as long as secrecy is maintained and control over the disclosure of the information remains with its owner. It has a downside, however, no monopoly against those who discover or develop the same technology.

Deciding between patent and trade secret protection is a true business decision. It often involves inquiries such as:

Will this technology be obsolete before patent issues?

What is the impact of publishing my proprietary technology?

- *Will I create a new market for accessories, increasing my own sales?*
- *Will I be perceived as high tech to competitors, investors and consumers?*
- *Will the patent have a deterrent effect on competitors?*

My technology will be in the public domain after expiration of patent term.

- *What is the useful life and economic advantage of this technology?*
- *In 20 years, will this still be a competitive advantage or cutting edge?*

What if competitors design around or improve upon my technology?

- *Can my invention be reverse-engineered?*
- *Will I be perceived as the market leader ("the original") in the technology?*
- *Can I benefit from industry improvements myself?*
- *Do I have a "first to market" advantage?*

Trade secret protection may not be the best option if the technology can be reverse engineered by a competitor or independently invented. Patent protection may be more suitable in such circumstances. Trade Secret protection requires that information provides a concrete value/benefit to owner and is not generally known or available to the public. Protecting know-how or information as a Trade Secret requires the owner to take affirmative steps to protect the confidentiality of the information. There is no exception to this rule. The courts will not recognize defense such as "I thought telling employees it was a trade secret would attract attention to this valuable asset."

Establish Reasonable Corporate Policies and Procedures

So, how does a company go about protecting Trade Secrets? What are the affirmative steps it must take? Well, the steps must be reasonable in light of the nature and value of the confidential information. Companies should identify confidential information, take reasonable steps to protect it and disseminate confidential information on a need to know basis. Company policies and practices might include, for example,

- Marking sensitive documents "confidential"
- Establishing written policies for maintaining confidentiality
- Informing employees of trade secrets
- Utilizing Employment/confidentiality/ non –compete agreements
- Restricting access to trade secrets (employees and public)
- Using of confidentiality agreements with non-employees
- Employing physical security measures (lock gates and cabinets, entry passes, computer passwords)
- Undertaking trade secret audits
- Screening speeches and publications
- Developing a policy and procedure for handling unsolicited invention submissions by third parties. (This will help the company avoid claims or even an appearance of misappropriation.)
- Employee policies
- shredding and disposal of document waste

Nondisclosure Agreements and Provisional Patent Applications

Nondisclosure agreements ("NDA") create a state law contractual obligation, and thus, contractual damages for breach of contract. These fact-specific enforcement actions are often expensive and lengthy endeavors. The strength of a nondisclosure agreement is proportional to the specificity of the confidential information covered by the agreement. Since nondisclosure agreements are written fairly broadly, used alone, they may not offer the best protection to an inventor's proprietary technology.

In many cases, it is preferable to base a nondisclosure agreement on a filed patent application. At the early stages of invention development, this may be a provisional application. When used in combination, the nondisclosure agreement and provisional patent application create a firm scope of the technology being disclosed.

Nondisclosure agreements also referred to as secrecy or confidentiality agreements are often used when a new concept is brought to a third party for manufacturability or marketability analysis or for assistance in reducing the concept to practice. Meetings with the third party often become collaborative "think tank" sessions and it may become difficult to sort out which technology was brought in by the inventor and which technology evolved as a consequence of the collaboration. Inventorship issues arise as well as disputes over ownership of the technology. A simple nondisclosure with broadly listed subject matter may not effectively assist in resolving these fact-specific conflicts. On the other hand, a filed patent application would be extremely helpful in establishing the bounds of the concept or invention prior to any collaboration or improvement. The filed patent application also permits the applicant to claim a "patent pending" status, which may deter the third party from appropriating the subject matter disclosed in the application.

It is important to remember that "patent pending" merely indicates that an application has been made seeking a patent; it is not a guaranty of a patent being issued. Additionally, provisional patent applications have no enforceable claims and may provide only limited protection if they are not converted to utility applications within one year. Thus, if a patent never issues as a result of an unpublished application (i.e. provisional applications, design applications, utility applications with non-publication requests and applications abandoned prior to publication), the invention may still be a trade secret. Once the "cat is out of the bag" without an NDA, it may be difficult or even impossible to maintain it was a trade secret. Conservative practice would include the use of both provisional patents and confidentiality agreements.

Just because you stamp "confidential" on a document does not deem it confidential in all cases. There are some general exceptions under the law to what is deemed confidential:

1. Information already in the public domain at the time of disclosure or subsequently through no act or omission of the Receiving Party
2. Information already in possession and not confidential
3. Information supplied without restriction by a third party who is under no obligation to maintain confidence, or
4. Information where there has been a prior written waiver or consent by the Disclosing Party.

It is important that NDA's be used properly to be effective. Often misunderstood, it is worth reminding that signing an NDA does NOT obligate you to reveal anything and should be signed BEFORE anything is revealed. NDA's may contain language that covers information shared prior to signing the agreement.

Many standard agreements require oral conversations to be summarized in writing. This can be burdensome and may create litigation issues as to whether the written summary accurately reflects the conversation content. It also creates a presumption that anything not put in the writing is not confidential. Be diligent about marking documents disclosed as confidential and memorializing written conversations. Another option might be to consider a Presumption of Confidentiality provision:

> *The parties further acknowledge and agree that all information disclosed …shall be presumed by the parties to be the Disclosing Party's Confidential Information …*

In drafting confidentiality agreements, the "Recitals" ("whereas" clauses) should set forth circumstances surrounding the disclosure, Consideration (what was traded for value by each party) should be set forth and there should be broad, inclusive definitions of confidential information. However, be specific where possible, especially by referencing trade names, trade marks, service marks and patents. Consider including a provision that no license or joint venture is implied. Consider a provision discussing which employees have access and how employees of a business will be required to maintain confidentiality in handling information.

Survivability clauses in most standard agreements are ambiguous, rendering it difficult to determine how long the parties are obligated to keep things confidential. Consider expressly defining the period:

- *during the period of business relationship*
- *for an additional two years after the termination of all business relationships*
- *until the Confidential Information no longer qualifies as a trade secret*
- *until the disclosing party provides written notice that the information no longer must be kept confidential*

Many standard forms do not contain language about equitable remedies for breach. This may make it difficult to obtain a restraining order to prevent the other party from improperly using your confidential information. Consider including provisions acknowledging the injunctive remedy and provisions to recover attorneys fees if you have to enforce the confidentiality agreement.

Inventor Record Keeping

Inventors should maintain records to prove inventorship, reduction to practice, possession of invention, invention date and the like. Do you remember college laboratory notebooks? They really are much the same rules. In fact, I suspect that the laboratory notebook practice was to teach scientists and engineers about proper record-keeping practices.

The Inventor's Notebook should be a hardbound notebook with pages sequentially numbered. In using the Inventor's Notebook, treat every entry in this book as a secret. Don't leave any blank pages. Mark unused white space on a page with a diagonal line. (This prevents insertion of information at a later time.) Any errors should be neatly crossed out, corrected, and the change initialed and dated. (You should still be able to see the old information under the cross out.) Keep the Inventor's Notebook in a safe place. If there is any debate about who invented first, a well kept notebook could allow you to win the battle!

The quality and timing of the entries is also important. Use permanent ink to record your ideas as soon as you get an idea or solve a problem. The notebook should show how your idea developed over time. Be explicit. Include drawings and specific details. Paste or fully tape in photos or other paper content that you generated from other media. Show dimensions, tolerances, weights, materials, process parameters equipment, etc. Any Figures or Tables should be labeled with an identifier (Figure 1, Table 2B, etc.) and this identifier should be referenced in your text description. All inventors should sign and date each page when that page is completed. These pages should be witnessed by a disinterested person who can understand the entries by having the person sign and date the page.

Prototypes

Ideas may be patentable if they are "enabled." It is not always necessary to spend the time to fully build and understand a prototype before filing a patent application.

> *Myth: the inventor needs to make a prototype before he prepares a patent application.*
>
> *Myth: the inventor needs to scientifically explain how or why his invention works.*

The United States Patent and Trademark Office does not require the inventor to propose a theory, or even understand, how or why their invention works. Also, the inventor is not required to construct a prototype, to receive a patent. The inventor must reduce his invention to practice. This may be done constructively by describing the invention in sufficient detail so it is enabled, that is, so that one

skilled in the art may make and practice the invention from the disclosure within the patent without undue experimentation.

For example, an inventor might accidentally mix two liquids together and observe that the combination has extraordinary properties. These extraordinary properties have a useful application. In preparing a patent application, the inventor is not required to explain the chemical basis for these super properties, nor even identify what they are. The inventor is merely required to disclose how to make and use the invention, that is, how much of each liquid to mix together and critical conditions that may be pertinent (temperature, flow rates, pressure, agitation methods, etc.) and how to apply it in its useful application. The inventor can describe the observed result without having to propose a theory for its mechanisms.

Prototypes may be useful in reducing an abstract idea to a concrete tangible structure. The certainty and definiteness may enhance the detailed description, drawings and ultimate patent protection obtained. They may also produce unexpected results, something that may be useful in defending an obviousness rejection during patent prosecution.

Who is an Inventor?

> *Myth: The overseeing department manager may be listed on the patent as an inventor even he did not directly contribute to the invention.*
>
> *Myth: The business owner may be listed on the patent as an inventor if the inventor's work was (1) done in the course of his employment, (2) while earning salary paid by the business owner, (3) at the facilities and with the materials and equipment owned or supplied by the business owner, and (4) the business owner pays all patent costs.*

Inventors are those who conceived of the idea that is the invention. Those who merely helped reduce the idea to practice are not inventors (unless they contributed to conception of the invention in some way). Inventors do not need to work together on the invention at the same time, nor are they required to contribute the same amount or type of contribution.

Inventors must have contributed to at least one claim in the patent application in a substantial way. Thus, a skilled patent practitioner can selectively add or omit claims to tune the inventors to the desire of the client. The skilled patent practitioner can also craft the patent claim to include or omit various elements that affect inventorship with respect to each claim.

Someone who merely assists in reducing an invention to practice is a person who merely carries out the inventor's inventive concept. For example, an

inventor conceives of combining part A and part B. An Inventor goes to a Technician to help configure the combination, determine the best fastening means, and determine the most cost-effective materials. The Technician would most likely be found to be reducing the inventor's concept to practice rather than be found as a co-conceiving inventor.

If an inventor is mistakenly named or omitted from the application, he may be later added or removed. Failure to name true inventors that rises to a fraud on the patent office in the procurement of a patent may be a ground for invalidating a patent.

Where a joint inventor does not apply, others may apply for a patent on his behalf. A person who has a proprietary interest in patent rights, or has been assigned such patent rights, may apply for a patent as an agent of the inventor upon a showing that inaction would cause irreparable damage. The Patent Office will issue the patent in the name of the inventor, not the applicant. Similarly, in a case where an inventor dies or is incapacitated, the inventor's legal representative may apply for a patent on behalf of the deceased.

In theory, patents are developed and owned by individuals. Unlike other countries, corporations may not be inventors. In order to transfer patent rights to corporate entities, inventors must assign their patent rights to the corporation. Assignments, in certain circumstances, may limit future involvement of the inventor in the prosecution of the patent and any "child" cases.

To protect corporate assets, it is common practice for employees to sign an employment agreement at the time of their employment stating that all inventions (both patentable inventions and inventions that are not patentable but may qualify as trade secrets) and proprietary information related to the business of the corporation and all inventions made with corporate time, materials or facilities, belong to the corporation. Even with no obligation to assign, an employer may be entitled to "shop rights" in inventions.

With limited exceptions, a patent application may only be filed by the inventor. Thus, someone who sees the invention of another would be precluded from filing a patent application based upon that invention. However, modifying and improving upon the "borrowed" inventive concept may establish inventorship and qualify for patent application filing.

Statutory Bars to Obtaining a Patent

Even if your invention falls within the statutory class, that is, it is novel and non-obvious, certain actions may forbid an inventor from receiving patent protection. These actions are referred to as "statutory bars." In the United States, a statutory bar will preclude a valid patent from being issued if the inventor failed to

file for patent protection within one year of public disclosure of the invention. In foreign countries which have “first to file” rules, public disclosure set a statutory bar at the moment of public disclosure (i.e. no one year grace period is granted).

Most countries are “first to file,” requiring that an inventor file for a patent prior to any public disclosure. However, there is also a “first to invent” filing system. While the benefits and limitations of each system are the subject of much legal commentary and current domestic controversy in the reform of the patent laws here in the United States, the most practical implications of our first to invent statutory scheme will be explained.

In the United States, an inventor can reveal information to the public and still seek patent protection provided that the patent application is filed within one year of the first public disclosure.

This one year statutory bar also includes a sale or offer for sale of the invention as well as use of the invention in commerce. Telling the public about your invention or leaving it in a position where the public is placed on notice that you have invented the device or process may invoke the Statutory Bar. Exactly what constitutes "public" is a source of debate.

For example, a company invented a widget that allows them to produce their product in an inexpensive manner. Since the widget itself is not sold, it is never viewed by the public. The company made a business decision wherein the company decided to maintain the widget as a trade secret and use the widget to produce product (i.e. used the widget in commerce). Since the goal of the patent system is to encourage inventors to promptly disclose new ideas, withholding such ideas as a trade secret and thereafter pursuing patent protection is generally not permitted. If an inventor reaps the rewards of the trade secret system, the inventor is generally not entitled to thereafter reap the rewards of the patent system.

The sale need not be consummated - just a bona fide offer will suffice for the statutory bar to apply. In fact the price and other terms don’t need to be included for it to be deemed an offer for sale.

Should an inventor fail to file for a patent within one year, the invention falls into the public domain and anyone can practice the invention subject, of course, to any dominating patents. The inventor may then only seek patent protection on non-obvious and novel improvements (or changes) in the invention.

The Patent Office also requires that an inventor "act with diligence" to develop the invention from the point of conception to either an actual reduction to practice (building a prototype), or a constructive reduction to practice (such as preparing and filing a patent application). If an inventor does not act diligently to reduce an

invention to practice after conceiving it, the invention will be considered to have been abandoned.

Potentially Patentable Inventions

It is also important to identify technology that is potentially patentable. If it is not patented early, it risks forever losing the ability to be patented under various statutory bars we will discuss later. Potentially patentable inventions include the following:

- Mechanical parts and devices
- Chemical compositions
- Processes for making these mechanical parts and devices (or chemicals)
- Methods of using these mechanical parts and devices (or chemicals)
- Intermediate products
- Component parts
- Manufacturing processes
- Equipment/apparatus to make products, intermediates and components
- Equipment/apparatus to perform processes
- Methods of using products, intermediates and components
- Improvements to processes
- Improvements to apparatus or components
- Software algorithms
- Ornamental, non-functional designs
- Novel and useful applications of existing things
- Novel and useful methods of doing business

Often, a patent is on a small part of a device, not on the whole machine. For example, a patent may be obtained on a unique valve assembly or paper feed mechanism rather than an entire printer. *Improvements* on small parts or processes are potentially patentable subject matter, as well as new configurations of existing parts. The key is “novel and non-obvious.” It is useful to make the following inquiries:

- What are the problems associated with the existing devices or processes?
- Have previous attempts to resolve these problems been made in the art, and if so, how have they been inadequate?
- How specifically does my improvement address the problem?
- Why was it **not** an obvious solution?
- Does my idea result in significant cost savings in manufacturing the product?
- Does my idea make the product more reliable?
- Does my idea add or enhance a key feature or function (speed, size, etc.)?

- In utilizing my idea, will my product be distinguishable over my competitor's product in a way that is attractive to consumers?

Cost-efficiency in manufacturing is a competitive advantage. Ways of producing a component may be patentable subject matter, including:

- Use of different materials
- Different process for producing (injection molding vs. cut-stamp-bend plastic parts)
- Environmentally minded improvements in existing processes (less energy consumption, less waste, less toxic raw materials, etc.)

Start thinking about patents when you can say:

- *"My widget simplifies the drudgery of this repetitive task"*
- *"My widget allows me to do this task three times faster"*
- *"My widget makes the task safer or more ergonomic for the worker"*
- *"This widget has been around for 25 years and used by auto mechanics….it is not obvious and no one has ever tried to use it on printers/copiers, but it actually works great in this particular application"*
- *"I have always seen widget A, but it does not have this great feature of widget B. If only someone combined the features of both into one superwidget……."*

Improvement Patents

What if your invention utilizes, or is an improvement upon, another invention. Can you still obtain a patent?

> *Myth: You can not obtain a patent on something that incorporates someone else's widget*
>
> *Truth: patented widget A combined with my non-obvious and useful improvement is potentially patentable*

Generally, an applicant is entitled to receive a patent for a non-obvious improvement to an existing device. Such potentially patentable inventions create complex issues for the respective patent owners. If the applicant receives a patent, then the patent holder can exclude the original inventor of the device from practicing the improvement. However, depending on the patent protection surrounding the original widget, the patent holder may also be excluded from practicing the improvement – there may be no way to practice the improvement without using the widget (which is patented)! The result is a stalemate – the patent system allows a small inventor the potential to stalemate a corporation that is significantly larger than the inventor! The holder of the widget patent can stop the patentee from using the improved widget by the virtue of holding the

patent on the basic widget, which is required to practice the improved widget. However, the patentee can also stop the holder of the original widget from practicing the improved widget. Such a stalemate often sets the stage for cross-licensing opportunities between the two parties. One of the reasons for applying for a patent is to establish such an opportunity.

Computer Related Inventions

Computer-related inventions often fall within several different areas of intellectual property – most often copyright or patent protection. Which form of protection should the inventor pursue? As a quick rule of thumb:

Algorithm = patent
Code expression = copyright

Why? Algorithms are ways of doing things that can be carried out in a variety of code languages. The concept must be protected. In contrast, code is an artistic expression of an idea. Some code expression is more efficient or easier to read than others and it is more akin to a literary work.

What kind of computer-related process claims (algorithms) are most easily patentable? A computer process that requires physical acts to be performed (the manipulation of tangible physical objects and result in the object having a different physical attribute or structure) outside the computer independent of and following steps performed by the computer.

Many processes involve signal processing. How does that fit into the court defined tests? These may still be patentable where transforming the measurements of physical objects or activities into computer data, where the data is made up of signals corresponding to physical objects or activities external to the computer system, and where the process causes a physical transformation of the signals, which are intangible representations of the physical objects or activities.

Let's simplify the test in a way you can process as engineers:

Patentability Equation

Patentability = abstract idea + (practical application) useful, concrete and tangible result

Where,
Mathematical algorithms = abstract ideas

Therefore, patentability =
Mathematical algorithms + (practical application) useful, concrete and tangible result

So, are processes performed by humans patentable? Yes! A method or process remains statutory (patentable) even if some or all of the steps therein can be carried out in the human mind, with the aid of the human mind, or because it may be necessary for one performing the method or process to think. The key is that a useful, concrete and tangible result must be produced.

Design Patents

Design patents protect the overall appearance of an invention and may be granted for any new, original and ornamental design for an article of manufacture. Design patents will NOT protect the concept, just the appearance. Design patents protect a product manufacturer from "copycat" products where inferior quality detracts from the design patent owner's reputation in the marketplace.

> *"I have worked hard to develop a good reputation. Putting the products side by side, consumers might be confused as to which is mine. They might buy my competitor's product thinking it is mine. I want to prevent copycat devices from usurping my market share."*

Design patents are directed at protecting surface ornamentation, configuration/shape or a combination thereof. Protection is granted for definite and reproducible designs with a pleasing aesthetic appearance that is not dictated by functional considerations.

Scope of Patent Rights: What a patent will (and won't) do for you

> *Myth: a patent gives the owner the right to make and use the invention*
>
> *Truth: a patent allows the inventor to prevent others from making, using or selling his invention throughout the United States without the inventor's consent.*

A patent does not give me the right to make and use my own invention?! That seems counterintuitive to most people. So, what are some reasons a valid patent may not be practiced (used, manufactured or sold) by its owner? Well, here are a few:

- Another valid patent with dominating claims
- Failure to obtain FDA approval
- Court injunction
- National security

Patents are property in the same way that real property (real estate) and personal property (car, animals and tangible objects) are and have many of the same property attributes. Patents are in a class of property called intellectual property which also includes trade secrets, copyrights and trademark. Patents are also in a property group called intangible property which also includes currency, stocks and other things where a piece of paper represents the value of some other valued property. In other words, it is not the paper that has the value, but what it represents. Stocks represent a share in a company and currency represents a portion of gold in the Federal Reserve. While this is obviously an oversimplification, I think you get the point.

Patent owners have many options available to exploit their patent rights. They may

- Assign it (sell or gift it away)
- License it ("rent" limited rights in it)
- Create a joint venture to exploit it
- Exclude others from making the product
- Exclude others from selling the product
- Exclude others from importing and distributing infringing goods
- Use it as security or collateral to obtain funding
- Bequeath patent rights in a will

Patents have the legal attributes of personal property and thus may be (1) transferred by gift, sale (assignment) or license (like a lease), (2) leveraged for financing, (3) enforced to protect market share, and (4) transferred less voluntarily pursuant to statutes. Examples of statutory transfers include testamentary transfers (to heirs), corporate dissolution (to shareholders), bankruptcy (to trustee), perfected security interest (to secured creditor), and credit judgments (to judgment creditor).

Who Owns the patent?
Some Key Points about Patent Ownership

Under the patent laws, an inventor owns the patent. Co-inventors have an undivided interest in the whole patent and may exploit it without consent or accounting to the other inventors. Inventor agreements may be entered to set forth the rights of co-inventors *vis-à-vis* one another.

Patents have the legal attributes of personal property. The inventors are the statutory patent owners and may assign the patent rights by an assignment to others. Notarization is recommended, but not required, for valid assignments. If all of the inventors assign all right title and interest in the patent to another, the title to the patent rights belongs to the assignee. If only one inventor assigns his

rights, there may be a partial assignment. Prosecution proceeds with all partial assignees and inventors who have not assigned their rights.

Contractual covenants may impose obligations to transfer ownership from the inventor to another person or entity. This is common with employee inventors and their employers. (Businesses may not apply for patents, only individuals). The employment agreements for R&D personnel, technical professionals, and executives often obligate the employee to assign patent rights to the employer. A “garage inventor” or “independent inventor” may be contractually obligated to assign patent rights to a manufacturer for his new product in a technology transfer or sale transaction. Graduate students are often required to assign inventions to an educational institution sponsoring the research. (Notably, if research is funded by a government agency, the government may have right to the invention even in the absence of a formal assignment.)

Assignments of patents must be recorded with the United States Patent and Trademark Office within 3 months of execution or they will be void as against bona fide subsequent purchasers. (There may, of course, still be liability as between assignor and assignee under state law.) An original or a certified true copy may be recorded. Assignments not in English will not be recorded unless accompanied by a signed translation. Conditional assignments will be regarded by the United States Patent and Trademark Office as absolute. The recording of the assignment has no bearing on the determination of its validity or title to a patent or patent application.

As intangible property, patents may also be the subject of a security interest such as liens or pledged as collateral in financing transactions. Complex issues arise in foreclosure and bankruptcy proceedings.

Patent applications, even codified non-patented technical know-how (assignment not recorded at USPTO in this case), can be the subject of assignment. The patents do not need to be issued to be assigned. In fact, they may be assigned even before they are written. Future rights evolving from patent applications may also be assigned. These may include foreign patent filings, improvements on the invention, reissues and patent terms adjustments to name a few common inclusions in the bundle of rights assigned.

Ownership of a patent becomes important when enforcing the patent. All owners must join in an enforcement action. Hold-out partial owners may make unreasonable demands, and if not met, may license or assign their rights to the alleged infringer, impeding the ability to bring an enforcement action. It is prudent to have contractual obligations not only to assign, but also to require cooperation with enforcement or defense litigation.

> *Myth: a company owns the patents for inventions of its employees during the course of their employment*

It is not uncommon for employers to not have assignment covenants in place. In some circumstances, courts can impose shop rights- essentially a personal, limited, non-exclusive, nontransferable, irrevocable, royalty-free license for an employer to use an invention developed by an employee in the course of employment or with business assets.

Patent ownership may be discovered, in most cases, with a review of the United States Patent and Trademark Office records and National Archives and Records Administration (NARA) (pre-1957 patent assignments). Assignments of pending, unpublished or abandoned applications can only be obtained (1) with written authority from the applicant, assignee, an attorney representing either party, (2) upon a showing of a bona fide prospective or actual purchaser, mortgagee or licensee, or (3) if referenced in another publicly available patent. However, since not all inventors, businesses and general practice attorneys know about the United States Patent and Trademark Office recordation of assignments, it may be wise to also check the County Clerk or state recording offices for assignments and security instruments. This has the added benefit of uncovering unknown encumbrances on the patent assets. The law of assignments is state law, and thus, should be handled in transactions as would be done with other assignments. For example, the unrecorded assignment is always a risk for attorneys to consider in transactions. First, a patent assignment is valid if filed with the United States Patent and Trademark Office within 90 days of execution. Appropriate warranties are recommended for this window of potentially valid assignments. While bona fide purchasers will not be affected by an unrecorded patent assignment, there may be contractual implications (breach) for the parties in cases of unrecorded assignments involving key business personal or inventor family members that may not be deemed bona fide purchasers.

One last issue for legal practitioners that arises with respect to patent ownership is the concept of defining the client. While the inventor is a key contact at the patent application preparation stage, in many circumstances the client is the assignee of the patent application. There are potential conflicts between the interests of assignor and assignee, or licensor and licensee, that must be considered in the course of working with the parties.

Myth: Co-owners of a patent share equally in the royalties or profits.

Joint inventors have an undivided interest in the whole patent and may exercise patent rights without the consent of other joint owners. Additionally, there is no obligation to account to the other joint patent owners. Of course, contractual agreements between the joint inventors can limit these rights.

Some Key Points about Employee Inventions and Shop Rights

When the inventor is also an employee, certain complications may arise depending on the nature of the employee-employer relationship. These complications may make it more difficult to protect an idea during these early stages.

There is no duty for general employees to assign inventions to their employer *absent* an express employment agreement requiring such assignment. *Great Lakes Press v. Froom*, 695 F Supp 1440, 1445 (W.D.N.Y. 1987) ("New York State Law and 'Federal Common Law' are in agreement on the general principle.") It is prudent for an employer to use clear, unambiguous written contracts of employment with obligation to assign inventions to the employer. In such cases, the inventor-employee holds bare legal title in constructive trust for his employer.

In some cases, an employer may include an obligation to assign even after employment is terminated in so-called "holdover clauses" for inventions made during a *reasonable* period following employment. The test for reasonableness of holdover clauses includes factors such as:

- The obligation to assign extends beyond the apparent protection that employer reasonably requires
- The obligation to assign prevents inventor from seeking other employment
- Enforcing such agreement would be against the public interest

The good news if you are the employee (with no employment agreement with an obligation to assign inventions) is that you have full unencumbered title to the invention if you were not "hired to invent."

The good news if you are the employer who has failed to use employment agreements (with obligations to assign inventions) is that "shop rights" may be available for inventions made by employees. Shop rights provide an employer with a personal, non-exclusive, non-transferable, irrevocable, royalty-free license. Shop rights are implied-in-fact transfers of ownership rights where an employee was "hired to invent" or assigned the duty of devoting his efforts to a particular problem. However, shop rights will not be available for inventions made of the employee's own initiative.

Corporate managers may be held to be corporate fiduciaries with judicially enforced equitable transfer of intellectual property ("IP") rights, even in the absence of a written employment agreement with an obligation to assign for inventions made during course of employment or related to employer's business.

Some Key Points about Patent Licenses and Assignments

Okay, you are negotiating a deal to buy a certain technology from another company. Doing your due diligence, you decide to be sure the selling company properly holds "title" to the rights. You learn that the selling company's ownership was acquired via an assignment and are holding a copy of a document called an "assignment of patent rights." Do you end there and conclude that they own it and have the rights to sell it? Not at all.
It is the document's substance, not the document label, which defines the difference between an assignment and a license. A transfer of the entire ownership interest is an assignment while transfer of less than the entire bundle of rights is a license. Issues frequently arise with respect to reservations of rights, take-back provisions, field of use restrictions and the like. You may need to consult an attorney after all.

Patent applications may be assigned. An assignment of a patent application carries with it the rights to common subject matter in future divisional or continuation "child" applications as well. Continuation and divisional applications are patent applications filed on the same disclosure and contain no new subject matter, but contain new claims. However, the Patent Office records may not reveal such assignment if no one files a request for recordation of the assignment in the "parent" application in the file of the "child" application until issuance or post-issuance. Thus, it is prudent to assess the procedural history of a patent or pending application as well as its subject matter in determining the scope of assignment rights.

Contrarily, substitute or continuation-in-part applications are "child" applications that do not benefit from the assignment of the "parent" applications and require a new assignment to be executed and filed. Continuation in part ("CIP") applications are patent applications that contain some or all of the disclosure of the "parent" application as well as new subject matter. (These CIP applications often draw claims to improvements or refinements of an invention during the pendency of the "parent" application.)

Provisional applications follow the same legal theory – the assignment of a provisional application carries with it ownership rights to common subject matter, but a new assignment is required for utility applications that contain subject matter that is not common to both.

10 Steps for Creating A Trade Secret Protection Plan

There is no federal or state law entitled a "trade secret statute." Trade Secret law has developed within our state common law via a body of judicial decisions, each carving out a principle of law, that taken together, create what we know as Trade Secret law. Judges have interpreted the laws to create a set of guiding principles and system for protecting a business' investment of its resources toward the creation of a competitive advantage in the marketplace.

Defining a trade secret is often a difficult task to do with precision. Many states, including New York, rely on the definition of a trade secret set forth in the Restatement of Torts, 2nd ed: a trade secret is "a formula, pattern, device or compilation of information which is used in one's business, and which give the business an opportunity to obtain an advantage over competitors who do not know or use it." Business information that may qualify for trade secret status includes product formulas, financial data, software, marketing strategies, research and testing data, business methods, business plans, manufacturing methods, customer lists, sales reports, and cost information.

A trade secret may "exist in a combination of characteristics and components, each of which, by itself, is in the public domain, but the unified process, design and operation of which, in unique combination, affords a competitive advantage and is a protectable secret." This essentially means that even information that is otherwise publicly available in bits and pieces, it may become a protectable trade secret upon its aggregation into a format that has value (would have a cost to reproduce the same compilation).

The determination of whether particular information qualifies as a trade secret will turn upon the actual secrecy of the information and the affirmative steps taken to protect the secret. Courts generally impose a standard of reasonable care on businesses seeking to protect trade secrets. In the event of a dispute over alleged misappropriation, a trade secret owner may have to prove that (i) prior disclosures have been necessary for business reasons, and (ii) reasonable control has been exercised over any recipient's use of the information.

It is important to develop a comprehensive security program. However, it is even more important that the program be implemented and not just be something on a binder on every manager's shelf. Courts will emphasize real efforts over boilerplate forms or unenforced policy statements. Protection efforts will be rewarded because legal protection of trade secrets will remain for as long as the owner continues to maintain the information as a secret. Unfortunately, little protection is afforded to features of products that are observable or may be discovered by reverse engineering. In those circumstances, it may be advisable to seek patent protection.

A trade secret protection plan is a comprehensive written policy for protecting trade secrets. A written policy is not only evidence of your intent and effort to protect the secret, it also helps employees identify and protect the company's trade secrets, demonstrates management's commitment to that goal and provides notice to third–parties that you claim certain information as a trade secret.

Your plan does not need to "read" like a legal document that no one understands. It is preferable that it not be an "off the shelf one size fits all" document downloaded from the internet. It should be tailored to the business' existing structure and procedures. This is especially important in New York where the body of common law developed by the courts contains nuances that may be contradicted by some of these boilerplate forms. For example, in New York, customer lists are not automatically protected as trade secrets. Absent a contractual prohibition, former employees may solicit customers unless there was wrongful conduct. A customer list only rises to the level of a trade secret where it contains detailed information and was obtained through considerable effort or expenditure, the customers are not easily found in outside sources and the employer took reasonable steps to protect the customer information.

1. **Identify all valuable trade secrets**

The first step in developing a program is to identify the trade secrets that you intend to protect. Consider the following factors to determine whether information should be regarded as a trade secret. The key inquiry is to look at the consequence of the information's release. If the information were disclosed,

1. Could it be commercially harmful to my business?

2. Could it be used by a competitor or the public to my detriment?

3. Would it assist a would-be competitor in duplicating sales success?

4. Would it short-cut a would-be competitor's trial and error program?

5. How much would it cost my competitor to create or obtain the information?

6. Does it relate to a competitive advantage I have developed?

It is important to consider all forms of corporate information. These may include (1) technical, (2) scientific and research, (3) business and customer, (4) personnel, and/or (5) accounting and financial. (This is not an exhaustive list).

It is also important to consider information in all forms: (1) written, (2) oral, (3) magnetically recorded (computer readable), (4) graphic (photos, diagrams, plans, blueprints), (5) computer programs, and/or (6) reproductions/copies/ duplicates.

2. **Use employee agreements**

Implement employee agreements, employee policies, non–disclosure/confidentiality agreements, and reasonable non–compete clauses as appropriate for all employees. New York law does not require payment of additional compensation in exchange for these agreements. You should also require prospective employees to sign the agreements as a precondition to employment. This actual implementation step will be key evidence of your affirmation efforts to protect the secret. The agreements will provide your company with an additional cause of action in case of a breach by the employee.

3. **Regularly educate your employees and consultants about your trade secret protection plan**

Trade secrets may be inadvertently revealed. They may be revealed in acts of malfeasance for personal gain or revenge (a disgruntled employee). Educating employees about the importance of trade secret protection, and the

consequences of violating the company's secrecy procedures, helps to reduce the likelihood of disclosure.

Review the trade secret protection plan in your employee manual periodically throughout each employee's employment. Make it a part of all new hire orientations and exit interviews. Make clear to all new employees that any disclosure of trade secrets may result in termination of employment and/or legal action. Follow up with any discovered breaches and make that fact known to other employees. Presentations to reinforce and update employees on the company's trade secret protection goals and procedures can be included with annual sexual harassment training, safety training, and other such subject matter. Solicit employee suggestions and encourage involvement in the development and maintenance of the policy in order to strengthen employee commitment and vigilance. Consider the cost of a small reward (a gift certificate or an afternoon off against the cost of just one meeting with your attorneys!)

Exit interviews should be conducted for any employee who has been terminated, regardless of the reason for termination. Remind the employee of his or her legal obligations to maintain the company's trade secrets and review the provisions of any previously signed confidentiality agreement. Consider having all departing employees to sign an acknowledgement of continuing secrecy obligations. Require exiting employees to return all notes, papers and documents relating to the company within a specified period (48 hours) or when they pick up their final paycheck.

Educate your employees about the proper use of nondisclosure agreements with third parties. This may require physically marking documents "confidential" as well as memorializing oral conversations in writing and deeming the subject matter a confidential communication.

4. **Controlled Access**

Disclosure of trade secrets should be limited to only those employees who require such information to perform their duties for the company (the familiar "on a need to know basis").

Consider shredding paper trash and implementing "clean desk" policies where appropriate. Employ physical and electronic security measure (e.g. lock gates and cabinets, use entry passes, create computer passwords, etc.). Other ways you may control the access to your trade secret information include performing periodic trade secret audits, pre-screening employee speeches and publications, and developing a policy for handling unsolicited submissions by third parties. (This will help the company avoid claims or even the appearance of misappropriation.)

5. **Mark confidential documents**

A trade secret protection plan must include a consistent system for marking confidential documents. Mark all documents containing trade secrets with the following or with an equivalent legend.

THIS DOCUMENT CONTAINS CONFIDENTIAL INFORMATION OWNED BY [BUSINESS NAME], UNAUTHORIZED DISCLOURE IS STRICTLY PROHIBITED AND MAY RESULT IN SERIOUS LEGAL CONSEQUENCES.

6. **Physical security measures**

Some trade secrets exist in the form where access can be secured: secret formulas, test results, confidential reports and not yet executed business plans are a few examples. Store such documents in a physically locked area and/or a restricted portion of the network hard drive. Only management or those employees with a business–related reason should have access to the depository or to secure area. Perform trade secret processes in a separate secured section of your facility with controlled access for employees and outside visitors. This serves not only to restrict or eliminate access by third parties and unauthorized employees, it deters trade secret theft and provides a way to track access to secret documents. Require all persons who review or take secret documents to sign a log and indicate which documents were reviewed or taken. Copying of trade secret documents should require management approval.

7. **Electronic Security Measures**

Passwords, encryption software, appropriate email and internet access controls, and access tracking software may be used to control access to computer files containing trade secrets, especially when transmitting or

accessing via the internet. Inconvenient as it is at times, it is important to change passwords regularly, especially upon the change of personnel who have access to the trade secret information. It may be prudent to physically isolate and lock away back–up tapes, discs and other storage media and to store highly-sensitive confidential information on a stand-alone machine in a restricted area. Sensitive documents should also bear a legend similar to that described above. Carefully consider access to the company network from remote locations; weigh convenience against the risk of loss of the secrecy status of the data.

8. **Restrict public access to your facilities**

Be cognizant that certain secrets may be visible to anyone walking through your facilities, overheard conversations, documents left in plain view or unattended waste baskets. Consider that open access to areas where non-employees can see or learn of trade secrets does not evidence your affirmative steps to protect secrecy. Reasonable steps may include a single visitor's entrance with (1) log in and out when entering and leaving the premises (2) providing a written summary of visitor rules, (3) preventing audio recorders, cameras or phone cameras, (4) requiring visitors to wear security badges and (5) requiring visitors to sign a visitors' agreement.

9. **Use non–disclosure agreements with third-party vendors or consultants**

All vendors, suppliers, consultants, and independent contactors (Independent professional advisors such as accountants, computer/IT/ software consultants and technical consultants) should sign a non–disclosure agreement if they have access to the facilities or to trade secret data. A "fill in the blank" form may be used for many situations. Preferably however, customized mutual non–disclosure agreements are utilized for joint ventures, major suppliers, major customers and the like. Be sure legends appear on confidential documents provided to such third-parties.

10. **Intellectual Property Assignment by third – party vendors or consultants**

In the absence of a written agreement to the contrary, federal patent and copyright ownership is favored for the invention or author. New York law does not reliably grant ownership rights to inventions, discoveries, improvements and other intellectual property made by vendors, consultants or other collaborators. Surprisingly, this is true, even where a business has specifically commissioned the work, provided conceptual ideas, and paid for it.

Non-employees involved in developing marketing materials, consulting on technical processes or software systems, or designing/improving manufacturing systems, should be required to sign a written agreement

addressing the rights of the parties in the work product. These will typically include assignments of all rights in the work product or technology subject matter.