



Developing Your Medical Physics Innovations into Intellectual Property Assets

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August 2018



Goals

- Know the different types of "Intellectual Property"
- Understand how and when to protect your IP
- Learn how to monetize your IP
- Realize how your employment agreement may affect your rights to your inventions

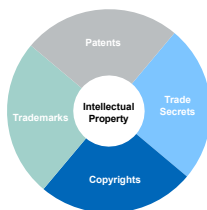


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Four General Types of "Intellectual Property"

- Patents
- Trade secrets
- Trademarks
- Copyrights

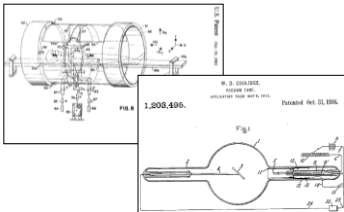


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Examples of Different IP Rights

Patents



Trade Secrets

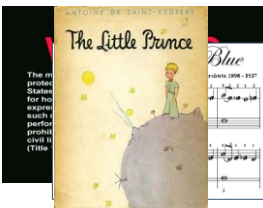


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Examples of Different IP Rights

Copyrights



Trademarks



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Patents



What Is a Patent?

- **Definition:**
 - Limited government grant giving the right to exclude others from making, using, offering to sell, selling or importing the patented invention
- **Limitations:**
 - Duration: 20 years from filing date
 - You don't get the right to do anything (only exclude others)
 - Territorial (no world patent: US, EU, China, etc.)
 - Claims define the "boundaries"



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Example of Exclusionary Right

"Stool Patent" claim:

A device for sitting, including:

- a seat; and
- a plurality of legs extending from the seat.



"Chair Patent" claim:

A device for sitting, including:

- a seat;
- a plurality of legs extending from the seat; and
- a back member coupled to the horizontal member.



Who needs a license?

A

The owner of the stool patent can make and sell the stool

B

The owner of the stool patent cannot make or sell the chair

C

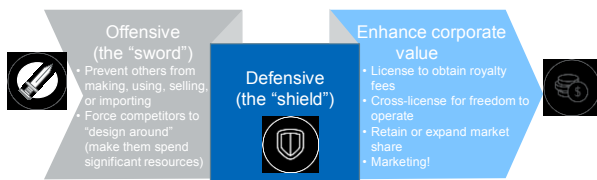
The owner of the chair patent cannot make or sell the chair OR the stool

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Patents Are Valuable Assets

Many Uses for Patents



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Getting a Patent Is a Business Decision

- Enhance revenue
- Protect investment
- Prevent copying
- Reduce risk
- Add value

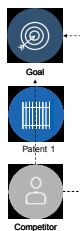


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“Building a Patent Fence”

- Identify the goal
 - e.g., Where is the market going to be in 5 years?
- Identify and patent technology that will make achieving the goal easier for your company

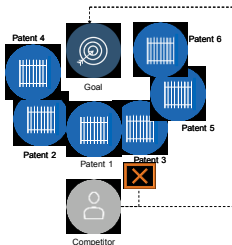


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“Building a Better Patent Fence”

- Many patents make reaching the goal very difficult for the competitor
 - Expend significant effort to get around patents
 - Pay license fee to use patented technology
 - Attempt to go “through” the fence; risk patent infringement suit



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What Can Be Patented?

- Utility patents:
 - Processes (e.g., methods of manufacture)
 - Machines
 - Manufacture
 - Compositions of matter
 - Including improvements of the above
- Design patents: Ornamental designs
- Plant patents: Asexually reproduced plants

*"Anything under
the sun made by
man."*

—Diamond v.
Chakrabarty



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You Can Patent Nearly Anything, and I Do Mean Anything...



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Patents: Business Considerations

- Short and long term business goals
- Will you make, sell, or use it?
- Who will own all the rights?
- Useful commercial life
- Significant investment
- Position of competitors
- Licensing potential
- Marketing opportunities
- What will you do with the patent and...



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Patents: Business Considerations

- ...where do you need to be protected?



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General Requirements for Patentability

- Must be proper type of subject matter
 - Can't be an "abstract idea" (i.e., selling real estate to make money)
 - Can't be a "law of nature" (i.e., $E = mc^2$)
 - Can't be a "natural phenomena" (i.e., an apple)
- Must be "useful"
- Must be "novel"
- Must be "non-obvious" (called "inventive step" in Europe)
 - Would a "person having ordinary skill in the art" have thought to do it based on what was known in the prior art at the time

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Avoiding a Loss of Patent Rights

- Bars to Patentability (each country has different rules)
 - Public use
 - Public disclosure
 - Sale or offer for sale
 - Consequence: forfeiture of patent rights
- File invention disclosure as soon as idea is conceived
 - Gets the ball rolling toward patenting
 - Establishes a written and dated record of invention

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What Is a Public Use

- Any use "by a person other than the inventor who is under no limitation, restriction or obligation of secrecy to the inventor"
- "Use" inventions only where there is a legitimate expectation of privacy and confidentiality

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What Is a Public Disclosure

- Common examples of public disclosure:
 - Conference presentations
 - Discussions with VCs, customers, equipment makers, etc.
 - Publications
 - Social discussions



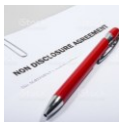
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Public Disclosure: “Don’t Talk to Strangers”

- In the U.S.: one-year grace period*
- Rest of the world (mostly): no grace period
- Protect your invention
 - Get a Non-Disclosure Agreement (“NDA”)
 - File a [provisional] patent application

“Don’t talk to strangers”



* kind of, sort of, be careful!

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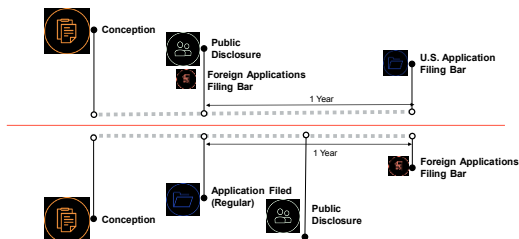
Protect Your Invention: Provisional Application

- What is it?
 - Puts a stake in the ground of your priority date
 - Does not start 20-year clock but expires in 12-months
- Benefits
 - Speed ... but beware – must be as complete as possible!
 - Provides one additional year
 - Imminent disclosure
 - Less expensive to file
 - Claim set can be used to explain scope of invention to VCs

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Time - The “Patent Killer”



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Protect Your Invention: Academic Considerations

- Who owns the invention?
- Patent through the university or on your own?
- Become familiar with your tech transfer office
- Obtaining licensing rights to your invention if the university owns it
- When to seek patent protections
- Seeking legal counsel

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Example Academic Assignment Agreement

I certify that I have received and have read the Houston University Intellectual Property Policy, in consideration of the provision by Houston University of support in the form of funds, space, personnel, equipment, facilities, instruction, supervision, or other conditions, I hereby assign, and will make by, and fully comply with the policy, including any amendments or modifications of that policy that are approved by the University in the future, as constructive of my duties and obligations in relation to any discoveries or inventions I create.

Signature: _____ Date: _____

Printed (please type or print): _____ I understand.

Printed Name: _____

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Trade Secrets



Trade Secrets

- Definition:
 - A **trade secret** is any information used in a business that produces an advantage over competitors who did not know or use it
- Examples:
 - Secret formulas / recipes
 - Manufacturing processes
 - Customer lists



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Obtaining & Maintaining Trade Secrets

- Trade secrets do not "just happen"
 - Create or develop the "secret sauce"
 - Maintain secrecy in a manner that is reasonable under the circumstances
 - Use employment agreements (i.e., non-compete, confidentiality, etc.)
 - Training and monitoring of employees
 - Management messaging
 - Confidentiality committee
 - Document markings
 - Access control based on groups of individuals
 - Lasts as long as information is kept secret!

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Exploring Your Trade Secrets

- Trade secrets may be utilized in many ways
 - Enforce through litigation
 - License
 - Assignment
- Liability
 - No "infringement" of trade-secret
 - Independent development by others is allowed!
 - Reverse engineering of products is allowed!
 - Liability for stealing trade secret



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Patent vs. Trade Secret

- Shelf-life of the innovation (20 years vs. forever)
- Patent requires disclosure
- Likelihood of independent discovery/development?
- Possibility of reverse engineering?
- Is the innovation present in the final commercial product, or just used during its manufacturing?
- Is the innovation a business method or software invention?
- High turnover among relevant employees?

Trademarks



What Are the Types of Trademarks?

- Trademark: Words, names, symbols, sounds, or devices that identify and distinguish the source of products or services
 - Brand names (i.e., word marks) are the most common
 - A trademark is used with products
 - A service mark is a trademark used with services
- Trade dress: Special design that identifies a product's source such as color or shape
- Trade name: Identifies and distinguishes a business organization from other companies



What Is a Trademark?

Type of Mark

basic word mark:

COCA-COLA

stylized word mark:

Coca-Cola

logo & word mark:



logo mark:



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Benefits of Trademarks

- Differentiate products and services in marketplace
- Protect against confusion over source, sponsorship, or affiliation
- Potentially permanent if you
 - Continue using and promoting appropriately
 - Prevent competitors from copying



"Nobody has any right to represent his goods as the goods of somebody else."

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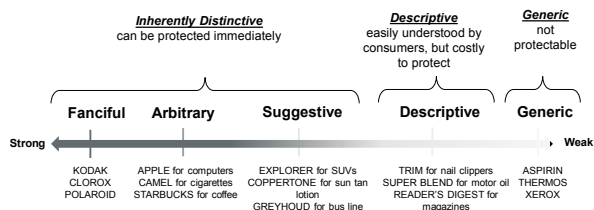
How Is a Trademark Obtained?

- Ownership
 - The one who controls the quality of the goods and services provided to others
 - In United States, rights acquired through use (or "intent to use")
- Searching
 - Optional, but helps identify risks associated with use and registration
- Registration not required, but confers significant benefits
 - Nationwide priority/protection
 - Incontestable after 5 years
 - Enforcement through U.S. customs

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Strength Varies with Distinctiveness



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How Is a Trademark Lost?

- Cessation of use without intention to resume use
 - Presumed after 3 years in United States
- Improper use by the trademark owner as a generic category name
 - Example: "Aspirin" was once a brand name
- Failure to police/prevent infringing use by competitors
 - Risk of weakening rights in mark or complete abandonment of rights through loss of source-identifying function
- Licensing third-party use of mark without exercise of quality control

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How to Monetize Your Trademark

- Use trademark forever
 - Renew registration indefinitely
- Policing / enforcement
 - Demand letters / trademark infringement litigation
- License the trademark
 - Include quality control provisions
- Assign the trademark

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Copyrights



Subject Matter

- Protects the expression of ideas, not the ideas themselves
- Works of authorship include:
 - Musical works, including any accompanying words
 - Motion pictures and other audiovisual works
 - Sound recordings
 - Software / websites
 - Literary works
 - Dramatic works, including any accompanying music
 - Pantomimes and choreographic works
 - Pictorial, graphic, and sculptural works
 - Architectural works

Requirements

- Original
 - "A work is original if it was independently created by the author (as opposed to copied from other works)," and "possesses at least some minimal degree of creativity"
 - "Originality does not denote novelty"
 - The bar for originality is quite low
 - The more unique the copyrightable work, the broader the protection
 - If similar to many other works, scope of protection is limited
- Fixed in a tangible medium

Copyright Protection and Rights

- Permits the author to:
 - Reproduce
 - Prepare derivative works
 - Distribute
 - Perform publicly
 - Display publicly

How to Acquire the Right

- A copyright is granted upon the creation of the work
- No action of the Copyright Office is necessary
 - Use of the © is not required under U.S. law
 - But, if you do use it then it can prevent against the "innocent infringer" defense
 - Proper notice informs the public the work is protected
 - © [year of first publication] [owner's name]

How Is Copyright Relevant to a Physicist in Medicine?

- | | |
|-------------------------|---------------|
| ▪ Web content | ▪ Software |
| ▪ Packaging | ▪ Graphics |
| ▪ Advertising materials | ▪ Movies |
| ▪ Promotional materials | ▪ Photographs |
| ▪ Operating manuals | ▪ Drawings |
| ▪ Training manuals | ▪ Audio works |
| ▪ Articles | |

Comparison of IP Rights in the United States

	Patent	Trade Secret	Trademark	Copyright
Subject Matter	Inventions or ideas (devices, methods, systems)	Secrets (manufacturing process, customer list)	Identifiers of source or origin (words, logos)	Original expressions (software, music)
Duration	20 years from filing	Forever as long as it remains SECRET!	Forever (with continued use)	Generally 95 years after publication or 120 years from creation
Registration?	Required	None	Optional	Optional
Examination?	Yes new, useful, and non-obvious	No	Yes use in commerce, not confusing, etc.	Yes minimal (originality)
Independent Creation Defense?	No unless created and used before filing date	Yes	No unless prior use (geographic)	Yes
Strength	+++	++	+ → +++	++

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Thank You

Questions and/or comments?



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Exceptions to Rights

- Those expressions of ideas that are not fixed in a tangible form, are not afforded copyright protection in the U.S.
- Under certain "**fair use**" circumstances, the copyrighted work may be used without permission, and without compensating the owner
 - Criticism / parody
 - Comment
 - News reporting
 - Teaching (including multiple copies for classroom use)
 - Scholarship
 - Research

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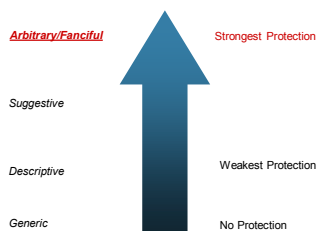
Backup Slides



Copyright Summary

- Copyrights are granted for original works of authorship in a fixed medium
- A copyright provides the owner with the exclusive right to copy, reproduce, distribute or display the work
- There are exceptions to copyright rights that allow for fair use (criticism, parody)

Scope of Protection Varies with Distinctiveness

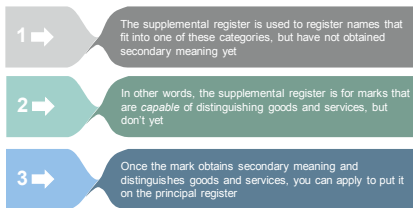


Trademark Registration

- The principal register provides greater protection, but requires that the mark not be:
 - Merely descriptive (i.e., "California Shirt Company")
 - Primarily geographically descriptive (i.e., "San Diego Taco Shop")
 - Primarily merely a surname ("Smith's Electrical Services")
- **UNLESS** the mark has obtained a secondary meaning
 - For example, McDonald's may have been primarily a surname at one time, but now it is associated with fast food



Supplemental Register



Supplemental Register Rights

- Because these are "weak" trademarks, the owner does not have the same exclusive rights to use the mark
 - Can stop somebody else from registering the mark themselves on the principal or supplemental, even if their mark does have secondary meaning
 - Allows you to "reserve your place in line" for when your mark acquires secondary meaning
 - Can use ®
 - Still prohibits against commercial misrepresentation or source of origin
- Rights to sue for infringement are much more limited:
 - Harder to show infringement because consumers are less likely to be confused
 - Usually only within the geographic area where the trademark owner is using it in business

How to Properly Use Your Trademarks

- Trademark should be highlighted (i.e., in CAPITAL LETTERS or *italics*) so they are easily distinguishable from other nearby words
- Use proper trademark notice
 - Registered marks: use ®
 - Unregistered marks (including marks with pending applications): use ™ or SM
 - Must properly attribute third-party trademarks when used with your own
 - For example: "X, Y and Z are trademarks of ABC, Inc.; V and W are trademarks of DEF, Inc."

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Enforcing Trademark Rights

- What is required for infringement?
 - Prior rights in and ownership of valid trademark
 - Most countries outside the United States require a registration, not just prior use
 - "Junior" trademark creates a "likelihood of confusion"
 - Test for finding a likelihood of confusion incorporates balancing factors, including (among others):
 - Similarity of the marks
 - Similarity of products and trade channels
 - Degree of purchaser care and sophistication

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Marks That Require Time and Money to Protect

- Descriptive marks
- Marks that are primarily surnames
- Primarily geographically descriptive marks
- Product configurations
- Color, scent, sound

Arbitrary /
Fanciful
Suggestive
Descriptive
Generic



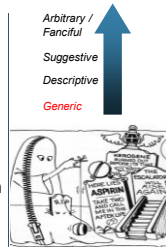
These types of marks may be protectable but only if there is a showing of "**acquired distinctiveness**" such that the consuming public perceives the descriptive term as a source identifier. This takes money and often significant time and effort.

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Unregisterable Marks

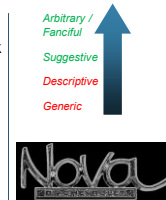
- Generic terms
 - Primarily refer to a type of good/service not a source
 - Warning: Trademarks can become generic
 - Avoid by properly selecting, using and policing your marks!
- Deceptive marks
- Immoral, scandalous, or disparaging marks
- Flag or coat of arms
- Name or likeness of living individual without written consent
- Functional shapes



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Trademark Selection and Development

- DO choose an arbitrary, fanciful, or suggestive mark
- DO choose an easy to pronounce and remember mark
- DO select family marks
- do NOT choose a merely descriptive or generic mark
- do NOT choose a mark with negative connotations in other languages
- do NOT choose a mark that may become passé in a few years (at least do not invest heavily in it)



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Trademark Registration Requirements

- Must specify goods/services for which mark will be used
- Must use the common name or terminology for the goods/services
 - Try not to use parts of the trademark in the description of goods/services
- In the U.S., use is required prior to registration (unless the application is based on foreign rights)
 - Use must be shown within 3 years from allowance

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DOs and DONTs of Trademark Use

- **DO** adopt and use guidelines for trademark usage
 - Include typography, color, graphics, placement, style, etc.
- **DO** use the mark in a consistent manner
 - Review advertising, promotion, and packaging routinely
- **DO** use trademark as an adjective
- **DO** make sure licenses are in place and enforce proper trademark use and attribution by licensees
- **DO** correct improper use by others
- **DO** use your mark in association with the relevant generic for the goods and/or services (on the actual product whenever possible)

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DOs and DONTs of Trademark Use

What **NOT** to do....

- A trademark should **NEVER** be used as a noun, verb, plural or possessive, as this will risk genericide!
- If the mark is or may be descriptive, do **NOT** also use the descriptive term(s) in a non-trademark sense
- Do **NOT** hyphenate, combine, or abbreviate as this may blur the trademark
- Try to **avoid** using two adjacent marks

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Protect Your Invention: PCT Application

- Does not become a patent
- Preserves rights and defers costs
- One international application for countries that are part of Patent Cooperation Treaty
 - includes, U.S., Europe, Japan, Australia, China
- Preliminary international examination
- Have 30/31 months to file national phase application

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