Patent Law Fundamentals For Scientists, Engineers and Managers

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Legal Disclaimer

- The information contained herein are my personal compilation of instructional materials and do not necessarily reflect or include information or instructions used by my employer.
- This Primer on Patent Law Fundamentals is not legal guidance and should not be relied upon for any of your intellectual property decisions or actions – I recommend that you seek the advice of competent legal counsel for any specific intellectual property legal issues you may have.

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Agenda

PART I

- Patents – Introduction
- Trade secrets
- Inventorship
- Invention documentation
- Types of Patents

Part II

- Patent procurement process overview
- Patent searching
- Patentability requirements
- U.S. Patent Application Filing Formalities

Part III

- How to read a U.S. patent publication
- Patent application preparation
- Patent prosecution

Part IV

- Foreign filing and prosecution
- Post grant options
- Patent litigation and infringement
- Patent opinions

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PART I

Patents - Introduction

- Document issued by federal government that grants to its owner a legally enforceable right to <u>exclude others</u> from practicing an invention.
  - Not a right to practice an invention.
  - Does <u>not</u> assure freedom of operation.
    - Others' patents may "dominate" the practice of your invention
      - "Landlocked real estate" analogy
      - Chair patent dominated by stool patent
- Difficult to obtain – subject matter, utility, novelty and unobviousness criteria.

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Patents - Introduction

Patents Give Exclusionary Rights

- Use of one's patented invention may still infringe another patent (a "dominant" patent)
  - Key: patents are "right to exclude"...not necessarily a "right to practice"
  - Stool – Chair Patent Example:
    - Another has a earlier patent to a stool with 3-legs.
    - You invent and patent a new and improved stool (i.e. chair) with a back rest and arm rests.
    - If you make and sell the chair, it may infringe the earlier patent to the stool.
    - Solution – Wait for dominant patent to expire, license it, design around it or try to invalidate it

STOOL PATENT

Claim 1 – A sitting device comprising: a flat seat portion and three or more legs interconnected to the flat seat portion.

Patent is still “alive”

CHAIR PATENT APPLICATION

- Claim 1 – A sitting device comprising: a flat seat portion, four or more legs interconnected to the flat seat portion and a back rest interconnected to at least two legs and the flat seat portion
- Claim 2 – The sitting device of claim 1 further including one or more arm rests interconnected to the back rest and the flat seat portion.
- Can the later in time patentee for the chair make, use, and sell chairs?

Patents - Introduction

- Governed exclusively by federal law.
- Sources of patent law.
  - The U.S. Constitution, Article I, Section 8, Clause 8 : "Congress shall have the power to promote the progress of science ... by securing for limited times ... to inventors ... the exclusive right to their ... discoveries."
  - Laws made by Congress (Title 35 of the U.S.Code or 35 U.S.C.).
    - 1952 Patent Act
    - America Invents Act of 2011
  - The courts (e.g., Federal District Courts, Court of Appeals for the Federal Circuit, U.S. Supreme Court)
  - The Patent Office ("The Rules" or 37 CFR; MPEP)

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Patents - Introduction

- Somewhat complex application process.
- Costly to obtain
  - Preparation
    - Attorney and inventor time.
  - Filing
    - Filing fee
  - Prosecution
    - Attorney and inventor time.
  - Issue
    - Issue fee.
  - Maintenance
    - 3 fees - 4, 8 and 12 years from grant.
  - Foreign patents
- One patent per invention.
- Patent awarded to first inventor in U.S. before March 16, 2013
  - U.S. moved to modified first to file system on March 16, 2013
  - Most other countries – first to file system

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Patents - Introduction

- Claims define the invention and hence exclusive right to exclude.
- Territorial in nature
  - No global patent
  - U.S. patent – no right to exclude its use outside U.S.
  - International treaties and agreements
    - Patent cooperation treaty (PCT) and Paris Convention (PC).
- Term of protection
  - Patents issued or applications pending before June 8, 1995: greater of 20 years from filing date or 17 years from grant.
  - Applications filed after June 8, 1995 – 20 years from filing date.
- Publication of application
  - 18-months from filing date
  - Non-publication possible if forego foreign filing

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Patents - Introduction

- Why patent an invention?
  - Protect your freedom to operate.
  - Protect your customers' freedom to operate.
  - Permit disclosure while maintaining a proprietary position
  - Obtain competitive advantage
  - Create a licensable (cross-licensable) asset
  - Enhance the reputation of company and its employees
  - Support growth efforts in developing regions
    - Patent assets as evidence of technical prowess
    - Patent assets as capital contribution credit
- U.S. patents are presumed valid by statute
  - Invalidity must be proven by clear and convincing evidence.
  - Much more than "more likely than not," but not as much as "beyond a reasonable doubt."

Trade Secrets

- Any information that gives the owner an opportunity to obtain an advantage over competitors who do not know or use the particular information.
  - E.g. Chemical formulas and compositions (formula for Coke), computer programs, manufacturing processes, customer lists, marketing reports, pricing information, drawings, business plans, non-public financial information.
  - Need not be inventive.
- Information must be sufficiently <u>secret</u> to derive commercial value from others not knowing.
- No formalities required for protection.
- Reasonable efforts to maintain secret or confidential.
  - Limiting access and reproduction of documents (need to know basis), confidential / proprietary designation, confidentiality and non-disclosure agreements, properly securing facilities, employee agreements restricting use and onward disclosure of trade secret information.

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Trade Secrets

- State law (Uniform Trade Secrets Act) and federal law basis (Federal Espionage Act of 1996)
  - Protects against misappropriation by others.
  - Often suits against former employees.
  - Criminal and civil remedies (monetary damages)
  - Defend Trade Secrets Act enacted on May 11, 2016 amends the Federal Espionage Act of 1996 by allowing companies for the first time to file civil lawsuits for thefts under federal law.
- No application or registration process
  - Inexpensive to maintain.
  - Rights enforced through contract actions.
    - Breach of contract, breach of trust.
- Potentially of unlimited duration, but . . .
  - Unrestricted disclosure results in forfeiture.
  - Can be independently discovered or reverse engineered by others.
  - Others may patent and prevent use of trade secret by one who had earlier discovered and used an invention.
    - America Invents Act provides increased prior user rights to TS holders

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Patent / Trade Secret Comparison

- Patents
  - U.S. Federal law controls
  - Require full disclosure and publication
  - Expensive to obtain and maintain
  - Must be inventive
  - 20 year term from filing
  - Gives right to exclude
  - Civil penalties for infringement
  - Expensive to enforce

- Trade Secrets
  - U.S. State and Federal laws
  - Unrestricted disclosure results in forfeiture
  - Generally inexpensive to maintain
  - Need not be inventive
  - Potentially unlimited life
  - Civil and criminal penalties for misappropriation
  - Cannot prevent others from independently developing same information

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Inventorship

- Invention and inventorship are not the same thing
  - Invention is conception plus reduction to practice
  - Inventorship is conception
    - No “honorary” inventorship
    - Order of inventors is legally irrelevant
    - Inventorship is a legal issue and cannot be contracted for, but ownership (“assignment”) can be contracted for.
    - Incorrect inventorship may be a basis to invalidate a patent
    - Inventorship may be corrected in either an application or an issued patent as long as no deceptive intent on part of the applicants.

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Inventorship

- Conception: The formulation in the inventor's mind of a definite perception of the complete invention.
  - Mental part of process
  - The conceived invention must include every feature of the subject matter claimed
  - Legally, only interested in determining who conceived of the invention claimed in the application.
  - The "conception" must be an idea that would enable a person of ordinary skill in the art to convert the idea to tangible form without extensive experimentation (some research and tinkering are ok).

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Inventorship

- Reduction to practice (RTP) : The physical part of the inventive process that completes and ends the process of invention.
  – Two kinds: Actual and constructive
    - Actual RTP - making an actual physical embodiment that works for the purpose conceived
    - Constructive RTP – Filing of a patent application with the USPTO.
  – Don't wait for the attorneys to file an application to get reduction to practice.
  – You are an inventor upon conception, but you get no legal rights until you reduce to practice - so do it asap!

Inventorship

- Diligence : Continuous inventive activity by the inventor after conception and leading to reduction to practice.
  - Inventor engaged in constant efforts between conception and RTP, such as test or experiments or has a valid explanation for inactivity.
  - May be important in determining who gets the patent to the same invention between rival inventors.
    - Only for patent applications filed before March 16, 2013.
  - When first person to conceive the invention is not diligent, she may lose the right to a patent to a rival inventor who conceived at a later date, but reduced the invention to practice before the 1st conceiver.
    - Only for patent applications filed before March 16, 2013.

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Joint Inventorship

- To be a co-inventor a person must participate in the conception.
- For joint inventors, each inventor does not need to make the same type or amount of contribution. Each needs to perform only part of the task which produces the invention.
- Do not have to physically work together at the same time.
  - Some communication and collaboration is required
- Do not have to contribute to each and every claim in the application.
- Can't just combine similar invention disclosures, unless "inventors" worked together.

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Joint Inventorship

- But, one does not qualify as a joint inventor merely by assisting in reduction to practice after conception.
  - Performing the “hands on” work is generally not enough for inventorship.
  - One who performs routine experimentation on another’s idea is generally not an inventor.
  - A graduate student who conducts routine experimentation to achieve results completely conceived of by the advisor is not an inventor.
  - Routine efforts in drawing, constructing or working the invention without a contribution to the conception are not enough.
  - Analyzing a product someone else has made is not enough for inventorship
  - Donating samples for use is not inventorship.
- Brainstorming sessions
  - All parties to the discussion are not necessarily inventors.
  - The person who describes the prior art is not an inventor.
  - Complete notes should be kept of who said what and when during these discussions.

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Joint Inventorship

- But, can have joint inventorship under the right circumstances
  - When the concept belongs to one person but another makes a suggestion that is necessary to make the invention work successfully - the 2nd person can be an inventor
  - I.e. You must contribute to the conception.
- However, the main idea of the invention controls over minor suggestions about minor features.
- Mere suggestion of a result without a means to accomplish it is not invention.
- If the idea was clear and no significant deviations or difficulties were encountered in reducing the invention to practice the person who conceived is the inventor.
- However, if there were failures along the way and deviations were required for a successful reduction to practice, those responsible for conceiving the deviations may be inventors.

Joint Inventorship
Correction of

- 3 common mistakes in inventorship
  - A named inventor where B is true inventor (misnomer)
  - A named inventor where A and B are true inventors (nonjoinder)
  - A and B named inventors where A only is true inventor (misjoinder)
- Most mistakes in inventorship can be corrected (if found) if:
  1. Innocent error;
  2. Without deceptive intent on inventors part; and
  3. Diligence in correcting the error when discovered.
- No correction is possible for intentional errors in inventorship.
- If a patent does not name the true inventors it can be held invalid or unenforceable by a court of law.

Joint Inventorship Summary

- To claim inventorship is to claim at least some role in the final conception of one or more claims.
- Test to determine – ask yourself:
  - "Without my contribution to the final conception, would the invention have been significantly less?"
    - Less simple, less economical, less something of value, less something of benefit?
  - If the answer is yes, you are probably a co-inventor
- Bring inventorship issues to the attention of your attorney

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Invention Documentation
Lab Notebooks

- Notebooks are formal records of your work, ideas and especially your inventions.
  - Provide written corroborated evidence.
- Notebooks are official company records and as such are admissible in Court.
  - Business record exception for hearsay.
- Notebooks are evidence to be used to prove conception and reduction to practice for the following purposes:
  - Rule 131 Inventor declaration to swear behind a prior art reference during patent prosecution.
  - In an interference proceeding to prove an earlier invention date.
  - In a court proceeding (i.e. patent infringement suit)
  - In a derivation proceeding under the AIA of 2011.

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Invention Documentation
Lab Notebooks

- Legible handwriting, or if your data is on a computer, print it out on a regular basis.
  - PASTE IT (Permanently affix, not just tape) into notebook
  - Make reference to it in comments.
- Put all process, reaction etc. conditions in notebooks so that someone can reproduce the experiments.
  - E.g. temperature, pressure, starting materials, etc.
- Put down all ideas for projects and inventions in enough detail that one ordinary skill in the art could read the "idea" and then do the experiment.
- Start a new page everyday with the date at the top of each new page.
  - At the end of the day, cross out any unused space on the last page and sign it and date the line.
  - Alternatively start a new page for each experiment.

Invention Documentation
Lab Notebooks

- Write down in the notebook reasons for lapses in project progress.
  - I.e. vacations/ sick time/ long meetings, time waiting for materials or special equipment.
  - Used to prove diligence for pre-AIA applications in an interference
- Have notebook witnessed on a regular basis.
  - Daily is the best and at least 2 times/month as max time lapse
  - Data and reduction to practice must be corroborated so if you write it in your notebook on January 1 and get it witnessed in January 15, January 15 is the date you get to use for your reduction to practice, not January 1. 14 Days can cost a company millions of dollars.
- Witness should sign and date the bottom of the page.
  - Witness should be a technical person who has read and understands what you have done and who is not involved as an inventor or technician.
  - The witness may be called to testify in court, so pick a person with technical understanding of your area and who is a credible witness.

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Invention Documentation
Invention Disclosure Form

- Content
  - Title of the Invention
  - Inventors
  - Description of the Invention
  - Important features of the Invention
  - Known relevant Prior Art and Advantages over Prior Art
  - Use SI Units
- Formalities
  - Dates of conception and reduction to practice
  - First Disclosure to any third parties
  - Date of first public use, publication, sale or offer for sale
  - Provide experimental data
  - Inventors sign / date and also have witnessed, read, and understood by a non-inventor
- Function
  - Resourcing decisions
  - Proof of invention date

INVENTION DISCLOSURE FORM

1. TITLE OF INVENTION:

2. NAME AND ADDRESS OF EACH INVENTOR: (Use additional sheets if necessary)

First Inventor Full Legal Name:

Street Address: **City, State and Zip Code**

Telephone Number: **Fax Number:**

E-mail Address: **Citizenship:**

State Primary Contribution to the Invention:

3. DATE INVENTION WAS CONCEIVED:

4. DATE INVENTION WAS FIRST REDUCED TO PRACTICE:

5. DESCRIPTION OF INVENTION: (Include sketch, block diagrams, flow charts, pictures, etc. (Use additional sheets to make disclosure as complete as possible)

6. LIST THE FOUR MOST IMPORTANT FEATURES OF THE INVENTION:

7. WHAT IS THE MAJOR ADVANTAGE OF THE INVENTION OVER THE PRIOR ART?

8. LIST ANY PRIOR ART THAT IS RELEVANT TO THE INVENTION AND THAT SHOULD BE DISCLOSED TO THE UNITED STATES PATENT AND TRADEMARK OFFICE.

9. HAS THE INVENTION BEEN DISCLOSED TO ANY THIRD PARTY?

____ Yes ____ No

If yes, provide date and name of third party and a brief description of what was disclosed and the purpose of the disclosure:

10. HAS THE INVENTION BEEN DESCRIBED IN ANY PRINTED PUBLICATION?

____ Yes ____ No

If yes, provide date and name of each publication:

11. HAS THE INVENTION BEEN IN PUBLIC USE, SOLD OR OFFERED FOR SALE?

_____ Yes ____ No

If yes, provide the date of first use in public, or the date of first sale, or the date the invention was first offered for sale, whichever the case:

12. SIGNATURES

Inventor:______________ **Date:**_________ **Witness:**______________ **Date:**________

Tips for Invention Disclosures

- **When -** Lab notebook dates, reports dates
- **Who -** Who conceived, who reduced to practice
- **Why -** The problem
- **What -** The solution
- **How -** The recipe for the solution

- **Data, Data, Data ...**
  - Surprising Results
  - Operative Ranges
  - Operative Alternative Embodiments
  - Data Anomalies
  - Comparative Data

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Tips for Invention Disclosures

- OBJECTIVE: Identify Advantages over the existing state of the art:
  - ❖ Current State of the Art
  - ❖ Where the Art Leads the skilled Practitioner
  - ❖ Distinguishing Characteristics of Your Invention, Specify Surprising Results
  - ❖ Combinations of known steps or components, need demonstrate unexpected results
  - ❖ Ideally, Comparative Data evidencing the unexpected results

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Tips for Invention Disclosures

- Detailed Description of Your Invention
  - Operative Ranges
  - Operative Alternative Embodiments
  - Data Anomalies
  - Define Key Terms (they will get u*sed in the application*)
  - Define Analytical Techniques Used (*particularly non-standard techniques*)
  - Include Metric System Equivalents
  - Identify Relevant Reports, Presentations
- Commercial (actual or potential) application of Your Invention

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Types of Patents

- 3 types in the U.S.
  - Utility patent
  - Plant patent
  - Design patent

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Types of Patents

- Utility patent
  - Covers the novel structure and function of a useful invention
  - New and useful products and processes that fall within 4 classes:
    - Machine, process, article of manufacture, composition and improvements thereof.
  - Most utilized type.
  - Most complex to draft.
  - 20-year term from filing
  - Maintenance fees due at 4, 8 and 12 years.

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Types of Patents

- Design patent
  - Covers the new and original non-functional ornamental features of the design of a product.
  - Aesthetic features. E.g. – shape of a container, surface texture.
  - 2nd most utilized type.
  - Drawings are essential – Different views.
  - Little written description.
  - Single claim. E.g. “The ornamental design for a BLADE DISPENSER as shown and described.”
  - 14-year term from grant
  - No maintenance fees.

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Types of Patents

- Plant patent
  - Covers novel asexually reproduced plant varieties, other than a tuber, propagated plant or a plant found in an uncultivated state.
  - Least utilized.
  - Drawings are important.
  - Claims to new and distinct variety of plant as shown and described.
  - Specimen of the plant may be required during examination
  - Important in agricultural and flower industry.
  - 20-year term from filing
  - No maintenance fees.

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