

Intellectual Property

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Agenda

Intellectual Property

Patent Foundations

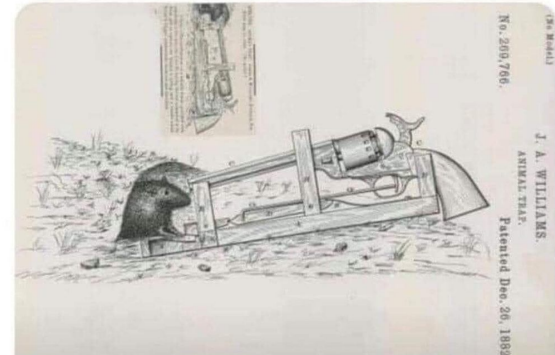
Solution Abstraction

How to Write a Provisional Patent

Inventive Concept Vignette

Note: US-focused again

this is, and I am not joking, an
1882 US patent for a mousetrap
and it's the most american thing
I think I've ever seen



Why learn about this at all?

IP **critical** for medtech companies to get funding, market and acquired.

CTOs are in charge of IP strategy (intimately tied with R&D strategy).

CTOs who understand IP = \$\$\$

Patent attorneys = \$\$\$

Patent attorneys are engineers (NOT lawyers). That means you can learn too.

Ability to exploit competitor's IP

Surprisingly fun and requires a lot of creative problem solving.

Intellectual Property

IP refers to the right to prevent others from doing something

1. **Patents:** Prevent making, using or selling
2. **Trade Secrets:** Prevent sharing of confidential information
3. **Copyright:** Prevent reproduction, distribution or creation of derivative works of any original artistic expression in a tangible medium
4. **Trademark:** Prevent adopting or using a confusingly similar mark for similar goods and services

A successful company uses many methods of IP.

Patents

Right to exclude others from making, using or selling an invention

Does NOT include the right to actually make, use or sell the invention (FDA)

Process, machine, manufacture, composition of matter or design

Expires after 20 years

Most patents are either a “system” or a “method”

Country-specific

Patent System

Incentive to create new technology

- (+) more inventions
- (-) limited access

Patent Process

1. Provisional Patent Application (12 months) (no formal checks)
2. Full Patent Application
3. Publication 18 months later to general public
4. Search and examination by USPTO within 12-36 months (<12mo for \$2K)
5. Office Action (rejection) -> amend, prosecute or both
6. Repeats 2-3 times before patent is granted/rejected (60-70%)

Prosecution = negotiation process

Cannot introduce new subject matter

“First to invent” system -> “first to file” system

How to Read a Patent

Front Page: Title, Inventors, Abstract
(no legal significance)

Description: Teaches method/system
so that anyone in the same technical
field can make/use invention

Claims: Legal section of patent,
defines patent coverage

Method and system for placing a purchase order via a communications network

Abstract

A method and system for placing an order to purchase an item via the Internet. The order is placed by a purchaser at a client system and received by a server system. The server system receives purchaser information including identification of the purchaser, payment information, and shipment information from the client system. The server system then assigns a client identifier to the client system and associates the assigned client identifier with the received purchaser information. The server system sends to the client system the assigned client identifier and an HTML document identifying the item and including an order button. The client system receives and stores the assigned client identifier and receives and displays the HTML document. In response to the selection of the order button, the client system sends to the server system a request to purchase the identified item. The server system receives the request and combines the purchaser information associated with the client identifier of the client system to generate an order to purchase the item in accordance with the billing and shipment information whereby the purchaser effects the ordering of the product by selection of the order button.

Images (11)



Classifications

■ [G06Q30/0635](#) Processing of requisition or of purchase orders

[View 10 more classifications](#)

Description

TECHNICAL FIELD

The present invention relates to a computer method and system for placing an order and, more particularly, to a method and system for ordering items over the Internet.

BACKGROUND OF THE INVENTION

The Internet comprises a vast number of computers and computer networks that are interconnected through communication links. The interconnected computers exchange information using various services, such as electronic mail, Gopher, and the World Wide Web ("WWW"). The WWW service allows a server computer system (i.e., Web server or Web site) to send graphical Web pages of information to a remote client computer system. The remote client computer system can then display the Web pages. Each resource (e.g., computer or Web page) of the WWW is uniquely identifiable by a Uniform Resource Locator ("URL"). To view a specific Web page, a client computer system specifies the URL for that Web page in a request (e.g., a Hypertext Transfer Protocol ("HTTP") request). The request is forwarded to the Web server that supports that Web page. When that Web server receives the

US5960411A

United States

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Inventor: [Peri Hartman](#), [Jeffrey P. Bezos](#), [Shel Kapahn](#), [Joel Spiegel](#)

Current Assignee: [Amazon.com Inc](#)

Worldwide applications

1997 [US](#) 2006 [US](#) 2012 [US](#)

Application US08/928,951 events

1997-09-12 • Application filed by Amazon.com Inc

1997-09-12 • Priority to US08/928,951

1999-09-28 • Application granted

1999-09-28 • Publication of US5960411A

1999-10-21 • First worldwide family litigation filed 

2017-09-12 • Anticipated expiration

Status • Expired - Lifetime

Show all events 

Info: [Patent citations \(260\)](#), [Non-patent citations \(22\)](#), [Cited by \(1490\)](#), [Legal events](#), [Similar documents](#), [Priority and Related Applications](#)

External links: [USPTO](#), [USPTO PatentCenter](#), [USPTO Assignment](#), [Espacenet](#), [Global Dossier](#), [Discuss](#)

Claims (26)

[Hide Dependent](#) 

We claim:

1. A method of placing an order for an item comprising:

under control of a client system,

displaying information identifying the item; and

in response to only a single action being performed, sending a request to order the item along with an identifier of a purchaser of the item to a server system;

under control of a single-action ordering component of the server system,

receiving the request;

retrieving additional information previously stored for the purchaser identified by the identifier in the received request; and

generating an order to purchase the requested item for the purchaser

How to Read a Patent Claim

A claim is a sentence which has:

- **Preamble:** Can't be too specific
- **Transition:** Comprising (open), Consisting (closed)
- **Elements**

Must have antecedent basis (a joint -> the joint)

Independent Claim: Essential components

Dependent Claim: Optional “add-ons” which are a backup if an earlier claim is invalidated

Why do they read funny? Needs to describe a concept which has never been invented before, needs to describe the relation of components to each other in word form

We claim:

1. A method of placing an order for an item comprising:

under control of a client system,

displaying information identifying the item; and

in response to only a single action being performed, sending a request to order the item along with an identifier of a purchaser of the item to a server system;

under control of a single-action ordering component of the server system,

receiving the request;

retrieving additional information previously stored for the purchaser identified by the identifier in the received request; and

generating an order to purchase the requested item for the purchaser identified by the identifier in the received request using the retrieved additional information; and

fulfilling the generated order to complete purchase of the item

whereby the item is ordered without using a shopping cart ordering model.

2. The method of claim 1 wherein the displaying of information includes displaying information indicating the single action.

3. The method of claim 1 wherein the single action is clicking a button.

4. The method of claim 1 wherein the single action is speaking of a sound.

5. The method of claim 1 wherein a user of the client system does not need to explicitly identify themselves when placing an order.

Patent Requirements

1. **Subject Matter (§101):** Must be a process, machine, manufacture, composition of matter (NO laws of nature, physical phenomena or abstract ideas)
2. **Utility (§101):** Must have utility (a very low barrier)
3. **Enablement (§112b):** Anyone in the same technical field can make/use invention
4. **Timing:** Not in public for >1 year
5. **Best Mode:** You need to mention the preferred embodiment (not indicate)
6. **Novelty/Non-Obviousness**



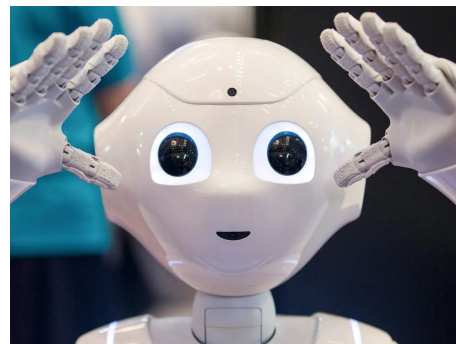
Software Patents

Alice Corp v. BLS (2014)

Software is an abstract idea and therefore NOT patentable subject matter.

Advice

- When doing a software patent, you **MUST** include a patentable component.
- This does **NOT** include a computing device (or the standard computing device).
- E.g. hardware sensor, special process
- Software can therefore be a method or a system.



Novelty/Non-Obviousness

Novelty (Objective) (§102)

- Exact invention has been described publicly or in another patent before (“prior art”)
- Prior art can be from anywhere in the world

Non-Obviousness (Subjective) (§103)

- Invention is not obvious to someone having ordinary skill in the field (average worker)
- “Teaching Away” argument - publications that say XYZ should NOT be done
- Most patent litigation is on non-obviousness

Inventorship

- To be an inventor, you must have contributed to “invention conception”.
- **“Invention Conception”**: Formation of a definite and permanent idea of a complete and operative invention. NOT assistance, explanation of well-known principles, explanation of state of the art without a firm/definite idea, reduction to best mode, constructed a prototype without the invented concept.
- To remove an inventor, omit any claims they contributed to.

Excluding an inventor can be a fatal mistake.

- Error without deceptive intent can be corrected.
- Error with deceptive intent invalidates the patent.

Ownership

By default, inventors are all 100% owners of the patent.

Most ownership is immediately transferred to the company via an employee agreement.

In the absence of an agreement, every owner has full rights without requiring consent or profit-sharing with other owners. Even if you invented only one claim, you have access to all.

To sue for patent infringement, all owners must agree (unless a release has been signed).

Ethicon vs US Surgical Corp (1998)

Invention of a surgical trocar which protects against sudden injury (rod that springs forward as you pierce)

Y hired C. C worked on projects unpaid. C withdrew from cooperation with Y. Y filed patent without informing C, naming himself as the sole inventor. Y provided an exclusive license to Ethicon.

Ethicon sued US Surgical for infringement.

What would you do as US Surgical?



Ethicon vs US Surgical Corp (1998)

Invention of a surgical trocar which protects against sudden injury (rod that springs forward as you pierce)

Y hired C. C worked on projects unpaid. C withdrew from cooperation with Y. Y filed patent without informing C, naming himself as the sole inventor. Y provided an exclusive license to Ethicon.

Ethicon sued US Surgical for infringement. US Surgical heard about C. C kept a workbook which detailed the rod. C provided a full retroactive license. Suit dismissed.

What happened? C is an inventor and owner with full rights. C does not need consent from Y to license. However, Y needs consent from C to sue for patent infringement!



FTO and Patentability

Startups are judged on two aspects:

- **Freedom-to-Operate:** You will not infringe anyone.
 - Requires a patent search by an attorney
 - VCs will pay \$5-10K for this (so you need to do it 3-6mo beforehand)
- **Patentability:** You have the potential to create valuable patents.
 - Requires an assessment by an attorney
 - The attorney will sit down with the CTO and ask what the inventions are. They will then do a comprehensive search of the literature and patents to see how new it is.
 - VCs will pay \$10-50K, so you need to work with your lawyer before.

A note on Australian patents.

As a principle, follows the American system

You can only defend Australian inventions (market isn't typically large enough for someone to copy)

You generally want an American patent before applying for an Australian patent



Questions?

How to Capture an Invention (Solution Abstraction)

1. Understand the problem and solution.
2. Identify the elements of the solution.
3. Distinguish between essential and optional elements.
4. Capture the specifics of each essential element.
5. Brainstorm alternatives for each essential element.
6. Refine the abstraction layer.

There are two invention types - system/device and method.

If you can hold it in your hands, it is a system. If you can't, it is a method.

Presentation Clicker

Understand the problem and solution.

What is the problem? What is the solution?

How is this different to other presentation clickers?

What is the “inventive concept”?



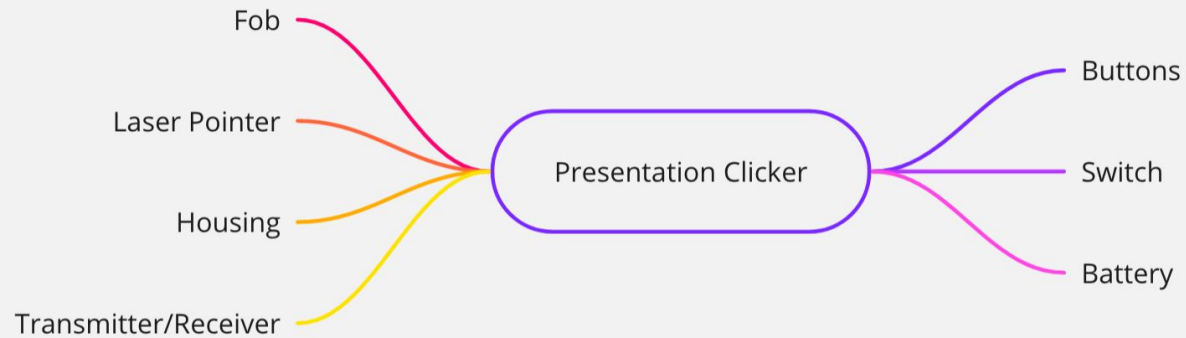
Solution Abstraction

Identify the elements of the solution.



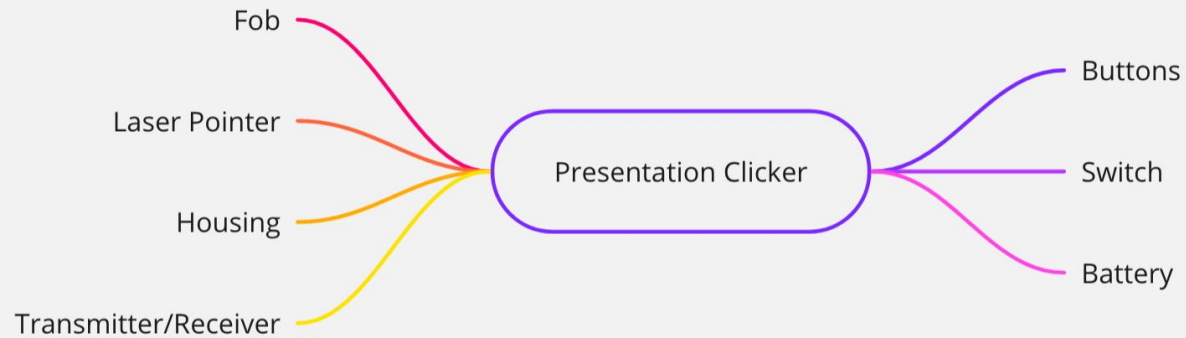
Solution Abstraction

Identify the elements of the solution.



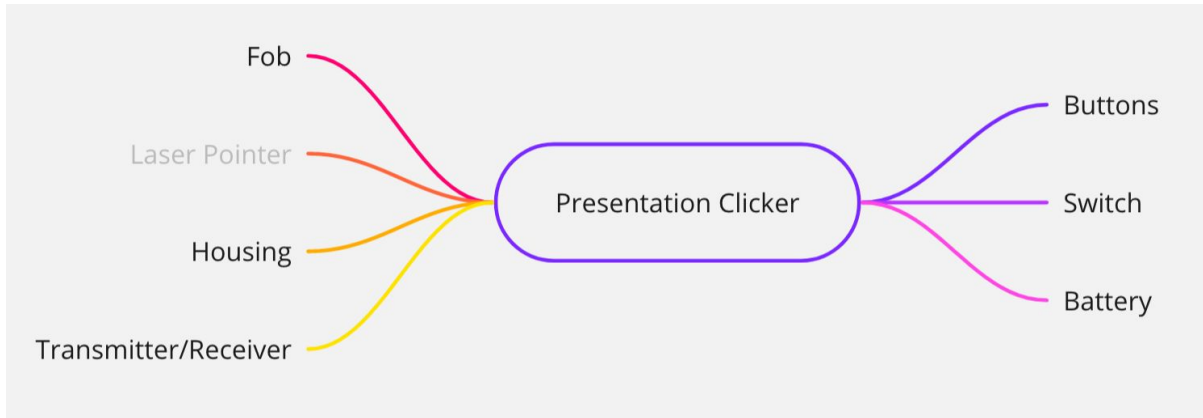
Solution Abstraction

Distinguish between essential and optional elements.



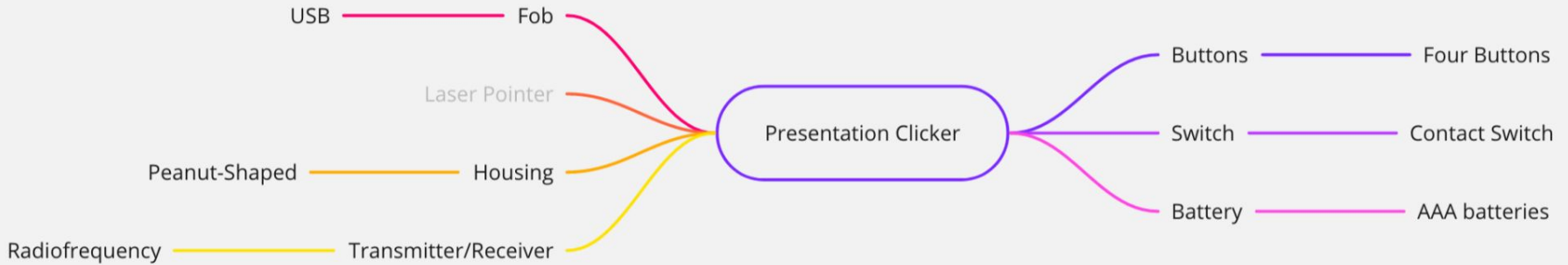
Solution Abstraction

Distinguish between essential and optional elements.



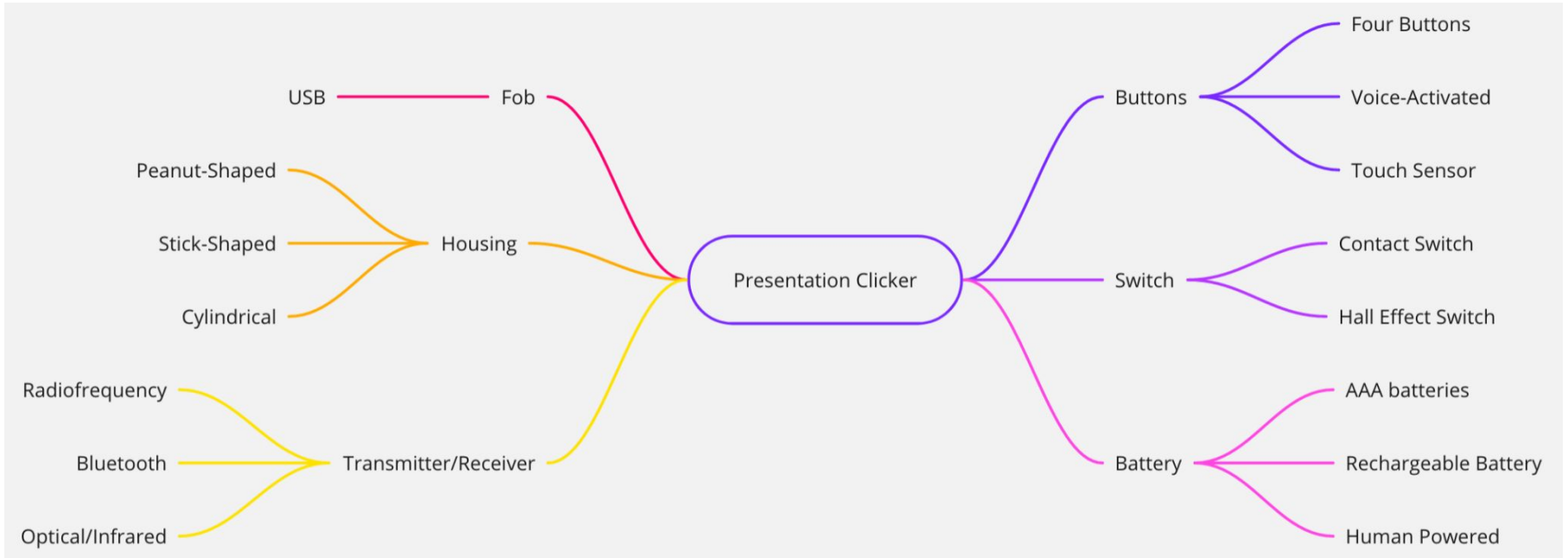
Solution Abstraction

Capture the specifics of each essential element (aim for 3-4 per element).



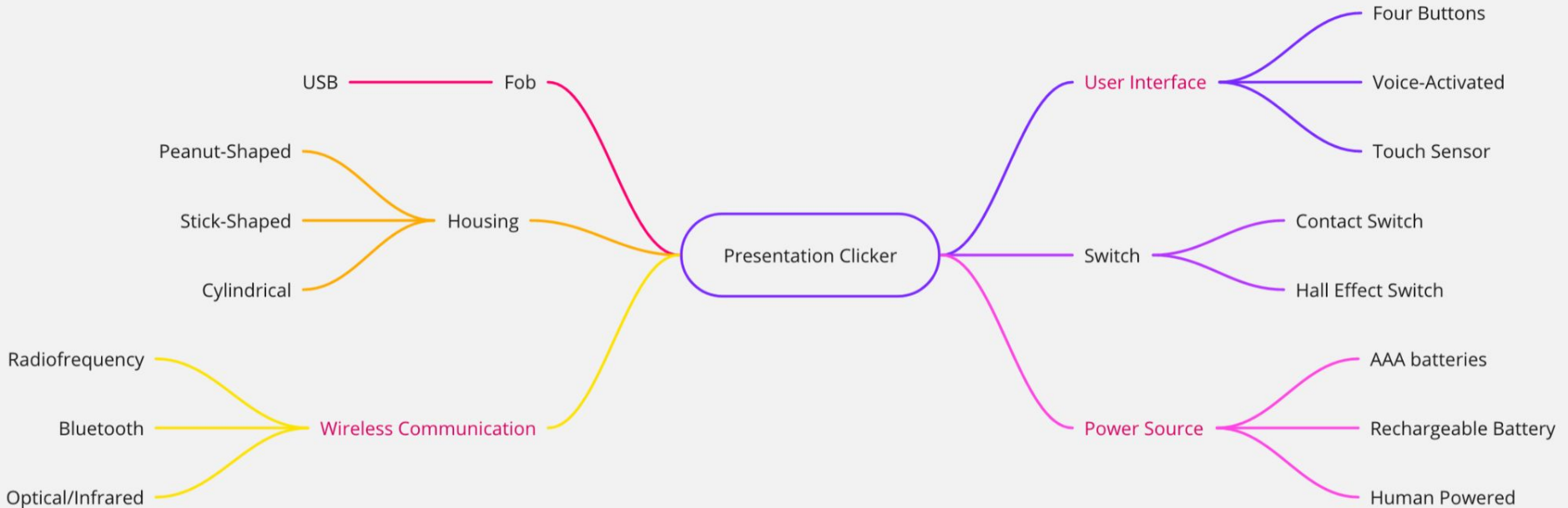
Solution Abstraction

Brainstorm alternatives for each essential element.



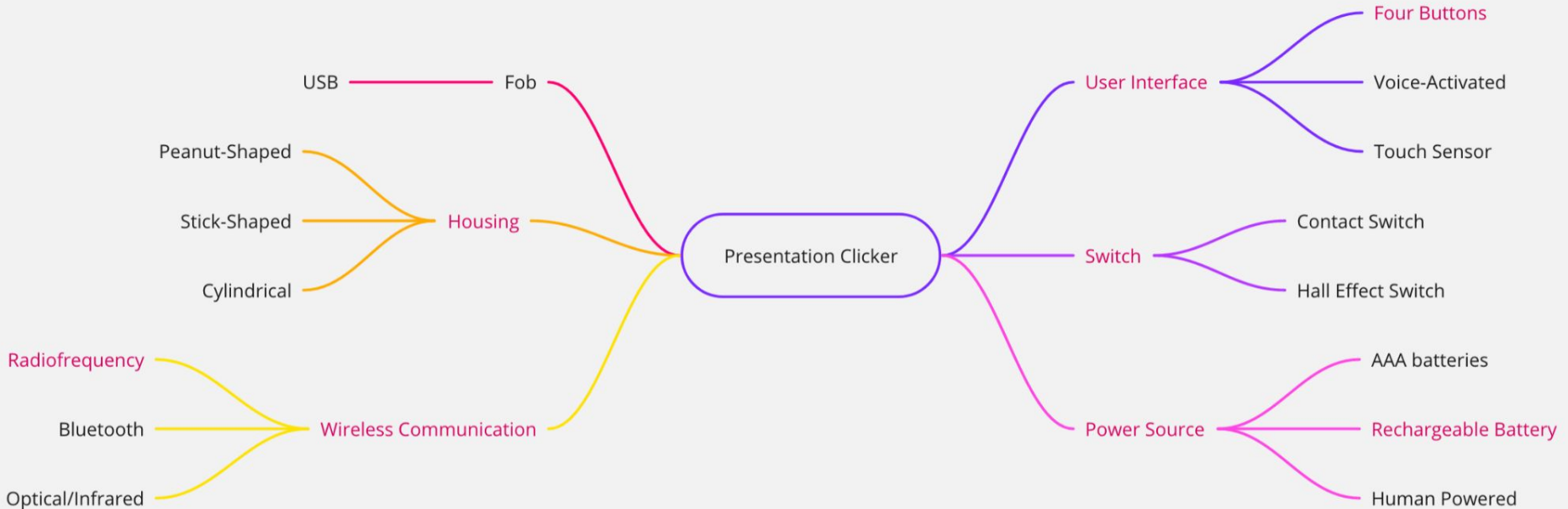
Solution Abstraction

Refine the abstraction layer. What is the component *actually* doing?



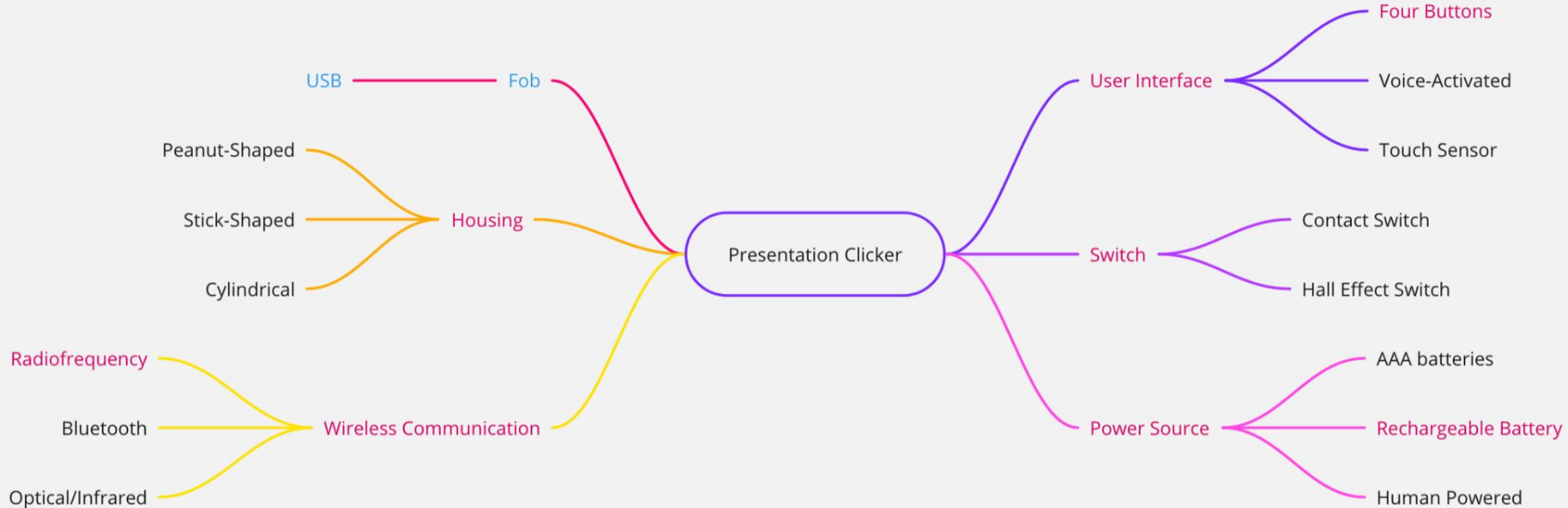
Novelty

A patent has to be novel (i.e. it's “never been done before”). Prior Art:



Novelty

This would be novel! Patents are simply about selecting the right “invention”.



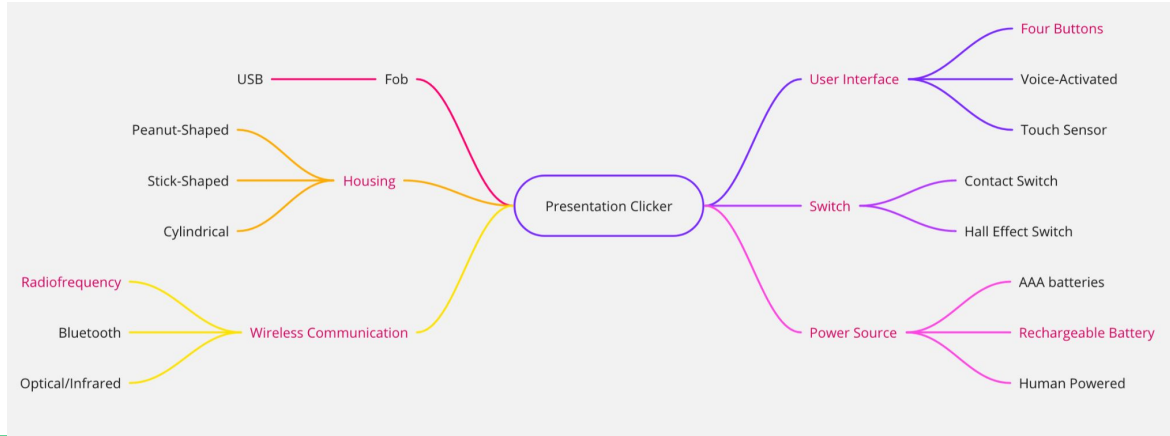
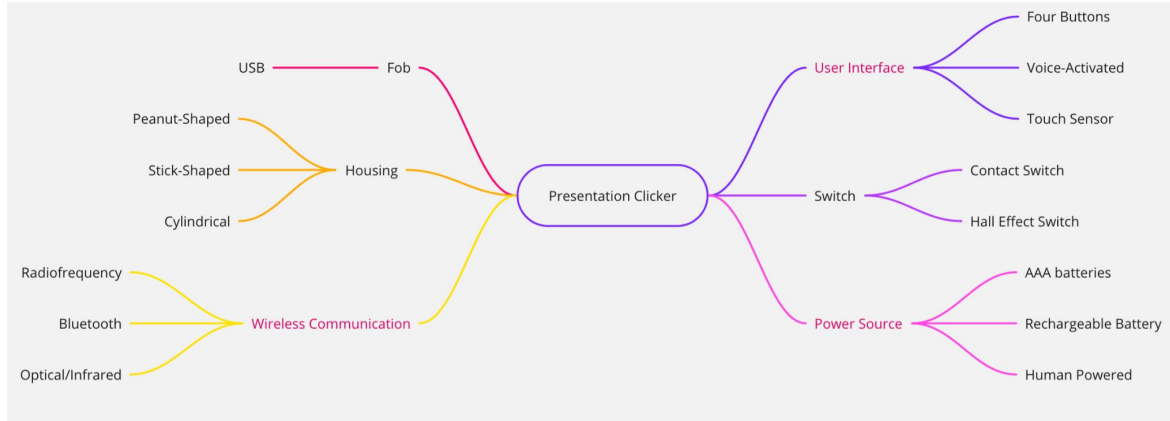
Your First Patent Claim

A system to control the flow of a presentation, comprising:

- a housing;
- a USB fob;
- a user interface, wherein the user interface comprises four buttons;
- a power source, wherein the power source is a rechargeable battery;
- a radiofrequency transmitter, and;
- a contact switch that connects the radiofrequency transmitter and the power source when the USB fob is removed from the housing and disconnects the radiofrequency transmitter and the power source when the USB fob is inserted into the housing.

Independent components -> dependent components -> how the components relate (physically, electrically, theoretically)

Which is more valuable?



Provisional Patents

Requires:

- Written description of invention such that it enables an inventor to create it
- Drawings (can be hand-drawn or diagrams)

They do not need:

- Background
- Claims

How to Write a Provisional Patent

Actually very simple. There are two steps:

1. Describe the elements, their purpose and their relation to each other.
2. Go through each element one by one and explain the alternatives using “preferably... alternatively...” sentences.

Rules: The exact same terminology must be used through the entire document. If different words are used, lawyers will argue that it means something different (otherwise why would you use a different word?). Save creativity for elements.

This is also how you should write your “Specification” section.

Example of First Part

The invention is a system to control the flow of a presentation. The system comprises a housing, a USB fob, a user interface, a power source, a radiofrequency transmitter and a contact switch. The user interface is on the external surface of the housing. The contact switch, power source and radiofrequency transmitter is located inside the housing. The USB fob is detachable from the system and can be placed in the housing. When the USB fob is removed from the housing, the contact switch connects the radiofrequency transmitter and the power source. When the USB fob is inserted into the housing, the contact switch disconnects the radiofrequency transmitter and the power source. The invention may also optionally comprise a laser pointer.

Example of Second Part

Component 1: User Interface

The user interface is located on the external surface of the housing. As demonstrated by Figure 1, the user interface **preferably** comprises four buttons placed in a cardinal layout, but **alternatively** may consist of a single button, a capacitive touch sensor, a voice-activated system or a pressure sensor. The user interface is **preferably** on the front of the device, but **alternatively** may be on the sides of the device, the back of the device or on multiple faces of the device. The user interface is **preferably** controlled by a single device, but **alternatively** may be shared across multiple devices.

[Add in everything you can think of]

Problem Abstraction

A similar thought process should be repeated for the problem.

Say you've invented a ballpoint pen. What problem have you solved?



Problem Abstraction

A similar thought process should be repeated for the problem.

Say you've invented a ballpoint pen. What problem have you solved?

- Writing with a pen on a surface



Problem Abstraction

A similar thought process should be repeated for the problem.

Say you've invented a ballpoint pen. What problem have you solved?

- Writing with a pen on a surface
- Writing with a pen on a rough surface



Problem Abstraction

A similar thought process should be repeated for the problem.

Say you've invented a ballpoint pen. What problem have you solved?

- Writing with a pen on a surface
- Writing with a pen on a rough surface
- Writing with on a rough surface



Problem Abstraction

A similar thought process should be repeated for the problem.

Say you've invented a ballpoint pen. What problem have you solved?

- Writing with a pen on a surface
- Writing with a pen on a rough surface
- Writing with on a rough surface
- Transfer of ink to a rough surface



Problem Abstraction

A similar thought process should be repeated for the problem.

Say you've invented a ballpoint pen. What problem have you solved?

- Writing with a pen on a surface
- Writing with a pen on a rough surface
- Writing with on a rough surface
- Transfer of ink to a rough surface
- Transfer of any material to a rough surface

Broader = more valuable but harder to claim

Iterate between problem and solution abstractions



The Inventive Concept

- This is NOT the solution.
- This is NOT implementation details.
- This is NOT optional components.

It is the most essential components from your solution abstraction for the problem.

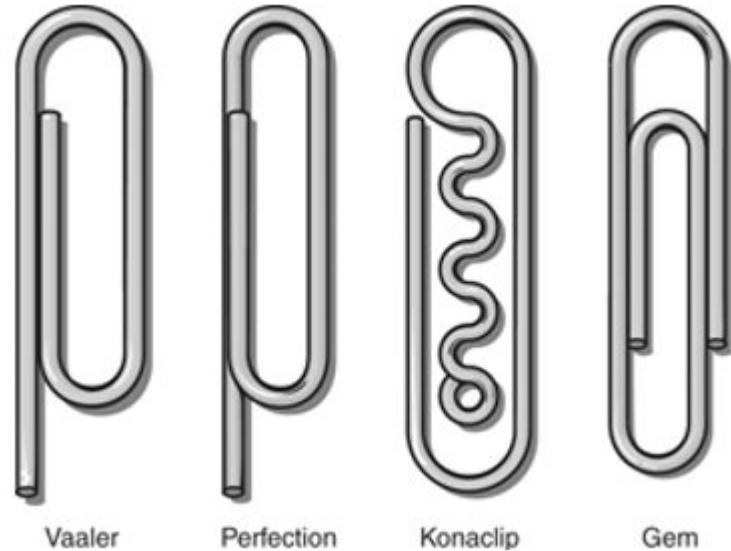
The Paperclip Vignette

1. **Vaaler**: Secure but creased the paper
2. **Perfection**: Gentle but not secure
3. **Konaclip**: Both secure and gentle
4. **Gem**: Both secure and gentle

It is 1900 and you have just invented the Konaclip.
If you can claim the right patent, billions of your product will be used on a daily basis.

Create a solution abstraction.

What do you claim as the inventive concept?

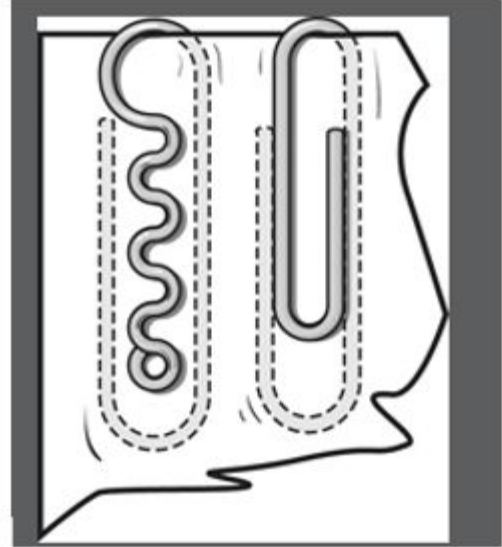


The Fatal Mistake

Patent lawyer thought inventive concept was the **serpentine design**.

The inventive concept was that there is a **central component** in the paperclip that **pushes the paper against the opposing pair of rails**.

This is what **MUST** be patented.



Invention Abstractions

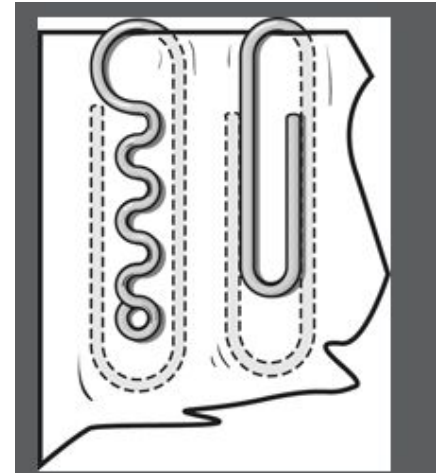
What went wrong?

- Lawyer was thinking at the **wrong abstraction level**.
- Inventor probably overemphasized the serpentine design.
- This is an implementation detail and not essential.
- **Invention is one abstraction level higher** - the central rail.
- Doesn't matter how the central rail is implemented.
- A question that helps is - “how else can we do this?”

Claim Iteration

A clip of a length of wire bent to form an elongated frame, an end portion of the wire deflected inwardly within and near one end of the frame, and extended longitudinally along and within substantially the full length of the middle of the clip, the end portion having a serpentine shape and terminating in an eye.

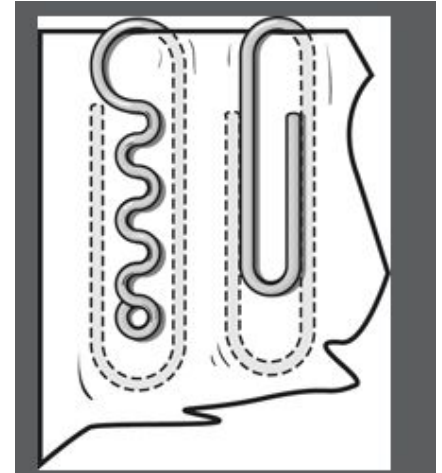
What would you do differently?



Claim Iteration

A clip constructed of a length of wire bent to form an elongated frame, an end portion of the wire deflected inwardly within and near one end of the frame and extended longitudinally along and within the middle of the clip.

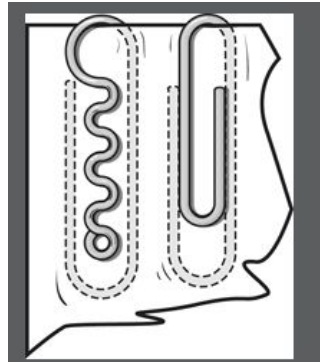
Any further improvements?



Claim Iteration

A clip constructed of a length of wire bent to form an elongated frame having a pair of opposing rails, an end portion of the wire being disposed inwardly within the frame and in the plane thereof, the end portion being so arranged as to cause a stack of paper inserted between the end portion and the opposing rails to be urged substantially equally against both of the opposing rails.

It now covers the Gem! Note how this is impossible unless you understand the problem.



Inventive Concept

Sometimes this can be one brilliant concept (“insight”).

Sometimes this can be an unusually effective collection of concepts.

Sometimes this can be how the solution is framed (Amazon’s 1-Click patent).

Strategy

Who should I hire?

Patent attorney/lawyer who specialises in medtech and has previously written patents for a successful company (preferably in your field)

(Stay away from university ones)

In how many countries should I file?

US + 2 other countries (usually EU, China, Japan, Canada, Australia)

18 months for PCT

How much should I budget?

\$60K in US per patent

\$45K per international patent

When should I file?

~12 months before you finalise an invented feature.

Surprisingly difficult to guess this

File sooner for fast-moving problems. File later for slow-moving problems.

How many should I file?

Seed: 1-3 provisional patents, preliminary FTO worksheet

Series A: 1-2 full patents, FTO worksheet of top 5 competitors with alerts

Series B: 6-12 full patents, FTO worksheet of top 10 competitors with alerts

\$100M Revenue: 12-24 full patents, FTO worksheet of all competitors

What do VCs check for?

VCs will pay a reputable IP lawyer to check the quality of your patents and FTO

Do it 3-6 months before funding so you have time to fix issues.

Infringement and Lawsuits

Companies get sued at ~\$100M in revenue.

- If someone is infringing, get an injunction and apply for damages (3x if intentional).
- Infringers need “notice” (print on device or just listing on website).

Around 50% of patents are invalidated by courts. Sweet spot is ~15 patents.

- Sometimes you need to rely on “mutually assured destruction”
- Requires an IP lawyer (not a patent attorney)

How to Design Around Patents

Easier to explain than execute

- Identify elements in the independent claim (A + B + C + D). Read very carefully.
- Figure out if any element can be removed entirely from your product/process.
- If not, try again :(

Are the elements the same? Doesn't need to be identical, but that it “performs substantially the same function in substantially the same way to obtain the same result” (doctrine of equivalents)

Questions?

Continuation Patents

Central strategy for medical devices

Allows you to create a new patent with new claims based on prior specification and drawings (cannot intro new material) using earlier filing date

Goal is to have enough variations/abstractions in your original patent

Why? You claimed $A + B + C$ (but described $A + B + C + D$ in specification). Your competitor realises that $A + B + C + D$ is actually extremely valuable and applies for a patent.

You can retroactively apply for $A + B + C + D$ using your earlier filing date and block your competitor. If you didn't describe $A + B + C + D$ -> you will need to license from your competitor.

How to Patent Search (Google Patents)

Takes about 2-3h for experienced and 8-10h for non-experienced.

1. Build keyword searches from solution abstraction.
2. Search on Google Patents (aim for 30-100).
3. Review **ONLY** the abstract and first few drawings.
4. Develop a list of the most similar 5-10.
5. Review the detailed description.
6. Refine the list as much as you can with further searches / specific inventors / specific categories / forward / backward citations.

Eventually, you start seeing the same patents over and over.