

Exam Number: _____

**VILLANOVA UNIVERSITY SCHOOL
OF LAW**

**Patent Law
Risch
Spring 2022**

Final Exam

Exam Number: _____

**VILLANOVA SCHOOL OF LAW
EXAMINATION IN PATENT LAW
8 HOURS**

Professor Risch

Spring 2022

INSTRUCTIONS (READ THEM ALL)

1. **Materials Permitted:** This is an OPEN book exam, with OPEN HARD DRIVE/OPEN NETWORK. **You may not receive help from any person.**
2. This exam consists of 12 pages, including the cover page. Please check to be sure your exam is complete and contains all pages.
3. Time allotted for the entire examination is 8 hours. This is a take-home exam. Thus, you have eight (8) hours from the time you download the exam to complete and upload the answer. If you are late, your grade will be reduced. If you experience technical difficulties, please follow registrar office directions or contact the registrar.
4. I recommend that you do not download the exam at a time when the due time will be outside of business hours of the law school.
5. **Note that the exam will be held until the 3L cutoff, but there may be make-up exam days. You must be careful not to disclose any details of the exam to your classmates or discuss any aspect of the exam (or your answer!) until after I post an announcement notifying you that you may do so.**
6. **This exam follows the honor code. Do not discuss the exam with others and do not collaborate. You don't need to, you don't want to.**
7. **THIS EXAM INCLUDES A STRICT WORD LIMIT OF 4200 WORDS.** I am grading each exam all at once, so feel free to refer to a prior answer if relevant. NOTE: You do not have to use all of the words available – the questions can be answered in less space than allotted. **I will stop reading after the word limit is reached.**
8. Do not rely on page counts; you should count words using your word processor's "properties" menu item or in the bottom bar of your word processor. You may divide the word limit among the different questions however you wish. Your exam must be typed, double spaced, in legible font, and on 8.5 x 11 paper size.
9. Use **only** your exam number. You may not use your name or anything else that might identify you on these materials, so check your document properties. Word has a way to clean this in File|Info|Inspect Document, though printing to PDF will also clean much up. You may not identify yourself in any way to the professor as the author of an exam until the grades are published. Make sure that your exam number appears on each page, which is most easily done with a header or footer.

Have a great summer and stay safe.

Patent Law Final Exam
Spring 2022

The questions are weighted as follows: Question 1, 53 points, Question 2, 30 points, and Question 3, 17 points for a total of 100. If any of your answers depend on facts not stated in the problem, feel free to identify which facts would be helpful, and how they would affect resolution of the issue. You may refer to answers to prior questions. Remember your word limit. I WILL STOP READING WHEN I REACH THE LIMIT.

ALL PEOPLE, WEBSITES, PATENTS, AND EVENTS ARE FICTIONAL, EXCEPT THOSE THAT ARE REAL, BUT EVEN THEN DO NOT LOOK OUTSIDE THE FACT PATTERN GIVEN. DO NOT RELY ON ANY CASES, STATUTES, CLAIMS OR OTHER ARGUMENTS THAT ARE NOT BASED ON ASSIGNED READINGS OR CLASS DISCUSSION – YOU DO NOT NEED TO DO RESEARCH TO COMPLETE THIS EXAM.

DO NOT ASSUME THERE IS ANY PRIOR ART OTHER THAN THAT DISCLOSED (IF ANY) IN THIS EXAM.

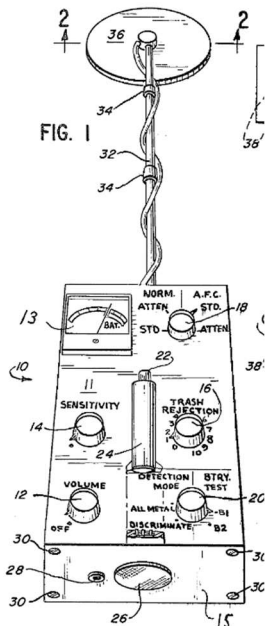
Metal Detectors

For generations, amateur “treasure hunters” have used metal detectors to, well, detect metal (nothing to see here, this isn’t a trademark class). These nifty devices can be seen anywhere there’s dirt (or other non-metal, like a wood building – they don’t work so well in the middle of a steel skyscraper). They have been used to find all manner of artifacts, such as money or ancient arrowheads or bullets.

While different detectors work different ways, and have been enhanced over time to avoid false readings, the basic operation remains the same. There are two primary components:

1. The first is a coil of wires that creates a magnetic field. When a bit of metal is detected within range of the coils, the field is broken.
2. The second is the power source/control circuitry for the creation of the electricity to charge the coil. The power source typically includes a battery (but could be plugged in to AC power) and some light, buzzer, or other mechanism to signal when the magnetic field has been disrupted.

U.S Patent 4,263,553 (issued in 1981) is a good example of such a metal detector. Figure 1 is reproduced below. The disk at the top of the figure (36) contains the coils that generate the magnetic field. The control/power box at the bottom (10) contains a battery (internal, though the meter is 13) that delivers power via the wire (no number) and delivers sound through a speaker (26) with volume control (12).



All of the metal detection methods (that is, coils and power/control) will be the same through this fact pattern. In other words, a PHOSITA would know how to construct each of these components, and (unless otherwise specified) none of the inventions involve an improvement in how the coils or power/control work, though electronic components have obviously gotten smaller and more fancy since 1981 (think lights v. LEDs, analog meters v. digital bars, or Star Trek: The Original Series v. Star Trek: The Next Generation v. Star Trek: Discovery – same basic ideas, fancier implementation).

Patent Holder

Patent (Pat) Holder has always been a treasure-hunting enthusiast. Pat has spent countless hours walking the battlefields/campgrounds of the revolutionary war—Valley Forge the most famous among others—with a metal detector. Pat's favorite is Battle of the Clouds Park, because it is now a youth baseball field, and so among the buried bullets are things of real value that people have dropped.

But when Pat went to the Jersey Shore to hunt there, it turned out that the metal detector was heavy, had to be left unattended when Pat was swimming, and often got sand all over it. Pat was looking for a better way. On January 1, 2013, Pat had

an idea: why not put the metal detector in beach shoes, so that people could walk around and detect while walking?

The Kickstarter

But Pat had no money to make this idea happen. Pat wasn't really even an expert in metal detecting devices, having used one but never tinkered with one. So, Pat needed money to get started. And what better way to get started than Kickstarter! Kickstarter is a website in which customers can "invest" in new products. By investing early, they usually receive a promise of a cheaper price and first products off the line (which in itself is no bargain since the first products often have plenty of flaws yet to be discovered). Some Kickstarter projects fail to raise enough money and go nowhere. Some succeed wildly, delivering fabulous products. And some succeed in raising money, and then fall way behind in actual design and production because the founders had no idea what they were getting into.

Kickstarter was perfect for Pat. So Pat found a design for sandals (or slides, flip-flops, or thongs) on Thingiverse and asked a friend to 3D print them. Pat then jammed a power switch and fake battery meter into the side. This was placed on Kickstarter.

The screenshot shows the Kickstarter page for a project titled "Treasure Hunter: Metal Detecting Sandals" with the subtitle "Amazing Metal Detector Shoes". The main image shows a pair of orange sandals on a beach, with a small metal detector device integrated into the sole. A video player is overlaid on the image. To the right of the image, the funding status is displayed: "\$1,037" pledged of a "\$15,474 goal", with "6 backers". A grey box below this indicates "Funding Unsuccessful" and states "The project's funding goal was not reached on [redacted] 11:19 AM EDT".

As shown in the web screenshot, Pat's Kickstarter failed. Pat returned all the money received. Pat created the Kickstarter project on June 1, 2013, and it failed on December 31, 2013.

Shitty Kickstarters

But it was more embarrassing than that. Pat's Kickstarter was featured in the Reddit subgroup r/shittykickstarters. Most people who commented on the thread thought it was a scam. But some people thought the prototype was real. Below is some of the commentary on the design.



Kike328 ·  ago

They have a working prototype and they are selling a very specific niche and new product for a high price, why is this a shitty Kickstarter? I'm pretty sure there's people interested and it doesn't look sketchy but completely reasonable

 9  Share Report Save



duskwuff ·  ago

Nobody who actually does metal detecting would be interested in this. With a detection coil <3 inches wide (they literally say it's embedded in the toe of the shoe), this is a toy. It definitely won't work at the 8-12 inch depth they claim -- even professional-grade metal detectors with much larger coils have difficulty achieving that.

 30  Share Report Save



tomorrowdog ·  ago

I give them a few points for a fun idea that has a Homer Simpson "inventor jam" feel to it. It's wildly impractical though, you're just wearing terrible shoes that will probably never accomplish anything.

 9  Share Report Save



almightywhacko · [redacted] ago

Aside from the shitty looking prototype and bad ergonomics, this is stupid for another reason. When you use a metal detector at the beach you swing it back and forth, so each step lets you scan an area about 3 times as wide as your own body. With these fail shoes you would need to actually walk over every inch of beach you wish to scan. That would make the process even slower and more tiring.

↑ 13 ↓ Share Report Save



ifdeadpokewithstick · [redacted] ago

You can make this for \$5-\$10 bucks but each step would be a three inch diameter scan lol.

↑ 10 ↓ Share Report Save



duskwuff · 8 mo. ago

I'm pretty sure that's about what they'll get with their product.

↑ 12 ↓ Share Report Save



da_apz · [redacted] ago

As someone who builds stuff like this for fun, I fail to see the need for their thickness. I'd build something like this out of Arduino boards and it'd fit in a lot smaller enclosure.

↑ 3 ↓ Share Report Save



WhatImKnownAs · [redacted] ago

The problem is that a full-grown human is supposed to walk on it. Those PCBs and flat lithium batteries don't take well to being bent.

↑ 7 ↓ Share Report Save

The '123 Patent

Pat was a bit demoralized by the r/shittykickstarter posts, above and beyond the failure to achieve sufficient Kickstarter funding. But the comments did give Pat an idea. It may be that the sole of a rubber sandal is too flexible for the circuitry needed for a control board. But what if that sole was harder rubber (or leather?). Maybe it would be better to put the metal detector in a regular shoe.

So, Pat went to a patent prosecutor and described the idea. On May 31, 2014, Pat filed the following patent application (without ever building a prototype):

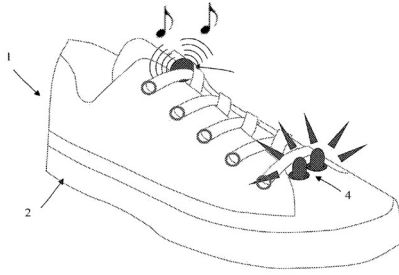


Figure 1

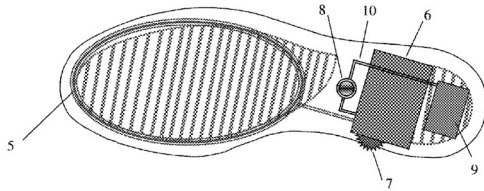


Figure 2

The present invention relates to a shoe that can be worn to detect hidden metal objects. The metal detecting system of the shoe becomes convenient, durable, and effective in certain situations such as detecting buried landmines in war zones or in the case of treasure hunting, or for use by children as a toy.

Amidst the multitudes of treasure hunters, hobbyists and children that roam the beaches, woods, and ancient sites this tool would be much appreciated. Thousands scour the beaches each year in hopes of finding items as simple as a sardine can to precious gold. For the casual treasure hunter to even the avid explorer having this tool would be a great addition to their arsenal. Since there is no visible hand-held device, Metal detecting shoes are convenient to use and draw less attention from the passersby. Instead of leaving the site with a hunched back or weary arms all that a user must do with the portable metal detecting shoe is walk around wearing them and wait for a signal. The metal detector market is a fairly large one and this invention would catch the eye of many enthusiastic hunters.

This invention presents an alternative arrangement to the known handheld standard metal detector. It is optimal due to increased portability, convenience and

being less noticeable to an outside observer. According to the present invention the electromagnetic coils (5) are placed within the shoe, Fig. 2. The coils are placed inside the sole of the shoe (2) while electronics can be placed inside the shoe or packaged in an outside pouch. These components (6) are best contained within the sole of the shoe (2) to prevent damage, Fig. 2.

Connected to the circuit is a dial (7) for sensitivity adjustment with a turn switch that is used to turn the power on and calibrate the system, Fig. 2. A dry cell type battery (9) that provides power to the electronics can be packaged within, on, or outside the shoe, Fig. 2. To alarm the user in the event of detection of metal, a sound and light signal (4) have been added to the design, Fig. 1.

What is claimed is:

1. A metal detecting shoe comprising:

insulated wire coils for electromagnetic field generation, and field changes detection packaged inside the frontal (toe) area of the sole of the shoe;

an electronic module packaged in the heel area of the sole;

a power source (battery) packaged in the heel area of the sole; and

buzzer(s) and LED(s) attached to the shoe such that sound can be heard and the light can be seen when a metal detection is made.

2. The shoe described in claim 1, where:

The electronic module and power source are located outside of the shoe's sole.

During prosecution, the patent examiner rejected claim 1 on indefiniteness grounds, arguing that the "electronic module" appeared to have no function and thus one would not know if they were infringing. Alternate grounds were enablement and utility – without a function, one could not use the invention.

Pat amended the claim to read (see italicized addition):

What is claimed is:

1. A metal detecting shoe comprising:
 - insulated wire coils for electromagnetic field generation, and field changes detection packaged inside the frontal (toe) area of the sole of the shoe;
 - an electronic module *for controlling power to said coils and receiving signals from said coils* packaged in the heel area of the sole;
 - a power source (battery) packaged in the heel area of the sole; and
 - buzzer(s) and LED(s) attached to the shoe such that sound can be heard and the light can be seen when a metal detection is made.
2. The shoe described in claim 1, where:
 - The electronic module and power source are located outside of the shoe's sole.

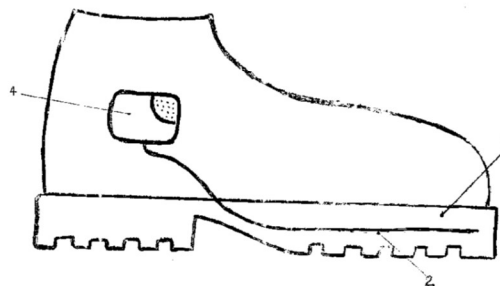
This application—as amended—issued as the ‘123 Patent in January of 2016.

The Boot Patent

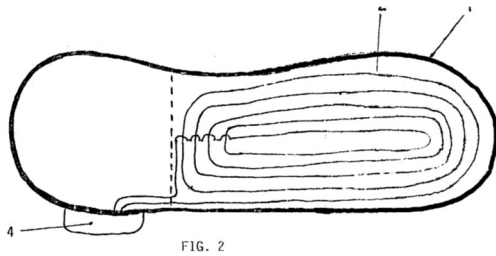
Unbeknownst to Pat, on July 1, 2013, a French inventor applied for a shoe-based metal detector, in France, in French.

⑤4 SEMELLE DE CHAUSSURE DETECTRICE DE METAUX.

⑤7 L'invention concerne un dispositif de détection de métaux qui est réalisé à partir d'un détecteur de métaux qui comprend deux parties: un dispositif électronique et un cadre de détection. Le dispositif selon l'invention consiste à inclure ou solidariser l'organe de détection (2) et de prospection, dit cadre de détection à la semelle (1) d'une chaussure ou autre engin de déplacement pédestre. Ce dispositif permet de prospecter les sols tout en marchant. Le boîtier électronique (4) d'analyse des informations données par le cadre de détection peut être solidaire de la chaussure, soit porté sur une partie du corps à l'aide d'un cordon prolongateur muni de fiches de branchements.



This invention included the usual metal detector components: coils, a control module/battery, and a buzzer/notification system. The coils were in the front sole of a boot, while the control system and battery were located on the outside, mounted on the boot. The image below shows the coils in the front of the sole, while the image above shows the mounted controls.



This patent application published after 18 months in France. On July 1, 2014, the French inventor filed a translation in the U.S. Patent Office, and successfully prosecuted it to an issued patent (the '456 Patent) on June 30, 2016.

The following is a translation of a relevant portion of the application:

This device makes it possible to free the hands and to prospect the grounds while walking. The electronic unit for analyzing the information given by the detection frame can be secured to the shoe...

The accompanying drawings illustrate the invention: Figure 1 shows an example of the side view of a shoe with the positioning of the various elements included.

Below is a picture of a boot released by the French manufacturer in the U.S. in June of 2014.



Flip-Flop Find

In 2018, Trina Getby started a new beach metal detection sandal business. Trina quickly discovered the problems with flexible soles and thin electronic components, but Trina had no shoe to attach to. Trina's solution was to put the coils into the front sole of the sandals, but to have the user strap the remaining components to the leg. Below is a picture of Trina's metal detector. Lights for notification when the magnetic field is broken are visible at the top of the box

strapped to the leg. A battery is also contained within the box. Traditional coils are embedded within the front sole of the sandal.



Trina called this product Flip-Flop Find. Pat is not happy about it. Though Pat has never been able to launch metal detecting shoes, Pat is livid that somebody else has, and immediately sues for infringement of the '123 Patent.

ASSUME THAT THE AMERICA INVENTS ACT APPLIES UNLESS THE QUESTION STATES OTHERWISE

QUESTIONS:

Q1: You are counsel for Pat Holder. Please draft a memo describing the challenges to the validity of the '123 Patent that Holder might see, and the responses Holder has to such challenges. (53 points)

Q2: You are counsel for Trina Getby. Please draft a memo describing the infringement claims by Pat that Trina will likely see on Flip-Flop Find, and the responses/defenses Trina has to such claims. There is no need to address contributory or induced infringement. There is no need to address any defense of invalidity from Q1. There is no need to address inequitable conduct. (30 points)

Q3: Assume that this case fell under the 1952 Act. How would the analysis in Question 1 change? Answer in 20 sentences or less. (17 points)

END OF EXAM!