

QUESTION 1: Validity

Subject Matter

Under §101, whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement can obtain a patent. There is no per se categorical rule on what can and cannot be patented (*Bilski*). A patent will not be granted for an abstract idea, natural law, and physical phenomena. However, if an unconventional or non-routine step is added it may be patented (*Alice*). Man-made living things may also be patented. (*Chakarabarty*).

Here, a challenger could argue that using an electromagnetic field to detect metal is an abstract idea and a law of nature. However, a subject matter challenge is unlikely to succeed because a patent will not be found invalid only for containing a natural law or abstract idea (*CellzDirect*). Pat has added an unconventional step in his invention because the electromagnetic field is on the bottom of a shoe and is part of a man-made physical object.

Utility

Under §101, a patent must have operable, beneficial, and practical utility. Operable utility means that the invention is not a fantastic or incredible claim. The examiner will initially assume the invention is operable unless it seems inherently unbelievable. Beneficial utility means that the invention is not harmful to the well-being of society or immoral (*Lowell*). Practical utility means that the invention has a substantial and specific benefit for society (*Brenner*). Specific means that the use cannot be vague and meaningless but must be well-defined and particular (*Fisher*). Substantial means that there is a significant and presently available benefit to the public (*Brenner*). The value of the invention can also reside in the fact that it is supposed to look like something it is not (*Juicy Whip*).

Here, Pat has operable utility because the idea of metal detector shoes is not inherently unbelievable to a PHOSITA. Metal detectors are well-known to the public and a PHOSITA who has kept up with advances in technology would believe it is possible to put metal detecting technology on the bottom of a shoe. Especially, since the PHOSITA should know that electric components have gotten smaller and fancier in present day. Pat also has beneficial utility because the invention seeks to help the public by making metal detecting easier which will help society. A challenger could argue that metal detecting is not beneficial to society and could help people steal things, but this is not a strong argument since people have been using metal detectors for a long time.

Lastly, Pat has practical utility because the invention has a substantial and specific benefit that would be presently available. Many people use metal detectors as a hobby, and the invention makes metal detecting less cumbersome by making it more portable, convenient, and less noticeable. The invention lets people just walk around while their shoes detect metal. A challenger could argue that there is no substantial utility since the invention is not presently available since Pat has not yet made a prototype. However, this would likely fail since you do not have to have a prototype to be ready for patenting if you can describe the invention specifically enough that a PHOSITA would be enabled to make it. The Reddit user would argue that the shoes are not useful because they would make it harder to walk and the device would not scan as far as a standard metal detector.

Disclosure

Under §112, a patent specification must contain a written description of the invention and the manner and process of making and using it in such full, clear, concise, and exact terms as to enable a PHOSITA to make and use the invention.

1. Enablement

Enablement asks if the specification allows a PHOSITA to make and use the invention without undue experimentation (*Incandescent Lamp*). The claim scope must be enabled at the time of the application in relation to the technology available at the time of application. The broader the claim the less likely it is to be enabled. However, if the state of the art is advanced and the PHOSITA is knowledgeable, enablement is more likely. The PHOSITA may use gap fillers to fill any gaps in the description. Factors to look at to see if the PHOSITA would have to engage in undue experimentation include the quantity of experimentation necessary, the amount of direction given, if there are working examples, the nature of the invention, the state of prior art at the time of filing, the relative skill of PHOSITA, the predictability of the art, and the breadth of the claim (*Forman/Wands*).

Here, looking at the amended patent claims after the initial rejection, a challenger can argue that the invention cannot be made without undue experimentation because the claims are too broad. For claim 1, the challenger can argue that the number of required coils, the proper arrangement of packing the coils, and the shape of the coils are not provided. For claims 1 and 2, the challenger can argue that the distance in relation to each other between the wire coils, the electronic module, and the power source is also not provided. Moreover, the depth to insert the coils into the sole of the shoe is not given. The specification simply states, “ the coils are placed inside the sole of the shoe”. Lastly, a challenger could argue there are no working examples or prototypes of Pat’s device yet.

Pat may argue that a PHOSITA is assumed to know metal detection methods of coils and power control. Pat can also argue that the state of the art for metal detectors is

advanced since they have been around for generations. Pat will likely not have an enablement issue since he can say that a PHOSITA with the proper knowledge of coils and power control will know how to arrange the parts inside and outside the shoe without undue experimentation. Moreover, a PHOSITA will be able to use gap fillers and can look at the drawing in Figure 2 that provides the placement of the parts. Pat can argue that his claim is not so broad that it is vague and uncertain especially because mechanical devices are more predictable in how they function.

2. Written Description

Written description must allow the PHOSITA to recognize that the inventor had possession of what was claimed as of the filing date (*Ariad*). Evaluation of written description is more restrictive than enablement. A written description problem occurs if the applicant tries to amend existing claims, add new claims, or claim too broadly. A claim can be described but not enabled and vice versa (*Ariad*). Examples and actual reduction to practice are not required for written description, and the level of detail required depends on the nature and scope of the claims (*Ariad/ Gentry*).

Here, claim 1 was amended to add “electronic module for controlling power to said coils and receiving signals from said coils”. A challenger can argue that Pat failed to describe the electronic module in claims 1 and 2 and did not have possession since he only referenced it as “electronics” in the specification and it was not properly described. Written description requires more than a general statement in the specification that there are electronics that can be placed inside the shoe or outside in a pouch (*Ariad*).

Pat can argue that you do not need examples or actual reduction to practice to prove possession of the invention at the time of filing. Moreover, Pat can argue that a

PHOSITA would recognize that the inventor invented what was claimed and had possession since a PHOSITA would be knowledgeable about metal detectors and the electronics or power/control devices required to make them work.

3. Definiteness

The claims of a patent must distinctly claim the subject matter the applicant regards as his invention. Definiteness is a matter of claim drafting and must be tested by standards in the relevant field. A definite claim must inform a PHOSITA with reasonable certainty of the scope of the invention in light of the specification, claim language, and prosecution history (*Nautilus*). Absolute precision is not necessary and you must look at definiteness from the perspective of a PHOSITA (*Nautilus*).

Here, a challenger would argue that the claims are indefinite and ambiguous because they do not provide any measurements for the placement of the components, the number of coils required, the exact shape of the coils, or the arrangement of the coils next to the components in the shoe. Pat could argue that like in *Nautilus* a definite claim only needs to inform the PHOSITA with reasonable certainty the scope of the invention and absolute precision is not necessary. Like in *Nautilus*, where the court found that a PHOSITA would know what the approximate distance between electrodes would be for the invention even though it was not explicitly stated in the claims. Here, a PHOSITA would be able to figure out how deep to insert the coils, how many coils are required, and how to properly arrange the coils so they will still detect metal in light of the drawing provided in Figure 2. Additionally, a PHOSITA will know how and where to attach the electronic module and power source to the shoe so it is not damaged while walking.

Novelty AIA

Under §102, there are three steps to analyze if a patent is novel in light of any prior art. You must determine what could be prior art, which prior art is excluded, and if any of the remaining prior art anticipates the claimed invention. Under AIA, the critical date is the date of filing. Here, the critical date for Pat is May 31, 2014. Pat is analyzed under AIA since he filed after March 16, 2013.

1. Is it Prior Art?

Under §102(a)(1), if the claimed invention is patented, described in printed publication, in public use, on sale, or otherwise available to the public before the effective filing date anywhere in the world it is prior art. Also under §102(a)(2), if the claimed invention is described in a US patent or patent application before the filing date it also counts as prior art.

a. 553' Patent/ Standard Metal Detectors

The 553' patent is prior art since it was an issued US patent in 1981 which is before Pat's filing date. Additionally, all other standard metal detectors that have been publicly used, on sale, and described prior to Pat's filing date also count as prior art.

b. Kickstarter Post

Pat posting on Kickstarter to get funding could count as a prior art since it is either considered published or otherwise available to the public. Anyone could view the Kickstarter website and could copy the idea easily. Like in *Klopfenstein*, where the court found that a presentation was considered a printed publication here the Kickstarter post could count as a publication since it was available from June 1, 2013 to Dec 31, 2013 and anyone could view the site for as long as they wanted to copy it. It could be argued that not many people viewed the site and Pat did not provide a detailed description of his invention.

Kickstarter is not on sale because allowing users to invest in the product is not the same thing as a commercial offer for sale. Only a promise of a cheaper price and the first products off the line is not enough unless there was a proper offer agreed to in the terms of agreement on the website. Also for the on sale bar, the invention must be ready for patenting, and since Pat did not have a prototype at this point and had not prepared drawings or description sufficient to enable a PHOSITA to make his invention there could not be an on sale bar (*Plaff*). Pat simply 3D printed a sandal design he found online and then put a fake power switch and battery on them.

c. Reddit Post

The Reddit post could also count as a publication or otherwise available to the public if the post occurred sometime after Kickstarter on June 1, 2013 and before the date of filing.

d. 456' Patent

The 456' boot patent was filed in France on July 1, 2013 and then refiled in the US on July 1, 2014. The French patent did not publish until after Pat's filing date. The US patent was not filed until after Pat's filing date however, since they filed in the US within 1 year of the foreign filing date they can use the foreign filing date as the priority date and the French patent will count as prior art as it is before May 31, 2014. It does not matter that it was written in French for AIA.

e. Photo of Boot Patent

The photo was released after the filing date on June 2014 so it will not count as prior art.

f. Trina Flip Flop

Trina started her business in 2018 well after the filing date so it will not count as prior art.

2. Excluded?

Under §102(b), there is a one year grace period for disclosures made less than 1 year before the filing date by the inventor, a joint inventor, or another person who obtained the subject matter directly or indirectly from the inventor. Additionally, after such a disclosure, disclosures that come after will not count as prior art. Here, one year before filing is May 31, 2013.

- a. 553' Patent/ Standard Metal Detectors are not excluded since they were well before 1 year of filing and not disclosed by the inventor.
- b. Kickstarter Post can be excluded since Pat himself posted the idea on Kickstarter on June 1, 2013 within one year of filing.
- c. Reddit Post might be excluded if Pat can prove that since his Kickstarter post started the Reddit post the subject matter was obtained directly/indirectly from him. However, da_apz posted an idea to build something similar with Arduino boards and disclosures by people other than the inventor are not excluded even if within 1 year of filing.
- d. 456' Patent might be excluded since the French filing date is one month after the Kickstarter post by Pat. Pat must prove that the Kickstarter post was an adequate public disclosure that put a stake in the ground so any 3rd party after cannot claim prior art.

3. Anticipated?

Anticipation requires that each and every element in a claim is found expressly or inherently described in a single prior art. Prior art from any field can be used for anticipation and

the prior art must be enabling. (*Hafner*) Here, the elements of claim 1 are insulated wire coils, an electronic module, a power source inside the shoe, and a buzzer and LED attached outside the shoe. Claim 2 has the same elements except that the electronic module and power source are outside not inside the shoe.

- a. 553' Patent/ Standard Metal Detectors do not anticipate because while they have the coil of wires, power source, controller, light, and buzzer, they are not attached to the inside or outside of a shoe.
- b. Kickstarter Post does probably not anticipate, since it is not enabling and the image does not show the wire coils, the light, and the buzzer.
- c. Similarly, the Reddit Post probably does not anticipate since it is also not enabling assuming the Reddit Post has a copy of the Kickstarter post and is then followed by the comments. Da_apz's post does not have the same claim elements.
- d. 456' Patent possibly anticipates claim 2 because it includes insulated wire coils inside the shoe, the electronic module, a power source, and a buzzer and notification system outside the boot. (A boot is a type of shoe). It is unclear from the photo and description if the notification system is also an LED light. If not, it does not anticipate every element.

Obviousness

Under §103, a patent may not be obtained if the claimed invention would be obvious to a PHOSITA in light of the prior art before the effective filing date. Obviousness only uses pertinent references in analogous arts. Prior art is analogous if it is from the same field or if it is reasonably pertinent to the particular problem the inventor is solving (*Clay/Cook*). Obviousness is analyzed under the *Graham Test* which includes determining the scope and content of the prior

art, ascertaining the differences between the prior art and the claims at issue, finding the level of ordinary skill in the art, determining the obviousness or non-obviousness of the subject matter, and looking at secondary considerations if necessary.

First, all of the prior art is pertinent to the problem or is in the same field since they all are metal detecting devices. Next, the invention is different from the 553' patent/standard metal detectors because the metal detector is on the bottom of a shoe. The invention is very similar to the 456' patent. (Step 1 and 2 continue from the analysis above). A PHOSITA knows how to construct the coils and power/control system and has kept up with the technological changes relevant to metal detectors. Determining the obviousness of the subject matter is typically decided by a jury. Lastly, secondary considerations such as the unexpected advantages, simultaneous invention, failure of others to do this, long felt unsolved issues, and commercial success can be considered.

A challenger would argue that in light of the prior art a PHOSITA would have thought it obvious to try and the results would be obvious since Pat only combined a mechanical device with a physical device. Pat could argue that his invention was non-obvious even though it was obvious to try since the prior art did not indicate critical parameters and there were many possible choices to try and there was only general guidance as to how to achieve it (*Kubin*). Pat could argue that even though it seems obvious to put a metal detector on the bottom of a shoe to make it easier to metal detect, there are many possible ways to make the device and various factors that could affect the outcome so that the results would not be predictable. While Pat has no evidence of commercial success, Pat can argue that bulky metal detectors have been an issue for a long time and he was the first to solve this in the US. However, the French manufacturer did file for a patent before Pat filed. I think the court will probably find that Pat's invention was

obvious because a PHOSITA would find it obvious to put a metal detector on a shoe in a way that it would work with all the advancements in technology by 2014.

QUESTION 2: Infringement

Under §271(a), whoever without authority makes, uses, offers, or sells any patented invention infringes on the patent.

Literal Infringement

Literal infringement does not require knowledge, but you must have every element of the claim as per the all elements rule. First, look to see if all elements of the claim are copied. Then look at the claim construction in light of intrinsic sources such as the claim language and specification/ drawings (*Yeoman*). Then, you can look at prosecution history. If that is not enough, you can look at extrinsic sources such as expert/inventor testimony, dictionaries, and treatises (*Philips*). A patentee is free to define claim terms in any way they wish and the term must be viewed as how a PHOSITA would understand the claim term in addition to using intrinsic and extrinsic sources (*Philips*).

Pat may bring an all elements infringement claim against Trina for infringement of his Claim 2. Both inventions have coils in the sole of the shoe and a power/control box located outside of the shoe's sole. Additionally, both have an LED light attached to the shoe. Pat can argue that his claims incorporate anyway that the power/control box and LED light attach to the shoe. Pat can argue that located outside of the shoe does not mean it has to be physically touching the shoe surface and being connected with a wire is enough. Trina can argue that in light of Pat's drawings, outside of the shoe means flush with the shoe's surface and not connected with a wire. Trina can also argue that Pat's invention claims an LED light that is separate from the power control box while her LED light is attached to the control box.

Moreover, Trina does not have all elements of Pat's invention because her invention doesn't have a buzzer (unless it does this was unclear). Pat is free to define the control box as the "electronic module" and because of the lexicographer rule, it will not limit his claim.

Doctrine of Equivalents(DOE)

DOE is when it is substantially the same function, in substantially the same way, to achieve substantially the same result. DOE is applied on an element to element basis.

Prosecution estoppel will stop a DOE claim if a claim has been narrowed to make it patentable (*Festo*). The patent owner must prove they are not estopped if they have amended (*Warner Jenkinson*).

Pat may bring a DOE infringement claim since Trina's invention is also a metal detecting shoe, with minor differences in the placement of the notification system and power/control box. Like in *Winans*, both inventions detect metal using coils on the sole of the shoe that are attached to a power/control box and a notifying LED light. Trina can argue that since Pat narrowed claim 1 to make it patentable because the examiner found it indefinite for the term "electronic module" and Pat, there is prosecution estoppel from a DOE claim. However, this will likely not estop a DOE claim, since the amendment has nothing to do with the equivalence issue. The elements being claimed equivalent are the coils in the shoe, the power/control box, and the LED notifier, not what the function of the controller box is. Ultimately, the jury will get to decide if the amendment estops Pat's DOE claim.

Trina may also try to argue that the patent is invalid for obviousness but this is only a defense to liability, not infringement.

QUESTION 3: Pre-AIA

Novelty

Under the 1952 Act §102(a), the critical date is the date of invention and under §102(b) the critical date is the date of filing. The date of invention is when you have reduction to practice or corroborated evidence that you invented first and people knew about it. Reduction to practice can happen through filing a valid patent application or practice of an embodiment of the invention encompassing all the elements and appreciation of the invention. Here, the date of invention could be June 1, 2013 when Pat posted the invention on Kickstarter unless he has corroborative evidence of telling people when he had the idea on January 1, 2013 since there is no prototype or other evidence noted (*Brown/Campbell*). May 31, 2014 would be the date of filing.

Under §102(e), the 456' French patent would not be able to claim the date of filing in France as their priority date even though they had timely filing in the US since the French patent was written in French not English.

Under §102(b), the one year grace period applies to patents or printed publications anywhere or public use or on sale in the US by anyone not just the inventor before 1 year of filing the patent. The Reddit Post including da_apz would be excluded from prior art regardless if the information came from the inventor.

Under §102(f), if the inventor derived the idea from someone else you cannot get a patent. Pat got the idea to use a harder rubber sole and use a regular shoe from the posts on Reddit. If the da_apz or any of the other Reddit users can show conception of enablement and corroborative evidence to prove they had the idea first Pat will be barred (*Campbell/Brown*).

Under §102(g), the invention must not be abandoned, suppressed, or concealed before filing the patent application and after reduction to practice. If you conceived the idea first, but someone else reduced it to practice before you and you were diligent for the whole process you can still win if you show unbroken diligence. If Kickstarter does not count as the date of invention Pat will have to show that he was diligent from January 1, 2013 till his date of filing because the French Patent was reduced to practice in-between. Pat was diligent throughout the process since he was not an expert in metal detectors and had no money to get started so he started Kickstarter within 6 months of coming up with the idea and filed for a patent within 6 months of shutting down Kickstarter. Mere delay without any other evidence cannot prove suppression or abandonment (*Dow*).

Obviousness

Under the 1952 Act §103, a patent will not be granted if it is obvious as of the time of invention.