

# Sample Final Exam Answer

LAW-688-001, Patent Law

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*The following is the sample answer that I wrote to the final exam. Note that it was written before the exam was finalized, so there may be slight discrepancies between the wording of this answer and the wording of the exam questions.*

## 1 Question 1

**Novelty.** Susannah’s patent is potentially invalid for lack of novelty under § 102(a)(1), in view of her 2003 disclosure to her music class. In order for a patent to be anticipated under § 102, three requirements must be met: (1) the prior art must contain all the elements of the claims, (2) the prior art must meet a statutory category of art under § 102, and (3) the prior art must meet the timing requirements of the statute.

**1—elements.** Regarding the claim elements, the only claim construction issue that might be present is whether “flexible flap” covers the balloon material Susannah used in 2003. However, the specification plainly states that balloon rubber could be used for the flap material, so the claim would almost certainly be construed to cover Susannah’s 2003 device. Otherwise, all of the elements are satisfied by Susannah’s 2003 device: [1a] the plastic pipe, [1b and 1c] the pieces of balloon next to each other, and [1d] the extra piece of pipe for lengthening the instrument.

Susannah might argue that her use was experimental, which would render her 2003 disclosure not prior art. She would point to the fact that the instrument did not perform as well as possible, and she had to improve it before patenting. On the other hand, the instrument did work and her later improvement was seemingly coincidence rather than experimental improvement. Furthermore, the claims indicate that the device was ready for patenting as of 2003, under *Pfaff* and

*Elizabeth*. On balance, then, a court would likely not find the 2003 disclosure experimental.

**2—category.** Regarding the statutory category, Susannah’s playing of the instrument in her class is likely public use akin to *Netscape*. Susannah might argue that the class was not open to others (this is not specified in the facts), but as in *Netscape* there was likely no confidentiality agreement imposed on the students. Accordingly, her performance is likely public use.

**3—timing.** Because Susannah’s performance was over a decade before her patent application was filed, she plainly satisfies the date requirements of § 102(a) and no exception of § 102(b) applies. Accordingly, her patent is likely anticipated by the 2003 disclosure to her class.

**Obviousness.** Susannah’s patent may also be obvious in light of an oboe in view of a trombone. To determine obviousness under *Graham*, one must consider (1) the scope of the prior art, (2) the level of skill in the art, (3) differences between the art and the claimed invention, and (4) secondary considerations.

**1—scope of prior art.** An oboe contains [1a] a tube body and [1b, 1c] two reeds that touch each other and cover the opening of the body. As stated in the background section, reeds are “flexible,” so they likely meet the claim elements regarding flexible flaps.

Regarding [1d], the mechanism for adjusting the length of a body tube, this is likely a means-plus-function claim element in view of *Williamson*, because “mechanism” is a non-structural nonce word. Accordingly, that claim element would only cover the sliding-tube mechanism in the specification and its equivalents. An oboe’s hole mechanism almost certainly is not equivalent, but a trombone’s sliding portion likely is because it serves the same function (changing the tube length), operates in the same way (one portion of a tube slides against another), to achieve the same result (the pitch of a musical instrument is altered). Accordingly, a trombone would teach element [1d] of the claim.

**2—PHOSITA.** The level of skill in the art of musical instrument design would be a factual question, but probably something like a college student majoring in musical instrument engineering.

**3—differences.** Given that all the elements of the claim are met by the combination of a trombone and oboe, the question is whether a person of ordinary skill in the art would have thought to combine those features. They likely would have: Both are musical instruments so they are in analogous art fields, and there do not seem to be many ways to change the length of a tube in musical instru-

ments so it would have been obvious to try all of them.

**4—secondary considerations.** As to secondary considerations, Susannah might argue that her buzzy tubes have been tremendously popular, so she has shown commercial success of her invention. For this to be significant, she would have to show a nexus between her invention and sales, as opposed to her instrument being popular simply because of her marketing skill and efforts. This would be a factual matter that would need to be determined.

On balance, though, the prima facie case for obviousness seems fairly strong, and likely would not be overcome by just one secondary factor. Accordingly, a court would likely hold her invention obvious.

**Enablement.** Susannah’s patent may also be invalid for want of enablement under § 112(a). To be enabled, the specification of the patent must enable a person of ordinary skill in the art to make and use the invention without undue experimentation. In particular, where there are many options available within the scope of a claim and only a small fraction of them would produce a working device, courts have held the patent claim to be invalid. *Incandescent Lamp; Amgen*.

Here, Oliver discovered that very few materials worked for the flaps, and spent weeks experimenting. Furthermore, Susannah’s first material (balloon rubber) did not work ideally. Susannah might counter that she was able to find a working material without difficulty and did disclose one working material, but disclosure of a single working embodiment does not overcome an enablement problem with a claim covering many other embodiments. Accordingly, a court would likely hold her claim invalid for lack of enablement.

**Written description.** Susannah’s patent may also be invalid for lack of written description. To satisfy this requirement of § 112, a patent specification must demonstrate the inventor’s “possession of the invention.” In particular, where a patent claims a genus, the specification must disclose a sufficient number of species representative of the full variety or scope of the genus. *Eli Lilly; Idenix*.

Here, the disclosure identifies one somewhat-working material (HDPE plastic) specifically, and lists other materials, at least one of which (balloon rubber) doesn’t actually work well. While Susannah might argue that these lists of materials are representative, the lists do not indicate which materials work or do not work. Accordingly, a court would likely find that the patent specification does not indicate possession of the genus of “flexible flap” materials and therefore does

not satisfy written description.

## 2 Question 2

The facts do not indicate that Oliver makes or sells any buzzy tubes himself. Accordingly, he cannot directly infringe. Instead, he potentially is an indirect infringer. There are two forms of indirect infringement: contributory and inducement.

With any form of indirect infringement, there must be a direct infringer. Here, the students who follow Oliver's directions to make their own buzzy tubes are direct infringers, as are students who use Oliver's frozen inner tube rubber to make their own buzzy tubes. As the facts state, Oliver's instructions teach how to make the slide tube and flaps of the buzzy tube, suggesting that they meet all the limitations of at least Claim 1 of the patent.

**Contributory infringement.** For Oliver to be liable for contributory infringement, he must (1) sell a component of a patented machine, (2) constituting a material part of the invention, (3) knowing the same to be especially made or used in an infringement, and (4) not a staple article with substantial noninfringing uses.

**1—component.** Oliver sells frozen bicycle tube rubber, which is a component of the invention, namely the flexible flaps covering the mouthpiece end [1b, 1c].

**2—material part.** The frozen rubber is a material part of the invention: They are a key component that enables a buzzy tube to make sound.

**3—knowledge.** Under *Aro*, Oliver satisfies this element only once he has knowledge of the patent. Oliver knows that his sold components are especially made for infringing the patent at least once the lawsuit begins and he receives notice of the patent. Even before then, he arguably has knowledge via willful blindness under *Global-Tech*, since there was a high likelihood that a new and unique musical instrument was patent-protected.

**4—substantial noninfringing uses.** The frozen rubber pieces do not appear to have substantial noninfringing uses. They are no longer useful as bicycle inner tubes, because Oliver has cut them into squares and changed their flexibility.

Accordingly, Oliver likely is a contributory infringer of the patent by virtue of selling the frozen rubber pieces.

**Inducement** To actively induce infringement of a patent, one must (1) encourage infringing acts and (2) have knowledge of the infringement. *Sanofi*. Oliver’s blog post with instructions on how to make buzzy tubes encourages students to make them and infringe the patent, so he satisfies the first element. Regarding knowledge: As with contributory infringement, he has knowledge at least at the time the lawsuit is filed, and arguably was willfully blind by not searching for a patent on the buzzy tube device he saw. Accordingly, Oliver is likely liable for inducement of infringement as well.

### 3 Question 3

Where lost profits are alleged in a patent case, courts typically apply the *Panduit* factors: (1) demand for the patented product, (2) absence of acceptable non-infringing substitutes, (3) manufacturing and marketing capability to exploit the demand, and (4) the amount of profit that would have been made.

**1—demand.** Regarding demand, Susannah has information about how many buzzy tubes she was selling before and after Oliver’s blog post went up, so Oliver should seek that information in discovery. You might also want information on how many buzzy tubes were made in view of Oliver’s blog post, and he might have some anecdotal information about that. You might ask for website visit statistics indicating the extent to which there was interest in his buzzy tube post.

**2—substitutes.** The existence of noninfringing alternatives can defeat a claim for lost profits under *Panduit*, see *Grain Processing*. Here, information about alternative musical instrument designs would be important. In particular, given element [1d], you might want information on what other means of tube length adjustment were available at the time of the invention that would have worked as noninfringing alternatives.

**3—capability.** The question for this element is whether Susannah’s manufacturing operation could have produced enough buzzy tubes to sell to anyone who followed Oliver’s directions to make one. You would want information about what factory she uses, and the amount of time it takes them to scale up production. Given that she applied for a patent in 2015 and wasn’t able to start production until 2018, there are likely impediments in producing the devices that would limit her ability to increase supply quickly.

**4—profit.** The amount of profits that would have been made would depend on how much she sold her buzzy tubes for. Additionally, given that the people following Oliver’s instructions were making buzzy tubes themselves, one won-

ders if they would have been willing to pay a potentially high price for those instruments. Accordingly, Oliver might also want to do some market research on people who made his buzzy tubes, to see what price they would have been willing to pay; if their willingness to pay is much lower than Susannah's price, then Oliver would have a strong argument that Susannah would not have made all the sales.

## 4 Question 4

Because Oliver's new instrument does not have a "second flexible flap," it does not infringe Susannah's patent literally. Accordingly, any infringement must be under the doctrine of equivalents. Typically, a part of an accused device is equivalent to a patent claim element if it meets the "triple identity" test: It performs substantially the same function in substantially the same way with substantially the same result.

Here, Susannah might argue that the single flap of Oliver's new instrument is equivalent to the two separate flaps of claim elements [1b] and [1c]. The single flap performs the same function (creating air vibrations) with the same result (production of a musical tone within the instrument), so the only question is whether they operate in the same way. Susannah would argue that they do: The slit in the single flap lets the two sides of the flap vibrate against each other, just like two separate flaps. Oliver, on the other hand, might argue that they operate in a different way: The two-flap system involves independent pieces that touch each other, while the one-flap mechanism has only a single piece vibrating against itself. On balance, though, the two designs seem sufficiently similar in operation that a court would probably deem Oliver's new instrument an infringing equivalent.