Exam Number: _____

VILLANOVA UNIVERSITY SCHOOL OF LAW

Patent Law
Risch
Spring 2021

Final Exam

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VILLANOVA SCHOOL OF LAW
EXAMINATION IN PATENT LAW
8 HOURS

Professor Risch *Spring 2021*

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 10 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 in these odd times.

Patent Law Final Exam
Spring 2021

The questions are weighted as follows: Question 1, 54 points, Question 2, 31 points, and Question 3, 15 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.

Patent Holder

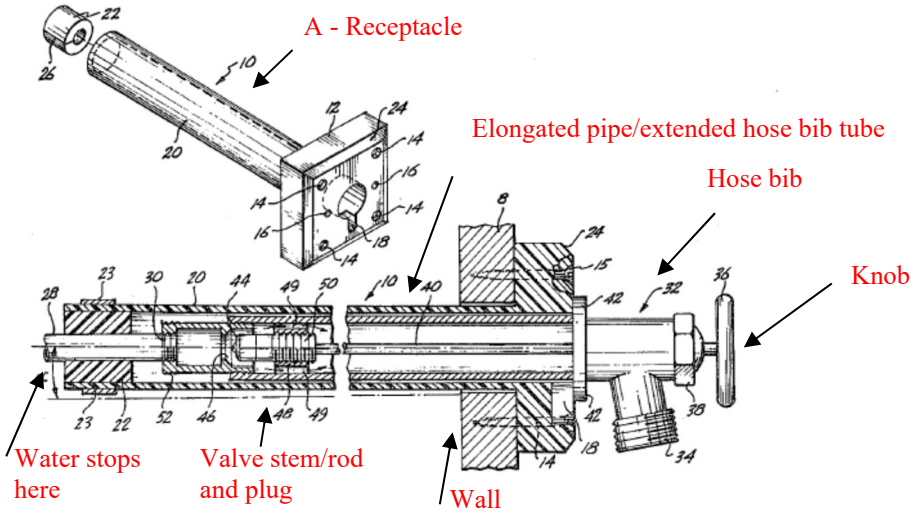
The winter of 2013 was a cold, cold winter. Patent "Pat" Holder learned how cold it was the hard way, when the water in the copper pipe leading to the outside faucet (the "hose bib" or "sillcock") froze. It turns out that—unlike just about every other known substance—water expands when it freezes (it's why ice floats on the ocean). And when ice expands, there's no room in the pipe where water is under pressure. Something has to give, and often it is the pipe, which splits, causing leaks inside and outside the house. So, Pat's house was flooded with water. No worries, insurance covered it, but Pat wanted to find a solution to this problem.

Split pipe inside the house and leakage outside the hose bib

Anti-Freeze Hose Bibs

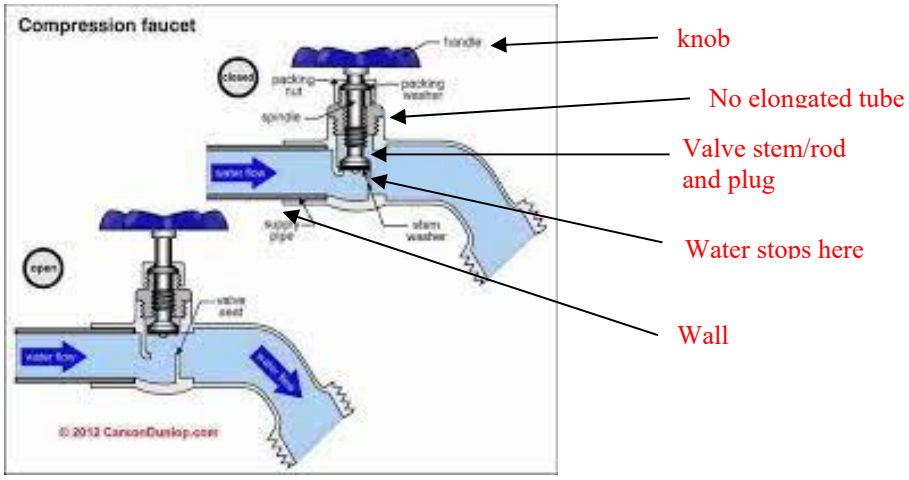
Of course, Pat wasn't the first person to see this problem. Others had worked on it. For example, the '244 Patent (filed June 22, 1982, issued Sept. 25, 1984) shows such a hose bib.

The '244 Patent includes drawings of a hose bib that attaches to the outer wall of a structure, and elongated pipe, and a valve stem at the end of the extended tube sufficiently inside the home so as to hold water away from the outer wall when the knob is in the "off" position (so the water can't freeze).



The key difference between this traditional anti-freeze design and a regular hose bib is the length of the tube. Note how in an ordinary hose bib, there is no tube at

all – the knob connects directly to the valve stem and plug outside of the house, and the supply runs all the way out to the hose bib, where it can freeze on the exterior of the house.



Interestingly, the ‘244 Patent did not claim a hose bib with an elongated pipe. Instead, the ‘244 Patent only claimed the receptacle marked A in the image above.

But these traditional anti-freeze bibs had a problem – even when you turn off the water, it stayed inside of the pipe due to a vacuum formed that holds the water in the pipe. This effect is similar to tricks that turn water-filled glasses and bottles upside down only to have the water hang in mid air.

Of course, the vacuum problem is not new. It’s the reason why gas cans have a “vent cap” on one side – to overcome the vacuum and release the gasoline. Over time, replacement vent caps have been developed that are one way – they allow for a break in the vacuum without leaking gas. These began appearing in the 2000s,

and their inner-workings are well known and not subject to patent (or at issue in the dispute here). Two examples are below.

One way vents

The Pressure Relief Hose Bib

Pat used a traditional anti-freeze hose bib (like that described in the ‘244 patent), and so thought there would be no problem. But in December of 2013, it got really cold. Unfortunately, due to the vacuum effect, water remained in the extended part of the hose bib, even though the valve stem was supposed to keep the water inside the house. The pipe burst when the remaining water froze.

But Pat didn’t know! After all, the valve was closed, so water from the house was not flowing. But in March of 2014, Pat turned on the water to start gardening, and all the water rushed into the extended tube and leaked out into Pat’s basement. It was ugly and costly. There had to be a better way.

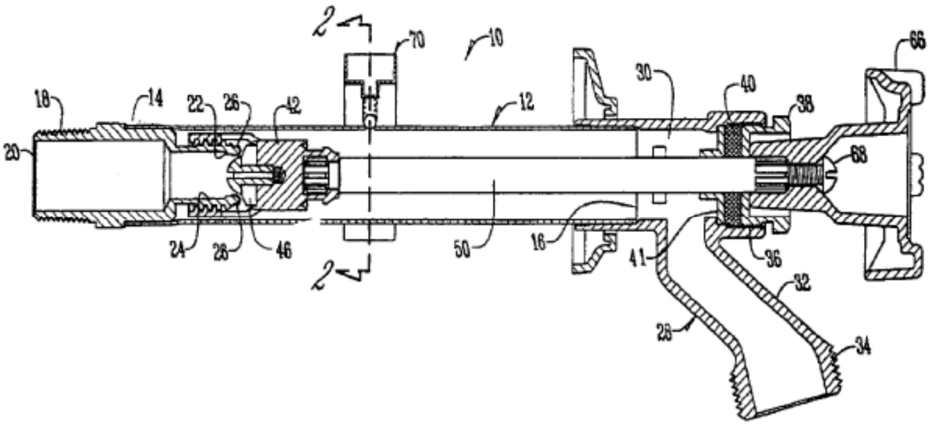
Pat did some research about the problem and decided that some sort of vacuum seal break was necessary. Pat reached this conclusion on April 1, 2014. But Pat did not know about the gas can valves and instead spent six months (at night—Pat had a day job to pay the bills) experimenting until a sufficient solution was found. Pat had a working prototype on October 1, 2014 and demonstrated it to all of the neighbors at a monthly civic association meeting that week.

Pat’s research into the problem turned up an entry in a paper catalog distributed widely in Germany in June of 2014. The catalog showed an image of a hose bib that appeared to have a vent, but there was no description of the type of bib it was. Google Translate simply translated the description to “Hose Bib, 20 Euros.”

“Hose Bib”

Pat filed for a patent on January 1, 2015. Pat disclosed the ‘234 Patent to the patent examiner, but did not disclose catalog page, thinking, “They don’t need to know about that, now do they?”

The following is the specification and claims:



Freezeless wall hydrants and faucets have long been in existence. They characteristically have a fluid closure valve located in the end of an inlet water pipe located within the wall. This closure valve is operated by an elongated rod inside an elongated tube, which rod is connected to an exterior handle. The freezeless characteristics of the hydrant are caused by the closure valve shutting off the flow of water within the wall or building at a freezing temperature, with the residual water in the inlet pipe flowing outwardly through the faucet outlet.

The foregoing structure works very successfully except in situations where vacuum pressurization retains the water inside the elongated tube rather than allowing all water to drain when the valve is closed. Accordingly, it is an object of this invention to provide a pressure release vent within the hydrant to break any vacuum seal.

In the figure, 66 is the handle, 12 is the elongated tube, 50 is the elongated rod inside the tube, and 42 is the plug located at the end of the elongated tube and moved by the rod. Importantly 70 is a vent that allows air to enter the elongated tube but does not allow liquid to escape. In the figure, 34 is the outlet to which a hose would ordinarily be attached, and 20 is the inlet pipe inside the house or other structure.

I claim:

1. A freezeless wall hydrant, comprising:
   a. a fluid carrying tube,
   b. a valve plug member on one end of said tube for controlling the flow of water into said tube,
   c. a drain conduit on the other end of said tube for discharging water, [the part the hose connects to],
   d. a vent such that no fluid is retained in said tube by vacuum pressurization, and
   e. where said tube is sufficiently elongated to avoid freezing of any fluid retained in a structure's water pipes when the valve plug member is closed.

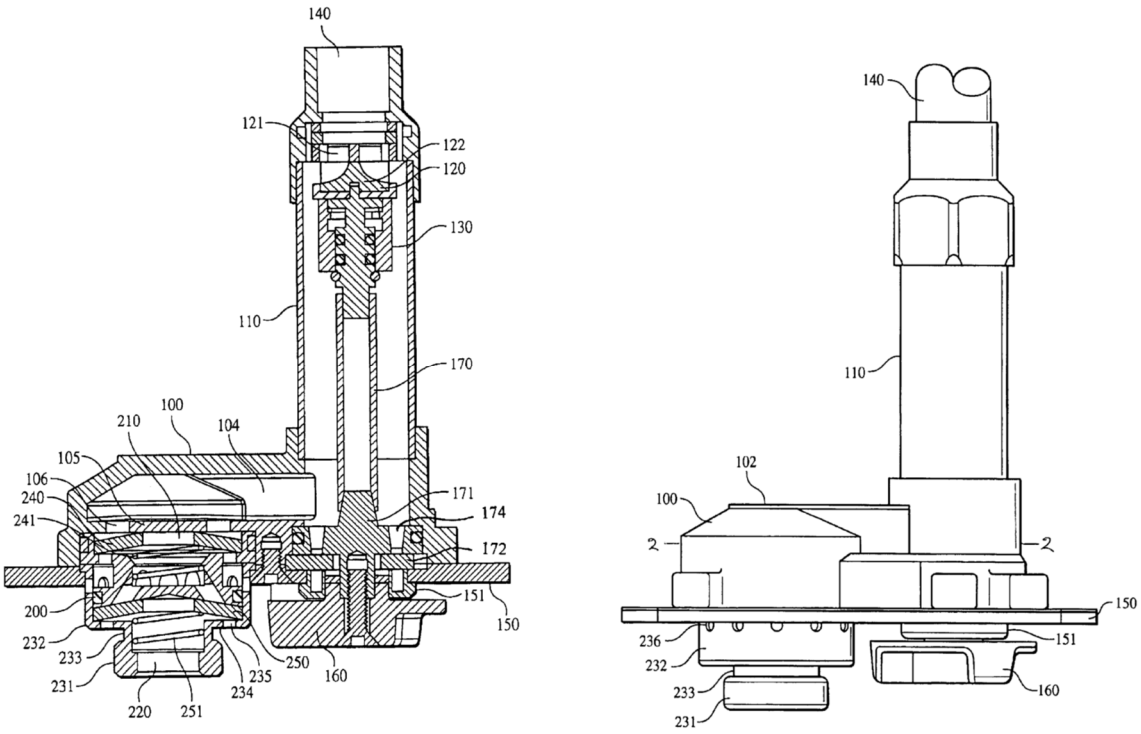
2. The hydrant of claim 1, where:
   a. Said vent extends upwardly from said elongated tube.

The '123 Patent was granted three years later, on February 1, 2018, without amendment.

Faucets R Us

Little did Pat know, but a plumbing fixture company, Faucets R Us or FRU, was working on this very same problem. After hearing an outcry from customers like Pat, FRU put engineers on this problem starting in June of 2014. Because engineers knew about the vacuum relieving valve technology, the solution was relatively easy, and a prototype was completed by September 1, 2014. Following its policy not to share until a patent was filed, FRU engineers sent the prototype to counsel.

The FRU hose bib is similar to Pat's but slightly different because the handle was offset.



In the figures above, 110 is the tube the connects to the water inlet (140). 170 is a rod connected to the knob/handle (160) and the valve plug (120/130) on the other end. The outlet, where the hose connects is offset (231 in both images).

There were a couple of notable features of the design:

1. there is a vent to break a vacuum (to allow water to drain when the valve is closed) – the holes for it are shown by 236 in the figure on the right – the holes go all the way around. However, the internal operation of the vent is not the same as the "standard" one-way vent operation (such as the gas can vents or the vent that Pat reinvented); and
2. if it is not apparent from the drawing, the FRU tube is about 4" shorter than traditional anti-freeze hose bibs (including the improved version drawn in Pat's patent).

Knowing time was of the essence, FRU's patent attorney filed for a patent on Nov. 1, 2014. The '456 Patent issued three years later in June of 2018. The claims were similar to Pat's but not identical. However, the patent specification did include these two images and a description of the principal behind the vent and the hose bib as a whole.

Meanwhile FRU started making a hose bib that matched its patent pending (and then patented) design and selling it. Pat saw big money coming (Pat had been

unable to make a product so far as a garage inventor), and Pat sued FRU for infringement of the ‘123 Patent as soon as the ‘123 issued.

During litigation, Faucets R Us found the same catalog entry in discovery but could not find anyone at the company who made it because the company closed in 2015.

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. (54 points)

Q2: You are counsel for Faucets R Us. Please draft a memo describing the infringement claims by Pat that FRU will likely see on its version of the anti-freeze hose bib, and the responses/defenses FRU 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. (31 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. (15 points)

END OF EXAM!