Exam Number: _____

VILLANOVA UNIVERSITY SCHOOL OF LAW

Patent Law
Risch
Spring 2023

Final Exam

Exam Number: _____

VILLANOVA SCHOOL OF LAW
EXAMINATION IN PATENT LAW
8 HOURS

Professor Risch *Spring 2023*

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, including AI "people."**

2. This exam consists of 13 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.

Patent Law Final Exam
Spring 2023

The questions are weighted as follows: Question 1, 56 points, Question 2, 30 points, and Question 3, 14 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 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.

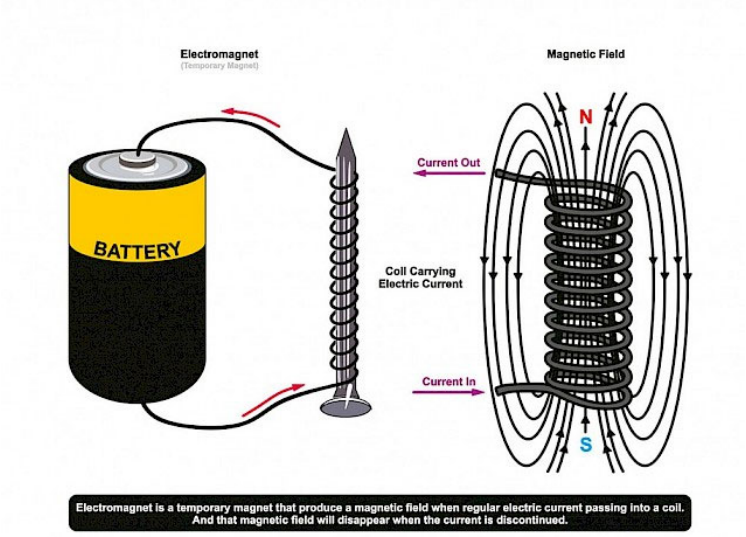
Magnets

Magnets are cool for a variety of reasons. The primary characteristic of interest for this story is that they exhibit an attraction to each other, and they don't even require a dating app. Each side of a magnet has a polarity (positive or negative). The positive side of the magnet is attracted to – that is, it pulled toward – the negative side of other magnets as well as some metals. When they are close enough, they will stick together. Some magnets are so powerful that you can barely pull them apart. You don't need to understand why this happens, nor do you need to worry about polarity for this exam. You just need to know that magnets in close proximity will tend to pull toward each other. Furthermore, a magnet in close proximity to a magnetically attractive metal (such as iron) will pull toward the metal (and vice versa).

For the inventions and products described here, there are two relevant types of magnets. The first is a rare earth, or permanent, magnet. Rare earth magnets are made of a metal material that exhibits constant magnetic force. The force of a single magnet cannot be turned off and never varies, though the closer the magnet

is to another magnet or piece of magnetically attracting metal, the stronger the attraction. The material can be shaped into discs or plates, though sometimes they are left looking like rocks (there's a fun game using rare earth magnets). Below is a picture of a rare earth magnetic disc.

Exciting, right? There is another kind of magnet, called an electromagnet, which has been known since the 1800s. Electromagnets generate magnetic force by sending electricity through a wire coil. The electric field creates magnetism, causing other magnets to be attracted to it. Electromagnets require electric power (from a battery or power outlet) and are variable – the amount of electricity will affect how strong the magnetic force is. The stronger the force, the more it will attract at any given distance. Below is a drawing of a simple electromagnet setup.



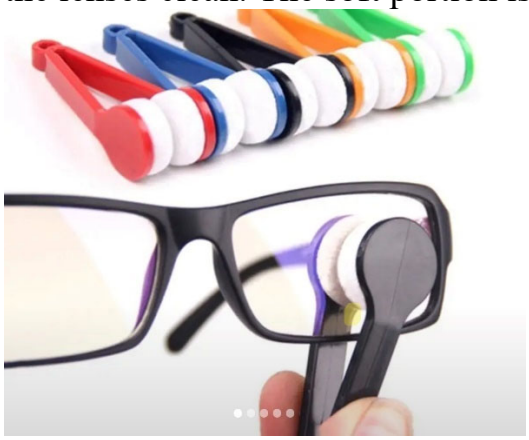
Electromagnets will also attract a magnetically attractable metal.

Window Washing

Window washing is a pain. Nobody really likes it. But what makes it worse is that there are two sides to the window, so when you are done you have to clean the other side. Furthermore, the other side of the window may be high in the air or hard to access.

Eyeglass cleaner

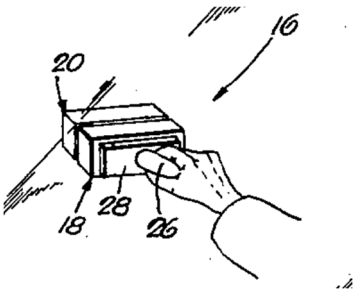
Now, washing both sides of glass is nothing new. The Chinese developed and sold (in China) a tool starting in June of 2016 for washing both sides of eyeglasses at once. Thanks to the magic of Temu, beginning in 2022 you could buy it here in the U.S. These cleaners require you to spray the glasses and the soft portion then wipes the lenses clean. The soft portion is non-replaceable. A picture is below.



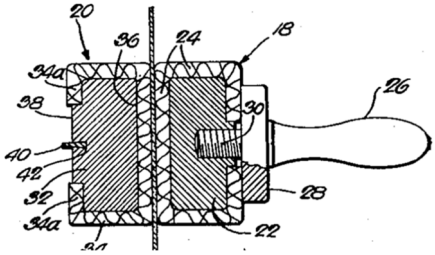
The '444 Patent

Many years ago, someone came up with a clever solution for this problem with respect to windows. The '444 Patent, a U.S. patent filed in 1947 and granted in 1953 described:

> The primary object of the present invention is the provision of a magnetic window-cleaning device to enable the outside of a window to be cleaned by manipulation of the device at the inner side of the window, without requiring the use of electricity during the operation of the device, thus eliminating electrical wiring and the cost and disadvantages thereof.
>
> The window cleaning device 16 of the present invention comprises the inner and outer window cleaning members 18 and 20, respectively, which, in the use of the device are disposed at the inner and outer sides of the glass window pane. The inner window-cleaning member 18 comprises a permanent magnet 22 which is preferably in the form of an elongated rectangular bar. The magnet 22 is provided with a layer of cleaning material 24 disposed on the face thereof which is adjacent the window pane for cleaning the latter. Said layer of cleaning material is preferably formed of felt or of any other suitable fabric….



'444 Patent Fig. 1



'444 Patent Fig. 2

To the extent that it is unclear, the cleaning fabric (24) is wrapped around a big magnetic bar (22) and essentially permanently attached. The magnets on each side of the window attract each other, and thus stick together. The user moves the inside unit and the outside unit moves with it.

The '750 Patent

On Jan 2, 2017, a Japanese inventor filed an application in Japan (written in Japanese), claiming an improvement on the '444 Patent, whereby the cleaning material does not wrap all the way around and is more easily replaceable. One embodiment is described as follows (translated): "Preferably the magnetic element presents a continuous face for contacting the cleaning material. Also there is either a rubber layer or the magnetic element is rubber impregnated. This increases the friction between it and the back side of the cleaning material and thereby causes the cleaning material to stay in position without any external fastener."

The Japanese application was filed under the PCT. It never issued in Japan, but it was published in Japanese after 18 months. It was activated at the U.S. National Stage on Dec. 30, 2017, and eventually published in the U.S. (in English) and issued on June 30, 2020, as the '750 Patent.

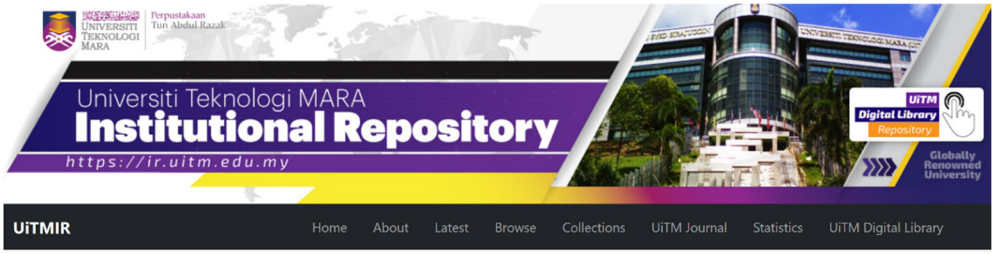
The Student Project

In late September of 2017, a group of four students at Universiti Teknologi MARA in Malaysia turned in a student project for a mechanical engineering course in which they proposed a new type of magnetic window washer – one based on an electromagnet.

A PDF was placed online that week, in English. However, the PDF only includes the table of contents and a one-page introduction. The most relevant paragraph of the introduction reads: "The current invention utilizes the new advances made in

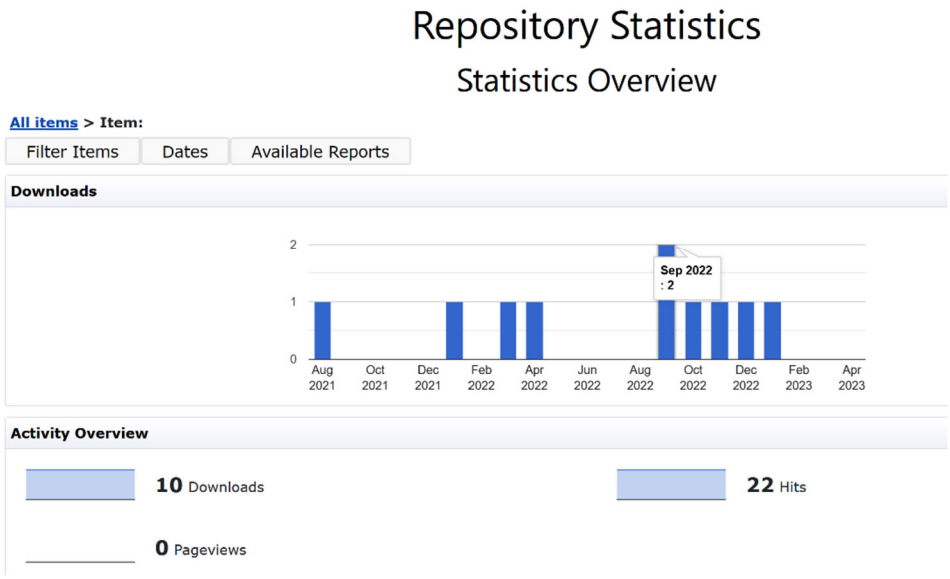
cleaning windows over the past twenty years. It also makes cleaning the inside and outside panes of residential windows easier than any prior art because it utilizes pre-moistened window cleaning wipes which are widely available and very popular."

The website indicates that the rest of the project is located in the Limited Access Collection Room of one of the university's campuses. The rest of the project is written in Malay. In that part of the project, the students describe how they tested electromagnets as a way to provide the magnetic force. The project describes how one would put an electromagnet into the washer but makes no mention of varying the electric power to vary the strength of the magnetic attraction. Below are screenshots of the library listing and the traffic reports on the same site. The download count represents downloads of the one-page introduction.



Magnetic windows cleaner / Muhammad Saiful Ridzuan Mazlan ... [et al.]

Mazlan, Muhammad Saiful Rizuan and Abd Bari, Ahmad Alawi and Mohamad Nasri, Nasrin Dayana and Mohamad Zaki, Zarith Nurfarisa (2017) *Magnetic windows cleaner / Muhammad Saiful Ridzuan Mazlan ... [et al.].* [Student Project]



Patent Holder

Patent (Pat) Holder got tired of washing windows. Pat tried the basic magnetic cleaners based on the long-expired ‘444 Patent but faced a problem. Pat’s windows were of varying thickness. Some were single-paned glass (thin), but others were more modern vacuum sealed windows that run nearly one inch thick. Pat found that weaker force cleaners did not hold onto the thicker windows (which was a pain because the outside portion kept falling in the dirt and had to be retrieved). But the stronger force cleaners were so strong that they could not be moved once attached to a thinner window.

Frustrated by this, on Jan 1, 2017 (might as well clean the windows to get a fresh start to the year), Pat had the aha moment. *What if…the magnets were variable strength*?

Pat went out that week and bought rare earth (permanent) magnets of varying strengths and tested them out. Pat learned what is discussed above – that permanent magnets do not vary in strength. One day in August of 2017, Pat was testing the magnets and found something curious. The strong magnets would attract each other through the thicker pane, but *also* if one held the strong magnet further away on the thin window (this took some doing, because Pat had to hold the magnet on the other side to make sure it wouldn’t fall), then they would still attract each other sufficiently to hold each side together. Pat realized that if the magnet moved inside of the washer, closer or further away from the cleaning surface, it could be adjusted for different window thicknesses.

Not wanting to delay, Pat immediately wrote up a patent application with the aid of a Nolo Press book.

The ‘123 Patent

Pat filed the application on October 1, 2017. The patent featured both a movable magnet and a replaceable cleaning cloth. Key parts of the specification read as follows.

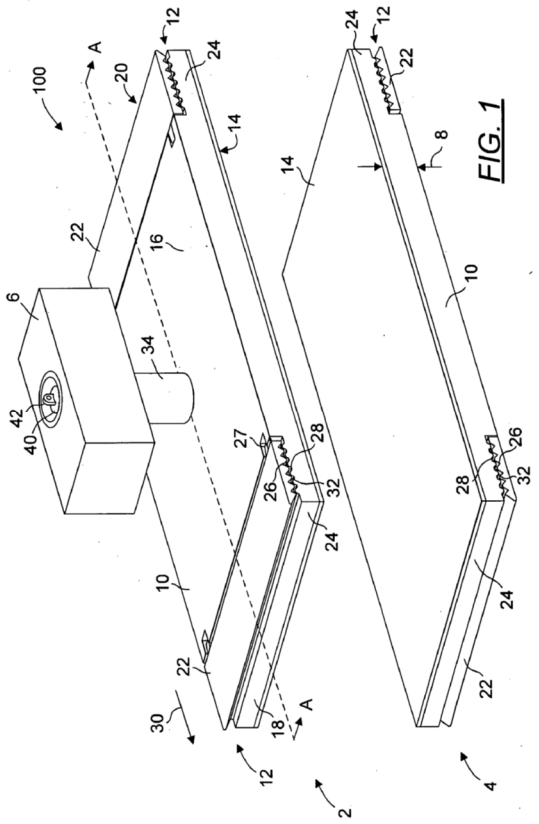


FIG. 1

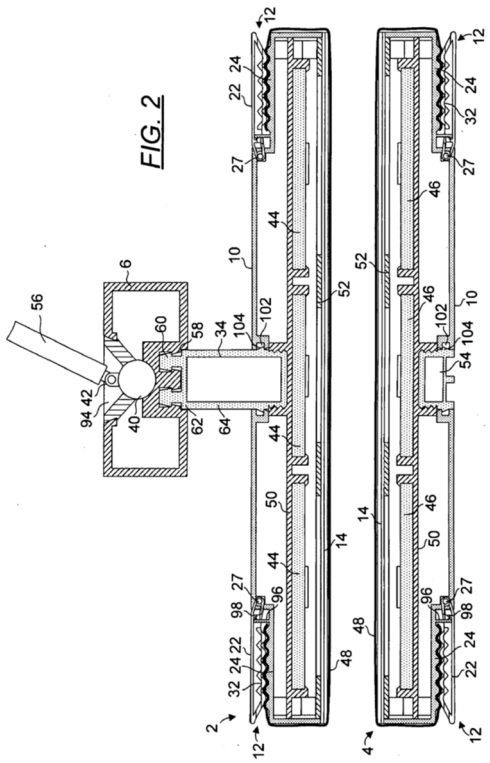


FIG. 2

In accordance with the present invention, there is disclosed a novel variable strength rare earth magnetic window cleaning device having, in combination, a primary unit 2 and a complementary unit 4 mutually magnetically attracted into close proximity wherein the primary unit and complementary unit each have at least one rare earth magnet and operably affixed to a housing thereof, wherein the at least one rare earth magnet of the primary unit 44 magnetically attracts to at least one mating rare earth magnet in the complementary unit 46, the primary unit and complementary unit each have a replaceable cleaning surface situated thereon 14, the replaceable cleaning surfaces being a disposable wipe premoistened with cleaning solution, the primary unit and complementary unit each have a plurality of attachment members 22 configured to receive and removably the secure replaceable cleaning surfaces thereon 12 [NB for clarity, the little clips on each

side], the housing of the primary unit further comprises a handle 34, and the housing of the complementary unit has a thickness of less than about one inch.

Optimum location of the rare earth magnets 44 via an adjusting mechanism 34, 54 renders the variable strength magnetic window cleaning device 100 cost effective and readily marketable since only one version need be manufactured to be used with many window thicknesses and configurations. The use of an adjusting member 34 (and 54 on the complementary unit 4) to bring opposing rare earth magnets 44 (and 46 on the complementary unit) closer or further apart enables the variable strength magnetic window cleaning device 100 to be used on both single pane and double pane windows. [NB it appears from the drawings that the adjustment is made by rotating the handle 34 or knob 54, and the threads pull the magnet closer to or further away from the window surface. The way this works is not available in the description, but a PHOSITA could decipher the drawings].

I claim:

1. A variable strength magnetic window cleaning device comprising, in combination,

a primary unit and a complementary unit magnetically attracted into close proximity wherein the primary unit has at least one magnet operably affixed to a housing thereof,

the complementary unit has at least one magnetically attractable material operably affixed to a housing thereof,

wherein the at least one magnet of the primary unit magnetically attracts to the magnetically attractable material in the complementary unit,

the primary and complementary unit each have a replaceable cleaning surface situated thereon, the replaceable cleaning surfaces being a disposable wipe moistened with cleaning solution, and

the primary unit and complementary unit each have one or more attachment members configured to receive, secure, and allow removal of replaceable cleaning surfaces thereon.

2. The variable strength magnetic window cleaning device of claim 1, wherein

the distance between the magnet plates and the replaceable cleaning surfaces is adjustable by an adjustment mechanism operably affixed to the housing and magnet plate of each the primary unit and the complementary unit.

The description and figures included several different embodiments of the washer. They all had the following in common – 1) the removable cleaner cloth was held in place by some sort of clamp or other "grabbing" mechanism, and 2) the magnet used was a rare earth (permanent) magnet and the strength was varied by some form of moving the magnet closer to or further from the window.

This application issued as the '123 Patent in January of 2020.

The Review

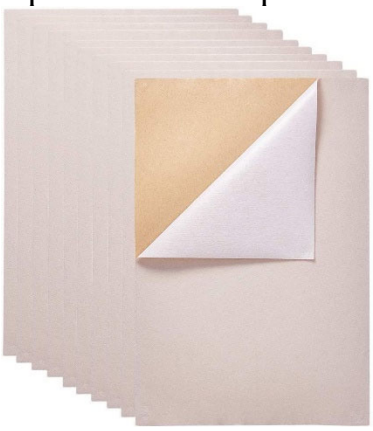
In 2018, the Window Genie blog posted an article called: "Do Magnetic Window Cleaners Work?" It did not describe or name any. The review noted several problems with such cleaners: 1) they don't work on windows that don't open, 2) They are more dangerous on upper floors (if magnetism is lost because of too-weak attraction), 3) you can't move the washer because of too-strong attraction, 4) it takes a long time to clean a window this way, and 5) they do a poor job.

It should be noted that Window Genie is a window washer company and advertises its services at the bottom of the blog page.

Windowba

After 3 long years of development, in 2019, the wRobot company started selling the Windowba window cleaner. The Windowba uses magnets to connect an inside unit and to magnet attracting metal on an outside unit. In a significant technological advance, the Windowba window cleaning robot drives itself around the window to ensure the entire window gets clean.

The Windowba uses replaceable wipes on both the inside and outside pieces. The cloths attach using a sticky tape on the back of the cloth – the user peels back a layer of paper to reveal a sticky surface. That sticky surface is pressed onto a special sticky-friendly surface on the indoor and outdoor units, which are labeled "Stick cleaning cloth here." An illustrative picture is below. Presumably, one could tape a cloth or wipe of any sort to the spot.



The Windowba must use a pre moistened cloth on the outside unit. The inside unit uses replaceable cleaning cloths as well. But the inside unit cloths may be pre-moistened or dry. Dry cloths are preferred inside, because the unit has a reservoir for cleaning liquid, which is sprayed on the window and then wiped using the dry cloths. But, in a pinch, a premoistened cloth might be used. The unit is sold with one dry cloth and one premoistened cloth. Refills must be purchased separately.

The Windowba does not use a rare earth (permanent) magnet. Instead, it uses an electromagnet in the inside unit. It has a knob to adjust the electrical power and therefore the magnetic strength to obtain optimal magnetic force with the outside unit through any type or thickness of glass. Because of the electromagnet and the reservoir, the Windowba is powered by electricity, with a cord pluged into a standard 110 volt electrical outlet.

Below are some pictures of the Windowba. The blue on the right side is the fluid reservoir. The strength adjustment knob is on the side and not visible in the picture.

Pat had been trying to get to market, but sees the Windowba as direct competition, and immediately sues for infringement of the ‘123 Patent as soon as it issues.

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. (56 points)

Q2: You are counsel for wRobot. Please draft a memo describing the infringement claims by Pat that wRobot will likely see on Windowba, and the responses/defenses wRobot 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. (14 points)

REMEMBER YOUR WORD LIMITS

END OF EXAM!