LAWYER TRICKS FOR ENGINEERS

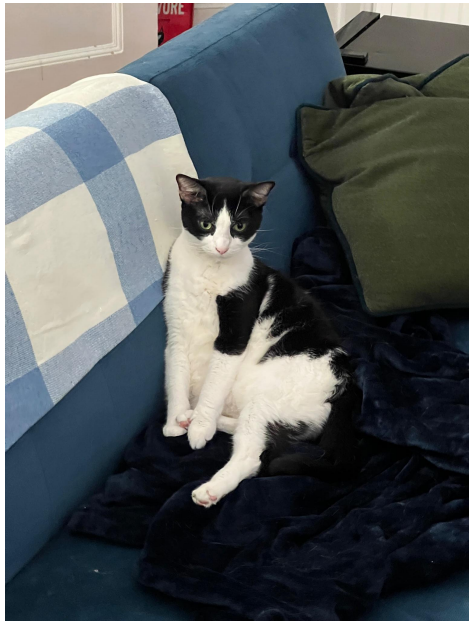
JK, just some Intellectual Property stuff for y'all

Melanie Kolodziej &
Yifu Dong
BU/MIT Technology Law Clinic
April 2023

Agenda

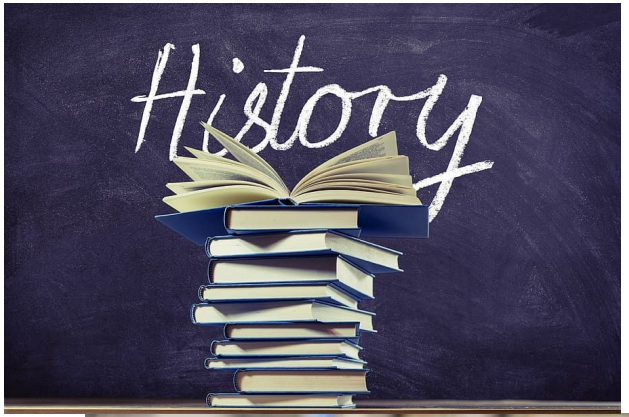
- Who we are
- IP basics
- Hardware & IP
- Software & IP
- Q&A

Who is Melanie?



MICHIGAN STATE
UNIVERSITY

Who is Yifu?



Why are we here?

- Who here is in a startup?
- Who is planning to be in a startup?
- Who here would like to commercialize an invention or a software of some sort?
- Who is just inventing because they want to?

What is the BU/MIT Technology Law Clinic?

- Us
  - Second- and third-year law students at BU School of Law
  - Supervised by three licensed attorneys (professors)
  - Advising BU and MIT students on legal matters, FOR FREE!
- You
  - All currently enrolled degree-seeking MIT students are eligible
- Legal Issues – including but not limited to:
  - Internet and other communication-related crimes
  - Data privacy & security
  - Intellectual property
  - Even if we don't have the capacity to help, we can still try referring you to other attorneys.

Intellectual Property basics

IP is the study and protection of intangible goods

Copyright

Patent

Trademark

Trade Secret

Trademark

- A **mark** used in commerce to distinguish one good from another
  - any word, name, symbol, device, or a combination
- What are trademarks for?
  - **Identify & distinguish** the trademark owner's thing from other manufacturers or sellers with similar things
  - Consumer protection(?)

Examples!


UNIVERSAL
NETFLIX
BBC
MARVEL
Discovery CHANNEL
NATIONAL GEOGRAPHIC
Audi
Volkswagen
Mercedes-Benz
吉利汽车 GEELY AUTO
SIEMENS
hp
HUAWEI
BlackBerry
头条
100 百度作业帮
BOXFiSH
DEUTSCHES HISTORISCHES MUSEUM
北京顺义国际学校 INTERNATIONAL SCHOOL OF BEIJING
HSBC
MATTEL
Dettol 滴露
Localsoft SO THE WORLD CAN PLAY!
ORENDA

Trade Secret

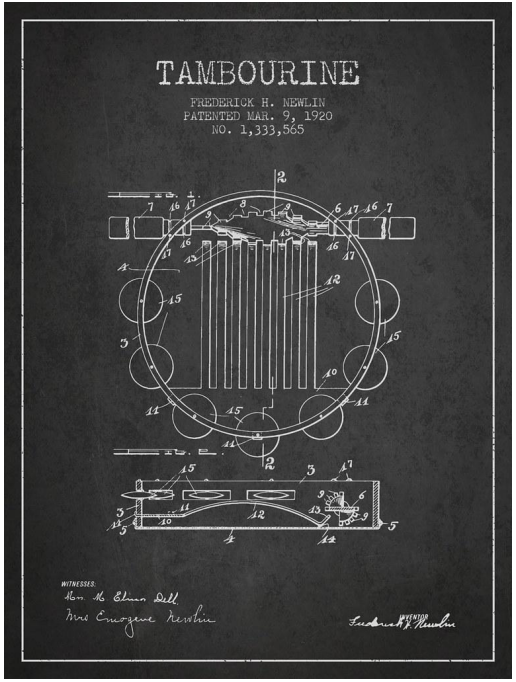
- Trade Secret = Trade + Secret
  - Protects **valuable business information**
  - Owner must make reasonable efforts to **maintain secrecy**
- No absolute protection – reverse engineering can defeat trade secrets

Example!

Patent

- What do (utility) patents protect?
  - Inventions!
- What can you do with a valid patent?
  - EXCLUDE others from using the patent/making the patented invention.
- What main goals do patents serve?
  - Reward & encourage innovation.

Example!



UNITED STATES PATENT OFFICE.

FREDERICK H. NEWLIN, OF GLENDALE, CALIFORNIA.

TAMBOURINE.

1,333,565. Specification of Letters Patent. Patented Mar. 9, 1920.

Application filed February 21, 1919. Serial No. 278,647.

To all whom it may concern:

Be it known that I, FREDERICK H. NEWLIN, a citizen of the United States, residing at Glendale, in the county of Los Angeles and State of California, have invented a new and useful Tambourine, of which the following is a specification.

This invention relates to instruments having a skin or similar means tightly disposed over a hoop.

The main object of this invention is to provide automatic beating means in relation to the drum in the device.

Another object is to provide a simple easily acting instrument.

Another object is to use a beating mechanism in conjunction with the ringing of the cymbals in the hoop.

Another object is to insert a turnable member through the hoop having a suitable number of engaging members for lifting or operating a corresponding number of beating bars or members.

Another object is to twist the turning member when made of a flat bar in such a manner as to form engaging means by its curved edges for continuously engaging suitable corresponding members by the turning of the turning member.

Another object is to provide suitably formed beating members within the tambourine so as to engage one after the other with the turning member by a continuous operation.

Another object is to provide mechanism of such construction making them easily adaptable to new as well as finished or older tambourines.

Other objects will appear from the following description and appended claims as well as from the accompanying drawing, in which—

Figure 1 is a top plan view of a tambourine with my mechanism inserted.

Fig. 2 is a cross section through the device on line 2—2 of Fig. 1.

In Fig. 1, 3 designates a hoop to which a skin, vellum, or any other suitable covering 4 is placed in a manner to form a drum-like instrument. The covering 4 is secured to the hoop by nails 5, or may be secured by any other suitable means without changing anything on the device, as will easily be understood.

I prefer to dispose a shaft 6 crosswise to the device, practically parallel to the inside surface of the covering 4. The shaft 6 is provided with handles 7, projecting sidewise from the device. In the drawing, the shaft 6 is shown as being made of a flat bar, twisted evenly so as to form by its longitudinal edges spiral curves around and practically parallel to the center of the shaft 6, but it will easily be understood that a round or otherwise shaped shaft may be used instead, with just as much advantage by having suitable engaging members provided on its outside along such spiral curves, or in an otherwise suitable manner. The curved edges of the shaft are provided with notches 8 forming the engaging members 9, by the remaining portions of the curved edges.

A plate 10 is provided with a suitable number of lugs 11, which project through the loop 3 and are bent over the outside of the hoop for holding the plate in position within the hoop. A suitable number of arms 12 are provided on the plate 10, forming swinging members to be operated by the engaging members 9 on the shaft 6, the arms 12 being of suitable shape and having springing capacity. The arms 12, as shown in Fig. 2 in side elevation, are curved and provided with an upwardly projecting termination 13, so as to bring only the lowermost point 14 of the swinging arms into contact with the covering 4 of the device. This touching of one point has the advantage of producing a clear tone or sound, as will easily be understood.

Of course, the swinging arms may be shaped differently than those illustrated, without departing from the spirit of the invention, as long as the swinging arms are and can be operated by engaging means on the turning shaft.

The engaging members 9 on the shaft 6 naturally engage with the upwardly projecting ends 13 of the swinging arms whenever the shaft 6 is turned, as will easily be understood, from the illustration in Fig. 1 and even better from the illustration in Fig. 2. Each time that one of the upwardly projecting ends 13 slips from one of the engaging members 9, a swinging of the corresponding arm will naturally be produced, and thereby a beating against the covering 4. Having any suitable number of swinging arms and a corresponding number of engaging members on the turning shaft, the engaging members arranged preferably along a spiral curve, naturally allow or

provide for a continuous beating of the covering by a turning of the shaft, as will easily be understood.

To give a different expression to the beating sounds of the covering, a suitable number of cymbals 15 are disposed within the hoop.

My invention is, of course, not limited to the use in devices of the class described and illustrated, but may easily be installed in any other similar devices, as long as the beating is produced by a turning shaft in the manner or in a similar manner as described above.

The shaft, or the handle, is provided with a suitable number of grooves 16 to engage with the pins 17 for holding the shaft in position within the device.

To operate this device, it is naturally taken by one or both handles 7 and then moved so as to cause a swinging of the hoop with the drum and with the beating and ringing mechanism around the shaft 6. The ends 13 of the beating members naturally engage by such turning or swinging movement one after another with one of the engaging members 9 on the shaft 6, as described above, and, on disengaging from the engaging members 9, the points or portions 14 of the beating members naturally beat on the inside surface of the covering 4. A continuous beating is produced by such turning and swinging, and naturally a continuous ringing of the cymbals 15 occurs, rendered more intense by such beating and irritating of the device, as will easily be understood.

Having thus described my invention, I claim:

1. In a tambourine, a hook, a shaft made of a flat bar twisted so as to form spiral curves along its longitudinal edges, said bar being rotatably disposed in the hoop, and beating and rattling means disposed in the device so as to engage with the curved edges of the shaft when rotated to produce a continuous rattling and beating.

2. In a tambourine, a hoop and a covering over one end of the hoop, a shaft disposed rotatably through the hoop having engaging members along its outside arranged in spiral curves, handles provided on the shaft having grooves, pins disposed in the hoop and projecting into the grooves in the handles so as to hold the shaft and handles rotatably engaged in the hoop, and beating and rattling means disposed in the hoop having portions extending into the path of the engaging members on the rotatable shaft so as to be operated by a swinging of the hoop around the handles.

3. In a tambourine, a hoop and a covering over one end of the hoop, cymbals disposed in the hoop, a shaft disposed rotatably crosswise to the hoop off the center of the hoop and practically parallel to the covering and twisted so as to form spiral curved edges along its longitudinal edges, a plate having lugs disposed through the hoop for holding the plate in practically parallel spaced relation to the covering and having beating members projecting sidewise from the plate and extending into the path of the engaging members on the rotatable shaft, the beating members being curved so as to be always free from the covering in beating position as well as in inoperative position and having a proportionally small beating point to come into contact with the covering when so operated, the beating members having also a suitably shaped portion for easily engaging and disengaging with the shaft when so operated.

In testimony that I claim the foregoing as my invention I have signed my name in the presence of two subscribing witnesses.

FREDERICK H. NEWLIN.

Witnesses:
M. ELINOR DELL,
EMOGENE NEWLIN.

Tambourine Example (continued)

- Where can we find this patent?
  - Google Patents: https://patents.google.com/patent/US1333565A
- What does patent language sound like?
  - Excerpt: “In the drawing, the shaft 6 is shown as being made of a flat bar, twisted evenly so as to form by its longitudinal edges spiral curves around and practically parallel to the center of the shaft 6, but it will easily be understood that a round or otherwise shaped shaft may be used instead, with just as much advantage by having suitable engaging members provided on its outside along such spiral curves, or in an otherwise suitable manner. The curved edges of the shaft are provided with notches 8 forming the engaging members 9, by the remaining portions of the curved edges.”

Tambourine Example: Claims

“Having thus described my invention, I claim:

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3. In a tambourine, a hoop and a covering over one end of the hoop, cymbals disposed in the hoop, a shaft disposed rotatably crosswise to the hoop off the center of the hoop and practically parallel to the covering and twisted so as to form spiral curved edges along having lugs disposed through the hoop for holding the plate in practically parallel spaced relation to the covering and having beating members projecting sidewise from the plate and extending into the path of the engaging members on the rotatable shaft, the beating members being curved so as to be always free from the covering in beating position as well as in inoperative position and having a proportionally small beating point to come into contact with the covering when so operated, the beating its longitudinal edges, a plate members having also a suitably shaped portion for easily engaging and disengaging with the shaft when so operated.”

What makes something patentable?

- Three elements (for all utility patents):
  - Novelty
  - Utility
  - Nonobviousness
- One “person”:
  - PHOSITA
  - (Person having ordinary skill in the art)

IP protections for your creation (firmware/hardware)

Patent provides strong protection, but the application process is laborious.

1. Determine patentability and type of patent. (Likely requires a practitioner.)
2. Prepare and submit your initial application. (Probably requires a practitioner.)

    Must file provisional no more than a year after you make it public!

    Pay a fee to USPTO (usually in the thousands of US dollars!)

    Wait many many months (~20 months) (prioritized review = 6 to 12 months)
3. If rejected, respond to USPTO (helpful to have a practitioner; also a pro se patent program)
4. If approved, maintain your patent! (Pay more $$$)

    Patent protection ends 20 years after the application filing date.

What can you do with a patent?

- Use it to **exclude others** from making your patented invention!
- Sell it to (get acquired by) another company!
- License it!

If not patent, then what are the options?

- Distinguish yourself!
  - Trademark
- Just getting your invention out there – hardware & software
  - (but still might worth consulting a lawyer)

(Fun) activity: spot the patents!

Remember: novelty, nonobviousness & utility

CONGRATULATIONS!

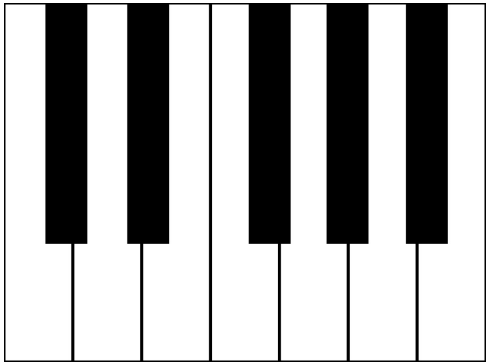
- You are now back in the Stone Age (or the Middle Ages, whichever you prefer)
- You are an inventor who invented the following musical instruments
- For each instrument, please consider what you can potentially claim in a patent application.

Clavichord

Sound produced by a metal tangent that strikes the string.

Assuming this is the first such instrument, what are your potential patent claims?

E.g. it has a twelve-key chromatic scale design



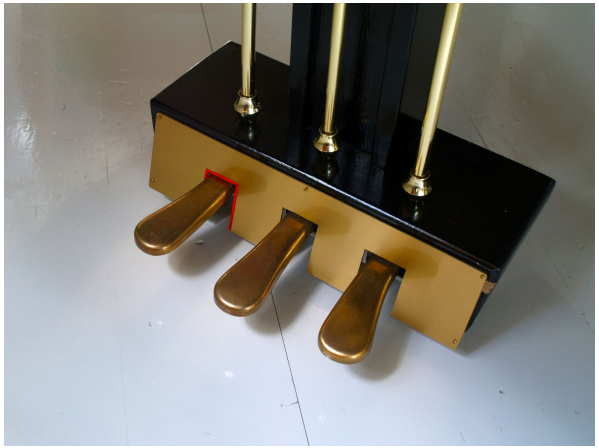
Harpsichord

Sound produced by plucking strings with a quill.

Assuming this is based only on the clavichord, what are your potential patent claims?

Piano

What is missing in this image?



Hammers are used to strike the strings of a piano

What else can you potentially claim in your patent for the piano?

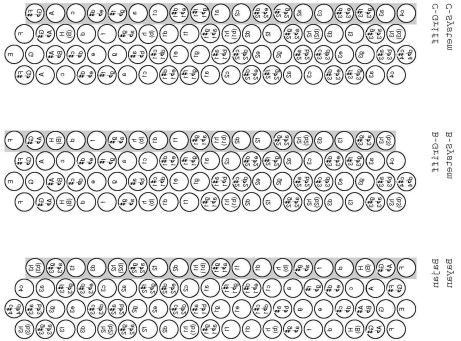
(Piano) Accordion

Three parts:

- Piano keyboard (with multiple reeds and registers)
- Bellows
- Bass buttons (with multiple reeds and registers; buttons = two rows of single notes (spanning one octave) + four rows of chords)

Bayan Accordion

The piano keys for the right hand also become buttons.



For some bayans and piano accordions, the left-hand bass can switch to a “free bass system,” allowing the bass keys to play a wide range of single notes.

Add Software!

Copyright

Original work of authorship fixed in a tangible medium of **expression**

- Protected by federal statute, but does not require registration or notice of copyright (unless you want to sue someone, then that is another story)

- Can be thin or robust, spread over some, part, or all of a work

Example!

Labeled View

Roland Cloud Manager 2.0.

Relevance: ▮▮▮▮▮
Type of Work: Computer File
Registration Number / Date: TX0008641938 / 2018-08-24
Application Title: Roland Cloud Manager 2.0.
Title: Roland Cloud Manager 2.0.
Description: Electronic file (eService)
Copyright Claimant: Roland Virtual Sonics. Address: 1118 1st Street, Suite 301, Snohomish, WA, 98290, United States.
Date of Creation: 2018
Date of Publication: 2018-07-12
Nation of First Publication: United States
Authorship on Application: Roland Virtual Sonics, employer for hire; Citizenship: United States. Authorship: computer program.
Rights and Permissions: Roland Virtual Sonics, 1118 1st Street, Suite 301, Suite 301, Snohomish, WA, 98290, United States
Names: Roland Virtual Sonics

Sounds of past, present and future.
Yours in minutes.

Use over 50 Roland virtual instruments. Embrace the future with ZENOLOGY. Share your sounds across software and hardware with the ZEN-Core Synthesis System. And keep your music fresh with genre-specific patches, patterns, and sound packs.

Join Roland Cloud

Roland licenses their software so that any work that comes as a consequence of using the program is yours, but you cannot modify the actual software (talk more on this in a second)

Software, how can you protect it with IP?

Copyright	Patent
- **Expressions** - Can protect both the composition (what you wrote) and the expression that the code relays BUT - Needs to be original, if it is a derivative of another work, you may have to get a license from the owner of that IP to use their stuff	- **Functional** - Can protect a program BUT - Cannot be abstract; must detail an actual novel, non-obvious, useful program - A simple improvement of a functional program may be considered obvious…

Software (continued)

Who has written software for their invention or elsewhere?

Did you write it yourself or build upon?

Are you worried now?

Open source was made to be taken, but not always (everyone borrows from everyone, lawyers and stuff get in the way)

What is licensing?

Hey! You found some open source code somewhere... Can you use it?

- A **permission** to allow people who are not the owners of IP to use that IP
  - It DOES NOT mean you own that thing now, and often licenses can be revoked or for use in a limited time period
- The most important thing to do is **honor the terms of that license**
  - If you need a paper contract, do that
  - If you need to credit someone for incorporating their code into your work, do that
  - If you do not, you could risk being sued, or worse, called out on Twitter
- There are sites, like GitHub, that say they have “public” and “free” code, but often it still **requires** some sort of accreditation
  - Sometimes it’s not even public and someone stole it and put it on GitHub...be diligent and always question your sources to reduce harm!!

MIT License

The Case of the AI Recorder

You are an MIT Student in the Digital Instrument Design class and you have a niche interest in encouraging the future of fourth graders and their ability to learn the recorder. You decide to incorporate an AI software into a recorder which teaches the user how to play the hit song, “Hot Crossed Buns”. After some kanoodling, you come up with a working prototype and decide that this will be great for two reasons:

1. You can turn it in for your final project!! WOOHOO
2. You are buddies with someone in the Department of Education in Massachusetts and she would be interested in securing a contract with you to get these SICK recorders to fourth graders ASAP

Consider: What can you do to protect your invention? What can you do to ensure you are not infringing on someone else’s IP?

Questions?

THANK YOU!

TLC CONTACT INFO:

sellars@bu.edu

https://sites.bu.edu/techlaw/contact/