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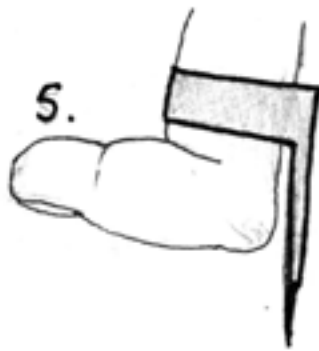
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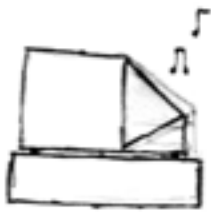
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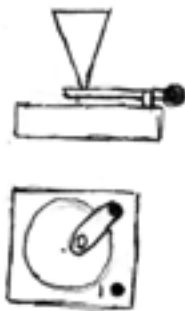
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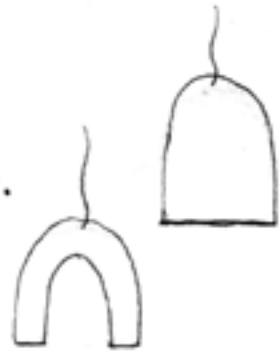
10.



11.



12.



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The original idea which has followed throughout the project is to identify how people listen to music and take it back to a time when you would just sit and listen as a main activity. I will also be looking at how vinyl can be used as a material as well as a listening media, this is being done through two parts of the turntable, the platter and the trim. Looking at how we used to just sit and listen to music it took me back the days of the gramophone. The influence of that gramophone can be seen through the cones, which sit in the tone arm. With each one giving you a different sound quality, one with more bass, one with more treble and one that has a flatter tone.

As well as the turntable, I have been looking at how we can wear the music, how we can show of the genres we love and how we can use jewellery as a musical device. The 2 sets of Vinyl rings are to make music of your own, one set can be used on a vinyl to make a sound, only loud enough for the wearer to hear, giving it a personal feel and the second vinyl ring is to create your own music, for example, banging the ring on a railing at different speeds and heights to create an original sound. The rest of the rings are about wearing the genres you enjoy, with certain colours representing different genres. As you can see the clear acrylic ones are representing classical music, with influence from Ludovici Einaudi, 'Elegy for the Arctic' which is a piece raising awareness for Greenpeace.

Looking at how we can listen to music is where the bone conduction is introduced. The bone conduction will be a collection of mouth pieces. This is a piece that has a lot of possibilities. I have precisely made it for music and giving the listener a different experience however I have also briefly looked at, although not delved into the other possibilities such as helping deaf people hear and dementia. These will be purely for listening to music.

Overall these items will let you experience music in a different way and hopefully make you think about how it's been made and the thought that has gone through it, from the design of the objects you're using through to the meanings behind every lyric and giving you a connection to the artist.



With the original idea being that I would be making a chair and a turntable here are a number of my chair designs. The idea is that I would have a turntable and a chair, which would fit into a designed room to only fit these two products. With the idea of enhancing our relationship between the listener and the artist. Although these have not evolved for this project as I have decided to take a different direction in my work.



The scrunch chair, the idea was that I would scrunch up balls of paper then when I took them apart I would turn them into a chair or a stool. Hoping that this would give the effect of heavy rock and screamo music. Giving it the feel of uncertainty and out of control mayhem.

Looking into different materials that this could be made from it limited the chance of it being made, although 3D printing would be a good way of making it. Or using different panels which could be bolted together.

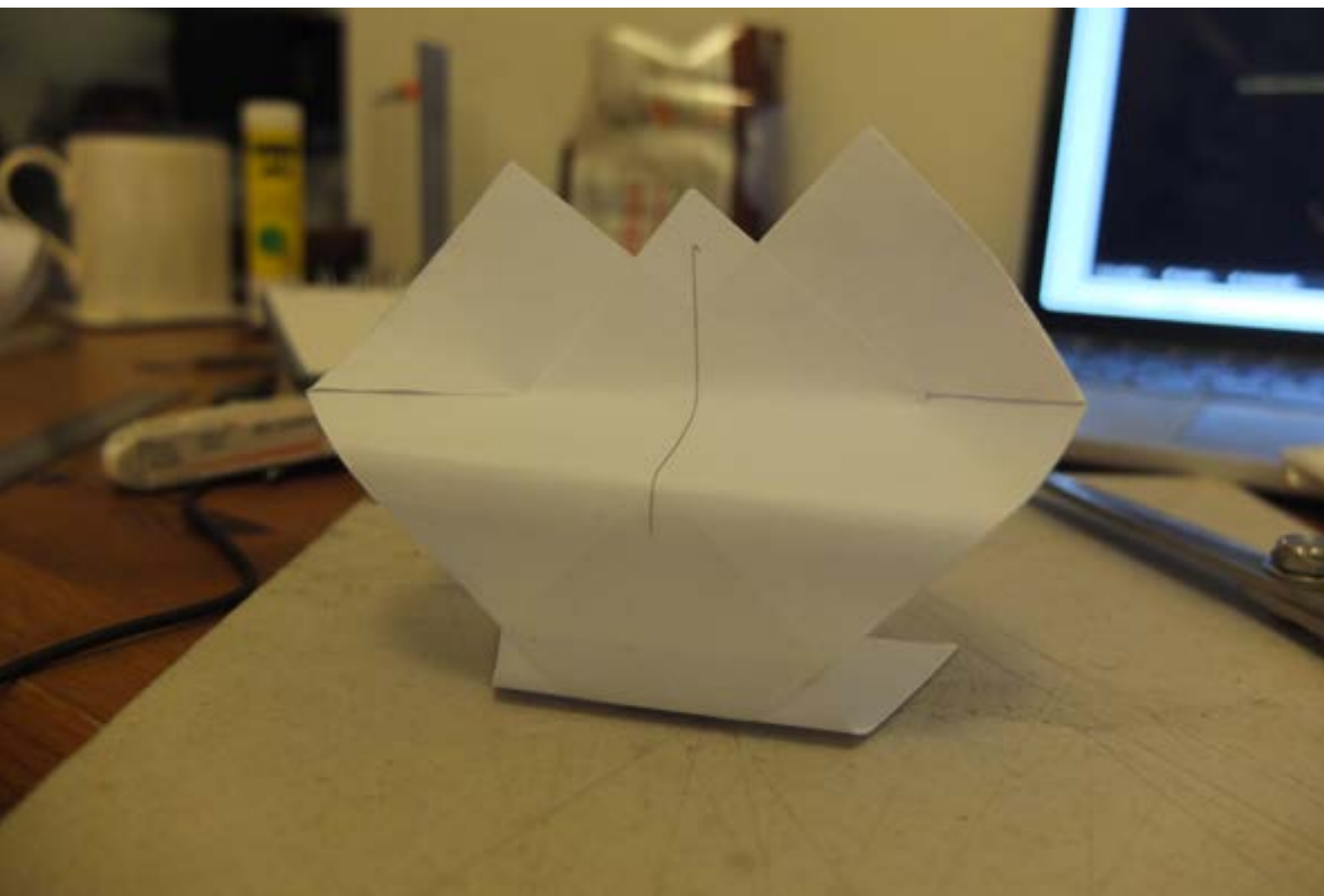




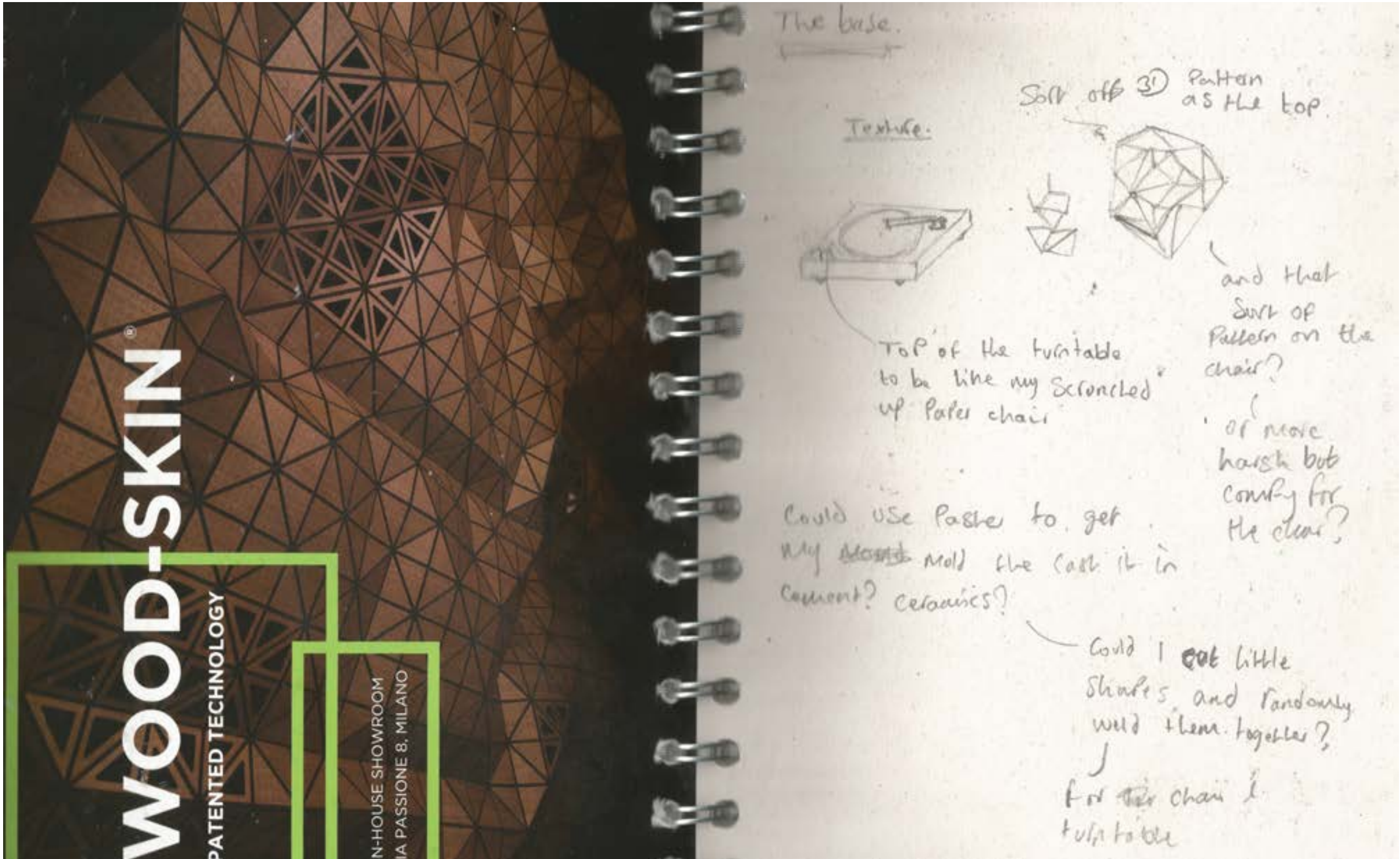
More examples of different chairs I quickly made. Including another scrunch chair out of tin foil.

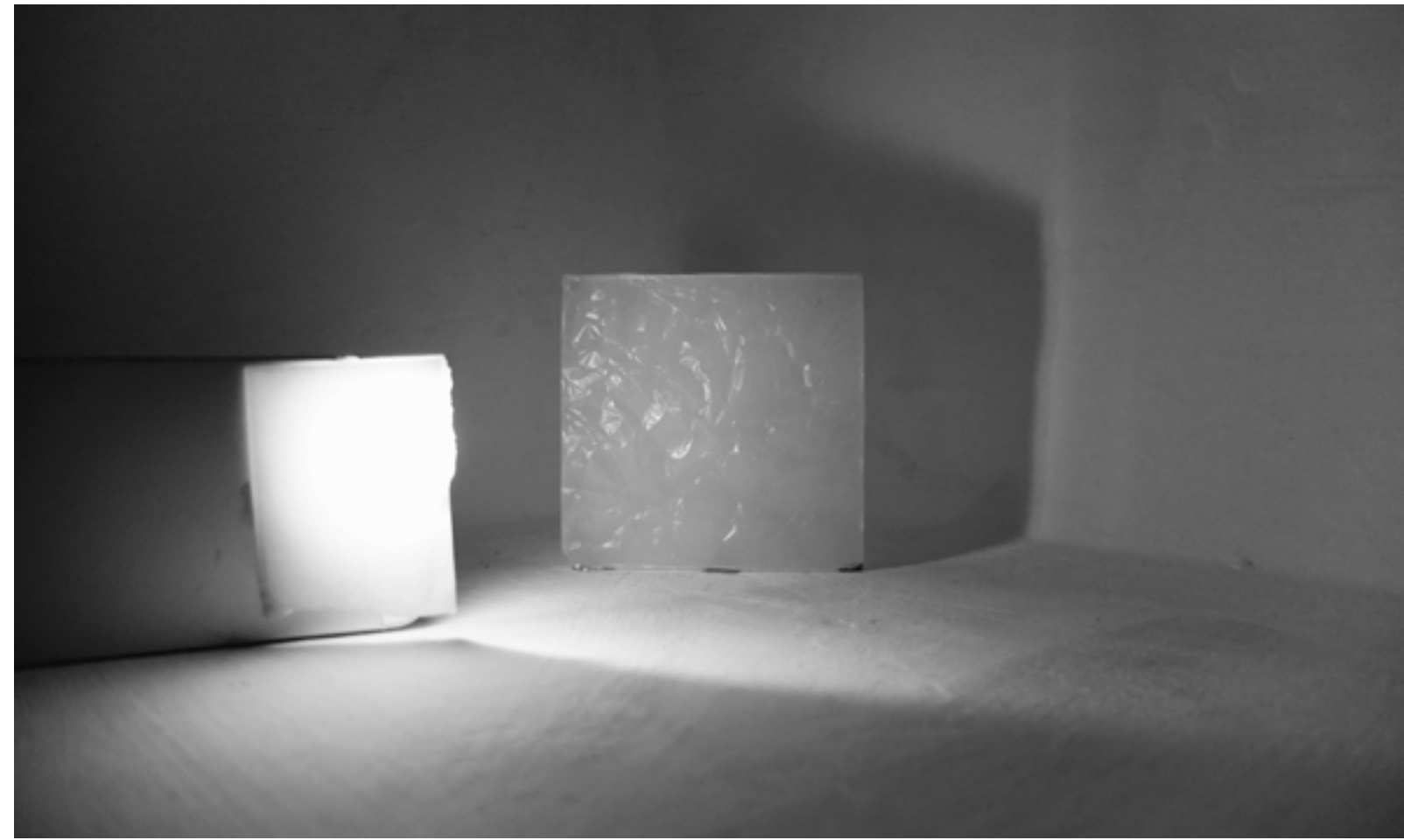


The top and bottom chairs are both made out of one piece of paper, either being folded or bent in ways to make them stay together, then later on stuck together.



The start of the texture. Wood-Skin which I found in Milan was a big influence in the shape and texture I originally wanted the turntable to be.





Trying to get different textures and shapes that could possibly resemble music and sound waves I decided to use wax and tin foil. I scrunched up the foil, some tight, some loose to get different textures which can be seen in the top left. Then I would pour hot melted wax into the tin foil and when set take away the tin foil and they gave some amazing textures and shapes. With the idea being that it would be incorporated with the turntable.

What I also found great with the wax is that if you were to put a light under it, it would give a wonderful glowing affect and really show off the textures.



Experimentation with plaster. Trying to figure out a texture for the top of the turntable which would fit in with the chair that I was still planning to do at this point.





The start of the vinyl experiments. I started with chipping up the vinyl then I placed them together in the oven for a certain time at a certain temperature, which can be seen in most of the photographs. I then placed them in a press and pressed down to see what finish came out. I had a number of fails which really helped me advance into what I ended up with.

As you can see with the top right photo bellow I left the vinyl in the oven at too high of a temperature and for too long and the material started to break down. After this I took some time out to research the properties in the vinyl and what the guidelines were. I then had to make a COSH report and follow strict guidelines through-out the rest of the process which help understand the material better.





All of the vinyl experiments on this page were done before finding out about the problems with heating up vinyl and were heated up at 200 degrees.



As you can see on the images to the left they all have the time and temp that I put them in for. The reason I started by doing cubed experiments is because I wanted to create the whole turntable out of vinyl, which unfortunately wasn't possible due to the temperatures that I had to keep to.

After these final cubes experiments I started to make sheets out of the material which started working well from the first one, because of this I decided to make the platter out of the material.

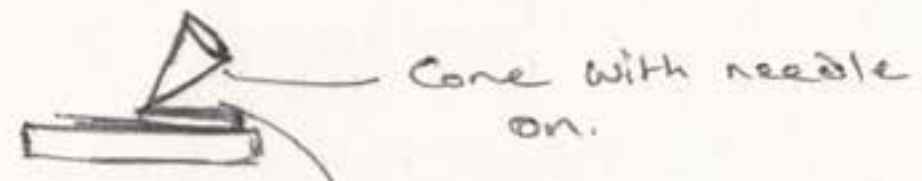




The process of making the patter for the turntable was a long one, first chip up the vinyl, you then place the chipped vinyl in the oven, once out press in the press. As you can see in the top left photo the chips are freshly out of the oven, then place a metal sheet on-top, cut to the right size to cover the whole dish. Then placing 6 round rubber matt evenly around the metal. This will give a more even press when pressed meaning it should be flat.

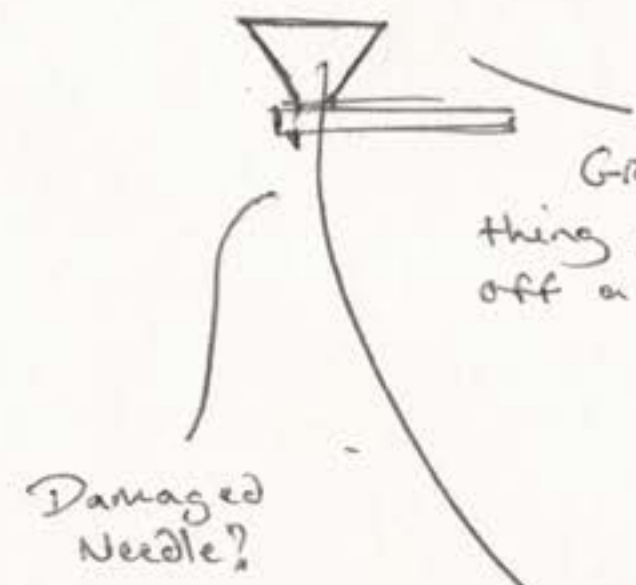


Once the rubber mats have been placed the press goes on-top. The press is a piece of vinyl that I had previously pressed and is strong enough to take a few tons of pressure. Once the press is on I place another baking tray, this one to help press it tighter. I then place it in the press and press until I cant press anymore then leave it for 15 minutes, after this I take it out and the platter is done.



Cone with needle on.

No need for 2 Speakers, similar thing to the gramophone.



Gramophone type thing attached instead off a speaker,

Could change for different types of music.

Damaged Needle?
130 Heavy.

Different cones for different volumes?

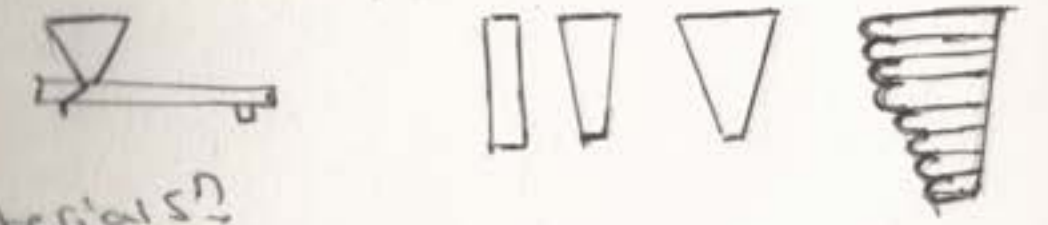
Personal touch?

Different Cone Types.

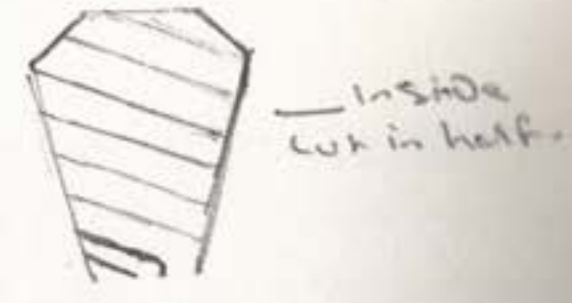
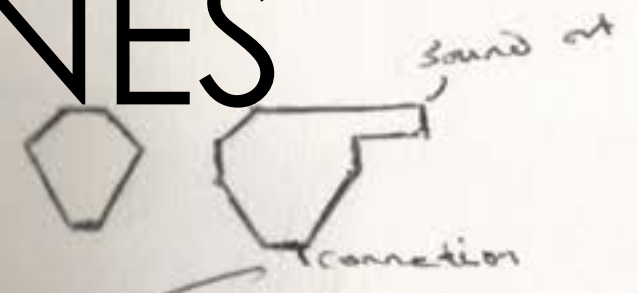
Bass
Treble.

Different volumes. 1, 2, 3

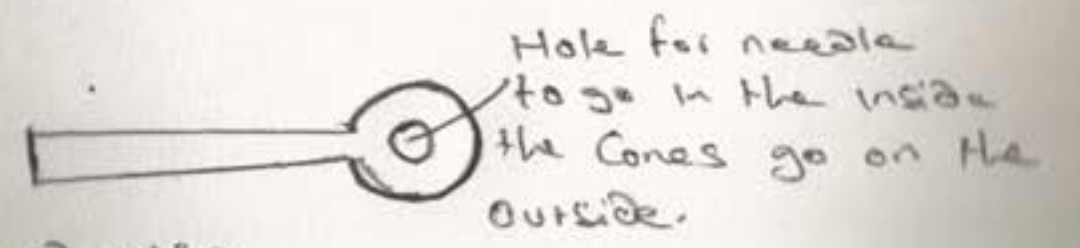
Need to see inside Subwoofer/ Speaker/ Tweeter



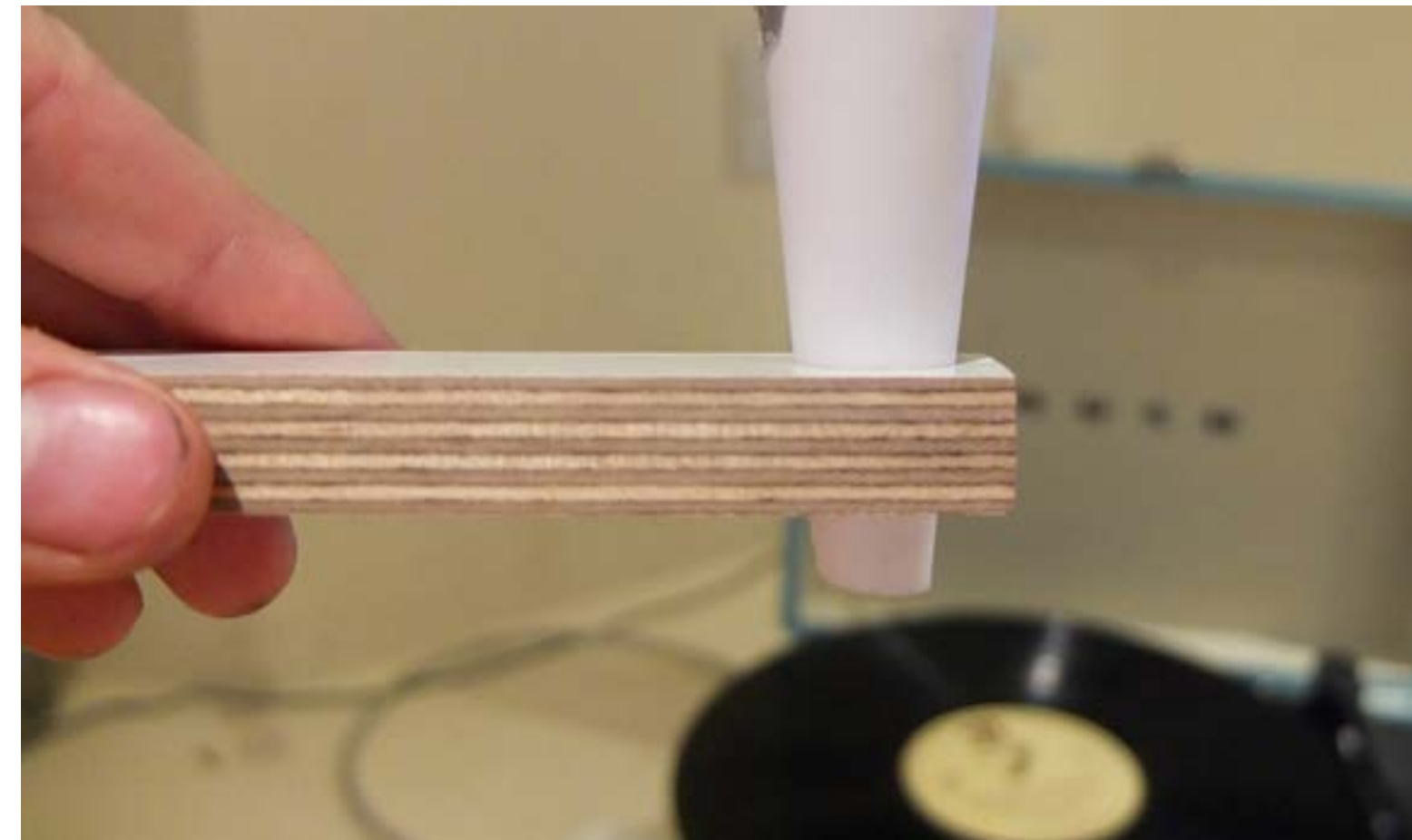
Materials?



Inside cut in half.

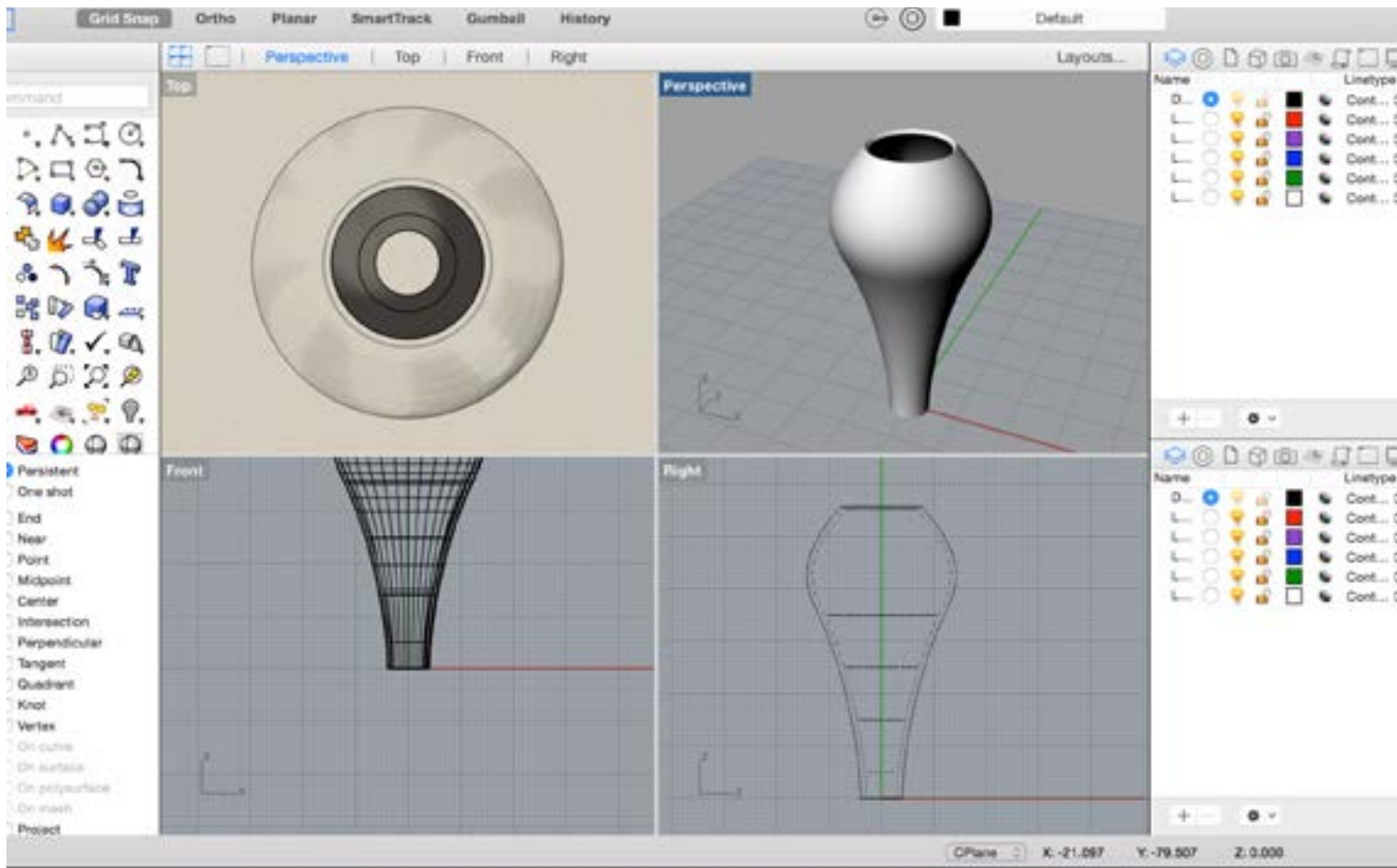


They would also have to be insanely light for it to not damage the needle or a really heavy weight.

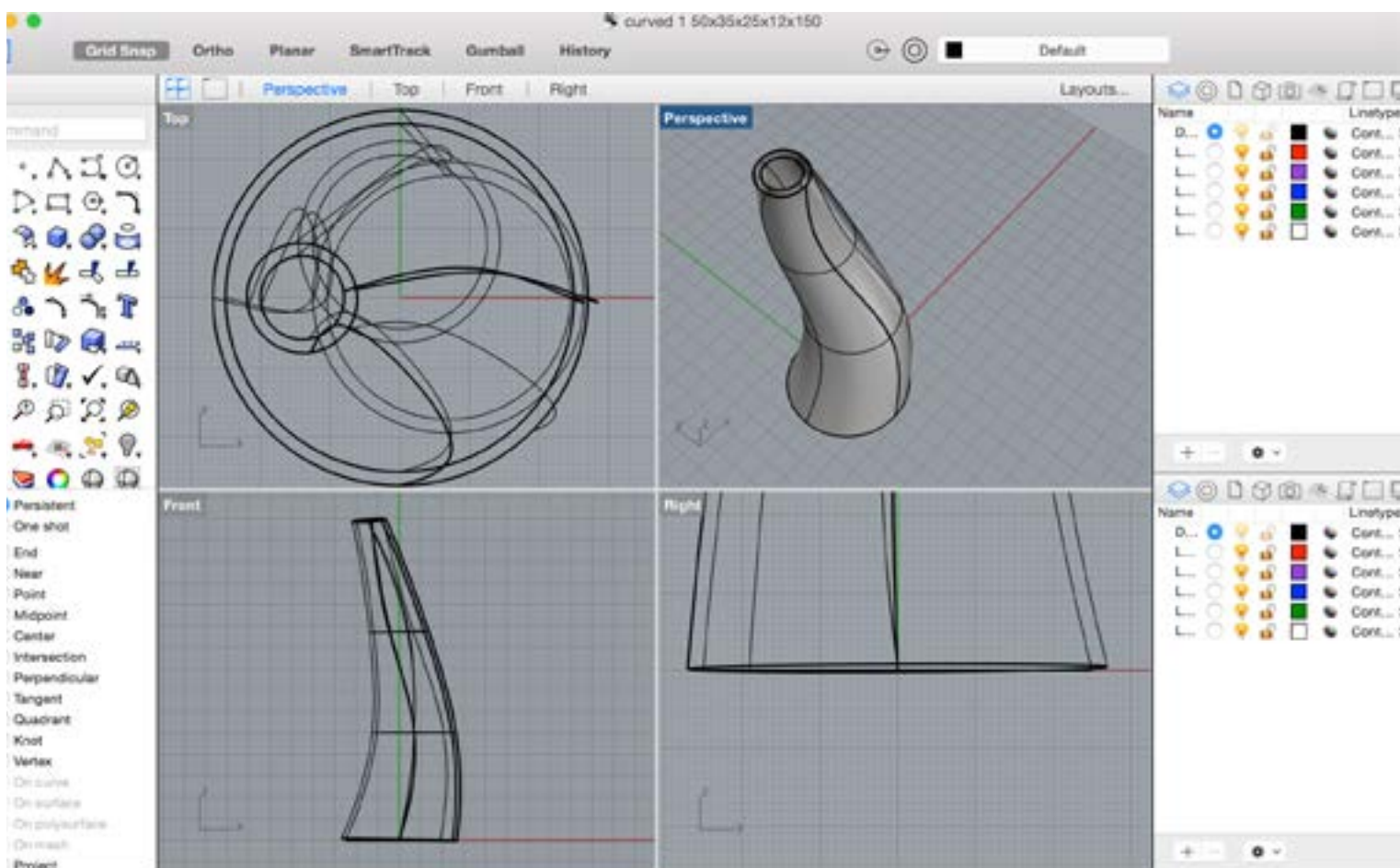


This was the start of the modelling for the cones, I had a good idea of how they were going to work straight away which, obviously ended up going well. I started with paper and tapping needles to the ends of the paper to sit in the grooves of the records. The sounds started coming out great and you could really hear the lyrics.

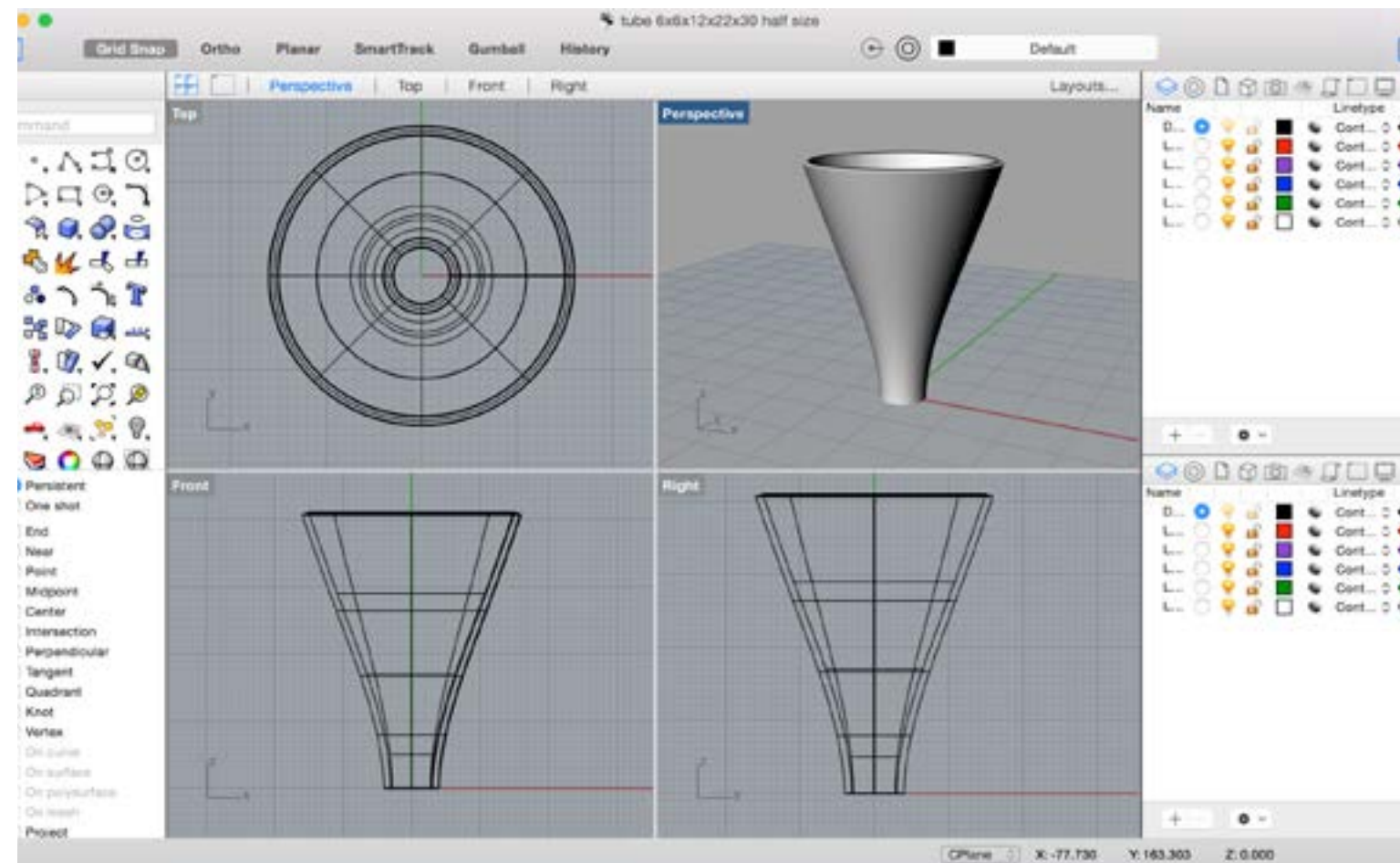
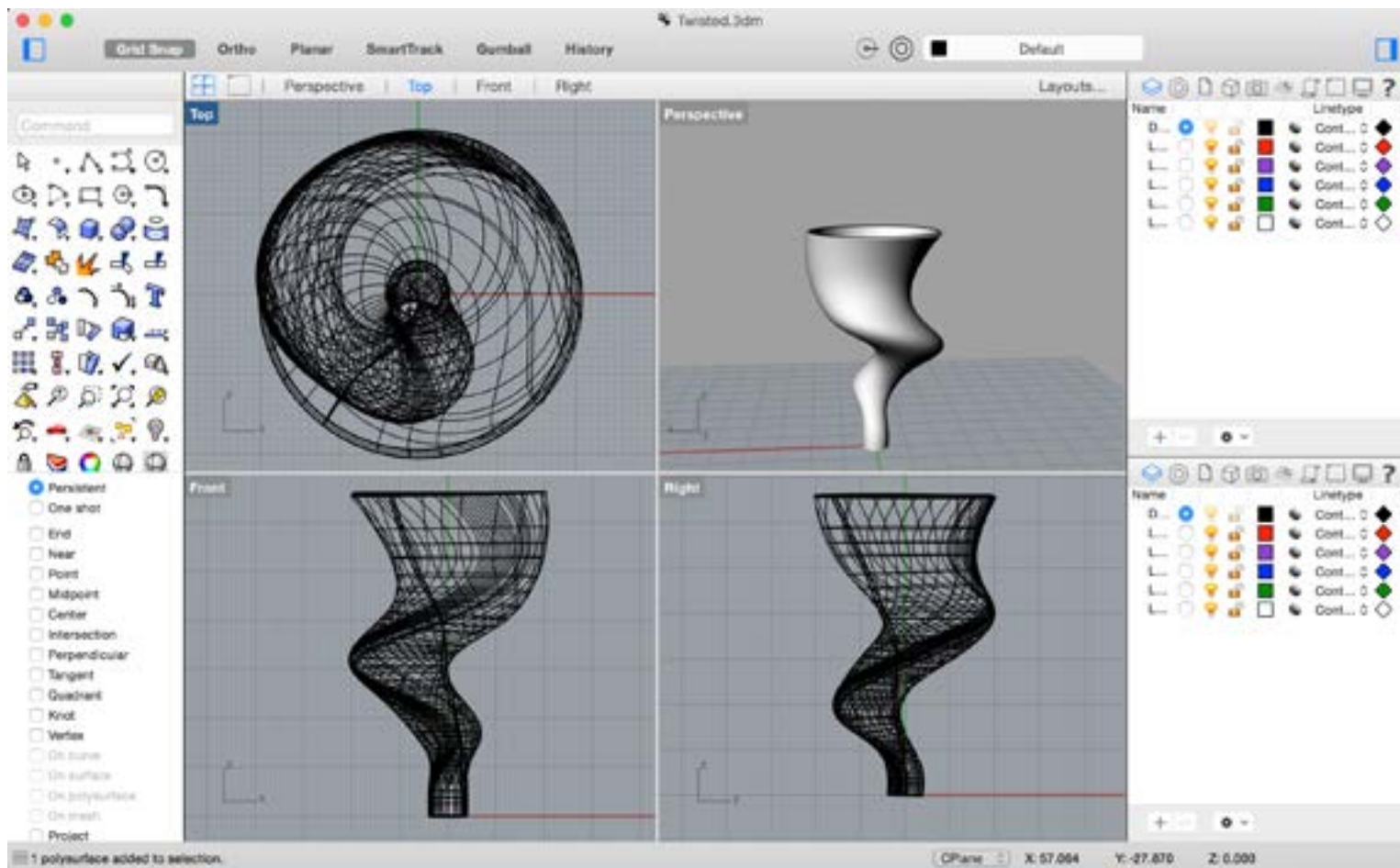
I started playing around with the sizes, shapes and what it would sound like if the large end had the needle in.



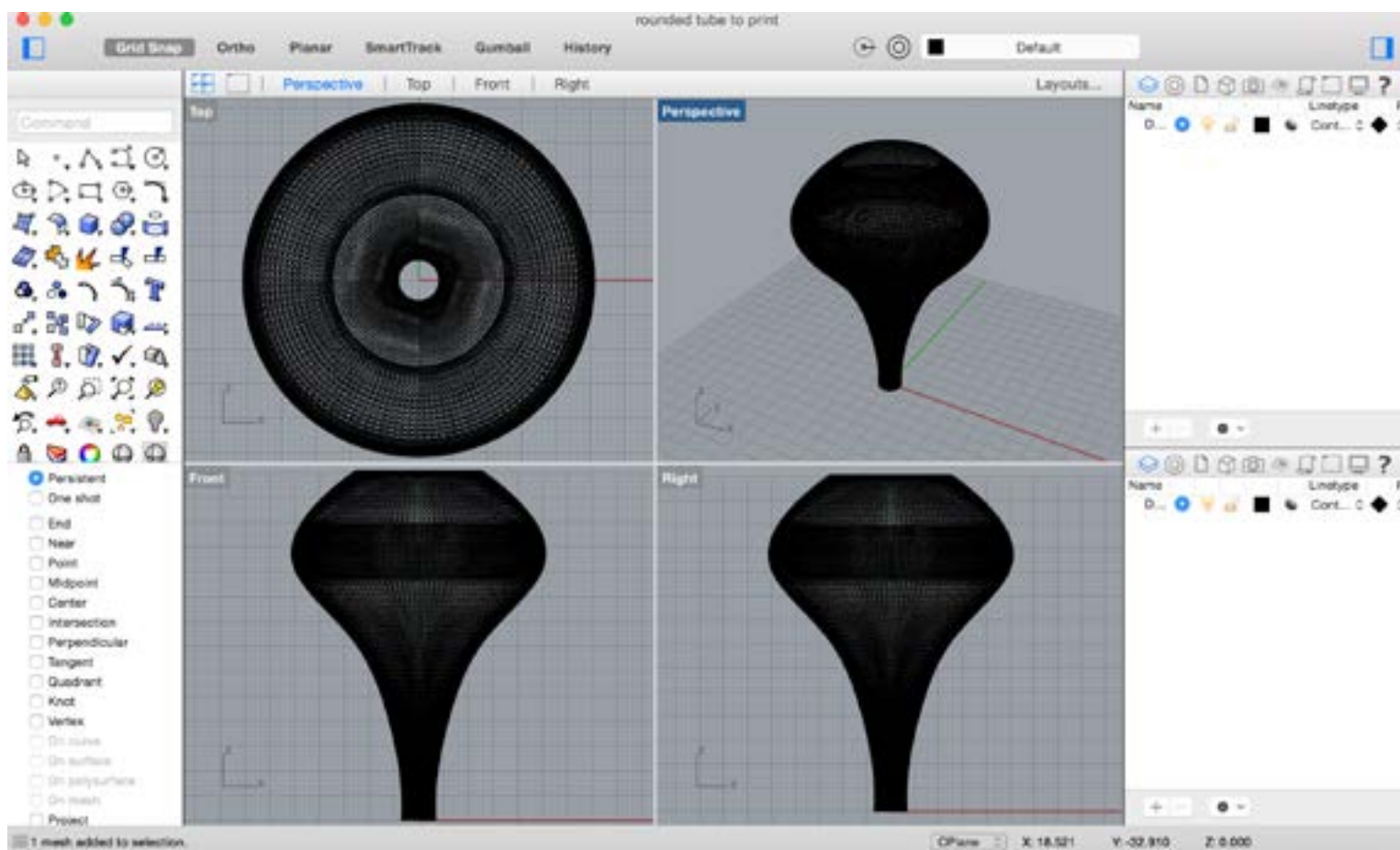
A number of my original CAD Drawings, trying to figure out how to make the cones and more importantly what shape I wanted them to be.



The first Three models that I made, printed off in half scale of what I was hoping the final three would be to give me an idea of what shapes I wanted.



FINAL 3 RHINO DRAWINGS



These three designs are the final designs that I used for the cones. Each of them 150mm high with the width varying with each design. The base was also the same size so that they would fit in the fine arm neatly without having to add any adjustments to the tone-arm.

Each cone has its own distinct sound and is quite loud. Even though you can't change the volume on them. Which is part of the experience, I only wanted them big enough to hear whilst sitting next to them. Therefore giving the listener and the artist some alone time to truly understand the lyrics, hear the instruments and understand the emotions the singer is going through whilst singing.



The final three cones and the holder. The cones being 3D printed and the holder made from 18mm Ply and 15mm clear acrylic.

THE REEVES

Materials for turntable.
 430 x 300 x 20 mm
 (20mm) (20mm) (20mm) Base
 (20mm x 200 x 20mm) Top ring
 (100 x 100 x 20mm) Top pad

- Platter - vinyl



- Feet - Acrylic Red, clear.

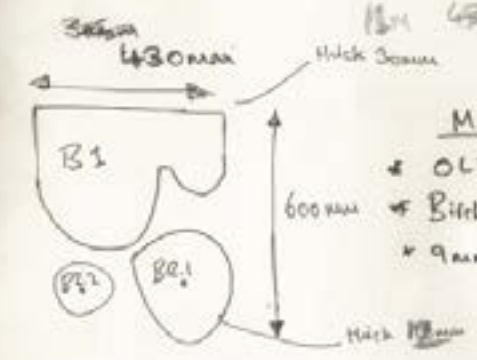
- Tone Arm - wood? vinyl? acrylic?

- Woods? (with oak)
 Rosewood?
 Maple?

Ply?

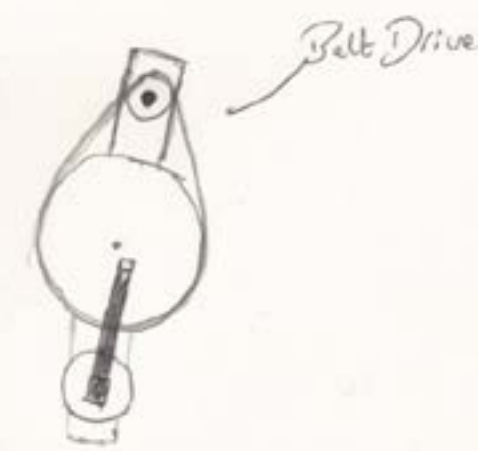
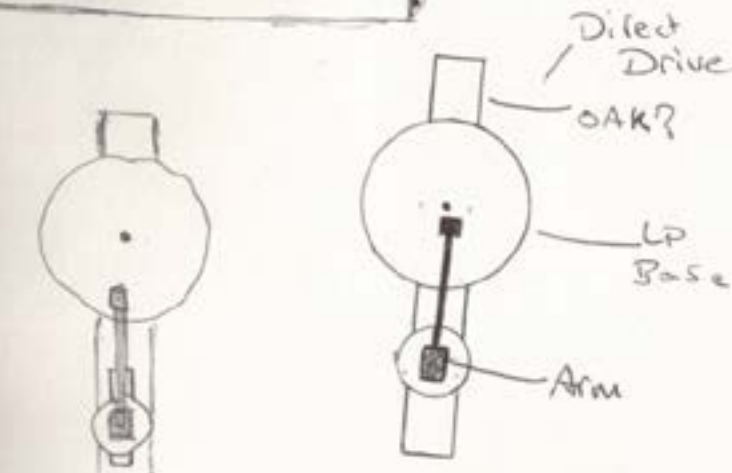
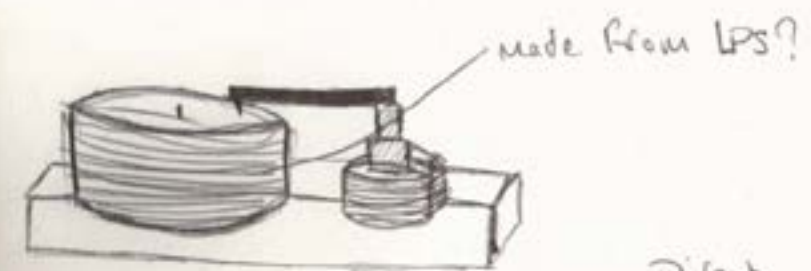
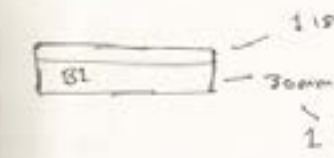
(3.5k?)
 12mm Ply - 430x300 x 2
 1 Pair Ply - 430x300

Ply metal.

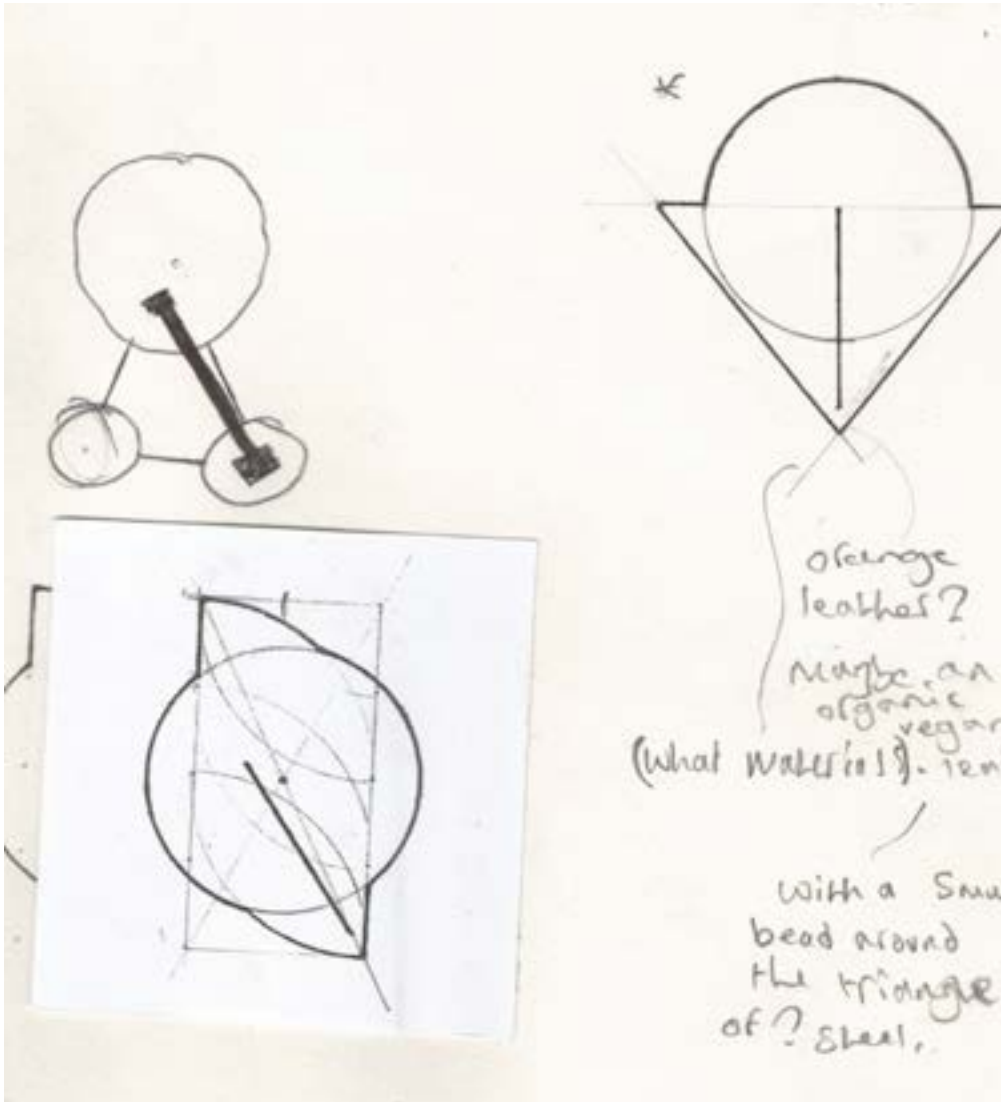


Metals
 + OLB Board
 + Birch faced Ply.
 + 9mm Acrylic.

Platter - 9mm Acrylic

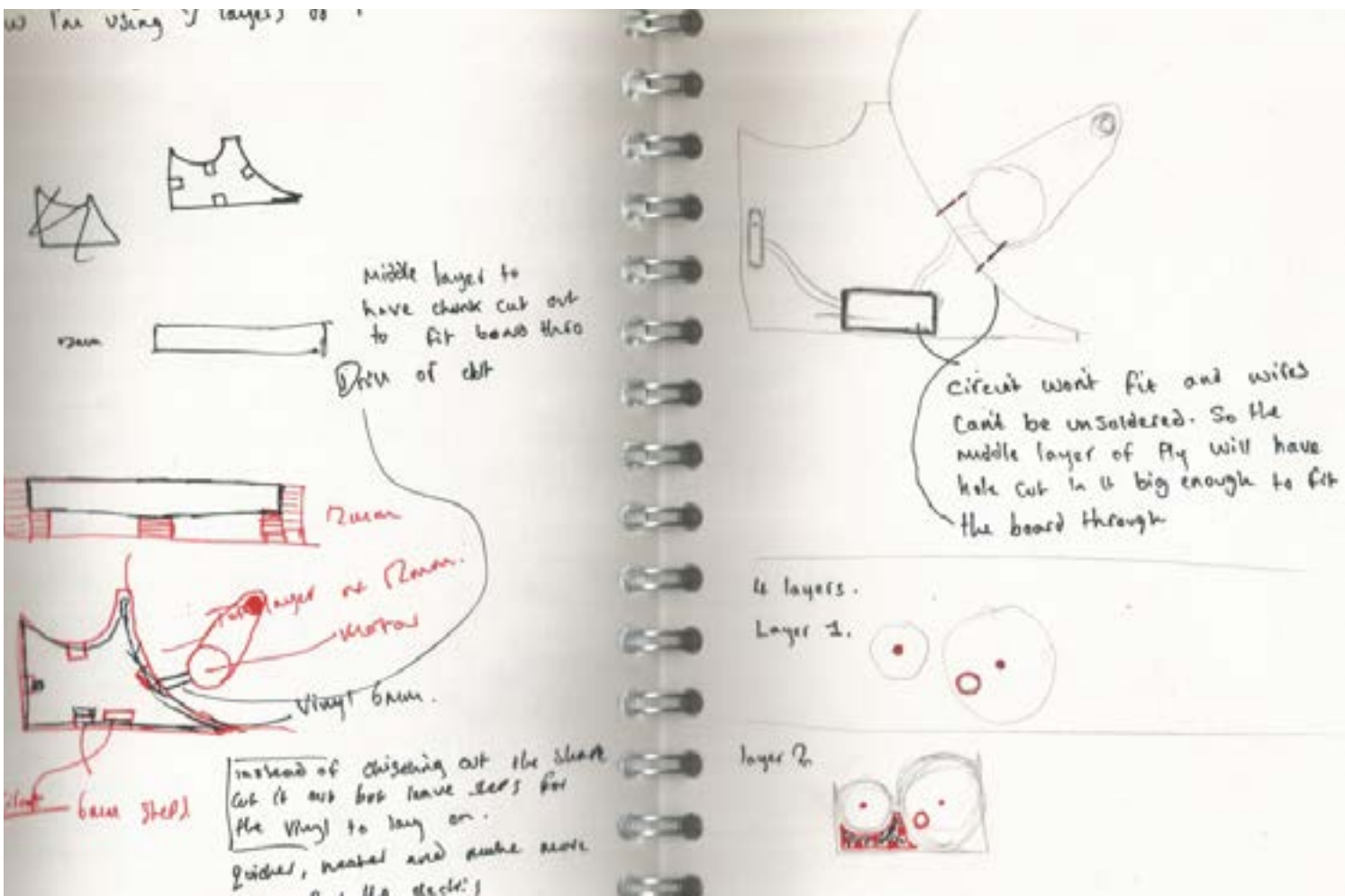
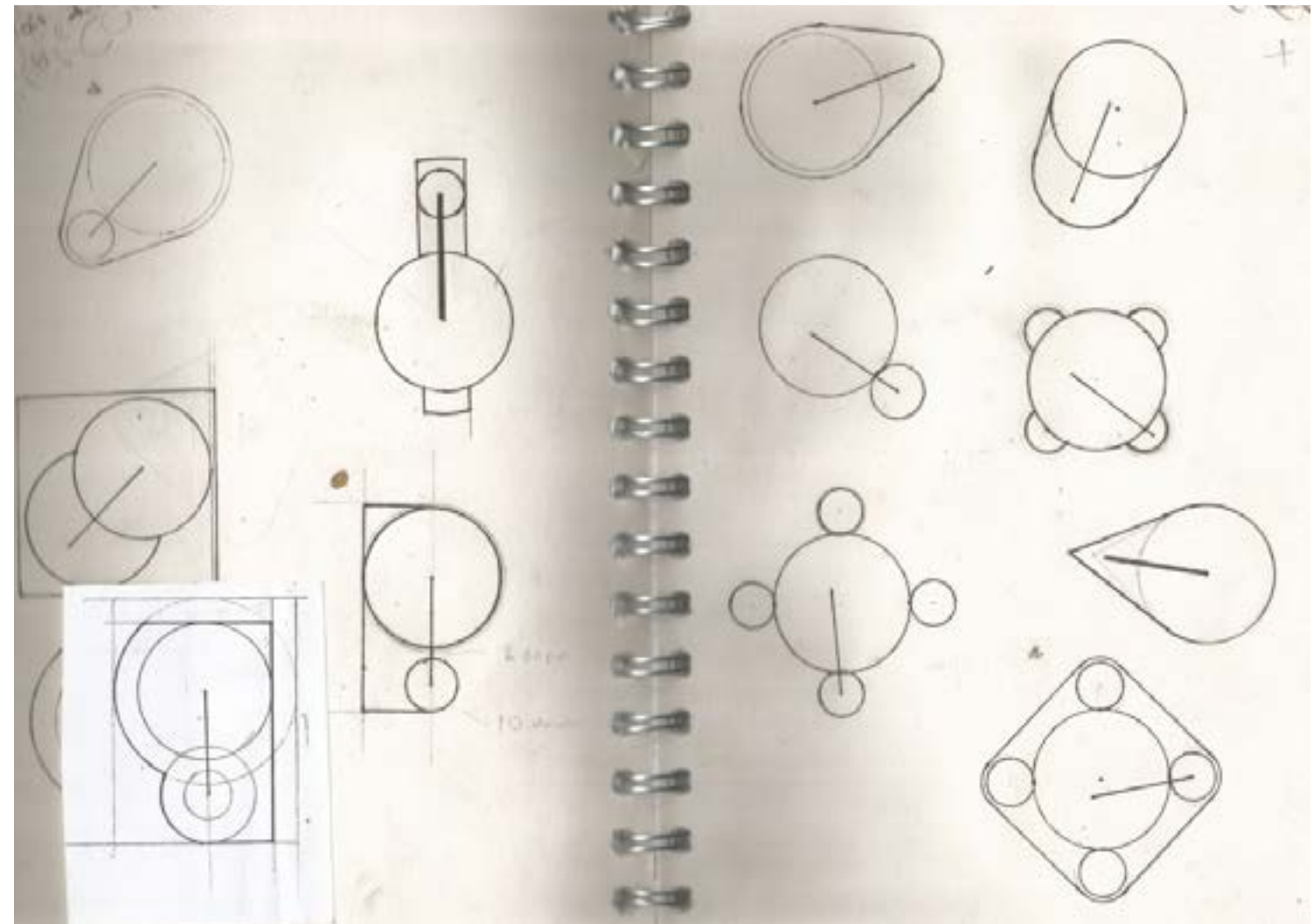


Some of the first doodles of the turntable. Not wanting to make a standard rectangle turntable I decided to go quite flowing and eye-catching.



More drawings of the turntables, However most of the tables to the right are to scales

orange leather?
 Maybe an organic vegar (what material?) - ten
 With a small bead around the triangle of ? steel.



Middle layer to have chunk cut out to fit board thro
 Draw of cut

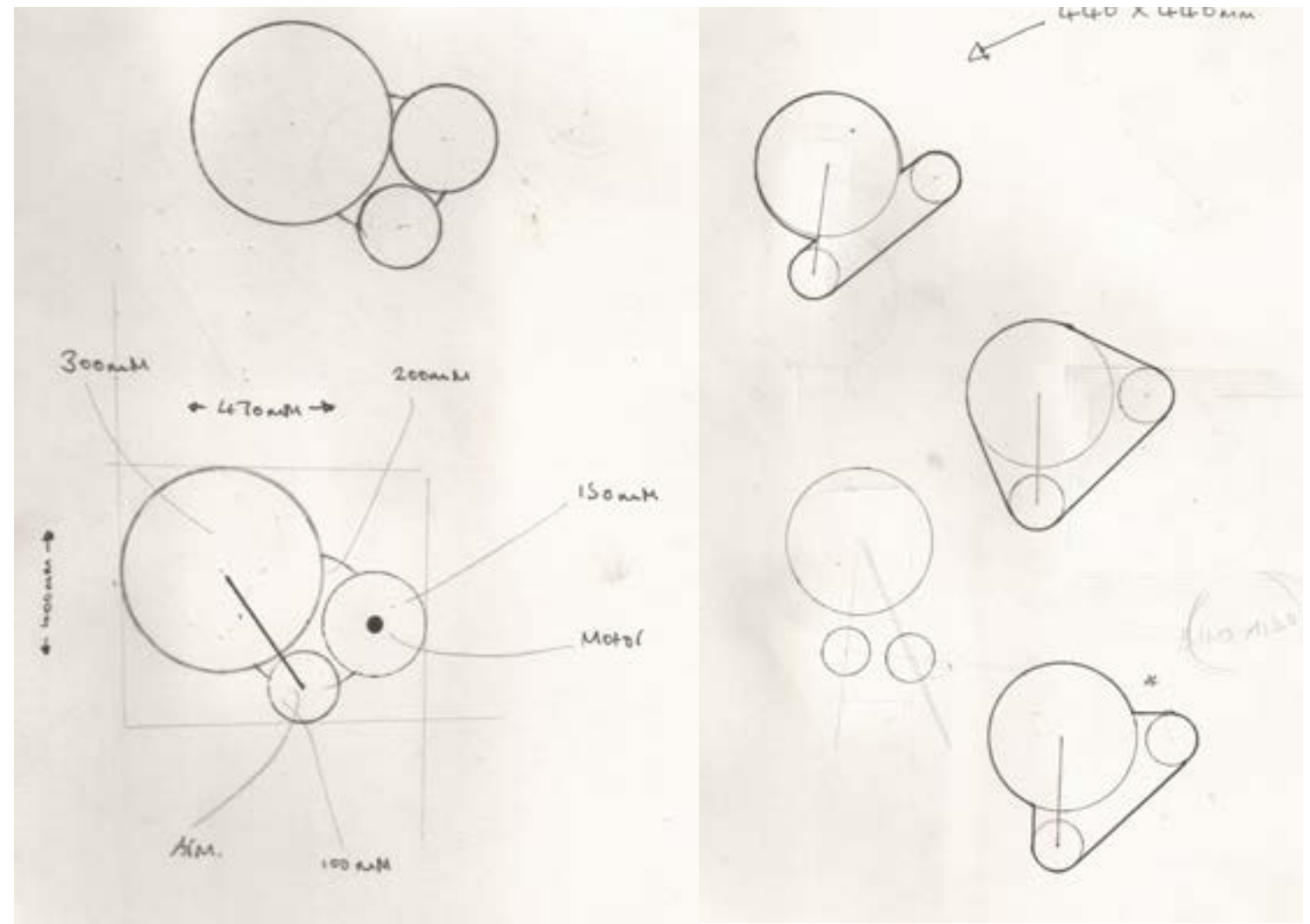
Circuit won't fit and wires can't be unsoldered. So the middle layer of ply will have hole cut in it big enough to fit the board through

4 layers.

Layer 1.

layer 2.

instead of chiseling out the shaft cut it out but leave slots for the ply to lay on.
 guides, metal and rubber rods
 the deck!



300mm

200mm

← 470mm →

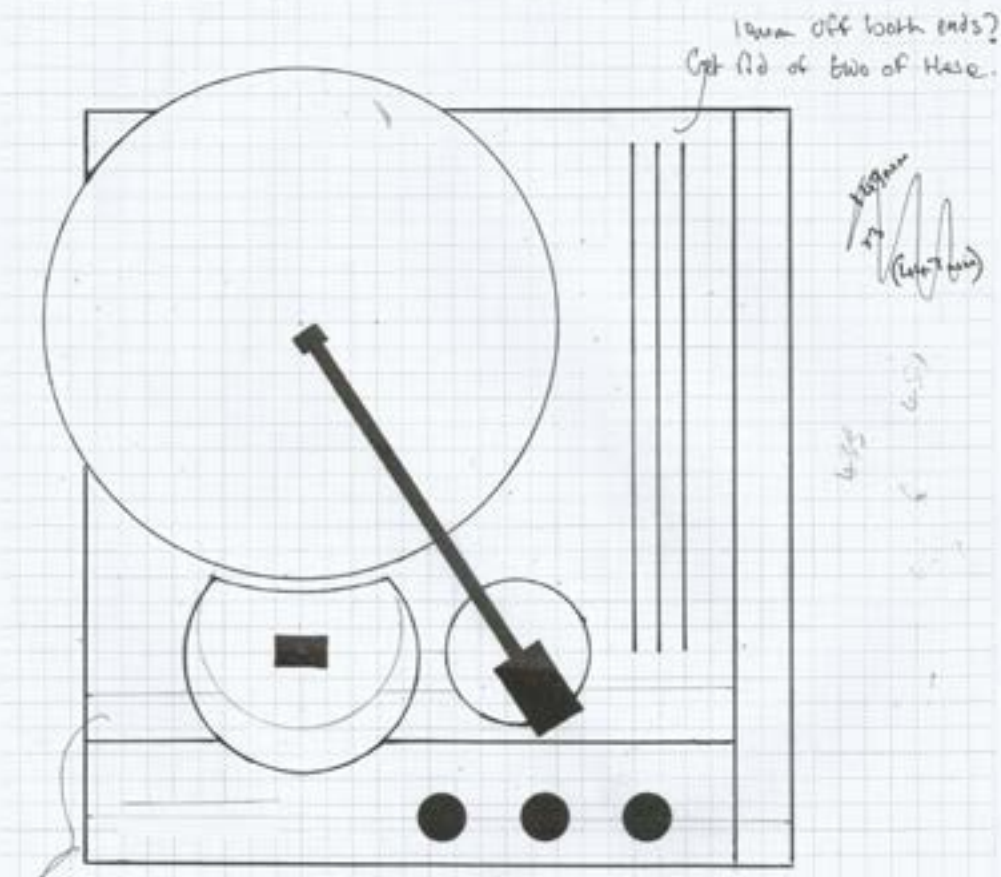
150mm

Metal

Alm.

100mm

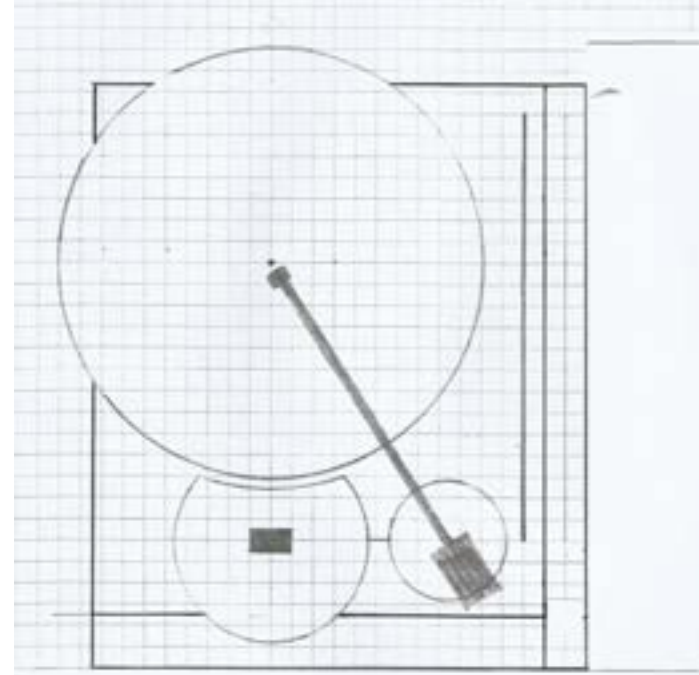
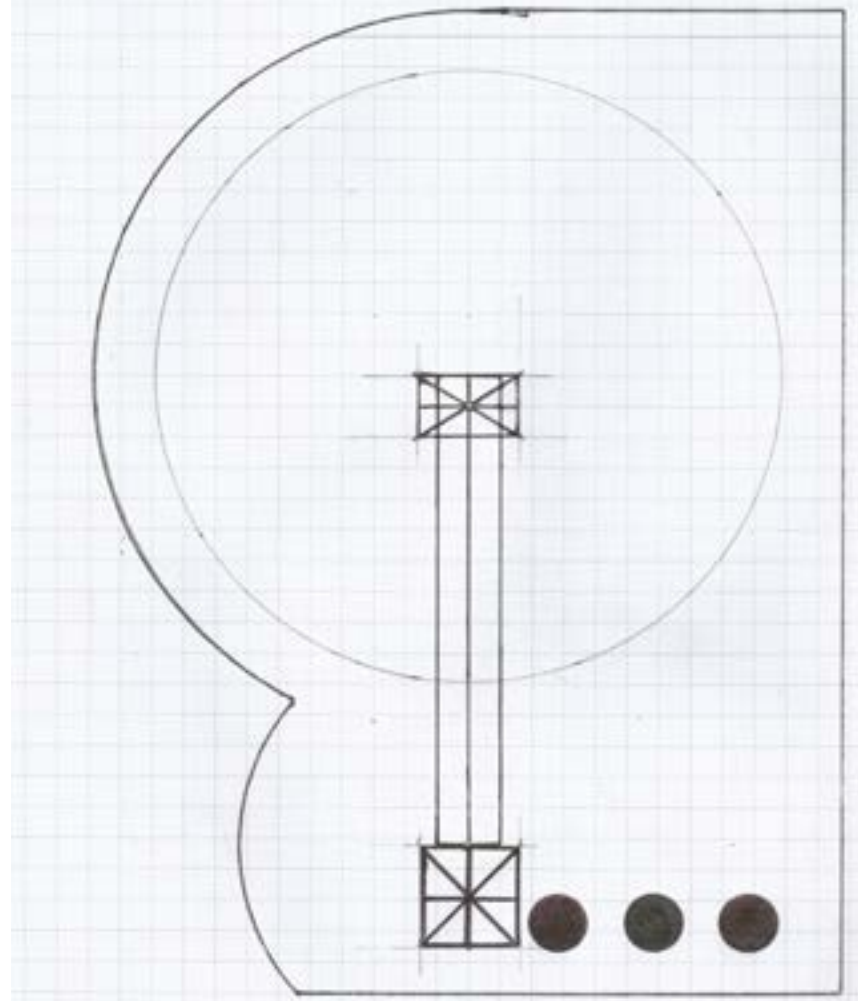
← 440 X 440mm



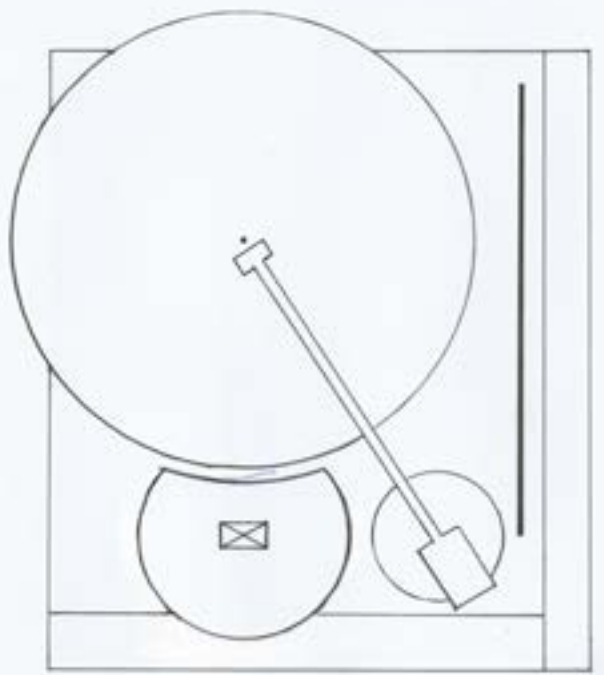
Cut 10mm off this and move it all but keep everything else the same.

156mm → (156mm)
156mm ↓ (156mm)

Here are 4 of, what I thought were going to be my final turntables to scale. The shape was slowly getting to what it is now however I originally wanted to have a slit in the turntable base that you could fit the album or single you were currently listening to in. This was to give you a chance to look and understand the artwork as well as listening and understanding the lyrics. Although now a days the album artwork doesn't seem so importance. Not how it was when there wasn't so many adverts on the TV and



programs like Spotify. The Album art work is what used to make people buy the album, You could tell a lot by what the artists was about just by the cover, however now a days its not needed so much.



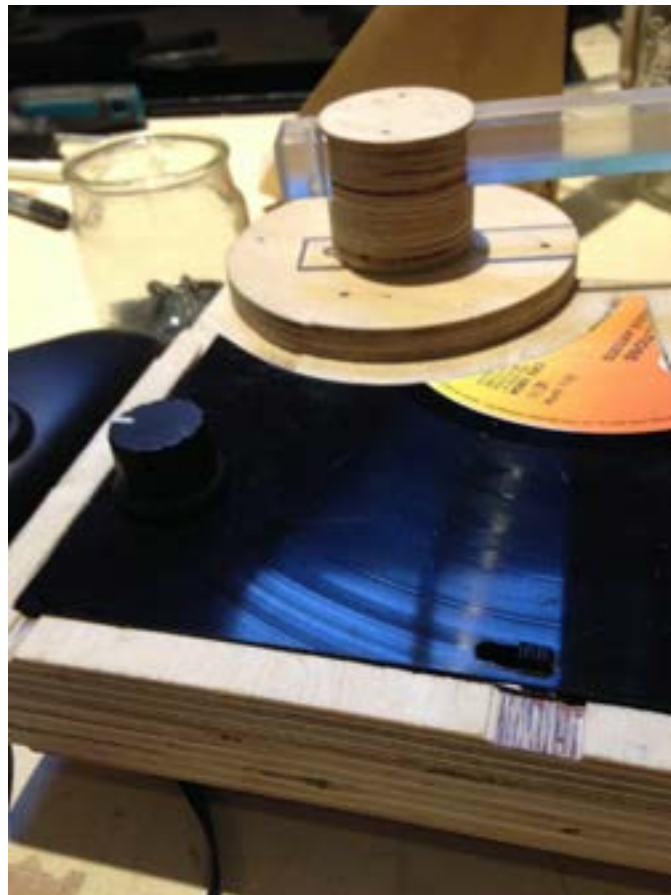


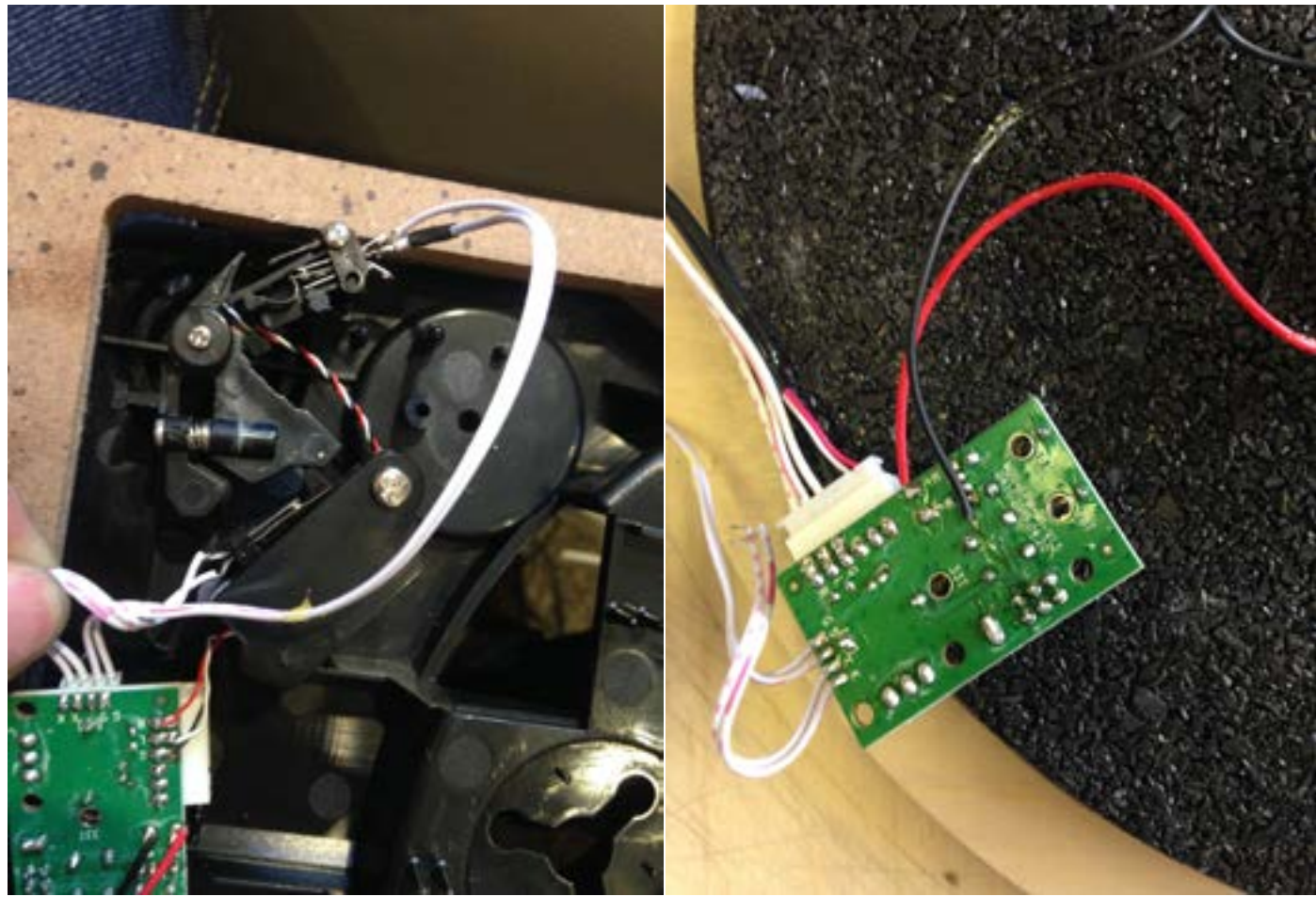
Here are some models that I have created, all of them to scale to one of my designs. The photograph in the bottom left is the final model I made before making the first wooden model.



The wooden model. The most important part of the whole process, this gave me the idea of making the turntable in three different sheets of ply instead of one and chiselling out the middle. It helped me fix the problem with the tone arm as well as how the electrics were going to go into it.

Although the materials weren't correct they gave me a big understanding of how the ply would react to the vibrations of the motor and whether or not it would effect the play quality.





The electrics were tricky for this. After contemplating using the motor from a Rega Planar 3 as well as the power switch I decided to leave the nice turntable together and went for the cheaper parts from a Bush classic suitcase turntable. All the parts are cheap, easy to replace if broken and were all confined into one area which made this easier to place inside a new body. This also gives me the option of having inbuilt speakers and an AUX cable going in and out of the turntable. Although this isn't what the project is about, its good to know that if I need it then I have it there.



42 answers.

• Do you like music?

- YES: 41 (97.62%)

- NO: 1 (2.38%)

• Where do you mostly listen to music?

- Home (bedroom, kitchen ect...): ||||| (42.59%)

- Car: ||| (18.51%)

- Uni: ||| (7.404%)

- Commuting: ||| (12.95%)

- Everywhere: |||| (7.404%)

- Parties/clubbing: 1 (1.93%)

- Work: ||| (9.25%)

• How many hours of ~~music~~ music do you listen to in a week?

- 0-5 hours: 5 (11.9%)

- 5-10 hours: 7 (16.67%)

- 10-20 hours: 14 (33.33%)

- 20-30 hours: 10 (23.81%)

- 30-40 hours: 2 (4.76%)

- 40+ hours: 4 (9.52%)

• How do you listen to music?

- Record Player: |||| (5.96%)

- Spotify/Apple music / ||||| (41.79%)

- CD: ||| (10.43%)

- Radio: ||| (17.92%)

- iPod/iPhone: ||| (8.94%)

- Youtube: ||| (14.9%)

• Have you ever listened to an entire album in one sitting?

- YES: 40 (95.24%)

- NO: 2 (4.76%)

• Would you consider sitting down to listen to an entire album (no distractions)?

- YES: 31 (73.81%)

- NO: 11 (26.19%)

• Would you consider using your own body to amplify music?

- YES: 23 (56.10%)

- NO: 18 (43.90%)

• Can music make you feel emotional?

- YES: 40 (95.24%)

- NO: 2 (4.76%)

• What activity are you mostly doing when listening to music?

- Cooking: ||| (10.71%)

- cleaning: ||||| (16.83%)

- Driving: ||| (13.77%)

- ~~working~~ ^{working} ||| (10.71%)

- Working: ||| (20%)

- ~~reading~~ ^{reading} || (4.59%)

- walking: ||| (7.65%)

- Gaming: || (3.08%)

- Dancing: ||| (6.12%)

- relaxing: 1 (1.93%)

- Gym: ||| (4.59%)

• Would you consider dedicating an entire room of your house to listening to music?

- YES: 22 (52.38%)

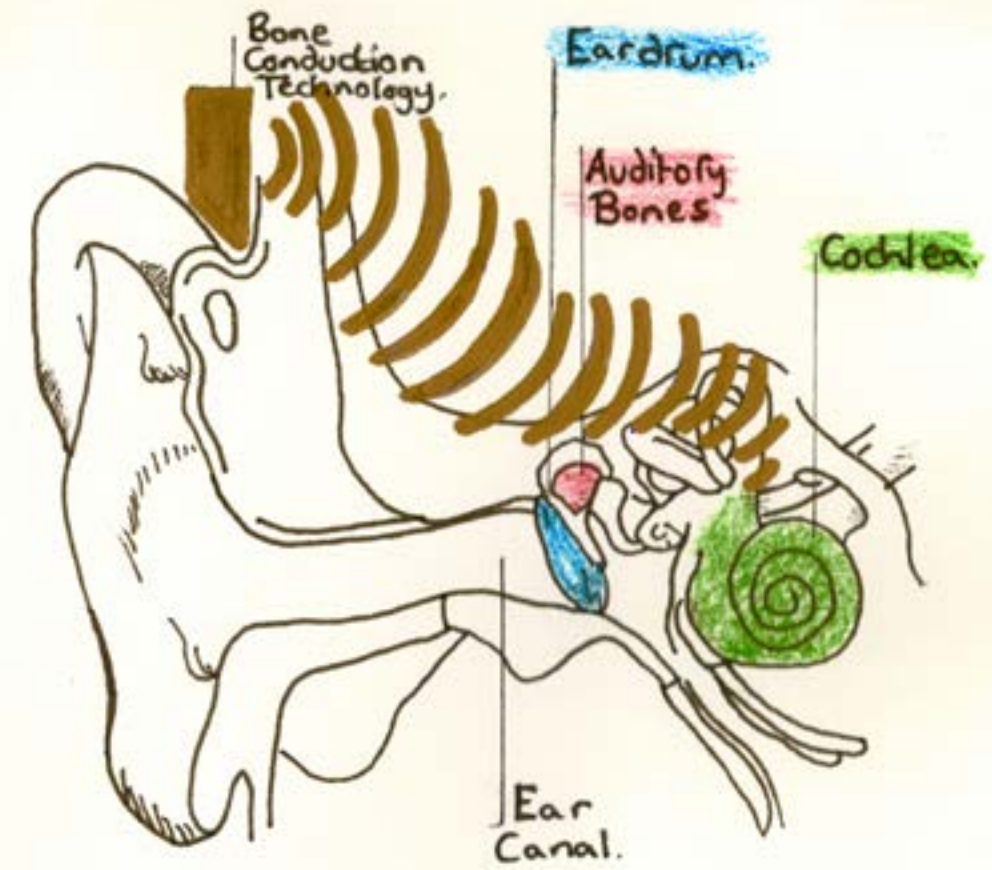
- NO: 20 (47.62%)

A questionnaire to help me get some information of whether people would be interested in listening to different types of music, whether people listen to an entire album or whether they feel emotional whilst listening. And to the questions these were the answers.

BONE CONDUCTION

The bone conduction is something that has interested me in a long time. Although my influence for this specific side of it was from an episode of Pretty Little Liars. By placing their elbows on a table which was connected up to some speakers they could listen to someone talking/ listening to music ect... This had me fascinated so I started to look at how this could be done and it turned out to be quite simple. Using sound vibrations through your jaw to create sound.

The Diagram to the right shows how it works by using bone conduction headphones. By sending vibrations past the eardrum and directly to the cochlea. Although this isn't anything to new, it was in fact another way to listen to music. So I started looking at how I could make something using this idea.



*Bone Conduction mouth
Piece experiments.*

Motor rod 2mm

12mm to thick.
 11mm
 10mm
 9mm
 8mm
 7mm (ring)
 6mm
 5mm (ring)
 4mm
 3mm

Solid/ or hollow?

*I need them to be comfortable for at least
30 mins.*

Motor Case

Could have it sitting on the table.

Could I attach a oil with light movement so it isn't so heavy on your teeth?

Listening to music through a needle, as strange as it looks it worked quite well, once you figure out what pressure to place down, not too hard but just hard enough to make it work. Every word, every instrument going directly to me cochlea.

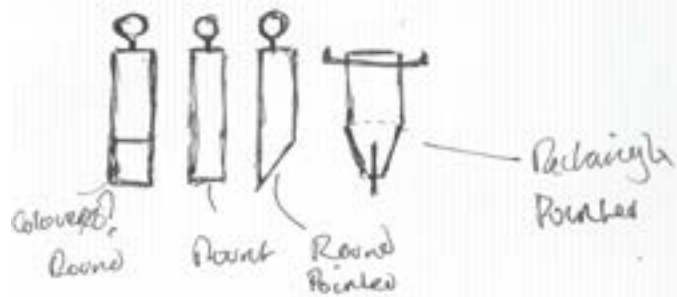
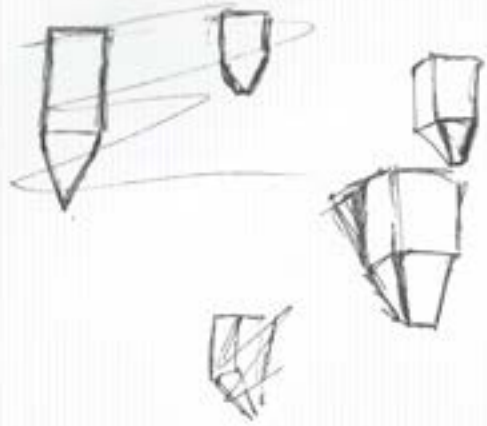
It was great that this worked, with the obvious problem being that having a needle in your teeth is dangerous and very difficult to control and get a consistent flow of music I knew that I needed to have some sort of mouth piece that the needle would go into. And even then this isn't a practical way of listening to music.





Bone conduction pieces. The wooden parts are the mouth pieces which attach to the motor. Listening to music through your bones. In this case through your jaw, this is a mouth piece that is attached to a small motor, the motor is then attached to an audio jack and once plugged into a phone or any device that produces sound the motor vibrates. Once placed in the mouth the vibrations send sound waves through your teeth, into your jaw and directly to your cochlea, passing your ear drum.





Celebrating music and the experience of listening.



- wood.
This one specifically has a needle to be placed on a vinyl, however, it has the problem of damaging the vinyl too much to make a difference in sound.



- wood.
These two have a pointed top which could, in theory, be used to be fit in the grooves of the vinyl, would this actually work?



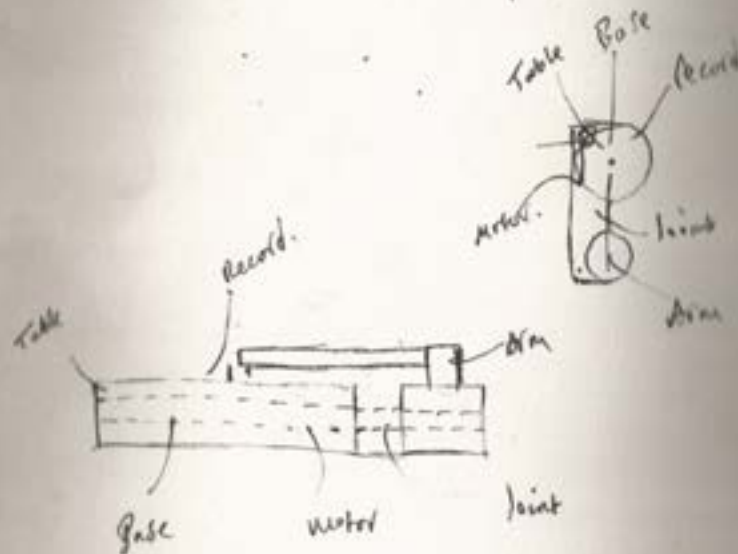
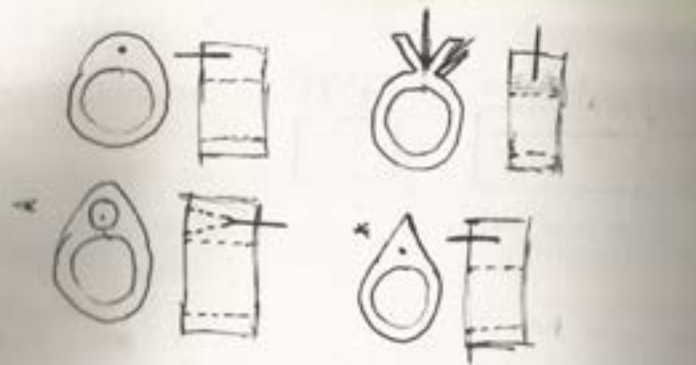
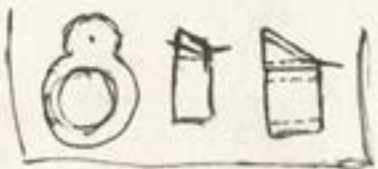
- wood.
Do they have to be used on a vinyl? Could they be used to make music in other items. Such as fences, grates, the experience of making music.



- wood.

Some of the first drawings for the rings and necklaces, looking at different shapes, sizes, materials as well as different ways of using them.

Instead of being
the needle that made in
the wood then vibrates
my other mesh.

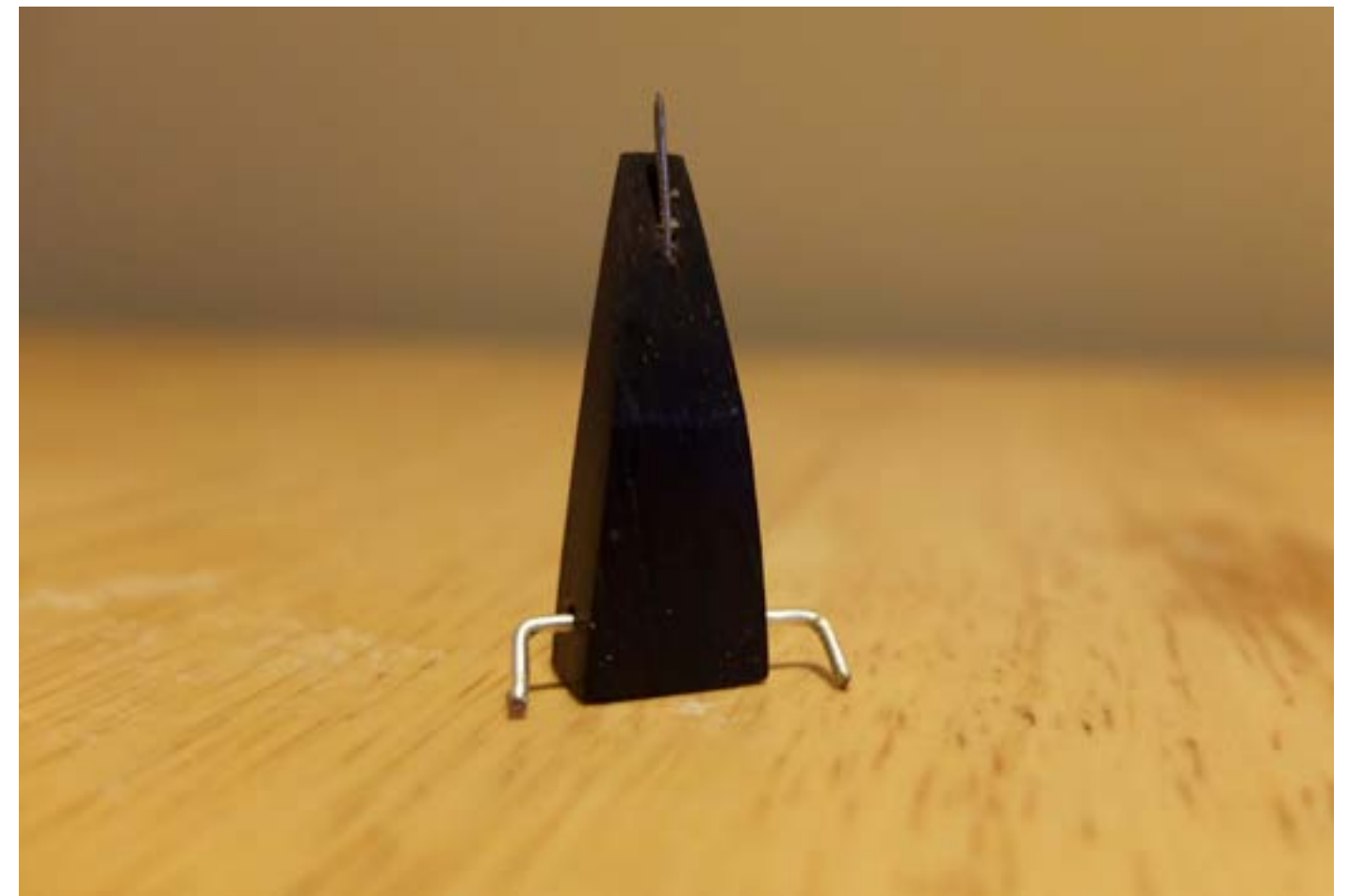


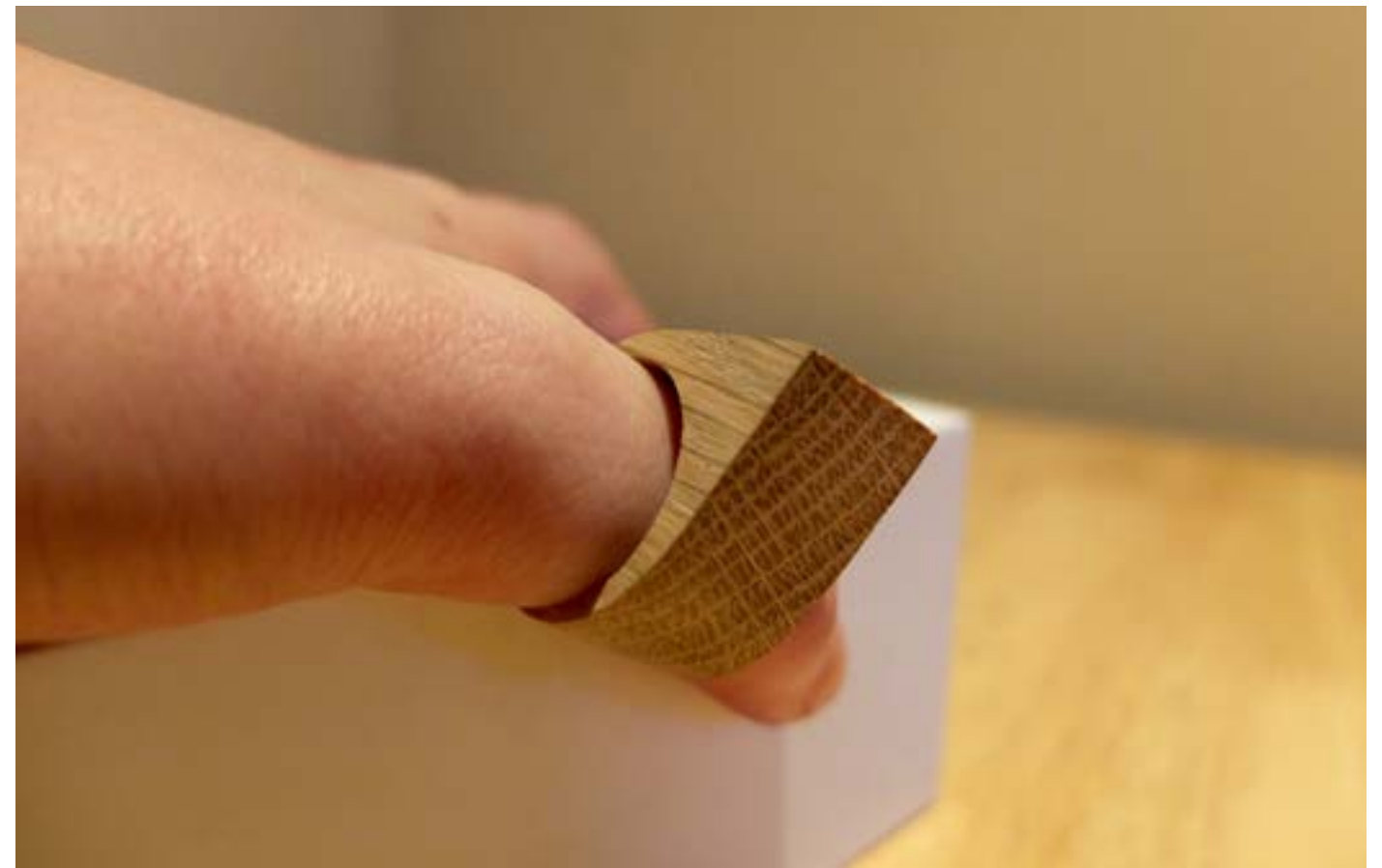


The first rings and necklace that I made were made from Rosewood due to its great acoustic properties, which is why it was used in guitars so often. I have placed a needle in the wood so you can play it on the turntables. The sound it makes is very quiet however you can hear the music. Depending on the size of the needle depends whether you would have to take the ring off your finger to play it or whether you would be able to play it whilst it is on your finger. The necklace you could also play whilst wearing it or taking it off.

The Oak rings didn't have such good sound quality however the cone shape that I drilled into the ring gave a slightly louder sound.

Although these are not very loud they give the listener a personal feel to the artists as well as getting them to think about what can be used to listen to music and how it can be listened to.







The Vinyl Rings are the start of a large collection of rings. These two set of rings are all about how we listen to music through different devices and how we can make some sort of music or tap along to music we are listening to.

The rings above are made to bang against objects such as railings to create sounds and potential music of our own. The rings are made from broken old vinyl's. The process of turning them into rings starts from placing the vinyl into a chipper to chip up all the vinyl. Then placing the chips into a tray and into the oven, leaving them in for 30 minutes at 100 degrees. After half an hour I place the heated chippings into a press and pressing 3 tons of pressure for 10 minutes. Once out and the now vinyl sheet has cooled down I used a large drill bit to create the hole. I then cut and sand to the shape that I want. This is the process for all the rings, except when it comes to the acrylic rings the material is obviously acrylic mixed with a small amount of vinyl.

The second lot of vinyl rings are to be played on the record player themselves. it can either be take off and used or it can be played whilst still on the finger of the user. Although this would be for a very personal use, and only be heard by the user, it would also scratch the record due to the weight and pressure of your hand.

This is a ring to show how we can get personal with the music we can get and making people look at different ways of listening to music. Personalising the music experience.

The rings on the next page are the representation of the transition between Vinyl and CD, with the clear crisp sound of a CD being represented by the clear acrylic. The Vinyl is being represented of course, by the vinyl, a small layer goes through it with its warm sound.



This collection of rings represent different types of genres of music, depending of the genre you enjoy listening to depends on the rings that you wear, there are 5 genres of music that I have tried to represent which are, Classical, Pop, EDM, Blues and world music. with this collection I am hoping that there is a little something for everyone.



The clear acrylic rings represent classical music. An artist called Ludovico Einaudi gave me influence for this ring, the video to a piece of music of his called 'Elegy for the Arctic' had him sitting on a man-made ice burg in the Arctic whilst playing with the ice-burgs, the collapsing ice complimenting his music, something that will give you real chills down your back. This video and piece of music was written for Greenpeace to raise awareness to the melting ice caps. And because of this I have made them transparent, like ice, beautiful to listen to and beautiful to look at with a harsh reality and a wake up call.



EDM (Electronic dance music) is an eye-catching ring using bright edge acrylic, when the light shines so does the acrylic. The bright light is the representation of lasers, which are usually associated with EDM, giving it an eye-catching look.



The Blues ring, such amazing music with such a deep and powerful history, this had to be a chosen ring. I went down the simple route of using blue acrylic mixed with the clear acrylic.



To the left I have made rings that represent world music, music which comes from the heart. Influenced by the WOMAD festival these rings represent the mix of culture through music, bringing people from all over the world together.



Pop music was one which needed to be bright, colourful and sickening, that is why I used bright pink and purple, not the most pleasant of colours however they quite eye-catching, a little bit like pop music, does anyone like it? But we still listen to it.



The final three cones in there holder. which is made from 18mm ply with 15mm clear acrylic. Due to the size and shape of each cone the cones have certain holes for certain cones.



The final turntable with the twisted cone in the tone-arm.





