



grill

A design process by Lily Butler

# Currently on the market



These three reusable BBQs have some great design elements which I will be looking into in detail below:



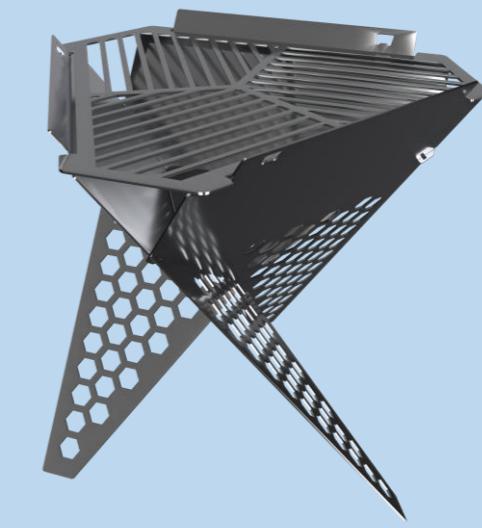
<https://www.serial-kombi.com/en-GB/camping-leisure-mobile-hot-and-cold-/cooler-and-barbecue-fold-away-reusable-bbq-30-x-45-x-35cm-n310655>

I love the book like nature of this first design. It gives such a clear message to the user of the intended method of compacting the BBQ whilst also giving a great aesthetic look. My only issue would be that it looks like it would not fold down to a very small portable shape so this would need improvement. I also recognise that there isn't anywhere to place any utensils during travel which is something Gril is keen to include.



<https://www.onbuy.com/gb/large-36cm-round-reusable-bbq-barbecue-grill-picnic~c4893~p42172604/>

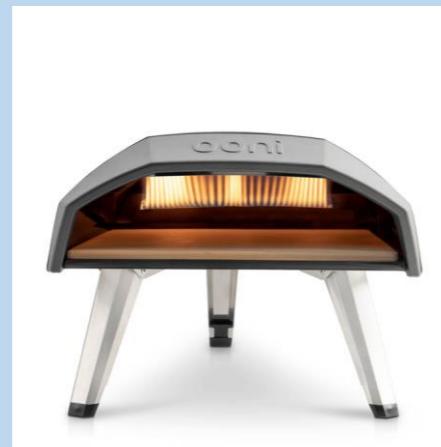
This design is quite sweet and I enjoy the way it is very simplistic in its design. The metal however looks to be of fairly poor quality, is not identified clearly on the website and might not be appropriate for multiple uses. It also lacks some of the style and innovation I would want to see in a Gril design. The elevated grill and fold out legs however are intelligent features which I might draw some inspiration from.



[https://wildgrill.com/products/hex-stainless-portable-bbq-and-fire-pit?variant=3595018220355&currency=GBP&utm\\_medium=product\\_sync&utm\\_source=google&utm\\_content=sag\\_organic&utm\\_campaign=sag\\_organic](https://wildgrill.com/products/hex-stainless-portable-bbq-and-fire-pit?variant=3595018220355&currency=GBP&utm_medium=product_sync&utm_source=google&utm_content=sag_organic&utm_campaign=sag_organic)

Finally, this futuristic design is very striking and I like the choice of using a less commonly seen shape. For me, I find the level of cut-out detail to be too much visually and whilst I understand the need for material reduction to increase its lightweight nature, the number of different shapes and elements is slightly overpowering visually. I would take design inspiration from this design though, especially the leg design.

# Design style inspiration



<https://uk.ooni.com/products/ooni-koda>

Ooni's pizza oven style was specified by the client as being very **sleek** and **modern**, two adjectives they also desired to achieve in the Gril design. Unlike Gozney's design for their pizza oven, Ooni has chosen a more angular theme with a closed tunnel shape.

I think the grey accent at the mouth of the oven is really well chosen to give an instinctive nature to the project's use. As well as this, the tripod style leg design gives the product good stability on many different terrain's and surface levels.

The use of chamfers in this design is really affective in tying together shapes that could otherwise look rather disjointed or incongruent. It's a great technique to tie the different parts together and something I can do in my design if it works well.

## What I will take away:

- Consider using three legs to improve stability
- The use of repeated features can tie a product together
- The design could use angular forms like Ooni or round ones like Gozney
- Think about colour to indicate use and purpose of different features

The client has asked for the Gril design to reflect aspects of Gozney's design style. Shown are three of Gozney's high selling products. They show a clear style featuring clean curves, light colouring and a minimalistic finish.

A nice feature I might choose to replicate is the large round dish at the base of the pizza oven, with the nice chamfered corner that brings an element of difference and class to the design.

I also think that the chamfer around the bottom curve and then the full radius at the top creates quite a grounded and solid feel to the design.

The colour choice and overall presentation replicates the form and feel of a mushroom which is quite fitting for a outdoor oven, somewhere you might cook foraged goods!

## What I will take away:

- One design could centre around a hiking theme/ piece of equipment e.g. a tent?
- Consider the use of chamfers in the design
- Choose a colour that lifts and expands the product visually preferably only paint the outside surfaces to decrease the appearance of damage.



<https://www.gozney.com/products/dome>



<https://www.gozney.com/products/master>

# Materials used in similar products



Commercial grade cold-rolled carbon steel shell with high-temperature resistant, powder-coated finish



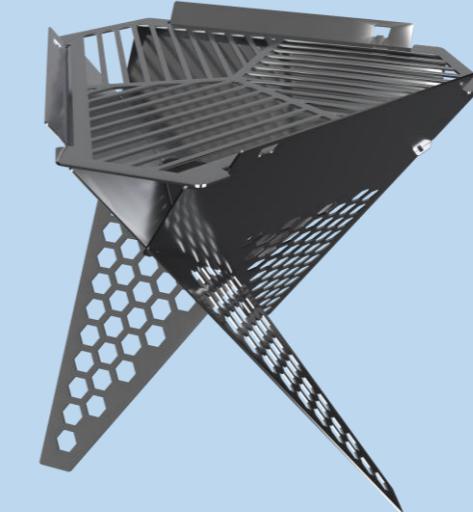
100% Steel



Unspecified Metal



- Hand-cast Gozney Ceramix™ oven floor and dome segments
- Advance grade insulation wrap
- Underfloor calcium silicate insulation boarding
- GozneyRapidInstall™ mesh system to act as render guide
- Enamelled cast iron fascia with integrated thermometer
- Stainless steel flue vent and rain cap
- Enamelled cast iron door
- Black powder-coated steel stand



3mm zinc-coated steel sides, 3mm stainless steel grill, clip

# Up and coming products

Caveman - Featherweight Foldable Camping Grill



A portable grill that folds completely flat, weighs under 2 pounds, feeds 8 people, and fits in your backpack.

[Learn More](#)

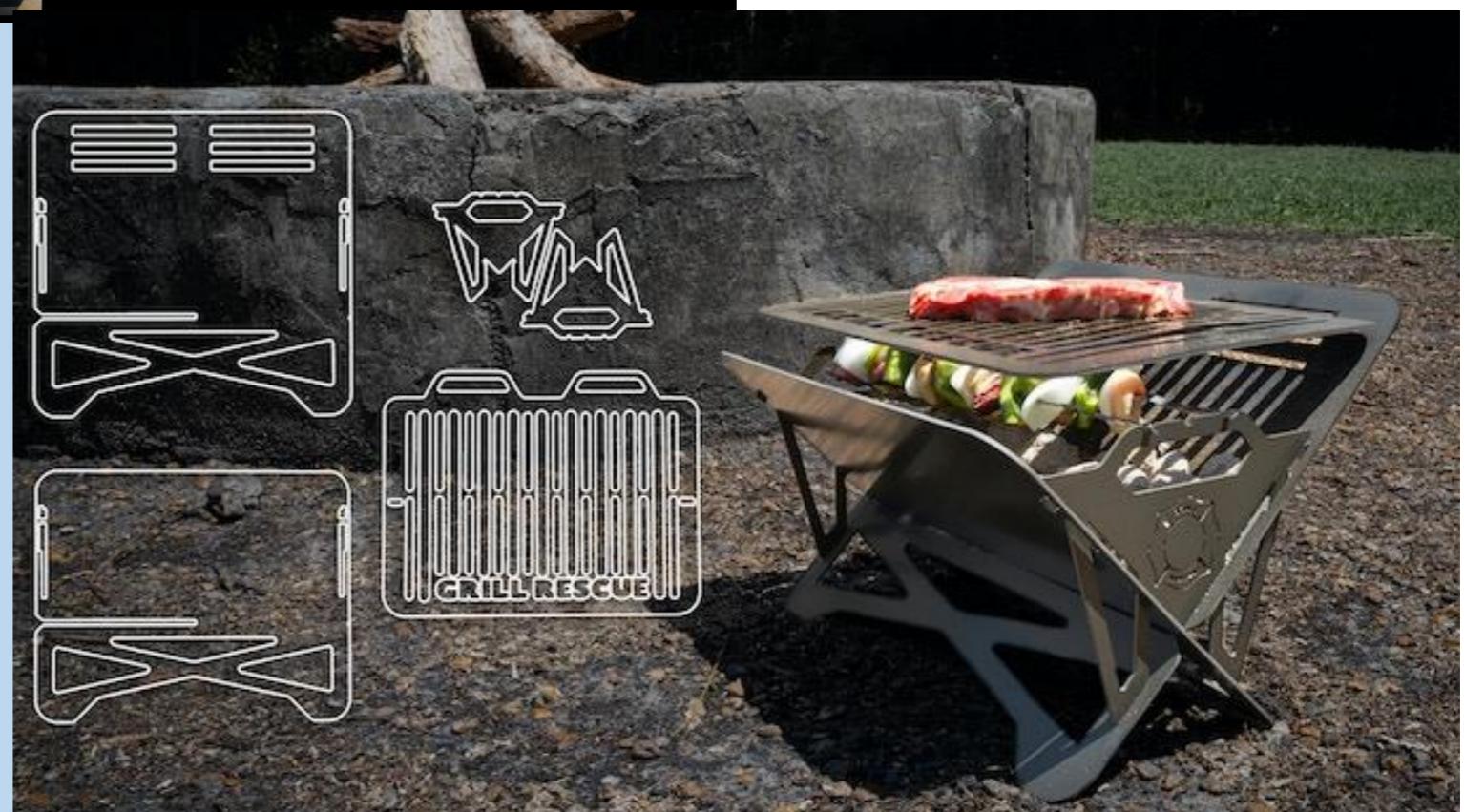
Created by

Grill Rescue

1,418 backers pledged \$414,727 to help bring this project to life.

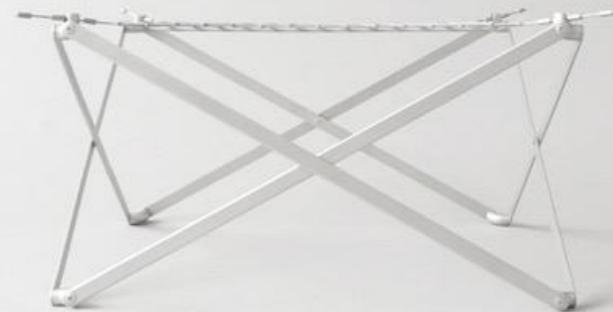
Last updated September 21, 2022

<https://www.kickstarter.com/projects/grillrescue/caveman-featherweight-foldable-camping-grill>





<https://www.kickstarter.com/projects/wolf-and-grizzly/wg-grill-lightweight-compact-and-adjustable-portab>



<https://www.pinterest.co.uk/pin/151081762488536992/?mt=login>

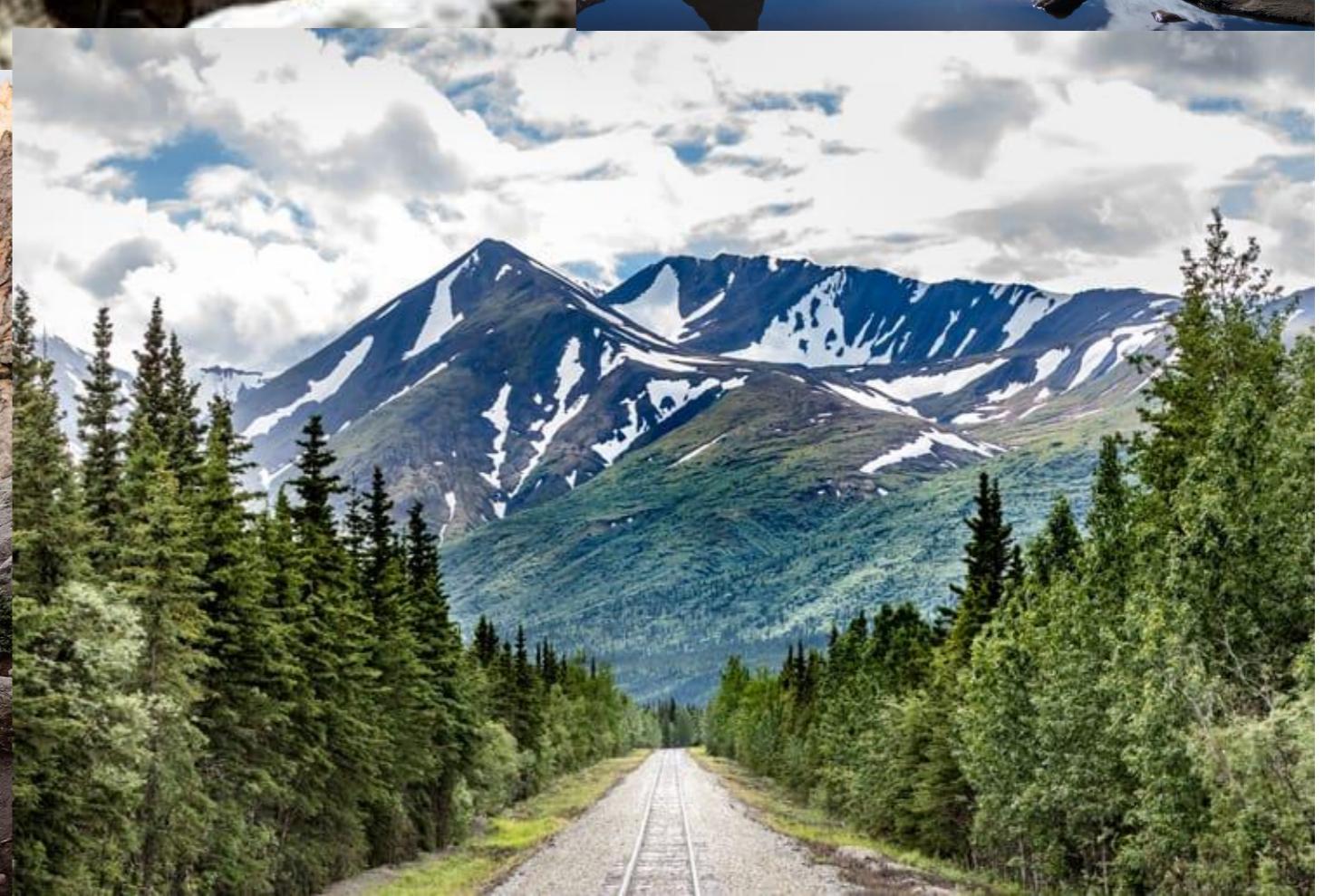
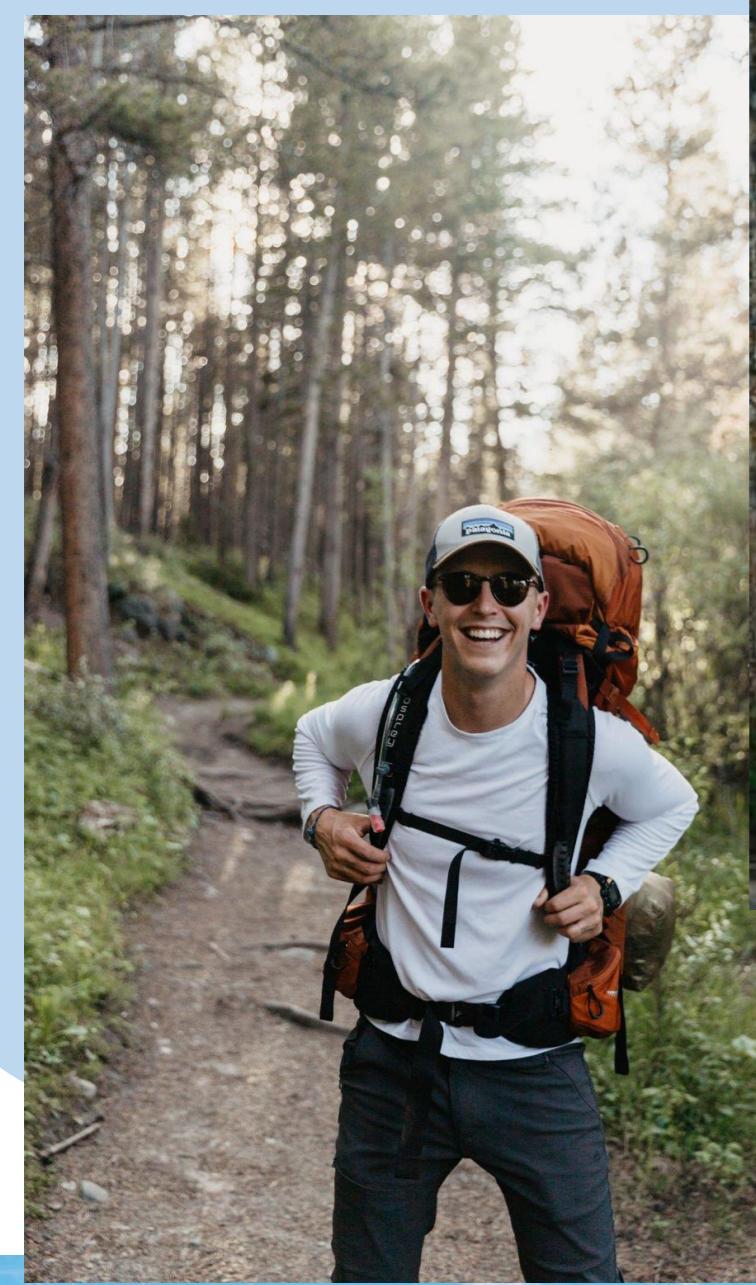


<https://thebbqinfo.com/una-grill/>



**UNA**  
PORTABLE GRILL

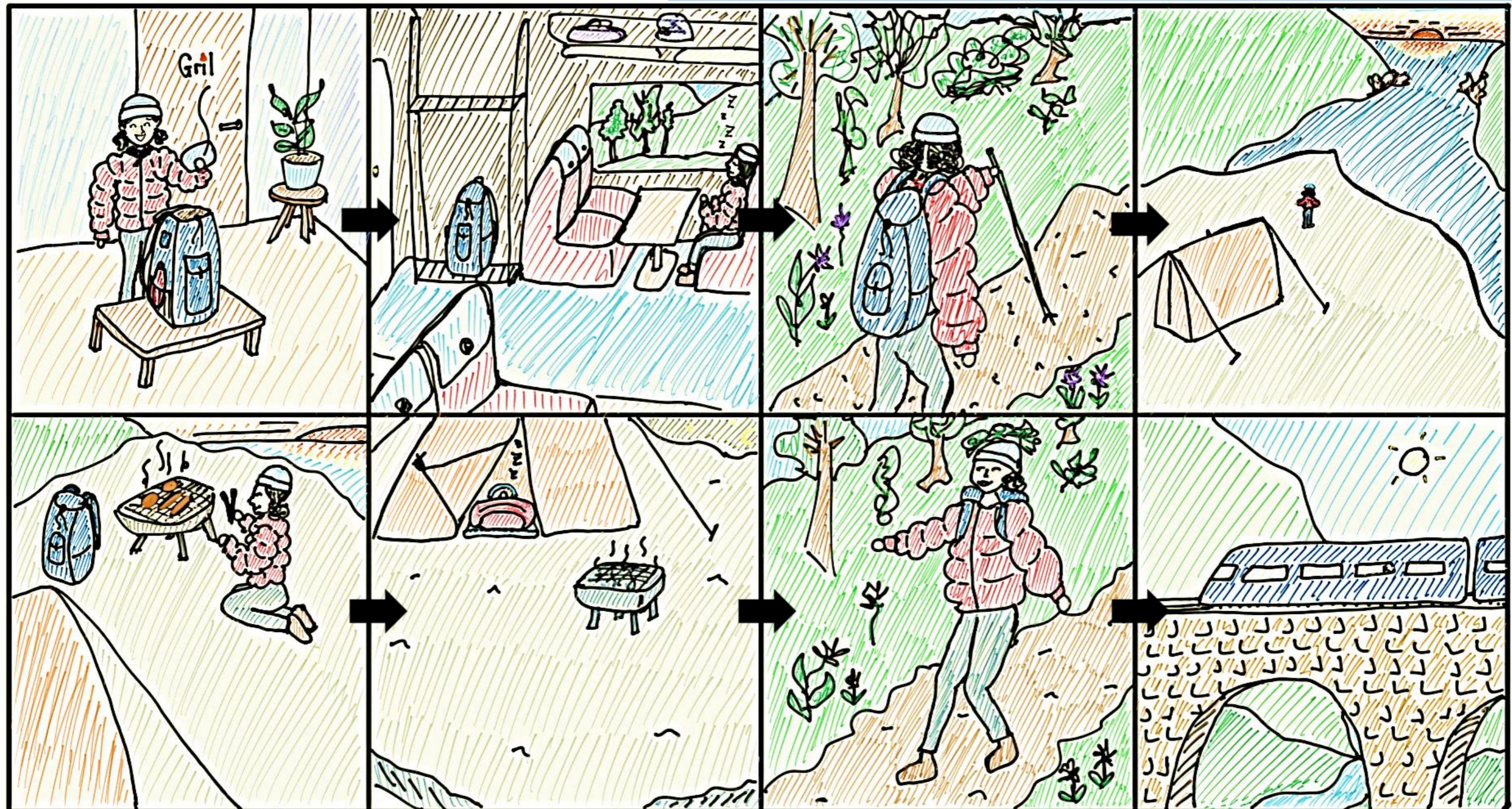
# User profile



# User profile



# User Journey:



# Heat resistant materials

After thinking about the user's journey and looking at the target market, I have felt challenged on my initial plan that the Gril would be left to cool down before being packed back up and therefore feel it would be a responsible decision to design a container of some description to store the BBQ in after use. This would also give the user somewhere to store their cooking utensils and fuel (before the use of the product) and could tie the different elements of the product together.

The perfect storage box would need to be:

- Heat proof/ have a low thermal conductivity
- Space efficient (a useful shape for the product)
- Lightweight
- Fairly inexpensive
- Aesthetic

To start, I need to find out which materials are available as options.

Material	Thermal conductivity [ $\text{W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ]	Notes
Acrylic glass (Plexiglas V045i)	0.170 <sup>[3]</sup> –0.200 <sup>[4]</sup>	
Alcohols, oils	0.100 <sup>[5][6]</sup>	
Aluminium	237 <sup>[7]</sup>	
Alumina	30 <sup>[8]</sup>	For main article, see Aluminium oxide.
Beryllia	209–330 <sup>[9][10][11]</sup>	For main article, see Beryllium oxide.
Boron arsenide	1300 <sup>[12]</sup>	
Copper (pure)	401 <sup>[5][13][14]</sup>	For main article, see Copper in heat exchangers.
Diamond	1000 <sup>[5]</sup>	
Fiberglass or foam-glass	0.045 <sup>[6]</sup>	
Polyurethane foam	0.03 <sup>[5]</sup>	
Expanded polystyrene	0.033–0.046 <sup>[15]</sup>	
Manganese	7.810 <sup>[5]</sup>	Lowest thermal conductivity of any pure metal.
Water	0.5918 <sup>[16]</sup>	
Marble	2.070–2.940 <sup>[5][17]</sup>	
Silica aerogel	0.02 <sup>[5]</sup>	
Snow (dry)	0.050 <sup>[5]</sup> –0.250 <sup>[5]</sup>	
Teflon	0.250 <sup>[5]</sup>	

Looking at a typical flask for inspiration, it could be an option to create a vacuum between layers of material to create the insulation to stop the container being hot to touch on the outside?

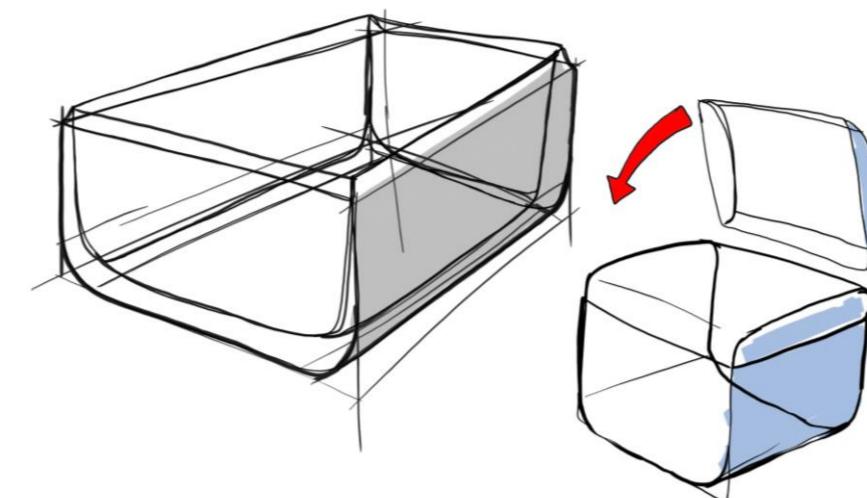
## Leak proof, sweat and BPA-free

Our airtight screw top lid prevents soaked bags and accidental spills. The vacuum insulation means your Chilly's Food Pot will remain condensation free.

Chilly's Food Pots are constructed from durable, high-grade 304 stainless steel, for both the inside and outside walls. This preserves the flavour and freshness of your food without any tainting.



[https://www.chillys.com/uk/products/food-pot-matte-blue?sku=F300MABL&wickedsource=google&wickedid=Cj0KCjw-fmZBhDtARIsAH6H8qhIZpsekNmUP4gQSCo5vDl2rcnjMc9VpYbMI0a7flodxjUd3-peoaAsNrEALw\\_wcB&wickedid=585901852702&wcid=16476672223&wv=4&utm\\_source=google&utm\\_medium=cpc&gclid=Cj0KCjw-fmZBhDtARIsAH6H8qhIZpsekNmUP4gQSCo5vDl2rcnjMc9VpYbMI0a7flodxjUd3-peoaAsNrEALw\\_wcB](https://www.chillys.com/uk/products/food-pot-matte-blue?sku=F300MABL&wickedsource=google&wickedid=Cj0KCjw-fmZBhDtARIsAH6H8qhIZpsekNmUP4gQSCo5vDl2rcnjMc9VpYbMI0a7flodxjUd3-peoaAsNrEALw_wcB&wickedid=585901852702&wcid=16476672223&wv=4&utm_source=google&utm_medium=cpc&gclid=Cj0KCjw-fmZBhDtARIsAH6H8qhIZpsekNmUP4gQSCo5vDl2rcnjMc9VpYbMI0a7flodxjUd3-peoaAsNrEALw_wcB)

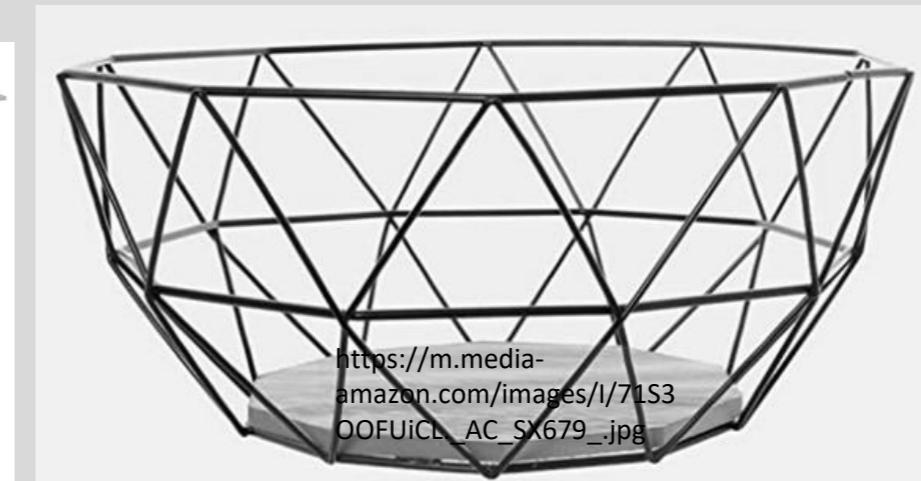
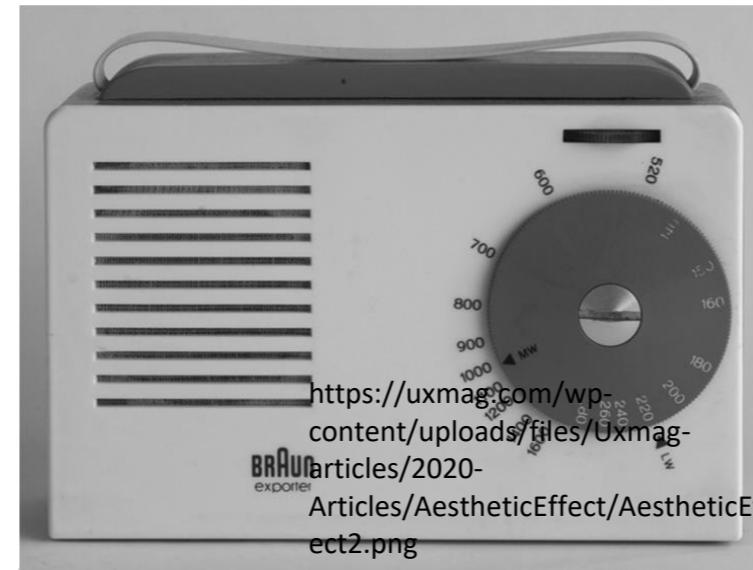


This quick sketch shows roughly the concept I could use: a double-walled container for the BBQ with a vacuum between to add insulation.

# Design inspiration



# Design inspiration



# Top Lit Updraft Method



<https://www.youtube.com/watch?v=YF8VTI4lqvA>

- Uses wood pellets and any other spare wood lying around as fuel.
- Uses only one can with pellets in, a second part with air feed, and a chimney part.
- Burns the fuel in first can, then burns the gases and smoke created in the second part, then heat is funnelled up the chimney and creates a lot of heat to whatever is placed at the top.
- Burns little fuel over time and left over fuel can be extinguished and used again later by cutting off the can's air supply.
- It would be useful to have a pair of tongs specially designed for handling and disassembling the TLUD at the end of the cooking process.

<https://www.youtube.com/watch?v=Ld3Hkeajouc>

# Top Lit Updraft Examples



[https://media.karousell.com/media/photos/products/2020/12/2/tomshoo\\_home\\_camping\\_woodalcoh\\_1606924234\\_41a9635c\\_progressive](https://media.karousell.com/media/photos/products/2020/12/2/tomshoo_home_camping_woodalcoh_1606924234_41a9635c_progressive)

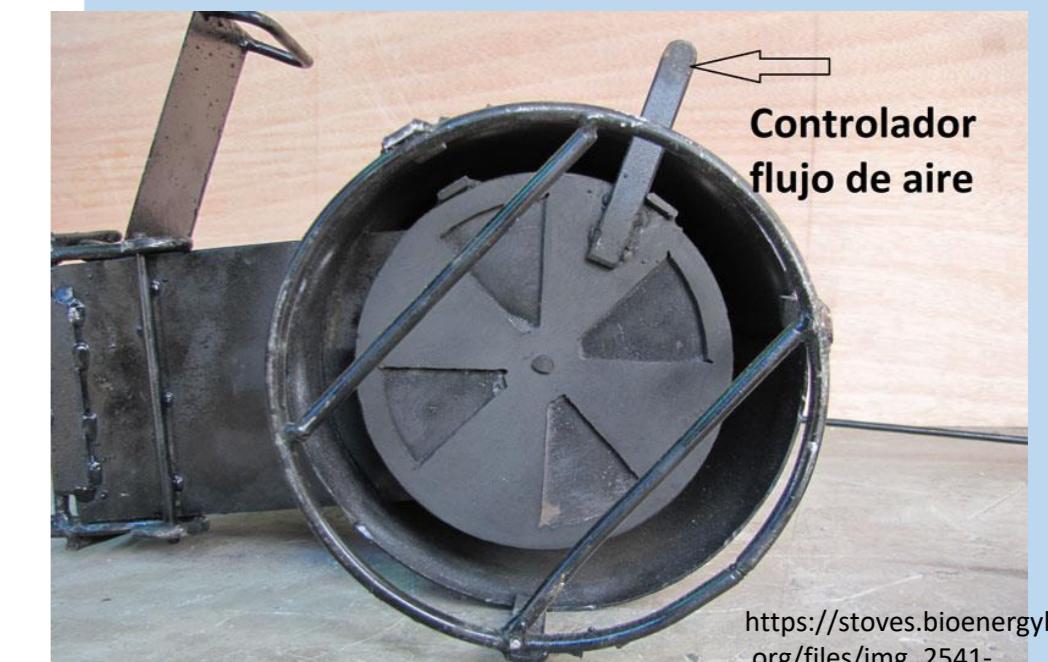


[https://www.algo.be/pub/Rocket-Stoves/WoodGasStoves/TLUD\\_fichiers/DSC00288-sm.jpg](https://www.algo.be/pub/Rocket-Stoves/WoodGasStoves/TLUD_fichiers/DSC00288-sm.jpg)

[https://cdn.shopify.com/s/files/1/1808/4323/products/Scout-silver-stove\\_326x.jpg?v=1607944594](https://cdn.shopify.com/s/files/1/1808/4323/products/Scout-silver-stove_326x.jpg?v=1607944594)

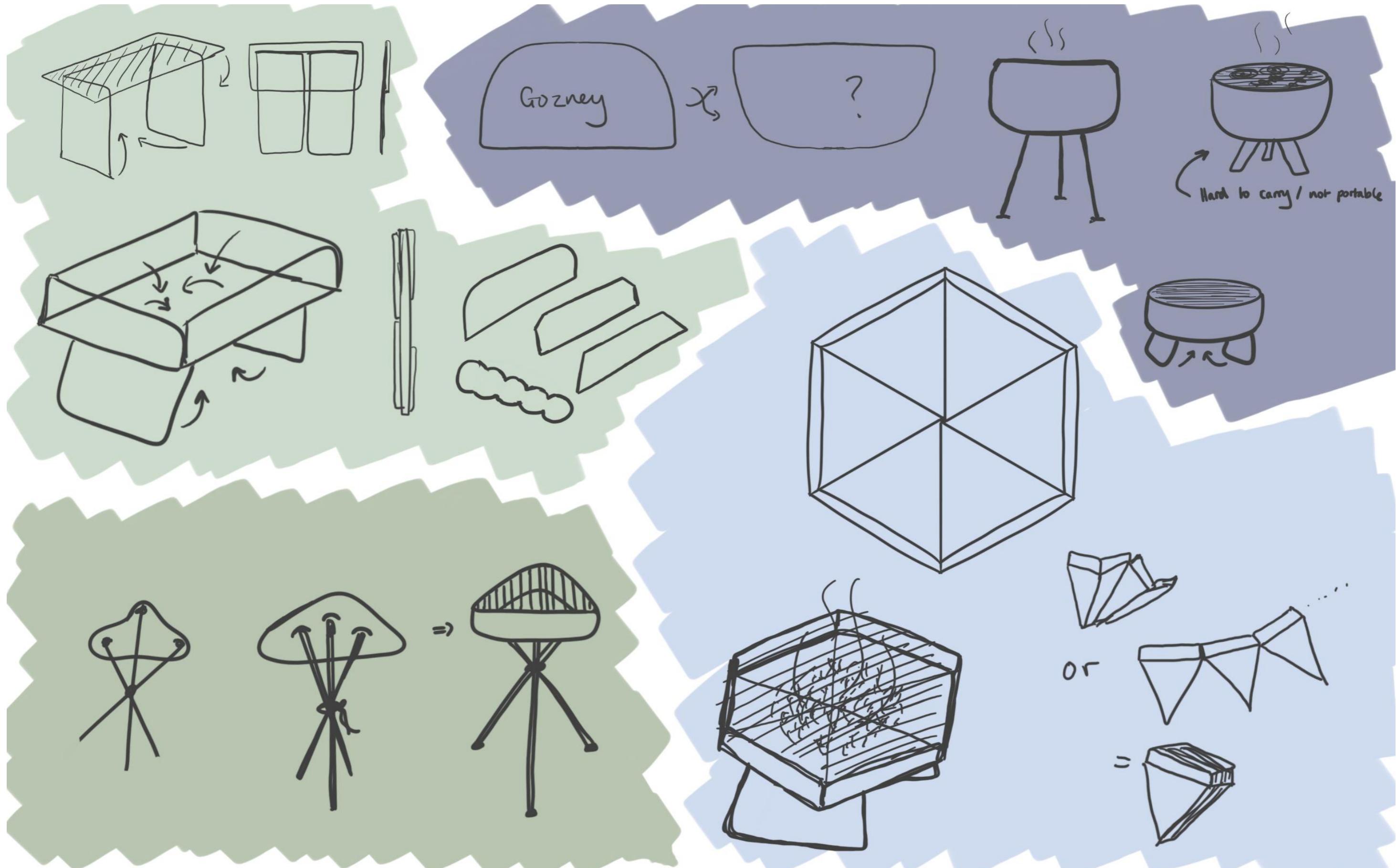


<https://classiccampstoves.com/attachments/26a24cea-e392-4767-a581-7de527fcc904-jpeg.226496/>

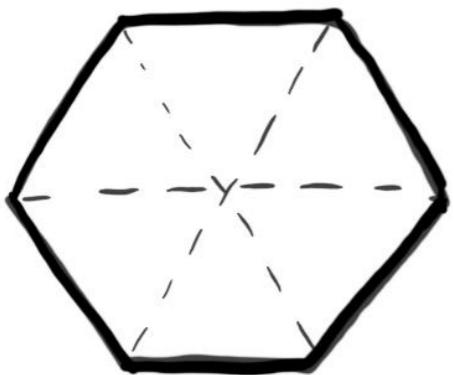


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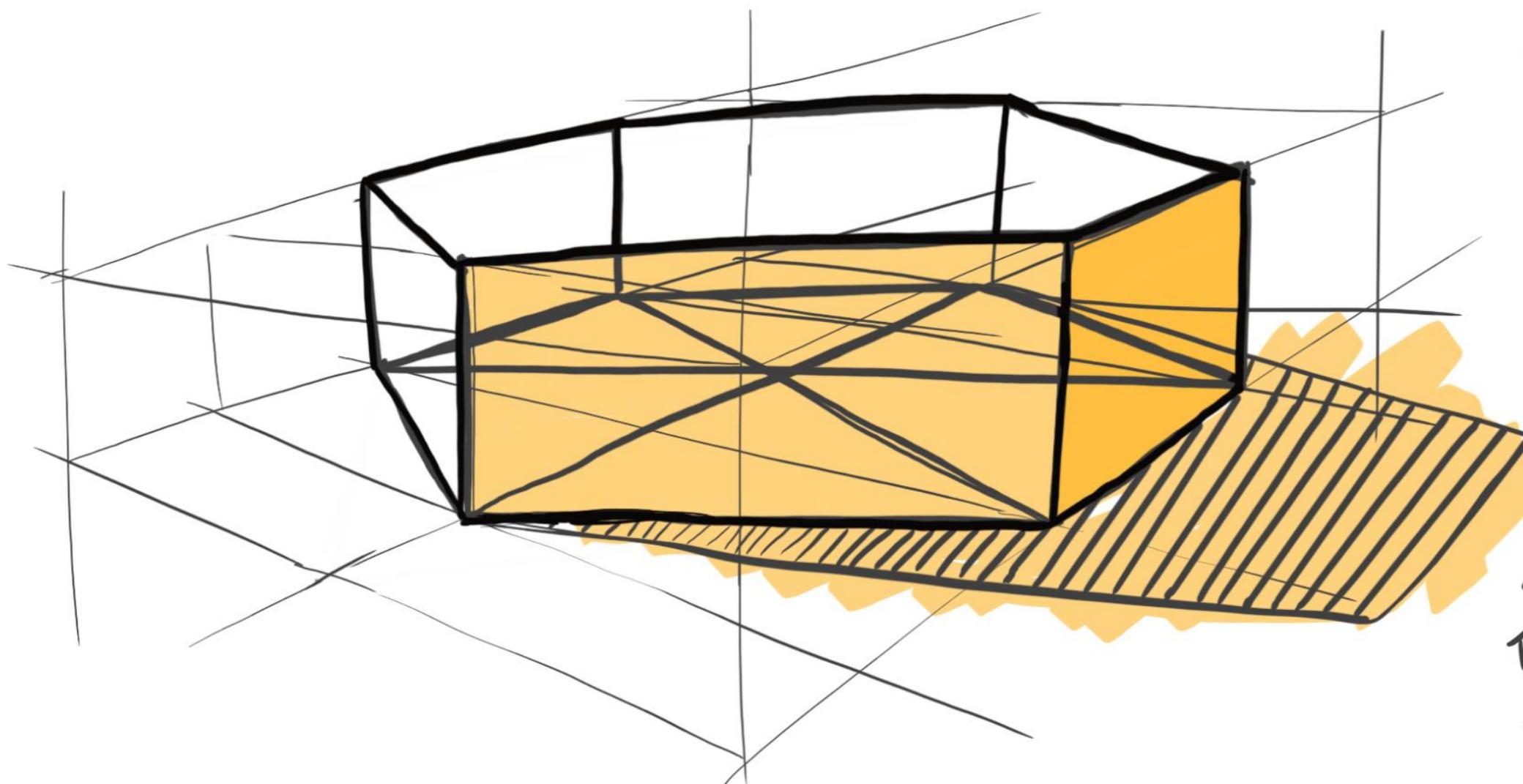
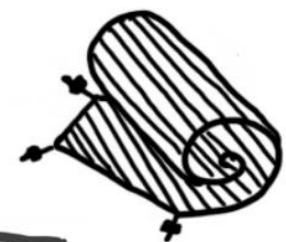
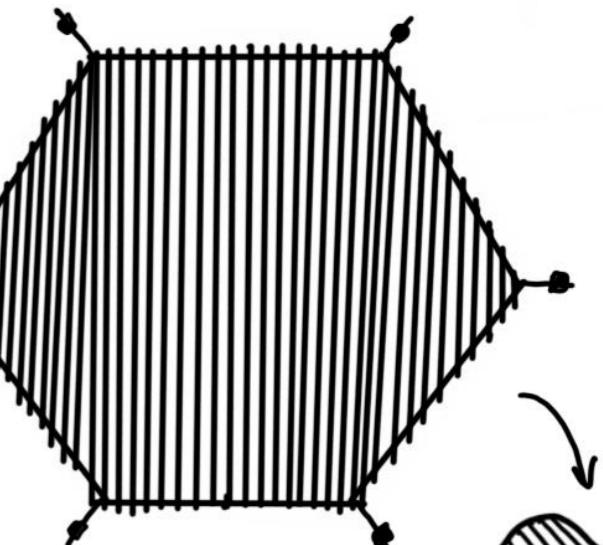
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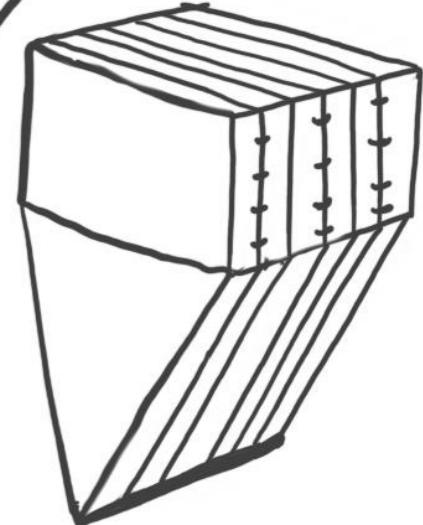
hexagonal shape?



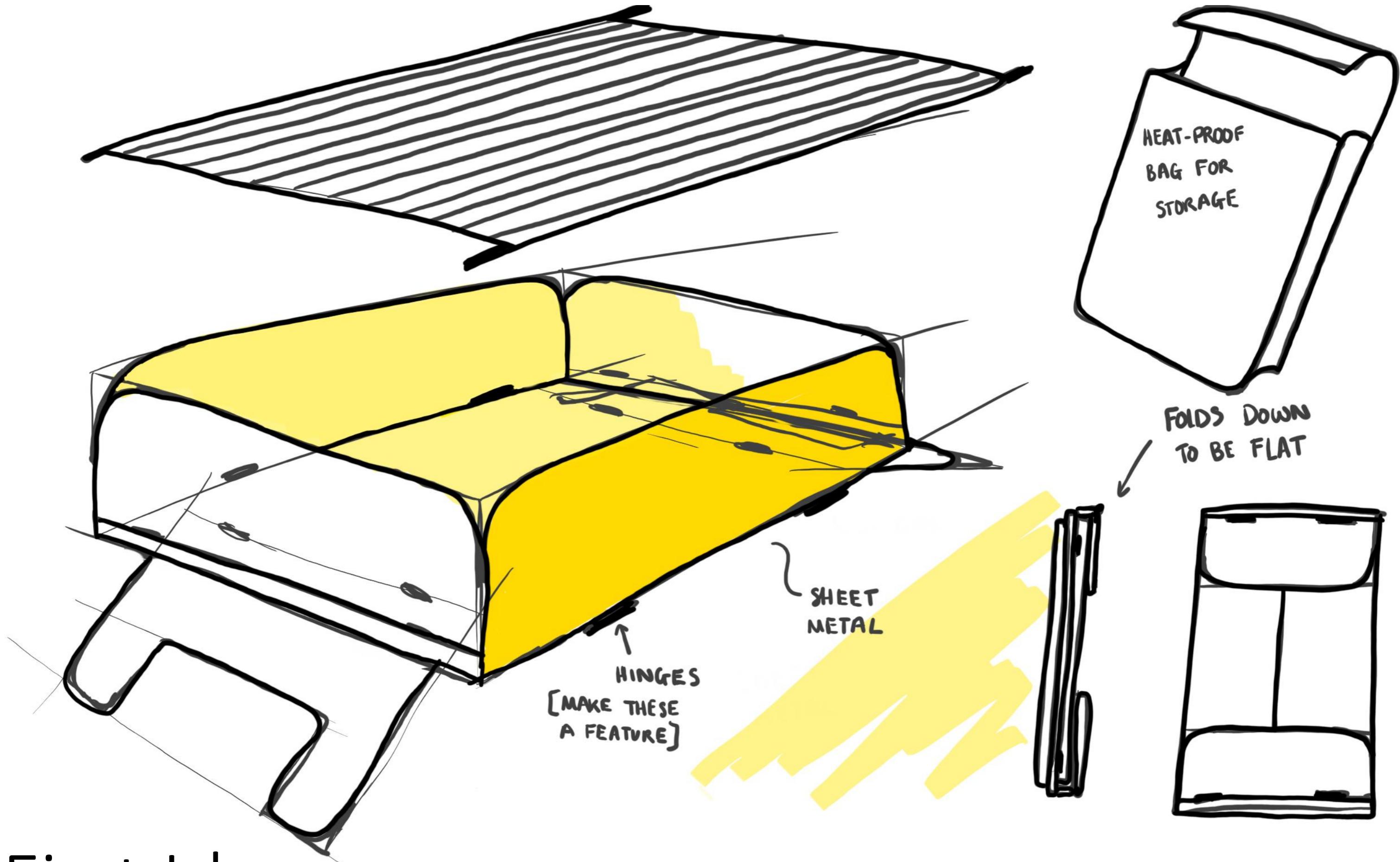
roll out  
grill,  
idea from  
up and  
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products  
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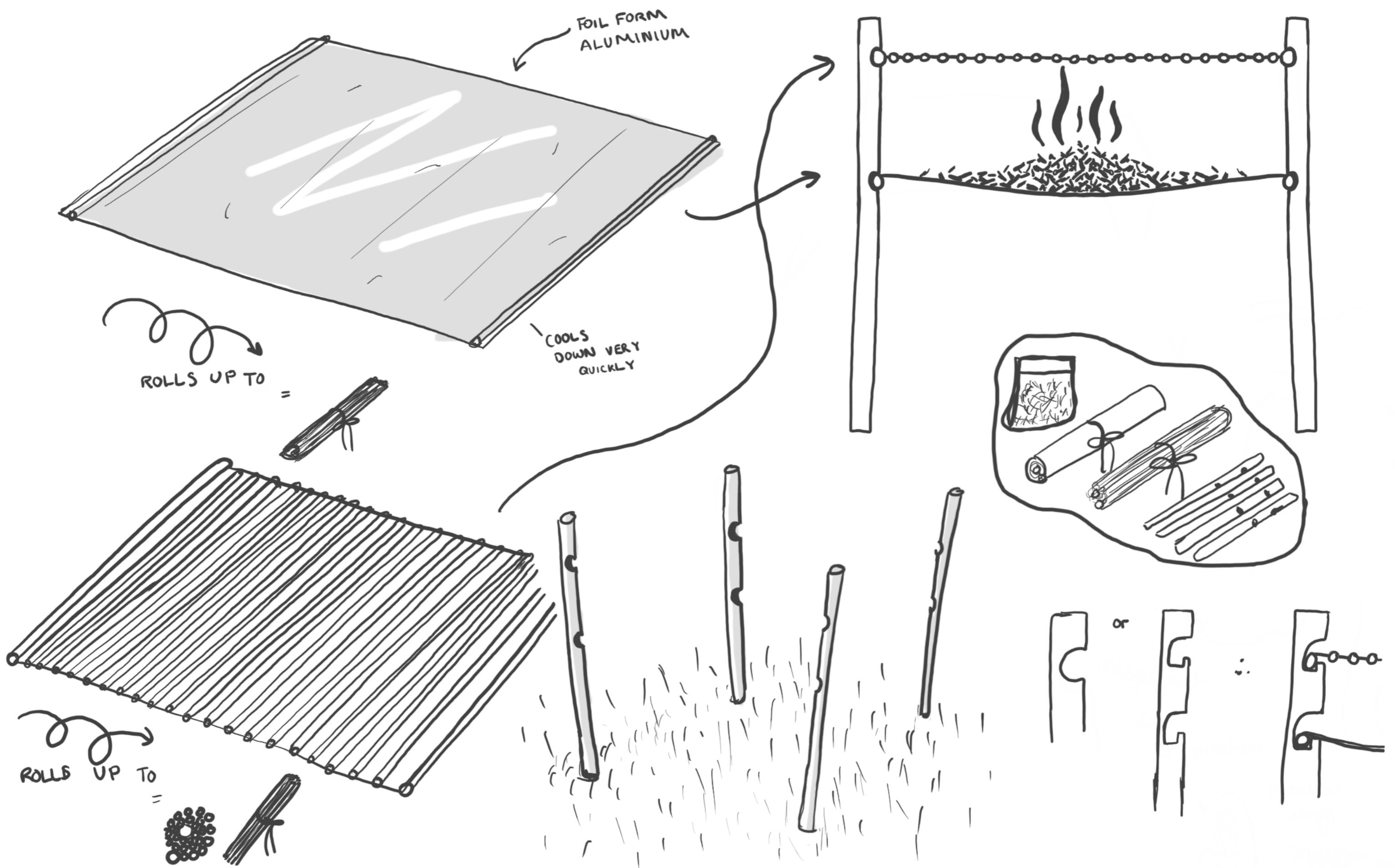
The panels could  
fold on to each  
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(concertina)



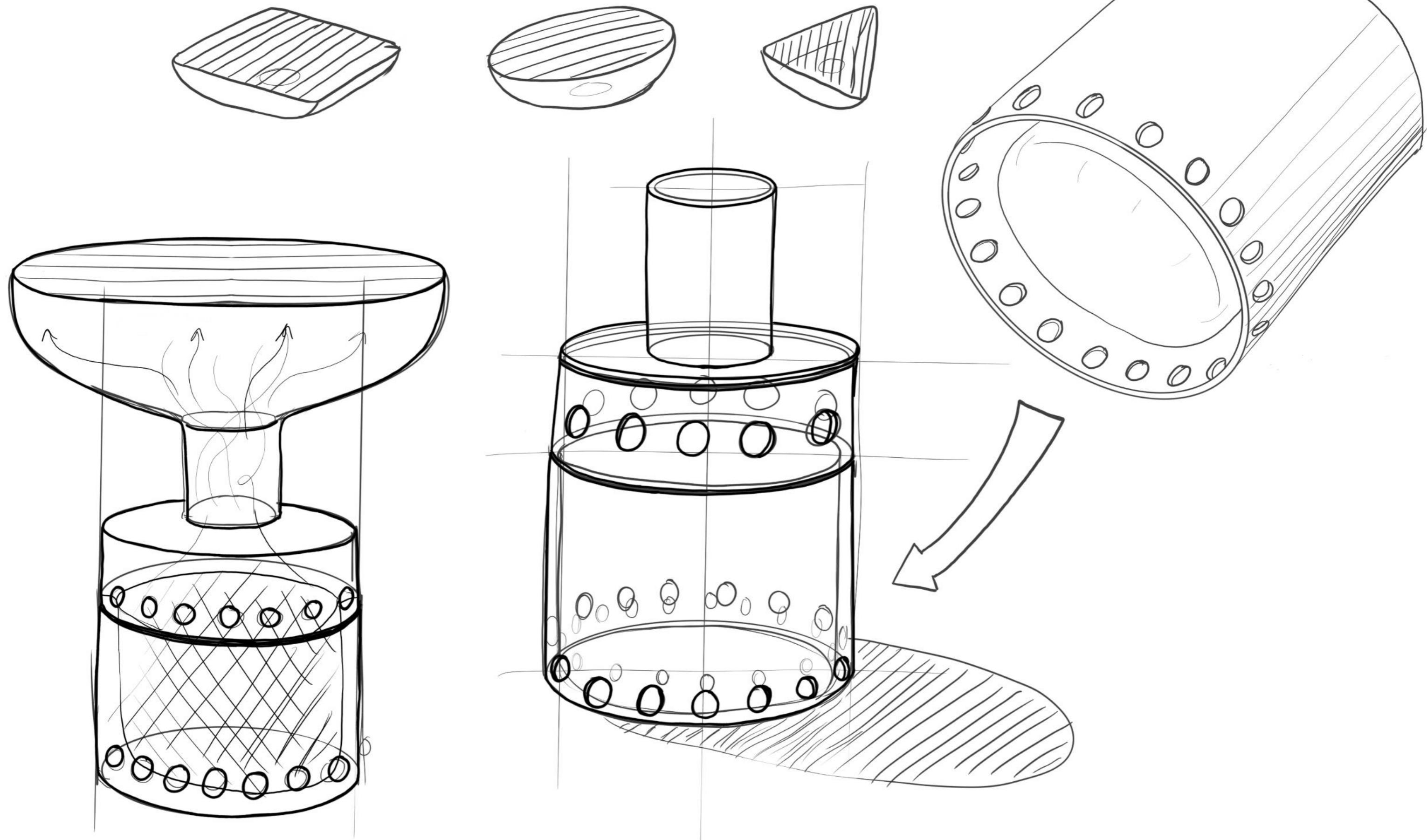
# First Ideas



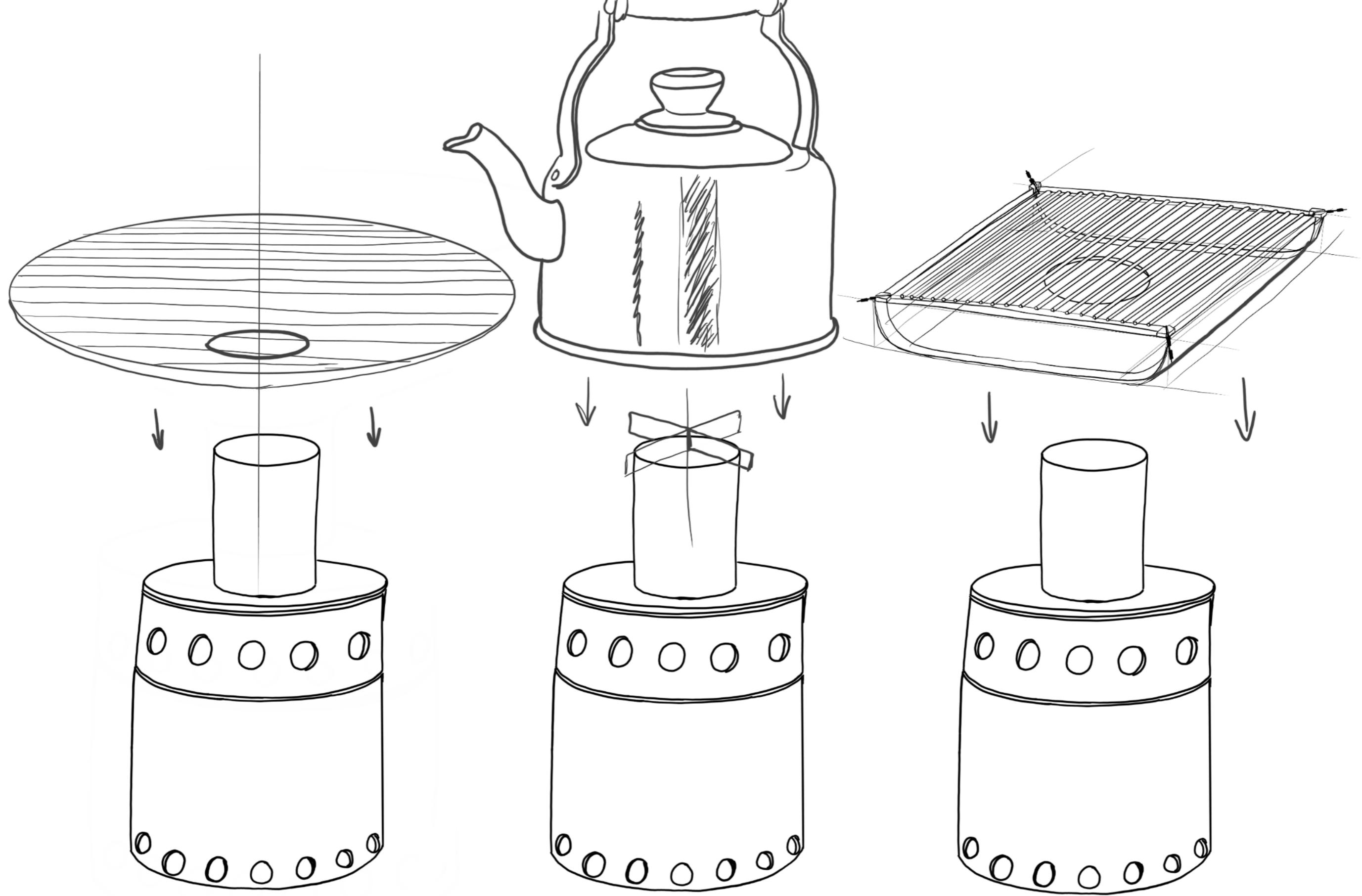
First Ideas



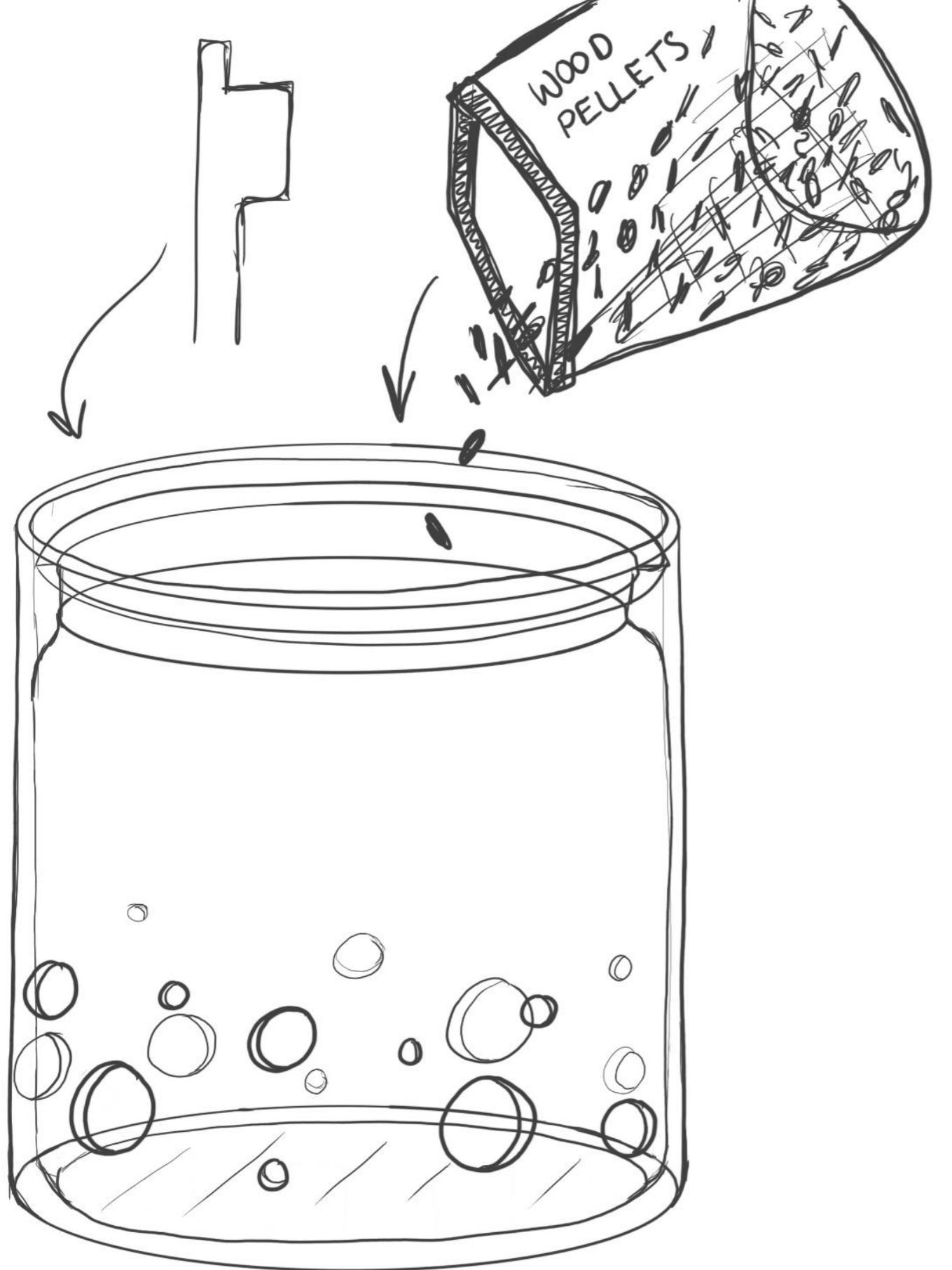
# First Ideas



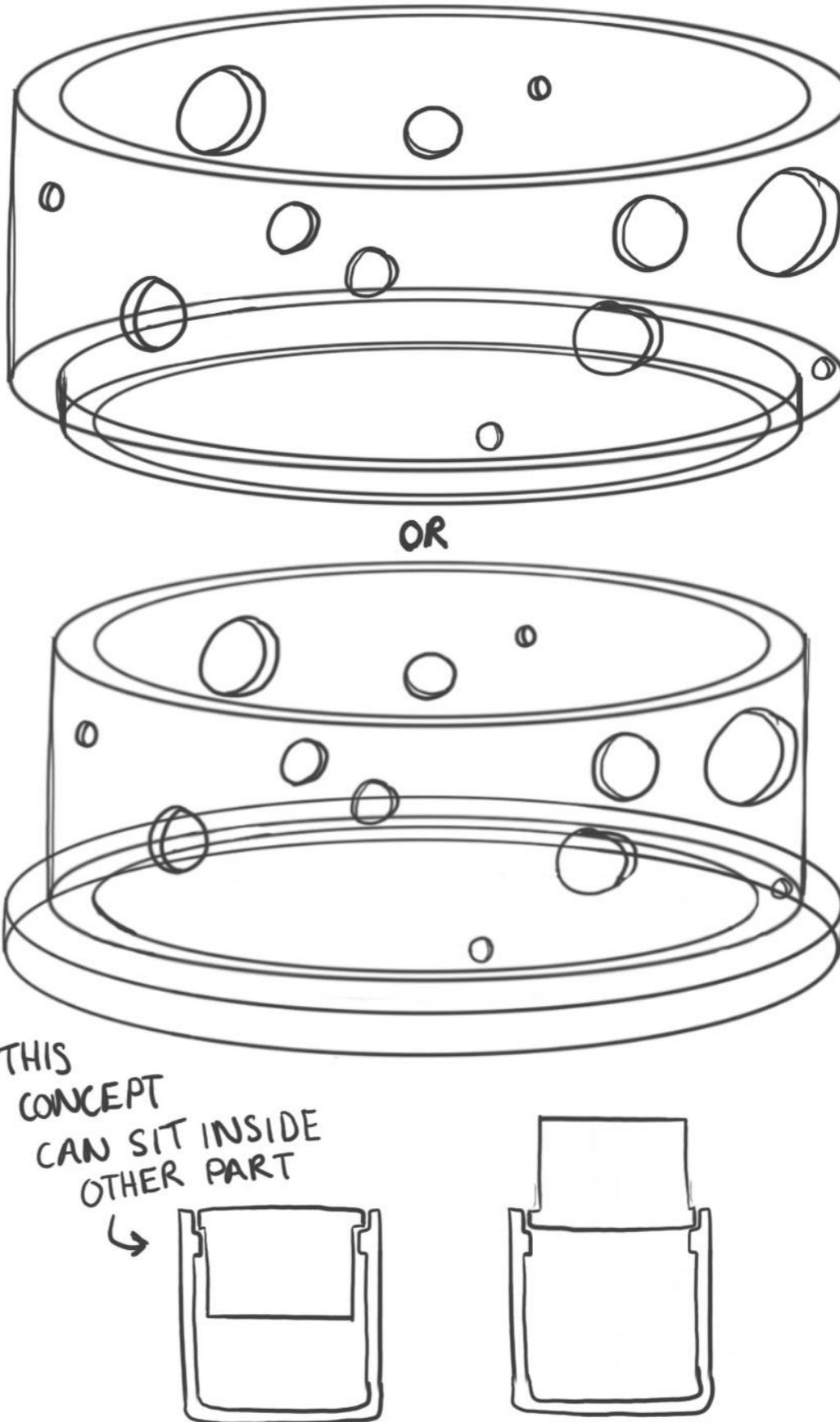
Concept a

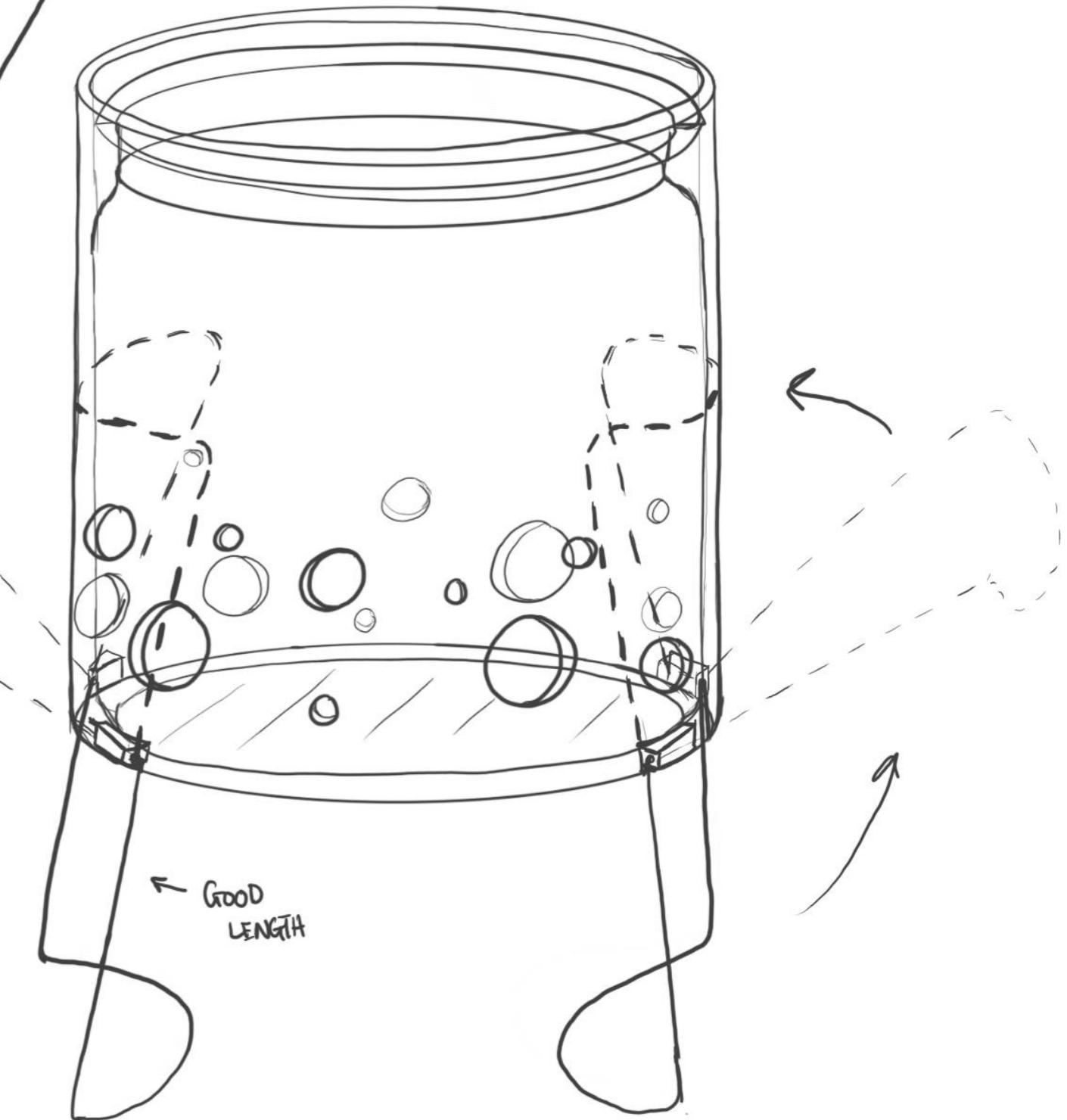
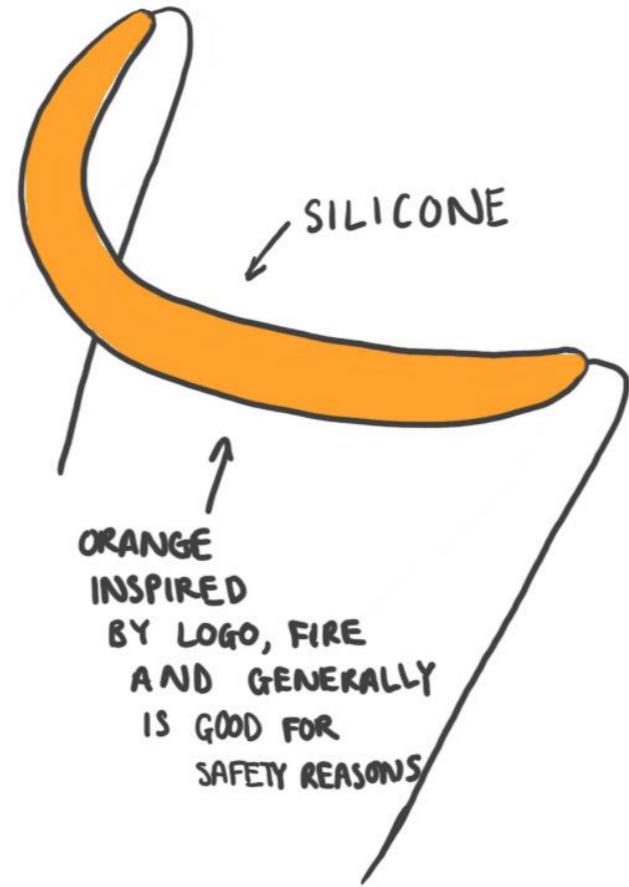
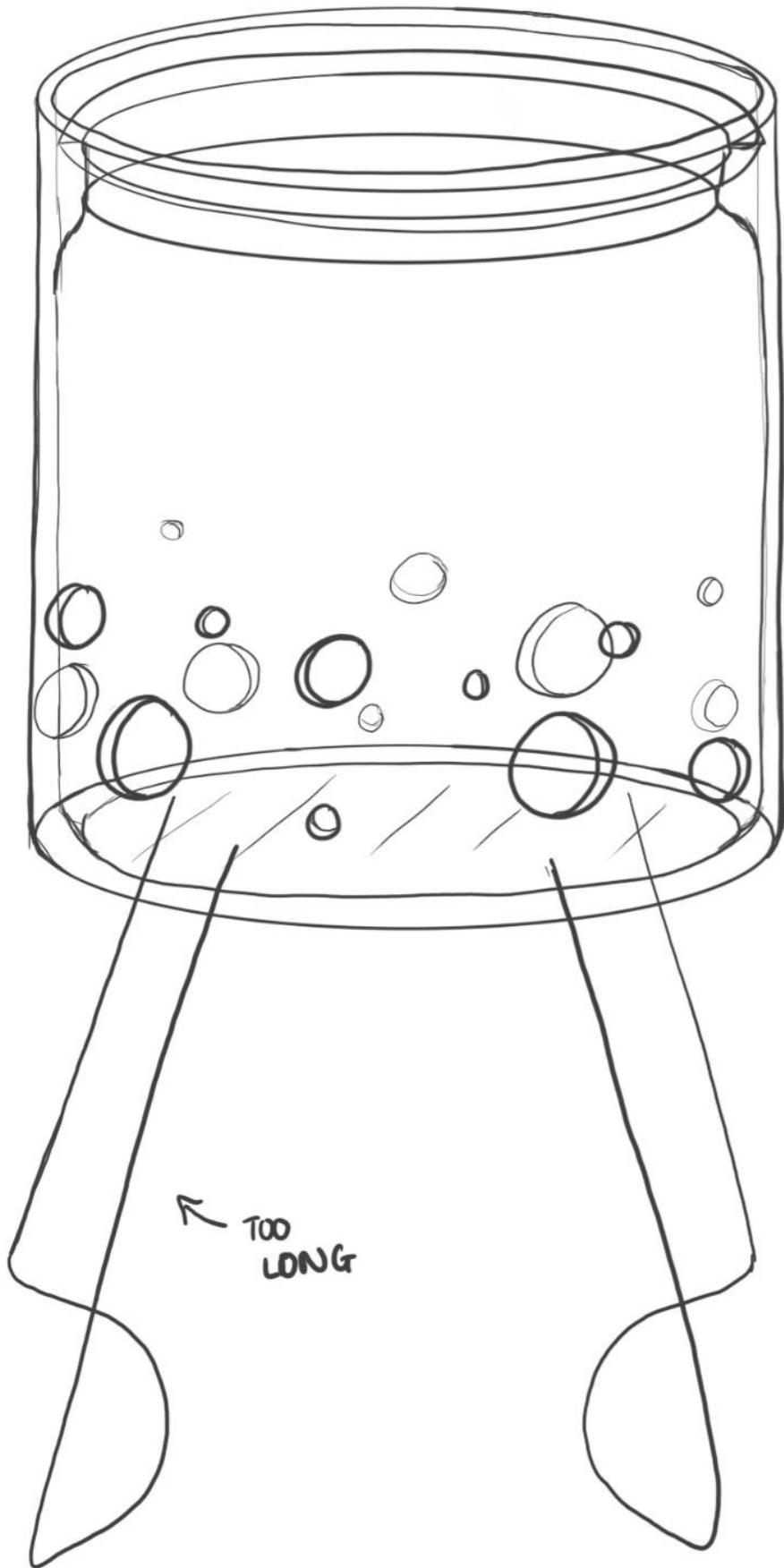


Concept a

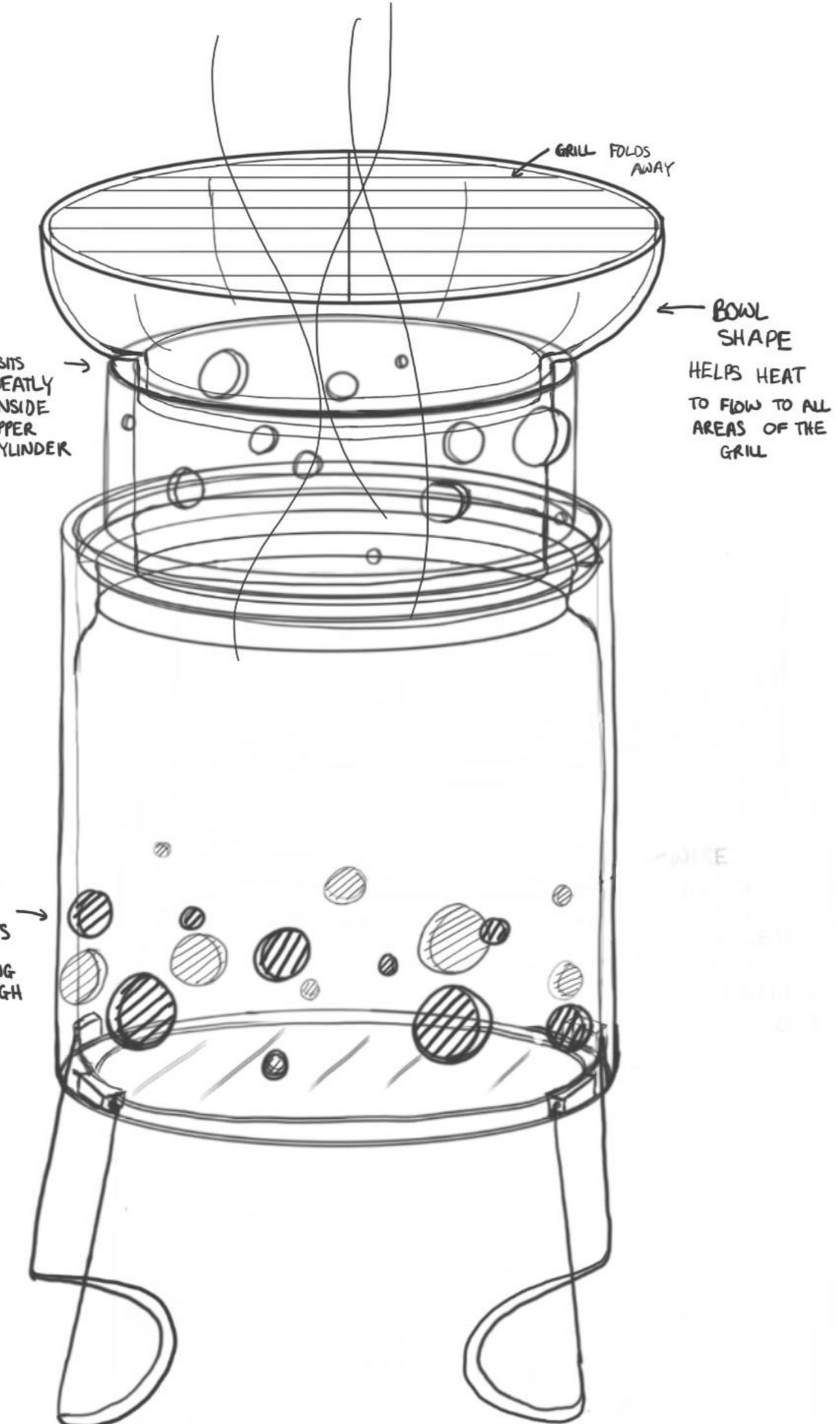


Concept b

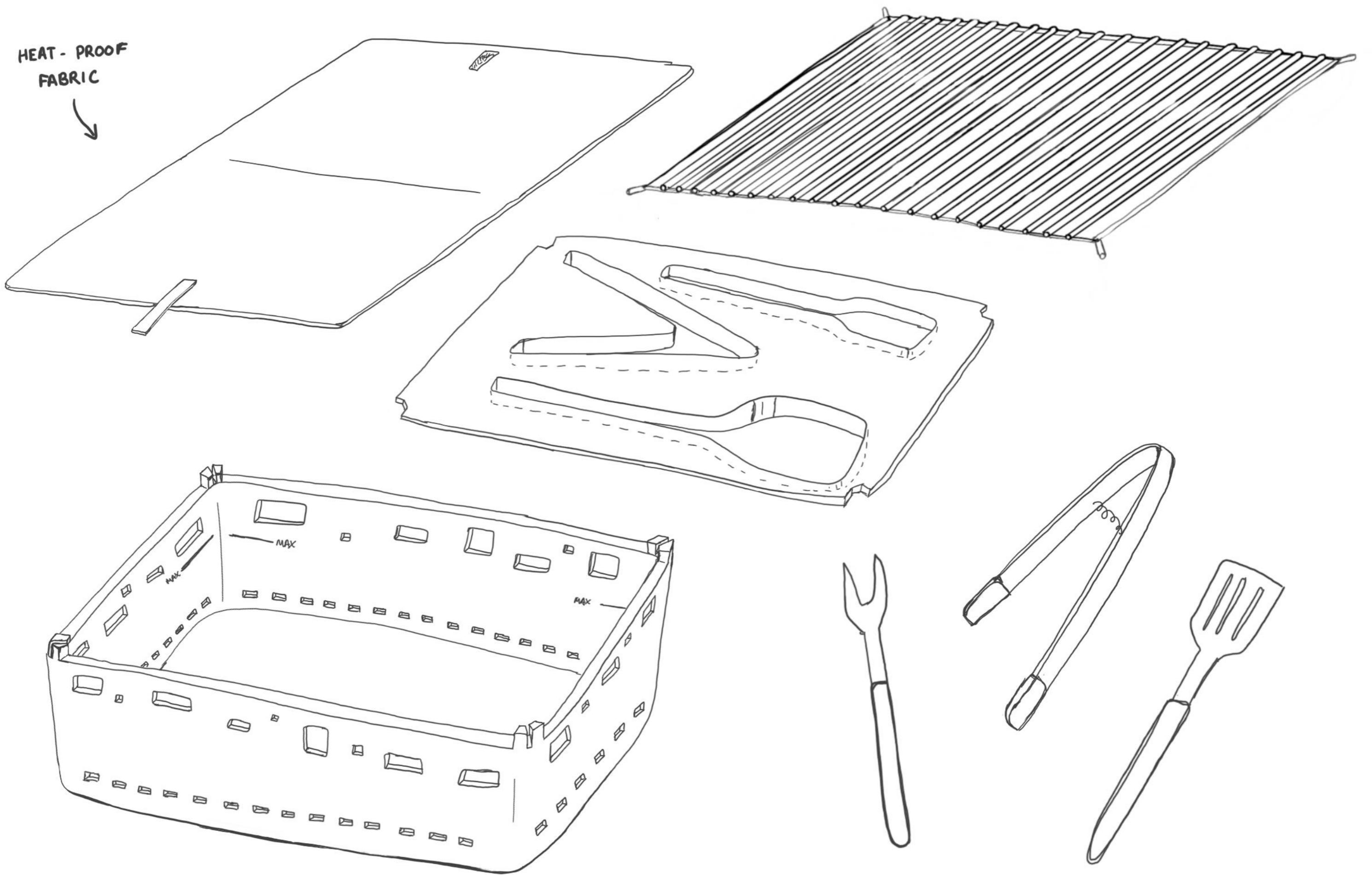




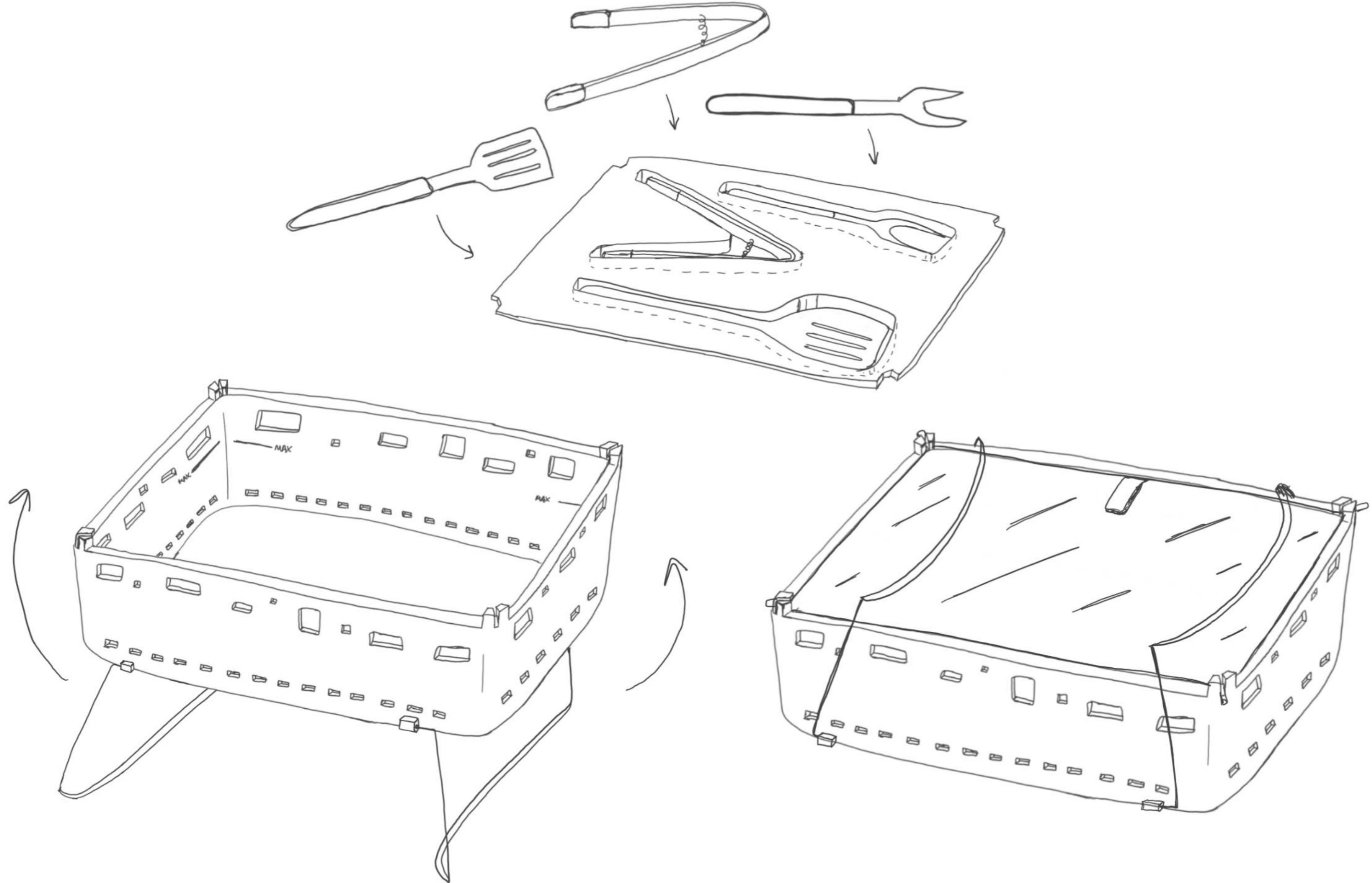
Concept b



Concept b



Concept c



Concept c

# Concept 1



gril

# Concept 2

