

07/14/2023

design challenge

munchkin 

timeline

Monday	Project planning & timeline, market research, sketching
Tuesday	Research, Sketching, refining
Wednesday	Sketching, refining, CAD
Thursday	CAD, presentation
Friday	Present!

problem

Home Test:

Drying racks take up valuable counter space in the kitchen.

Design challenge:

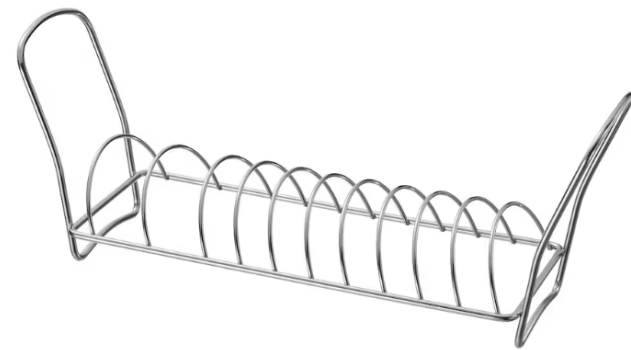
How might we provide a dish drying solution that respects families' space?

secondary

Research

Market Research

Ikea



\$8.99

4.4 stars (75)

- Useful for storage
- Fits inside the sink
- Doesn't tip over easily

Mainstays
(Walmart)



\$13.48

Brightroom
(Target)



\$15.00

4.5 stars (79)

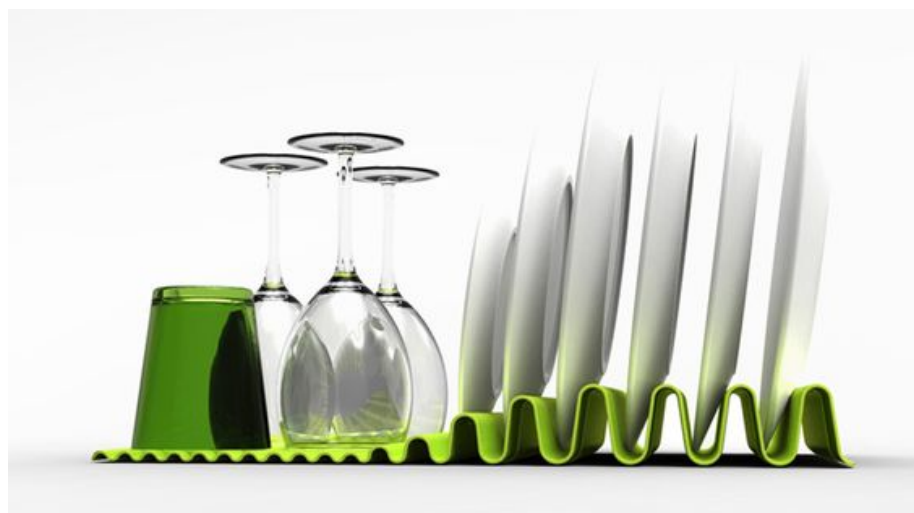
- Used as plant draining and produce rack
- Adjustable width is benefit
- water spots are undesirable

Tomorotec



\$11.99

Interesting finds



Noteworthy

OXO



\$21.99

4.8 stars (615)

- Folding
- Straw holders

Masirs



\$15.99

4.5 stars (13,000)

- Collapsible
- Fits in RV sink
- Non scratch base

Heatworks' Tetra dishwasher



Primary Research

Video Interviews

On Tuesday, I created a poll on Instagram looking for participants who used or were interested in drying racks, setting up 20 minute video interviews from Tuesday to Thursday.

Of 129 viewers, 8 stated they used or were interested in participating.

The interviews focused on what happens after the dishes are clean, storage, and habits.



Participants



M
NYC
28



C
Long Beach
27



M
Boise
29



A
Florida
28



K
Phoenix
29

16 month old
child

Insights

For over the sink drying racks, stacking plates vertically was highly desired

One idea that was repeated by 4 of the participants was a solution to dry larger objects – pots, pans, small kitchen appliance parts – more easily

If forced to choose strength or a rolling up feature, respondents confidently chose strength (“sturdiness” as most called it)

Due to width of the product, respondents felt comfortable storing the drying rack upright, next to their cutting boards

Design Strategy

Form Language (today)



Brand Design

Descriptors

Safe
Cheerful
Smooth
Simple

Design Elements

Circular and elliptical profiles
Revolved forms
Gentle character elements
Very rounded edges
Matte finishes
Bright, playful colors

How might we...

Use no counter space at all

Thoughtfully combine a dish drying rack with another product

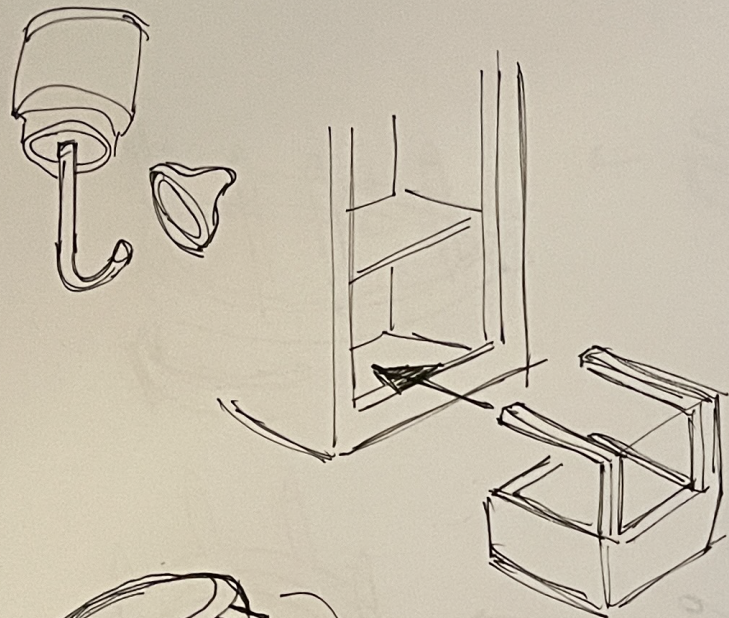
Reduce contamination of the inside of baby bottles

Use flexible materials' ability to fold

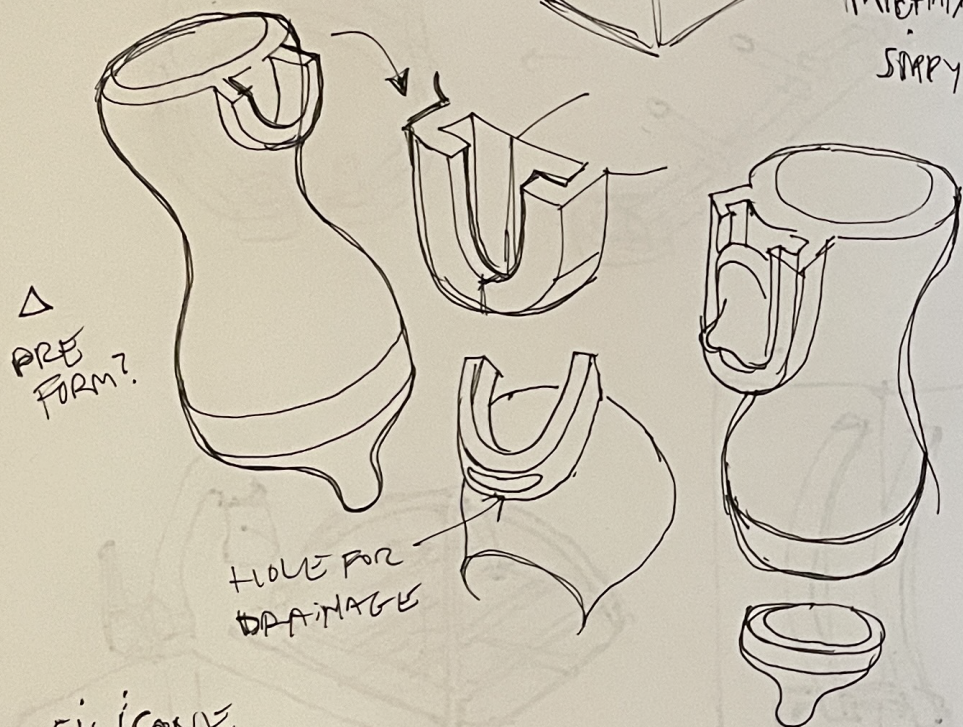
Support objects heavier than bowls and plates

Eliminate the need for a dish drying rack

Sketching



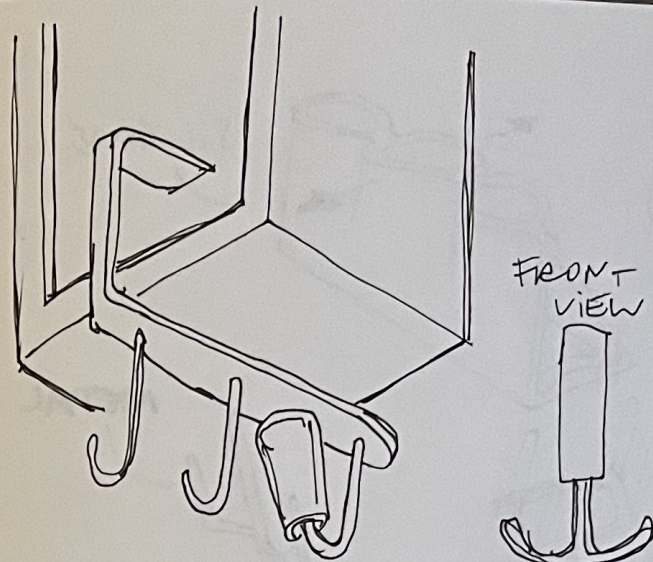
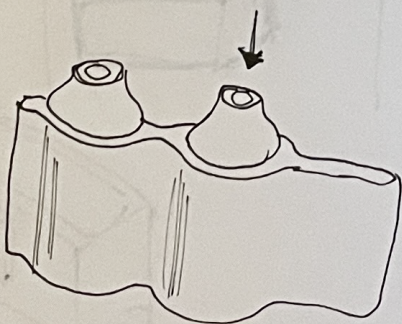
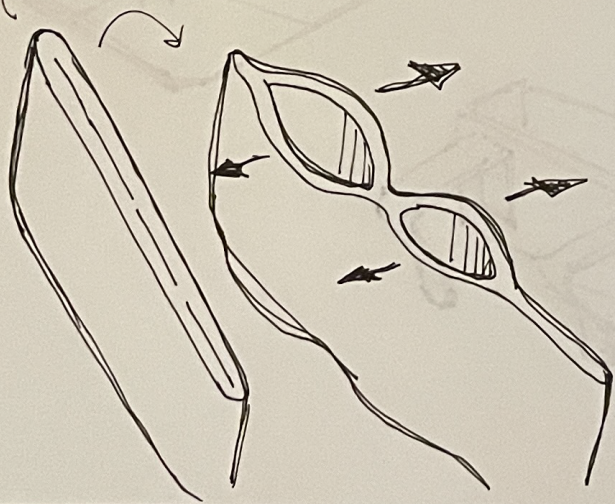
MIGHTY GRIP
STRIPY CUP



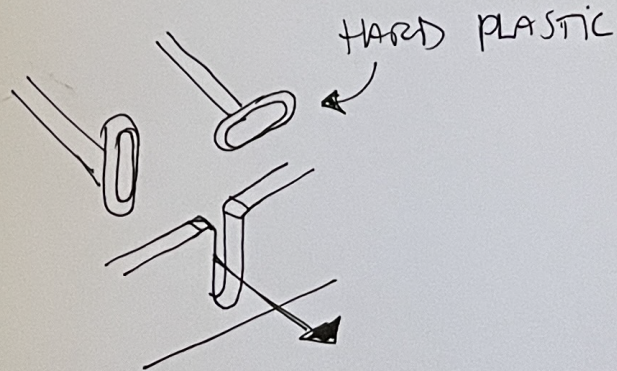
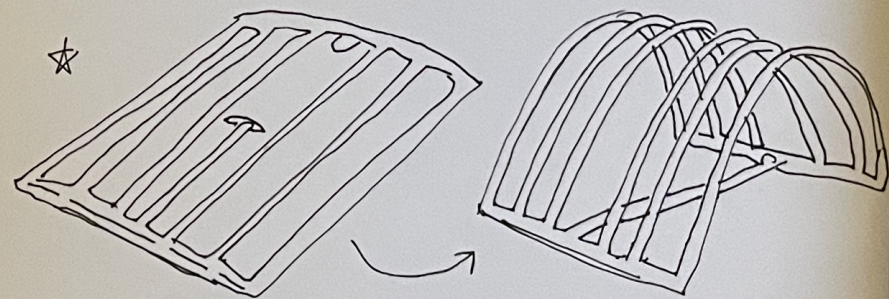
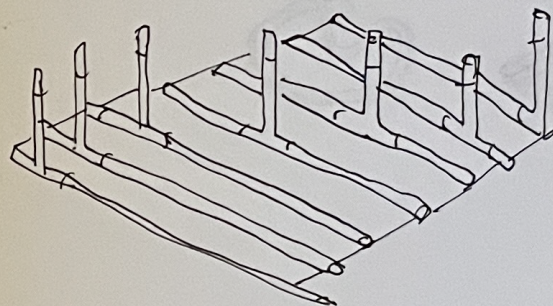
△
PRE
FORM?

HOLE FOR
DRAINAGE

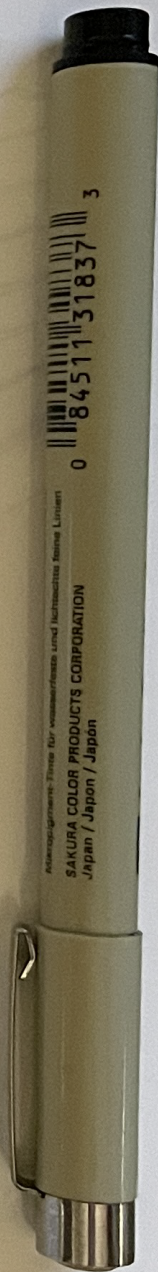
SILICONE

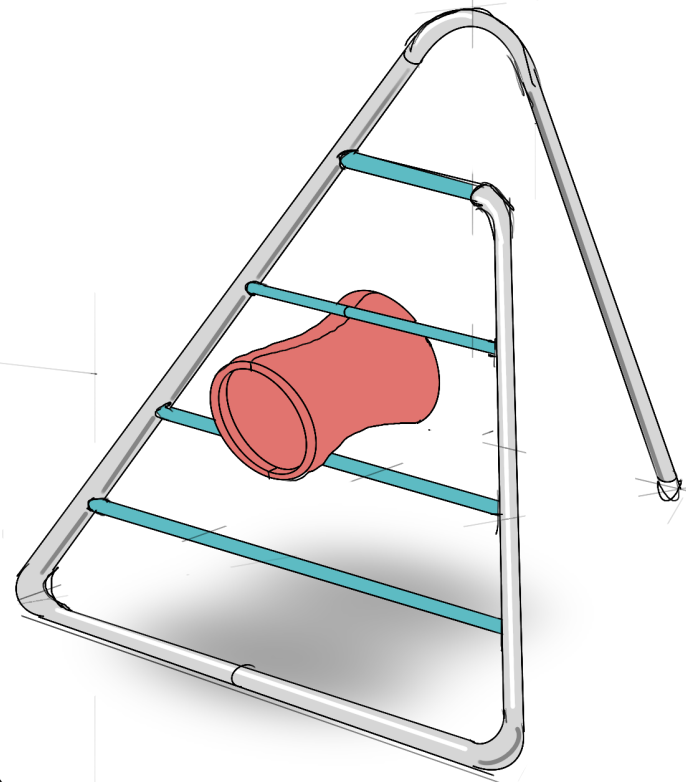
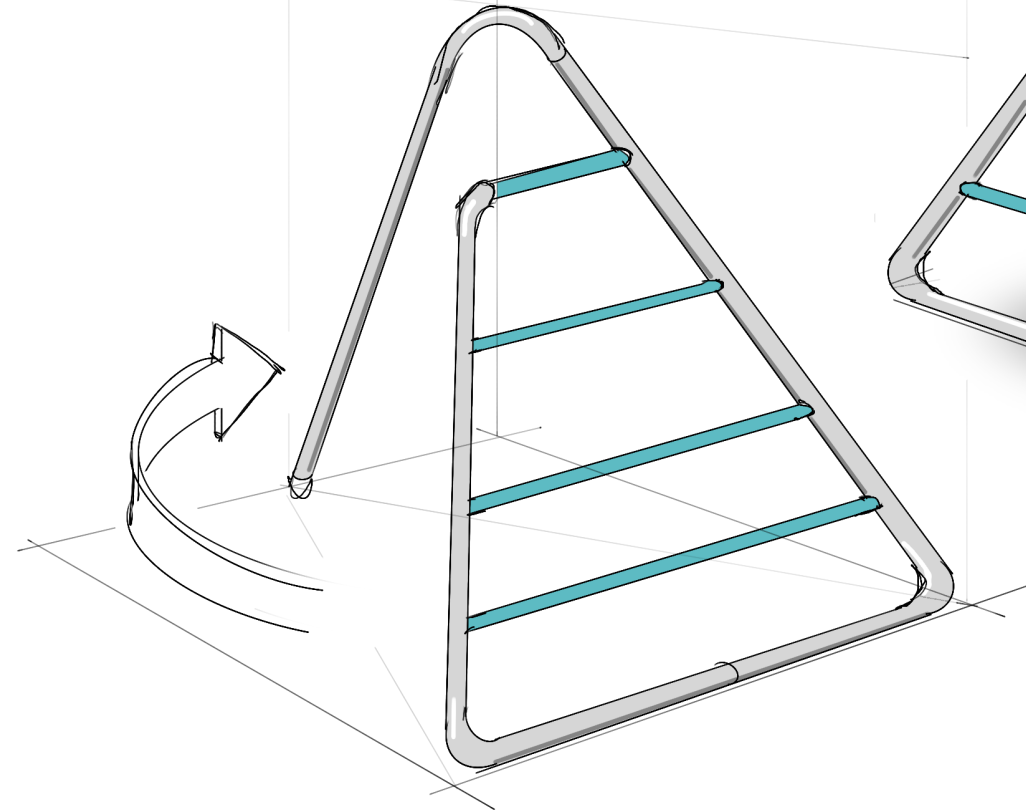
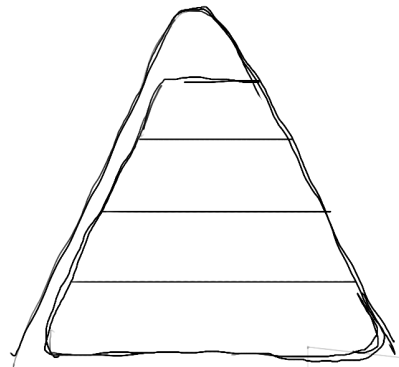


FRONT
VIEW



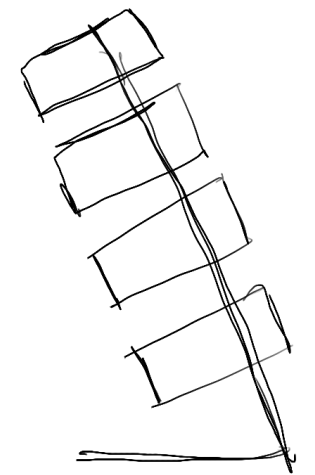
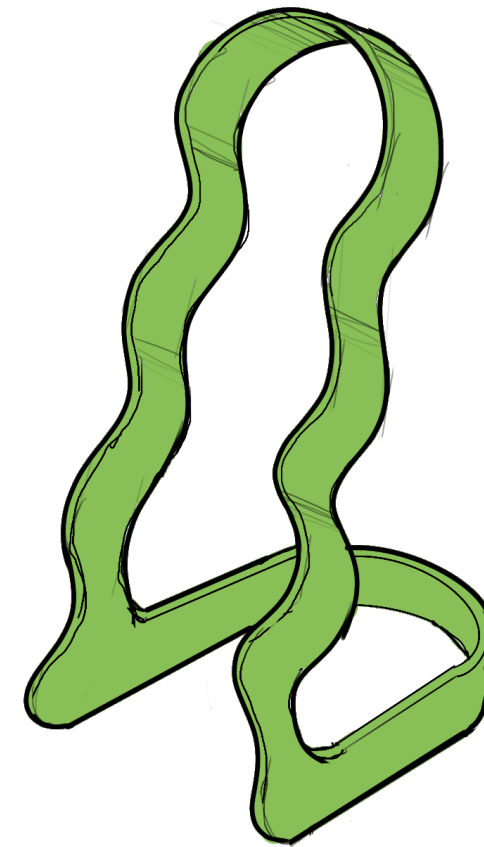
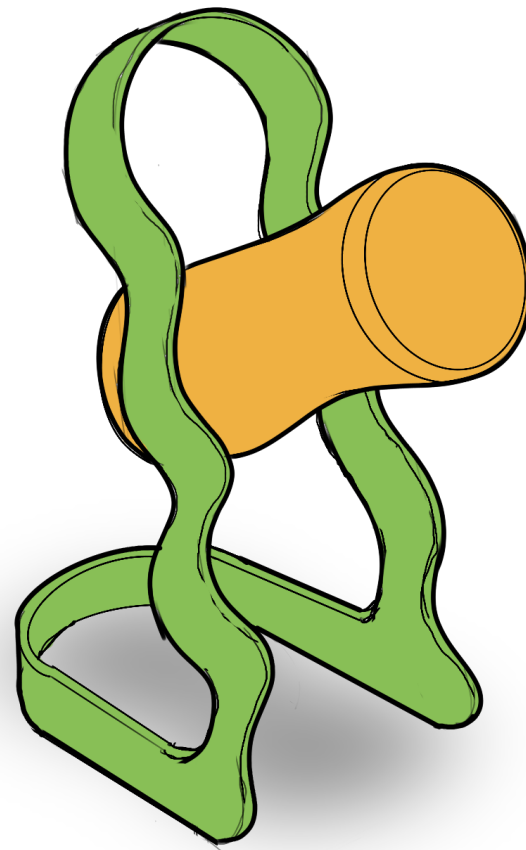
HARD PLASTIC

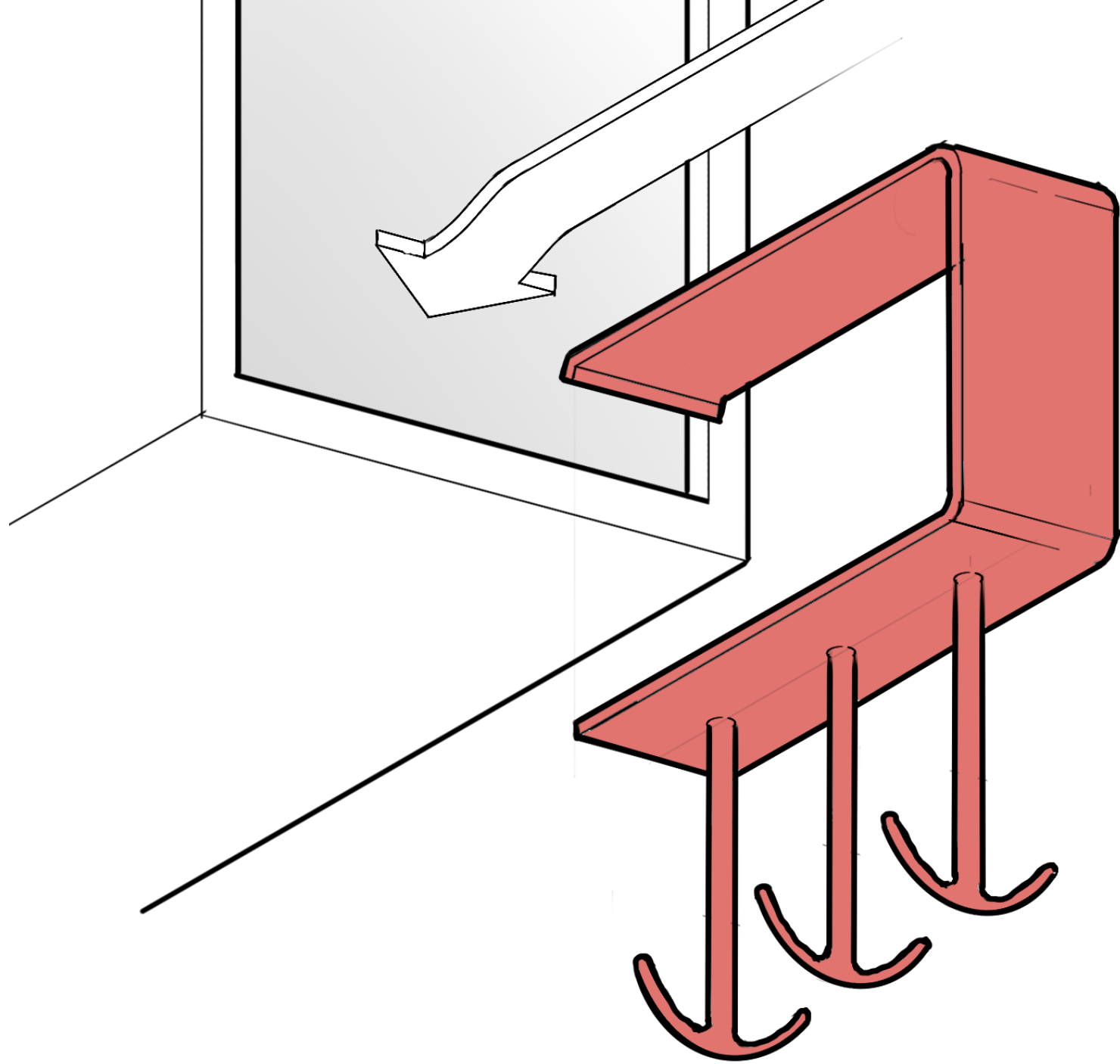




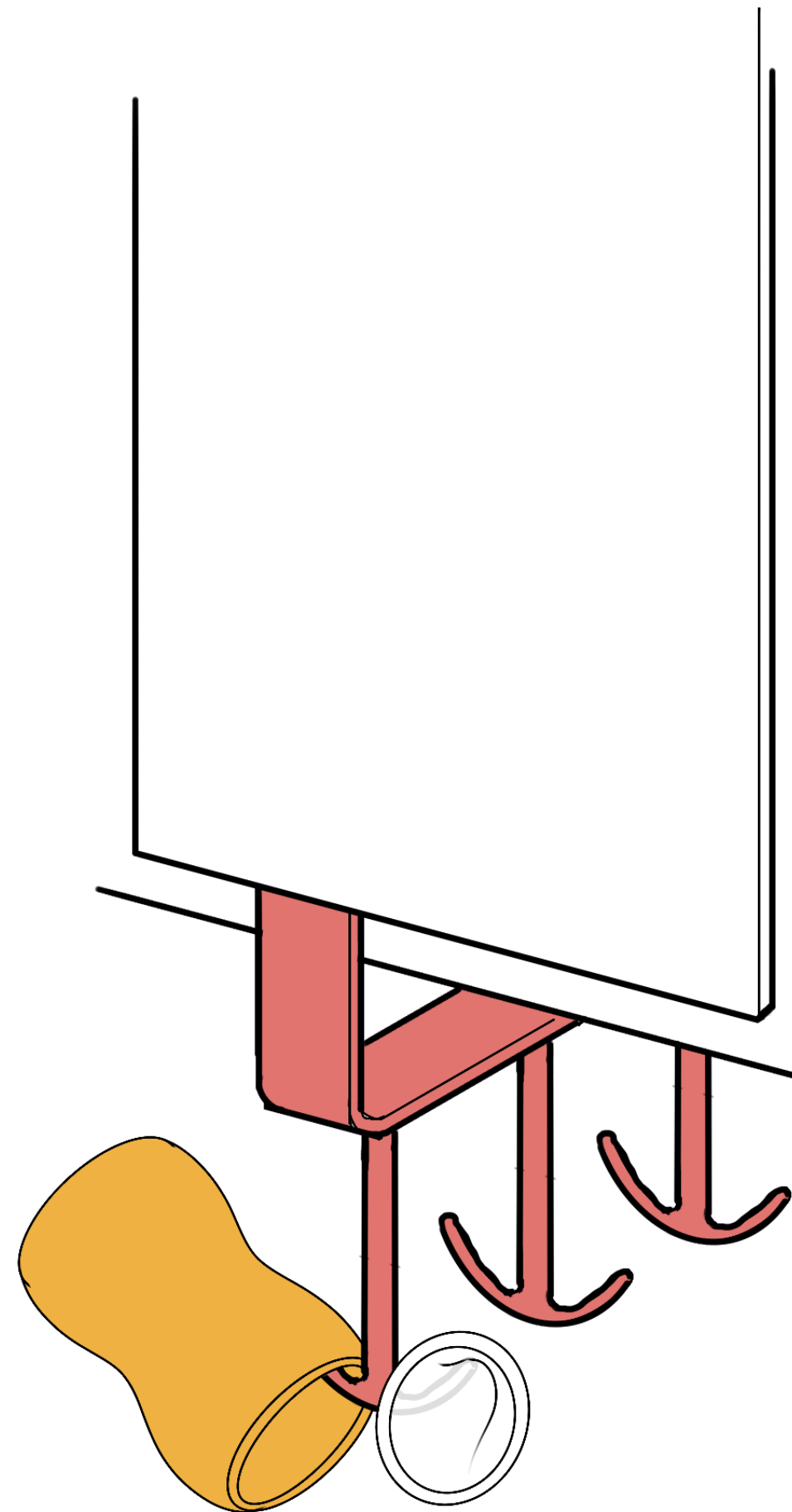
Part of the structure features a hinge, allowing the triangular shape to become a 3 sided pyramid

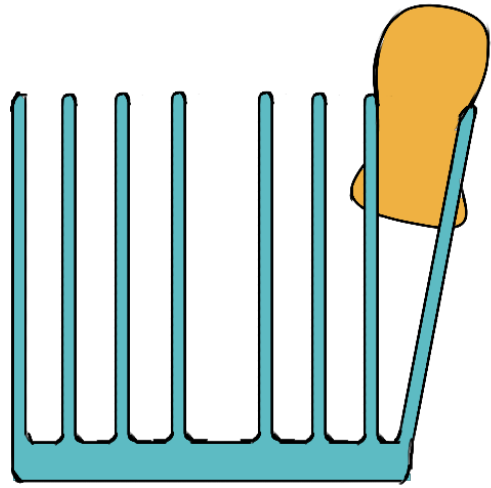
U shape form is intended to flex outward gently when inserting the bottles, and try to close.



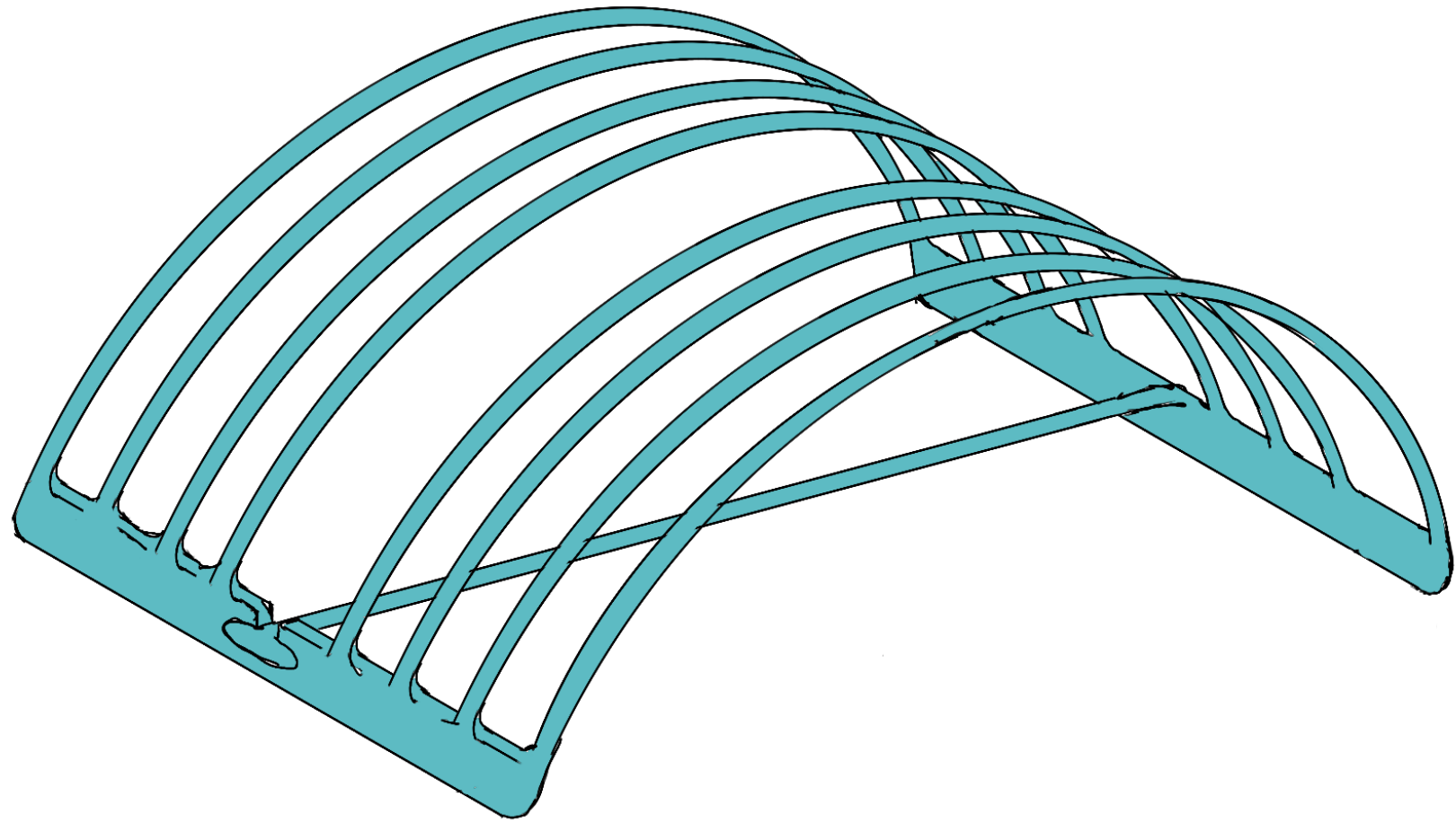


The C shape rack slides over a shelf, and the bottom half hangs below. Hooks allow several bottles and their components to rest upside down

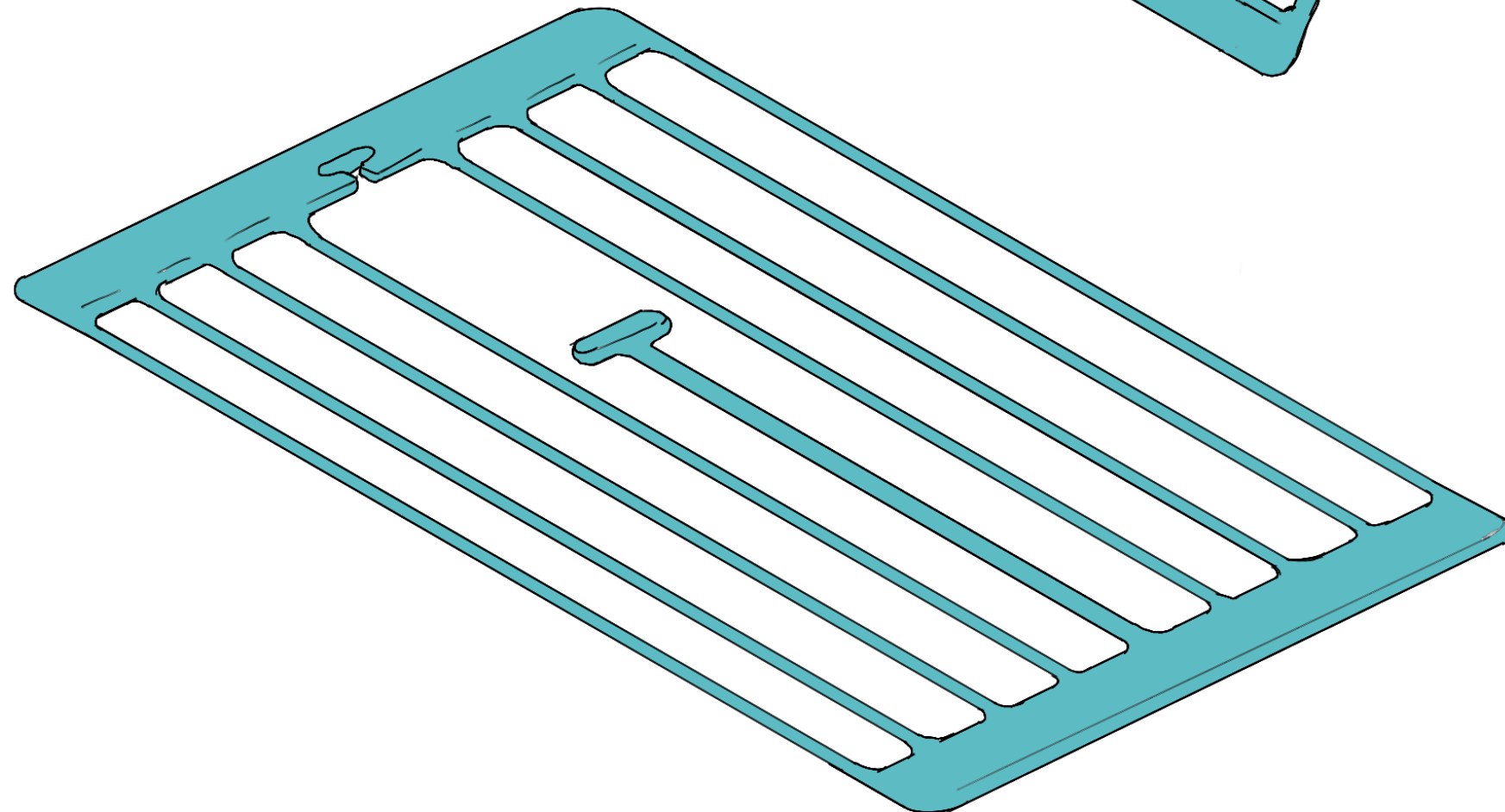


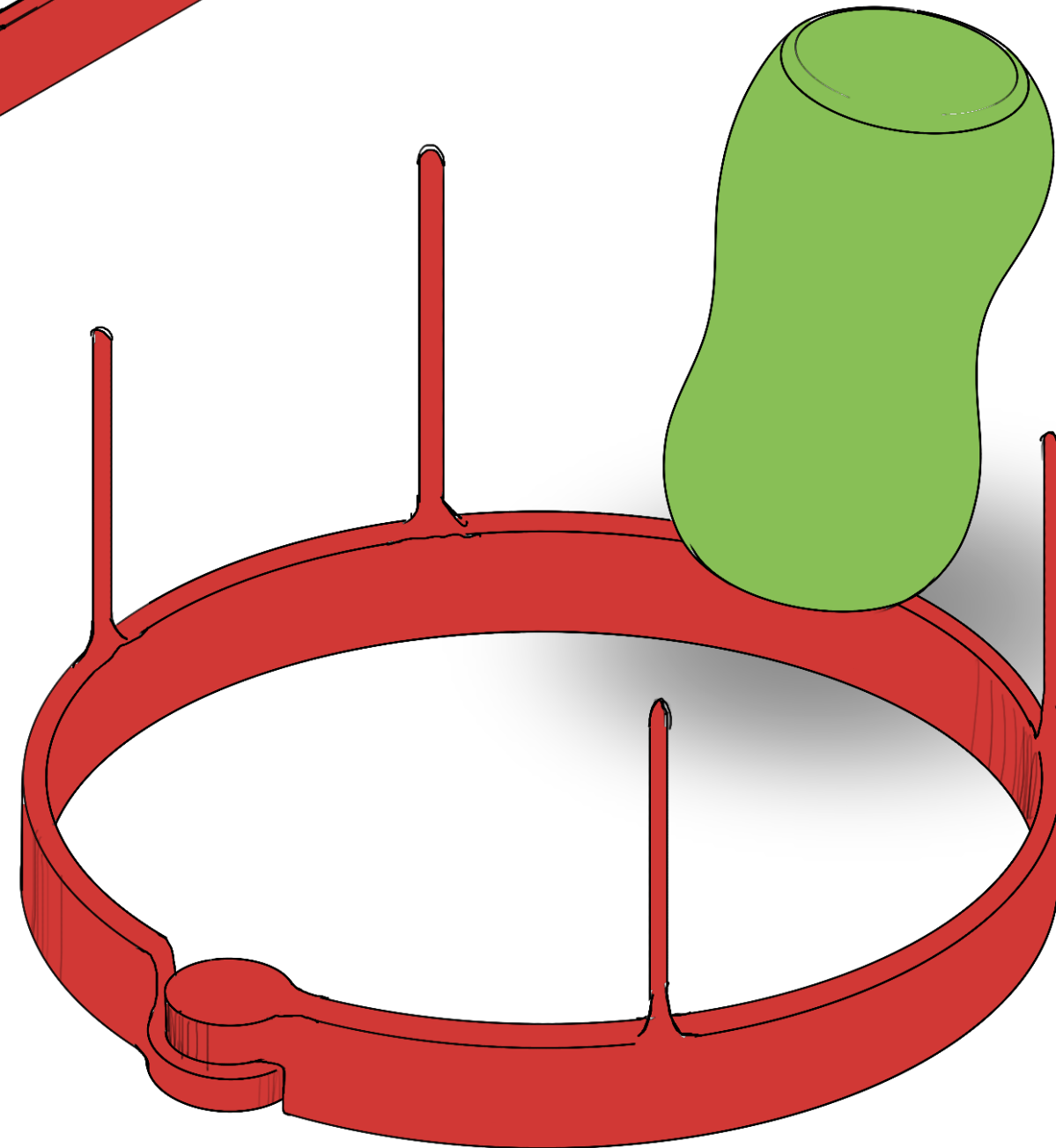
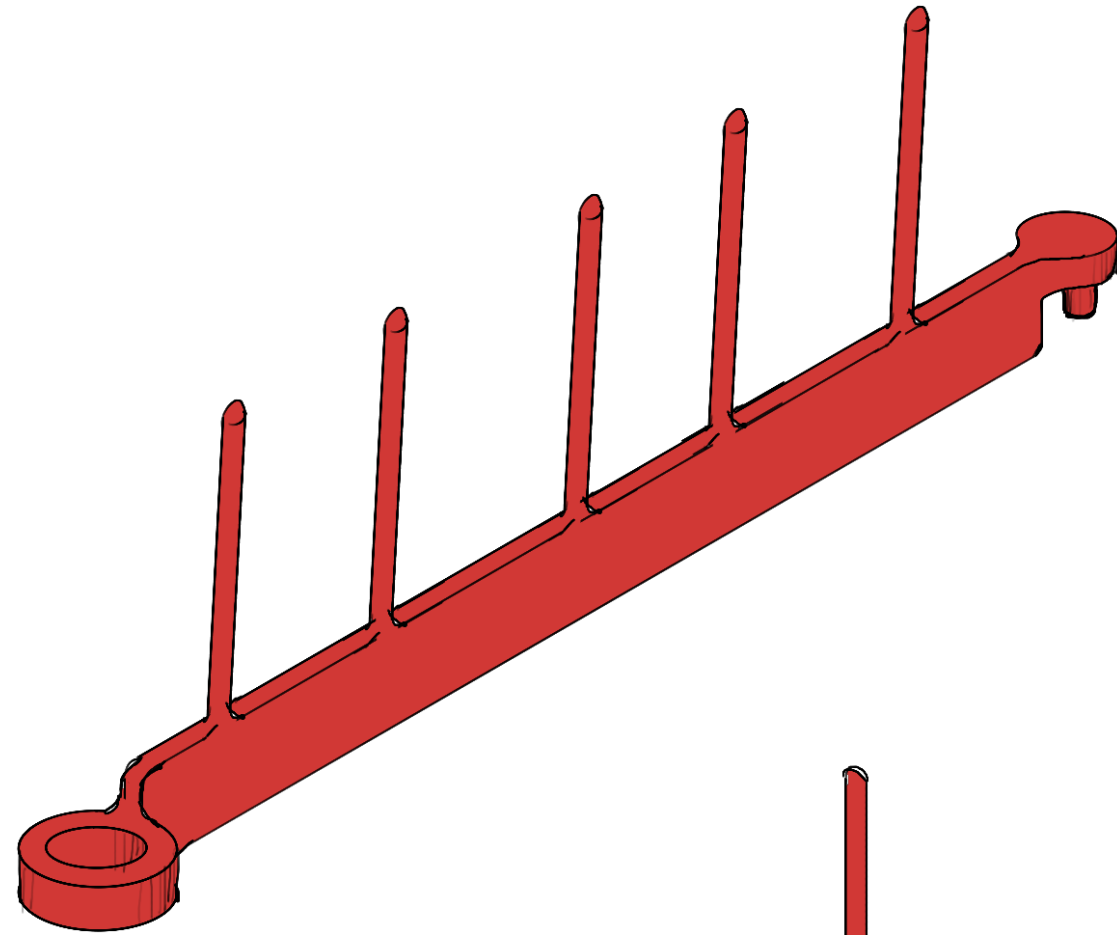


front view

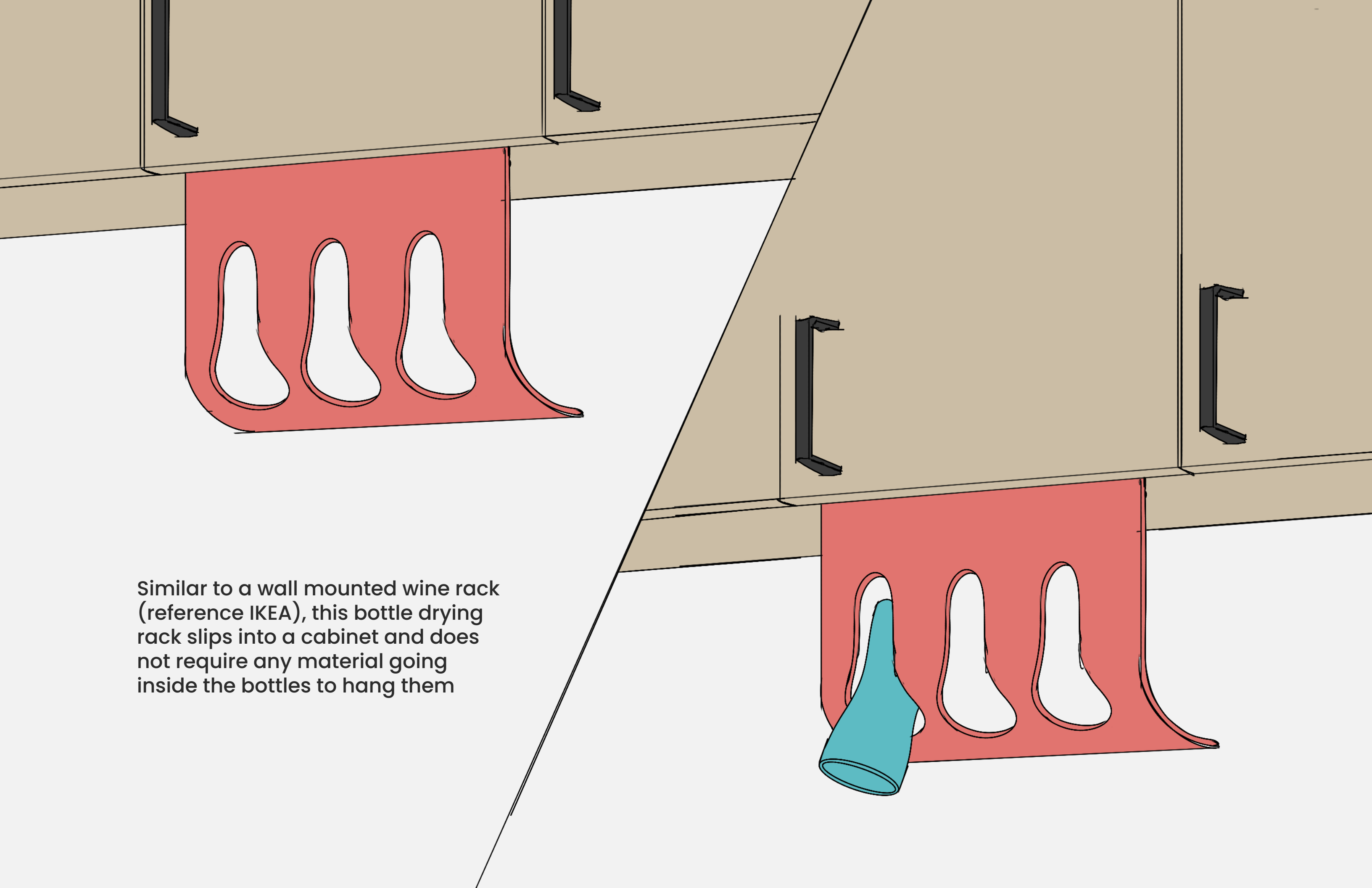


The dish rack can flex, and become a D shape. A T shape prong is used to secure the flexed structure.

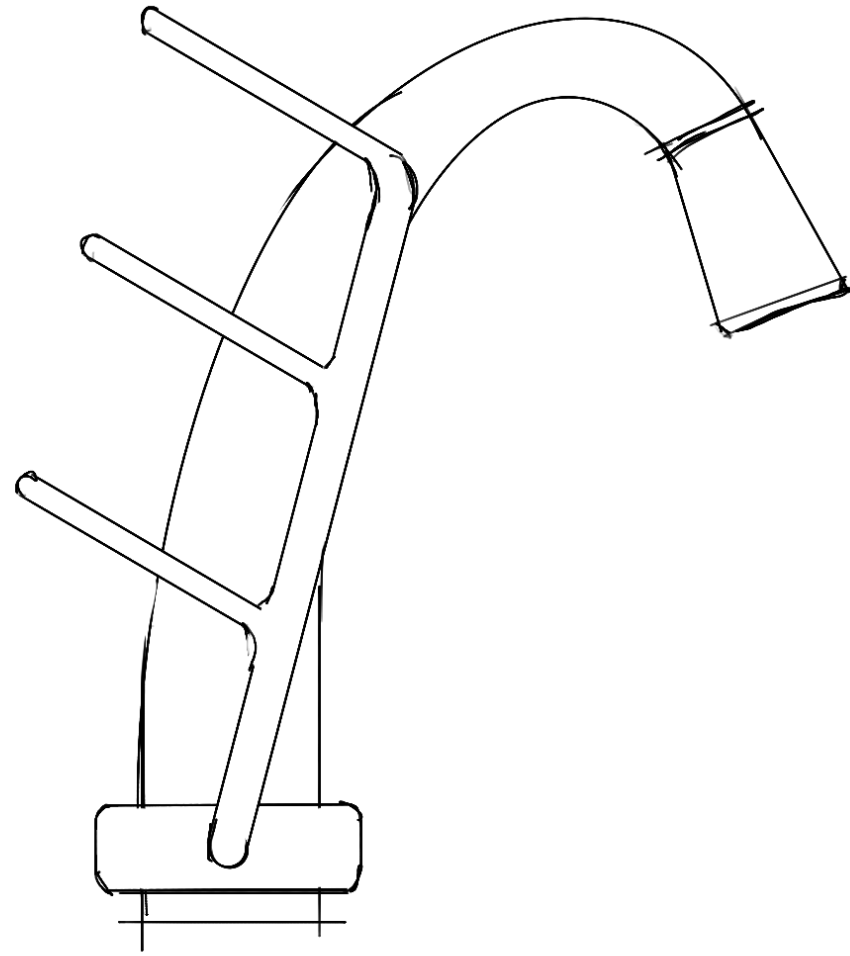




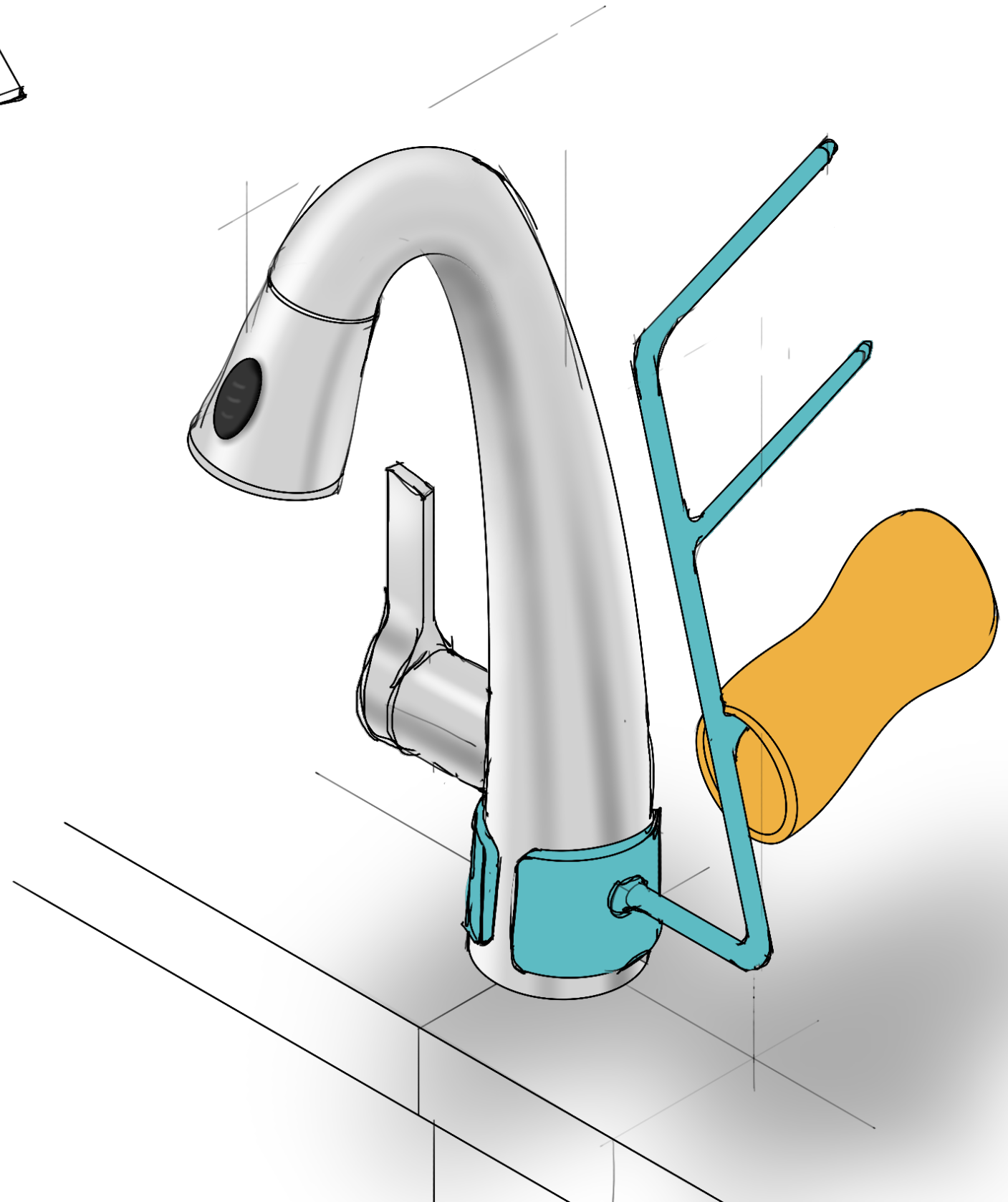
This dish rack is a straight line when at rest. After the ends have been connected, it becomes a circular shape with stability. Vertical prongs allow cups/bottles to dry

The diagram shows a cross-section of a cabinet with a red bottle drying rack installed. The rack has three white, teardrop-shaped slots. In the top view, the rack is empty. In the bottom view, a teal-colored bottle is shown hanging from the first slot. The rack is supported by dark grey brackets that fit into the cabinet's shelves. The cabinet walls are a light tan color.

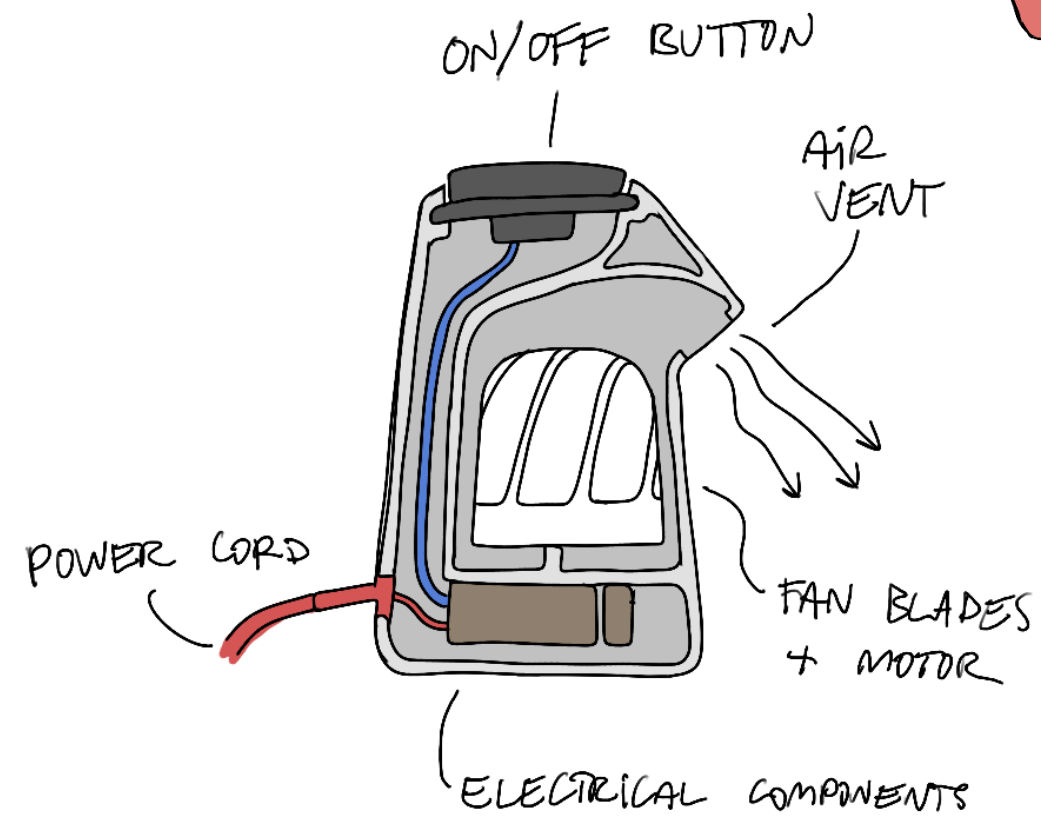
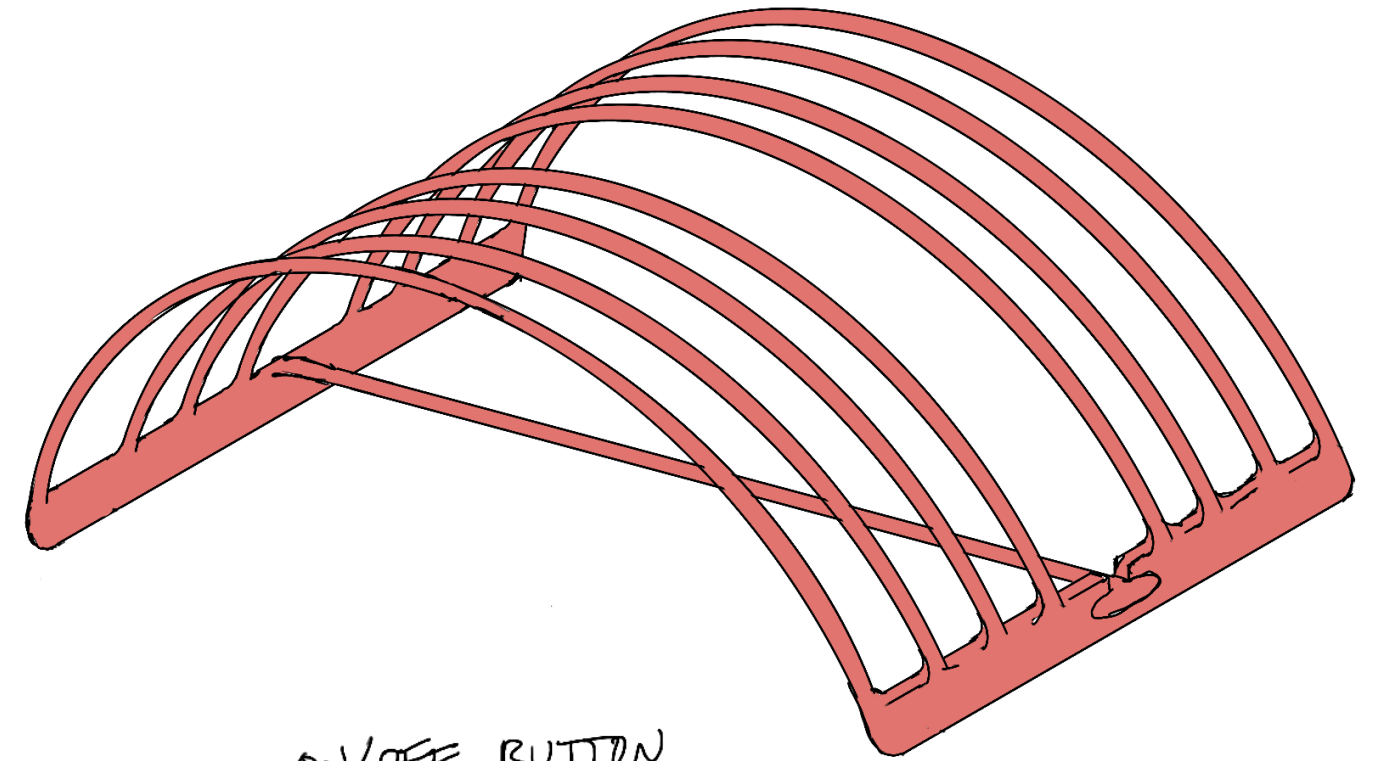
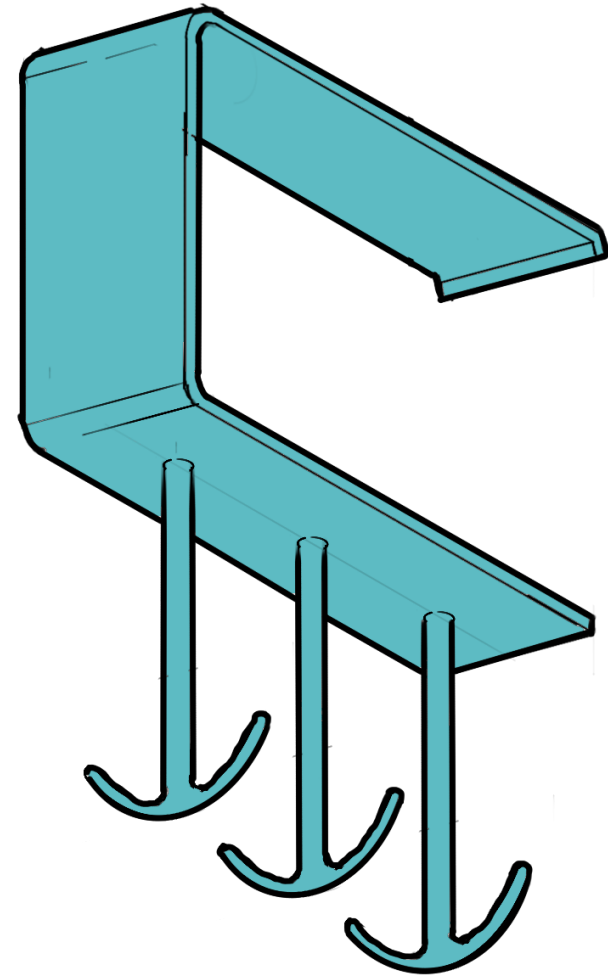
Similar to a wall mounted wine rack (reference IKEA), this bottle drying rack slips into a cabinet and does not require any material going inside the bottles to hang them



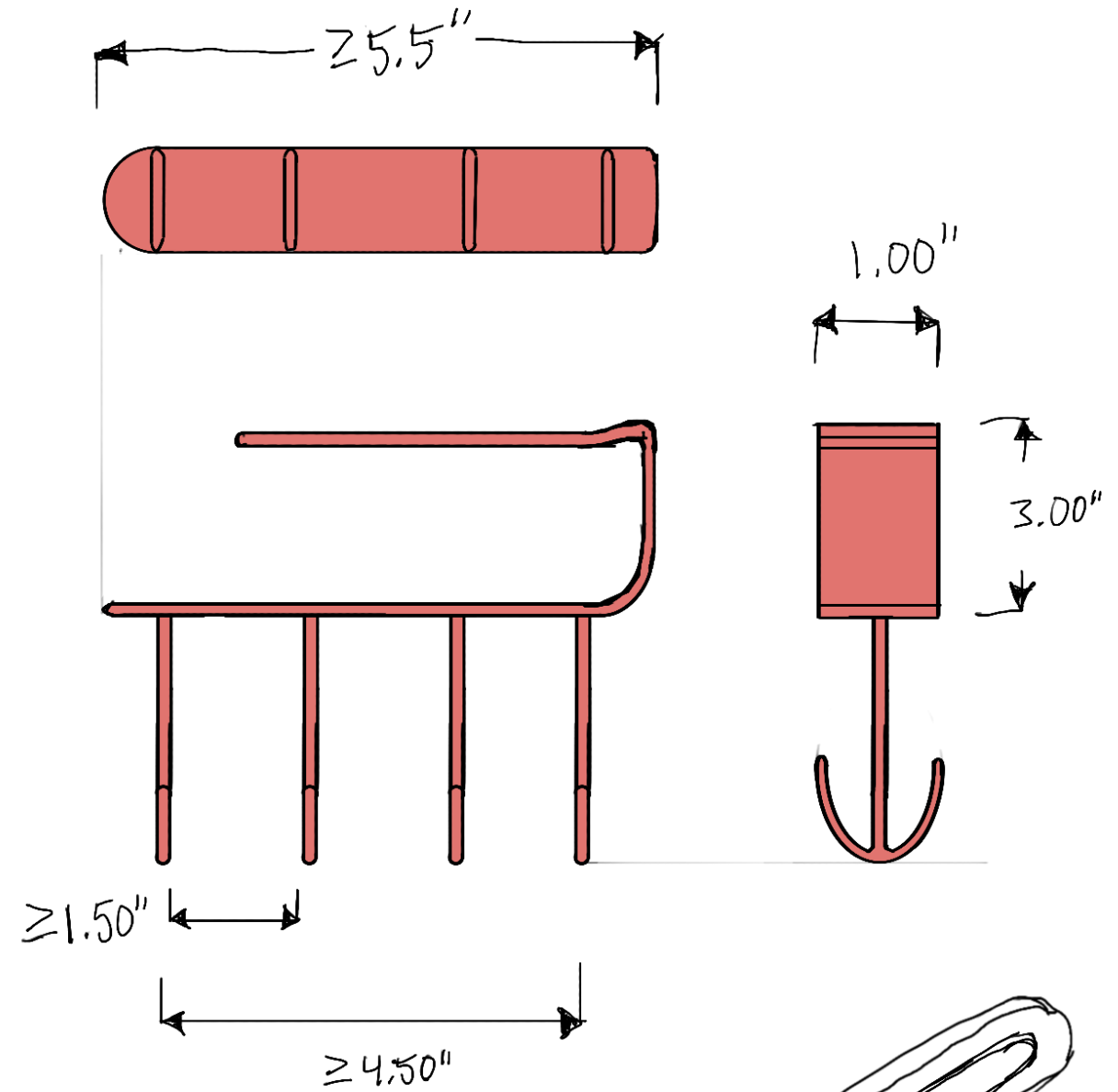
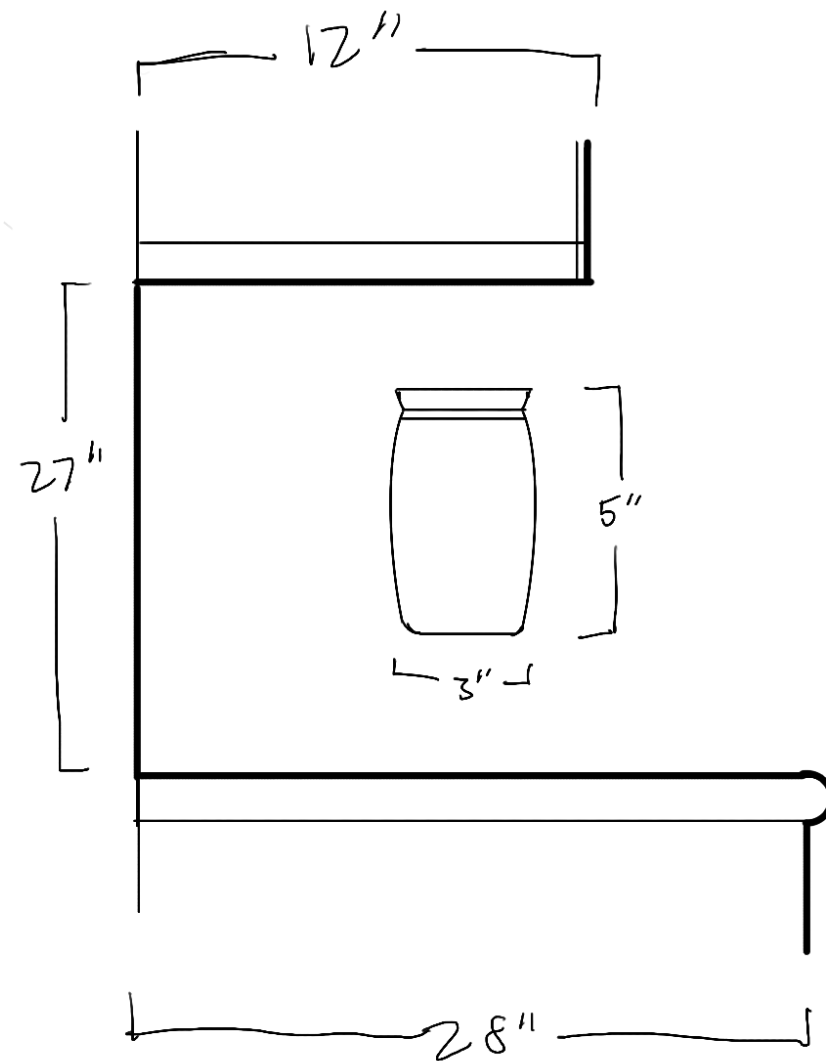
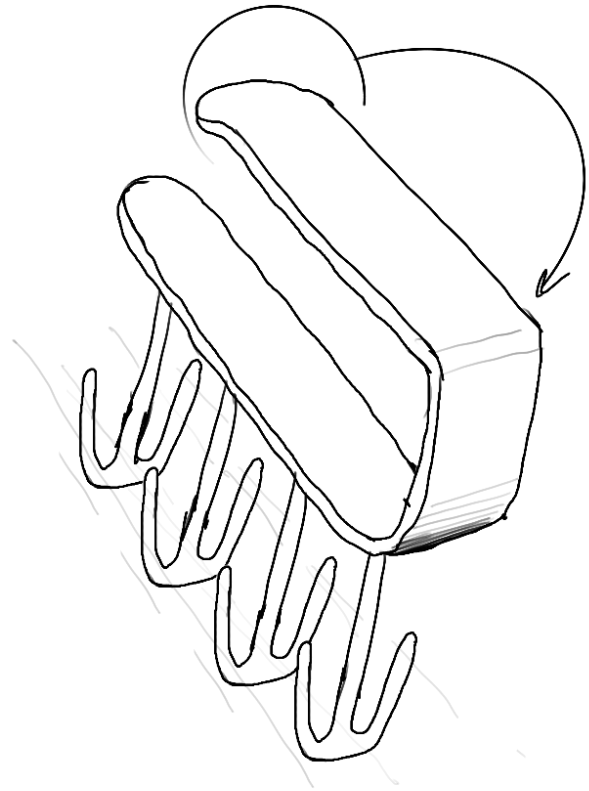
This stand attaches to the base of a sink faucet, and is at an angle so that the bottles drip less onto the lower bottles



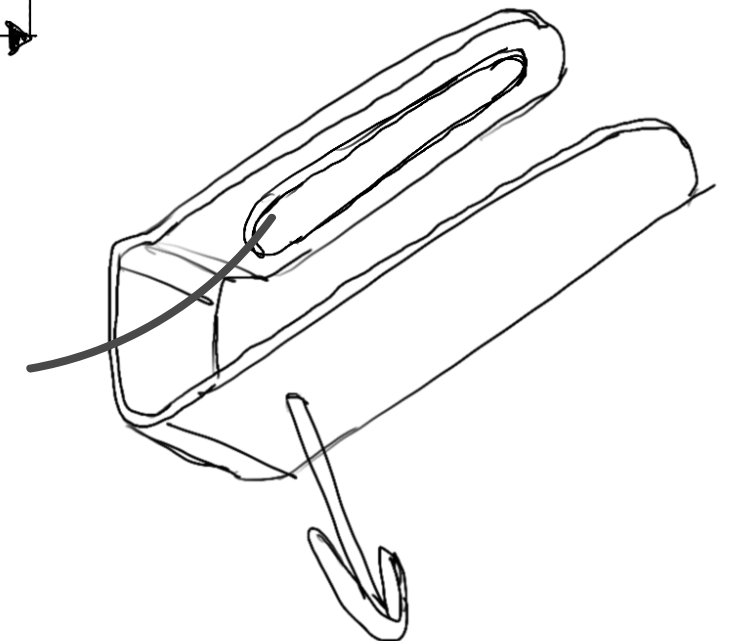
Concept Refinement



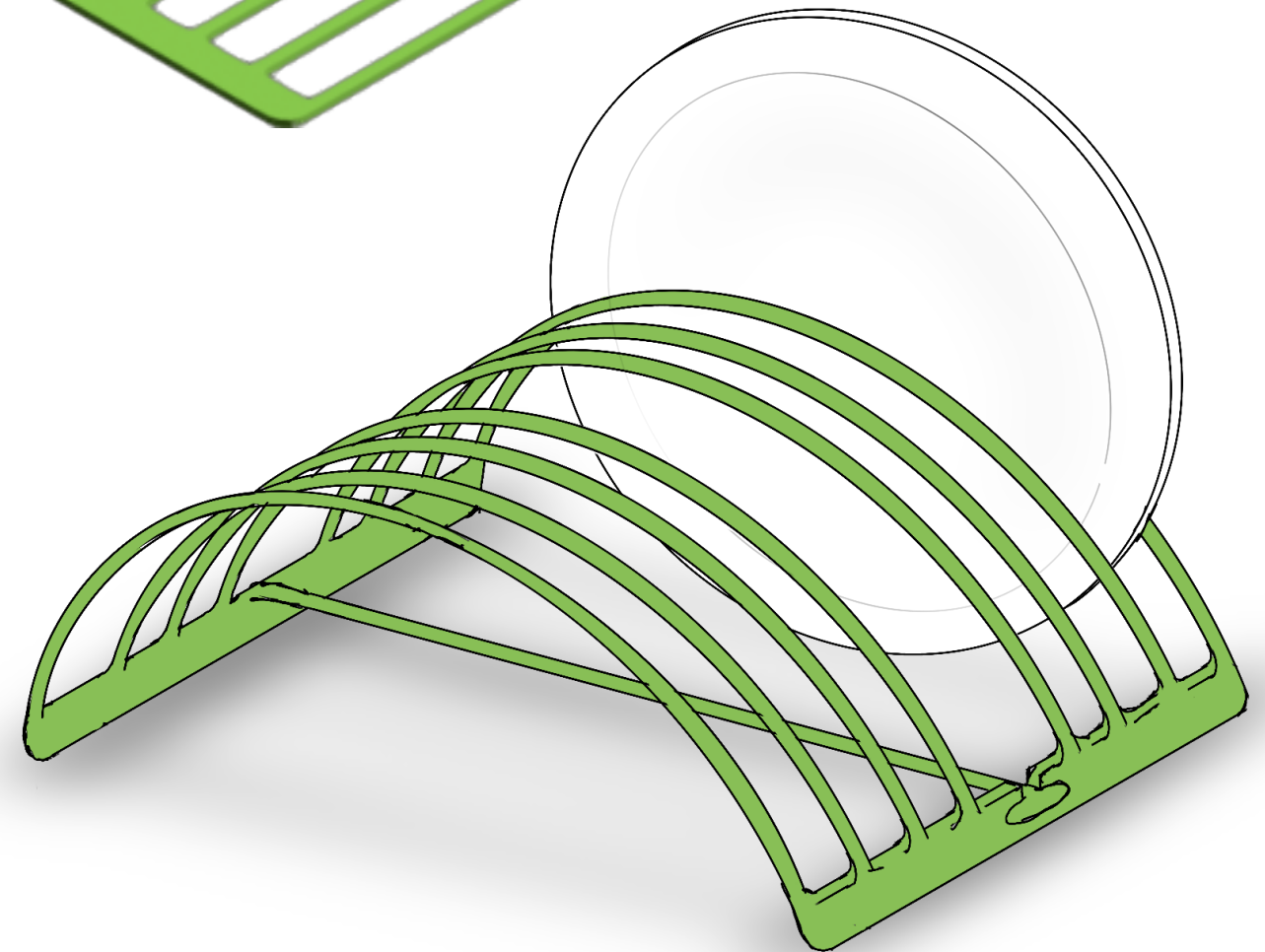
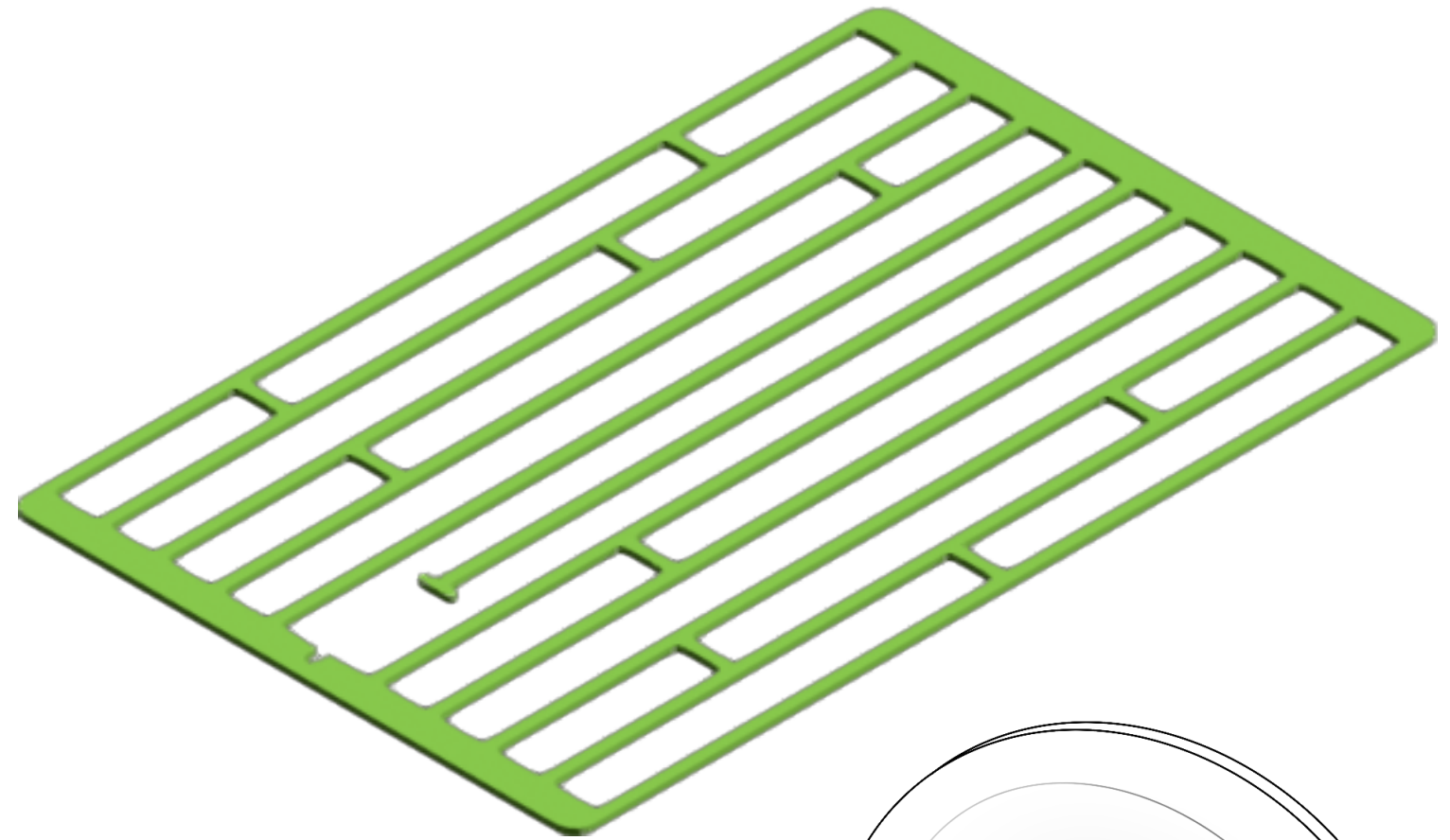
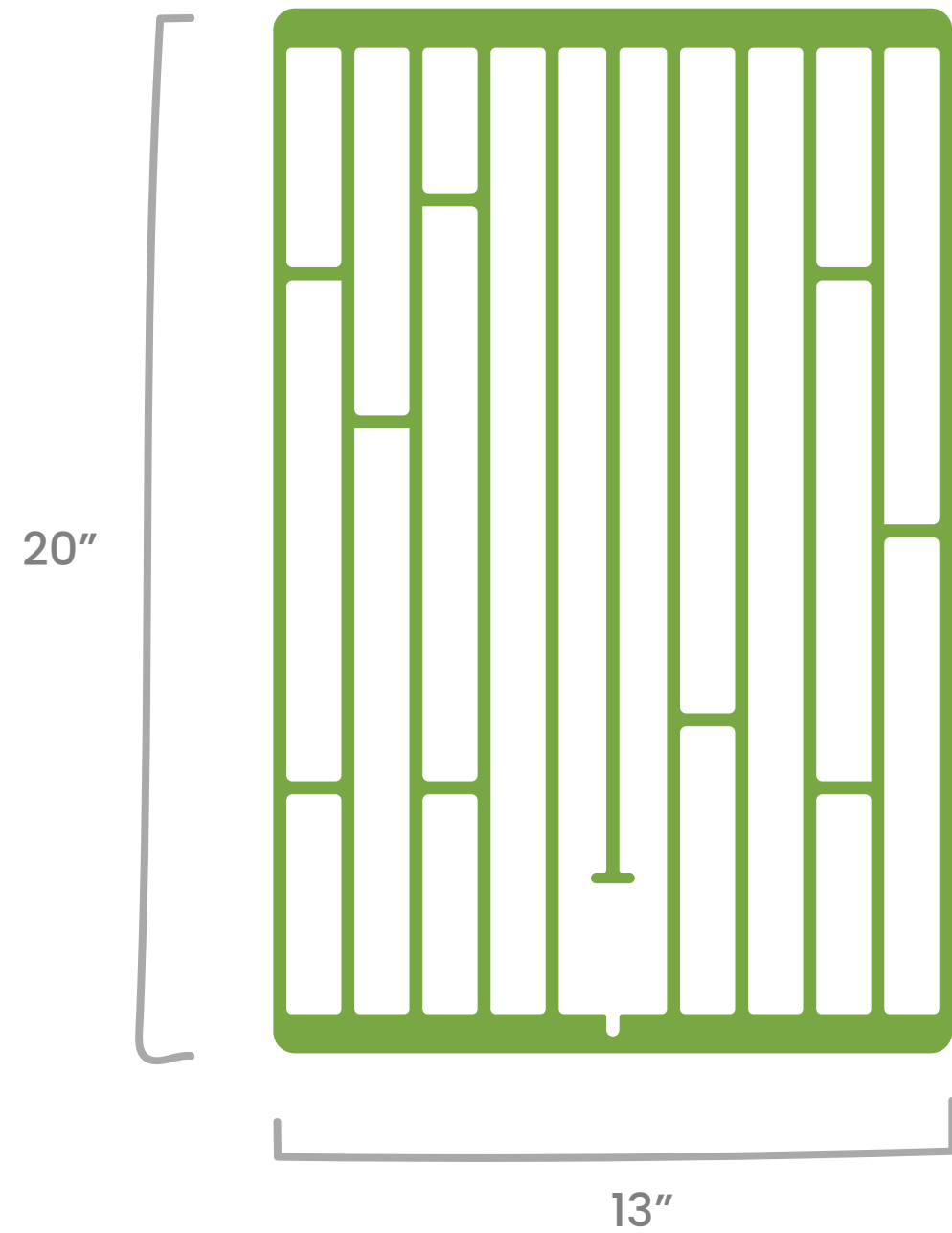
Whisk Rack



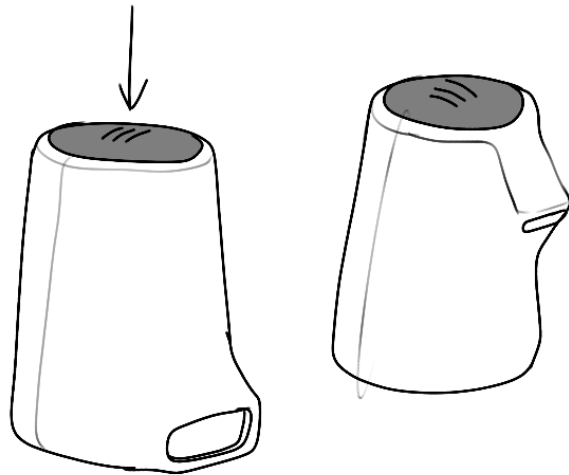
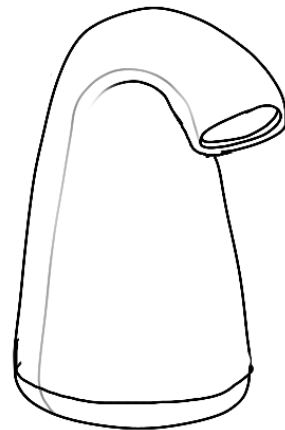
consider grippy material here (over mold)



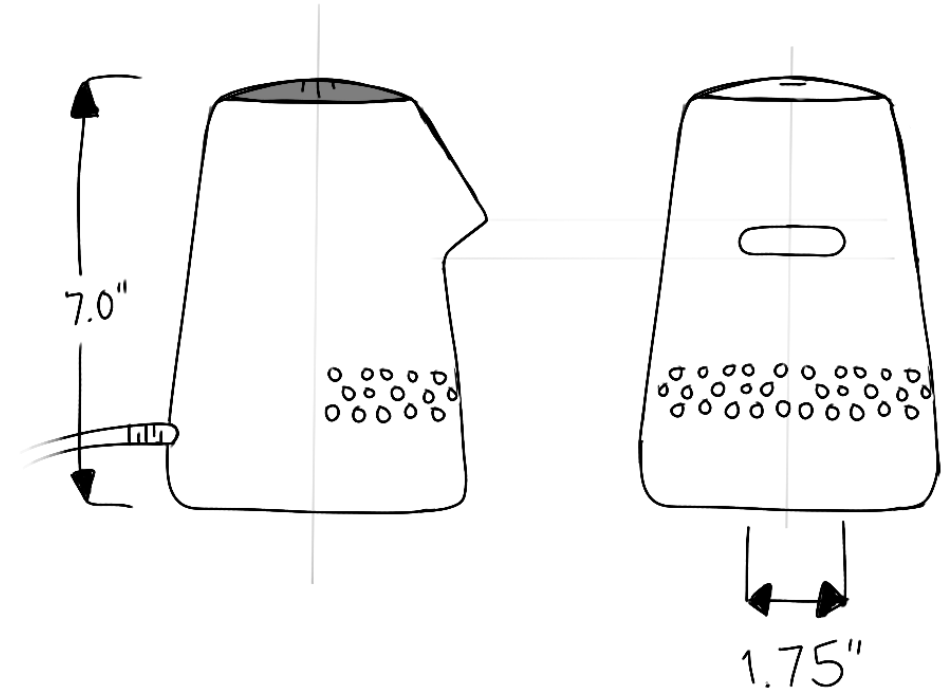
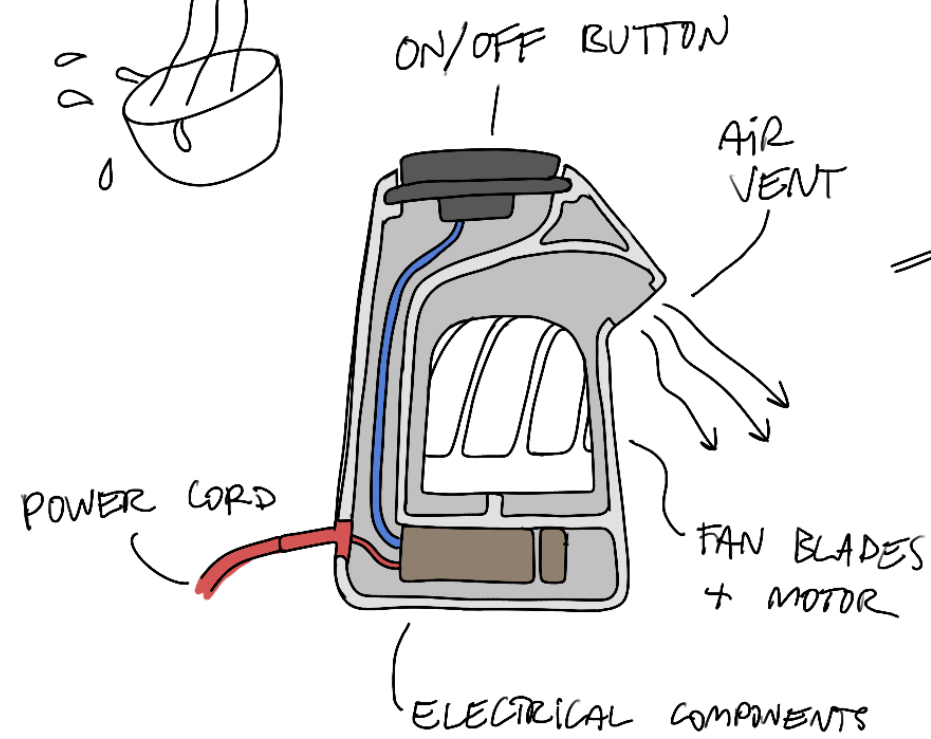
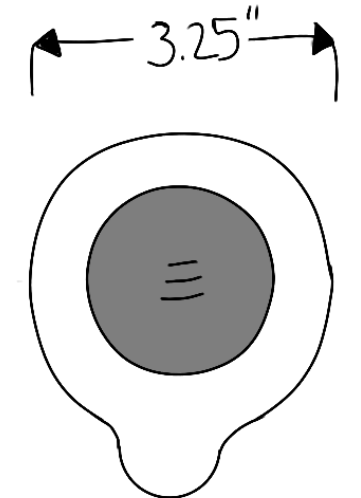
Arch Rack



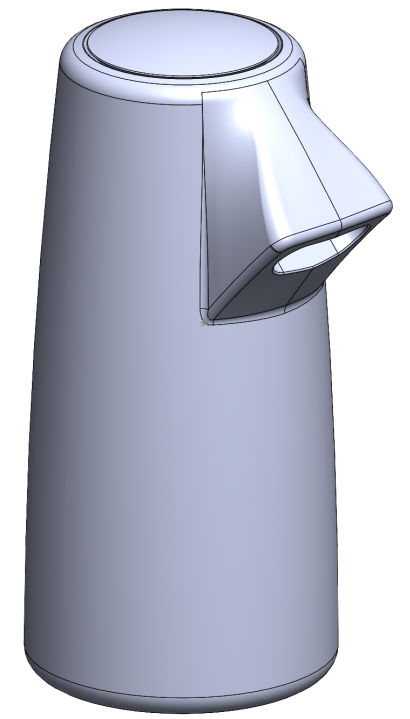
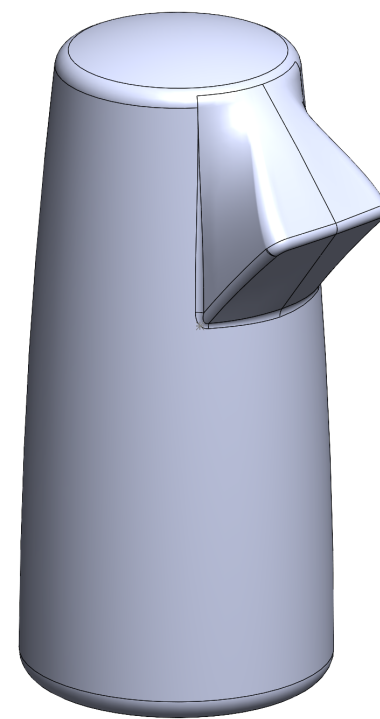
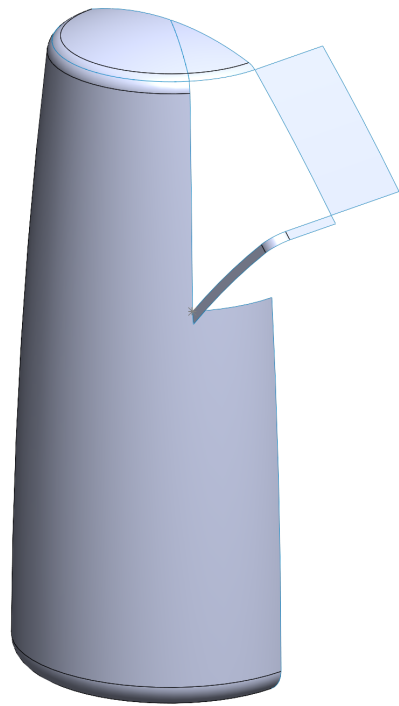
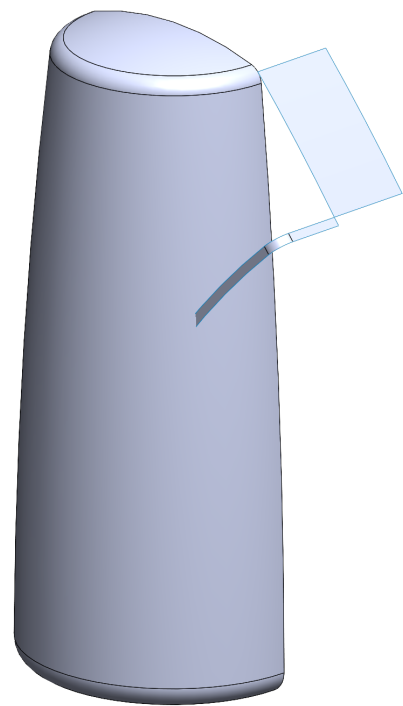
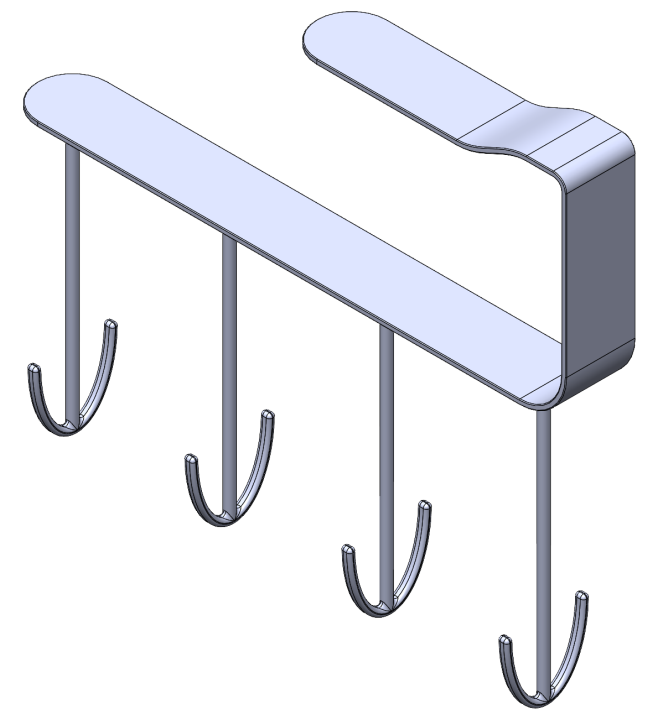
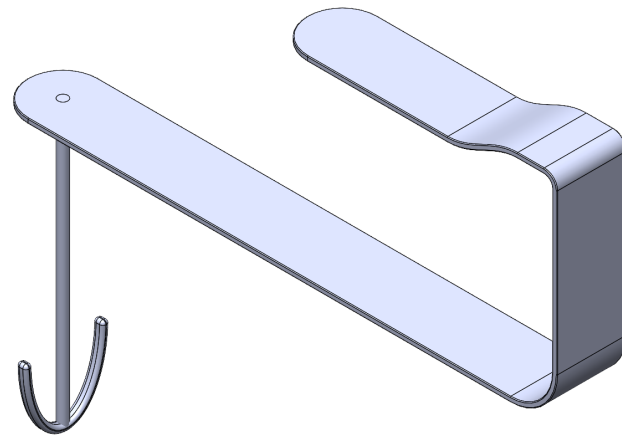
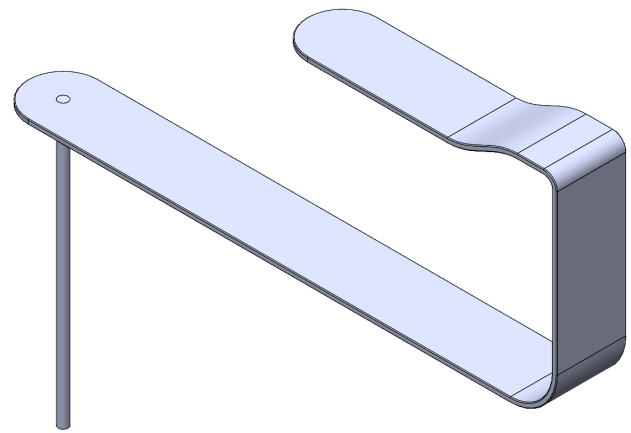
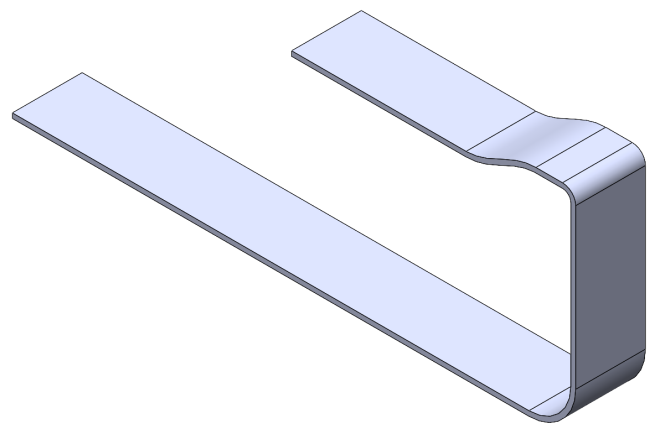
Dish Dryer

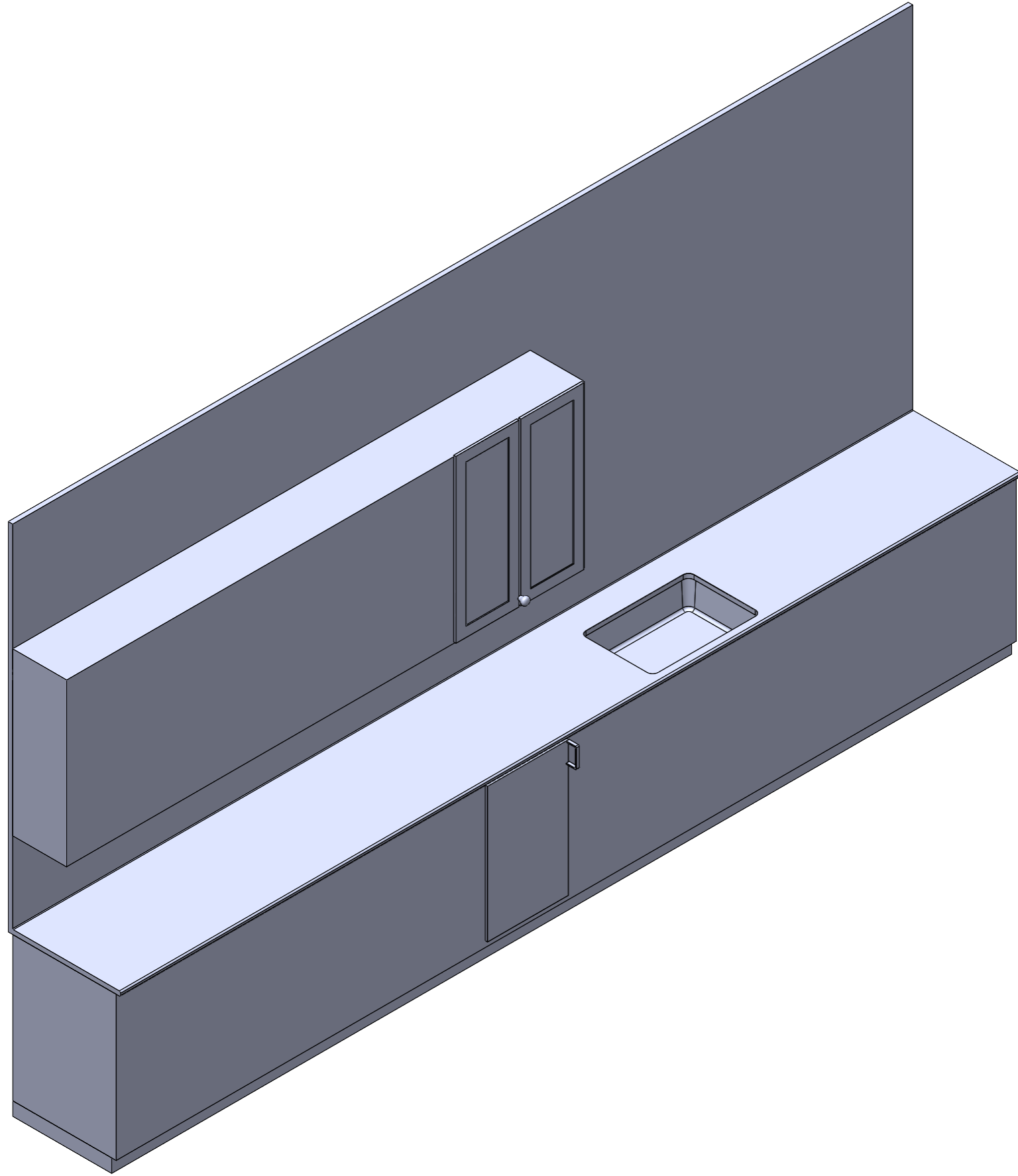


HAIR DRYER COMPONENTS
MINUS THE HEATING AND
INSULATION COMPONENTS =
\$15 - 20?



CAD





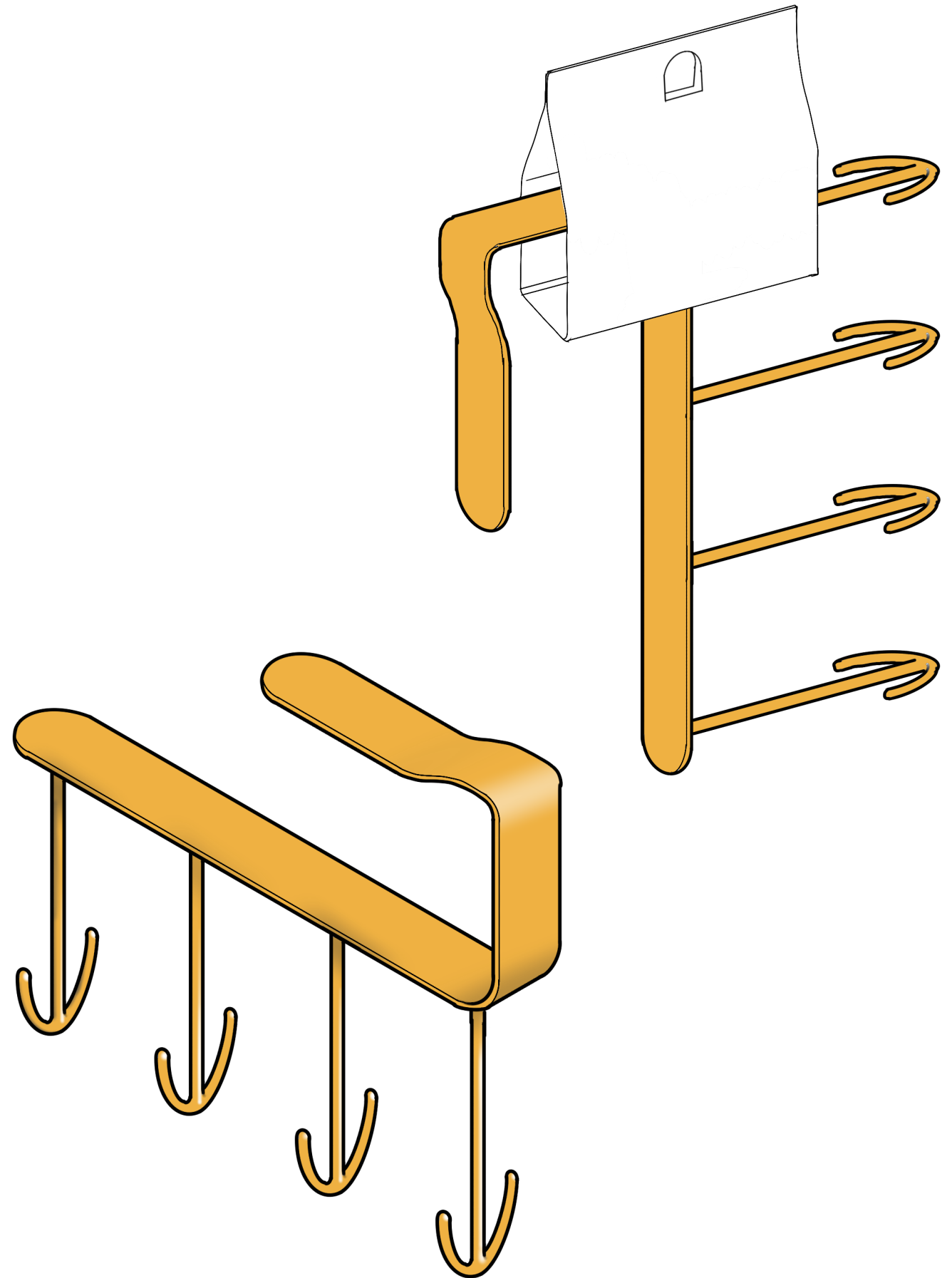


Whisk Rack

Inspired by racks and hanging loops typically used for coffee mugs and wine glasses, the Whisk Rack hangs from a shelf or a kitchen cabinet.

Using a T shaped hook, it can hold multiple bottles and their components, all while using no counter space at all.

Due to the weight of the bottles and other dishware, this would likely be metal that was extruded, stamped, bent, and assembled. It would be coated (painted).

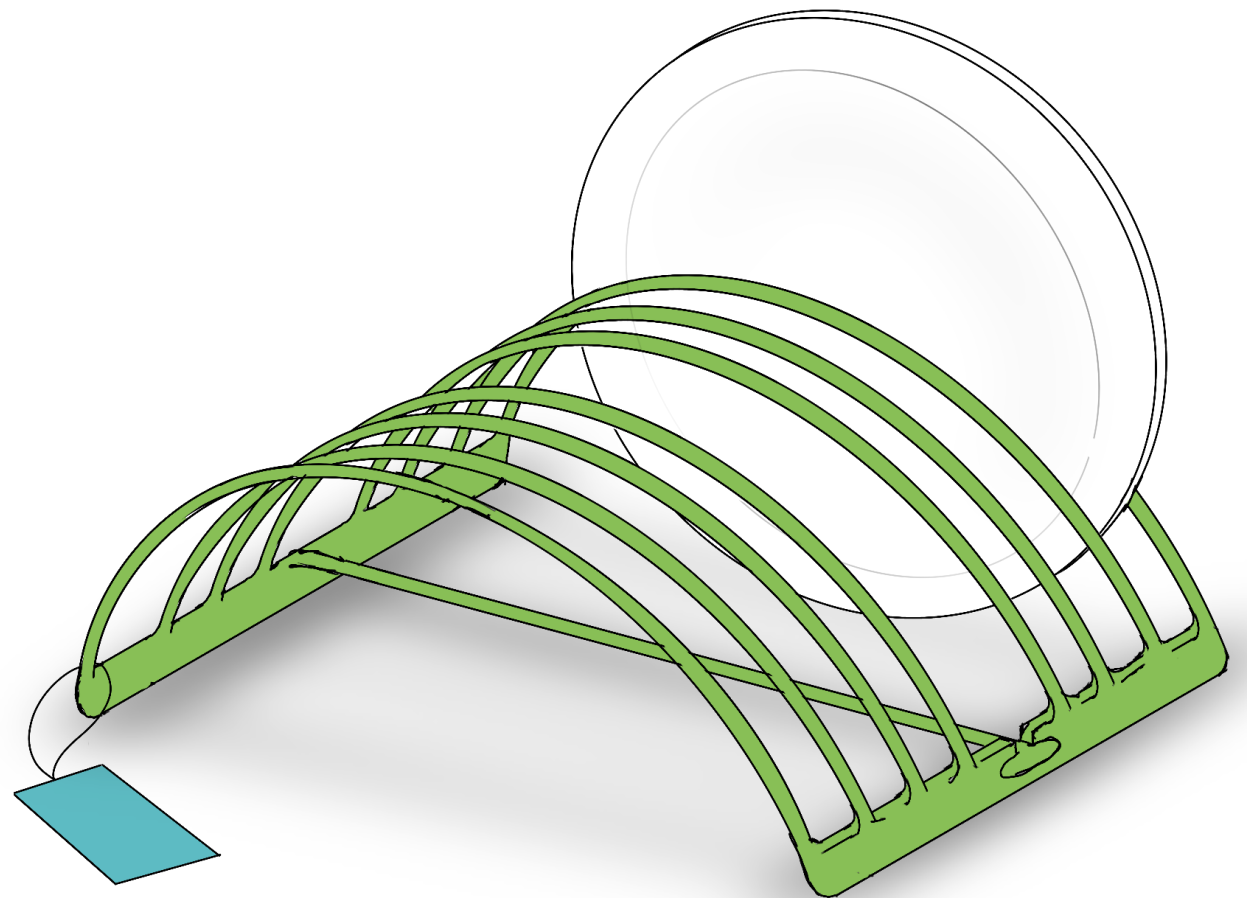
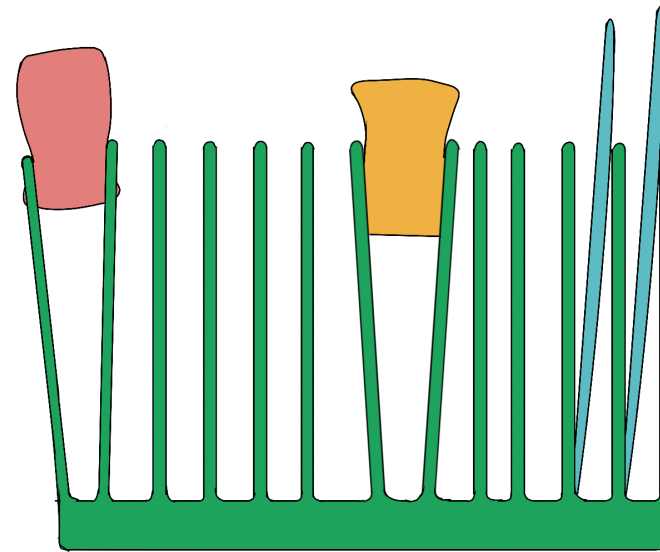


Arch Rack

Using high durometer, soft materials, this bending rack supports dishware vertically, and by holding them between the ribs. Due to the flexing, it can stand on top of a counter or arch over a sink. When not in use, it can store easily like a cutting board.

The arch is secured with a T shaped rod that fits into a U shaped slot.

In future iterations, rods can be added that would flare out when in a bent state, allowing cups or bottles to dry all at different angles.

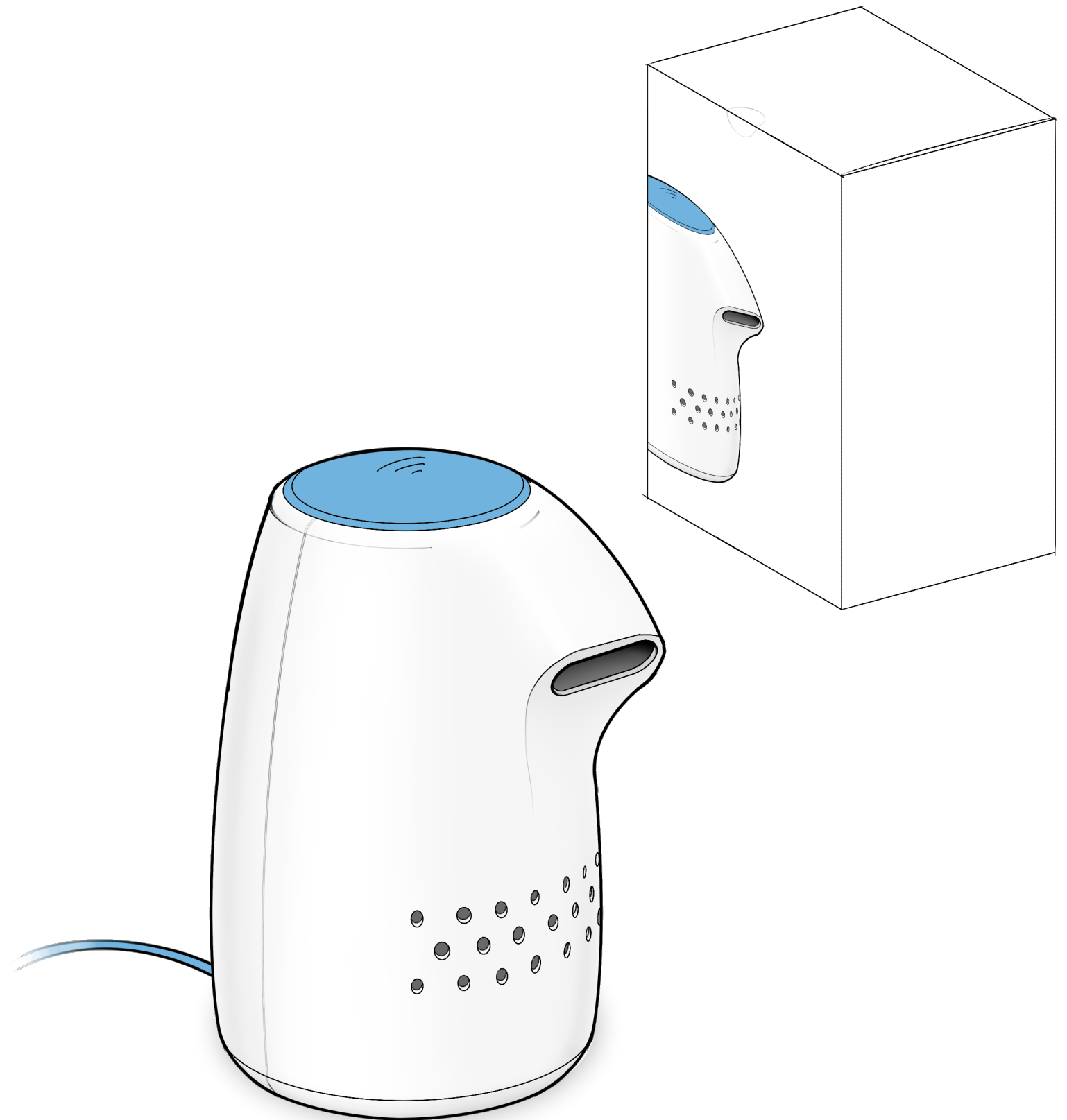


Dish Dryer

Similar to a hand dryer in a bathroom or a hair dryer, this device moves air to rapidly dry off dishes immediately after they're done being dried by hand.

It is intended to live next to the sink, for water being blown off the dishes can fall into the sink.

The large button on top would give a person the opportunity to use their arm or a dish to turn it on. The button is overmolded to prevent water entering the device.



Discover

Secondary Research

- Analyze sales and performance data
- Product reviews, vlogs, social media
- Create hypotheses

Primary Research

- Survey 100-2000 guests
- Evaluate market samples
- In person interviews with 6-50 guests and market samples

Testing

- Put sketches, prototypes, CADs, or top of production samples in at least 6 guests' hands

Design

Sketching

- Create many different ideas with few constraints, gradually narrow down

Rendering

- Visualize with materials, textures, and colors

Develop

Rapid Prototyping

- Using low fidelity materials like paper, cardboard, wood, and pipe, make to scale objects

CAD

- Create to scale 3D models separated by the necessary parts for prototyping and visualization

Finalize

- Create documentation on intent, form, function, materials, textures, finishes, branding, and iconography

