



Design Brief ROV Project

Client	Morrows rich friends
Target Consumer	Golf Result Owners
Designer(s)	Gianna or Cole
Problem Statement	Create a remote controlled ROV that recovers golf balls off the bottom of a pool in a designated time frame.
Design Statement	Design, prototype, document, and test an ROV using 3D printers, hdpe plastic, cnc routers, dpdt switches to recover golf balls off of the bottom of a pool in 3 minutes and compete to win money.
Criteria	<ol style="list-style-type: none"> 1. Neutrally boyant made by pool noodles 2. Can remove motors 3. Frames cannot be adhered together 4. Must make remote 5. Must use camera to drive 6. Make it look cool! 7. Cannot look at ROV while driving 8. Motor mounts must provide propeller protection 9. Has to get golf balls to the surface 10. Must create camera mount 11. collect golf balls in 3 minutes
Constraints	<ol style="list-style-type: none"> 1. Only 4 motors 2. 4 propellers 3. 4 dpdt switches 4. Only use 24x24 piece of hdpe plastic to make whole frame 5. All fasteners must be a #8-32 screw/ length of 1 inch 6. Use 25 ft of irrigation wire

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<i>Gianna Abbato</i>		DATE	2/7/22
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ROV Project

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- c • device needs to be neutrally buoyant
- 4 motors - must move vertically/horizontally
- Must drive by the camera
- design remote - dpdt switch (4) on or off
- c • 4 propellers
- make it look cool!
- wires have to come out of 1 location (teather)
- must use 1 sheet of 24x24 hdpe plastic
- motors will be 3D printed
- motor mounts must provide propeller motor protection
- sketch of motor for mount
- motor mounts must fasten to device
- golf ball recovery device must use same plastic piece (holes in cardboard)
- c • 25 ft of irrigation wire (cut out)
- c • all fasteners must be a #8-32 screw
- longest screw length is 1 inch.
- has to get golf balls to the surface
- create camera mount
- get as many golf balls in a bucket from the bottom of the pool in ___ mins.
- * • frames must adhere together with interference fit.

Things To Do Over Next Week

- Completed frame design
- Create design breif (due friday)
- Sketch brainstorming designs
- Develop solution of final sketch (isometric + multiview)

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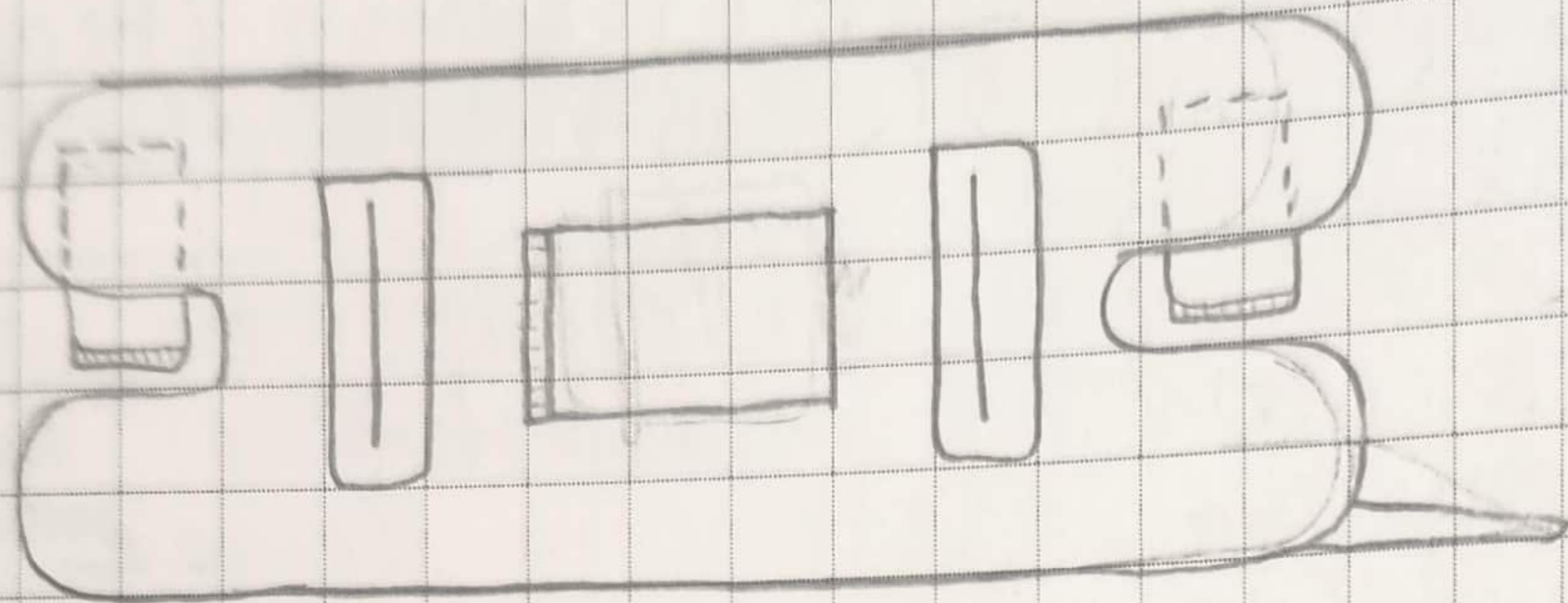
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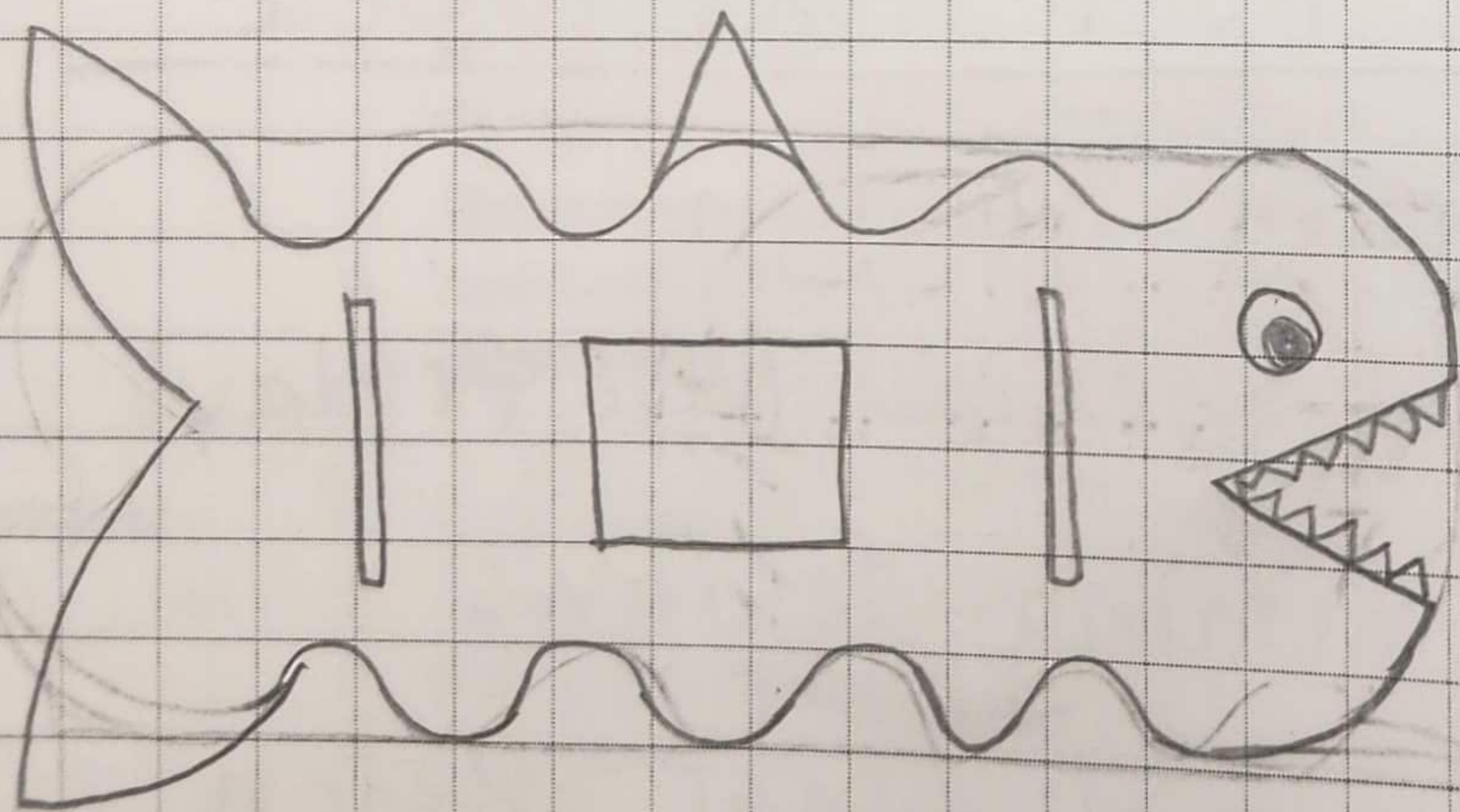
PROPRIETARY INFORMATION

ROV Design Concepts generate concepts



Basic Idea

2/7/22 GA



Shark Design

2/7/22 GA

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Gianmarco Abbate

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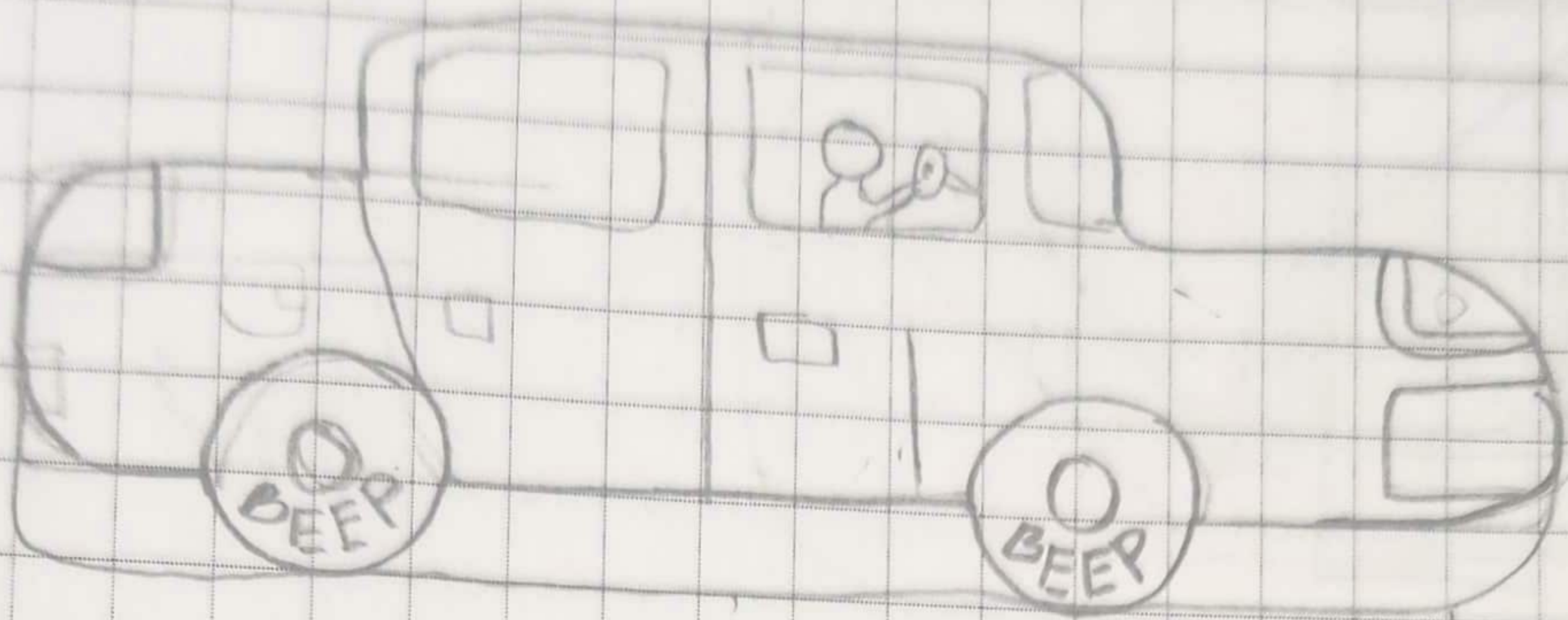
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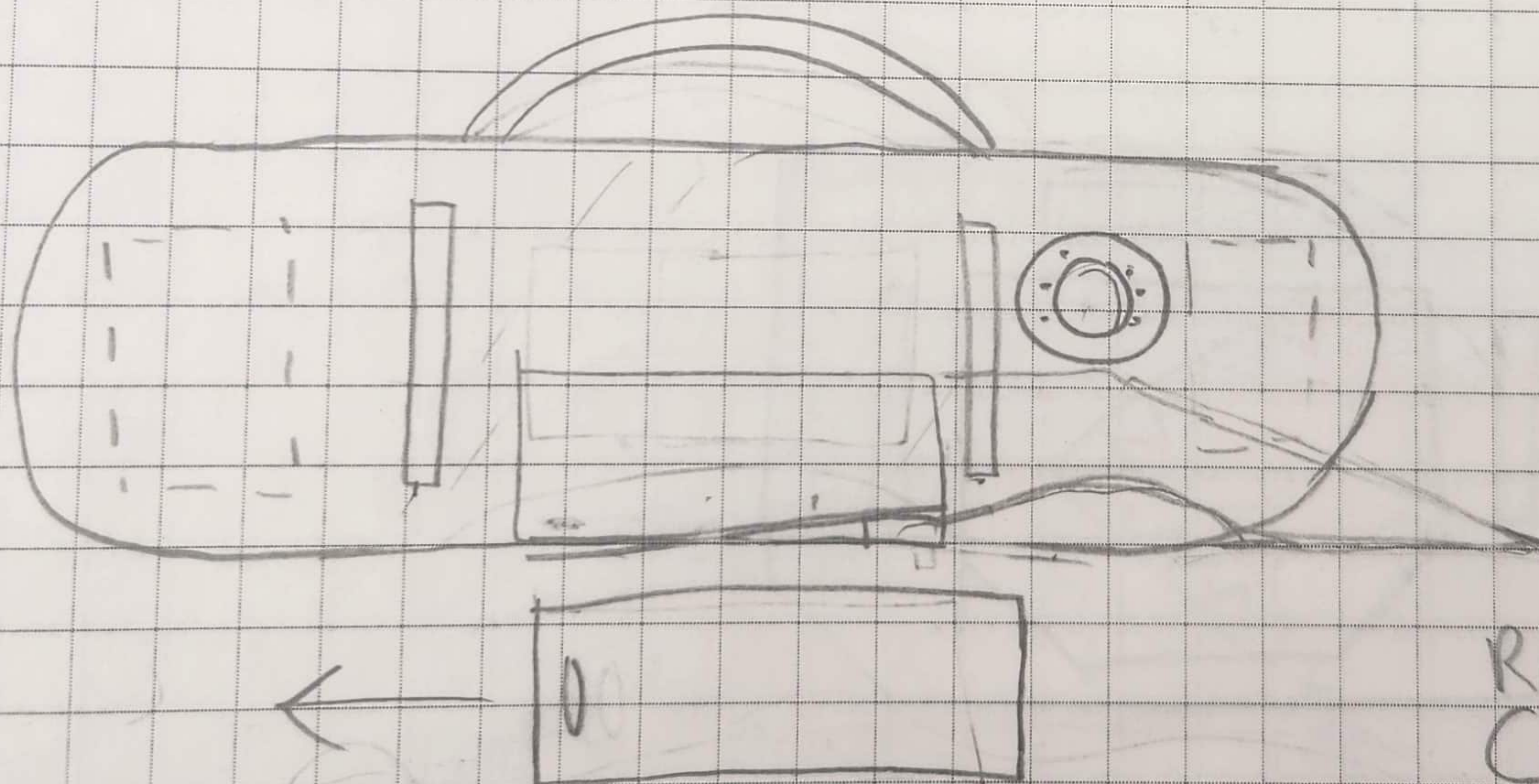
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PROPRIETARY INFORMATION

ROV design concepts



CAR
2/7/22 GA



Round Cylinder

2/8/22 GA

1
4 inch

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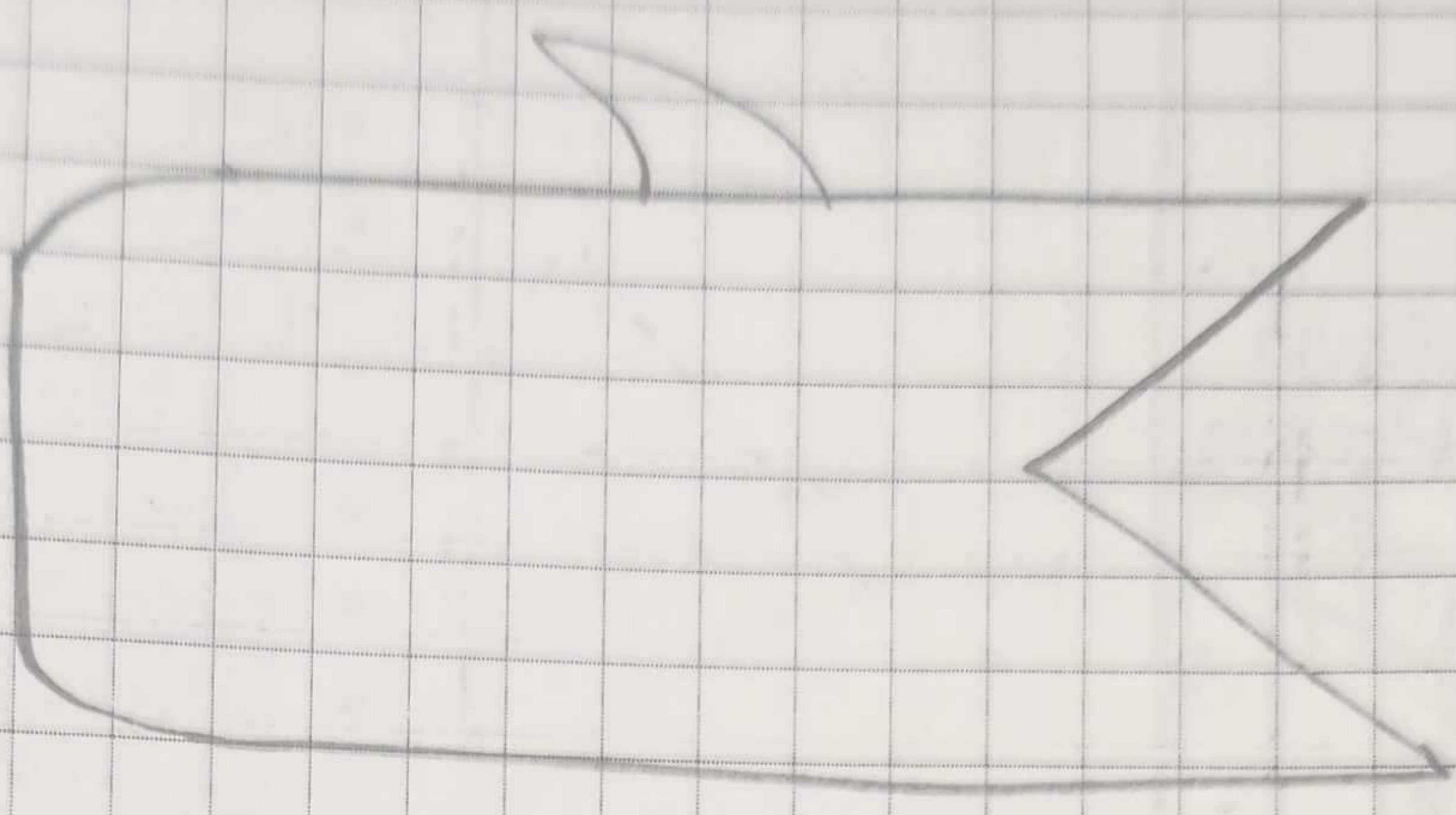
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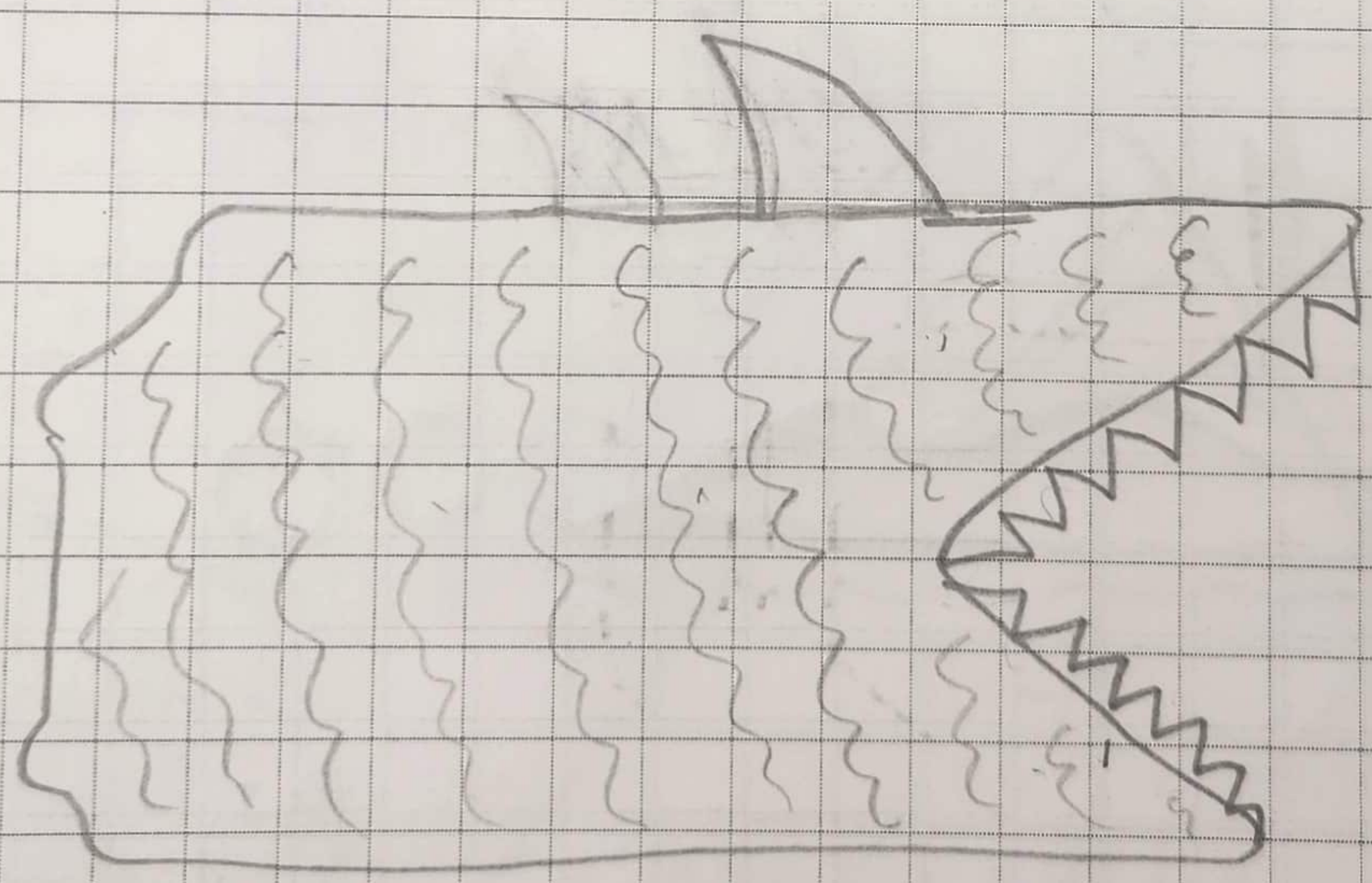
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ROV design concepts



Fish
2/8/22 GA



Alligator
2/8/22 GA

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Ideas / Notes

Holes

- New sketch
- Select
- Point (dimension)
- Rectangular Pattern
- okay
- Hole command
- Pick hole
- Select all holes
- Clearance hole
- Ansi unified screwthread
- Oval head
- Normal
- 8-32

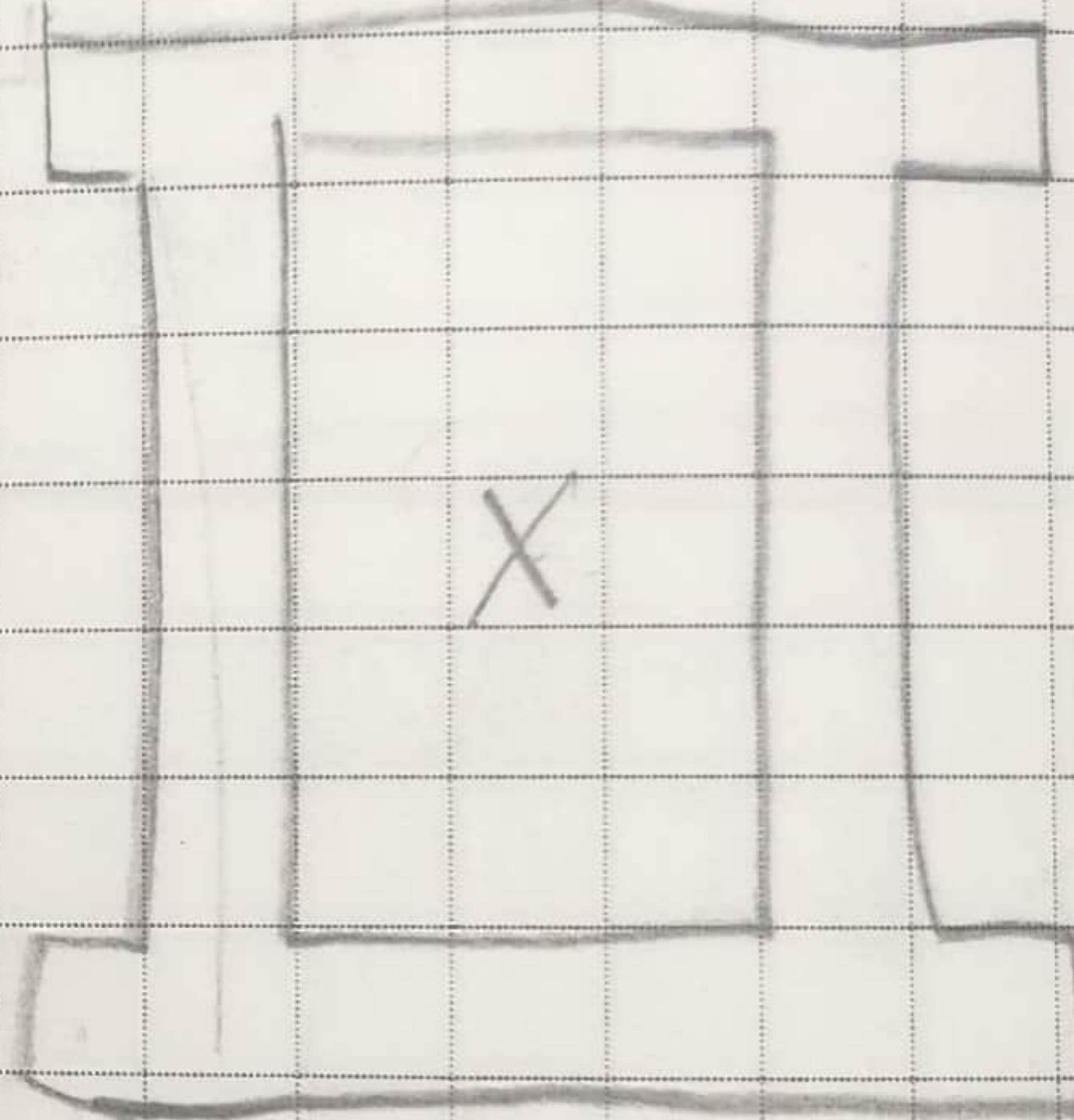
Drawing Laser

- 24 x 12
- Fit in object (no by edge) (No fires)
- Save, laser cutout
- export as PDF
- Share drive
- Student drop box
- Wood shop laser
- Name, Date / Version
- Laser it

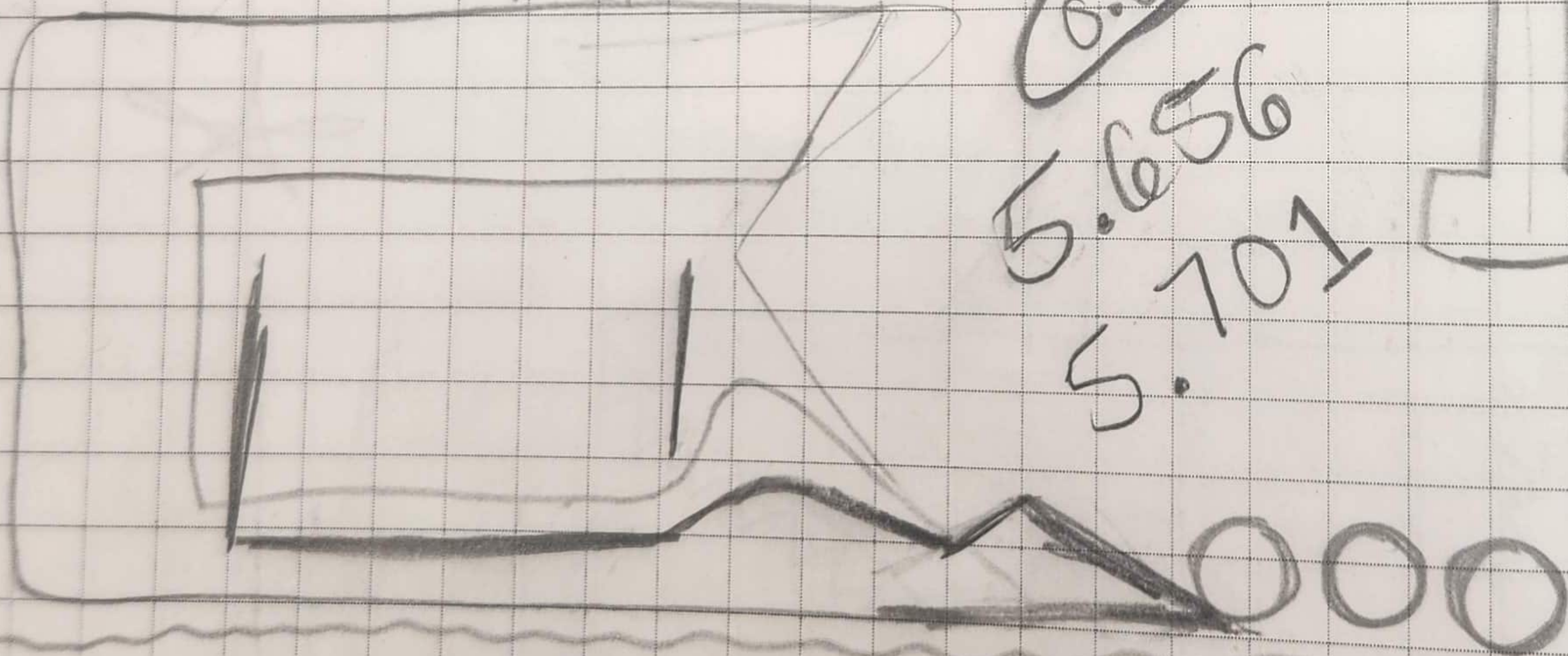
interference

0.045

5.656
5.701



normal
8-32



• Oval head machine screw

- Hole command
- Pick hole
- select all holes

• normal

- clearance hole
- ANSI unified screwthread

Box 4 recovery

- Container
- Rounded edges

pac man

multiple notes

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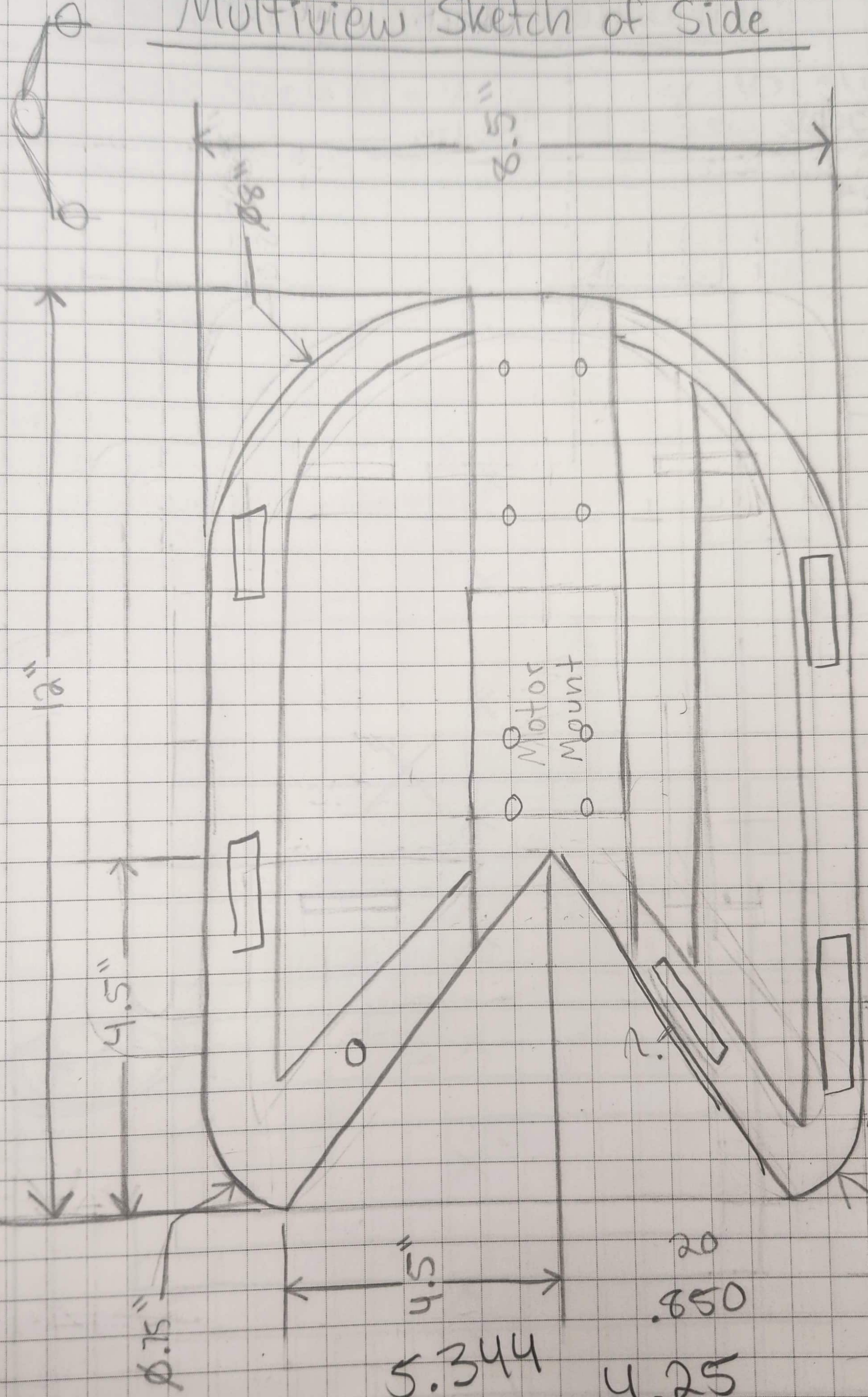
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Multiview Sketch of Side



3.2
1.35

1.5" wide
1.5" long
1.5" wide

150
slots

1/2 inch

0.75"

4.5"
5.344

20
0.850
4.25

0.75"

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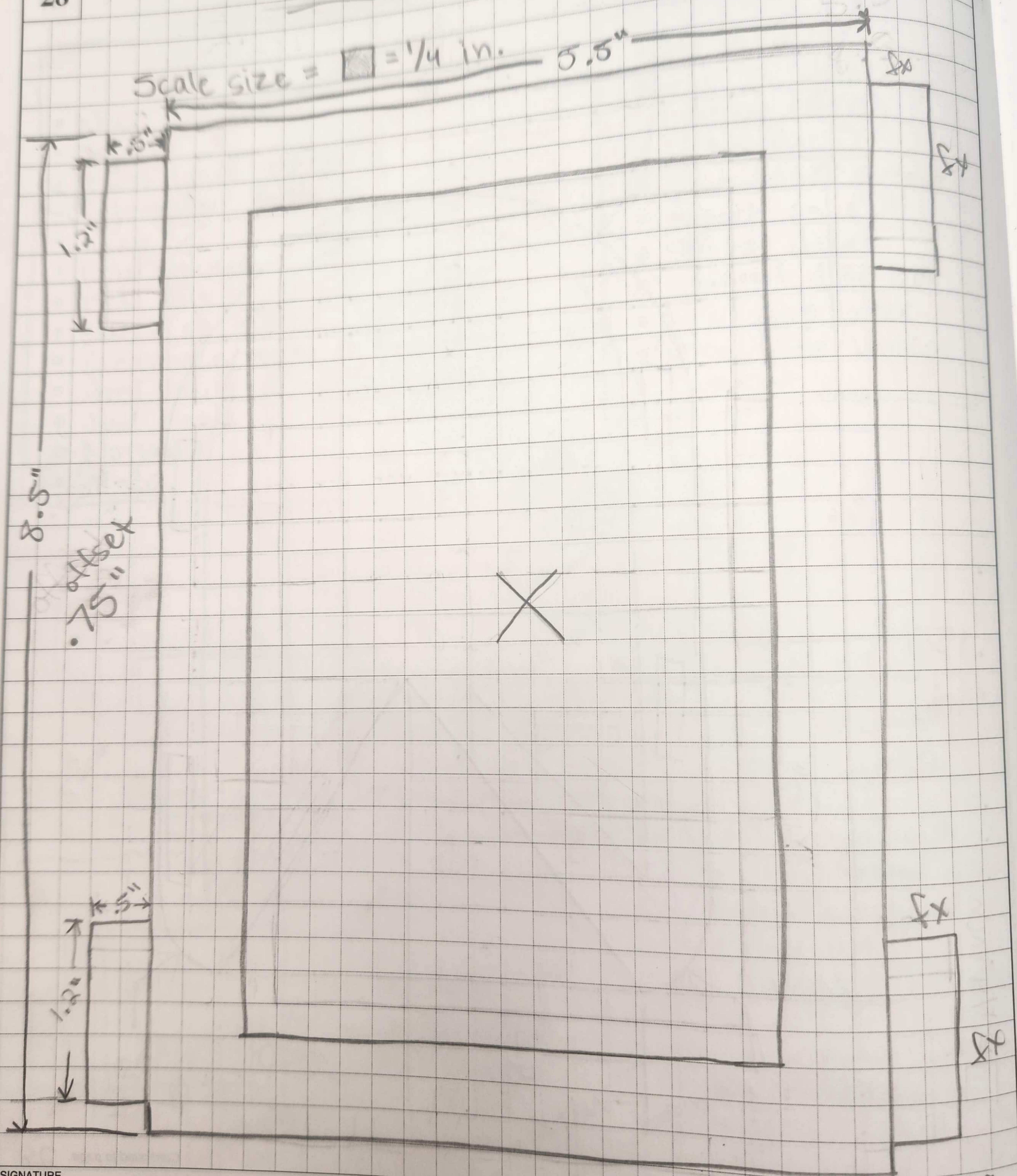
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PROPRIETARY INFORMATION

Top Cross Member Sketch

5.5
8.5

Scale size = $\square = \frac{1}{4}$ in. 5.5"



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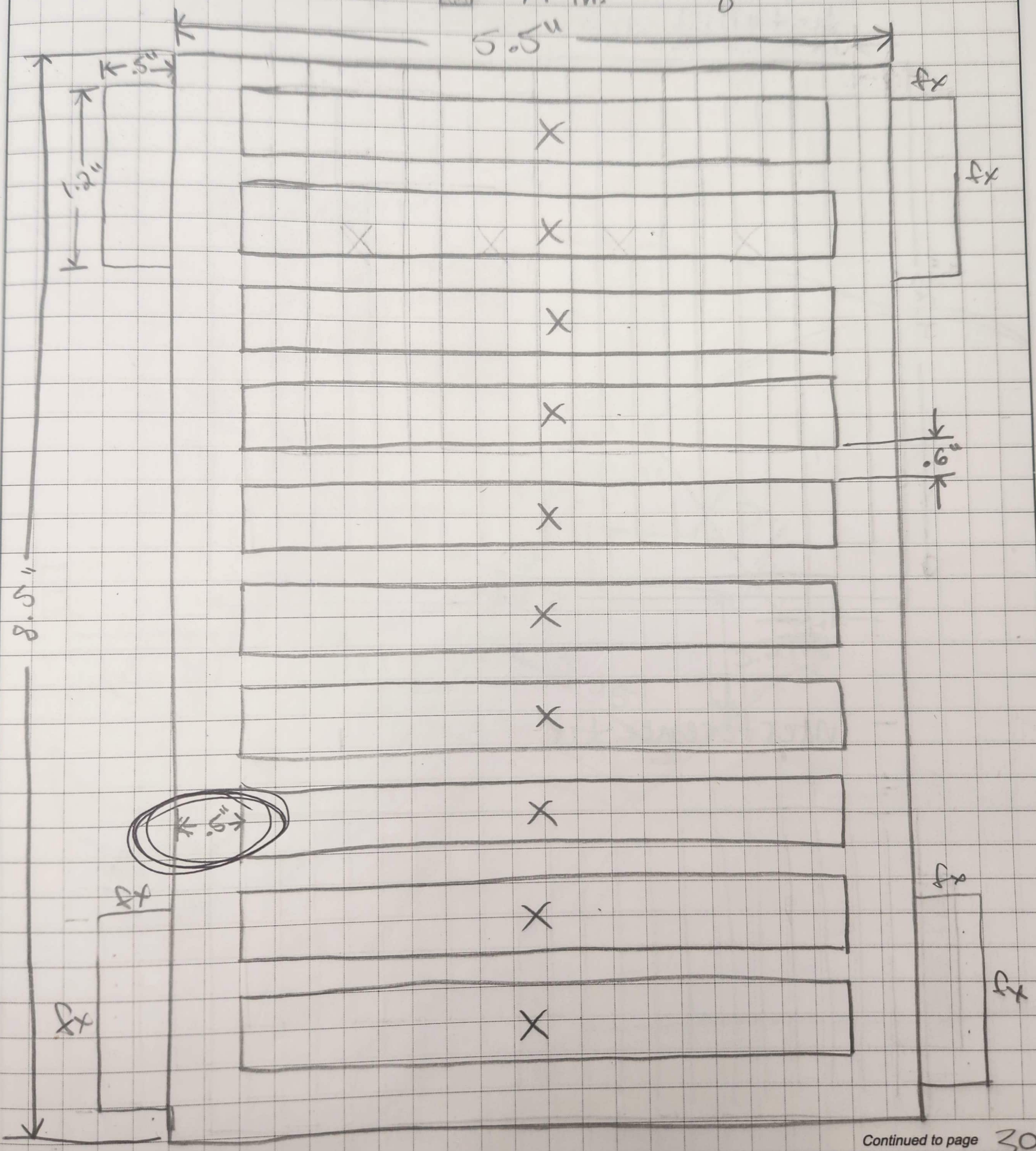
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Bottom Crossmember Sketch

Scale Size =  = 1/4 in. 8-10 slits

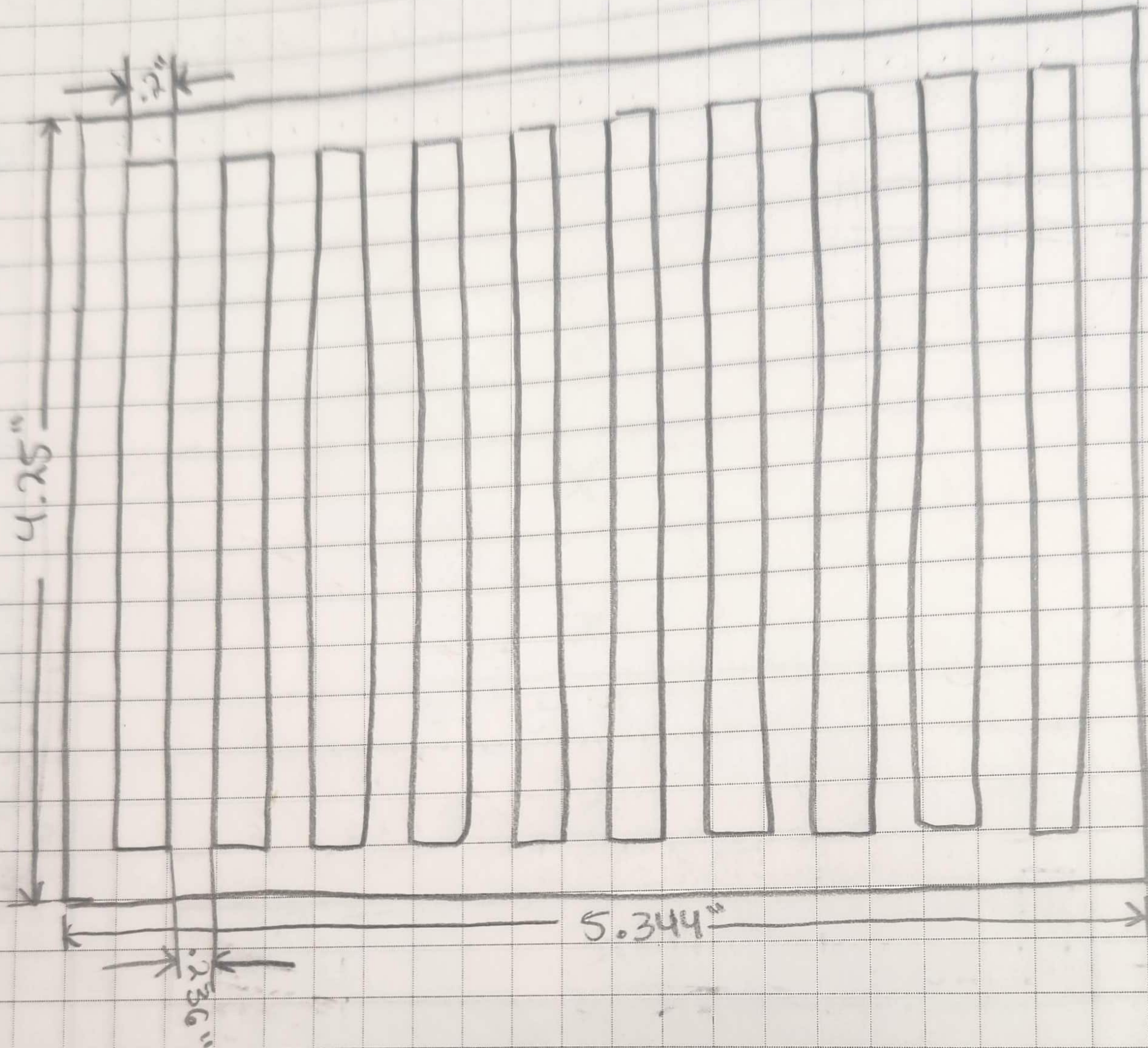


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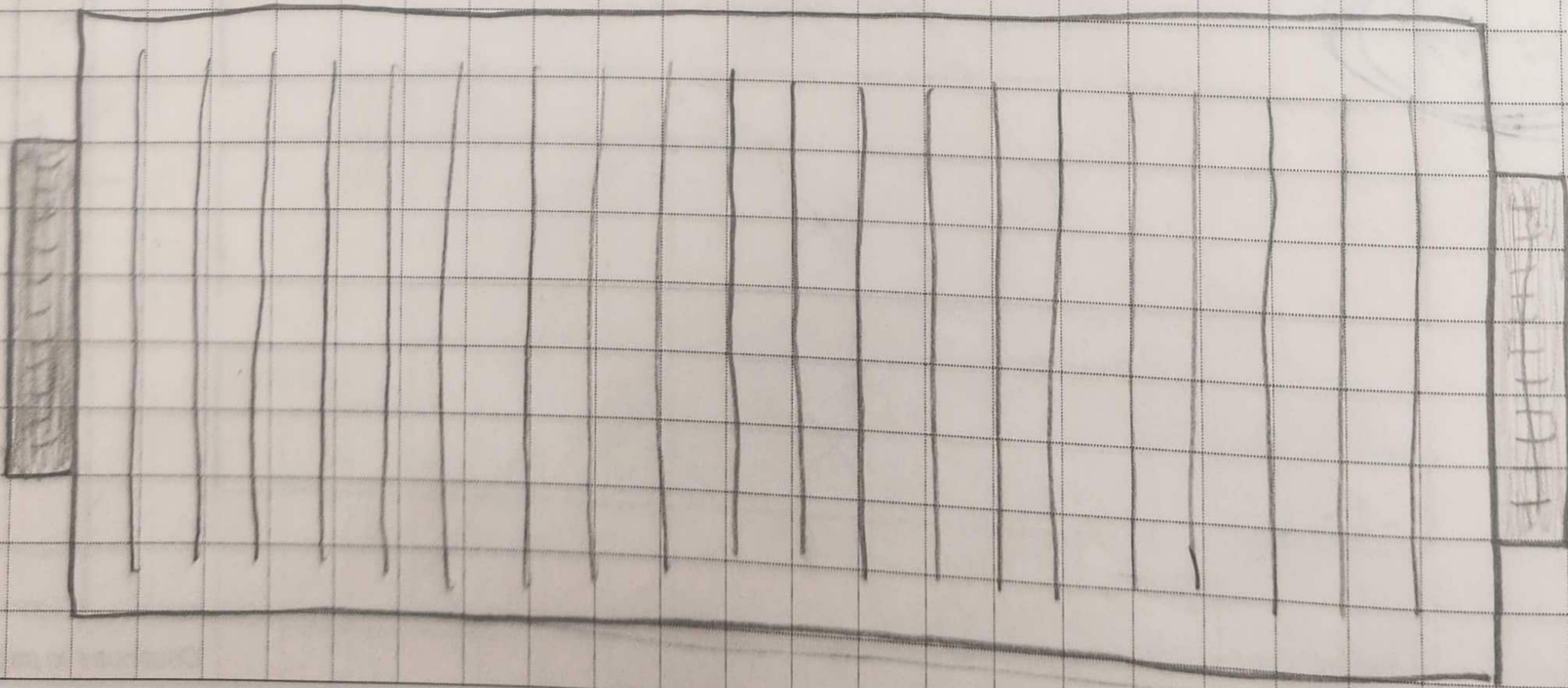
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Back of GB Recovery



- interference fit



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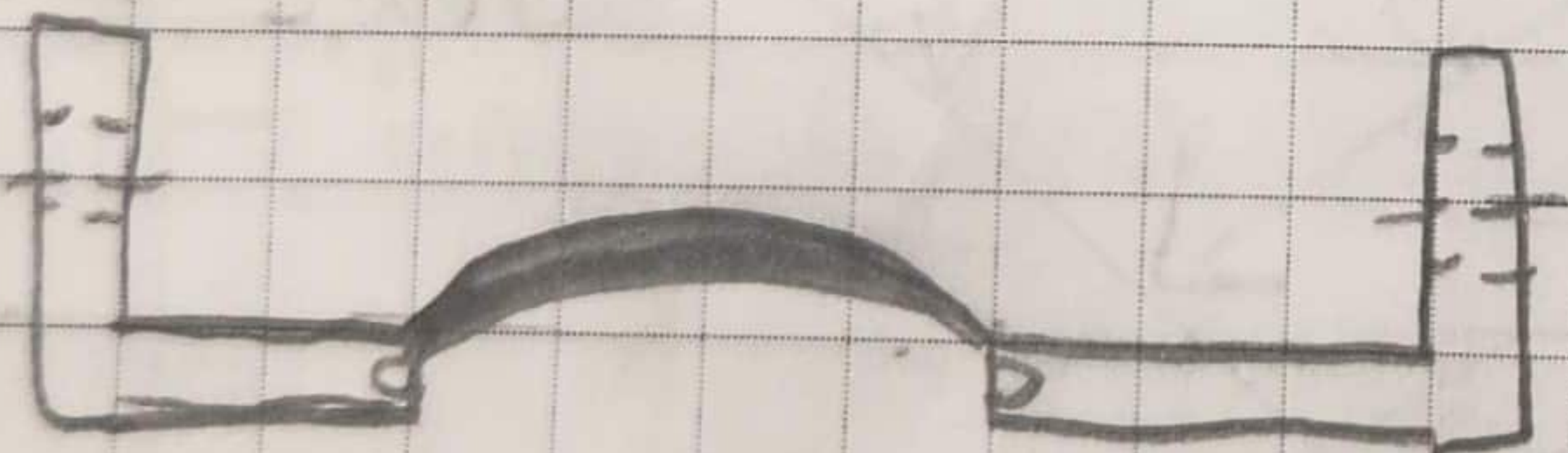
PROPRIETARY INFORMATION

How to make Motor mount

- Sketch from origin
- Work plane (offset)
- Slice (for more visual)
- From origin line: mirror
- Fillet corners
- hole command
- offset plane
- bottom sketch
- project geometry
- bottom line of rectangle
- parametric equations from LINE!
- holes rect. pattern
- offset right plane - or +
- New sketch on right side
- slice
- Project / Include
- Intersect
- Bodies (check all bodies)
- Connect the dots

- Extrude + or -
- Fillet the edges
- Save

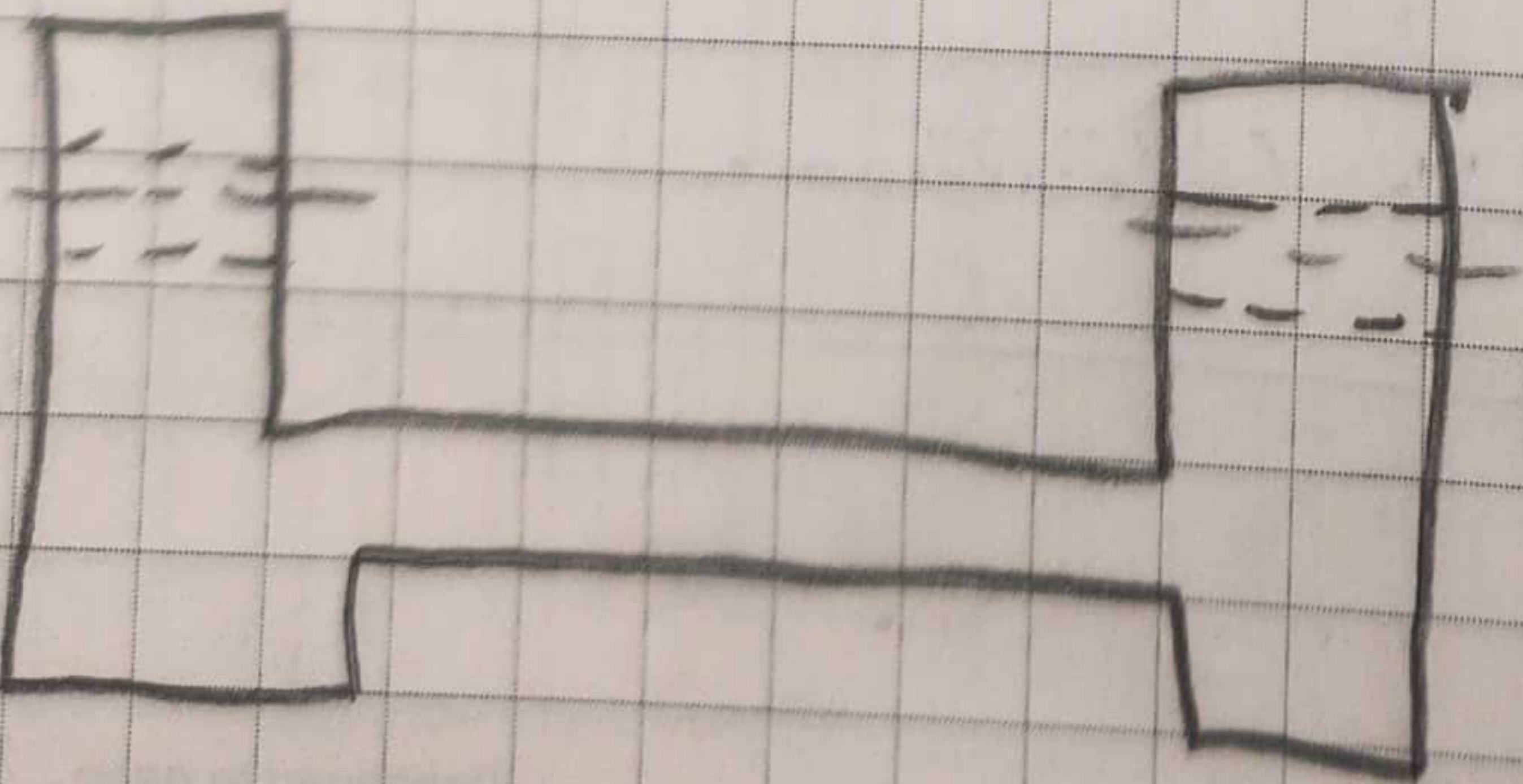
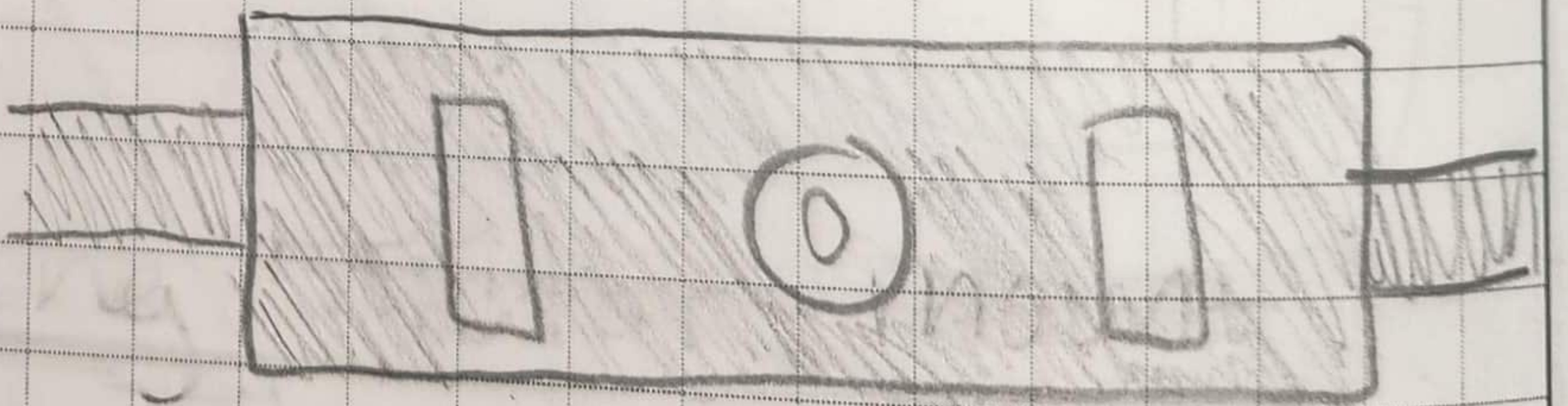
Camera Mount Ideas



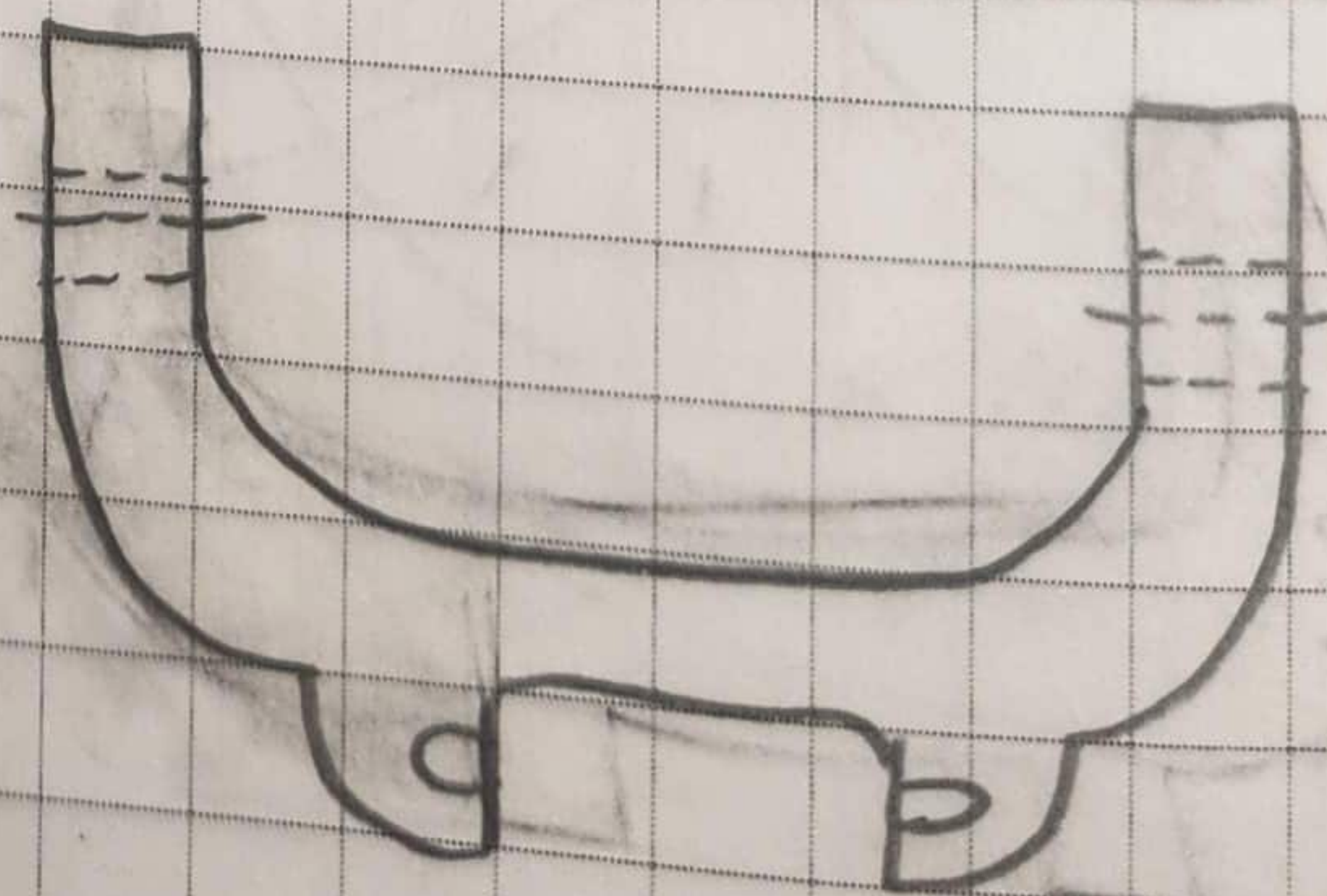
Swoop 3/30 GA

3d printed (Front view)

3/30



Box 3/30 GA



Curve 101 3/30

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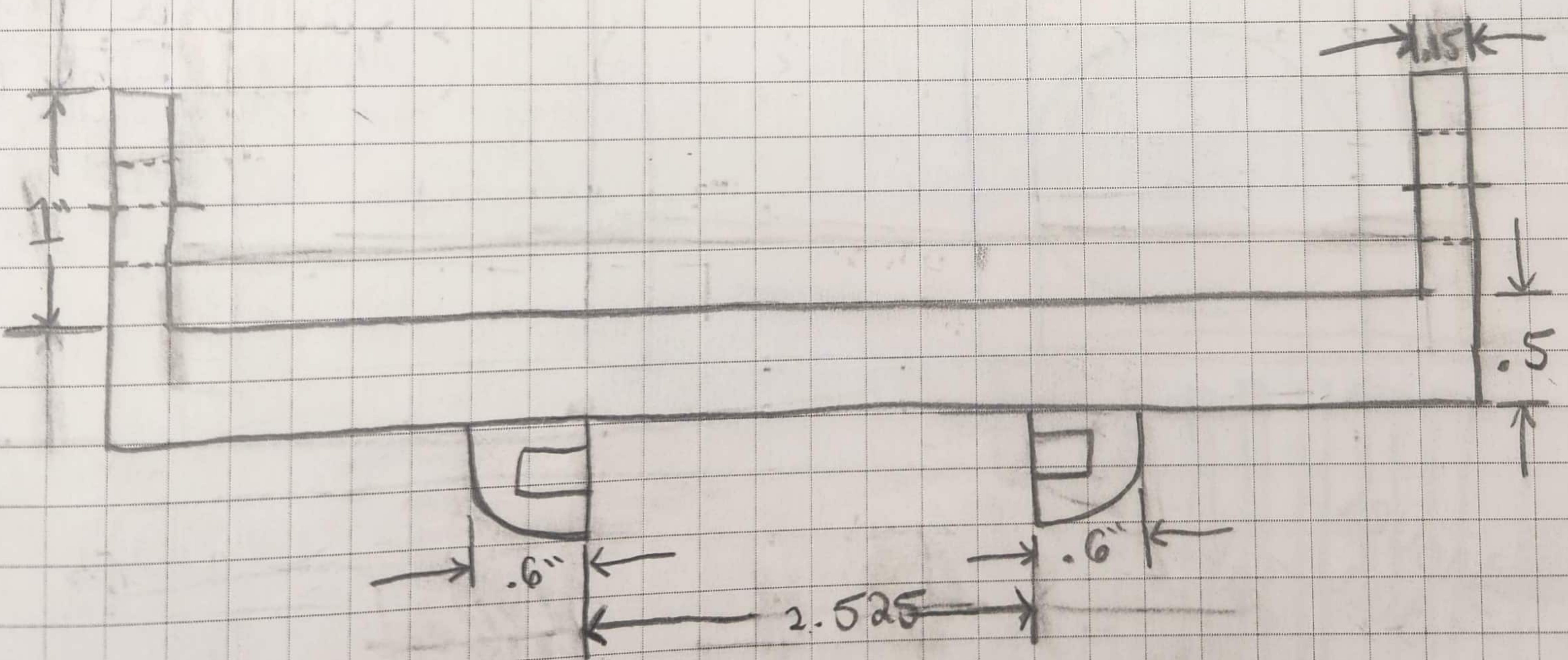
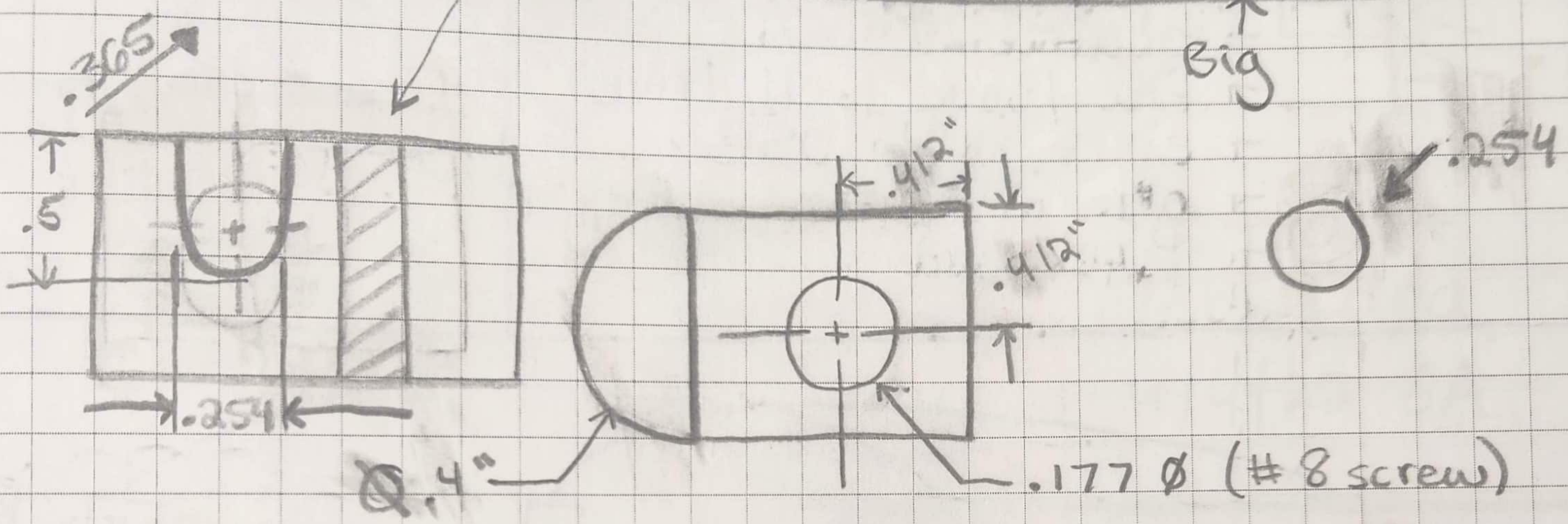
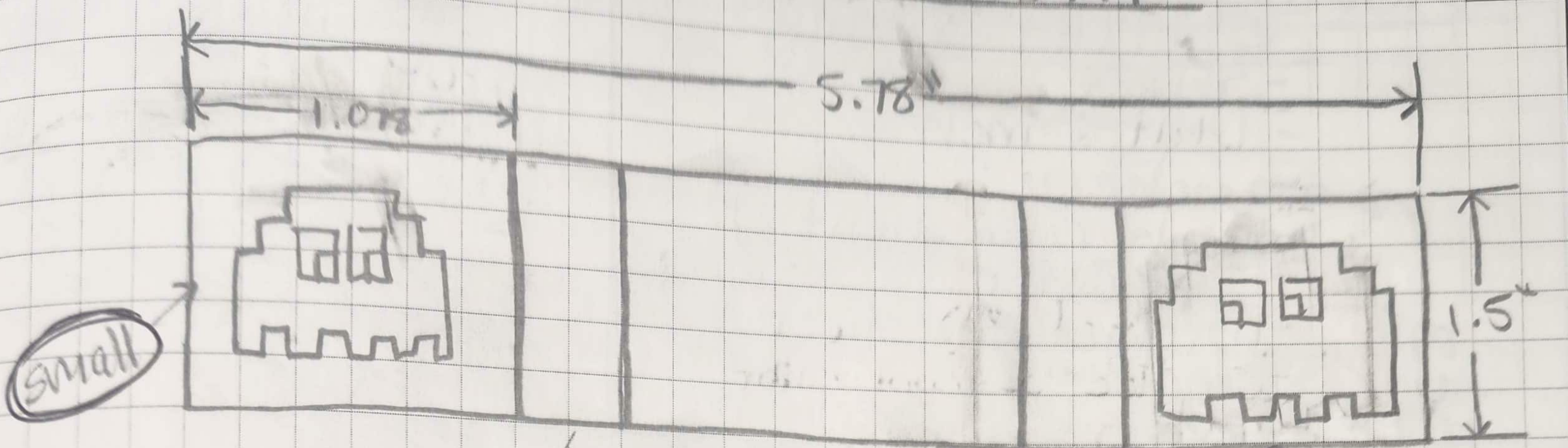
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3/30/22

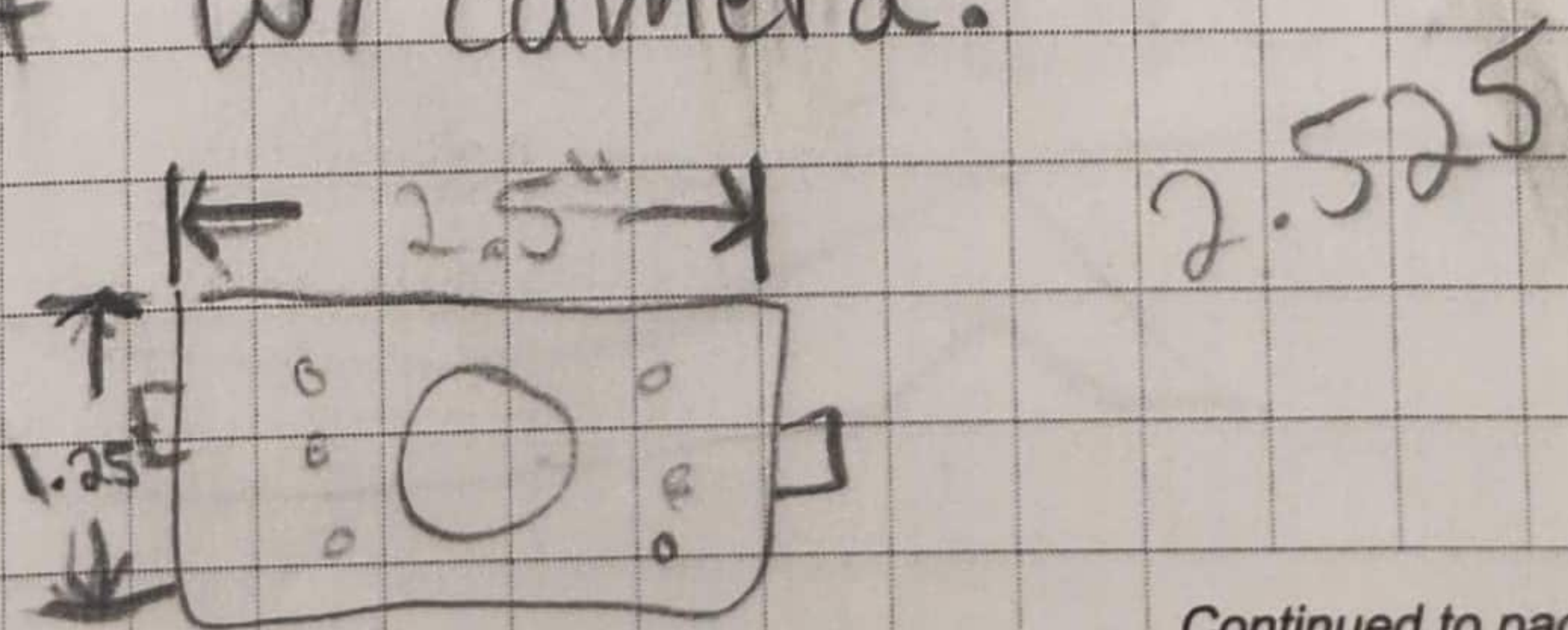
PROPRIETARY INFORMATION

Camera Mount



- interference fit w/ camera.

3/30
GA



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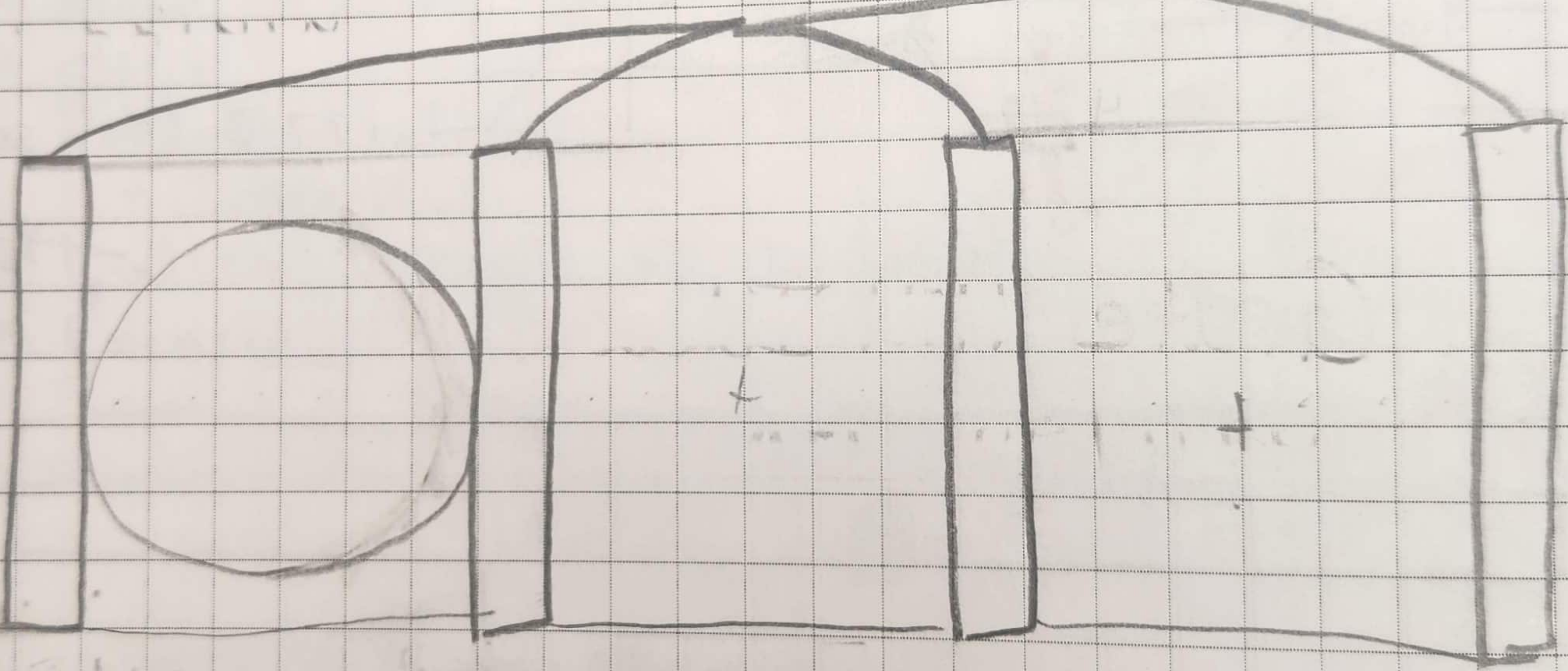
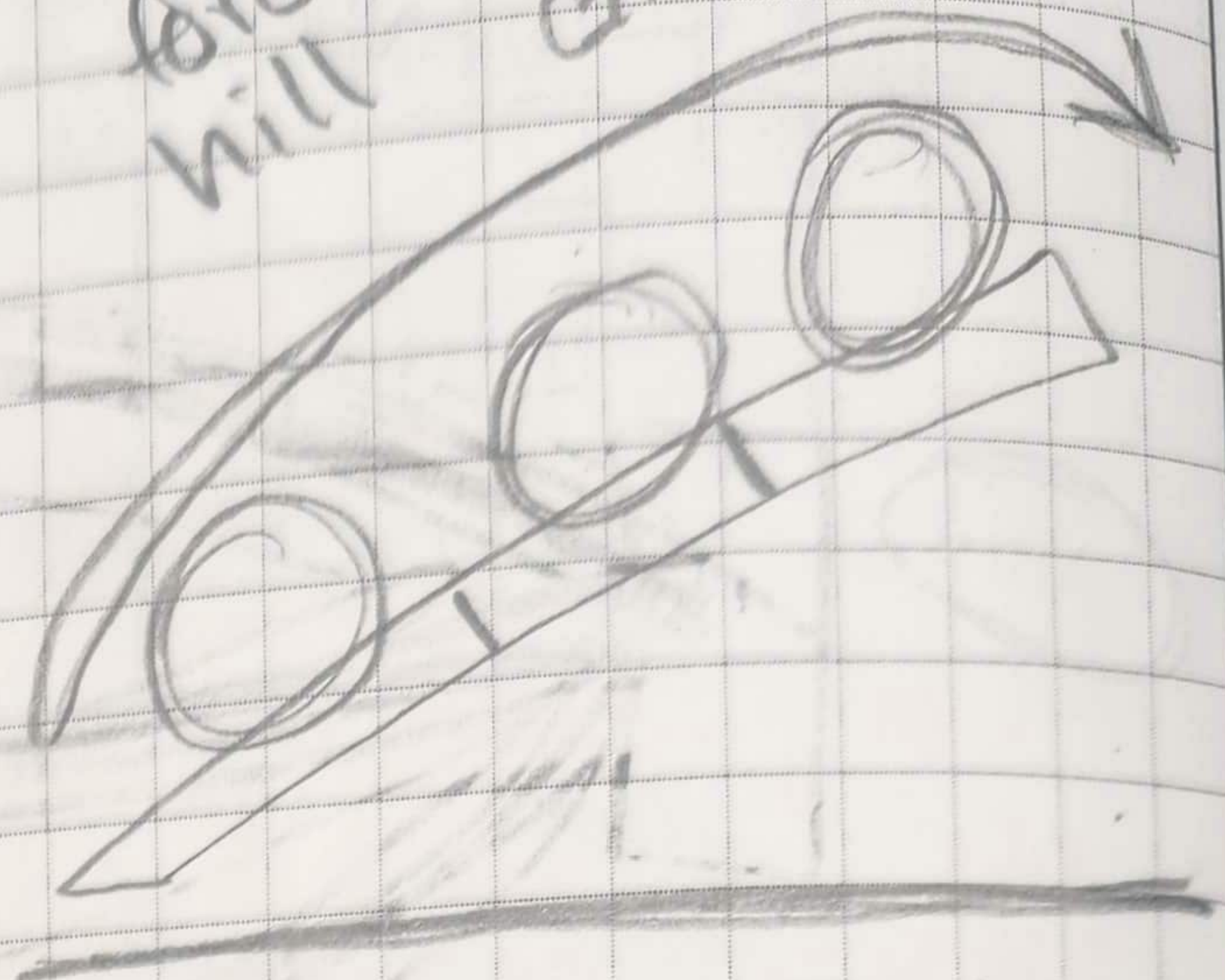
3D Print Settings

Notes

- select
- Unit: inch
- uncheck it
- high refinement
- IED folder
- Dremel 3D slicer
- make a cool color
- open
- scale: 2540%
- file / save to H drive
- eject in to USB
- glue at almost hot
- level bed

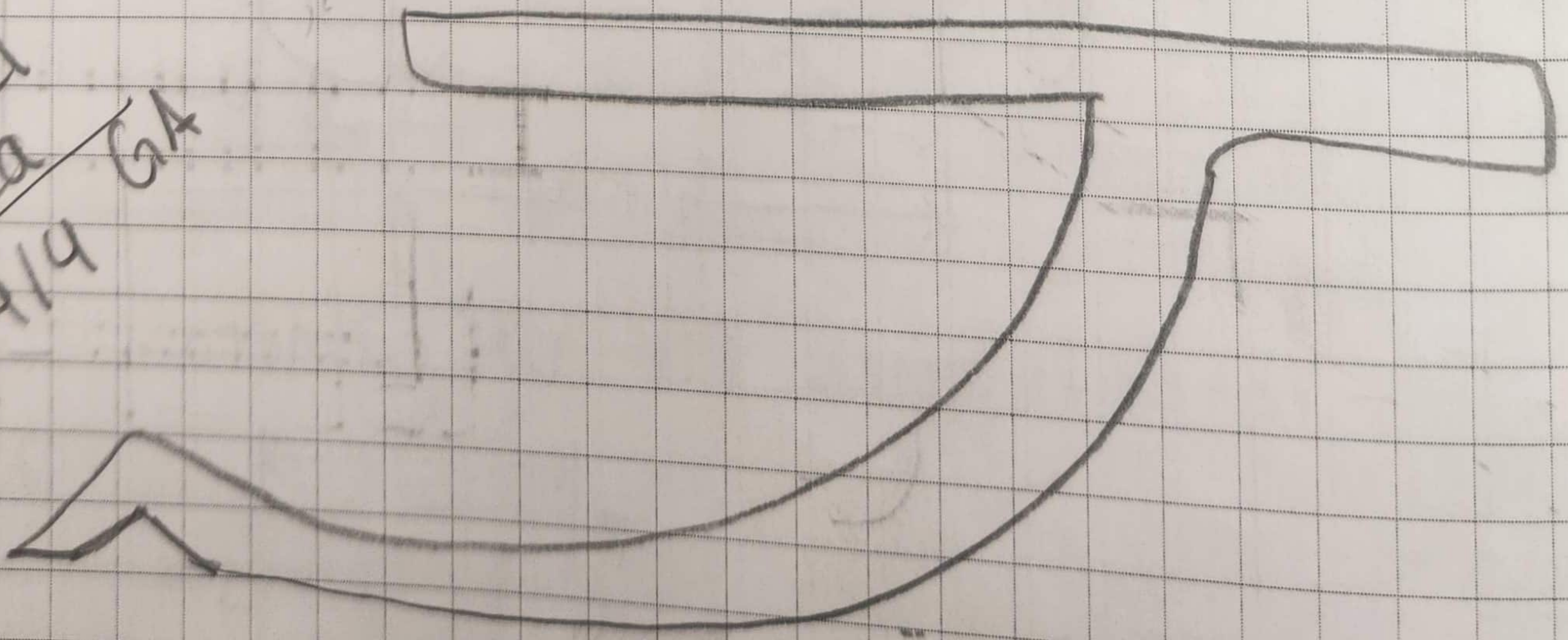
Angled edge

force hill 4/4 GA



Roller
GA 4/4

Shovel
idea
4/4 GA



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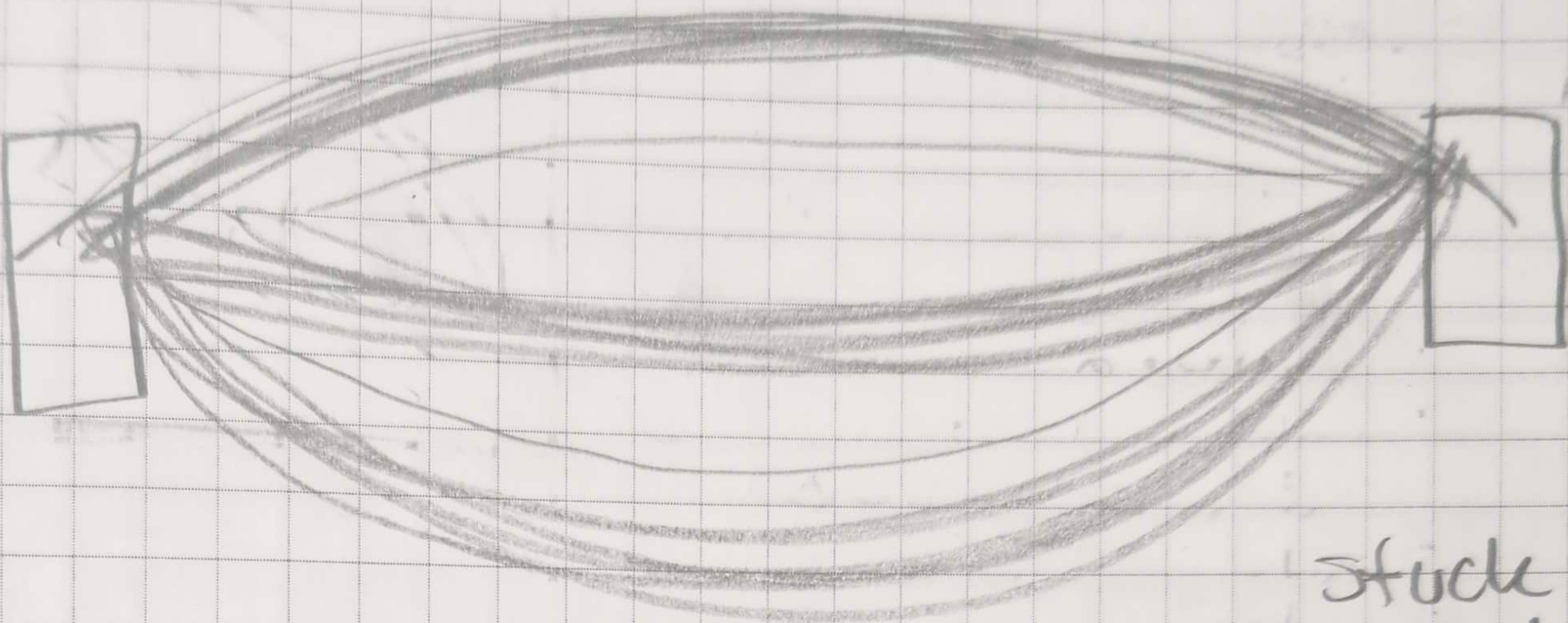
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PROPRIETARY INFORMATION

Other part of GB Recovery

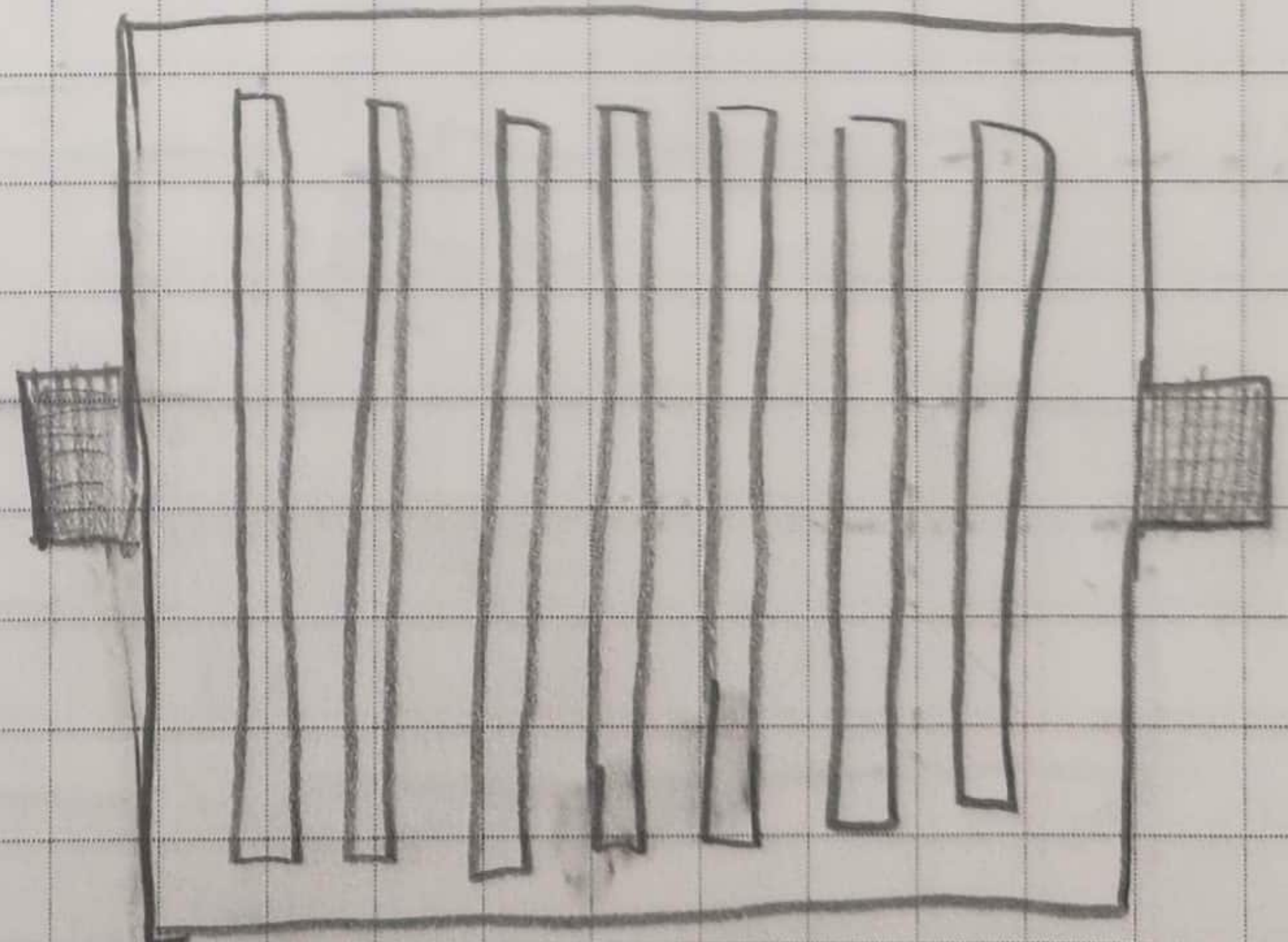
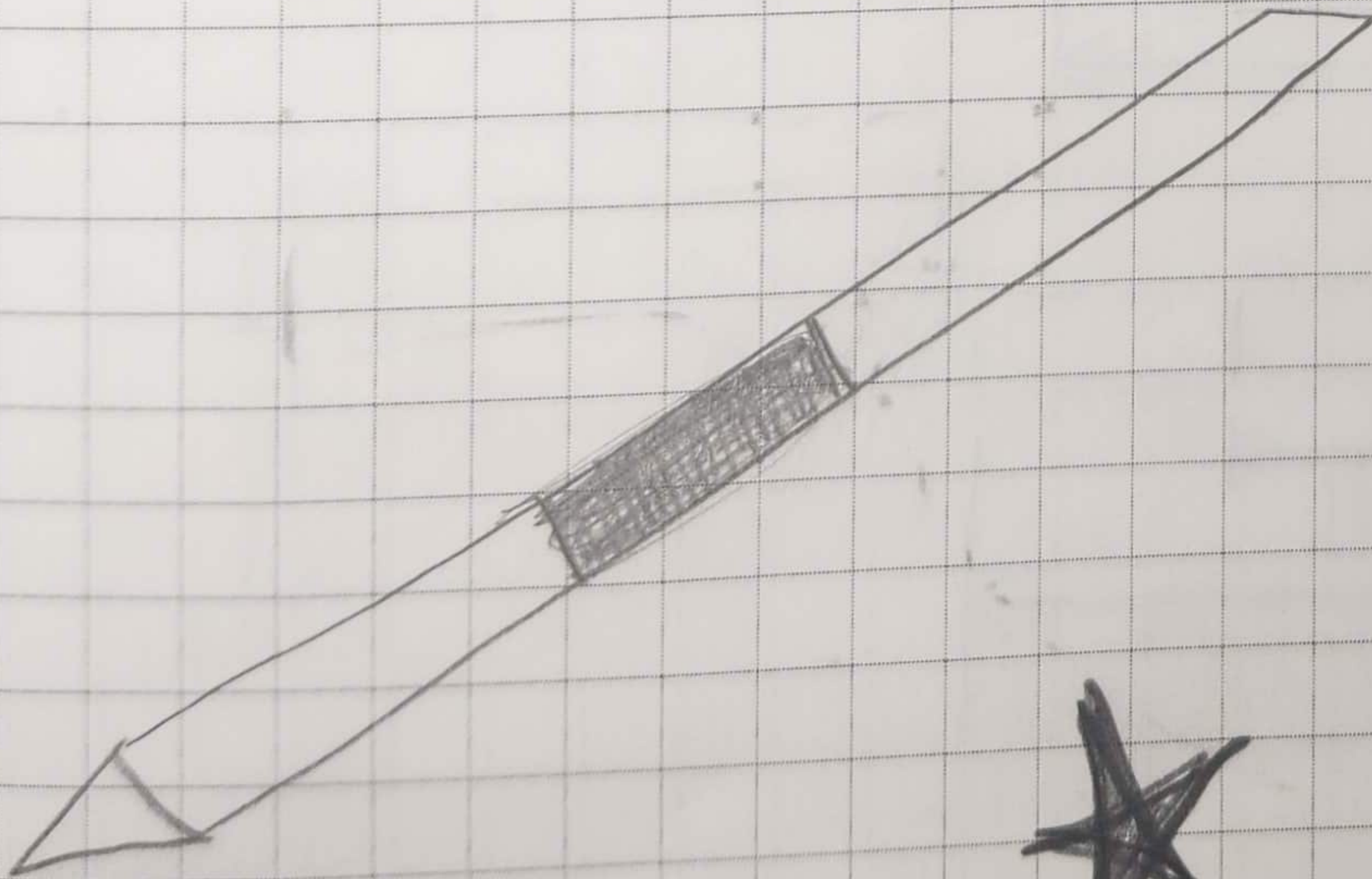
Brainstorming



Stuck
GB Idea
4/4/22 GA

Grate Hill Idea

4/4/22 GA



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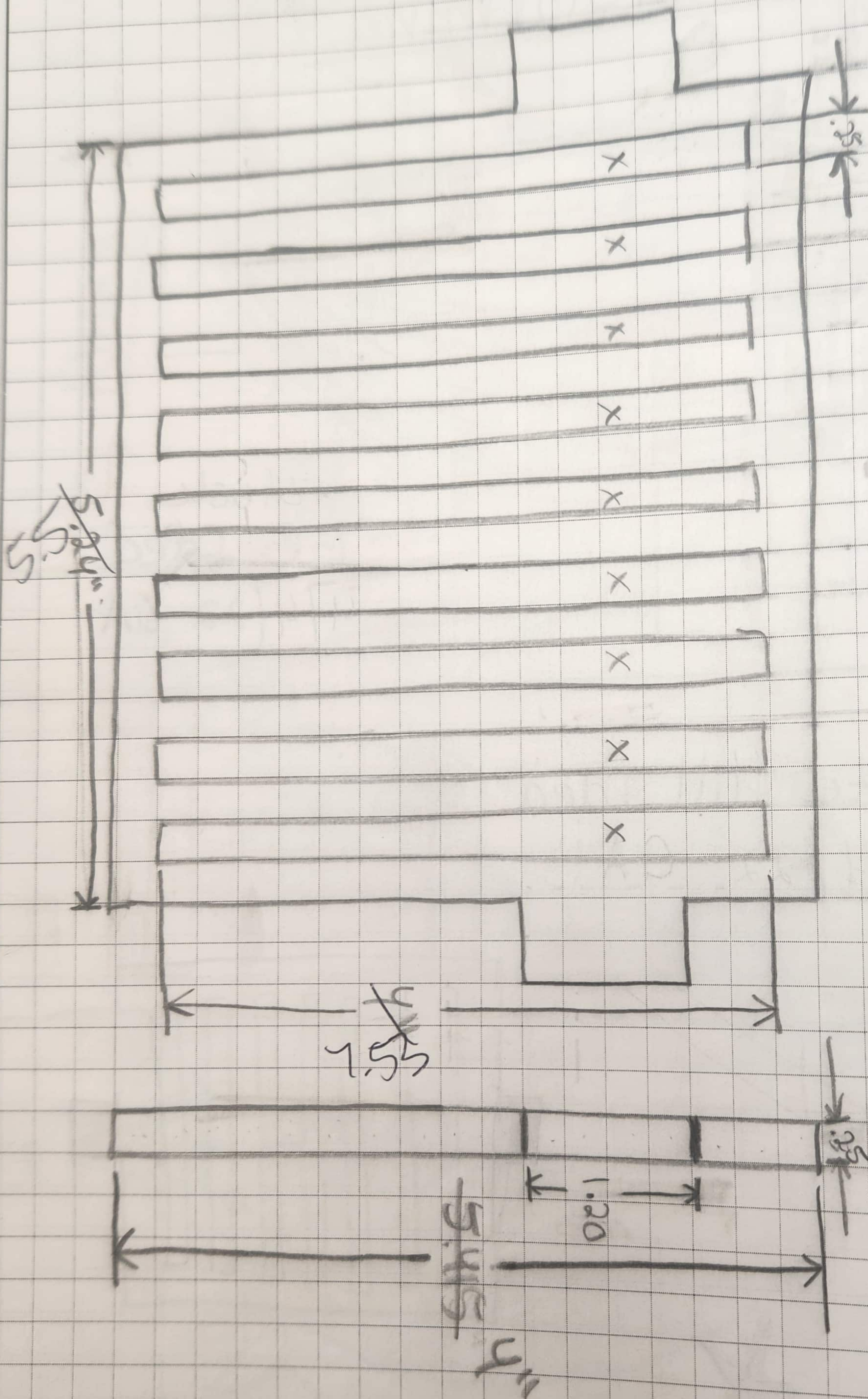
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PROPRIETARY INFORMATION

GB Front Recovery



Offset - .33

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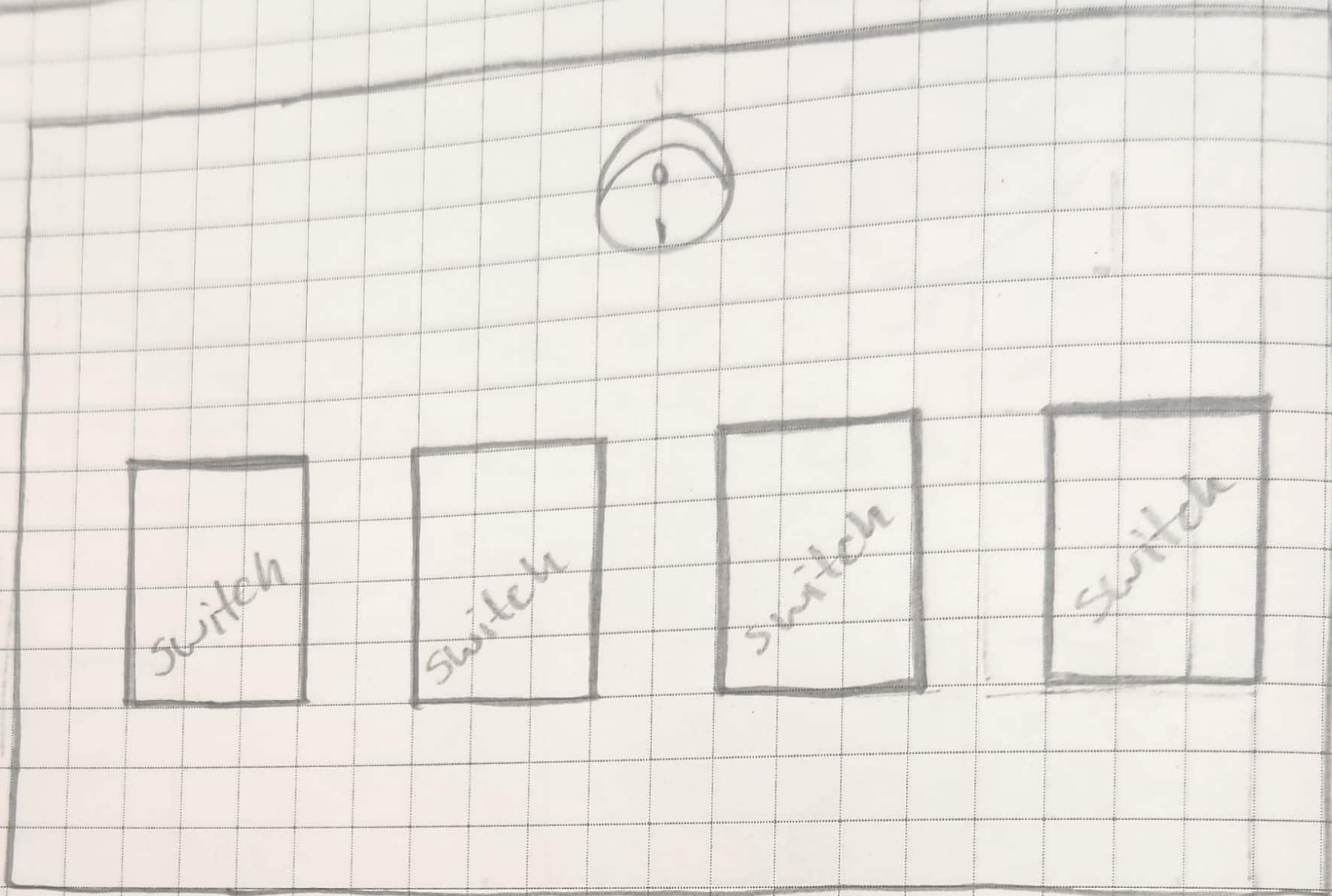
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Brainstorming for Remote Controller Cover (ROV Switch)

Classic

GA

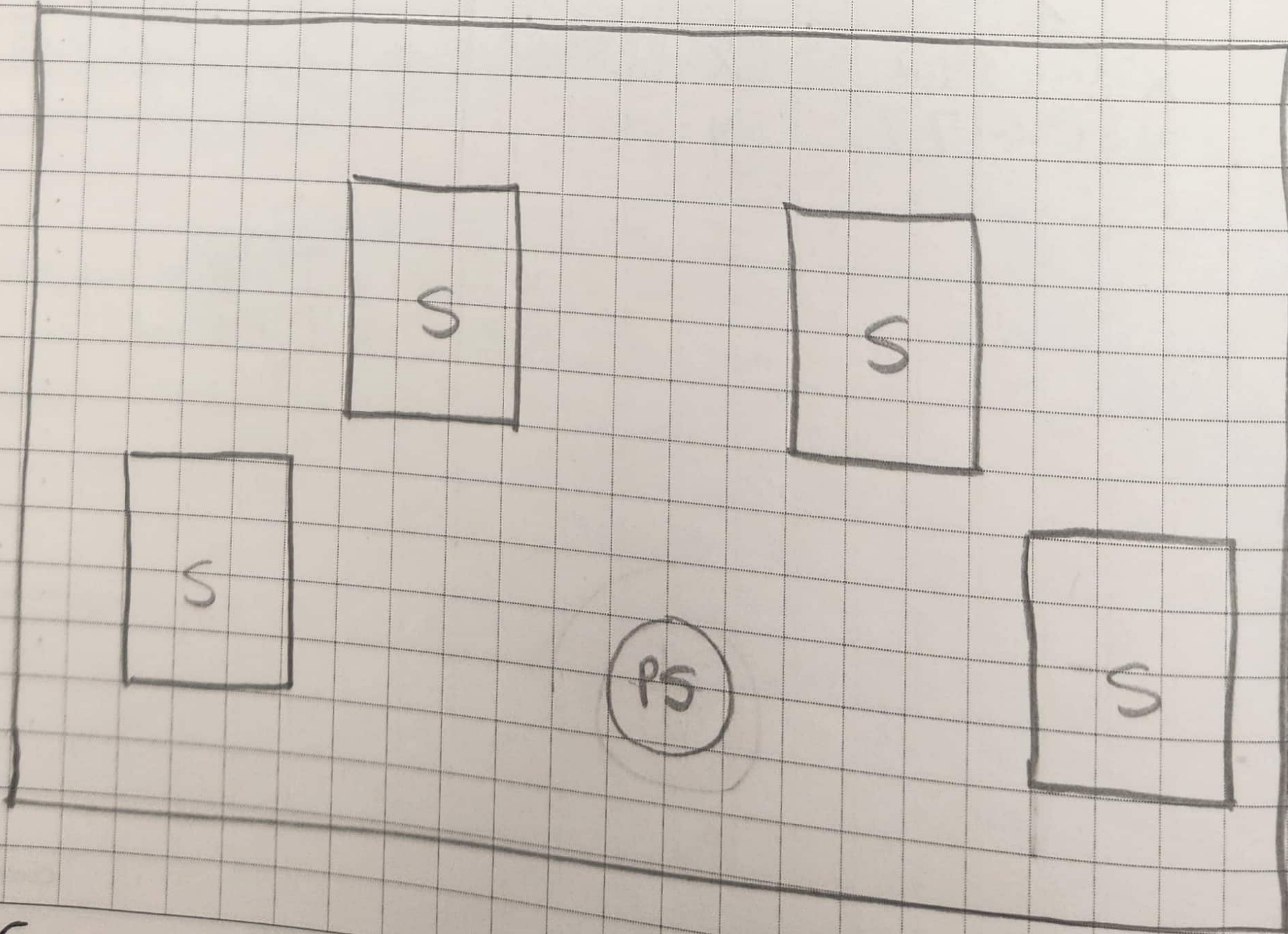
5/6/22



The arc

GA

5/6/22



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