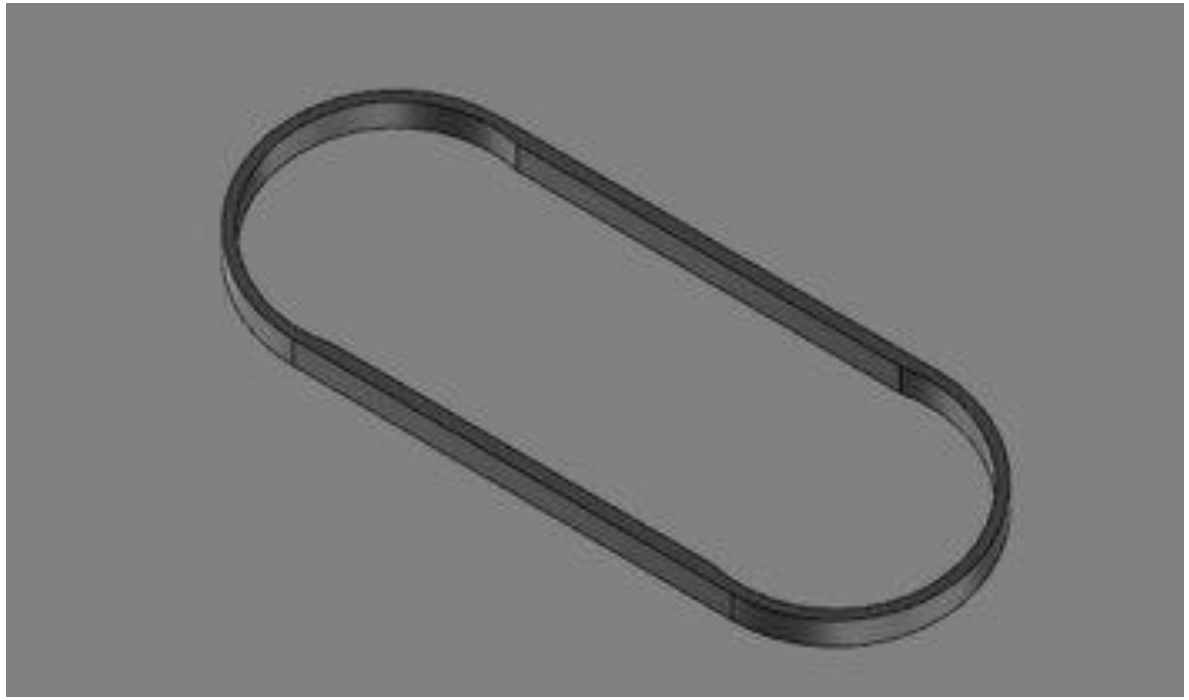

Iterating CNC Bit Holder

I have been creating multiple new designs for a CNC bit holder. The CNC uses cylinder drill bits to cut, pocket, or contour material. I am creating this holder to be safer when grabbing the bit by laying it down. In the default box it is sticking straight up, and you have to almost grab the blade. All designs were made in Fusion 360 which is a 2D/3D design software. Then they will be physical made by the CNC.

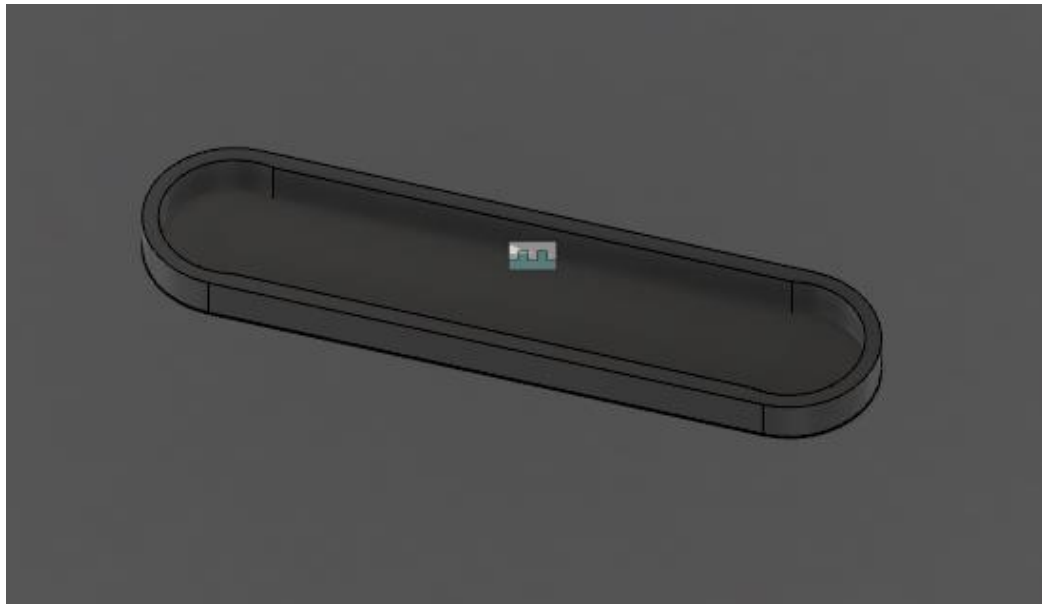
- ***This design was poorly shaped***
- ***no thought of the thickness of the edges***



Challenge:

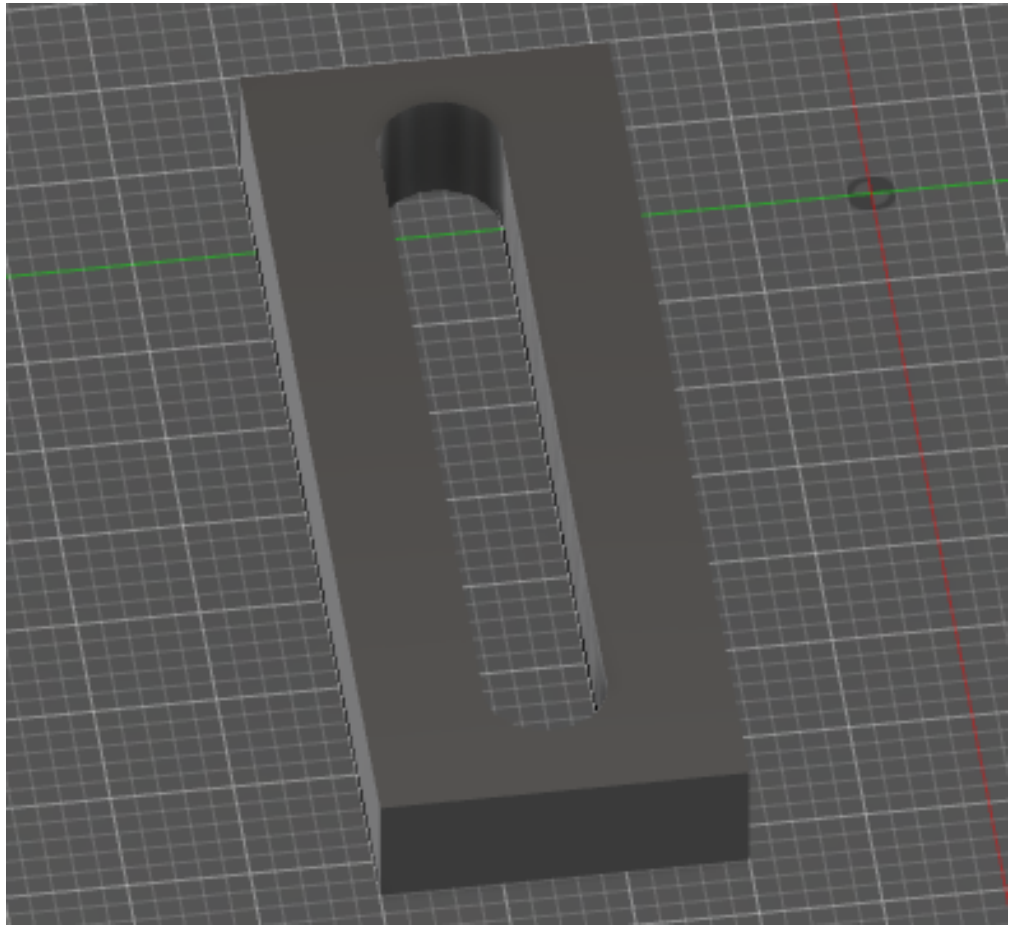
Material was too thin and broke off the edges. The material was also not deep enough so the tabs broke it in half.

- ***Bits were not easily grabbed***
- ***Still a safety hazard to hands***



Adjustment:

- New piece is hollowed out to put magnets on the bottom. The spacing is bigger to allow fingers to grab it. The new piece will also be a cutout but on a full sheet of wood. It won't be individual



(This will all be one sheet.)

Changes:

- **The last design would not work for grabbing with fingers.**
- **It was adjusted in fusion and re-cut**
- **New design has a finger slot to grab the shank**
- **It is longer and wider**

Adjustments:

- **Width and length of Pocket for bit needed to be smaller**
- **The pocket for the finger needed to be the same depth**

(This will all be one sheet.)

Changes:

- **New design has same depth finger pockets.**
- **The but pocket widht and length was reduced**
- **The edges were rounder over**
-

Adjustments:

- **Finger pocket needs to be deeper than the bit pocket**
- **There needs to be a pocket for the collet to sit in (its what you put the but in to screw to cnc)**

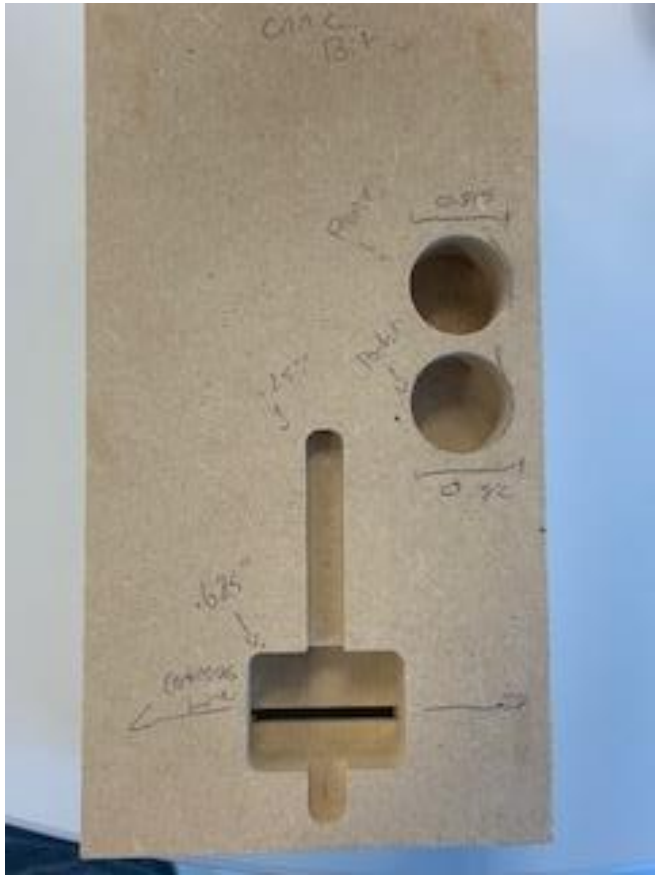
(This will all be one sheet.)

Changes:

- **Depth of finger pocket was made deeper.**
- **There were two collet holes made**
- **One was a pocket made to .625 and the other was cut through all the way**

Adjustments:

- **The fineger pocket needs to be continous**
- **The collet hole needs to be made smaller to fit the smaller width of the collet**
- **It needs to be pocketed**

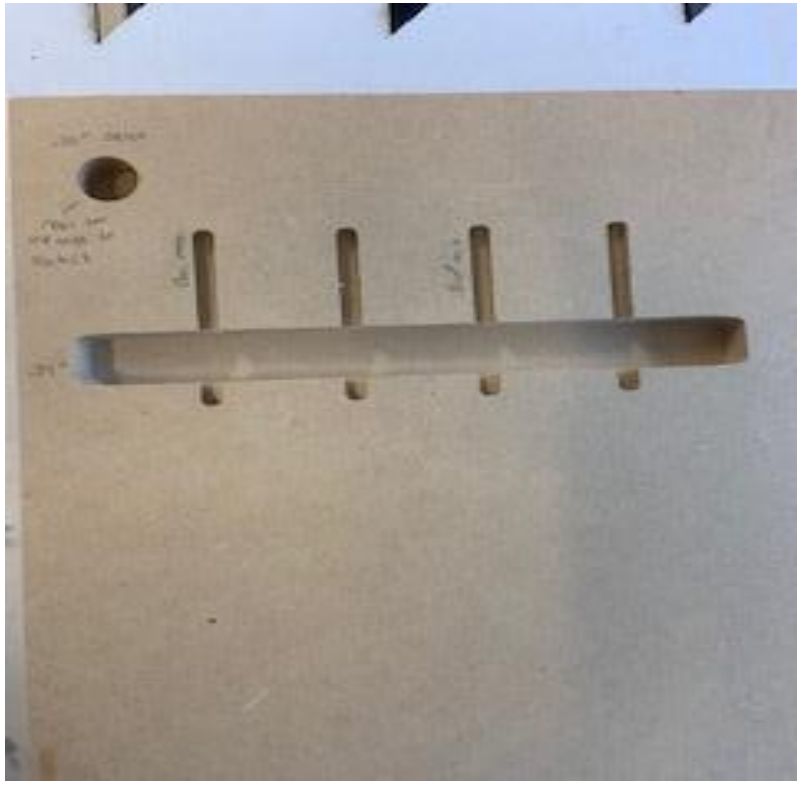


Changes:

- The finger pocket length was made longer
- It all connects and is a slot for your finger to grab the bits
- There were 3 extra pockets made for the bits
- Collet hole was made smaller and pocketed to .625

Adjustments:

- Collet needs to move next to the finger pocket
- Need to add one more collet hole
- Laser etch "0.25 shank" and name of each bit

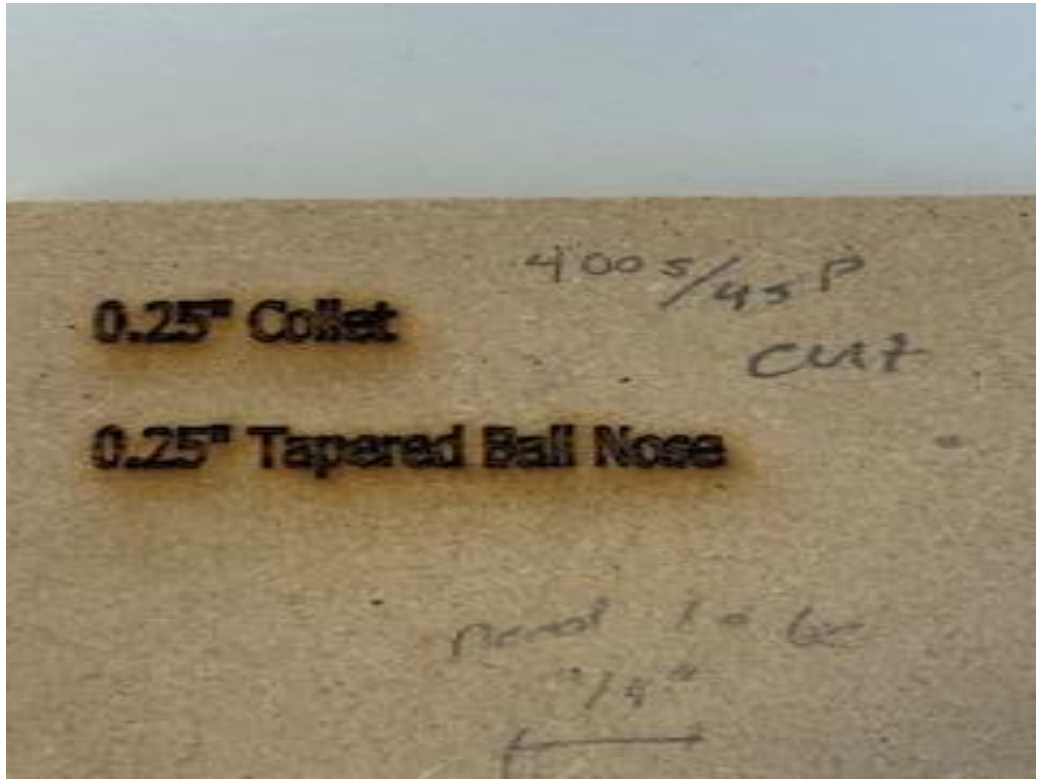


Text :

- **Laser etched the name of the collet and what kind of bit**

Next Steps:

- **Lower speed on the etch**
- **Choose a smoother font**
- **Cut out whole design to see the lay out**

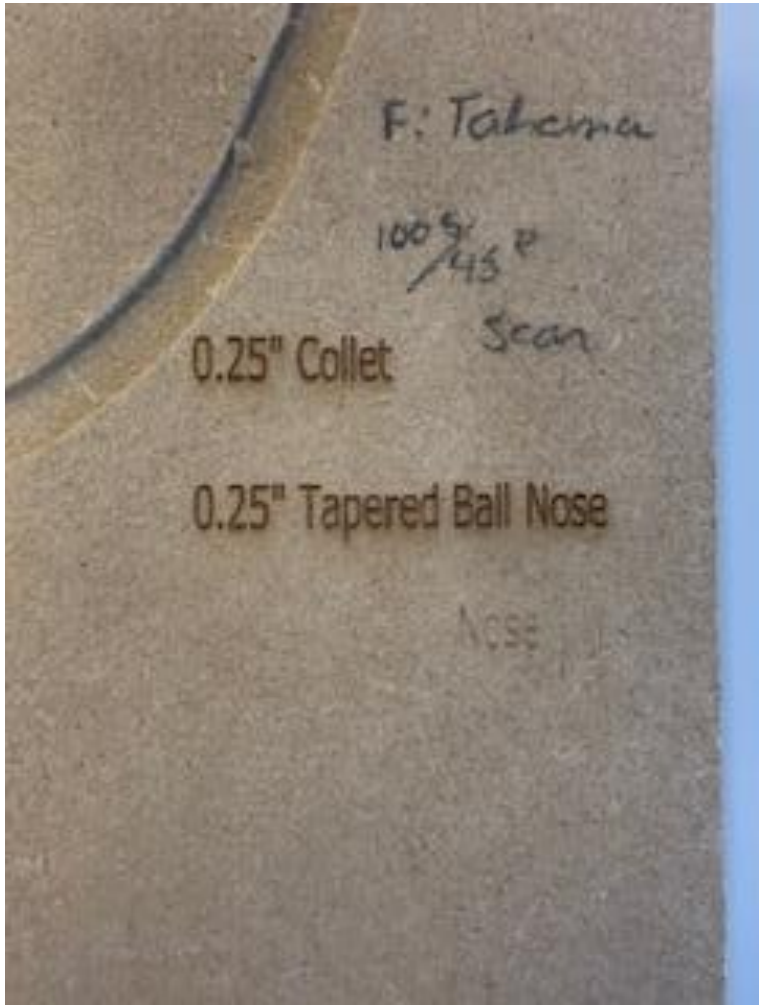


Text :

- **Laser etched the name of the collet and what kind of bit**
- **Changes the font to Arial**
- **Lowered the speed by 300**

Next Steps:

- **Cut out the whole design**



Text :

- Laser etched the whole design with Airal font.
- Added the text name for each bit

Next Steps:

- Cut out the whole design on MDF with etched scans on it
- Begin making another row that will fit abnormal shaped bits
- Add two more sheets one for 1/8" and another for 1/5" bits