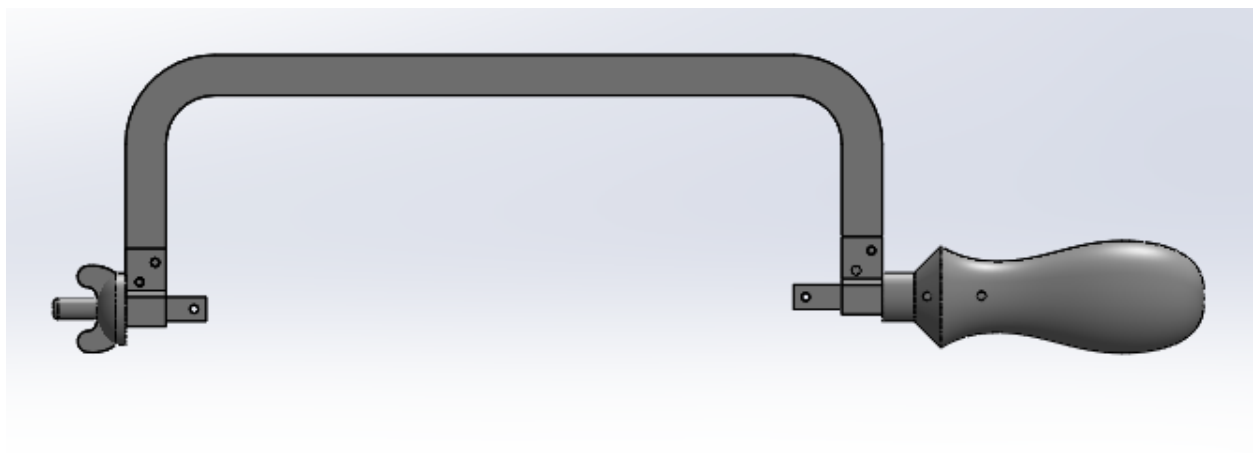Saman Aijaz Siddiqui (B21BB027)

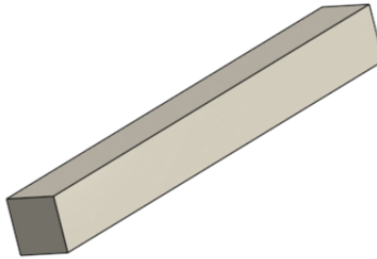# Hack-Saw Frame

PROBLEM STATEMENT:
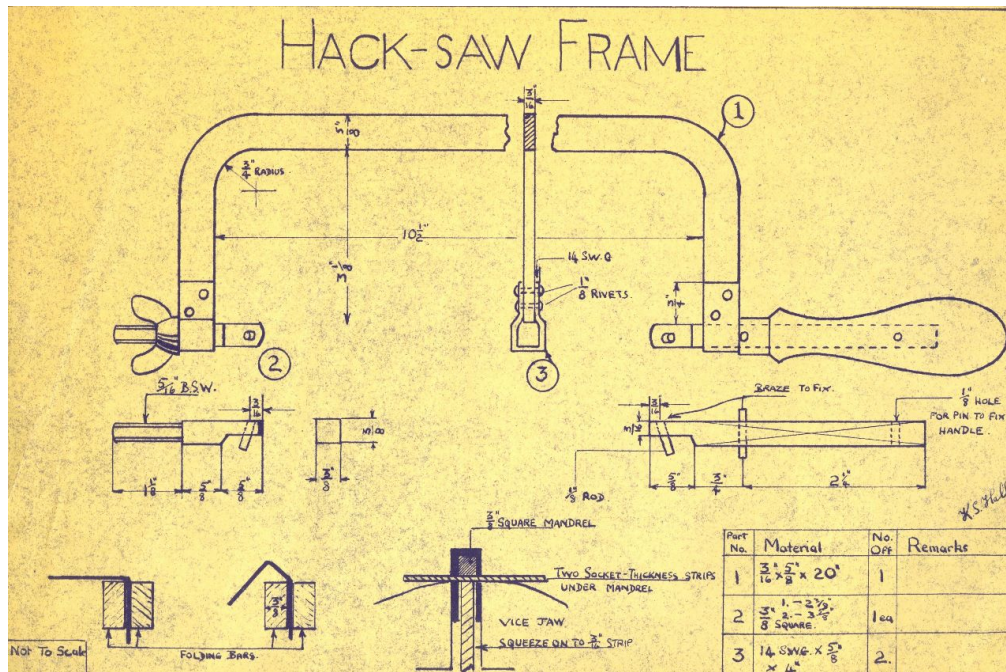
☐ **HOW IT TURNED UP?**

❖ STEPS TO MAKE PART 1

1. Sketch a square of side ⅜ inch and extrude it.
   ➜ Distance towards left: 11/8 inch
   ➜ Distance towards right: 9/4 inch

2. On the right plane, sketch the path along which the main support of the hack-saw frame will reside. Since here I am dealing with the outer edge, I've taken the height 30/8 inch and width 11.75 inch to fulfill the requirement of the given problem.
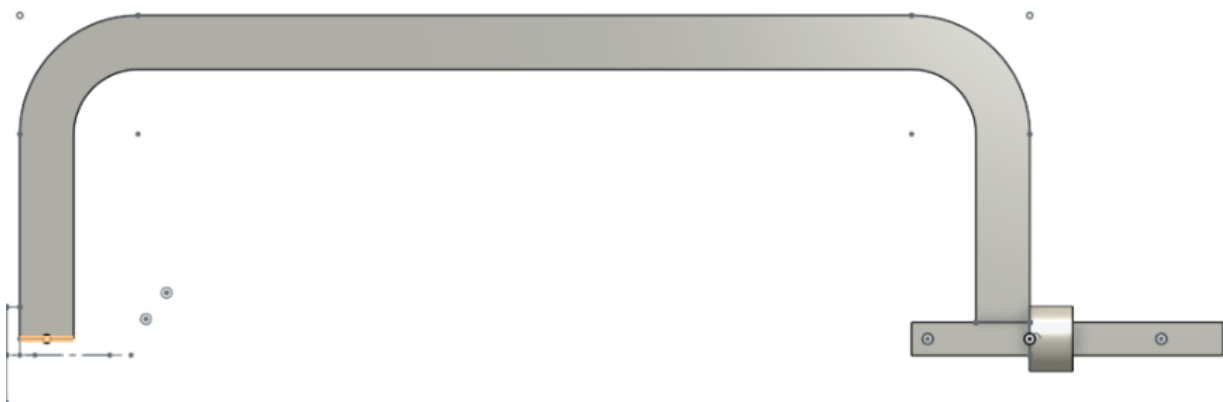

3. On the front plane, sketch the circle for the metal part of the handle and extrude it. Also, there are three holes of diameter ⅛ inch on the right surface.
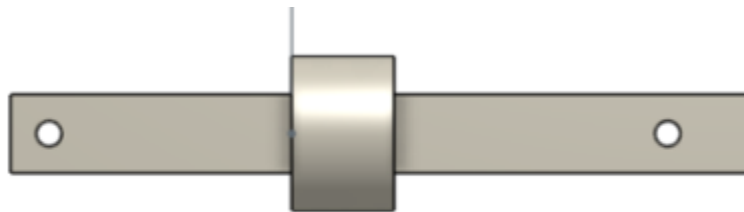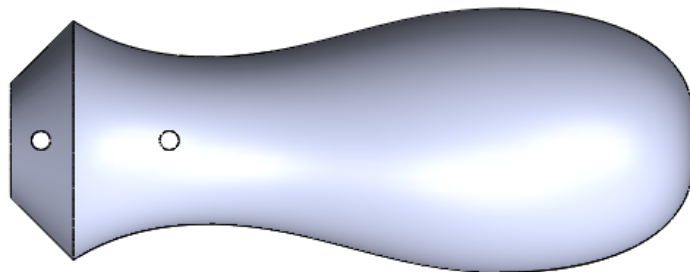

4. Draw a rectangle on the top plane of length ⅝ inch and breadth 3/16 inch.
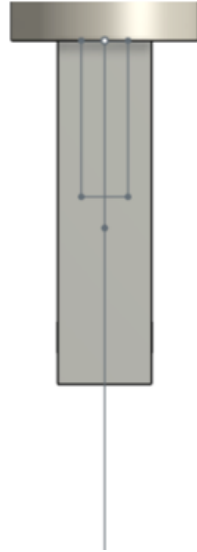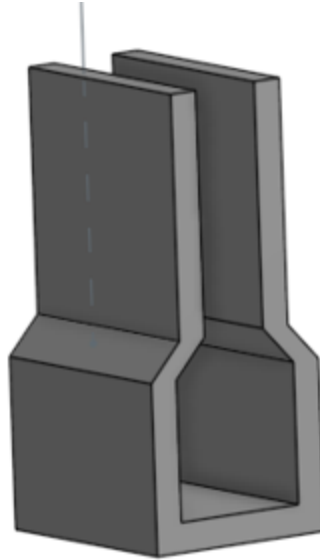
5. Sweep the rectangle along the line drawn previously to form the main body of the hack saw frame.

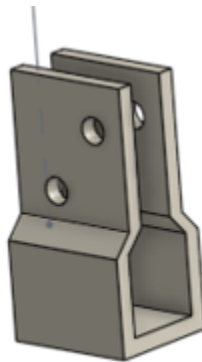6. Sketch the curved handle of part 1 and revolve it.

7. The holes on the ends of the sweeped surface will be drawn with respect to part 2.

❖ Steps to make part 3

1. Draw the sketch of part 3 on a plane offset to the front plane at a distance of 11.75 inch. **(NOTE: I have swept along the outer edge that is why I am talking 11.75 (10.5 +⅝ +⅝) instead of 10.5 and 30/8 (3 ⅛ +⅝) instead of 3 ⅛ everywhere.**

2. Extrude the sketch to a distance of ⅝ inch.

3. Extruce two holes of diameter ⅛ inch through the part 3.

4. Make two holes on each end of the main frame of part 1 with respect to part 3.
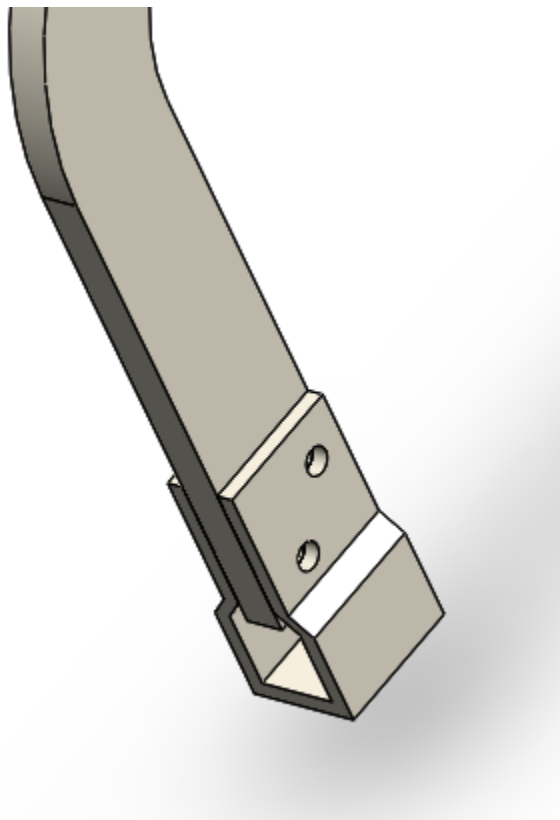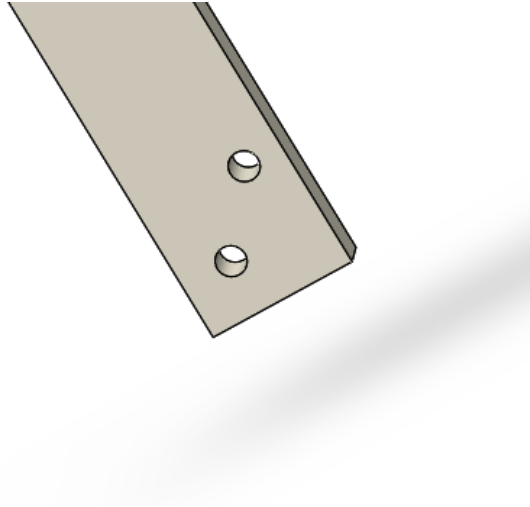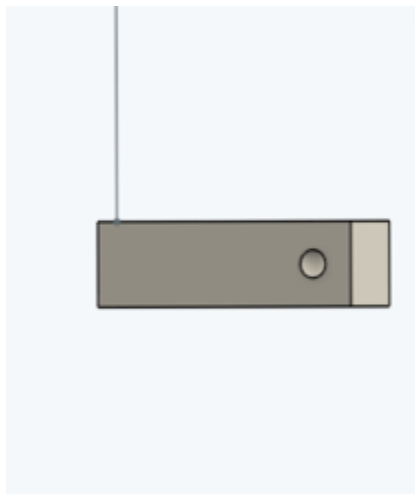
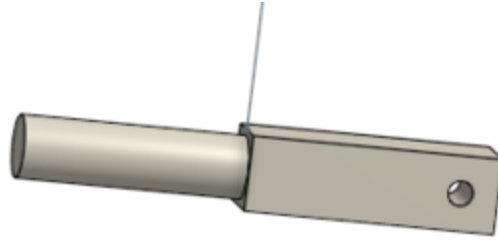5. Mate part 3 at the other end of the main frame too and extrude the holes.
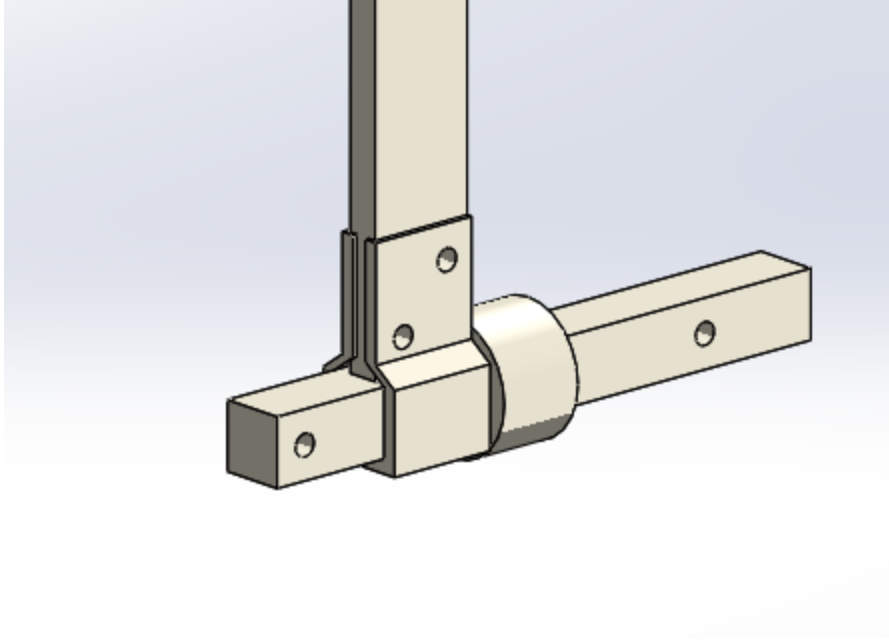
❖ Steps to make part 2

1. On the previous offset plane, sketch a square of side ⅝ inch and extrude it to a distance 5/4 inch and cut extrude a hole of diameter ⅛ inch at a distance 3/16 inch from the edge farthest from plane.

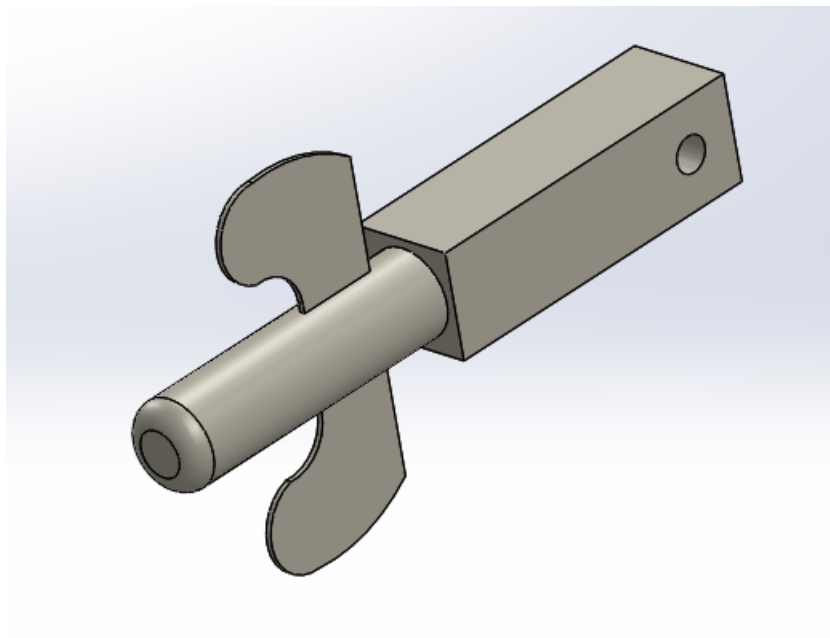2. On the same plane, extrude a cylinder of diameter 5/16 inch to a distance of 1 ⅛ inch.
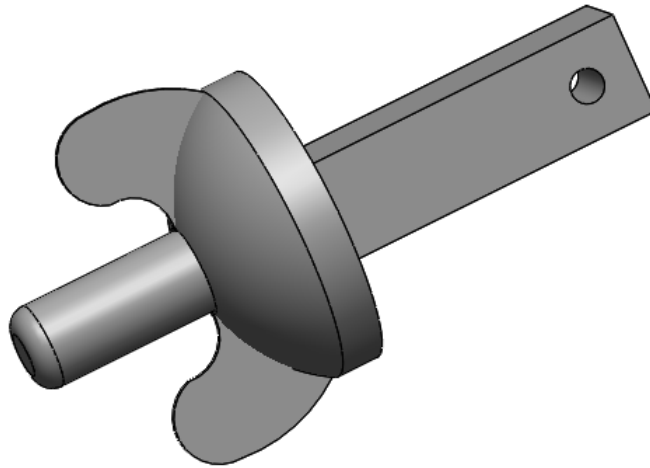
3. Apply fillet to the end of cylinder and sketch the flattened hemispherical part of part 2 and revolve it to obtain the required.
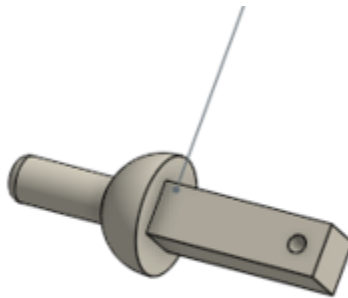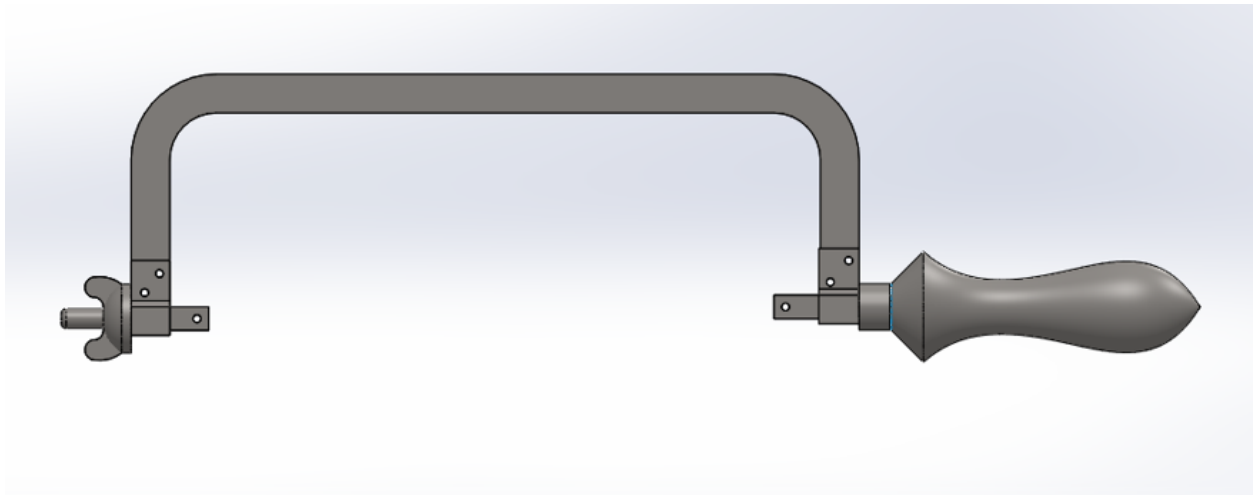

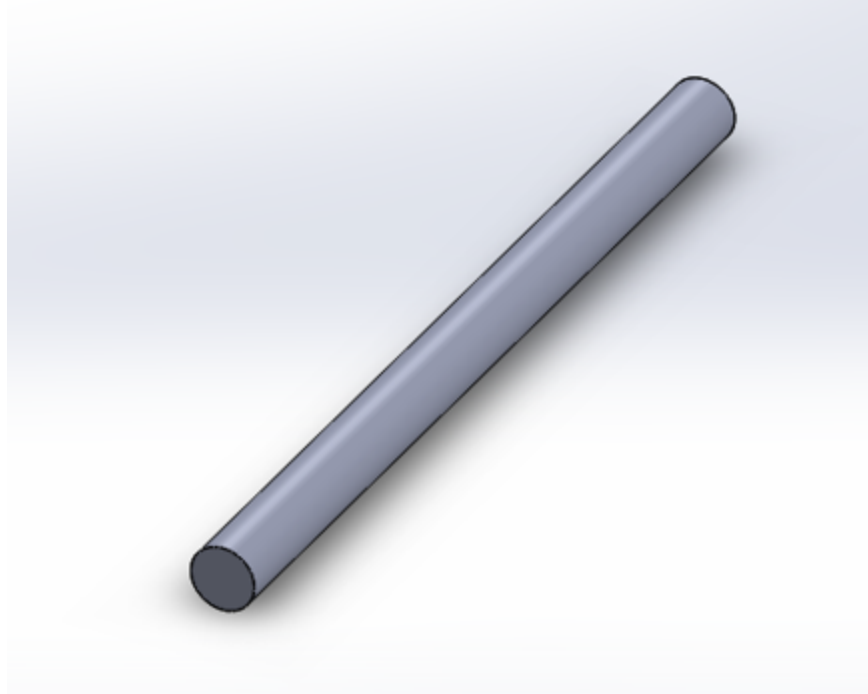4. Hide the hemisphere, sketch the grippers and extrude them.

5. Unhide the flattened Hemisphere to obtain part 2.

➜ **The complete assembly looks like this:**

TO FIX EVERYTHING TOGETHER WE NEED BOLTS OF DIAMETER ⅛ INCH AND LENGTH 0.3475 (3/16+0.8+0.8) INCH.

AFTER APPLYING MATE ON PART 3 AND PART 1, THE ASSEMBLY IS OBTAINED: