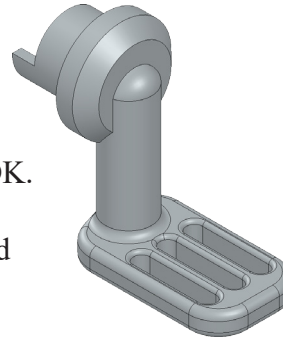




Pedal



A. Revolve1 Sketch1 Bracket.

Step 1. Click File Menu > New, click **Part Metric** and OK.

Step 2. Click **Front Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 1**.

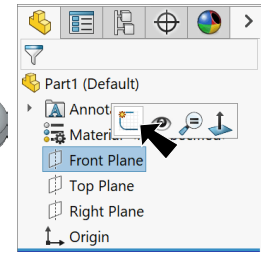


Fig. 1

Step 3. Click **Line**  (L) on the Sketch toolbar.

Step 4. Sketch **6 lines with Origin**  in the bottom left corner, **Fig. 2**.

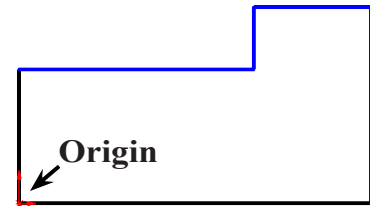



Fig. 2

Step 5. Click **Centerline**  in the **Line flyout**  on the Sketch toolbar.

Step 6. Sketch a **short horizontal centerline out from Origin** , **Fig. 3**.

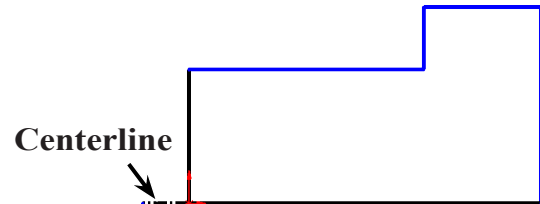


Fig. 3

Step 7. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 8. Add dimensions, **Fig. 4**. **Double distance the diameters.** To double distance dimension, click centerline and then top horizontal line, move the cursor below centerline (Origin) and click. Key-in the diameter in the Modify box and press ENTER.

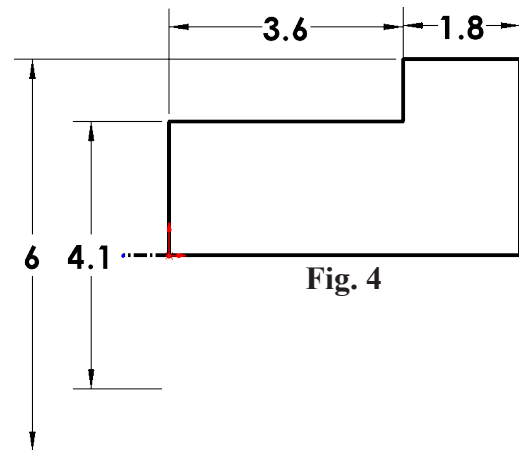




Fig. 4

Step 9. Click **Features**  on the Command Manager toolbar.

Step 10. Click **Revolved Boss/Base**  on the Features toolbar.

Step 11. In the Revolve Property Manger set: under Axis of Revolution , **Fig. 5** construction line auto-selected click OK .

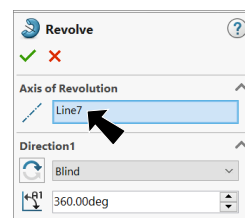


Fig. 5

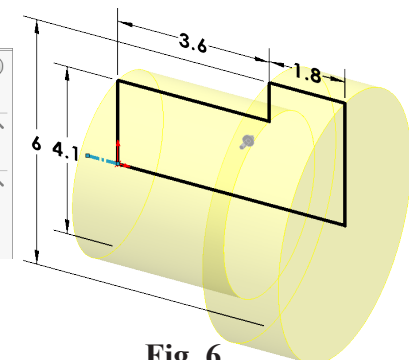




Fig. 6

B. Save as "PEDAL".

Step 1. Click File Menu > Save As.

Step 2. Key-in **PEDAL** for the filename and press ENTER.

C. Cut Extrude1 Sketch2 Hole for Connecting Rod.

Step 1. Click **Right Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 7**.

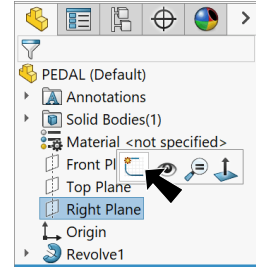
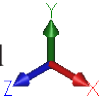


Fig. 7

Step 2. Rotate view to left side, **Fig. 8**. To rotate view, **Shift-Ctrl** click the **Y axis of the Reference Triad**  (bottom left corner of graphics area).

Step 3. Click **Circle**  (S) on the Sketch toolbar.

Step 4. Sketch circle at **Origin** , **Fig. 8**.

Step 5. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 6. Dimension **diameter 3**, **Fig. 9**.

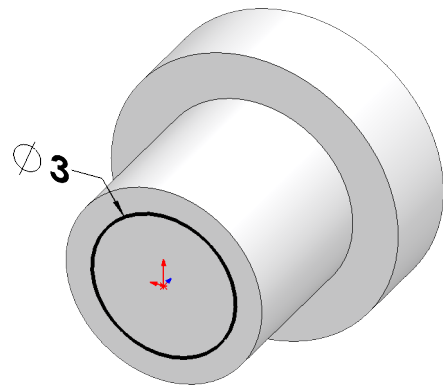


Fig. 8

Step 7. Click **Features**  on the Command Manager toolbar.

Step 8. Click **Extruded Cut**  on the Features toolbar.

Step 9. In the Cut-Extrude Property Manager set:

under Direction 1, **Fig. 10**

End Condition **Blind**

Depth  **3**

Reverse Direction 

click OK .

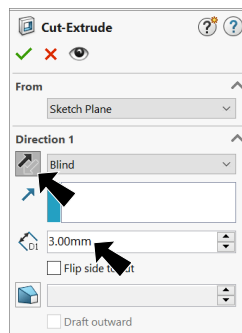


Fig. 9

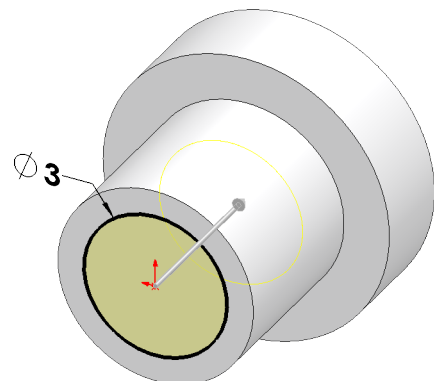




Fig. 10

D. Cut Extrude2 Sketch3 Locking Notch.

Step 1. Click **Front Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 11**.

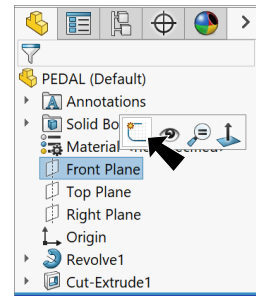




Fig. 11

Step 2. Click **Normal To**  on the Standard Views toolbar. (**Ctrl-8**)

Step 3. Click **Corner Rectangle**  in the **Rectangle flyout**  on the Sketch toolbar.

Step 4. Sketch **corner rectangle with endpoint coincident with vertex at top left of Revolve and down to right just above Origin** , **Fig. 12**.

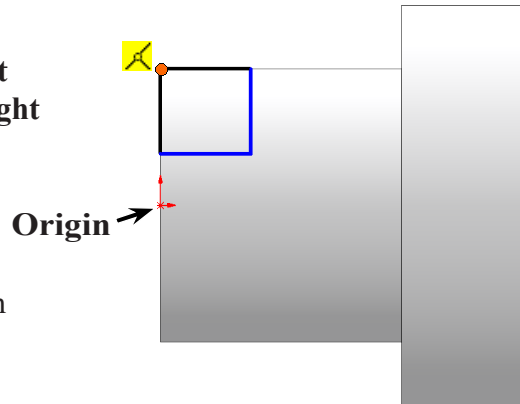
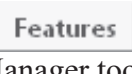


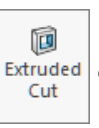
Fig. 12

Step 5. Click **Smart Dimension**  (**S**) on the Sketch toolbar.

Step 6. Add dimensions, **Fig. 13**.

Step 7. Click **Isometric**  on the Standard Views toolbar. (**Ctrl-7**)

Step 8. Click **Features**  on the Command Manager toolbar.

Step 9. Click **Extruded Cut**  on the Features toolbar.

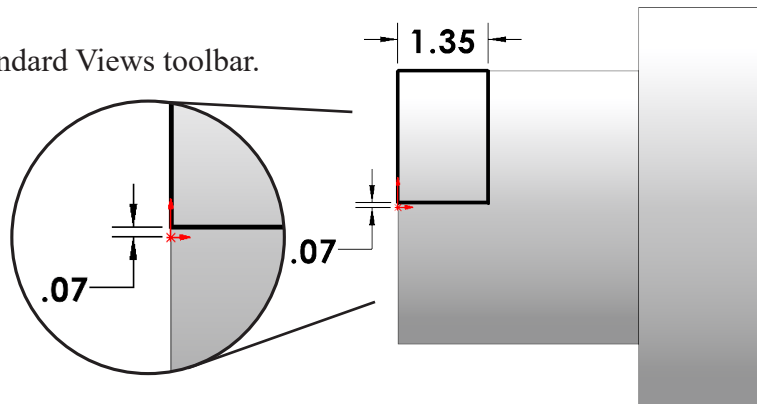



Fig. 13

Step 10. In the Cut-Extrude Property Manager set:
 under Direction 1, **Fig. 14**
 End Condition **Through All - Both**
 click OK .

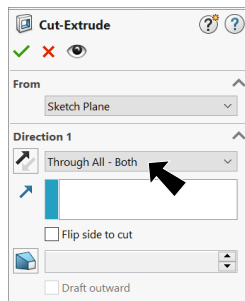


Fig. 14

Step 11. Save  (**Ctrl-S**).

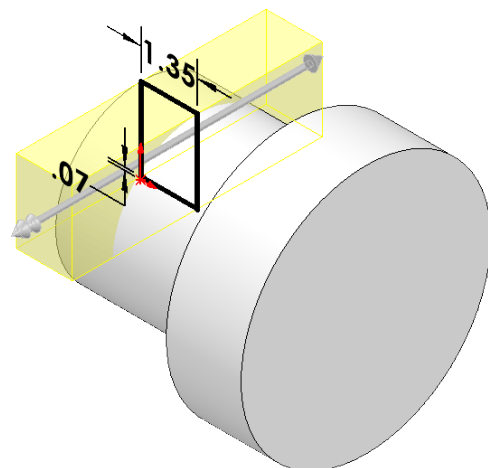


Fig. 15

E. Extrude1 Sketch4 Arm.

Step 1. Click **Top Plane**  in the Feature Manager and click **Sketch**  on the context toolbar, **Fig. 16**.

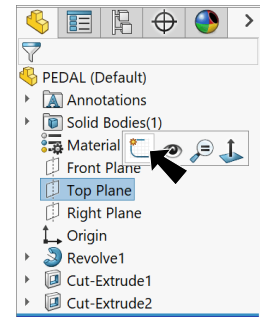



Fig. 16

Step 2. Click **Normal To**  on the Standard Views toolbar. (**Ctrl-8**)

Step 3. Click **Circle**  (S) on the Sketch toolbar.

Step 4. Sketch a circle, **Fig. 17**.

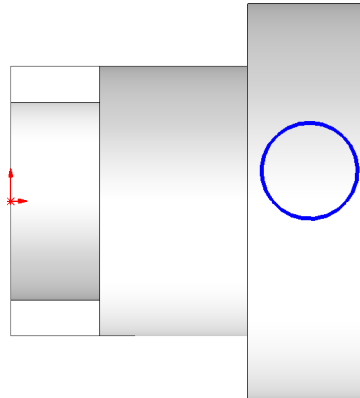



Fig. 17

Step 5. **Unselect Circle tool.** To unselect, **right click graphics area and click Select**  from menu.

Step 6. **Ctrl click centerpoint of circle of sketch and Origin**

 to select both. Release Ctrl key and click **Make Horizontal**

 on the context toolbar, **Fig. 18**.

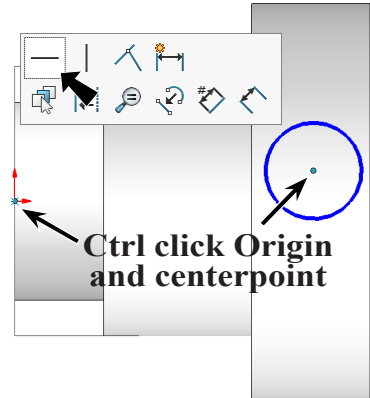


Fig. 18

Step 7. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 8. Add dimensions, **Fig. 19**.

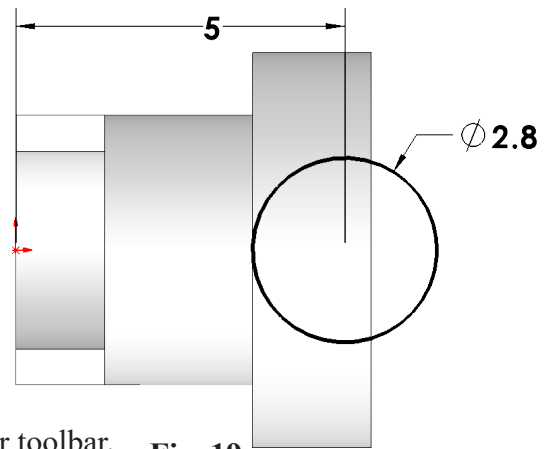


Fig. 19

Step 9. Click **Isometric**  on the Standard Views toolbar.

Step 10. Click **Features**  on the Command Manager toolbar.

Step 11. Click **Extruded Boss/Base**  on the Features toolbar.

Step 12. In the Boss-Extrude Property Manager set:

under Direction 1, **Fig. 20**

End Condition **Blind**

Depth  **8.6**

Reverse Direction 

click OK .

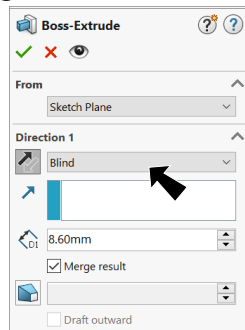


Fig. 20

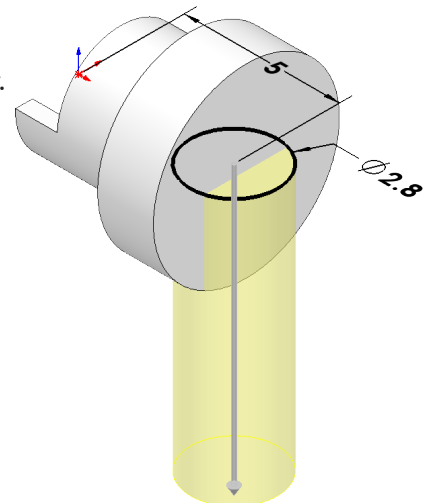



Fig. 21

F. Revolve2 Sketch5 Arm End Cap.

Step 1. Click **top face Extrude1** and click **Sketch**  on the context toolbar, **Fig. 22.**

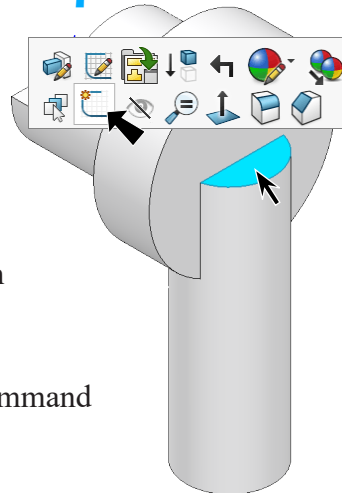
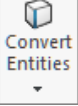


Fig. 22

Step 2. With the face still selected, click **Convert Entities**  on the Sketch toolbar, **Fig. 23.**

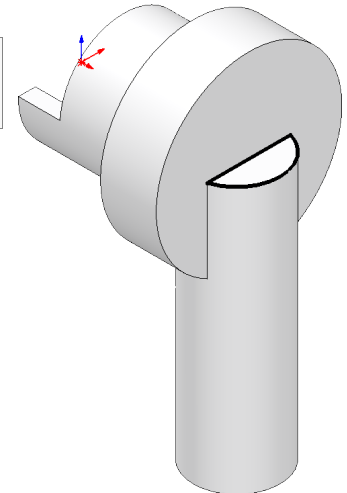




Fig. 23

Step 3. Click **Features**  on the Command Manager toolbar.

Step 4. Click **Revolved Boss/Base**  on the Features toolbar.

Step 5. In the Revolve Property Manger set:
 under Axis of Revolution , **Fig. 24**
 click **line**, **Fig. 24**
 click **OK** .

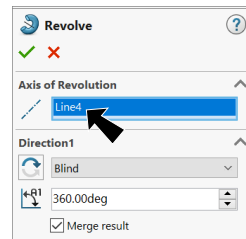


Fig. 24

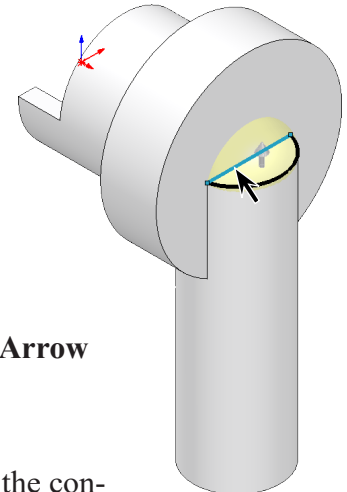



Fig. 25

G. Extrude2 Sketch6 Petal.

Step 1. Rotate view up to **view bottom face of arm (Extrude1)**, use **Up Arrow** key  couple times, **Fig. 26.**

Step 2. Click **bottom face of arm (Extrude1)** and click **Sketch**  on the context toolbar, **Fig. 26.**

Step 3. Click **Top**  on the Standard Views toolbar. (**Ctrl-5**)

Step 4. Click **Corner Rectangle**  in the **Rectangle flyout**  on the Sketch toolbar.

Step 5. Sketch **corner rectangle with left edge of rectangle coincident with middle edge of Revolve1**, **Fig. 27.**

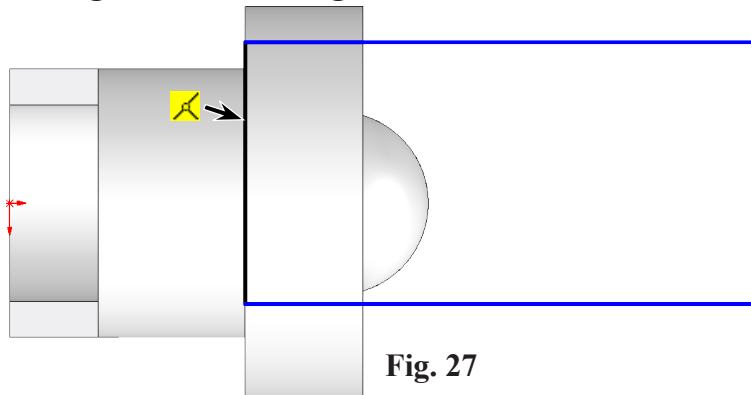


Fig. 27

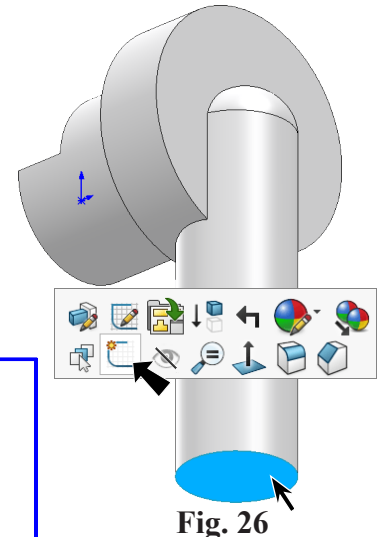



Fig. 26

Step 6. **Unselect Rectangle tool.** To unselect, **right click graphics area and click Select** from menu.

Step 7. **Ctrl click midpoint** of a **vertical line** and **Origin** to select both. Release Ctrl key and click **Make Horizontal**

 on the context toolbar, **Fig. 28.**

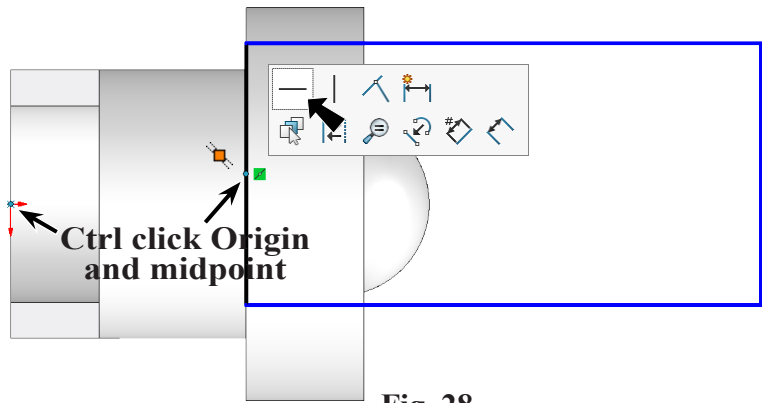



Fig. 28

Step 8. Click **Smart Dimension**  (S) on the Sketch toolbar.

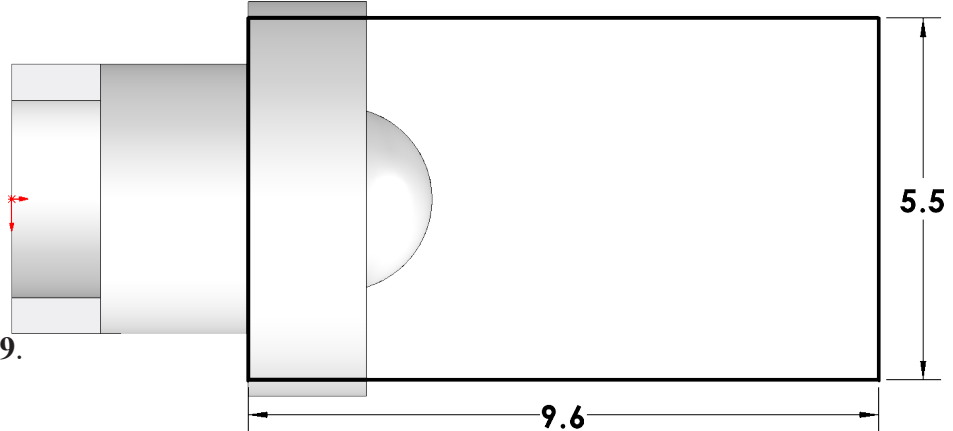

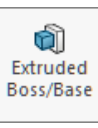





Fig. 29

Step 9. Add dimensions, **Fig. 29.**

Step 10. Click **Isometric**  on the Standard Views toolbar. (**Ctrl-7**)

Step 11. Click **Features**  on the Command Manager toolbar.

Step 12. Click **Extruded Boss/Base**  on the Features toolbar.

Step 13. In the Boss-Extrude Property Manager set:
 under Direction 1, **Fig. 30**
 End Condition **Blind**
Depth  **1.4**
Reverse Direction 
 click OK .

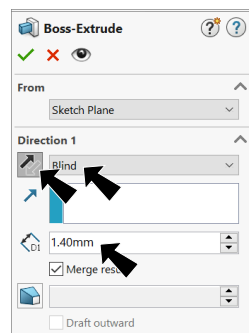


Fig. 30

Step 14. Save  (**Ctrl-S**).

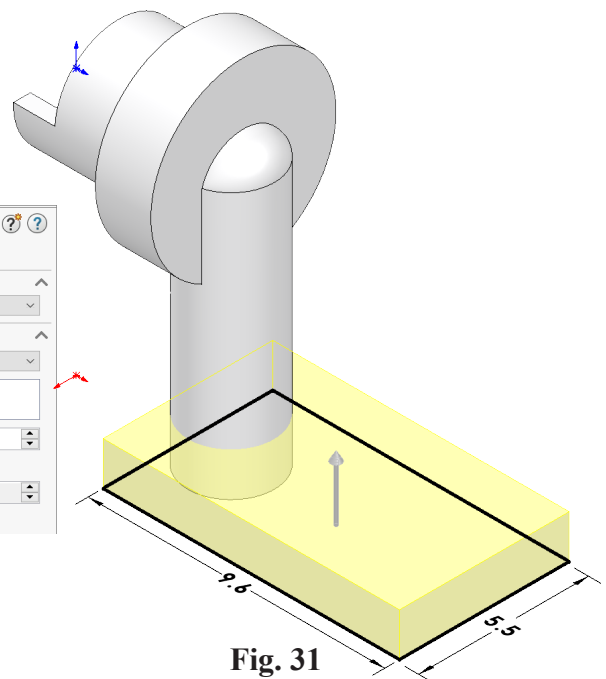


Fig. 31

H. Cut Extrude2 Sketch7 Cut Slots.

Step 1. Click **top face of pedal (Extrude2)** and click **Sketch**



on the context toolbar, **Fig. 32**.

Step 2. Click **Normal To**  on the Standard Views toolbar. (**Ctrl-8**)

Step 3. Click **Straight Slot**  (S) in the **Straight Slot flyout**



on the Sketch toolbar.

Step 4. Sketch a straight slot approximately in center of the pedal (Extrude2),

Fig. 33. To sketch slot, click in center of pedal (Extrude2) for start point of slot. Move cursor to right for length of slot and then click. Move cursor down for width of slot and click.

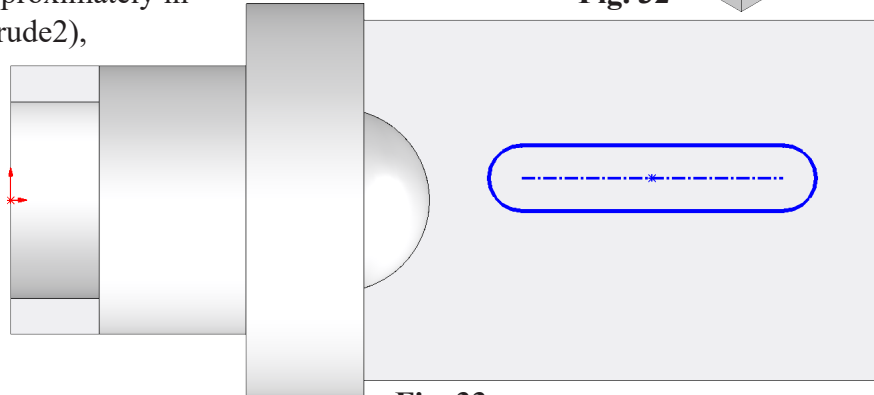



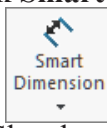
Fig. 32

Step 5. **Unselect Slot tool**. To unselect, **right click graphics area and click Select**  from menu.

Step 6. **Ctrl click midpoint** of slot and **Origin** to select both. Release Ctrl key and click **Make Horizontal**



on the context toolbar, **Fig. 34**.

Step 7. Click **Smart Dimension**  (S) on the Sketch toolbar.

Step 8. Add dimensions, **Fig. 35**.

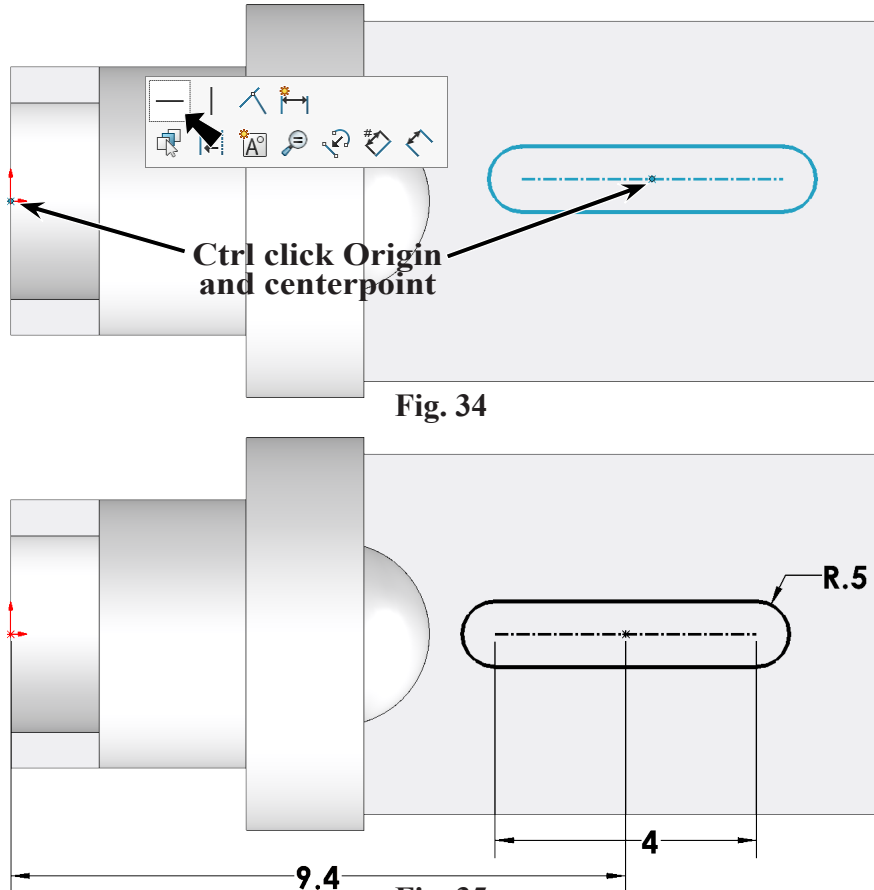









Fig. 34

Fig. 35

Step 9. Click **Linear Sketch Pattern**  on Sketch toolbar.

Step 10. In the Linear Pattern Property Manager set:

- under Entities to Pattern, **Fig. 36**
- click **slot**, **Fig. 37**
- under Direction 1
- Spacing  **1.6**
- Number of Instances  **2**
- Angle  **90°**
- under Direction 2
- Number of Instances  **2**
- Spacing  **1.6**
- Angle  **270°**
- click OK .

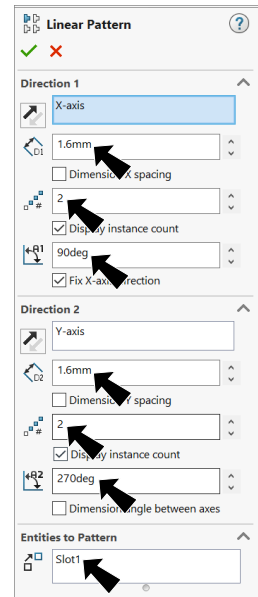



Fig. 36

Step 11. Click **Isometric**  on the Standard Views toolbar. (**Ctrl-7**)

Step 12. Click **Features**  on the Command Manager toolbar.

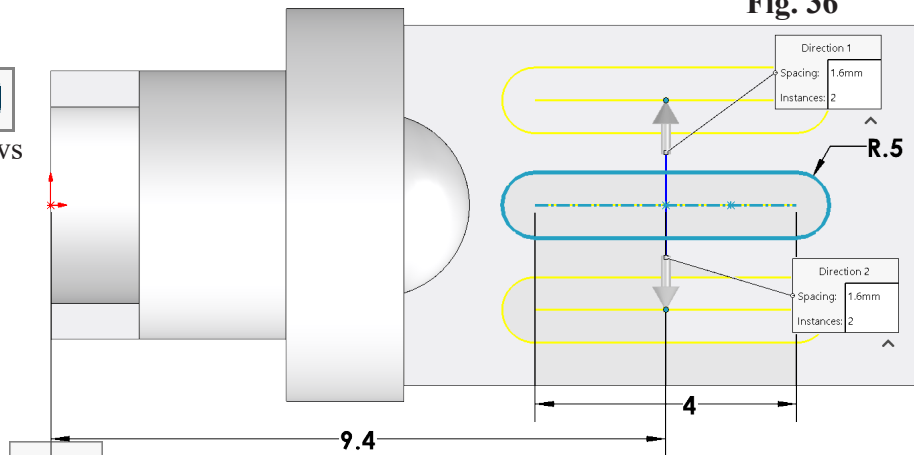



Fig. 37

Step 13. Click **Extruded Cut**  on the Features toolbar.

Step 14. In the Cut-Extrude Property Manager set:

- under Direction 1, **Fig. 38**
- End Condition **Through All**
- under Selected Contours
- click the **3 contours**, **Fig. 39**
- click OK .

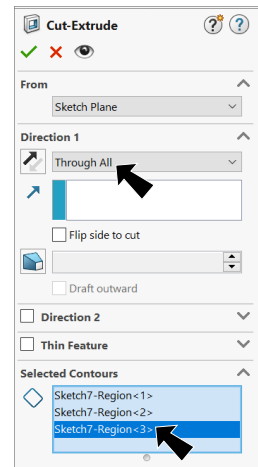


Fig. 38

Step 15. Save  (**Ctrl-S**).

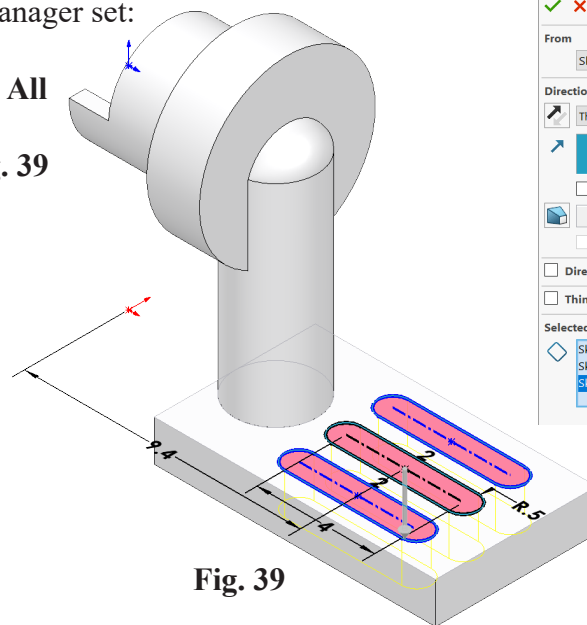


Fig. 39

I. Chamfer1.

Step 1. Click **Chamfer**  in the **Fillet flyout**  on the Features toolbar.

Step 2. In the Chamfer Property Manager set:
under Chamfer Type, **Fig. 40**

select **Angle Distance** 

Distance  **.8**

Angle  **45°**

click **top front circular edge of Revolve1**,
Fig. 41

click **OK** .

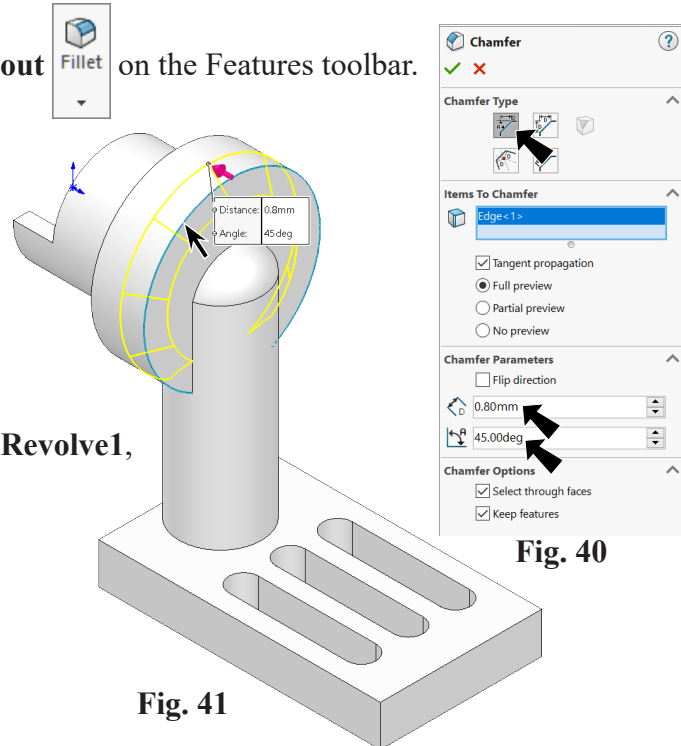


Fig. 40

Step 3. Save  (Ctrl-S).

J. Fillets.

Step 1. Click **Fillet**  on the Features toolbar.

Step 2. In the Fillet Property Manager set:
select **FilletXpert**, **Fig. 42**

① **Radius**  **1.8**

click a **vertical edge of petal (Extrude2)**, **Fig. 43**

click **Connected to start loop**
3 Edges on the Fillet pop-up
click **Apply**

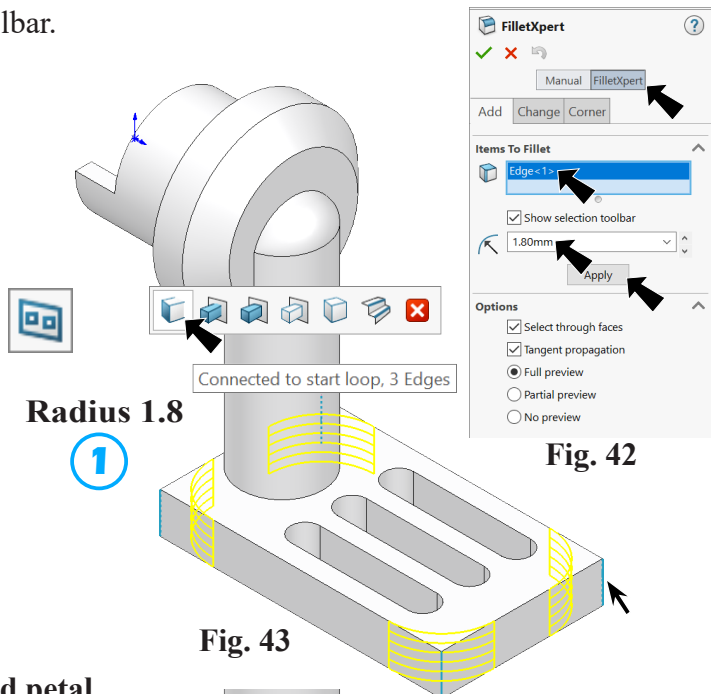


Fig. 42

② **Radius**  **.4**

click **circular edge at arm and petal (Extrude1 and Extrude2)**, **Fig. 44**

click **Apply**

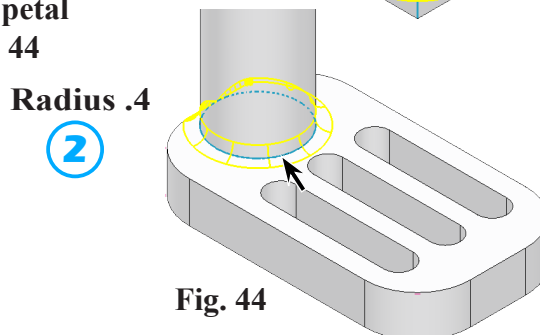


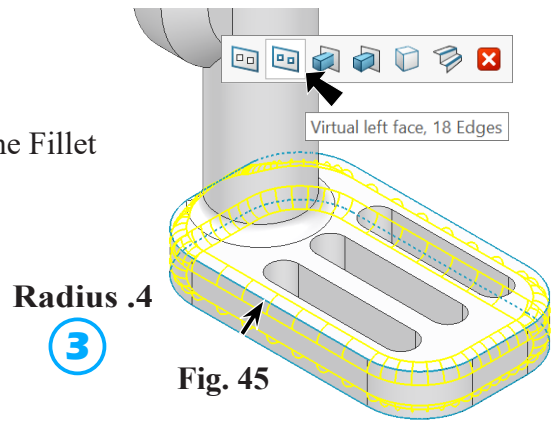



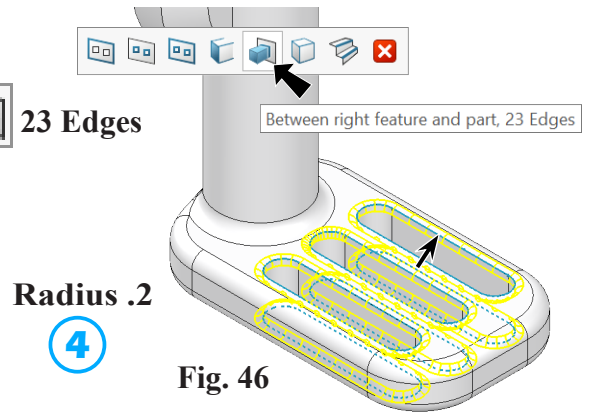


Fig. 44

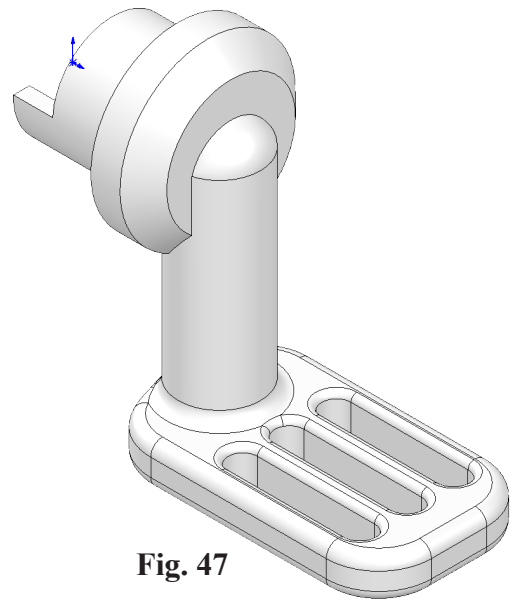
- ③ **Radius**  **.4**
 click an edge of petal (Extrude2), Fig. 45
 click **Virtual left face**  **18 Edges** on the Fillet
 pop-up
 click **Apply**



- ④ **Radius**  **.2**
 click an edge of a slot, Fig. 46
 click **Between right feature and part**  **23 Edges**
 on the Fillet pop-up
 click **OK**  .





Step 3. Save  (Ctrl-S).



K. Appearance: Chrome.

Step 1. Click the part to select part, click **Appearances**

Callout  on the context toolbar and click **PEDAL**  Fig. 48.

Step 2. In the Appearances Task pane, expand **Metal** and click **Chrome** and in the lower pane select **chromium plate**, Fig. 49.

Step 3. In the Appearances Property Manager click OK  .

Step 4. Save  (Ctrl-S).

