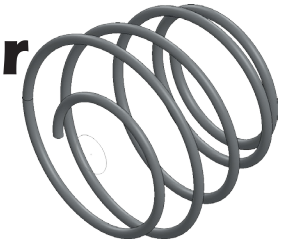
Chapter 23

Spring for Battery Holder



A. Sketch for Helix.

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

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

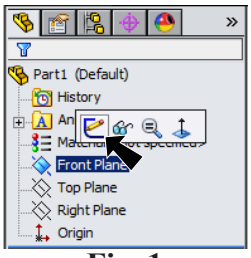


Fig. 1

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

Step 4. Draw a circle at Origin , **Fig. 2**.

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

Step 6. Dimension **diameter 4.3**, **Fig. 2**.

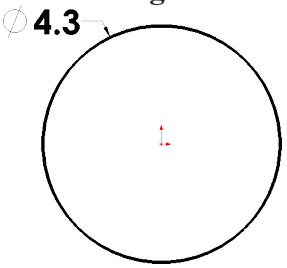


Fig. 2

B. Helix for Sweep Path.

Step 1. Click **Trimetric** on the Standard Views toolbar.

Step 2. Click Insert Menu > Curve > Helix/Spiral.

Step 3. In the Helix/Spiral Property Manager
under Defined By: **Fig. 3**
select **Pitch and Revolution**
under Parameters
select **Variable Pitch**
under Region Parameters set:

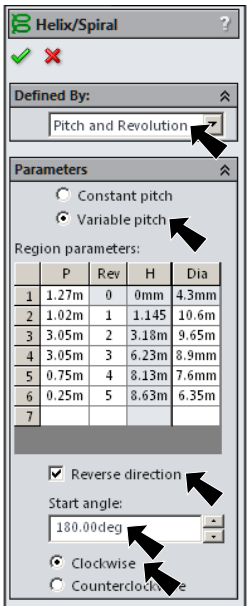


Fig. 3

use **Tab key** to move to next field

	P	Rev	Dia
1	1.27	0	4.3
2	1.02	1	10.6
3	3.05	2	9.65
4	3.05	3	8.9
5	.75	4	7.6
6	.25	5	6.35

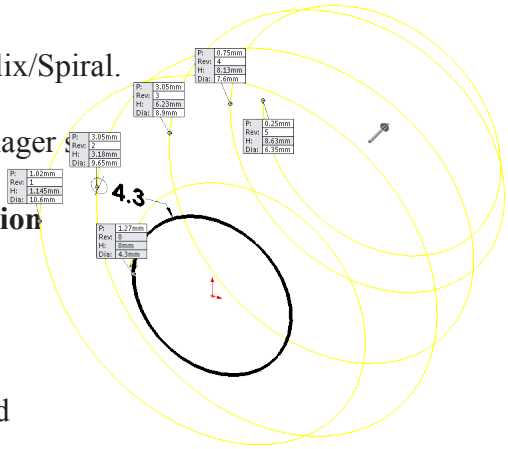


Fig. 4

use Tab key to move to next field

check **Reverse direction**

Start angle 180
check **Clockwise**
click OK .

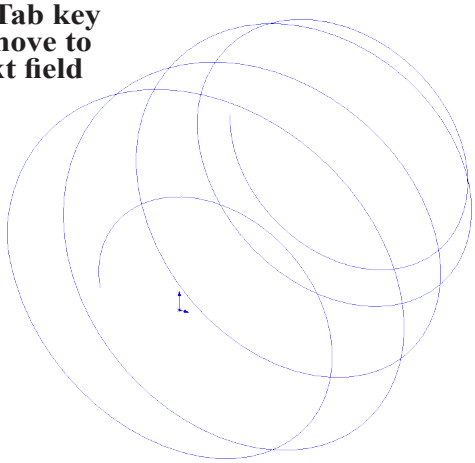


Fig. 5

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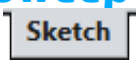
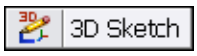
C. Save as "SPRING".

Step 1. Click File Menu > Save As.

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

D. 3D Sketch Sweep Profile.

Step 1. Click **Sketch**  on the Command Manager toolbar.

Step 2. Click **3D Sketch**  in the **Sketch flyout** on the Sketch toolbar. Be sure to click the **flyout arrow** to select 3D Sketch.

Step 3. Click **Circle** on the Sketch toolbar.

Step 4. Press **Tab key** on keyboard until cursor changes to **ZX** plane (**ZX** is Top Plane)

Step 5. Draw circle starting at the front endpoint of helix, **Fig. 6**.

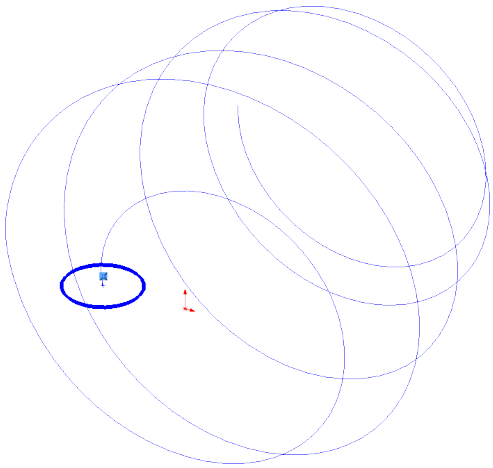
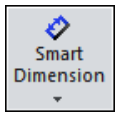


Fig. 6

Step 6. Click **Smart Dimension**  (**S**) on the Sketch toolbar.

Step 7. Dimension **diameter .5**, **Fig. 7**.

Step 8. Exit the **3D Sketch.** To Exit, click **Exit 3D Sketch** in top right corner of graphics area.

Step 9. Save. Use **Ctrl-S**.

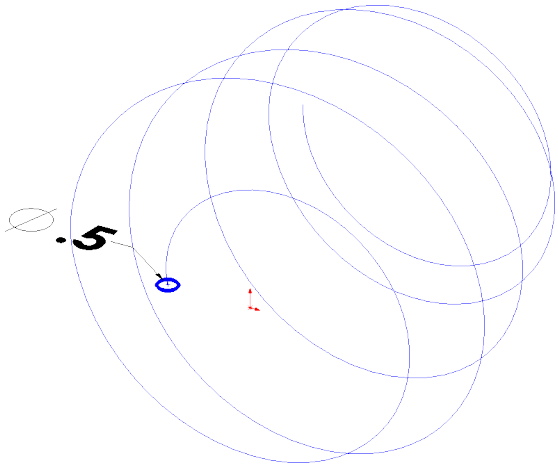
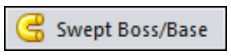


Fig. 7

E. Sweep Helix.

Step 1. Click **Features**

on the Command Manager toolbar.

Step 2. Click **Swept Boss/Base** 

on the Features toolbar.

Step 3. In the Swept Boss/Base Property Manager set:
under Profile and Path, **Fig. 8**

Profile
click **small circle**, **Fig. 9**

Path click **helix**

click OK .

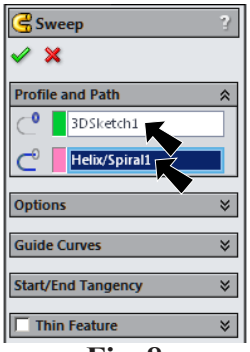


Fig. 8

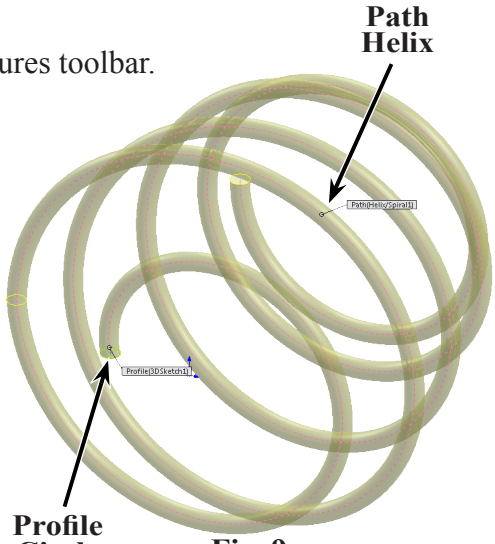


Fig. 9

Step 4. Save. Use **Ctrl-S**.

F. Sketch for Mates.

Step 1. Click **Front Plane** in the Feature Manager and click **Sketch** from the Context toolbar, **Fig. 10**.

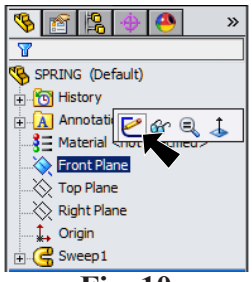
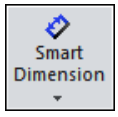


Fig. 10

Step 2. Click **Circle** (**S**) on the Sketch toolbar.

Step 3. Draw a circle at Origin , **Fig. 11**.

Step 4. Click **Smart Dimension** 

(**S**) on the Sketch toolbar.

Step 5. Dimension **diameter 2**, **Fig. 11**.

Step 6. Click **Exit Sketch**

on the Sketch toolbar.

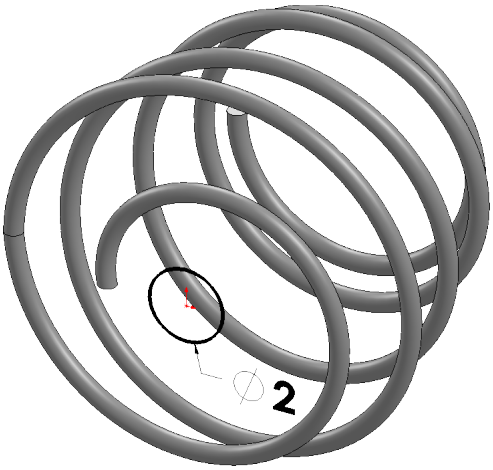


Fig. 11

G. Appearance.

Step 1. Click holder to select the part, click **Appearance Callout** on the Context toolbar and click **SPRING**, **Fig. 12**.

Step 2. In the Appearances Task pane, expand **Metal**, click **Chrome** and in the lower pane select **chromium plate**, **Fig. 13**. Click OK in the Property Manager.

Step 3. Save. Use **Ctrl-S**.

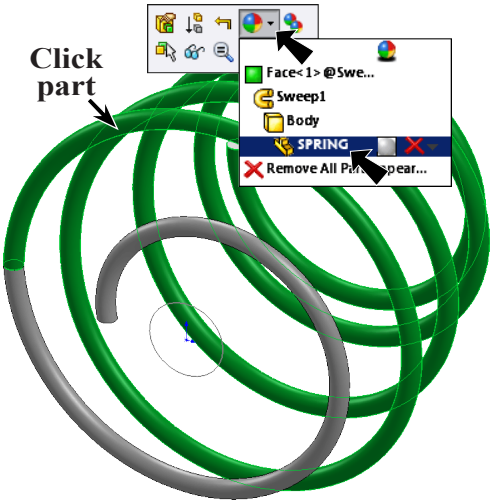


Fig. 12

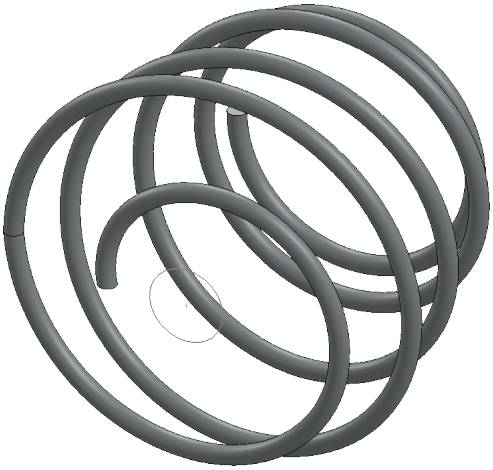


Fig. 14

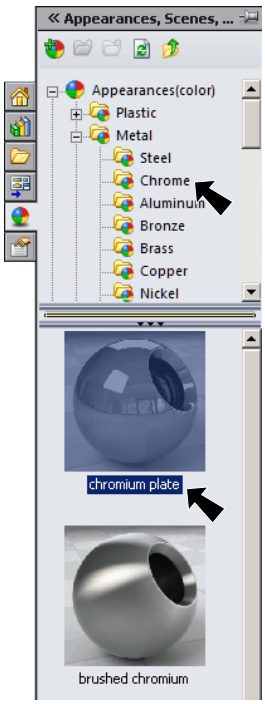


Fig. 13