Chapter 11 Spinning Top
Motion Study Assembly

A. Insert Parts.

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

Step 2. Select your **BOX** file and click Open from the Open dialog box.

Step 3. In the Begin Assembly Property Manager set:

click **Keep Visible**, **Fig. 1**

Click OK in the Property Manager. This will place the Box origin at the assembly origin and fix the position of the Box so that it cannot move. This fixed component should have a **(f)** before its name in the Feature Manager (f) BOX<1> .

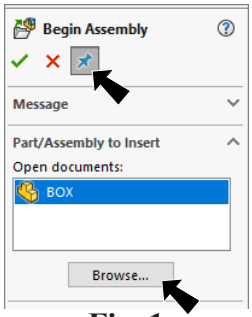

Fig. 1

Step 4. Click **Browse** in the Property Manager, **Fig. 1**.

Step 5. Select your **SPINNING TOP ASSEMBLY** file and click Open.

Step 6. Click approximately where the Spinning Top is positioned in **Fig. 2**.

Step 7. Click OK in the Property Manager when done.

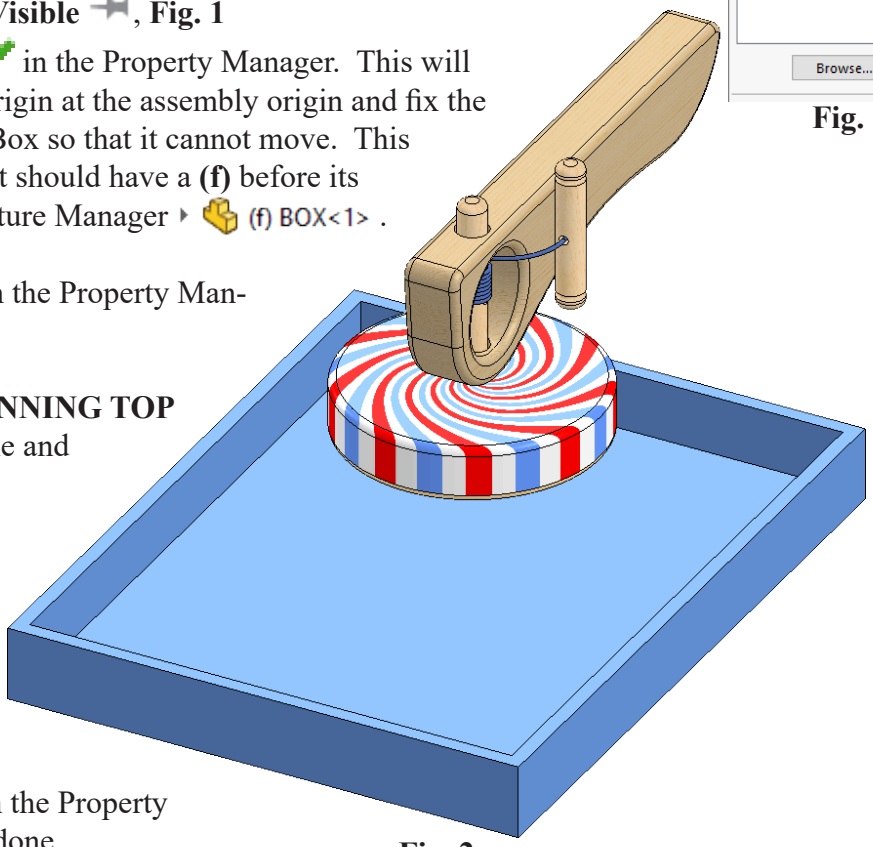
Fig. 2

B. Save as "SPINNING TOP MOTION STUDY".

Step 1. Click File Menu > Save As.

Step 2. Key-in **SPINNING TOP MOTION STUDY** for the filename and press ENTER.

C. Mate: Right Plane and Handle Right Plane.

Step 1. Click **Right Plane** in the Feature Manager and click **Mate** on the context toolbar, **Fig. 3**.

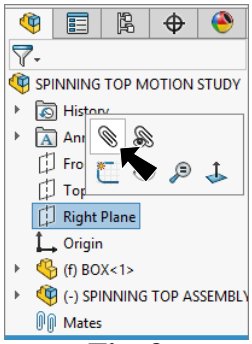

Fig. 3

Step 2. Expand the flyout Feature Manager design tree in the top left corner of the graphics area, then expand **Spinning Top Assembly** and expand **Handle** and click **Right Plane**, **Fig. 4**.

Step 3. Click Add/Finish Mate in Mate pop-up toolbar to add a **Coincident** mate.

D. Mate: Front Plane and Handle Front Plane.

Step 1. Click **Top** on the Standard Views toolbar. (**Ctrl-5**)

Step 2. Click **Front Plane**, **Fig. 6**.

Step 3. Expand **HANDLE** and click **Front Plane**, **Fig. 6**.

Step 4. Click **Distance** in Mate pop-up, **Fig. 7**. Set **distance 1.15** and press ENTER. The Flywheel should be centered in Box, **Fig. 8**. If positioned in opposite direction, click **Flip Dimension** in the Mate pop-up, **Fig. 7**. Click Add/Finish Mate to add Distance mate.

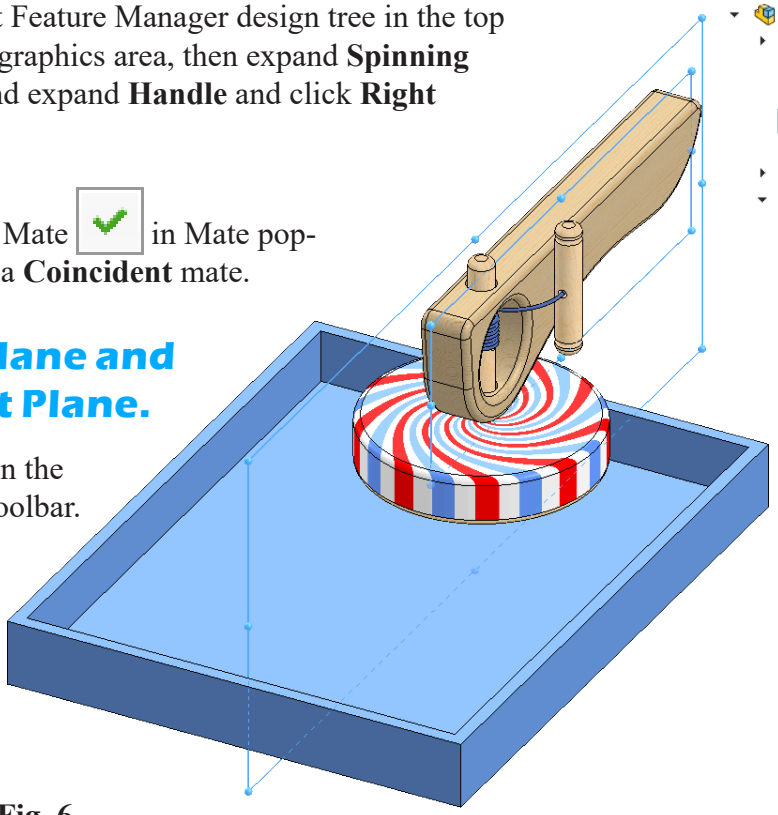

Fig. 5

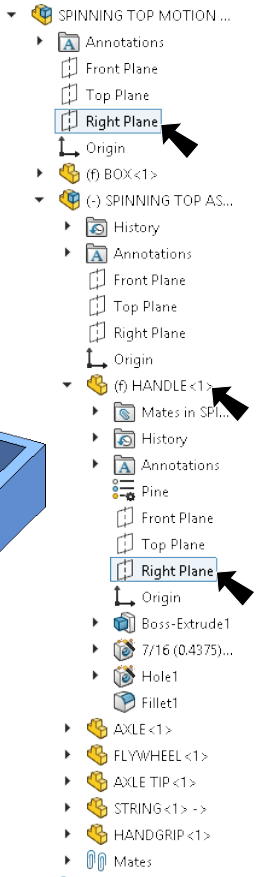

Fig. 4

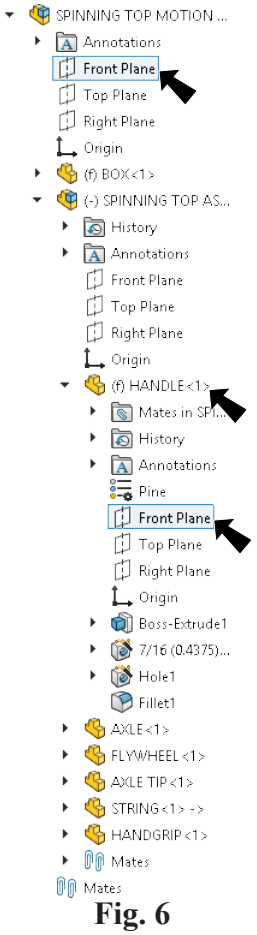

Fig. 6

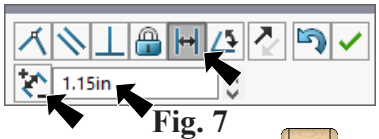

Fig. 7

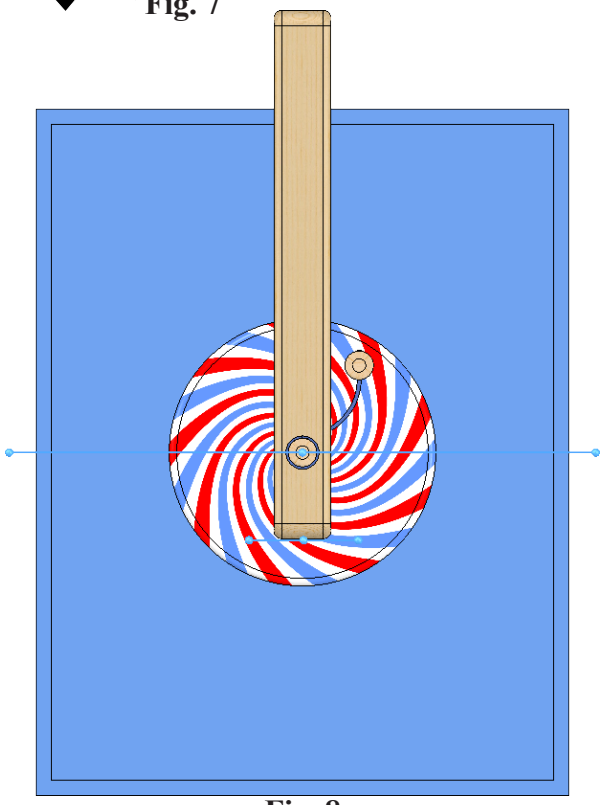

Fig. 8

E. Mate: Top Plane and Handle Top Plane.

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

Step 2. Click **Top Plane** and expand **HANDLE** and click **Top Plane**, **Fig. 9**.

Step 3. Click **Distance** in Mate pop-up, **Fig. 10**. Set **distance 8** and press ENTER. The Assembly should be above Box, **Fig. 11**. If positioned in opposite direction, click **Flip Dimension** in the Mate pop-up, **Fig. 10**. Click Add/Finish Mate to add Distance mate.

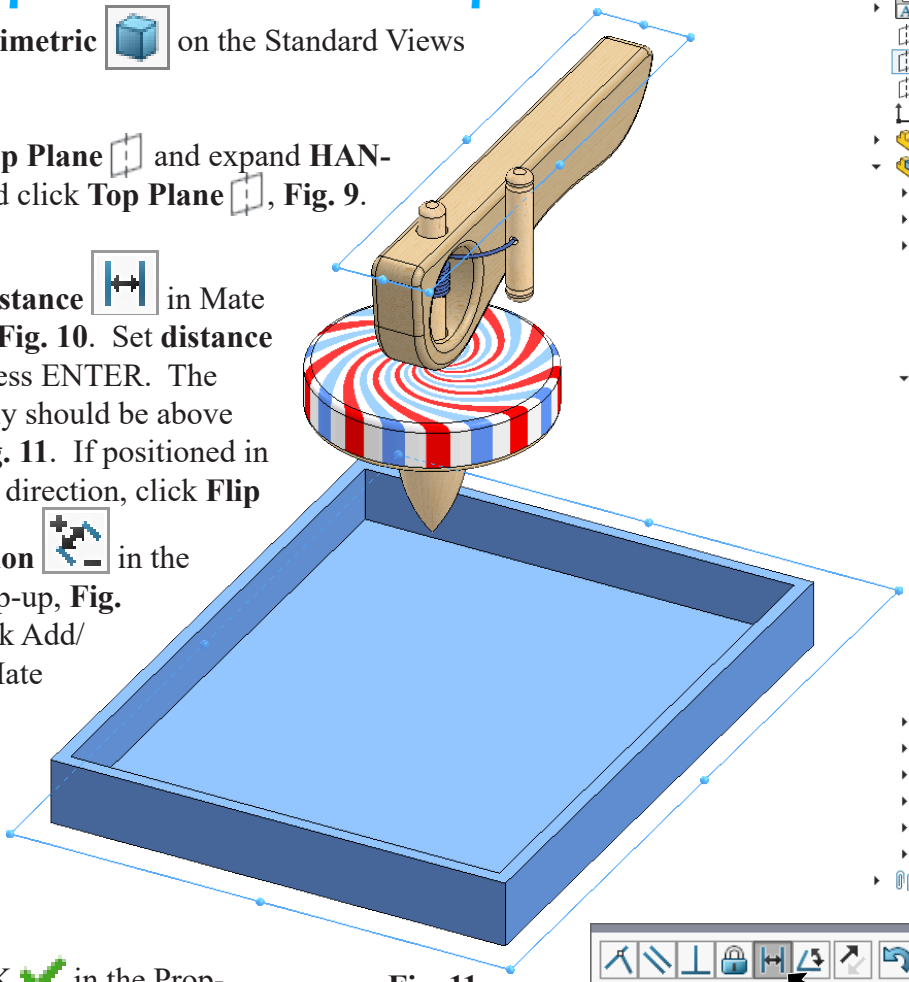

Fig. 11

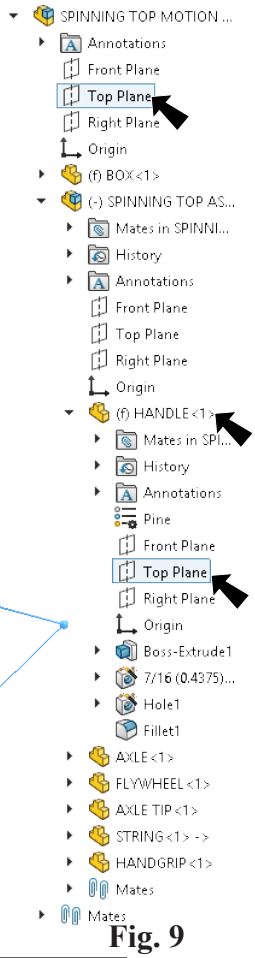

Fig. 9

Fig. 10

Step 4. Click OK in the Property Manager.

F. Suppress Parts.

Step 1. **Suppress Handle, String and Handgrip parts**, **Fig. 12**. To suppress Parts, click the Handle, then hold down the **Crtl key** and click String and Handgrip. Release Ctrl key and click **Suppress** on context toolbar.

We suppressed the Handle, String and Handgrip parts because some of their Mates would not allow the Top to spin in the Motion Study. An alterative would be to suppress the conflicting Mates, but easier to suppress the parts.

Step 2. Save. Use **Ctrl-S**.

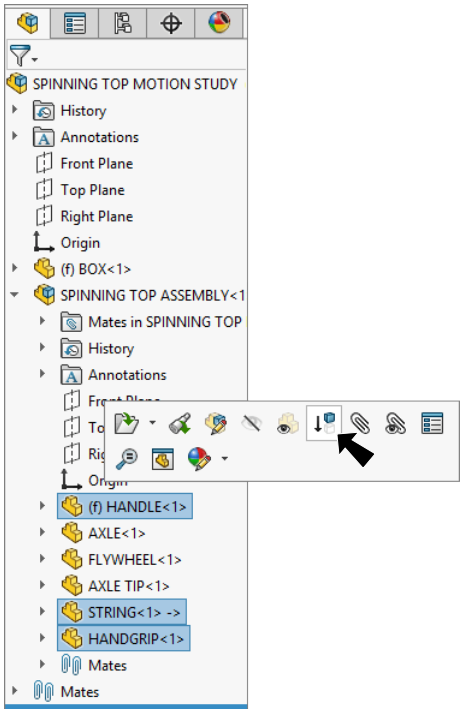

Fig. 12