Spinning Top

Chapter 11 Motion Study Assembly

A. Insert Parts.

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

Step 2. Click **Keep Visible** in the Property Manager, **Fig. 1**.

Step 3. Click **Browse** in the Property Manager, **Fig. 1**.

Step 4. Select your **BOX** file and click Open.

Step 5. Click OK in the Property Manager. This will place Box origin at the assembly origin and fix the position so Box cannot move. This fixed component should have a **(f)** before its name in the Feature Manager (f) BOX<1>.

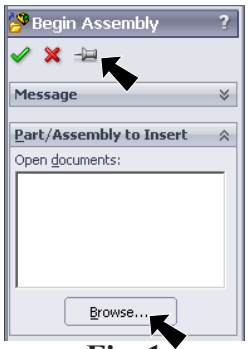

Fig. 1

Step 6. Click **Browse** in the Property Manager, **Fig. 1**.

Step 7. Select your **SPINNING TOP ASSEMBLY** file and click Open.

Step 8. Click approximately where the Spinning Top is positioned in **Fig. 2**.

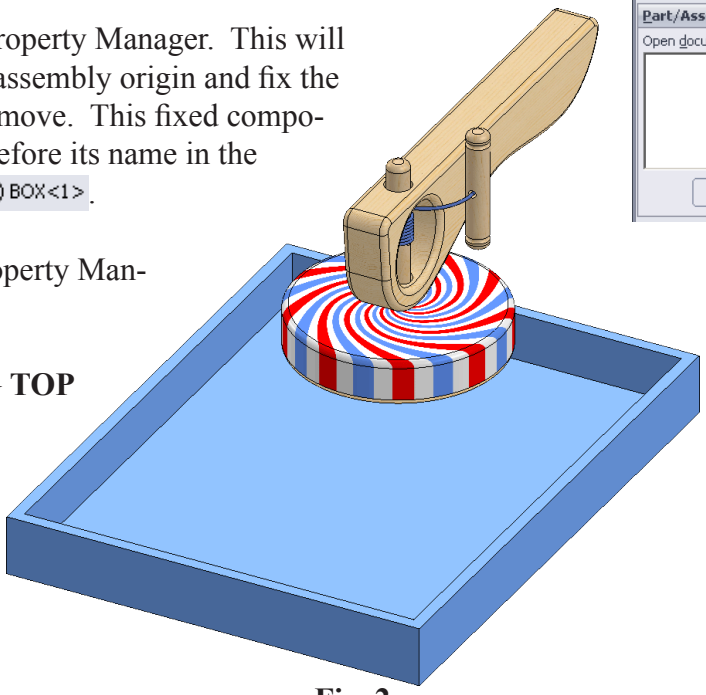
Fig. 2

Step 9. Click OK in the Property Manager when done.

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** from the Content toolbar, **Fig. 3**.

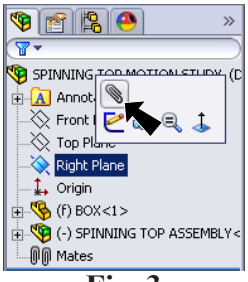

Fig. 3

http://www.cudacountry.net email:cudacountry@hotmail.com

Step 2. Expand the Design Tree in the top left corner of the graphics area, **Fig. 4**.

Step 3. Expand **SPINNING TOP ASSEMBLY** and **HANDLE**, click **Right Plane**, **Fig. 4**.

Step 4. Click Add/Finish Mate in Mate pop-up toolbar to add a **Coincident** mate.

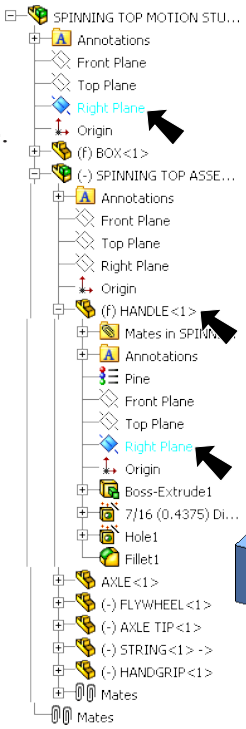

Fig. 4

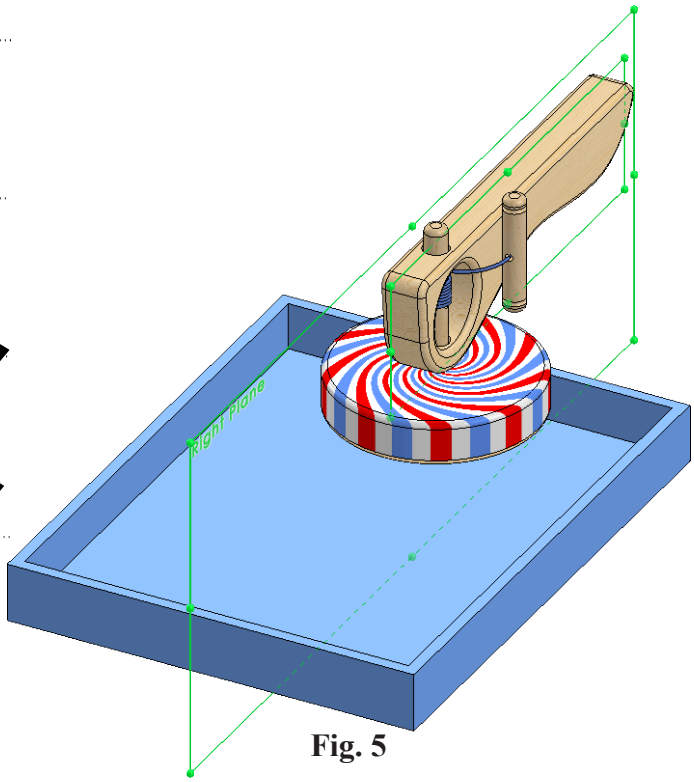

Fig. 5

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.

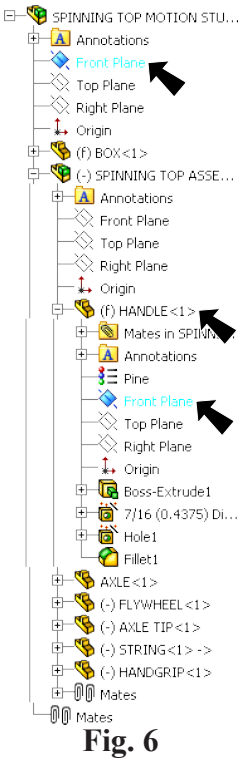

Fig. 6

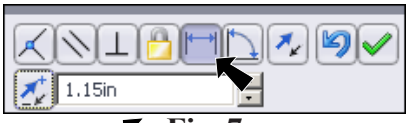

Fig. 7

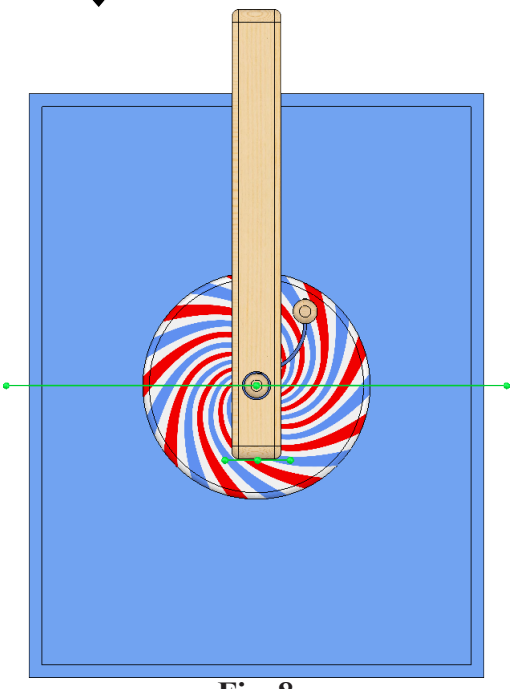

Fig. 8

E. Mate: Top Plane and Handle Top Plane.

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

Step 2. Click **Top Plane**, **Fig. 9**.

Step 3. Expand **HANDLE** and click **Top Plane**, **Fig. 9**.

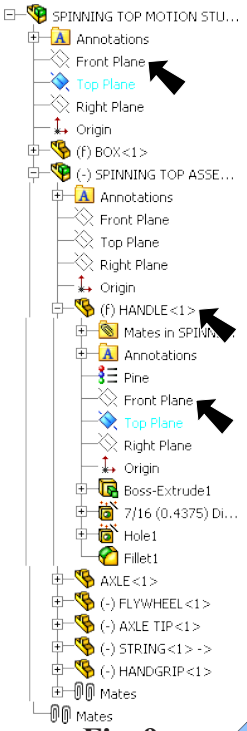

Fig. 9

Step 4. 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.

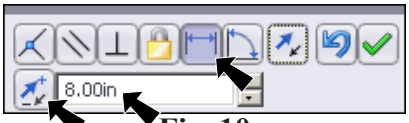

Fig. 10

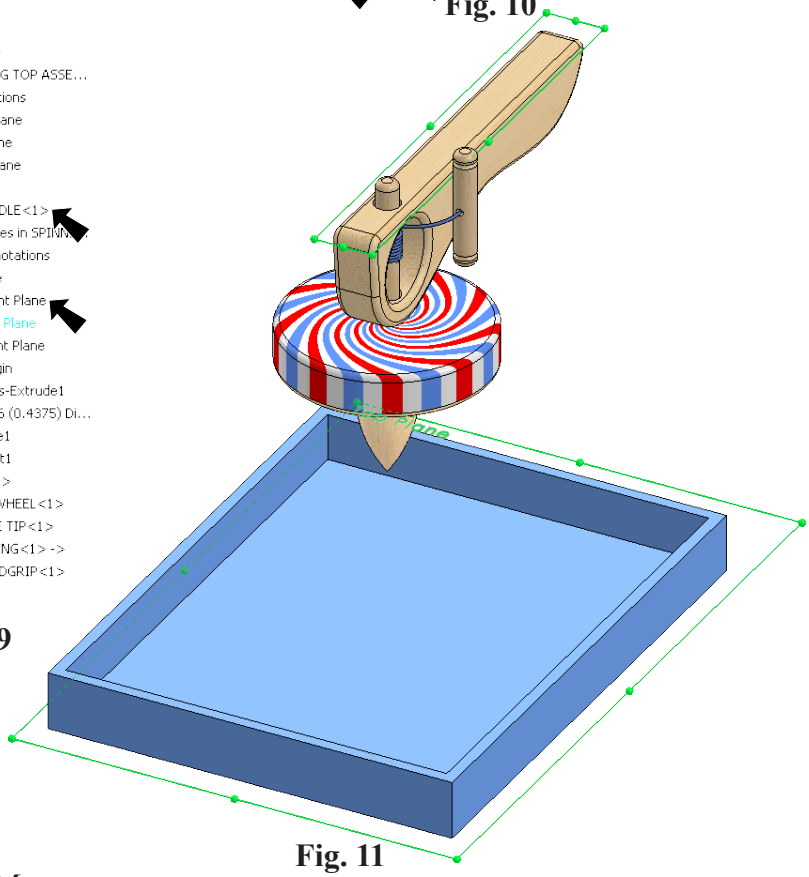
Fig. 11

Step 5. Click OK in the Property Manager.

F. Suppress Parts.

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

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.

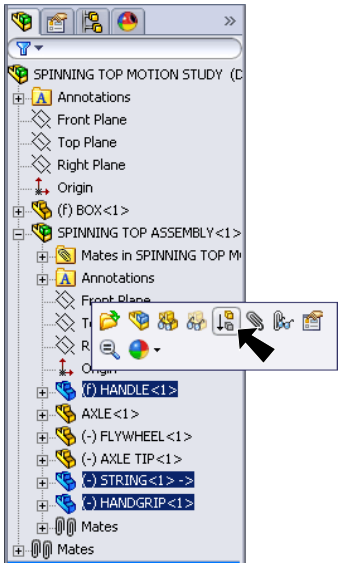

Fig. 12

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