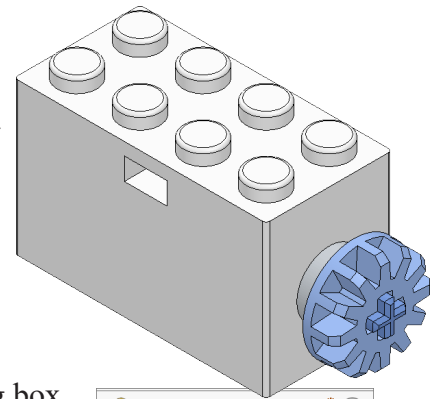


E's Small Car Motor Assembly



A. Insert Motor and Lego Axle.

Step 1. Click **New** on the Standard toolbar, click **Assembly Metric** and OK.

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

Step 3. In the Begin Assembly Property Manager set:

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

Only fix first component

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

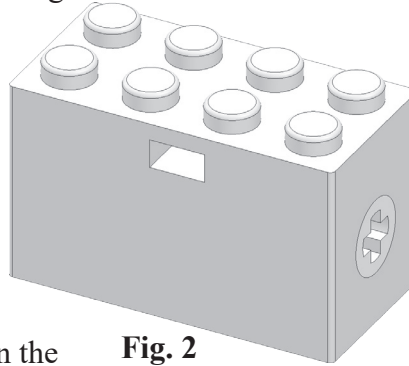


Fig. 2

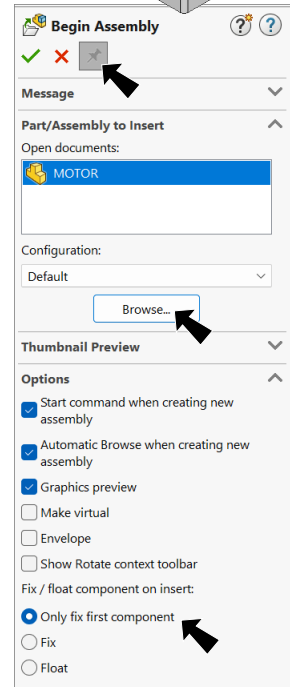


Fig. 1

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

Step 5. Click your **LEGO AXLE** file and click Open.

Step 6. Back in the Begin Assembly Property Manager:
under Part/Assembly in Insert, **Fig. 3**
select **LEGO AXLE** to highlight it.

Release part when cursor changes to



Step 7. In the graphic area position cursor over **Lego Axle hole cylindrical face in Motor**, **Fig. 4**. When Axle snaps into place and cursor changes to indicate Concentric mate , click to release Axle.

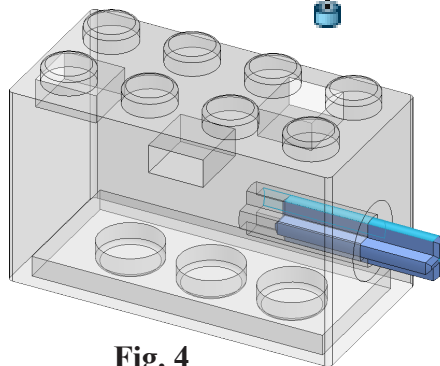


Fig. 4

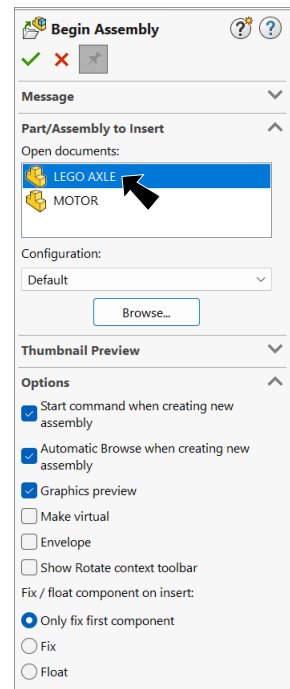


Fig. 3

Step 8. Click **Flip Alignment** in the Mate pop-up and check **Lock Rotation** and Add/Finish Mate in Mate

pop-up toolbar to add a **Concentric** mate, **Fig. 5**.



Fig. 5


Step 9. Click **OK** in the Property Manager.

B. Save as "MOTOR ASSEMBLY".

Step 1. Click File Menu > Save As.

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

C. Mate: Lego Axle.

Step 1. Click **Mate**  on the Assembly toolbar.

Step 2. Click **side face of Motor** and **end face Axle**, **Fig. 6**.

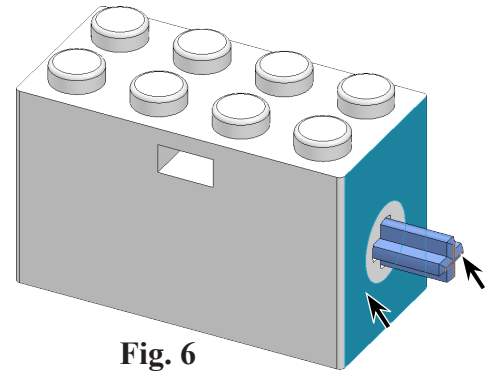


Fig. 6



Step 3. Click **Distance**  in Mate pop-up, **Fig. 7**. Set **distance 8** and press ENTER. The Axle should be positioned outside of the Motor, **Fig. 8**. If positioned in opposite direction, click **Flip Dimension**  in the Mate pop-up.



Fig. 7

Click **Flip Dimension**  in the Mate pop-up.

Click **Add/Finish Mate**  to add Distance mate.

Step 4. Click **OK**  in the Property Manager.

Step 5. Save  (Ctrl-S).

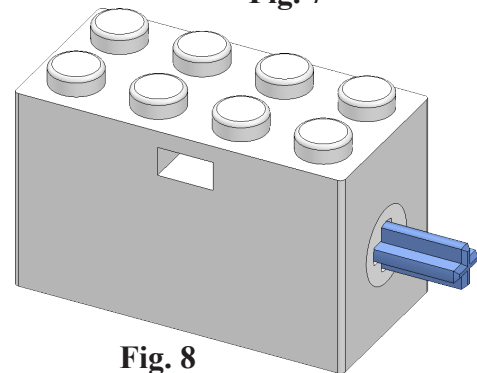


Fig. 8

D. Insert Bevel Gear and Washer.

Step 1. Click **Insert Components**  on the Assembly toolbar.

Step 2. **Ctrl click** your **BEVEL GEAR** and **WASHER** and click **Open** from the Open dialog box.

Step 3. In the **Begin Assembly** Property Manager set:

click **Keep Visible** , **Fig. 9**

under **Part/Assembly** in **Insert**

select **WASHER** to highlight it.

Release part when cursor changes to

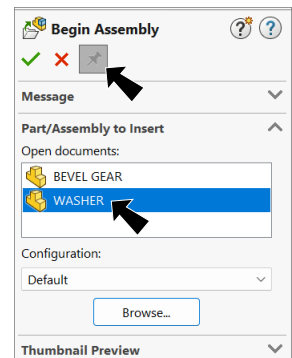



Fig. 9

Step 4. In the graphic area position **Washer** over a cylindrical face of **Lego Axle**, **Fig. 10**. When **Washer** snaps into place and cursor changes to indicate **Concentric mate** , click to release **Washer**.

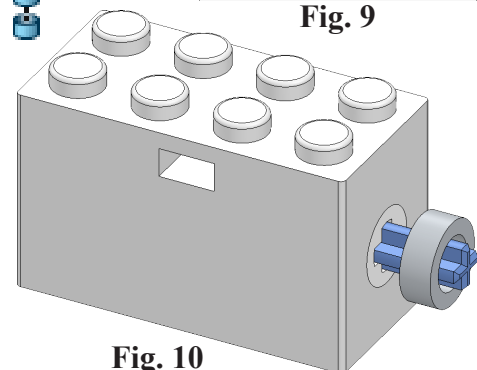


Fig. 10

Step 5. Click **Add/Finish Mate**  in Mate pop-up toolbar to add a **Concentric**  mate, **Fig. 11**.



Fig. 11

Step 6. Back in the Begin Assembly Property Manager:
 under Part/Assembly in Insert, **Fig. 12**
 select **BEVEL GEAR** to highlight it.

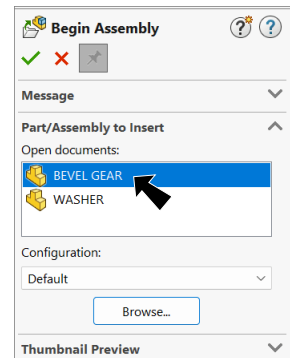

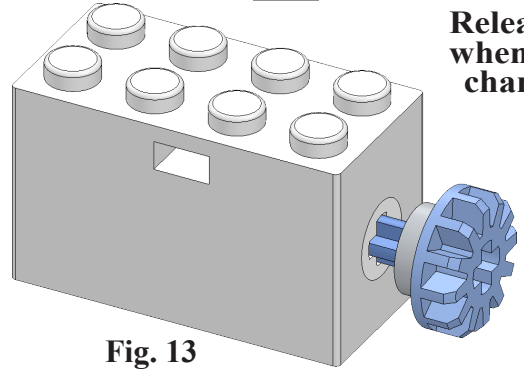


Fig. 12

Step 7. In the graphic area position Bevel Gear over Lego Axle, **Fig. 13**.
 When Gear snaps into place and cursor changes to indicate Concentric mate , click to release Gear.

Step 8. Check **Lock Rotation** and Add/Finish Mate  in Mate pop-up toolbar to add a **Concentric**  mate, **Fig. 14**.



**Release part
 when cursor
 changes to**

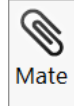


Fig. 14

Fig. 13

Step 9. Click OK  in the Property Manager.

E. Mate: Washer.

Step 1. Click **Mate**  on the Assembly toolbar.

Step 2. Click **side face of Motor** and **hide cylindrical face of Washer**, click **rear face of Washer**, **Fig. 15**. To hide face, hover cursor over face and press **Alt** key.

Step 3. Click Add/Finish Mate  to add a **Coincident**  mate.

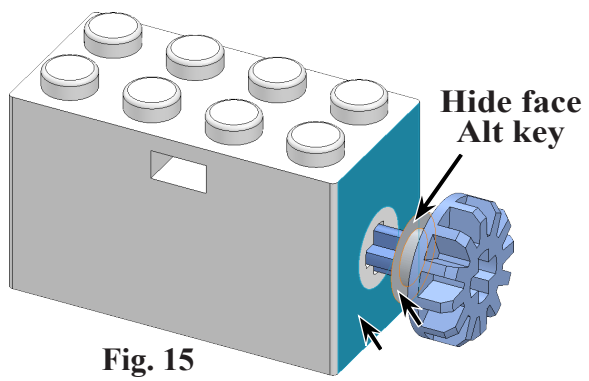


Fig. 15

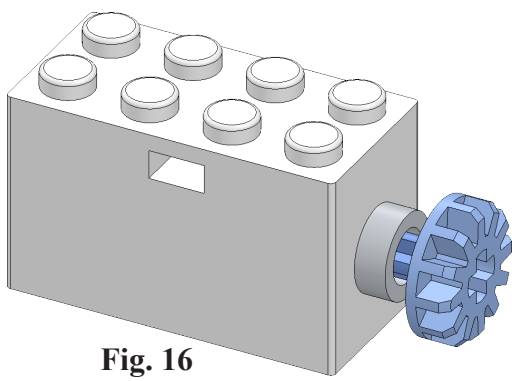


Fig. 16

F. Mate: Bevel Gear.

Step 1. Click **side face of Motor** and **end face of Bevel Gear**, Fig. 17.

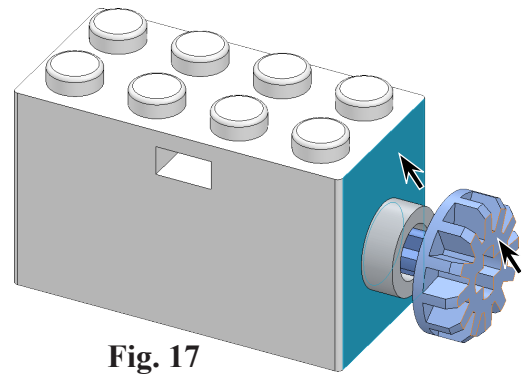


Fig. 17




Step 2. Click **Distance**  in Mate pop-up, Fig. 18. Set **distance 7.1** and press ENTER. The Gear should be positioned on Axle, Fig. 19. If positioned in opposite direction, click **Flip Dimension**  in the Mate pop-up. Click **Add/Finish Mate**  to add Distance mate.



Fig. 18

Step 3. Click OK  in the Property Manager.

Step 4. Save  (Ctrl-S).

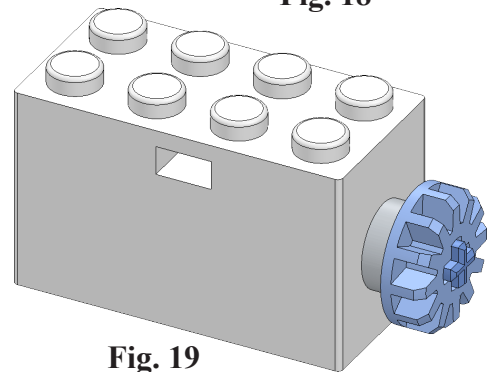


Fig. 19