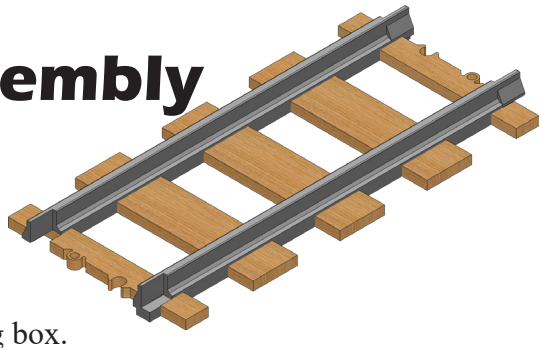
Chapter 36

Solar Train

Straight Track Assembly



A. Insert Tie and Rail.

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

Step 2. Select your **TIE** 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 Tie origin at the assembly origin and fix the position so Tie cannot move. This fixed component should have a **(f)** before its name in the Feature Manager (f) TIE<1>.

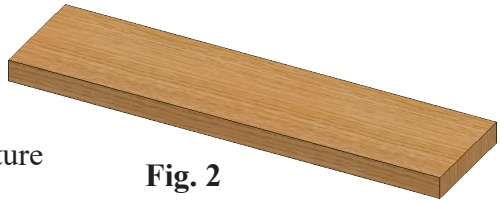


Fig. 2

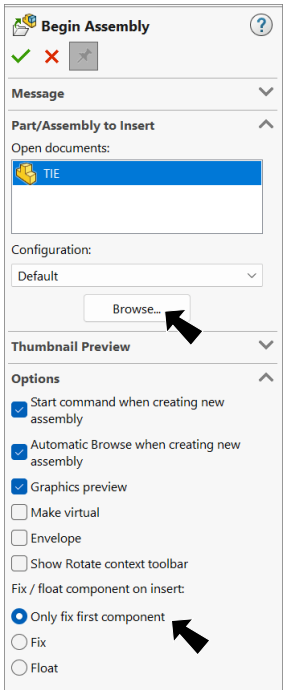


Fig. 1

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

Step 5. Select your **STRAIGHT RAIL** file and click Open.

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

Step 7. Click to position **Rail**, **Fig. 4**.

Step 8. Click OK in the Property Manager.

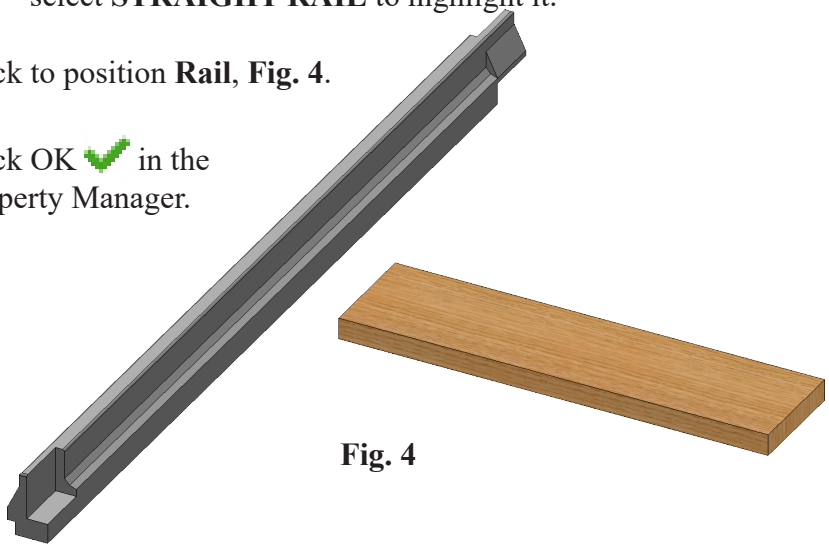


Fig. 4

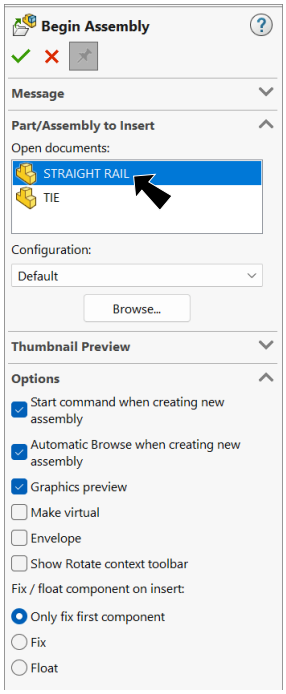


Fig. 3

B. Save as "STRAIGHT TRACK ASSEMBLY".

Step 1. Click File Menu > Save As.

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

C. Mate: Rail.

Step 1. Click **Isometric** on the Standard Views toolbar. (**Ctrl-7**)

Step 2. Click **Top Plane** in the Feature Manager and **Mate** on the context toolbar, **Fig. 5**.

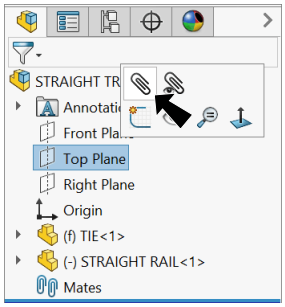


Fig. 5

Step 3. Expand the flyout Feature Manager design tree, expand **Rail** and click **Top Plane**, **Fig. 6**.

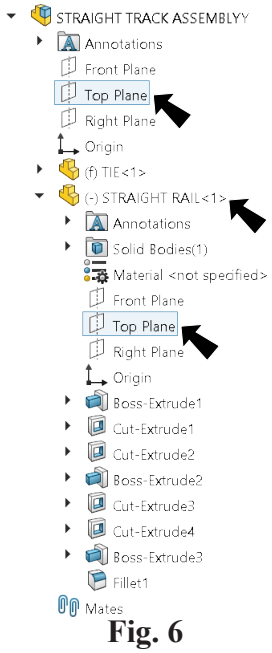


Fig. 6

Step 4. Click Add/Finish Mate to add **Coincident** mate.

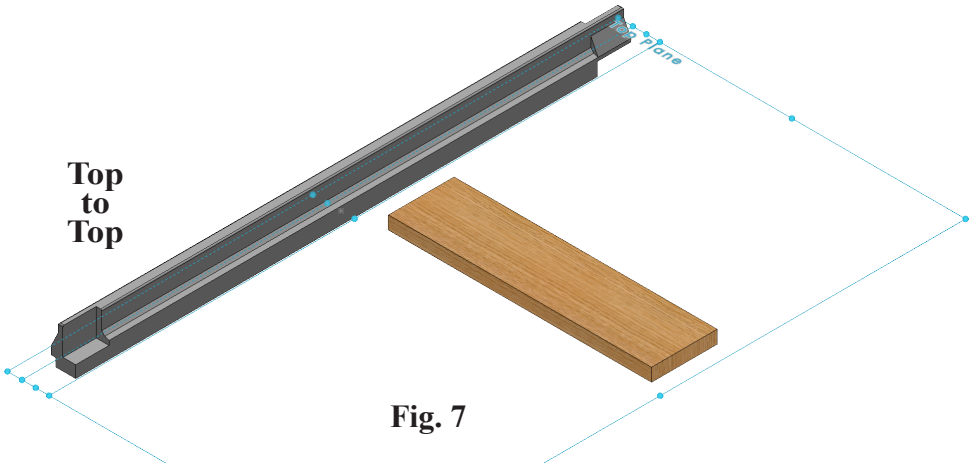


Fig. 7

Step 5. Expand the flyout Feature Manager design tree, click **Front Plane**, expand **Rail** and click **Front Plane**, **Fig. 8**.

Step 6. Click Add/Finish Mate to add **Coincident** mate.

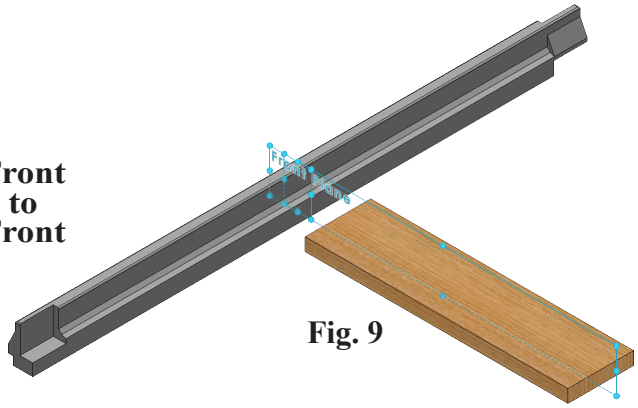


Fig. 9

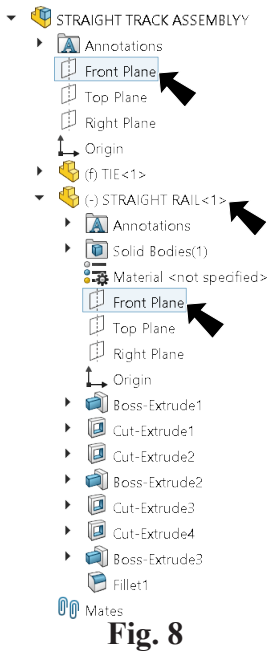


Fig. 8

Step 7. Expand the flyout Feature Manager design tree, click **Right Plane**, expand **Rail** and click **Right Plane**, **Fig. 10**.

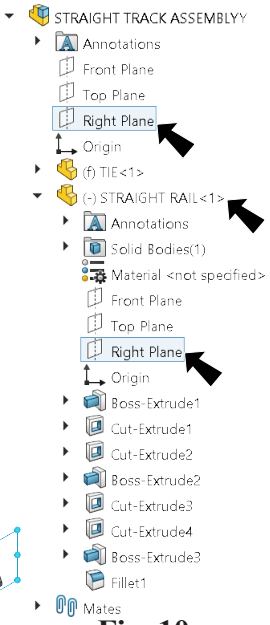


Fig. 10

Step 8. Click **Distance** in Mate pop-up, **Fig. 11**. Set **distance 20** and press ENTER. The Rail should positioned right hand side of track (driver's side), **Fig. 12**. If positioned in opposite direction, click **Flip Dimension** in the Mate pop-up. Click Add/Finish Mate to add Distance mate.

Fig. 11

Step 9. Click OK in the Property Manager.

Step 10. Save (**Ctrl-S**).

Right to Right Distance 20

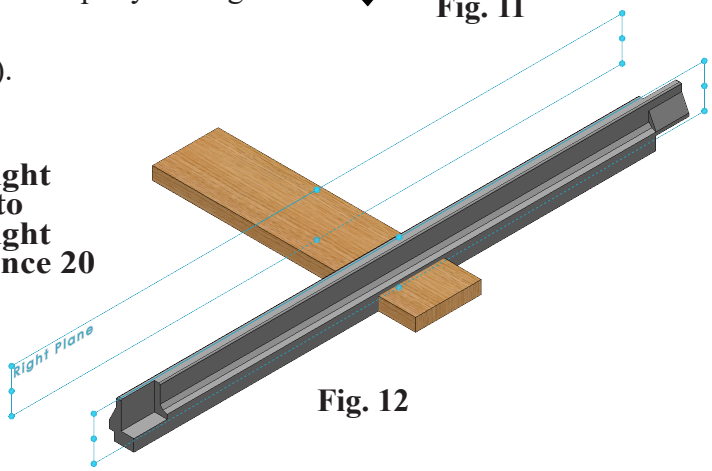


Fig. 12

D. Insert End Tie.

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

Step 2. Select your **End Tie** file and Open.

Step 3. Click to place **End Tie**, **Fig. 13**.

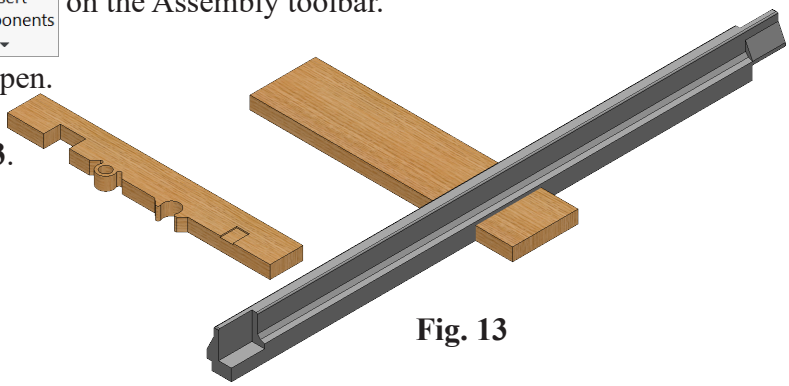


Fig. 13

E. Mate: End Tie.

Step 1. Click **Top Plane** in the Feature Manager and **Mate** on the context toolbar, **Fig. 14**.

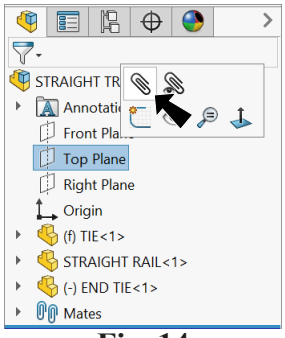


Fig. 14

Step 2. Expand the flyout Feature Manager design, expand **End Tie** and click **Top Plane**, **Fig. 15**.

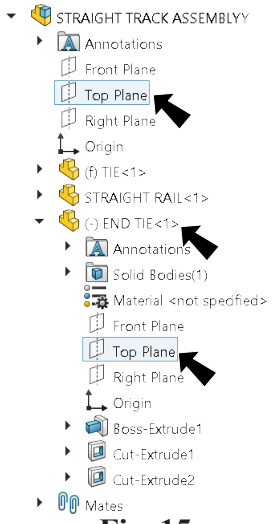
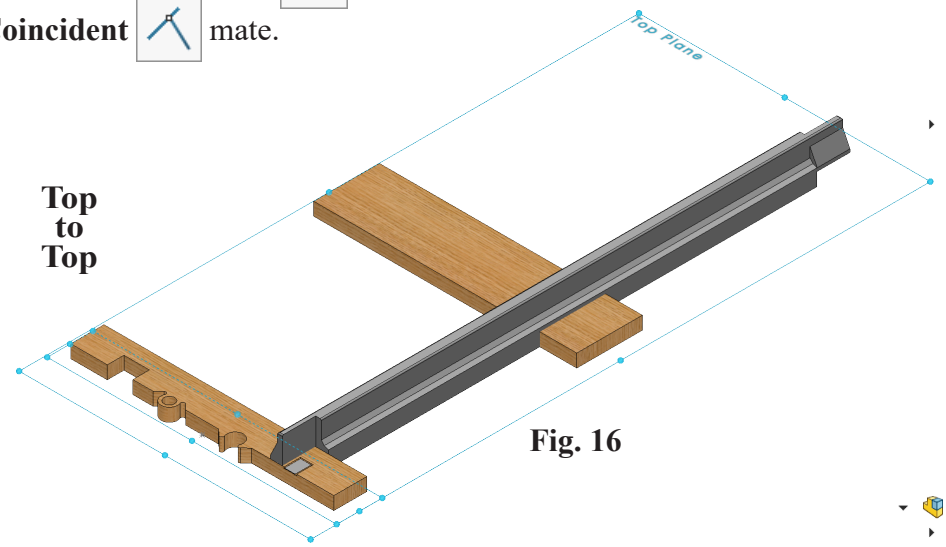


Fig. 15

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



Top to Top

Fig. 16

Step 4. Expand the flyout Feature Manager design tree, click **Right Plane**, expand **Rail** and click **Right Plane**, **Fig. 17**.

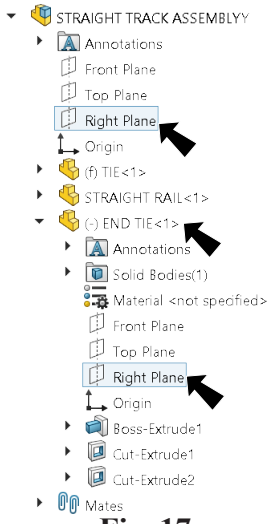
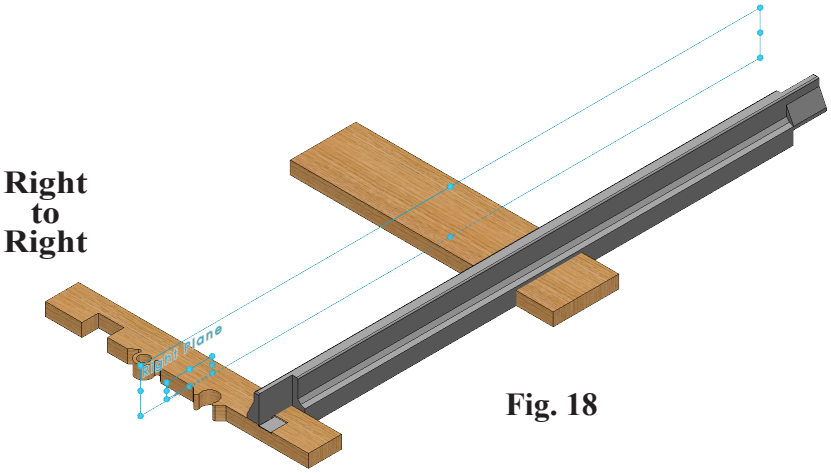


Fig. 17

Step 5. Click Add/Finish Mate to add **Coincident** mate.



Right to Right

Fig. 18

Step 6. Click **front face of Rail** and **front face of End Tie**, **Fig. 19**.

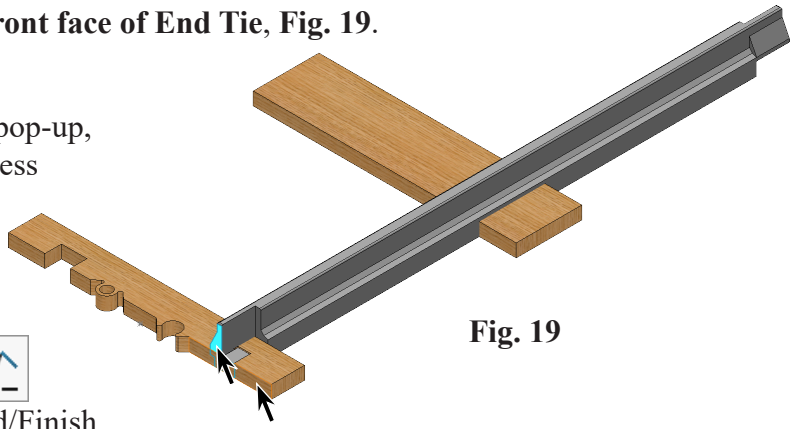


Fig. 19

Step 7. Click **Distance** in Mate pop-up, **Fig. 20**. Set **distance 4** and press ENTER. The End Tie should be positioned just back of the front end of Rail, **Fig. 21**. If positioned in opposite direction, click **Flip Dimension** in the Mate pop-up. Click Add/Finish Mate to add Distance mate.

Fig. 20

Step 8. Click OK in the Property Manager.

Step 9. Save (**Ctrl-S**).

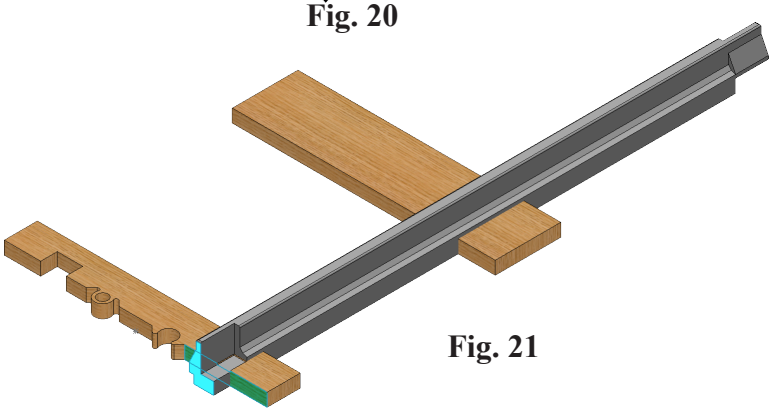


Fig. 21

F. Mirror1 Rail Right Plane.

Step 1. **Ctrl click Right Plane** and **Rail** component in the Feature Manager to select plane and component, **Fig. 22**.

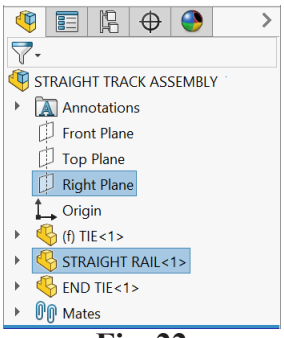


Fig. 22

Step 2. Click **Mirror Components** Mirror Components in the **Linear Component Pattern flyout** Linear Component Pattern on the Features toolbar.

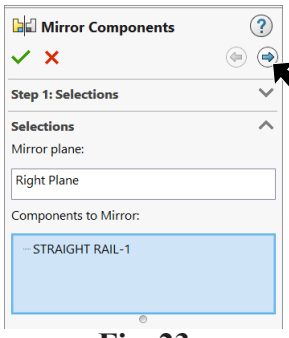


Fig. 23

Step 3. In the Mirror Property Manager:
Step 1: Selections
all were preselected
click **Next** , **Fig. 23**

Step 4. Still in Mirror Property Manager:
Step 2: Set Orientation
under Mirror Type, **Fig. 24**
select **Center of bounding box**
under Orient Components
Rail was preselected
select **X-mirrored**, **Y-mirrored**
click OK .

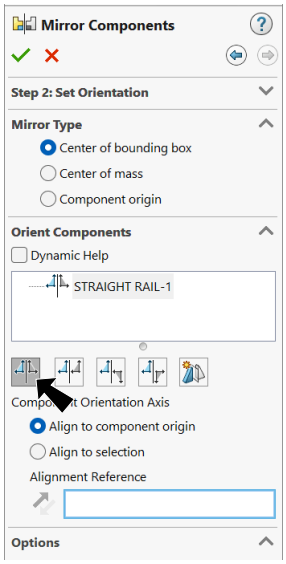


Fig. 24

Step 5. Save (**Ctrl-S**).

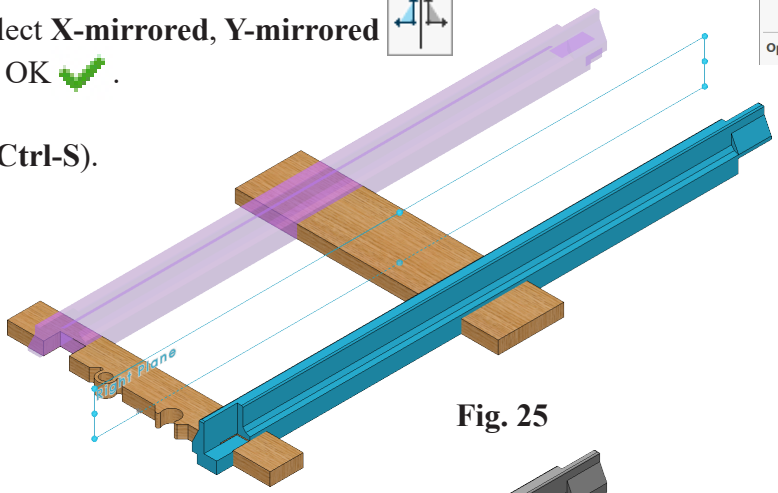


Fig. 25

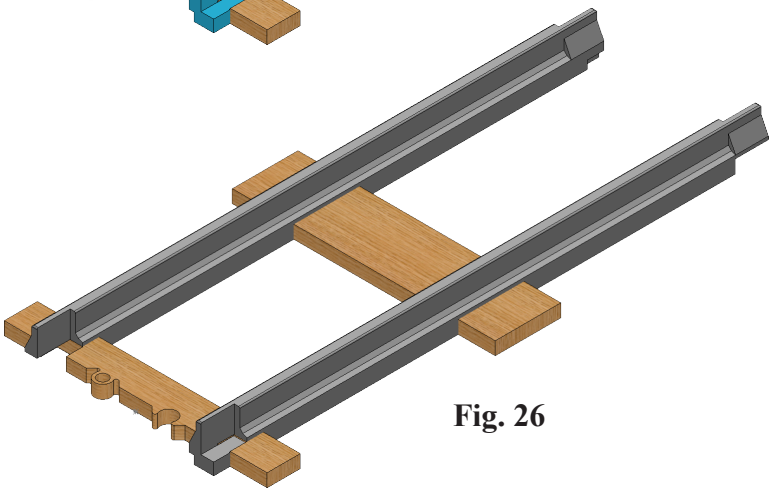


Fig. 26

G. Mirror2 End Tie Front Plane.

Step 1. **Ctrl click Front Plane** and **End Tie** in the Feature Manager to select plane and component, **Fig. 27**.

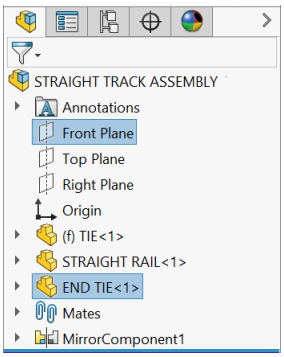


Fig. 27

Step 2. Click **Mirror Components** Mirror Components in the **Linear Component Pattern flyout** Linear Component Pattern on the Features toolbar.

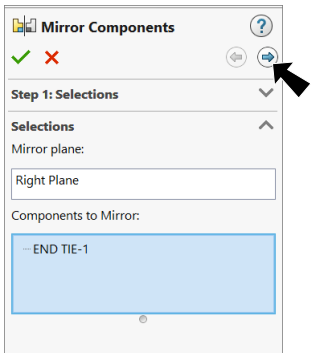


Fig. 28

Step 3. In the Mirror Property Manager:

Step 1: Selections

all were preselected

click **Next** , **Fig. 28**

Step 4. Still in Mirror Property Manager:

Step 2: Set Orientation

under Mirror Type, **Fig. 29**

select **Center of bounding box**

under Orient Components

End Rail was preselected

select **X-mirrored and flipped**, **Y-mirrored**

click OK .

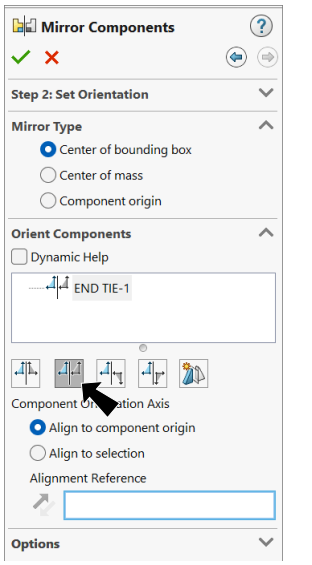


Fig. 29

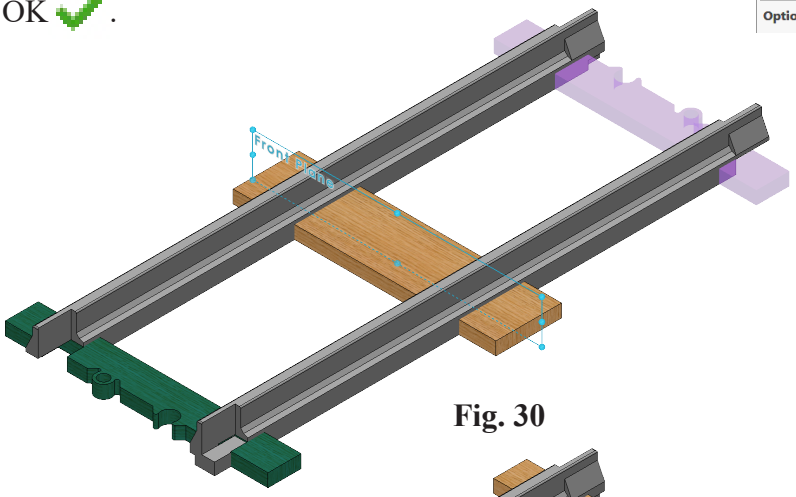


Fig. 30

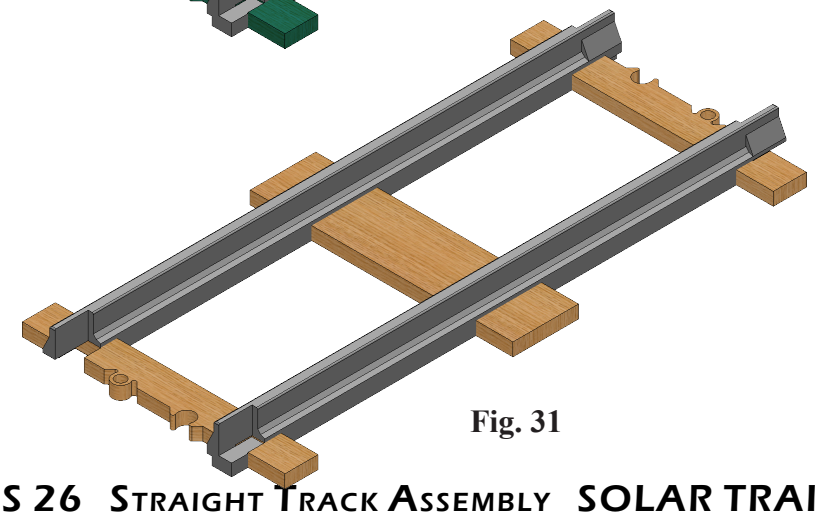
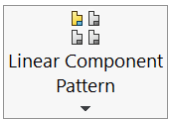


Fig. 31

H. Tie Linear Component Pattern.

Step 1. Click **Linear Component Pattern** 

on the Assembly toolbar.

Step 2. In the Linear Pattern Property Manager set:

under Components to Pattern, **Fig. 32**

click **Tie**, **Fig. 33**

under Direction 1

click **edge of driver's side Rail towards rear**

Spacing **31.3**

Number of Instances **2**

under Direction 2

click **edge of passenger's Rail towards front**

Spacing **31.3**

Number of Instances **2**

click OK .

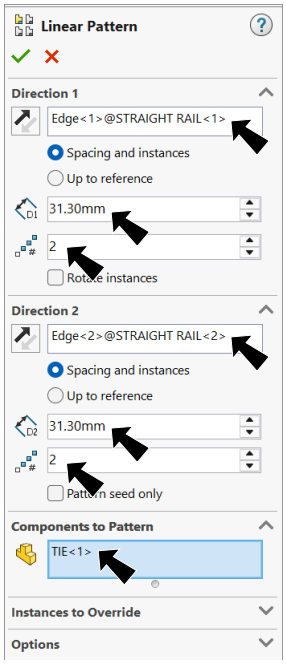


Fig. 32

Step 3. Save (**Ctrl-S**).

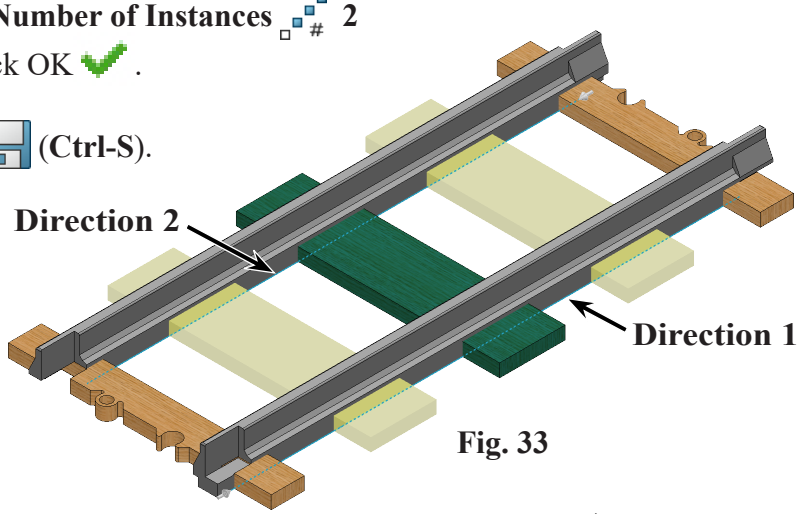


Fig. 33

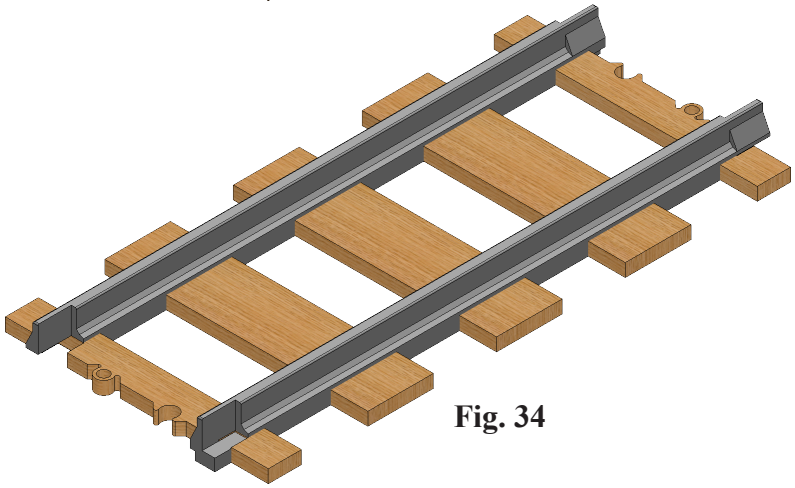


Fig. 34