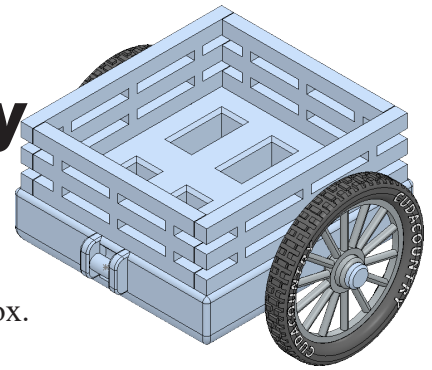


# Bike and Trailer

## Trailer Assembly





### A. Insert Bed and Wheel Assembly.

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

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

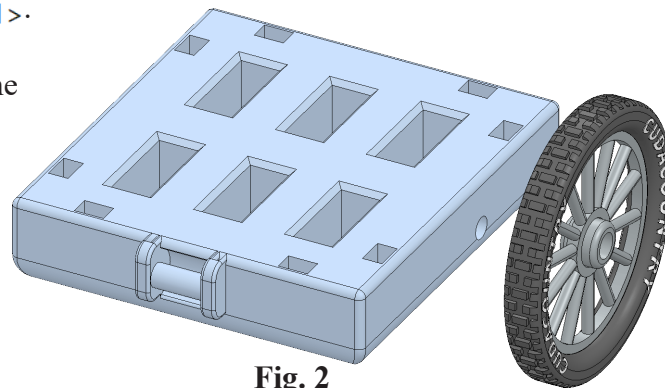
Step 3. In the Begin Assembly Property Manager set:

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

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

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

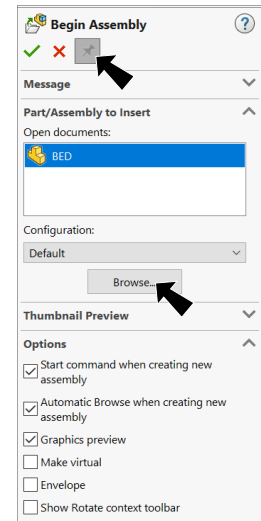
Step 5. Select your **WHEEL ASSEMBLY** file and click Open.



**Fig. 2**

Step 6. Click approximately where Wheel Assembly is positioned in **Fig. 2**.

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



**Fig. 1**

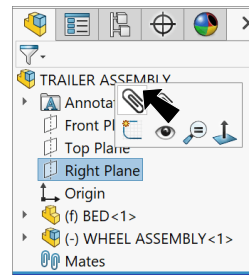
### B. Save as "TRAILER ASSEMBLY".

Step 1. Click File Menu > Save As.


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

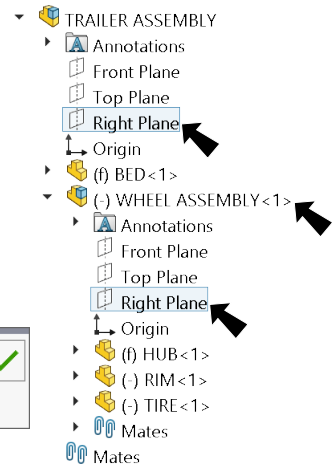
### C. Mate: Wheel Assembly.

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




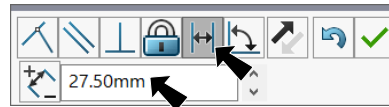
**Fig. 3**

Step 2. Expand the flyout Feature Manager design tree, expand **WHEEL ASSEMBLY** and click **Right Plane** , **Fig. 4**.





**Fig. 4**

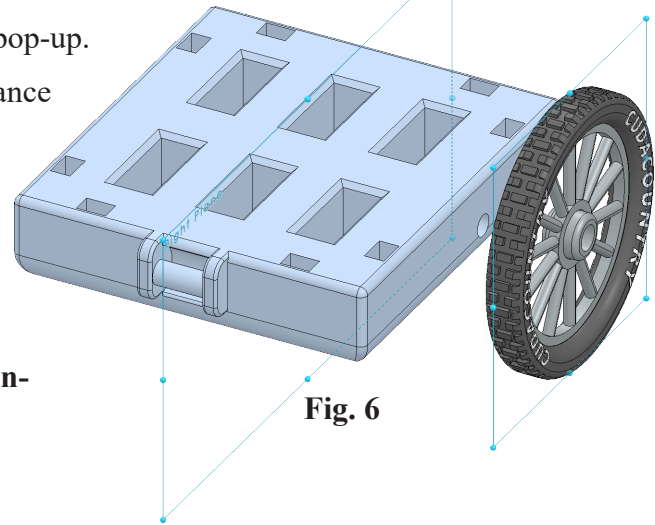
Step 3. Click **Distance**  in Mate pop-up, **Fig. 5**. Set distance **27.5** and press ENTER. The Rail should be outside of Bed, **Fig. 6**. If positioned in opposite direction,



**Fig. 5**

click **Flip Dimension**  in the Mate pop-up. Click Add/Finish Mate  to add Distance mate.

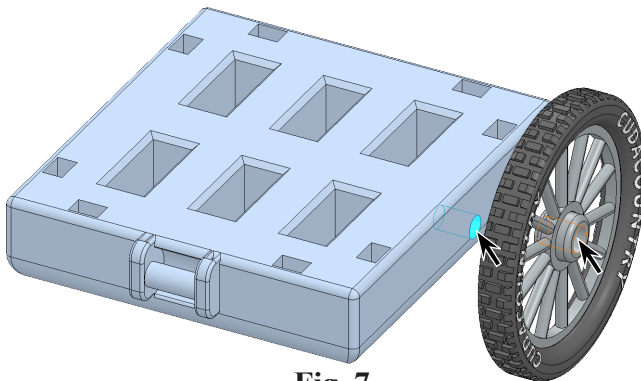
Step 4. Click **cylindrical face of Axle hole in Bed** and a **cylindrical face of Hub**, **Fig. 7**.



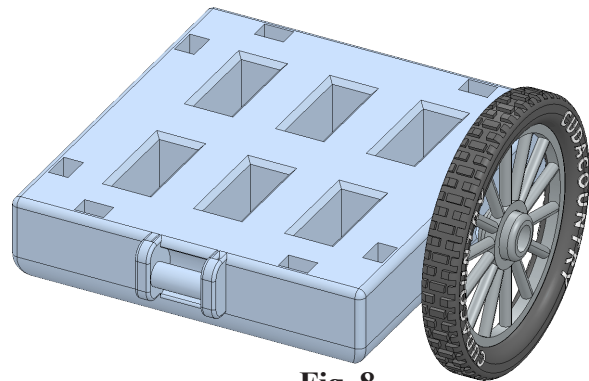
**Fig. 6**

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

Step 6. Click OK  in the Property Manager.



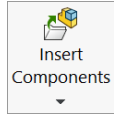
**Fig. 7**



**Fig. 8**

## D. Insert Axle.

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



Step 2. Select your **TRAILER AXLE** file.

Step 3. Place the Trailer Axle, **Fig. 9**.

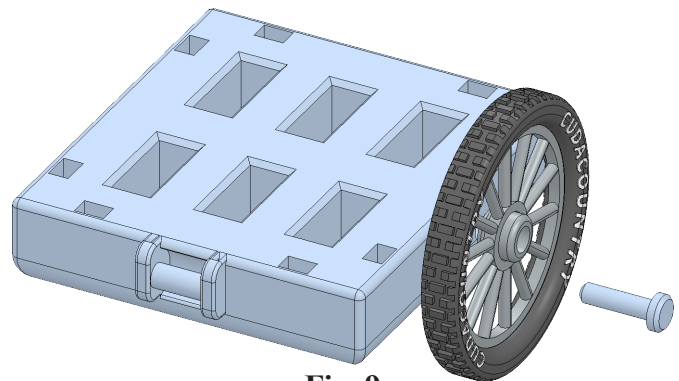


Fig. 9

## E. Mate: Axle.

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



Step 2. Click a **cylindrical face of Hub** and a **cylindrical face Axle**, **Fig. 10**.

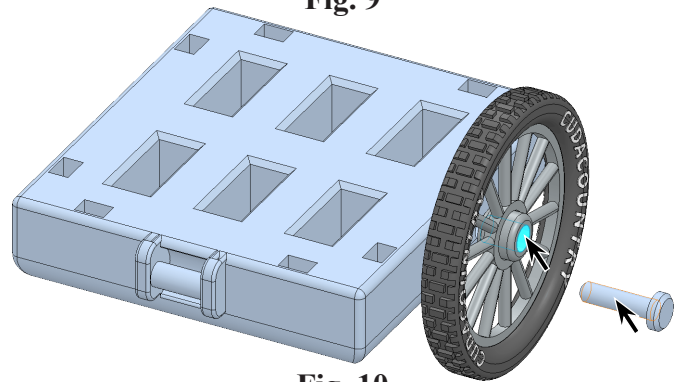


Fig. 10

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



Step 4. Click **side face of Hub** and **hide cylindrical side face of Axle**, click **inside face of flat boss on Axle**, **Fig. 11**. To hide face, hover cursor over face and press **Alt** key.

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



Step 6. Click **OK** in the Property Manager.

Step 7. Save  (Ctrl-S).

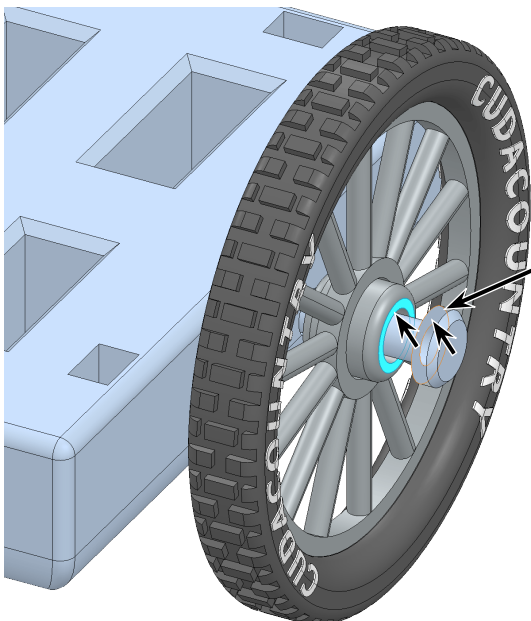


Fig. 11

Hide  
outside face  
Alt key

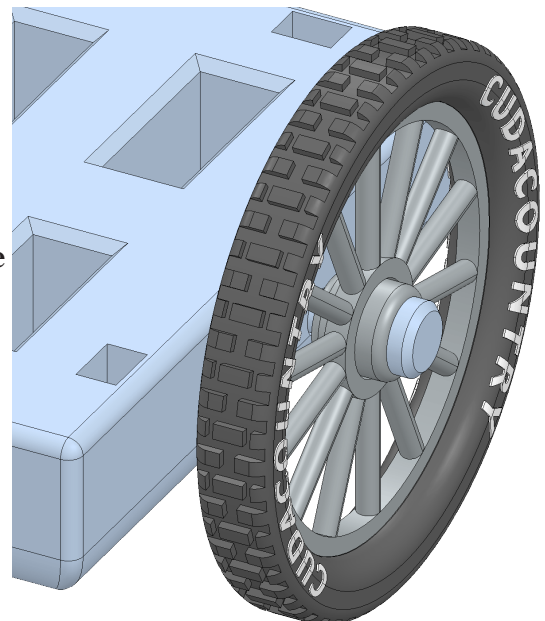


Fig. 12

## F. Insert Rear Rail.

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

Step 2. Click **REAR RAIL** file and click Open from the Open dialog box.

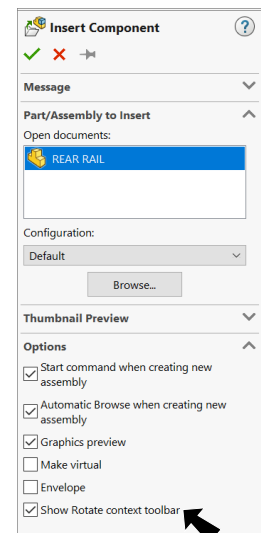
Step 3. In the Insert Component Manager set:  
check **Show Rotate content toolbar**, **Fig. 13**

click **Rotate Component about Y**  in

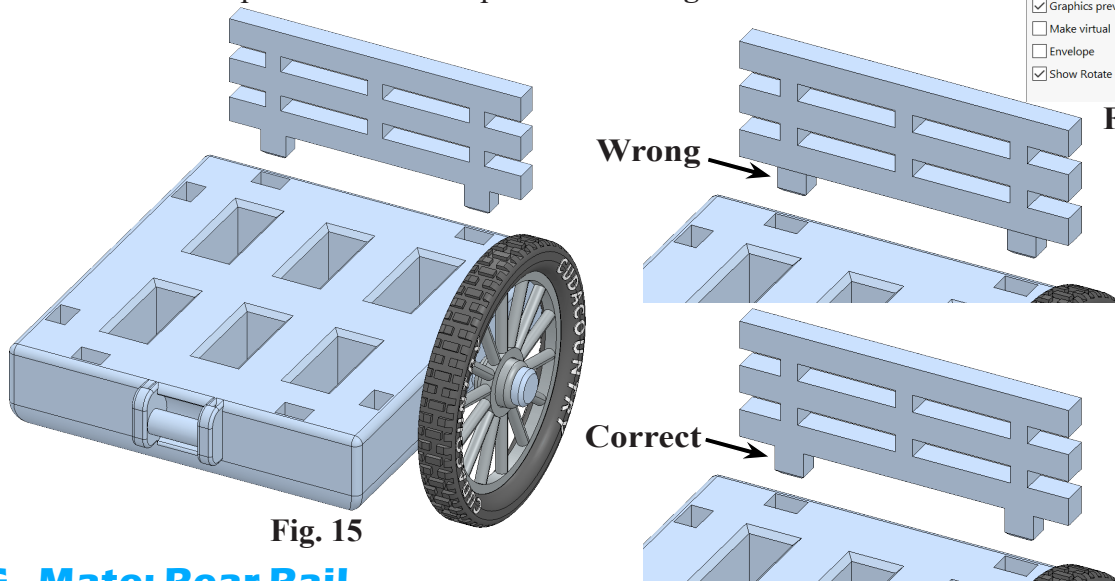
the Rotate content toolbar to rotate 90°, **Fig. 14**  
click to place Rear Rail as positioned in **Fig. 15**.



**Fig. 14**






**Fig. 13**



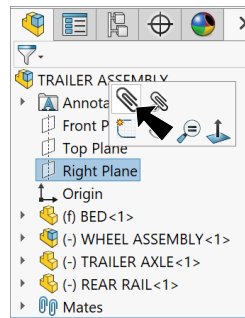
**Fig. 15**

## G. Mate: Rear Rail.

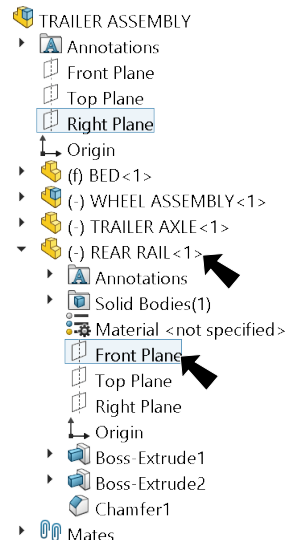
Step 1. Click **Right Plane**  in the Feature Manager and **Mate**  on the context toolbar, **Fig. 16**.

Step 2. Expand the flyout Feature Manager design tree, expand **REAR RAIL** and click **FRONT Plane** , **Fig. 17**.

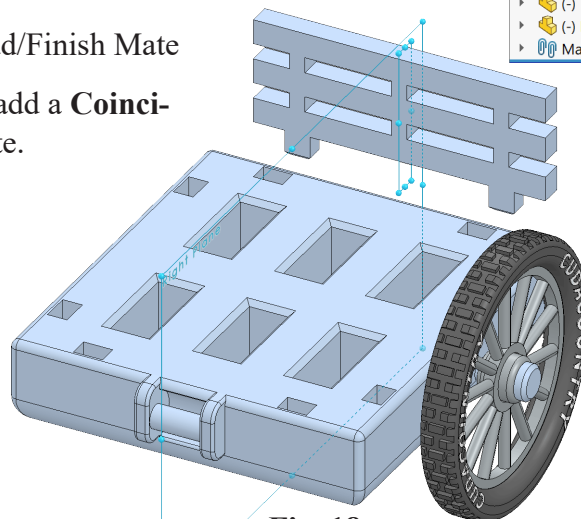
Step 3. Click Add/Finish Mate  to add a **Coincident** mate.



**Fig. 16**

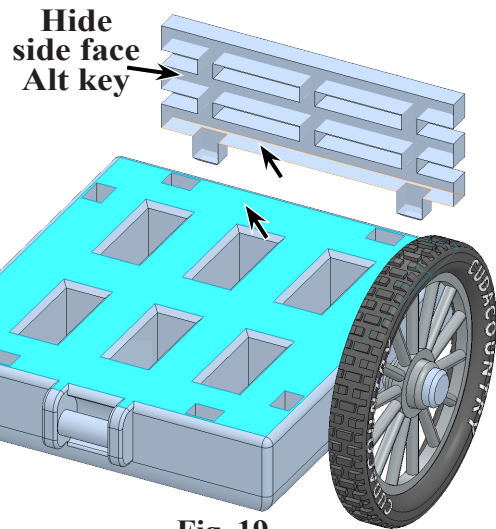


**Fig. 17**





**Fig. 18**

Step 4. Click **top face of Bed** and **hide side face of Rail**, click **bottom face of Rail** (not stake), **Fig. 19**. To hide face, hover cursor over face and press **Alt key**.

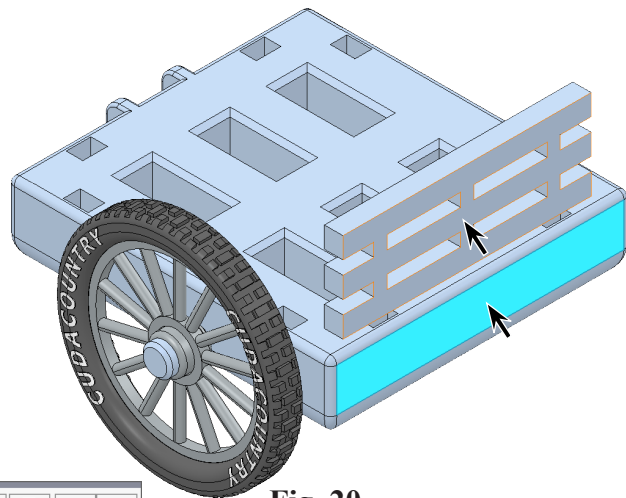


**Fig. 19**




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

Step 6. Rotate view to **view rear**, **Fig. 20**. To rotate view, click **Isometric**  on the Standard Views toolbar (**Ctrl-7**), then in bottom left corner of graphics area **Shift click the Y axis** of the Reference Triad  **one time**.

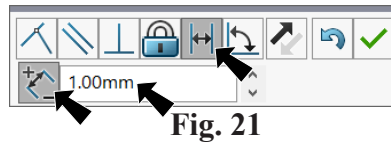
Step 7. Click **rear side face of Bed** and **side face of Rear Rail**, **Fig. 20**.



**Fig. 20**

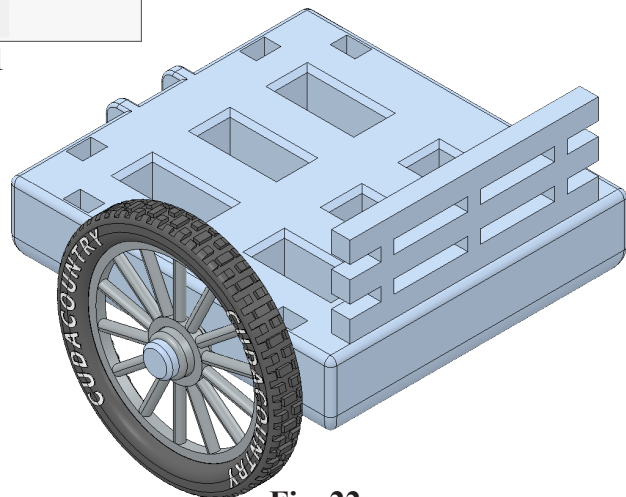
Step 8. Click **Distance**  in Mate pop-up, **Fig. 21**. Set **distance 1** and press **ENTER**. The Rail should be 1mm from rear side of Bed, **Fig. 22**. If positioned in opposite direction, click **Flip Dimension**  in the Mate pop-up. Click Add/Finish Mate  to add Distance mate.

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



**Fig. 21**

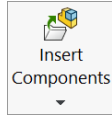
Step 10. Save  (**Ctrl-S**).



**Fig. 22**

## H. Insert Side Rail.

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



Step 2. Click **SIDE RAIL** file and click Open from the Open dialog box.

Step 3. Click to place Side Rail as positioned in Fig. 23.

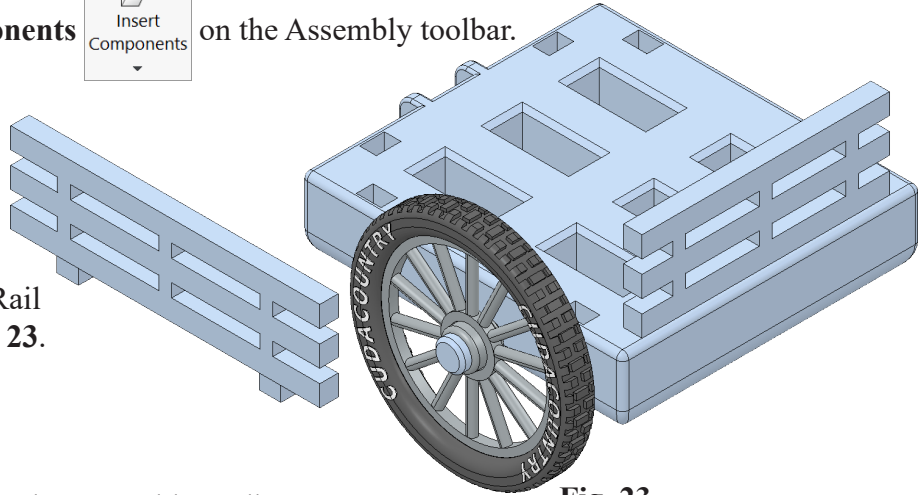


Fig. 23

## I. Mate: Side Rail.

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



Step 2. Click **top face of Bed** and **hide side face of Side Rail**, click **bottom face of Side Rail**. To hide face, hover cursor over face and press **Alt** key, Fig. 24.

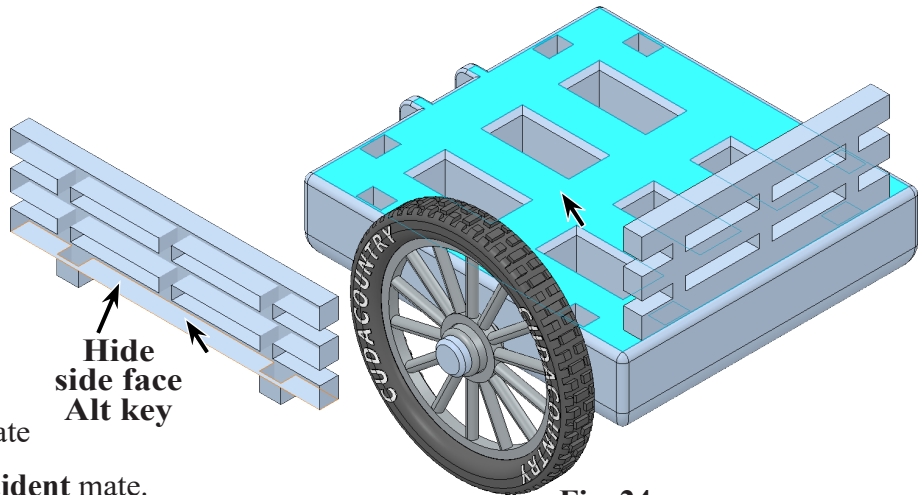


Fig. 24

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



Step 4. Click **side face of Bed** and **side face of Side Rail**, Fig. 25.

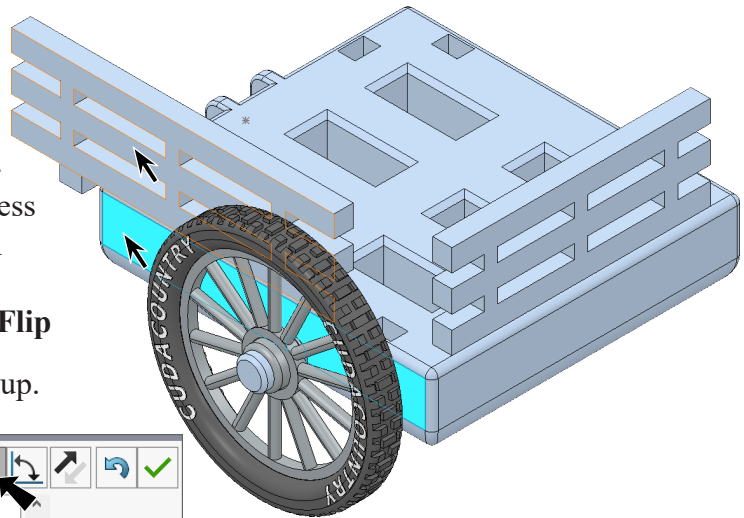



Fig. 25

Step 5. Click **Distance**  in Mate pop-up, Fig. 26. Set **distance 1** and press ENTER. The Rail should be 1mm from side of Bed, Fig. 27. If positioned in opposite direction, click **Flip**

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

Click Add/Fin-


ish Mate  to add Distance mate.



Fig. 26

Step 6. Click **end face of Side Rail** and **rear face of Rear Rail**, Fig. 27.

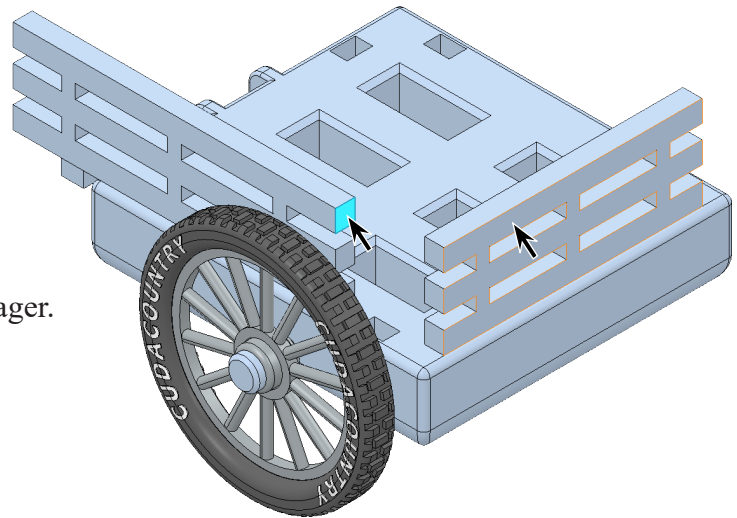



Fig. 27

Step 7. Click Add/Finish Mate  to add a **Coincident** mate.

Step 8. Click OK  in the Property Manager.

Step 9. Save  (Ctrl-S).

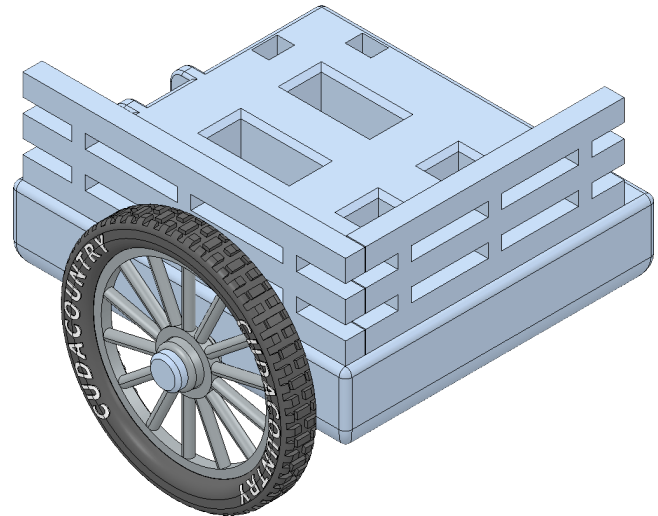
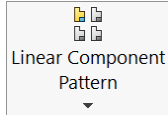


Fig. 28

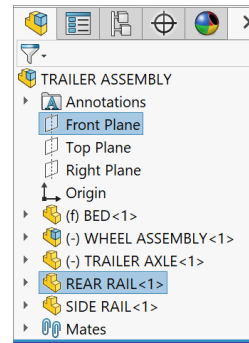
## J. Mirror Components 1.

Step 1. **Ctrl click Front Plane**  and **Rear Rail**  in the Feature Manager to select both, **Fig. 29**.

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



on the Features toolbar.



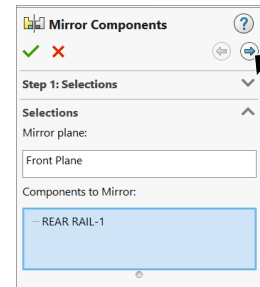
**Fig. 29**

Step 3. In the Mirror Property Manager:

Step 1: Selections

all were preselected

click **Next** , **Fig. 30**

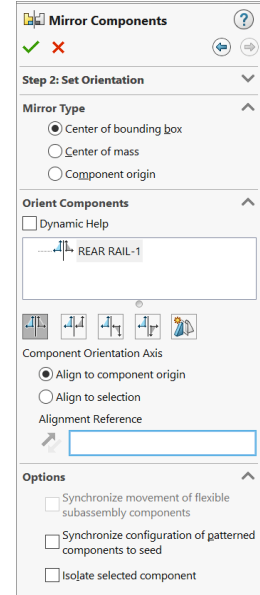


**Fig. 30**

Step 4. Still in Mirror Property Manager:

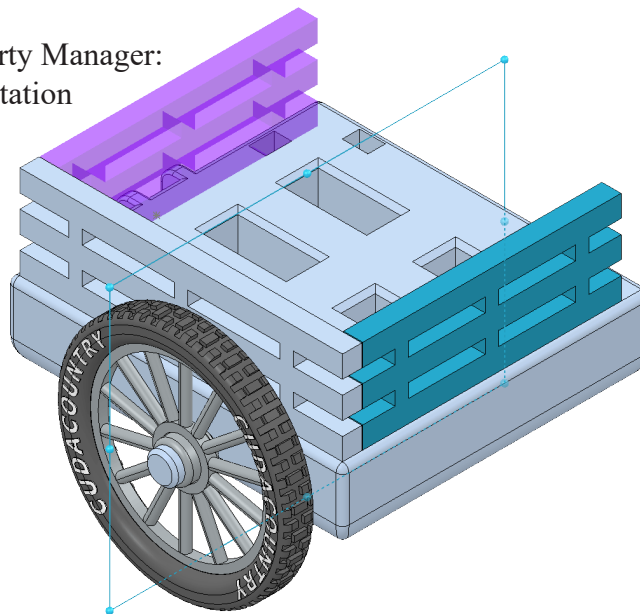
Step 2: Set Orientation

click **OK** .



**Fig. 31**

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

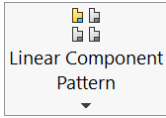


**Fig. 32**

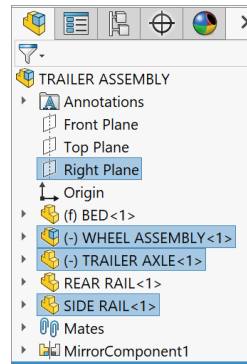
## K. Mirror Components2.

Step 1. **Ctrl click Right Plane**, **Wheel Assembly Axle** and **Side Rail** in the Feature Manager to select all, **Fig. 33**.

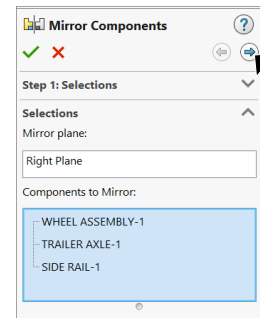
Step 2. Click **Mirror Components** in the **Linear Component Pattern** flyout



on the Features toolbar.



**Fig. 33**



**Fig. 34**

Step 3. In the Mirror Property Manager:

Step 1: Selections

all were preselected

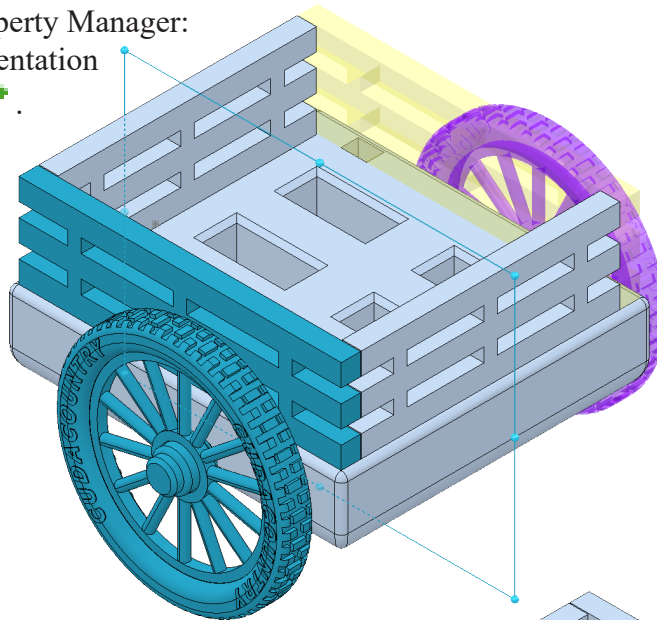
click **Next**, **Fig. 34**

Step 4. Still in Mirror Property Manager:

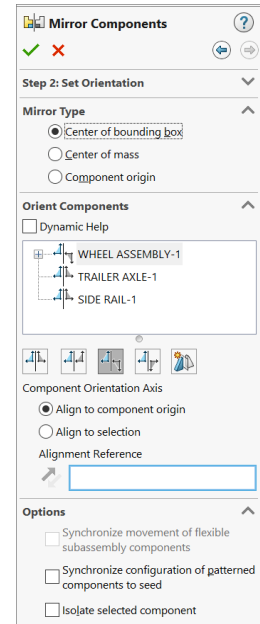
Step 2: Set Orientation

click **OK**.

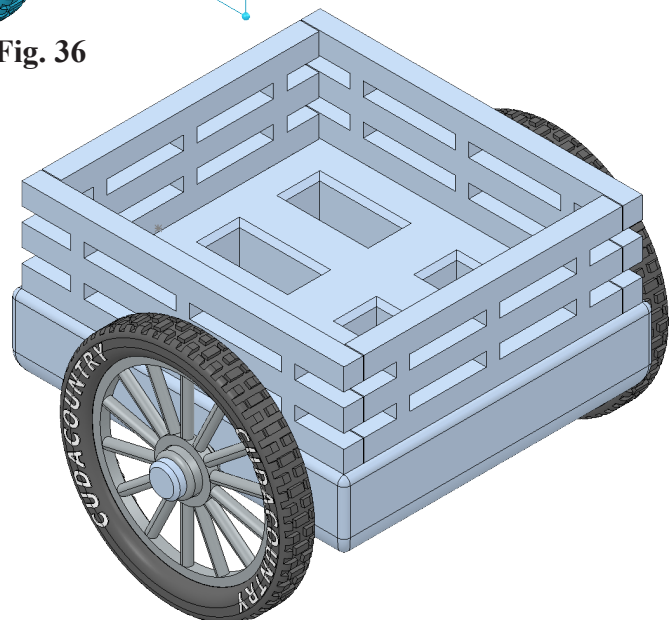
Step 5. Save **(Ctrl-S)**.



**Fig. 36**



**Fig. 35**



**Fig. 37**

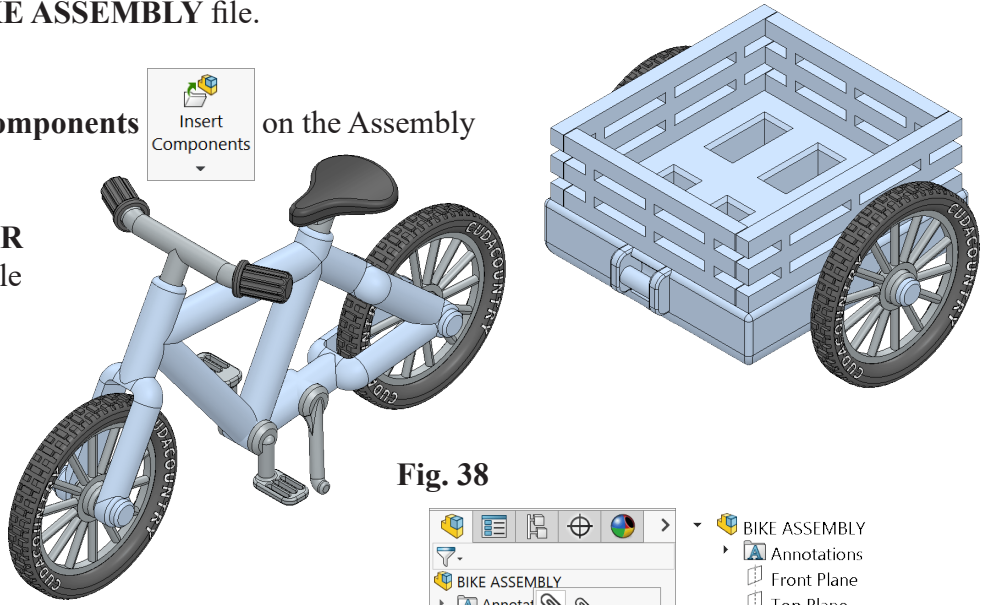
## L. Open Bike Assembly File and Insert Trailer Assembly.

Step 1. Open your **BIKE ASSEMBLY** file.

Step 2. Click **Insert Components**  on the Assembly toolbar.



Step 3. Click **TRAILER ASSEMBLY** file and click Open from the Open dialog box.


Step 4. Click to place Trailer as positioned in **Fig. 38**.



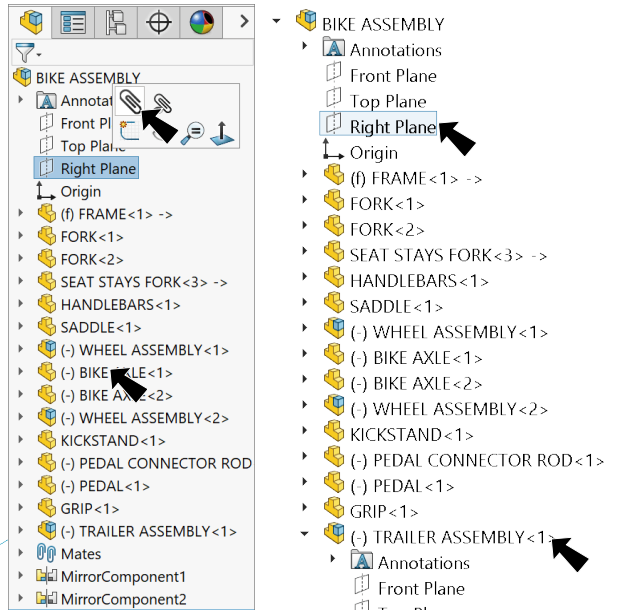
**Fig. 38**

## M. Mate: Trailer Assembly.

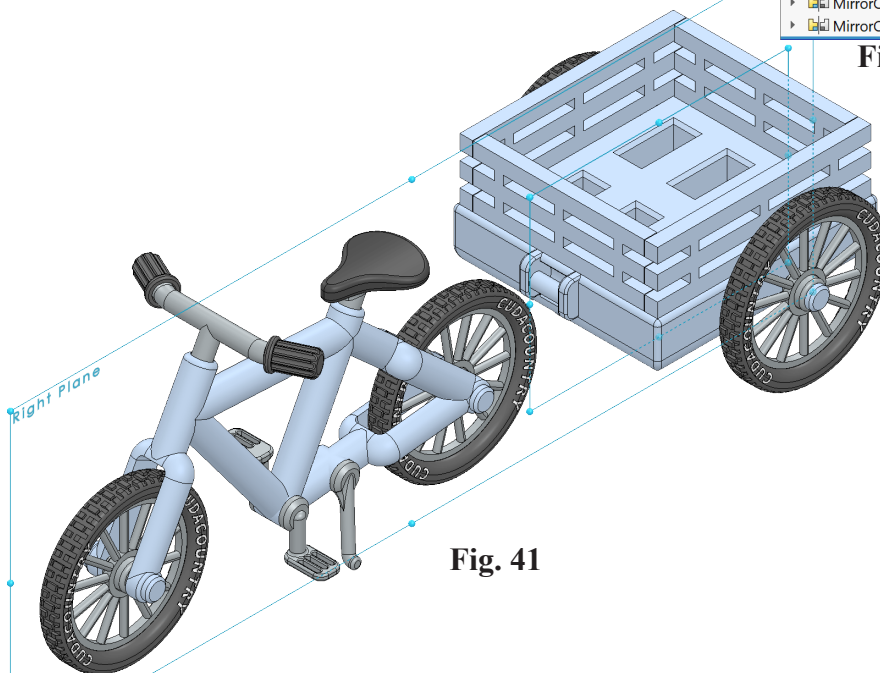
Step 1. Click **Right Plane**  in the Feature Manager and **Mate**  on the context toolbar, **Fig. 39**.

Step 2. Expand the flyout Feature Manager design tree, expand **TRAILER ASSEMBLY** and click **Right Plane** , **Fig. 40**.

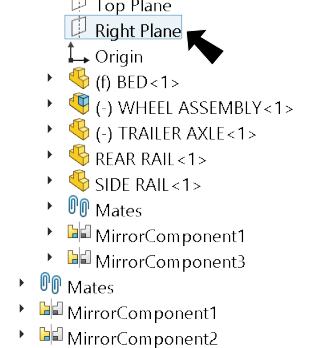
Step 3. Click Add/Finish Mate  to add a **Coincident** mate.



**Fig. 39**








**Fig. 41**



**Fig. 40**

Step 4. Click **Right**  on the Standard Views toolbar. (Ctrl-4)

Step 5. Expand the flyout Feature Manager design tree and **Top Plane** , expand **TRAILER ASSEMBLY** and click **Top Plane** , **Fig. 42**.

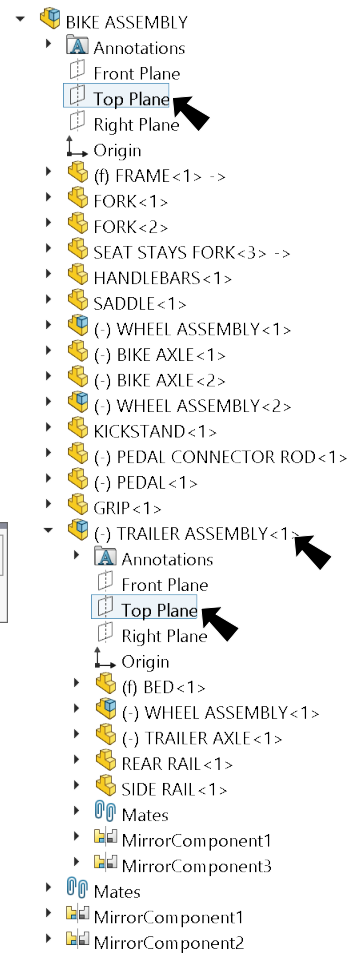
Step 6. Click **Distance**  in Mate pop-up, **Fig. 43**. Set distance **30.61** and press ENTER. The **Trailer Wheels** should be aligned with Bike Wheels, **Fig. 44**. If positioned in opposite direction, click **Flip Dimension**  in the Mate pop-up. Click Add/Finish Mate  to add Distance mate.

Step 7. Click OK  in the Property Manager.

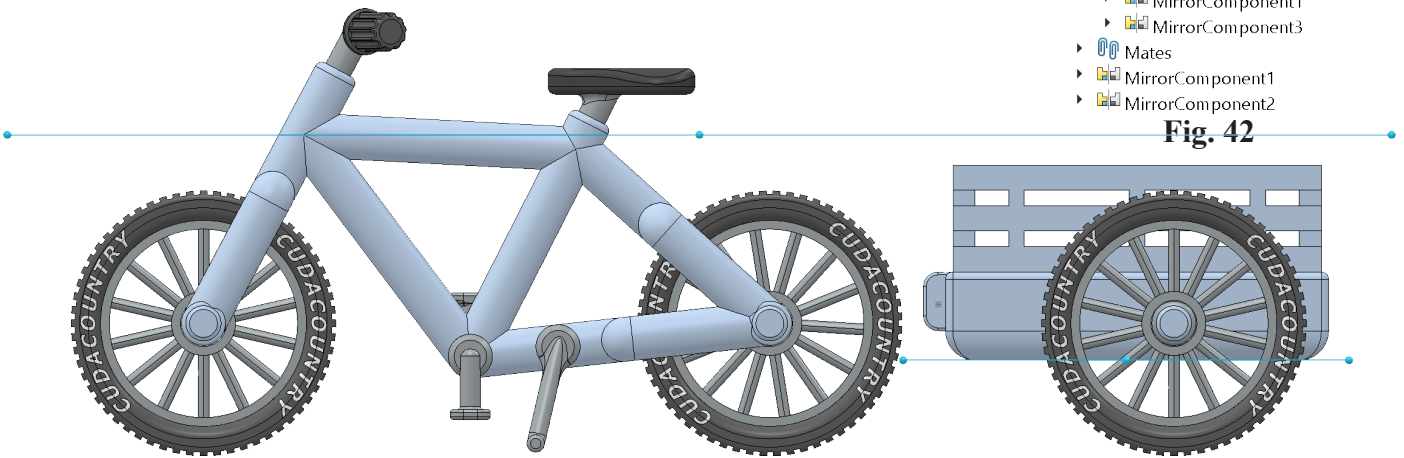
Step 8. Save  (Ctrl-S).



**Fig. 43**



**Fig. 42**



**Fig. 44**