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The Clampanion

Instructions for Use and Construction

Attaching the Clampanion to the Armrest

1. Place the Clampanion onto the armrest (attach it to the side opposite to the mobile hand) with the straps hanging off each side

2. Secure the Clampanion to the armrest by snapping the buckles together
 - a. Note: the first time the Clampanion is used, the straps will need to be adjusted to fit the wheelchair armrests.



Figure 1



Figure 2

Securing a Container

1. Place any container with a diameter $\frac{3}{4}$ " to 5" onto the Clampanion's platform against the stationary side.



Figure 3

2. Turn the crank clockwise until the mobile claw is firmly pressing against the container



Figure 4

3. Remove the lid of the container



Figure 5

Removing a Container

1. Turn the crank counterclockwise until the container can be easily removed



Figure 6

2. Remove the container



Figure 7

Removing the Device from the Armrest

1. Undo the buckles by pressing in on the tabs



Figure 8

2. Remove the Clampanion from the armrest



Figure 9

Maintenance Instructions

Perform when there is difficulty turning the crank

1. Apply a small amount of WD40 to the threaded rod near the outer end of the threaded insert
2. Turn the crank to completely close and then completely open the clamp. Apply additional dots of WD40 as needed

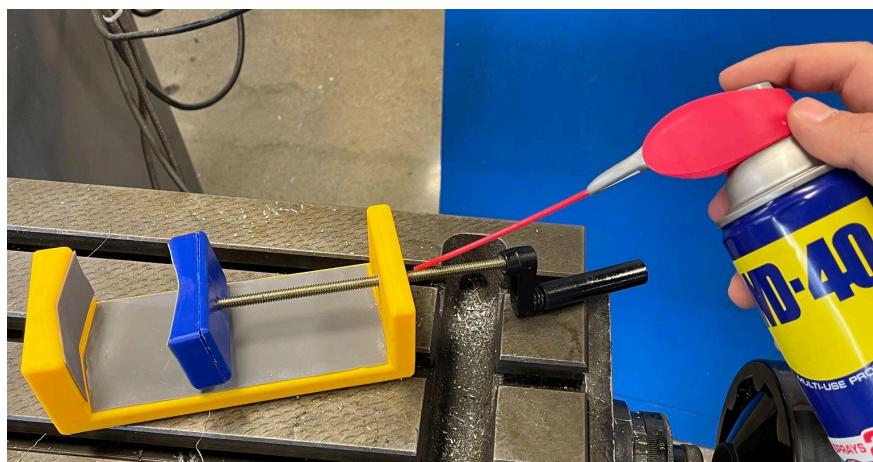


Figure 10: WD40 in use

Cleaning Instructions

Tested Cleaning Products include:

1. Oxivir® Tb Wipes (Active Ingredient: Activated Hydrogen Peroxide)
2. Metrex CaviWipes

Instructions for Construction

Necessary Tools

1. 3D Printer
2. Horizontal Band Saw
3. Scissors

Necessary Materials

1. $\frac{1}{4}$ "-20 Threaded Rod
2. $\frac{1}{4}$ "-20 Threaded Insert
3. PLA 3D printer Filament
4. Two Part Epoxy
5. Hot Glue
6. A3 Silicone sheets
7. Crank
8. PVC plastic rod ($\frac{5}{8}$ " diameter)

Instructions

1. 3D print the base and the mobile "V" parts (facade and "V")



Figure 11: base part

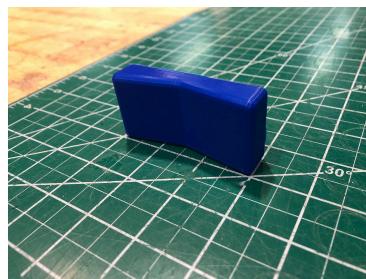


Figure 12: Mobile V

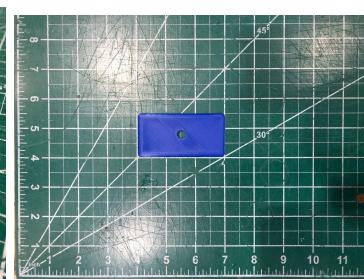


Figure 13: Mobile Facade

2. Cut the threaded rod to 6.5" using a horizontal band saw

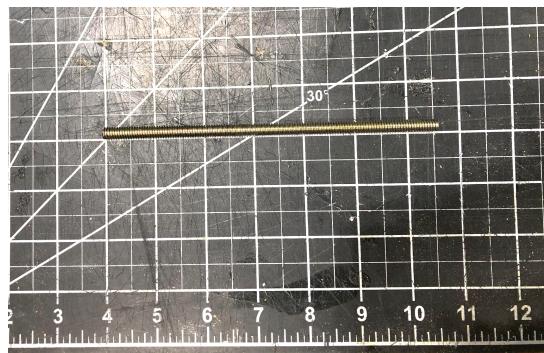


Figure 14: 6.5" threaded rod

3. Use hot glue and superglue to glue the threaded insert into the base. Allow for it to completely dry and harden (Check the instructions on the epoxy being used)



Figure 15: Attaching threaded insert

4. Cut the sheets of silicone using scissors to the following sizes: two 1.25" by 2.75" pieces for the V shapes; one 2.75" by 6.00" piece for the base.

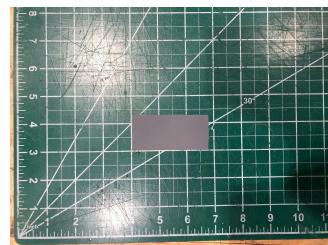


Figure 16: trimmed silicon sheets

5. Use super glue to attach the sheets of silicone to the faces of the "V" for both the mobile and base parts.

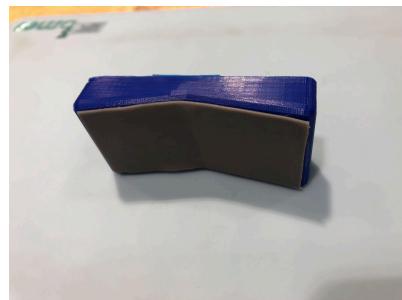


Figure 17: Mobile V with silicone

6. Insert the threaded rod into the threaded insert about halfway into the Clampanion. Put the facade on the inner side of the threaded rod and rest it towards the side of the base. Attach the 1" washer to the inner end of the threaded rod using two part epoxy.

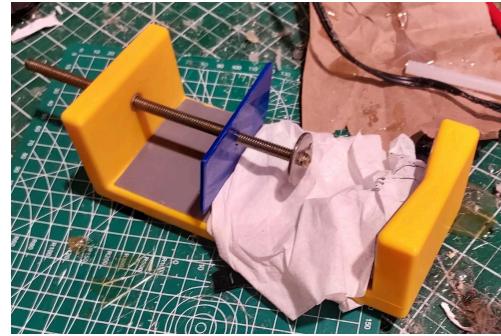


Figure 18: Facade and Washer on Threaded Rod

7. Put the flat part of the mobile “V” around the washer and use epoxy / hot glue to glue the facade onto the “V” part, completing the mobile “V”. Ensure that you are not gluing the part directly to the threaded rod. Close the “V” part of the mobile “V”.



Figure 19: V parts glued to the facade

8. Drill a $\frac{1}{8}$ " (dimension) diameter hole **through** the PVC, then drill a $\frac{3}{8}$ " diameter hole 1.7" into the part.
9. Unscrew the screw from the crank handle and attach the new handle (the PVC part) using the screw. Spray paint the handle if necessary.



Figure 20: The modified crank

10. Attach the crank to the outer end of the threaded rod using two part epoxy. The final product should look like figure 21.



Figure 21: Final Product