

Small Trebuchet Plans

I. Materials list

<i>A.</i>	<i>$\frac{3}{4}$ X1½ X5 Base end plate</i>	<i>(2)</i>
<i>B.</i>	<i>$\frac{3}{4}$ X1½ X18 Base center plate</i>	<i>(1)</i>
<i>C.</i>	<i>1½ X3½ X15½ Base block</i>	<i>(1)</i>
<i>D.</i>	<i>$\frac{3}{4}$ X1½ X15½ Base side plate</i>	<i>(2)</i>
<i>E.</i>	<i>$\frac{3}{4}$ X1½ X13¼ Straight upright</i>	<i>(2)</i>
<i>F.</i>	<i>$\frac{3}{4}$ X1½ X13¼ Diagonal brace</i>	<i>(4)</i>
<i>G.</i>	<i>$\frac{3}{4}$ X3½ X5 Top bracket</i>	<i>(2)</i>
<i>H.</i>	<i>$\frac{3}{4}$ X1½ X7½ Knee brace</i>	<i>(2)</i>
<i>I.</i>	<i>$\frac{3}{4}$ X1½ X20 Swing arm</i>	<i>(1)</i>
<i>J.</i>	<i>Eye screws</i>	<i>(4)</i>
<i>K.</i>	<i>"L" hook</i>	<i>(1)</i>
<i>L.</i>	<i>$\frac{1}{4}$ X7½ All-thread rod</i>	<i>(1)</i>
<i>M.</i>	<i>$\frac{1}{4}$ Nut</i>	<i>(8)</i>
<i>N.</i>	<i>$\frac{1}{4}$ Flat washer</i>	<i>(6)</i>
<i>O.</i>	<i>$\frac{1}{4}$ Lock washer</i>	<i>(2)</i>
<i>P.</i>	<i>#8X1¼ Flathead wood screw</i>	<i>(30)</i>
<i>Q.</i>	<i>Counterweight</i>	<i>(1)</i>
<i>R.</i>	<i>1/8 X1 ½ cotter pin</i>	<i>(1)</i>
<i>S.</i>	<i>36" nylon string</i>	<i>(1)</i>
<i>T.</i>	<i>6" square of denim</i>	<i>(1)</i>

II. The Machine

- A. Read and follow directions*
- B. Pay attention to safety*
- C. Involve the entire patrol*
- D. Have fun*

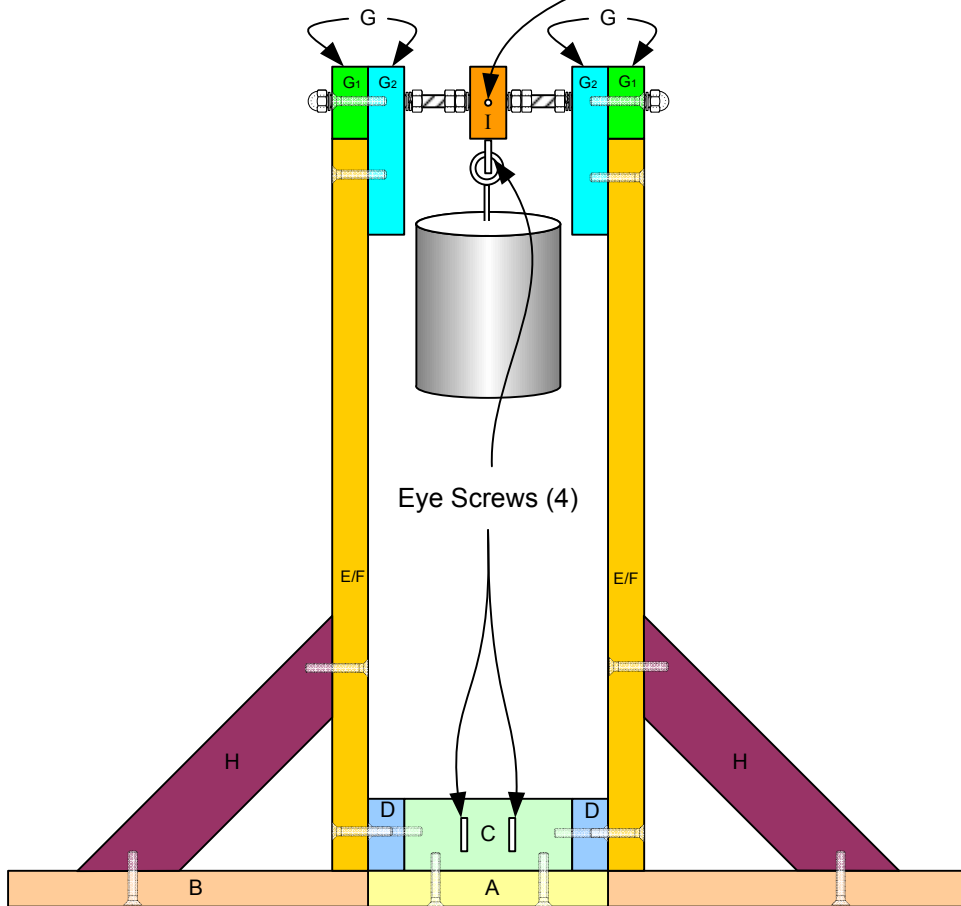
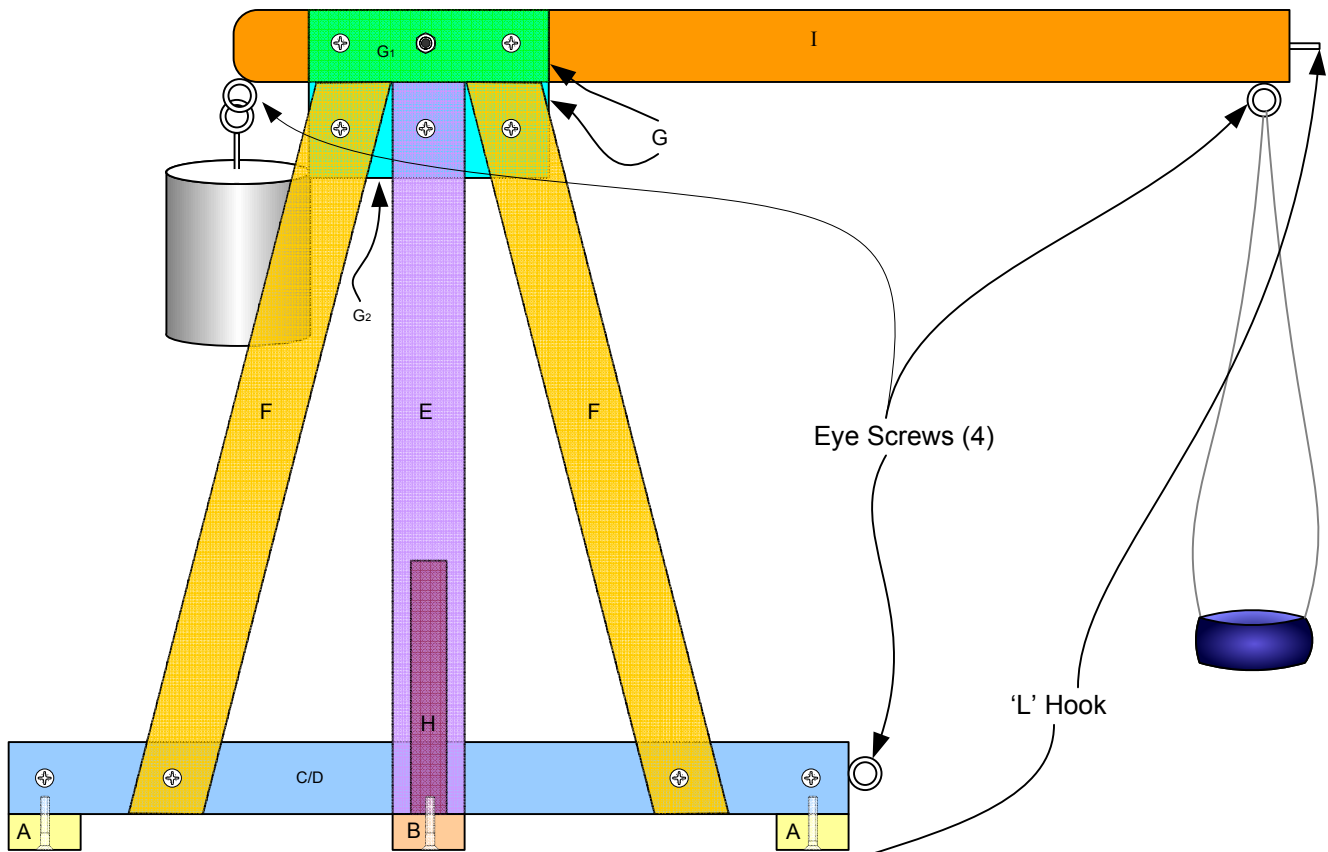
III. The Instructions

- A. Use the list above to make sure all materials needed are included.
- B. Place screw eyes and "L" hook in base block and swing arm in holes provided.
- C. Assemble base first by attaching the end blocks and center block using wood screws in holes provided. Make sure that all plates are centered on base block.
- D. Next attach side plates to complete base assembly.
- E. Attach one straight upright to base assembly.
- F. Attach knee brace to base center and upright. Pay close attention so that upright is square with base assembly.
- G. Attach top bracket to upright. Make sure that top bracket is centered and that flat side faces in.
- H. Attach diagonal braces to top bracket first then to bottom. Pay close attention to diagonal braces as they are drilled for each side. Pay attention to keep upright straight.
- I. Place the following items on the all-thread rod in the following order. Screw 3 nuts on the rod, then one flat washer leaving about 3" of rod exposed on same end you are working on. Place this assembly through hole in top bracket. Place a flat washer, lock washer, and nut on exposed threads. Do not tighten at this point.
- J. Using an assistant, hold upright and knee brace in place on base assembly and mark the position of the knee brace on upright. Remove from base assembly. Attach knee brace to upright at mark, then attach upright and knee brace to base assembly. Pay close attention to keep the upright square to base assembly.
- K. Place one flat washer on all-threaded rod. Place swing arm on all-thread making sure to properly orient eye screws to base assembly.
- L. Place the following items on all-thread in this order. First place one flat washer, screw 3 nuts, and place one flat washer on rod leaving about 3" of threads exposed.
- M. Follow steps "F" and "G" above. Place top bracket over all-threaded rod first making sure that the flat side is facing in.
- N. Create a pouch by folding the denim cloth in half. Cut the nylon string in half and attach each string to the pouch where the corners meet when folded. Attach the end of one string to the eye bolt on the long end of the swing arm. Tie a small bowline on the end of the other string.
- O. Attach the counterweight to the short end of the swing arm's eye bolt.

IV. The Firing

- A. Make sure trebuchet is in good working order.
- B. Position swing arm in loaded position.
- C. Install safety pin through eyes on base and eye on swing arm before releasing swing arm. Failure to follow this step will result in injury.
- D. Place projectile in pouch.
- E. Carefully lay out strings and pouch on base and hook the bowline loop on the 'L' hook. Make sure strings are not tangled and are tight with pouch lying as flat as possible.
- F. Make sure everyone is clear of swing arm, pouch travel area, and the front of the trebuchet.
- G. Pull release pin and watch the ensuing destruction.

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Base End Plate – 2 needed
3/4" x 1 1/2" x 5"



Base Center Plate – 1 needed
3/4" x 1 1/2" x 18"



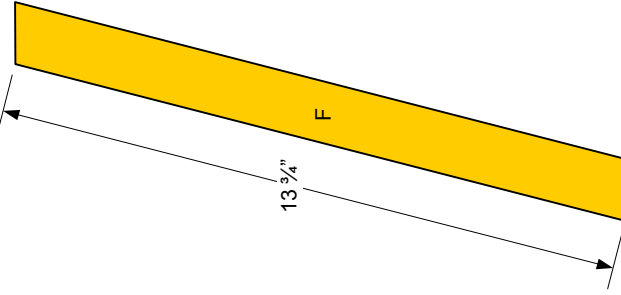
Base Block – 1 needed
1 1/2" x 3 1/2" x 15 1/2"



Base Side Plate – 2 needed
3/4" x 1 1/2" x 15 1/2"



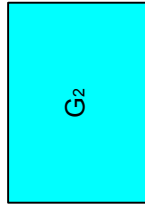
Straight Upright – 2 needed
3/4" x 1 1/2" x 13 3/4"



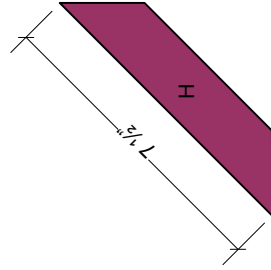
Diagonal Brace – 4 needed
3/4" x 1 1/2" x 13 3/4"



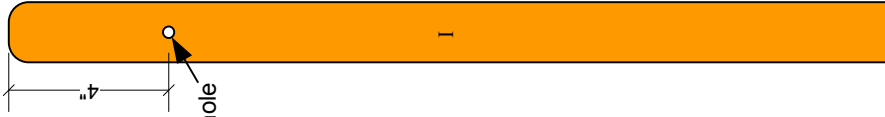
Top Bracket Plate – 2 needed
3/4" x 1 1/2" x 5"



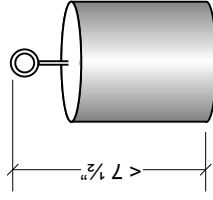
Top Bracket Face – 2 needed
3/4" x 3 1/2" x 5"



Knee Brace – 2 needed
3/4" x 1 1/2" x 7 1/2"



Swing Arm – 1 needed
3/4" x 1 1/2" x 20"



Counterweight – 1 needed
Approx. 2lbs. (overall height not to exceed 7.5")



2 18" nylon string and 6" square of denim (formed to make a pouch)

Additional Parts

- 8 ea. 1/4" Hex Nut
- 6 ea. 1/4" Flat Washer
- 2 ea. 1/4" Lock Washer
- 30 ea. #8 x 1/4" Flathead Wood Screw
- 1 ea. 1/8" x 1 1/2" Cotter Pin
- 1 ea. 1/4" x 7 1/2" All-Thread Rod
- 4 ea. Eye Screws
- 1 ea. 'L' Hook