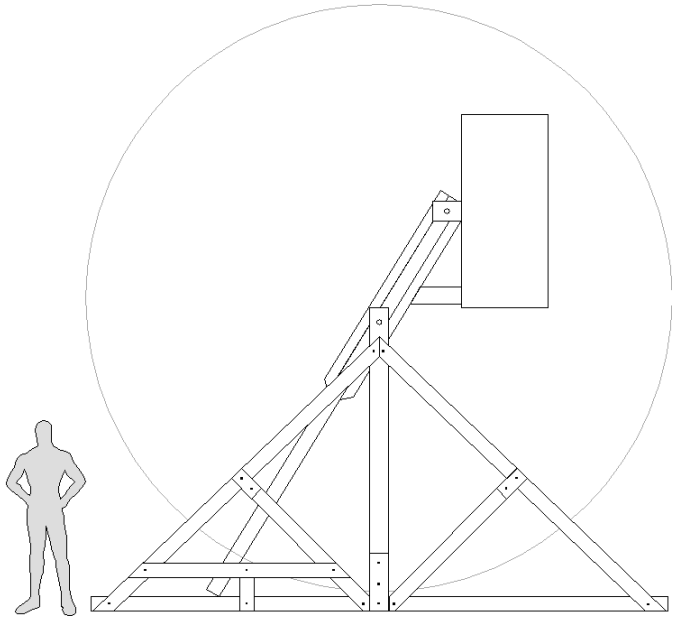
16’ Treb Project 1997



Basic Design Criteria: Ability to hurl 20 lbs. 300 feet.

With this one basic goal in mind, I have used the WinTreb program to calculate rough values for different arm, counterweight, and pivot values. (The charts below reflect some initial values when I was originally worried about having a max. CW of 500lbs, and tossing a 16# bowling ball) Based on these findings - it seems the ‘best’ pivot point on a 16’ arm is 5’. The following pages are my rough designs for a 16” treb, designed with a 720 lb. hinged counterweight (12 - 60 lb. bags of concrete mix). I am currently finishing my final design and parts list - construction is scheduled to begin 6/21/97. I will release the final plans somewhere around that time. Please feel free to email me at: pov@povprint.com with any questions or comments. Of course, all information contained in this document is for education purposes only. The author assumes NO responsibility whatsoever for the use or misuse of this material.

- Greg Elliot

3’ Pivot

counterweight	500.0	500.0	500.0	500.0	500.0
ammo weight	16.0	16.0	16.0	16.0	16.0
arm length	16.0	16.0	16.0	16.0	16.0
pivot	3.0	3.0	3.0	3.0	3.0
sling length	13.0	14.0	15.0	16.0	17.0
pivot height	13.0				
distance	174.0	205.0	227.0	239.0	240.0
height	89.0	85.0	80.0	73.0	63.0

5’ Pivot

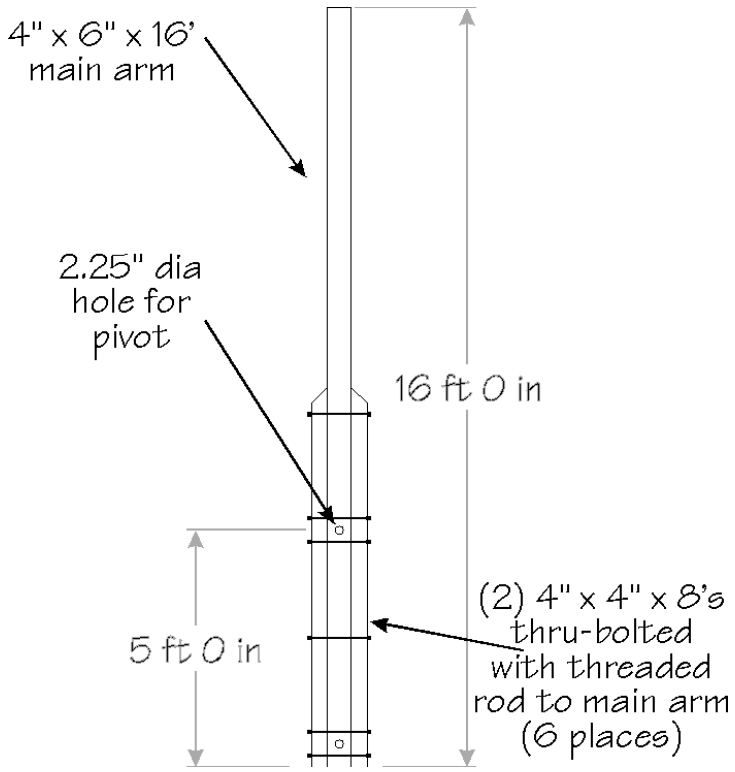
counterweight	500.0	500.0	500.0	500.0	500.0
ammo weight	16.0	16.0	16.0	16.0	16.0
ammo weight	16.0	16.0	16.0	16.0	16.0
pivot	5.0	5.0	5.0	5.0	5.0
sling length	8.5	9.0	10.0	11.0	11.5
pivot height	11.0				
distance	245.0	295.0	361.0	392.0	391.0
height	109.0	105.0	96.0	79.0	69.0

4’ Pivot

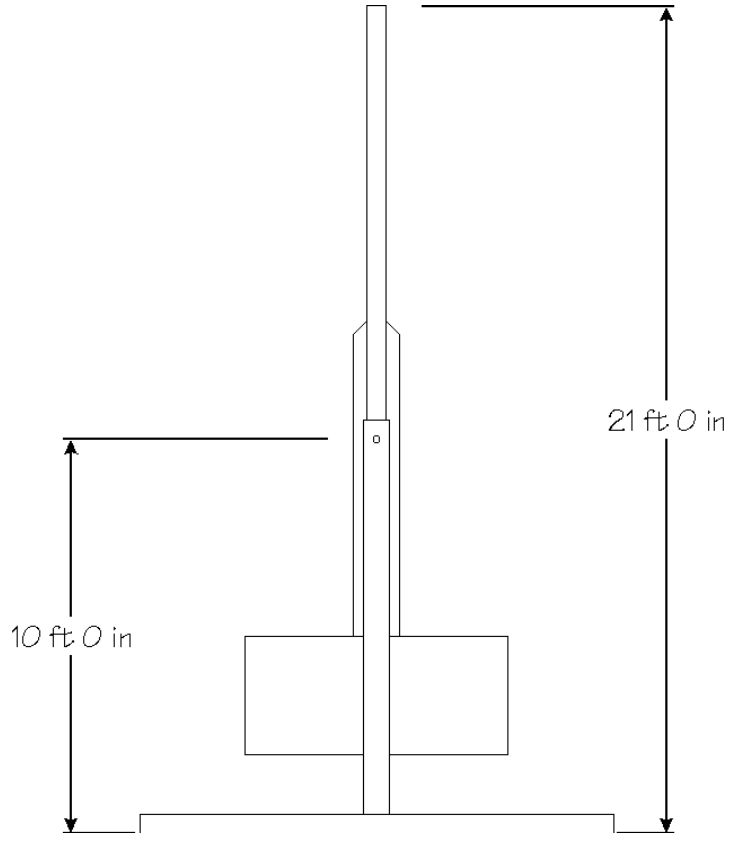
counterweight	500.0	500.0	500.0	500.0	500.0
ammo weight	16.0	16.0	16.0	16.0	16.0
ammo weight	16.0	16.0	16.0	16.0	16.0
pivot	4.0	4.0	4.0	4.0	4.0
sling length	10.0	11.0	12.0	13.0	14.0
pivot height	12.0				
distance	214.0	272.0	317.0	338.0	339.0
height	102.0	100.0	91.0	78.0	71.0

6’ Pivot

counterweight	500.0	500.0	500.0	500.0	500.0
ammo weight	16.0	16.0	16.0	16.0	16.0
arm length	16.0	16.0	16.0	16.0	16.0
pivot	6.0	6.0	6.0	6.0	6.0
sling length	8.0	9.0	10.0	11.0	12.0
pivot height	9.0				
distance	219.0	283.0	312.0	298.0	250.0
height	86.0	79.0	64.0	46.0	31.0



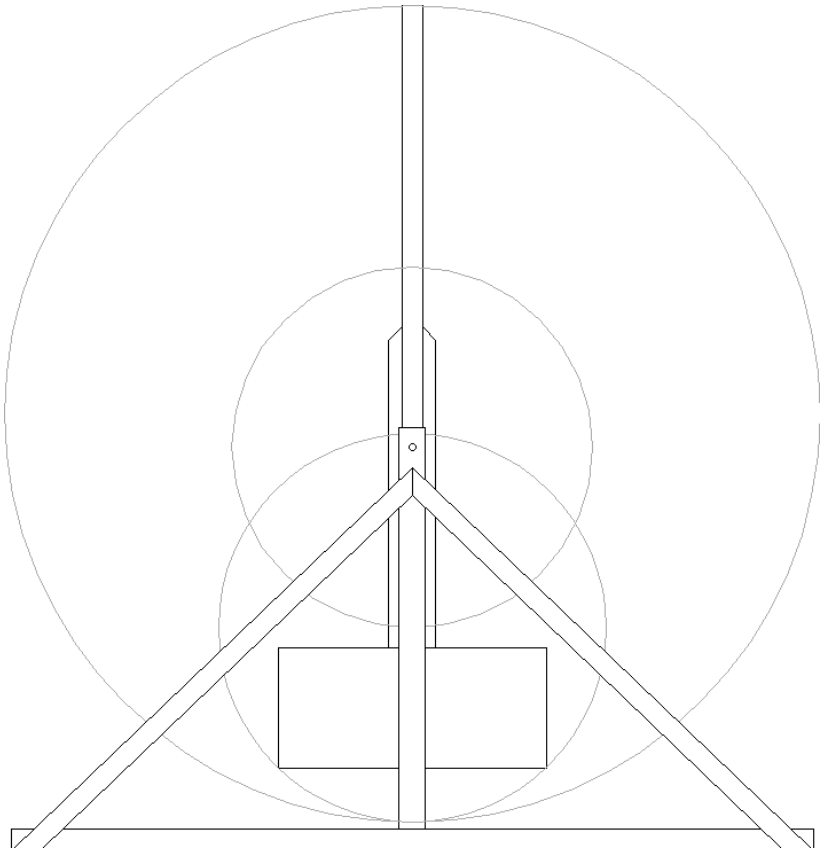
I don't have exact figures on how much weight can be cantilevered out 5' on a 10" x 6" beam, but it should be well able to take 750lbs.



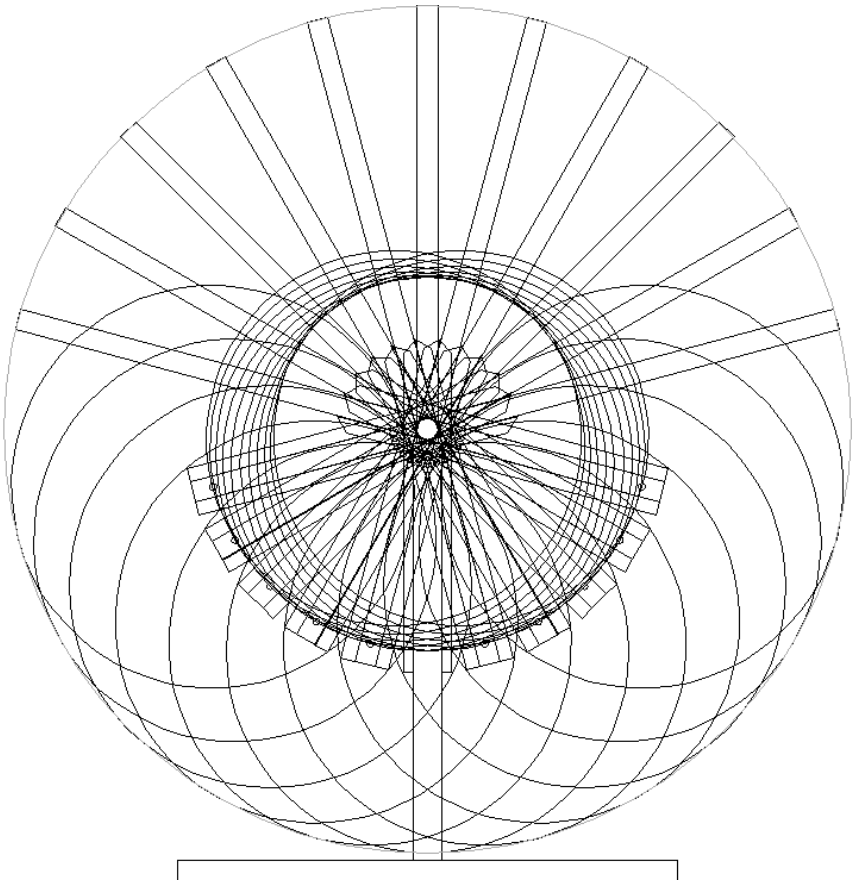
The counterweight box (designs to come) is aprox 2' wide x 2.5' high x 5.5' long.

In the un-cocked position the treb stands 21' tall.

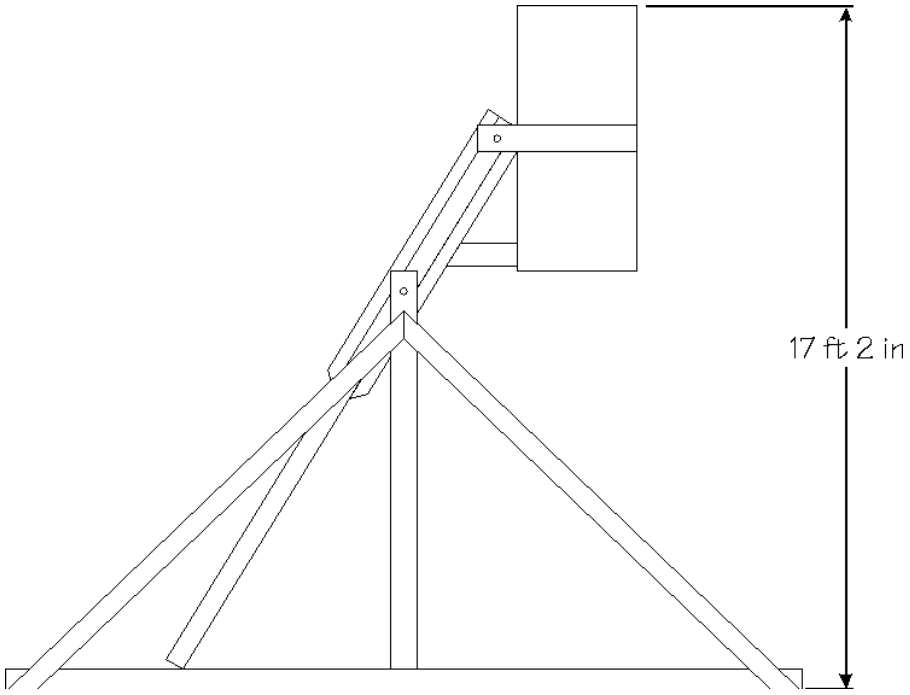
The treb base is 20' long. I originally wanted a shorter base, however 20' will safely allow for a much heavier counterweight.



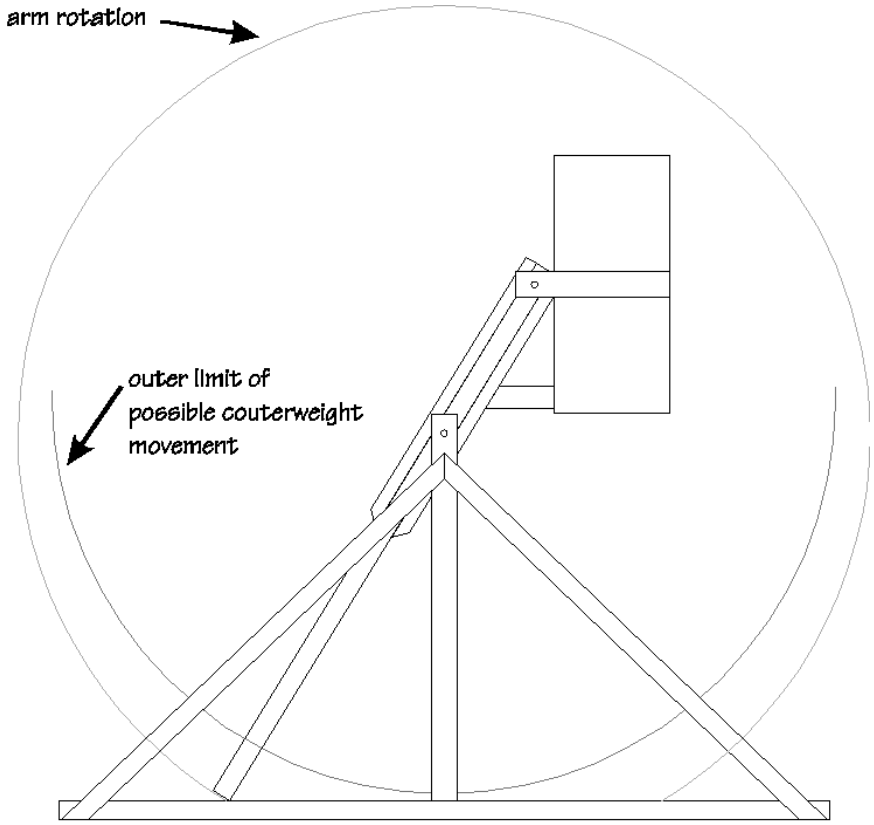
This drawing shows the different rotation radii. I want to design the largest counterweight box possible, and leave at least 6” of clearance between the lower frame and the possible swing path of the CW.



Arm & CW stepped through lower swing phase at 15^{o} intervals

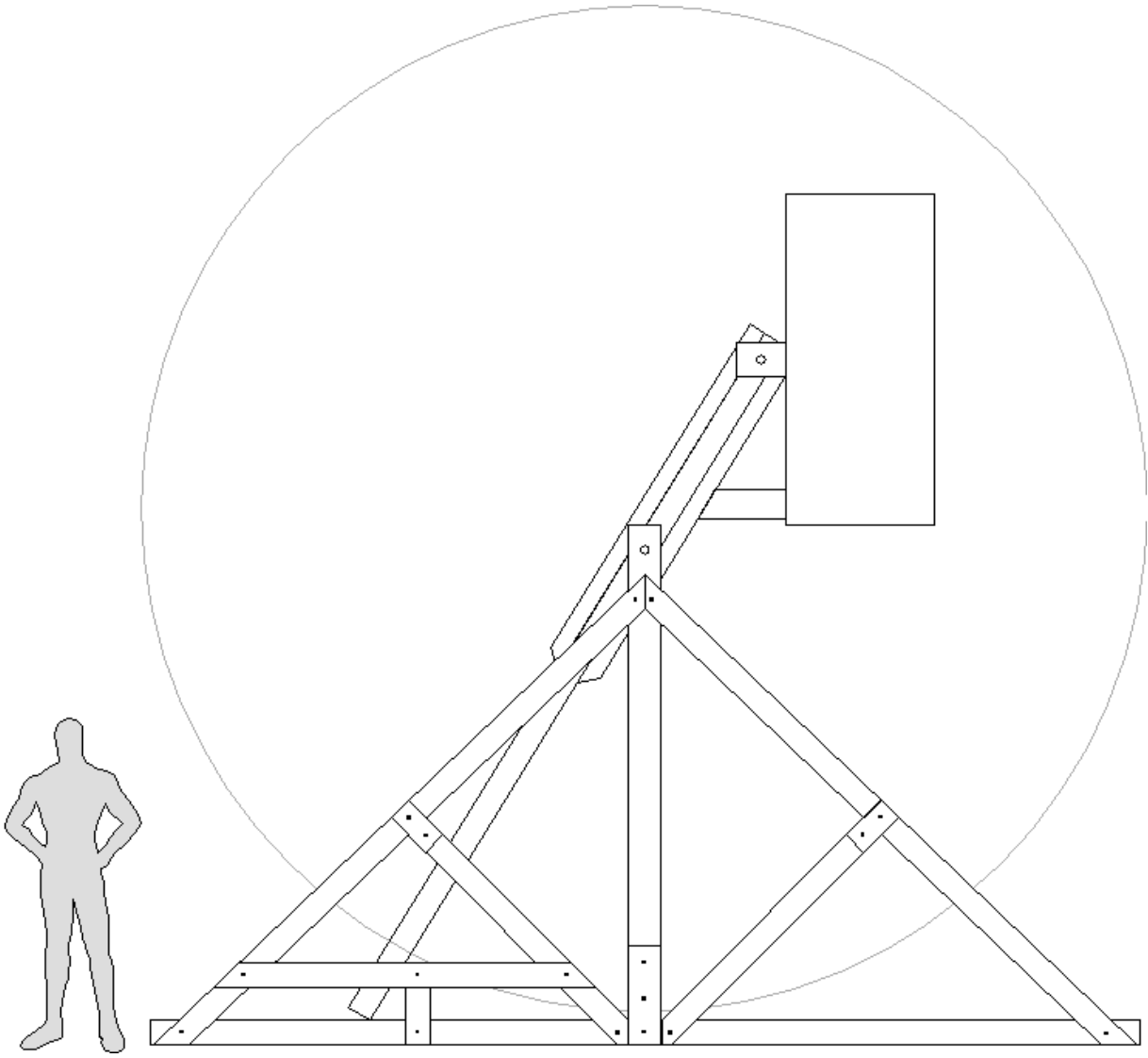


Arm & CW in the cocked position



Arm & CW in the cocked position with swing paths

This what I have used to design the final placement of bracing, trigger, and winch



This is the almost final side bracing view.

Once the final construction plans and parts list / diagrams are complete, I will update the web page.

We will be shooting all aspects of the construction with a digital camera - we will update the web site as often as possible.

A final document will be released which should include the final design and detail drawings, construction notes, and of course relevant photos.