

1. 6' Orbiter in ground – engineering affidavit –

To demonstrate that the Orbiter would handle playground stresses.

Specification Sheet for #7217THREE

~~Solid and Permanent~~

A quick trip to the hardware store for supplies
6 hour installation and assembly

Proposed installation of one six foot Orbiter sculpture - ring toss game

The Orbiter Kit for Item #7217THREE contains: two posts, ring, cord and jig box type A) with all specifications and drawings needed to complete the installation. The Orbiter Kit does not include the cement, the materials for the substructure or the tools needed for the installation.

The user will install the Orbiter themselves or take bids from local patio installers or landscape companies to do the work. We suggest that you talk to the Home Depot in your area.

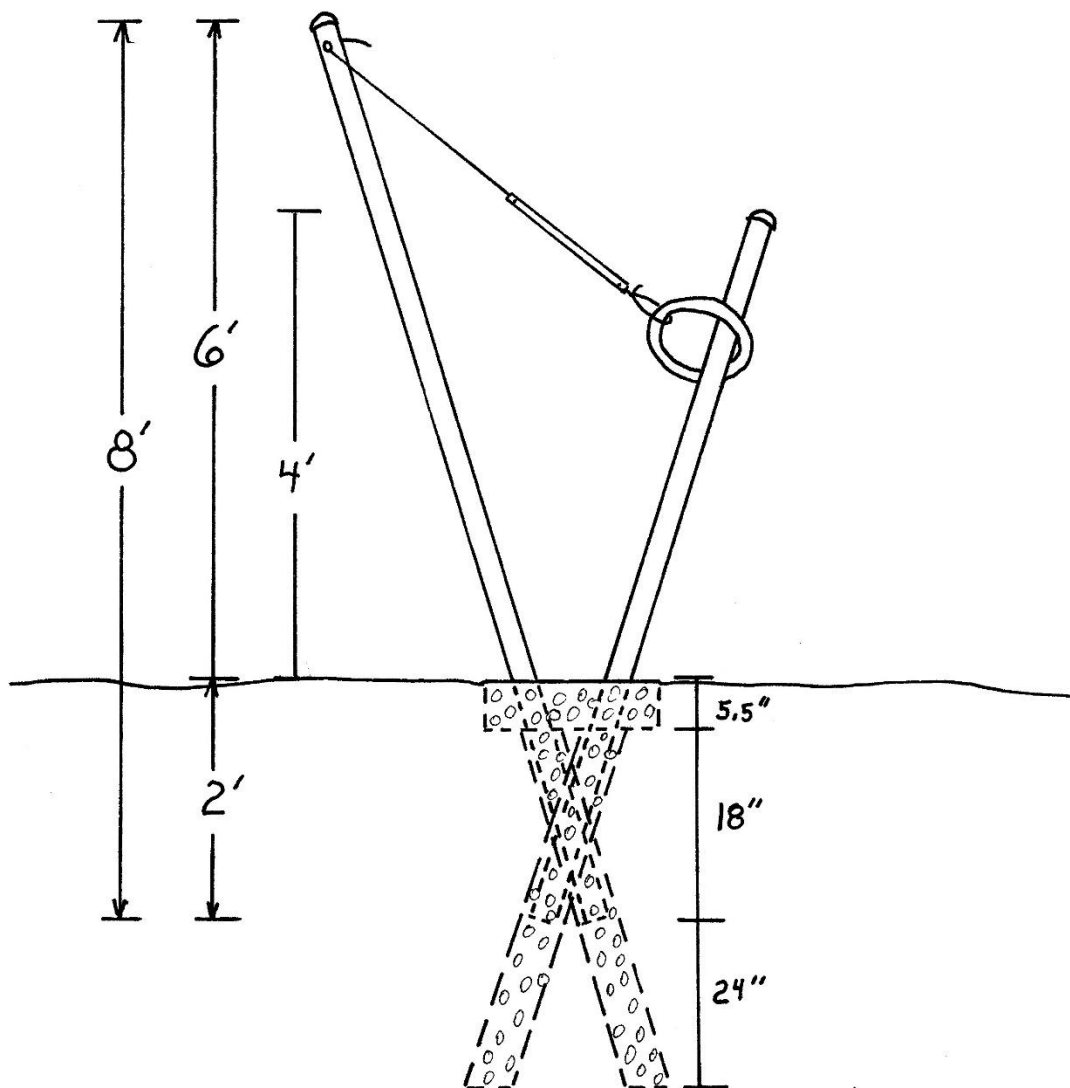
Description: Installation Method THREE - JIG TYPE A

1. Excavate a hole about three feet square and five and one half inches deep (level as best you can).
2. From the bottom of that 5.5" deep hole dig two holes, 8" in diameter and 42" deep using a post hole digger or similar. These two holes must be dug at angles and in position to accommodate the posts at the angles that the jig box has set for those posts. (you may elect to insert 8" diameter sono tubes into these two holes).
3. Remove the Jig Box bottom and set the Jig Box into the hole and position over the two 8" dia. holes so that when installed the posts will go through the Jig Box and eighteen inches down through the center of the 8" diameter holes.
4. Set a grid of five one foot long #4 rebar around the 8" diameter holes.
5. Mix enough cement to fill the two 8" dia. holes and five and one half inches of the Jig Box.
6. Pour in just enough cement to fill the 8" dia. holes and 5.5" up into the Jig Box (to grade level).
7. Insert the six foot post through the Orbiter Jig box and down through eighteen inches of the 8" dia. holes below (there should be a stop clamp on the post).
8. Insert the eight foot post through the Orbiter Jig box and down through eighteen inches of the 8" dia. hole below. Turn the post so that the small holes at the top of the post are perpendicular to the direction that the post leans. (Make sure that the posts do not settle any further than 18" into the 8" hole below the bottom of the Jig Box) (there should be stop clamps on both posts).
9. Set one 36" #4 rebar into the cement along side of each post (the top of the 36" long rebar should set one inch below the top surface of the cement).
10. There is some play in the jig to allow you to see that the distance between the tops of the two posts measures about 52 inches center post to center post. The posts should be marked to show that there is sixty two and one half inches of the main post and thirty eight and one half inches of the smaller post visible and measurable above the top surface of the Jig.
11. Let the concrete set over night.
12. Remove the wood jig.
13. Glue on one post cap to each post using LOCKTITE STICK'N SEAL OUTDOOR ADHESIVE.
14. Back fill and pack the hole around the cement to grade level.
15. Attach the ring and cord to the main post. The cord must hang down from the right side hole at the top of the main post. The ring must be set so that the ring when held with the rope taught over the top of the destination post the post cap is in the center of the ring. A simple knot will hold the cord in place on the main post.
16. Finished

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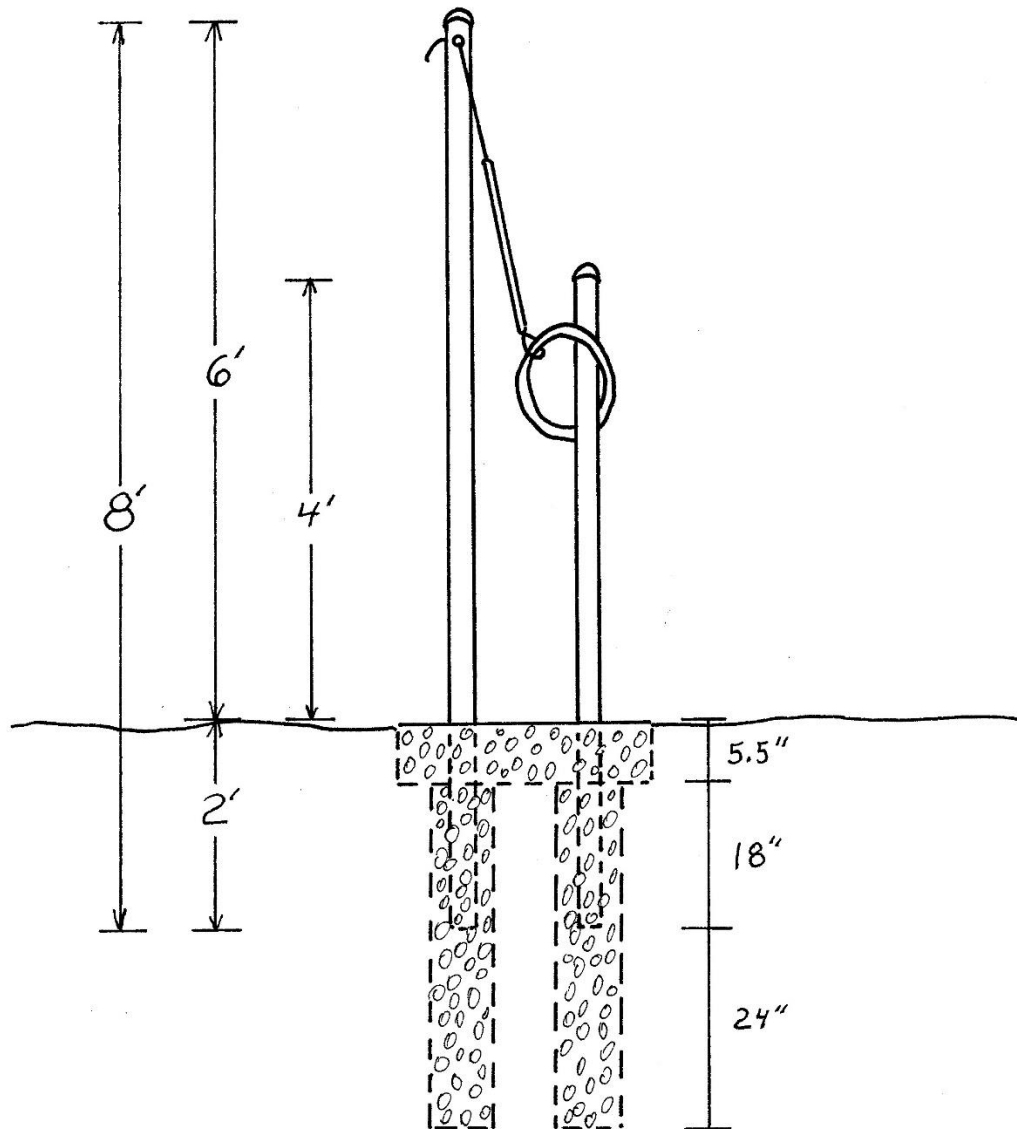
David Copplestone	ORBITER™	Date: 02/07/2012
Sculpture & Ring Toss Game	Installation Method 3 Solid and Permanent	Sheet # 2



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David Copplestone	ORBITER™	Date: 01/25/2012
Sculpture & Ring Toss Game	Installation Method 3 Solid and Permanent	Sheet # 3



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David Copplestone	ORBITER™ Installation Method 3 Solid and Permanent	Date: 01/25/2012
Sculpture & Ring Toss Game		Sheet # 4

To whom it may concern

Re: orbiter, installation method 3

Date: 02.07.2012

The structural evaluation of the installation method 3 for the Orbiter sculpture was done at the request of the developer /inventor of this structure Mr. David Copplestone, 6 Shadow Lane, Wellesley, MA 02482.

The installation method 3 is described and shown in the attached drawings and text prepared by Mr. Copplestone. The posts are installed into the reinforced footing dug to the depth of 4'-0" (or below the frost line if it exceeds 4'-0"). The posts are made of galvanized 10 gauge steel pipes (0.13" thick).

The allowable moment which can be developed in the pipe at the most stressed base cross-section is 12.96 k*in (1080 lb*f) (steel: A365, Fy=33ksi). Four 60 lb loads applied to the main post at locations 6', 4.5', 3', 1.5' with respect to the base point will develop a bending moment equal to $60 (1.5' + 3' + 4.5' + 6') \cos 60 = 450 \text{ lb*f}$. This moment is less than allowable. There is a safety factor of 2.4, which compensates for not taking into account the effects of local buckling and compression.

The overturning moment (1080 lb*f) is also less than allowable (conservatively assuming low values for active soil pressure and bearing capacity).

after reviewing and analyzing the installation options for the Orbiter sculpture, may certify that the installation method 3 provides enough resistance to prevent overturning and sufficient strength for the sculpture elements to withstand probable gravity loads which could be applied to the sculpture (game) in the course of its exploitation.

If you have any questions please do not hesitate to contact me.

Sincerely,

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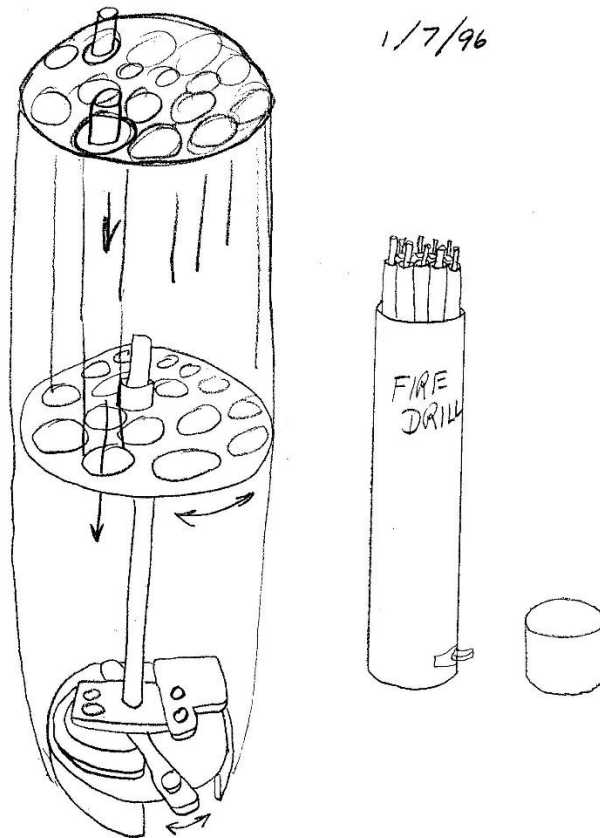
Copplestone, Wellesley, MA 02482

David Copplestone	ORBITER™	Date: 02/07/2012
Sculpture & Ring Toss Game	Installation Method 3 Solid and Permanent	Sheet # 1

2. Melt Down – Engineering Drawings by Mentor Engineering

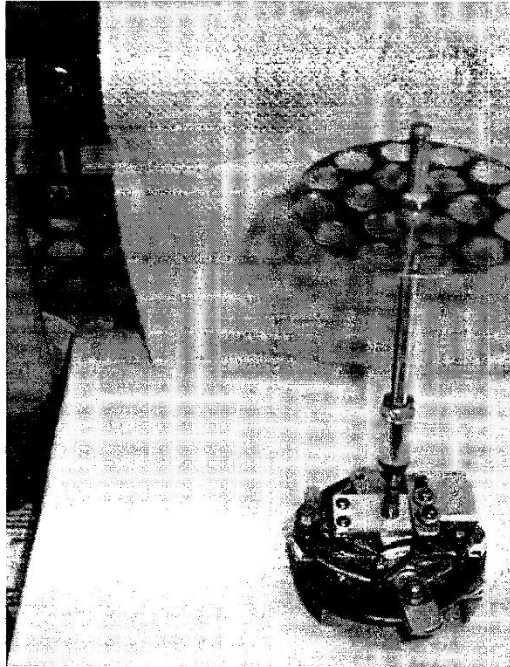
Fire drill™

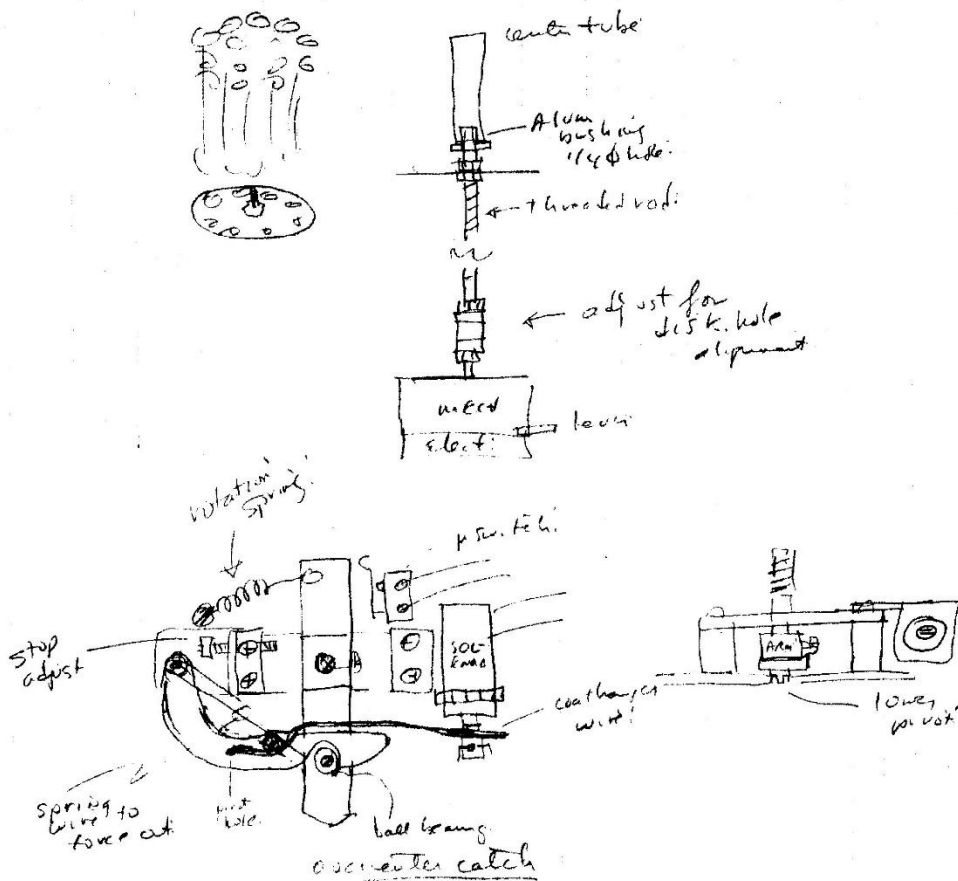
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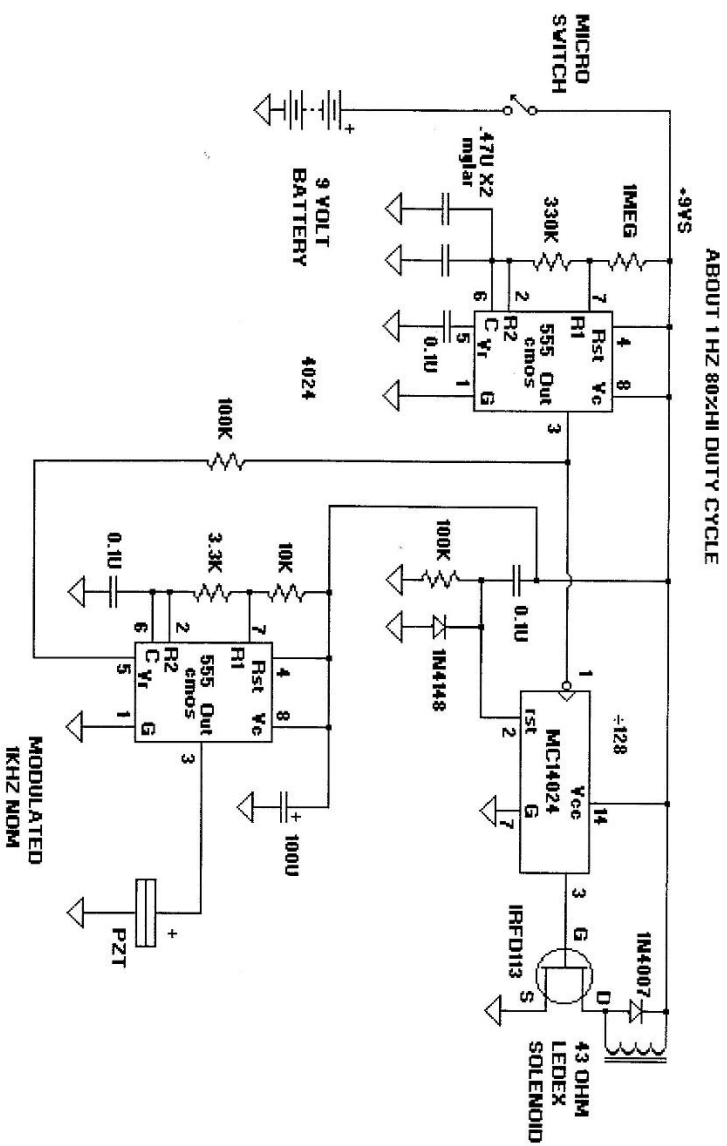
© 1996 Copplestone Artworks, Wellesley, MA 02181 Pat. Pend.

David Copplestone





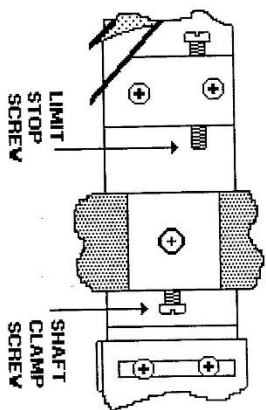
As BUILT
12-19-95
(See photos).



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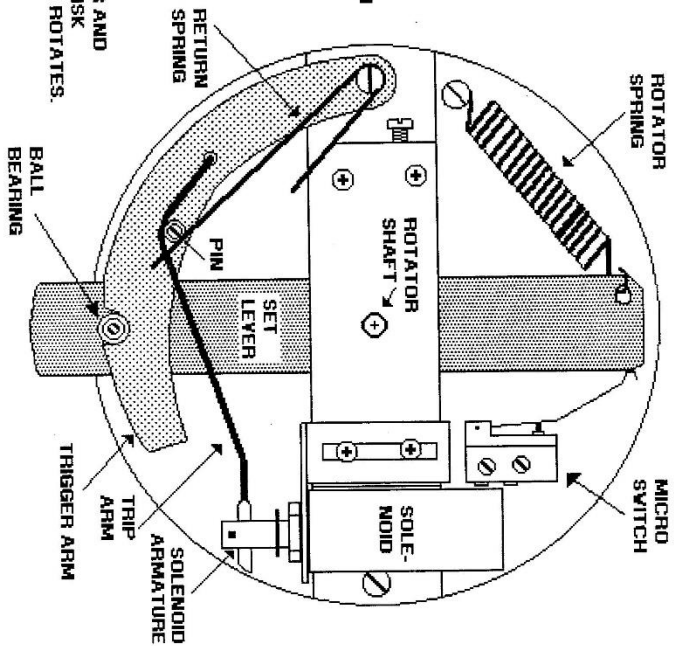
MENTOR ENGINEERING

**LIMIT STOP AND
SHAFT CLAMP
DETAIL**



SHOWN IN COCKED POSITION

1. COCKING SET LEVER ACTUATES MICROSWITCH WHICH STARTS ELECTRONIC TIMER.
2. AFTER TIMING OUT, ELECTRONICS TURNS ON SOLENOID.
3. WHEN SOLENOID ARMATURE PULLS UP IT PULLS TRIP ARM WHICH PULLS TRIGGER ARM BY PULLING AGAINST PIN.
4. AS TRIGGER ARM IS PULLED IT IS RELEASED FROM BALL BEARING ALLOWING SET LEVER TO BE PULLED CCW BY ROTATOR SPRING. SET LEVER MOTION IS LIMITED BY LIMIT STOP SCREW.
5. ROTATOR SHAFT IS ATTACHED TO SET LEVER AND ROTATES WITH IT. OTHER END OF SHAFT HAS DISK WITH HOLES THAT RELEASE THE RODS WHEN IT ROTATES.



MENTOR ENGINEERING