

Greenways Foundation “Pedal & Park”
Plans for Building Portable Bicycle Racks
October 1, 2003

Introduction

This monograph includes plans for building folding portable bicycle racks, designed to be used with 1.5” thin-wall electrical conduit as the horizontal members between racks. The tripods are used on each end of a rack and the “A” braces for center supports at the end of each ten foot conduit section. The conduit sections are joined end to end with threaded straight connectors.

Each ten foot rack section should hold 8-10 bicycles, especially if they are parked alternating the direction of each cycle. Each cycle is parked by hooking the horn of the saddle over the top of the conduit.

All wood pieces are inexpensive 2x4s (1.75” x 3.75” actual). All bolts are quarter inch (7/16” size heads and nuts).

Tripods

(See Figure 1 for tripod dimensions.)



Photo 1. Tripod assembled.

If the bike corral is enclosed in plastic “snow fence” (utility construction fencing) additional holes can be drilled in the vertical legs and reusable electrical ties threaded through the holes to hold sections of fencing.



Photo 2. Detail of top of tripod. Legs fold away from this side.

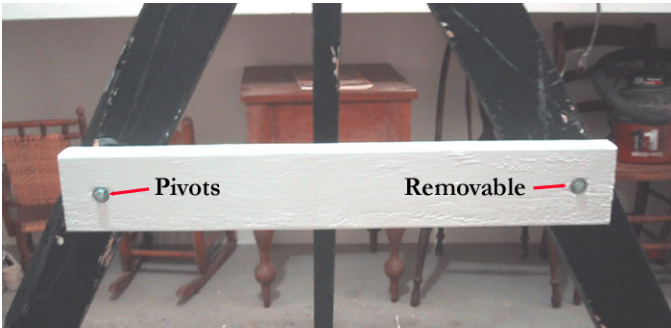


Photo 3. Detail of tripod brace. For storage, the right bolt is removed and the brace swings down and to the left for storage against the left leg. A section tee nut is installed down the left leg so that the right bolt can be used to secure the brace in the stored position.



Photo 4. Detailed view of the top of the tripod from the opposite side, showing the hinge placement.

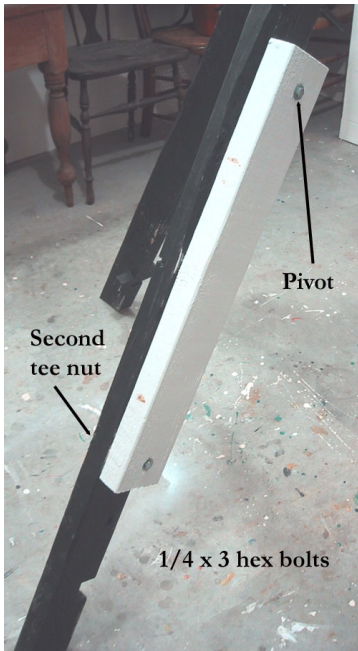


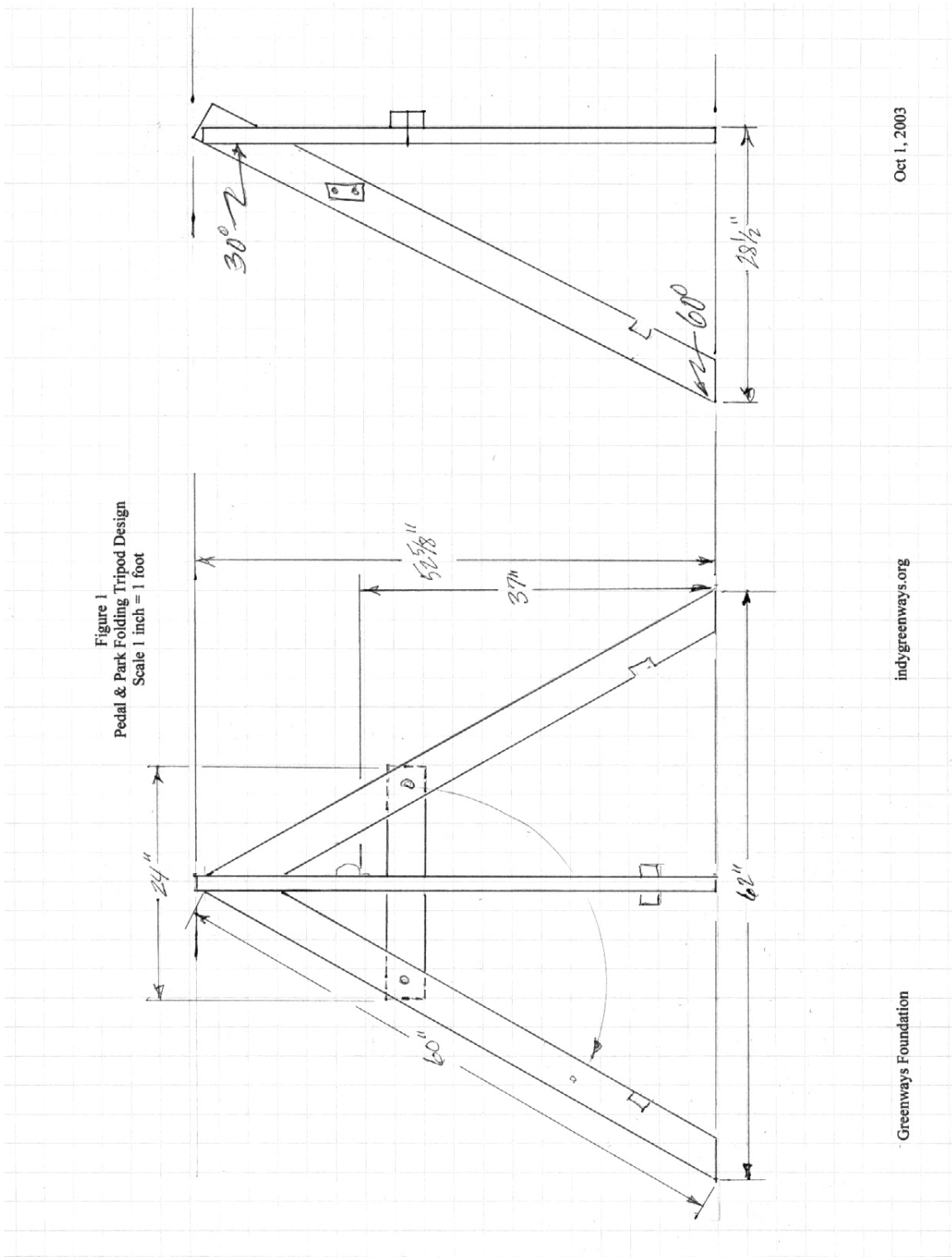
Photo 5. Tripod with brace in storage position.



Photo 6. Tripod fully folded for transport and storage.

Photo 7. Detail of hinge at the top of the tripod.





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Bill of Materials:

- | | |
|-----------------------|---|
| 3 @ 2x4x60" | 5 Tee nuts (1/4 inch) |
| 1 @ 2x4x24" | 2 Bolts _ x 3" |
| 2 hinges @ 3" | 6 Wood screws, flat head |
| 1 conduit hanger 1.5" | 2 Bolts _ x 2.5" (for the conduit hanger) |

A-Braces

(See plans and dimensions in Figure 2)



Photo 8. A brace set up in the position that would hold up the middle of a bike rack. The conduit fits through the 2.125" hole near the top of the "A." Notice that the 2x4 legs are doubled for strength. For example, a four-section bike rack filled to capacity with bicycles would be a nearly 1,500 pound load.

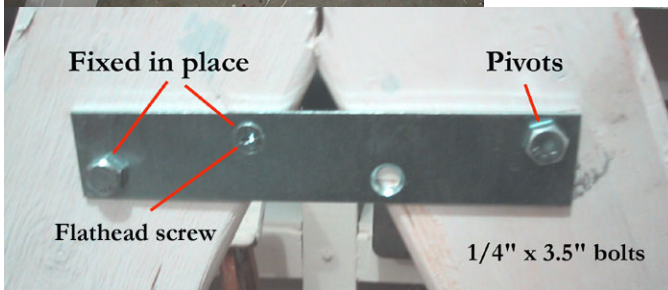


Photo 9. Detail of "A" brace hinge. There is a matching six inch plate on the back side as well.

The bolt and screw on the left are cinched down, but the right bolt is loose enough to permit the right leg to swing and fold for transport and storage.



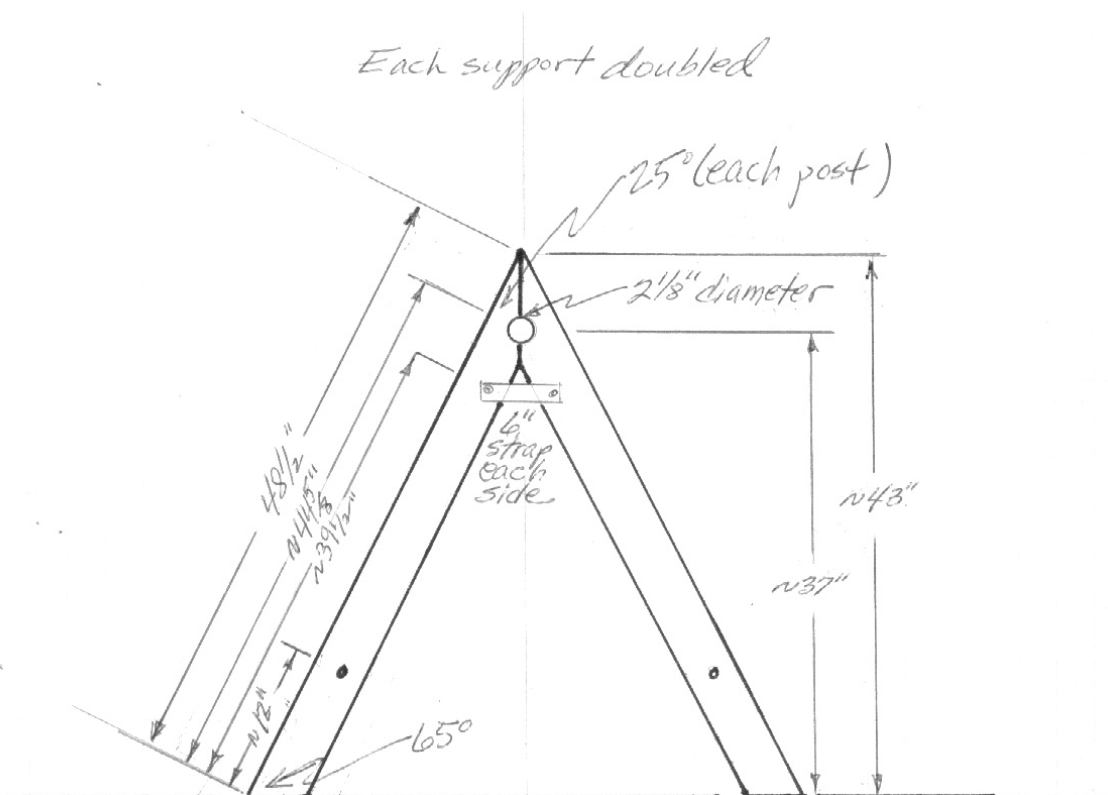
Photo 10. Close view of left side of the hinge.



Photo 11. "A" brace in folded position for transport and storage.

Doubled "A" brace legs should be glued together with construction adhesive, and one 3 inch bolt or lag screw put through the doubled legs about one-third of the way from the bottom to ensure that the legs stay together. The hinge bolts through the top of the legs are sufficient reinforcement for the top of the unit.

Figure 2
 Pedal & Park Center "A" Support Design
 Scale 1 inch = 1 foot



Bill of Mat'ls (per unit)

Qty	Item
2	2x4 x 92 1/2
2	Bolts/nuts 1/4 x 3
2	Bolts/nuts 1/4 x 3 1/2
2	Melting straps (6")
1	Flat head wood screw