

FarmLIFE™

Wheel to Reel

Corral power cords and shop hoses on reels you make yourself from wheel rims.

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Tools, Welding Equipment and Supplies

- Welding helmet
- Welding gloves
- Metal inert gas (MIG), wire-feed or stick welder
- Sufficient welding wire or rod to complete about 30 inches of weld. Choose 0.030 to 0.035 ER70S-6 wire for MIG; 0.030 to 0.035 flux core wire for wire feed without gas; E3/32-inch E6013 rod for stick. Tip: For best results with MIG, clean the metal thoroughly. If there is some paint and rust left on the metal, choose flux core wire feed or stick.
- Means to cut steel bar or plate: plasma cutter, hacksaw, oxy-acetylene cutting torch, abrasive cutoff saw, small angle grinder with cutting wheel etc.
- Means to smooth metal and ready it for welding: Bench and/or hand-held power grinder(s) with abrasive flap wheels, wire wheels, medium-grit stone wheels.
- Bench vise
- Drill press, hand-held corded drill or heavy-duty cordless drill; assorted bits

- Assorted clamps
- Slag-chipping hammer and wire brush, if stick welding
- Measuring tape or ruler
- Assorted sockets or other wrenches capable of driving lag screws
- Paint brushes
- Solvent, compressed air or a cloth for cleaning

Materials

- Single-piece steel wheel rim that is 15-inches in diameter X 8 inches wide or wider (wider will offer you more hose or cord capacity)
- **84** linear inches of 1/4-inch-thick by 4-inch-wide steel bar or plate. Improvise with scrap that you might have available
- **Two** 1/2-inch lag screws, 3 inches long
- Rust converter
- Rusty metal primer
- Rusty metal finish coat

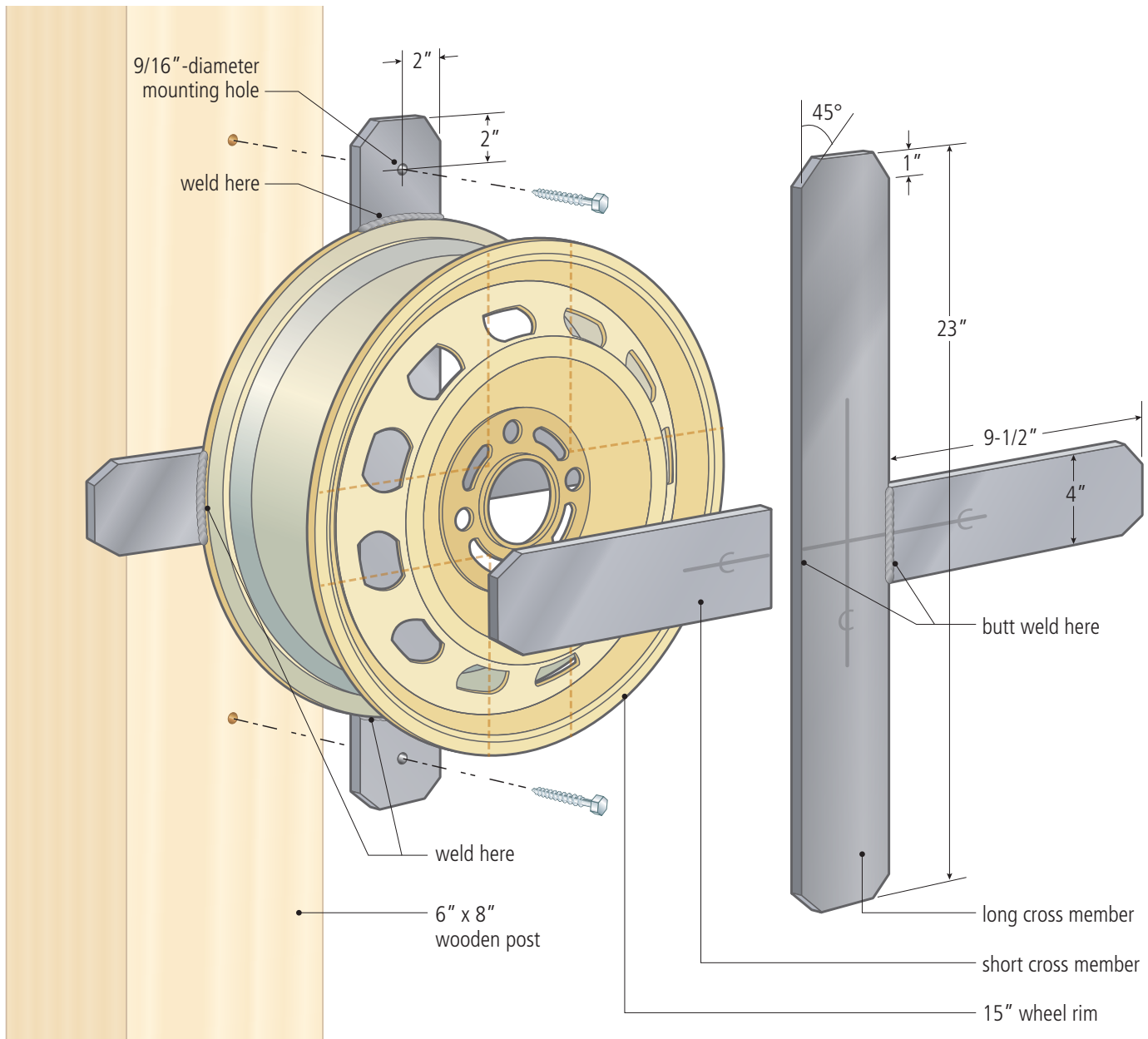
Wheel To Reel

FEW THINGS CAN TANGLE UP YOUR DAY'S WORK AS much as unruly power cords and pneumatic or liquid-transfer hoses. While you can purchase reels designed to help settle the snarls, they can be expensive.

So rather than spending your hard-earned cash on a new reel, take a walk to your junk pile and grab an old steel wheel rim from a truck or implement and some scrap steel. Or you can source the rim at a local salvage yard and purchase a new or used steel plate for a fraction of what a new reel might cost. (Note: You could

use aluminum for this project, but such material would require specialized equipment and training.)

Our plan below is for a simple fixed reel, mounted to a wooden post or column, with an extended cross to help keep the cord or hose on the reel. Once you get the hang of creating these reels, you can locate them wherever you have hose or cord congestion. Plus, you can modify the design to bolt it onto a compressor cart and even convert to a rotating reel if you wish; see page 4 of this file for step-by-step instructions and additional materials needed.



Steps to Make a Fixed Reel

- 1.** Cut 4-inch wide steel bar into six pieces, two that are 23 inches long and four that are 9.5 inches long. Or cut the pieces individually out of larger pieces of plate.
- 2.** Make 45-degree cuts on all four corners of the 23-inch long pieces. To do so, measure in 1 inch from each edge and make a mark; these are the legs of the right triangle formed by the corner. Connect those marks with a diagonal line and cut on that line.
- 3.** Again, measuring 1 inch from the edge, make 45-degree cuts on the two corners, but at just one end of each of the 9.5-inch-long pieces.
- 4.** Round all sharp edges with the bench grinder. To use a hand-held angle grinder, either grip the stock in the vise or clamp it to the table.
- 5.** Measure and mark the transverse centerline on the 23-inch pieces (12.5 inches from the end).
- 6.** On one of the 23-inch pieces, bore 9/16-inch mounting holes 1 inch from both ends, centered.
- 7.** Measure and mark the longitudinal centerline on the 9.5-inch long pieces on the ends without the cut corners (in 2 inches from each long edge).
- 8.** Align the centerlines of two of the short pieces with the transverse centerline of one of the 23-inch pieces to abut the welding surfaces to create a 23-inch by 23-inch cross. (The ends of the 9.5-inch pieces abut to the outer edges of the 23-inch piece.) The clipped corners should all face outward from the center.
- 9.** Clamp the pieces in place and butt weld on both sides. Clean up the welds with the slag-chipping hammer and angle grinder with wire wheel.
- 10.** Repeat steps 8 and 9 with the other three pieces of steel.
- 11.** Lay the wheel rim on one of the crosses so it is centered on the cross, and mark on the rim where it touches the edges of the cross's arms. Flip the rim onto the other cross and repeat. You needn't align the arms of both crosses, but if you want them to be aligned, now is the time to do it.
- 12.** Grind, sand or otherwise remove as much paint, dirt and rust as you can from the rim surfaces where it will touch the cross (between the marks).
- 13.** Place the rim on one of the crosses, taking care to center it up again. Clamp if needed, and weld the rim edge to all four arms of the cross. Flip and repeat to weld the other cross to the other side of the rim.
- 14.** Prepare the reel for finishing by, at minimum, removing all loose paint, loose rust and welding slag from all surfaces by sanding, grinding and wire brushing. Then clean the reel with solvent, compressed air or a cloth.
- 15.** Coat the reel with rust converter, and let it cure. (This is optional, but worth it!)
- 16.** Coat the reel with sufficient layers of primer to get complete coverage. Apply and cure primer per directions on can.
- 17.** Apply topcoat of rusty metal finish coat to the reel; let cure.
- 18.** For this fixed, stationary reel, place your completed reel against the wooden post with the mounting holes centered on the post, then mark the centers of the holes on the post. (See online plan for rotating option.)
- 19.** Bore a 5/16-inch diameter hole about 2¾ inches deep centered at each mark on the post.
- 20.** Hang the reel by inserting the lag screws through the 9/16-inch diameter holes in the cross and turning them snugly into the post using an appropriate wrench.

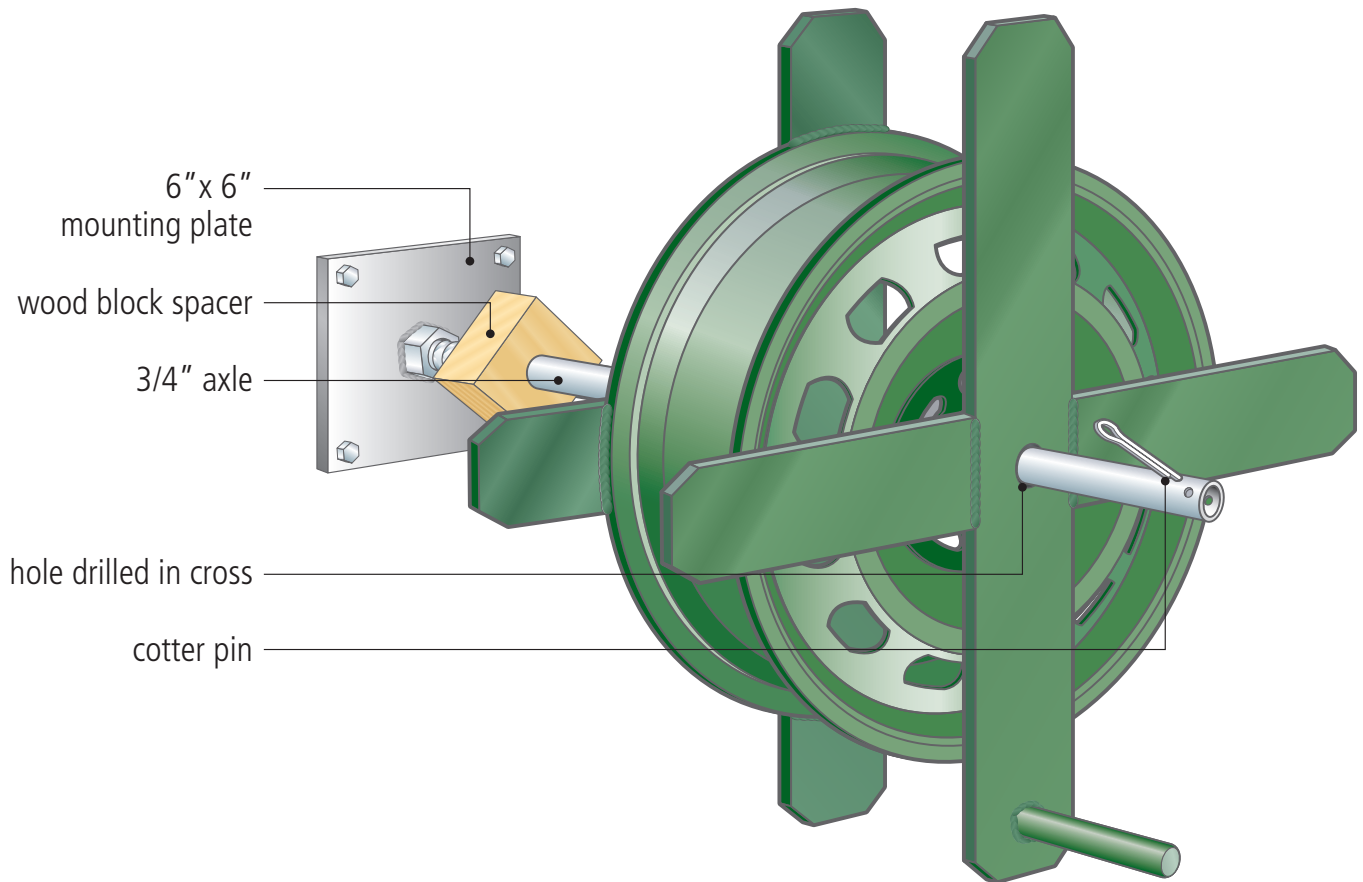
Convert to a Rotating Reel

Fabricate an axle, axle mount assembly and optional crank handle to make your reel rotate.

Materials

- Scrap tube, rod or bolt for the axle that is at least $\frac{3}{4}$ -inch diameter and 2 inches longer than the width of the wheel rim with the crosses attached
- Scrap metal plate, $\frac{1}{4}$ -inch thick cut to approximately 4-inches wide by 8-inches long, or 6-inches square
- 4 3-inch long, $\frac{1}{2}$ -inch diameter lag screws (for wood pole) or appropriately-sized $\frac{1}{2}$ -inch bolts with washers and nuts (for compressor cart or other metal pole)

- Block of wood or short length of PVC pipe (internal diameter sufficient to slip over your axle) to prevent the wheel rim from rubbing on the mounting post
 - Flat washer with nut to fit your axle (if it is a bolt), or cotter pin for outer end of axle if made of rod or pipe
 - 4-inch length of rod or pipe for crank handle, if desired
- To complete this project, see also lists of "Tools, Welding Equipment and Supplies" and "Materials" for the fixed-reel version of this project.*



Steps to Make a Rotating Reel

1. Cut 4-inch wide steel bar into six pieces, two that are 23 inches long and four that are 9.5 inches long. Or cut the pieces individually out of larger pieces of plate.
2. Make 45-degree cuts on all four corners of the 23-inch long pieces. To do so, measure in 1 inch from each edge and make a mark; these are the legs of the right triangle formed by the corner. Connect those marks with a diagonal line and cut on that line.
3. Again, measuring 1 inch from the edge, make 45-degree cuts on the two corners, but at just one end of each of the 9.5-inch-long pieces.
4. Round all sharp edges with the bench grinder. To use a hand-held angle grinder, either grip the stock in the vise or clamp it to the table.
5. Measure and mark the transverse centerline on the 23-inch pieces (12.5 inches from the end).
6. Measure and mark the longitudinal centerline on the 9.5-inch long pieces on the ends without the cut corners (in 2 inches from each long edge).
7. Align the centerlines of two of the short pieces with the transverse centerline of one of the 23-inch pieces to abut the welding surfaces to create a 23-inch by 23-inch cross. The clipped corners should all face outward from the center.
8. Clamp the pieces in place and butt weld on both sides. Clean up the welds with the slag-chipping hammer and angle grinder with wire wheel.
9. Repeat steps 8 and 9 with the other three pieces of steel.
10. Lay the wheel rim on one of the crosses so it is centered on the cross, and mark on the rim where it touches the edges of the cross's arms. Flip the rim onto the other cross and repeat. You needn't align the arms of both crosses, but if you want them to be aligned, now is the time to do it.
11. Grind, sand or otherwise remove as much paint, dirt and rust as you can from the rim surfaces where it will touch the cross (between the marks).
12. Place the rim on one of the crosses, taking care to center it up again. Clamp if needed, and weld the rim edge to all four arms of the cross. Flip and repeat to weld the other cross to the other side of the rim.
13. Cut a 6-inch by 6-inch square mount plate out of 1/4-inch thick steel plate. Drill 9/16-inch diameter holes in each corner of the plate.
14. If using something other than a bolt for the axle, drill a hole through the axle about 1/2-inch from one end for the cotter pin.
15. Weld the bolt head, or the non-drilled end of the axle tube or rod, to the center of the mount plate, perpendicular to its primary plane.
16. If a crank handle is desired, weld a 4" length of rod or pipe to the outside of one arm of the cross, perpendicular to the cross.
17. Bore 7/8-inch holes (or 1/8 inch larger than the diameter of the axle) in the centers of the metal reel crosses.
18. Prepare the axle/mount and reel for finishing by, at minimum, removing all loose paint, loose rust and welding slag from all surfaces by sanding, grinding and wire brushing. Then clean the reel with solvent, compressed air or a cloth.
19. Coat the axle/mount and reel with rust converter, and let it cure. (This is optional, but worth it!).
20. Coat the axle/mount and reel with sufficient layers of primer to get complete coverage. Apply and cure primer per directions on can.
21. Apply topcoat of rusty metal finish coat to the axle/mount and reel; let cure.
22. Fasten the mount plate to the supporting post with the 4 lag screws or bolts/nuts.
23. Add a spacer 1/2 to 3/4 inches wide to the axle, made of a drilled block of wood, a piece of PVC pipe or a stack of washers.
24. Slide reel onto the axle.
25. If using a bolt for the axle, put the washer then the nut on the end of the axle to keep the reel in place.
26. If using a cotter pin, put washer on axle then insert the pin.