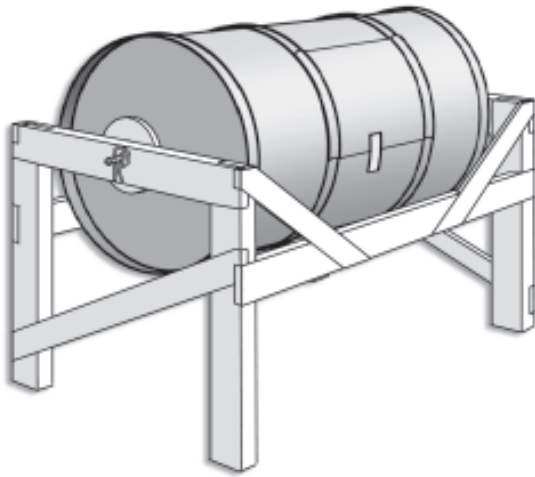
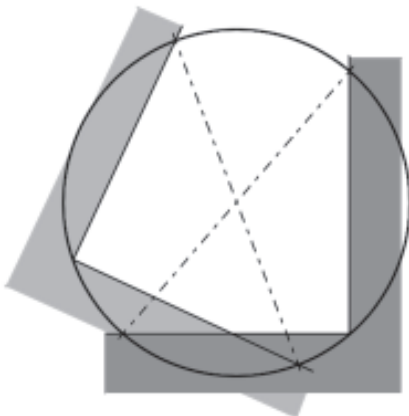


# Rotating Barrel Bin



## LIST OF MATERIALS

- 1 — 45-gallon (205 L) drum
- 4 — 8' 2 x 4s
- 3 — 8' 1 x 3s
- 1 — 2' x 2' 3/4" thick (19 mm) plywood
- 2 — 1-1/2" x 2" galv. butt hinges
- 1 — Small hasp
- 1 — Steel rod
- 8 — 1/4" x 1" stove bolts w/ nuts
- 12 — 1/4" x 1" stove bolts w/ nuts
- 28 — 1-1/2" galvanized No. 10 wood screws
- 2 — 1/2" flat washers
- 2 — 1/8" x 1-1/2" steel cotter pins
- Carpenter's glue
- 1 — L flat black rust paint



## USING A ROTATING BARREL BIN:

Producing finished compost with a rotating barrel composter is a breeze! Without using a pitchfork or your lower back, the unit is turned by rolling the bin on its stand. Finished compost can be made in as few as three weeks!

However there are a couple of drawbacks to this type of unit.

- 1 — Materials can't be added as they are produced, but are collected in batches and added all at once to the bin.
- 2 — The capacity of a barrel is much smaller than that of a regular compost bin—so the amount of finished compost will be smaller, but more frequently produced.
- 3 — Expensive to build or buy (around \$180 to \$200)

## BUILD A ROTATING BARRELL BIN:

This particular design makes use of a standard 45 gallon "food grade" metal drum 34 3/4" in height. It is adapted from a design presented in the Rodale Guide to Composting.

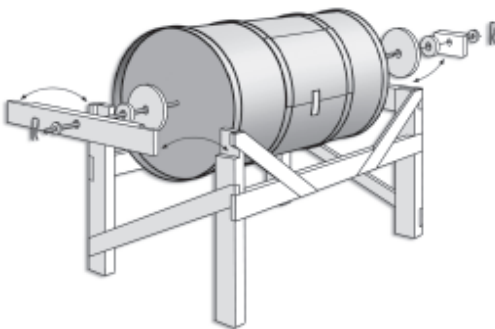
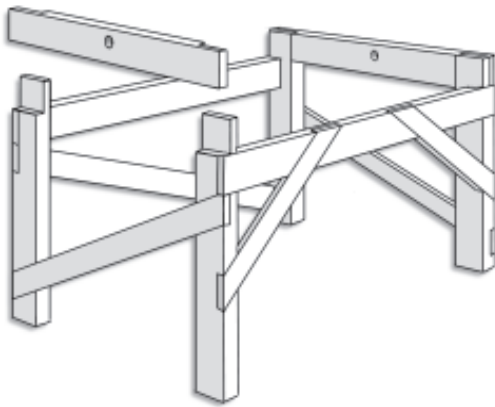
A number of small to very large barrel units, that rotate either on their sides or end to end, are available in retail outlets.

## CONSTRUCTION SEQUENCE

1. Obtain a good 45-gallon drum that has not been used to hold toxic chemicals. Those designated "food grade" are the best choice. If the barrel is metal, it should be unpainted on the inside and free of rust. Plastic barrels may also be used.
2. To accommodate the steel axial rod, a 1/2" hole must be drilled through the exact centre of the barrel at both ends. There are a number of ways of finding the centre of the top and bottom of a circular barrel. One simple method is to use a carpenter's square to inscribe two right angles on the circular surface. The line joining the ends of the right angles will intersect at the centre of the circle.
3. Mark the outline of the door opening on the outside of the barrel. The opening should be large enough (8"-10" x 16"-20" is good) to accommodate easy loading and unloading of materials. For easier cutting, round the corners of the opening slightly. Drill a 1/4" hole on one of the lines to start the key-hole saw or sabre saw. If the door cuts across a rib on the barrel, a 1" V notch must also be cut out on the rib to facilitate opening the door. Once the door has been cut out, carefully file all metal edges to remove burrs and otherwise reduce the possibility of injury during use (see "Variations: Rotating Bin" instructions). Re-attach the door to the barrel using the hinges and hasp and the 1/4" x 1" stove bolts.

## SPECIALIZED TOOLS

Drafting compass  
Keyhole saw or motorized sabre saw  
Metal file  
Centre punch  
Hammer and wood chisel  
6" adjustable wrench  
Carpenter's square  
Hand or power drill w/ 1/2" spade bit  
and 1/4" and 3/16" bits



## MAKING COMPOST:

- 1 — Collect green and brown material separately
- 2 — Layer green and brown materials in bin, until the bin is two-thirds full
- 3 — Give the bin a spin every couple of days
- 4 — Voila! Finished compost.

4. For ventilation, drill several rows of 1/4" holes into the barrel on the side opposite the door. To aid in heat retention, paint the entire outside of the unit with a flat black rust paint.

5. On the 3/4" piece of plywood, scribe and cut out two circles 7-1/2" in diameter and two 2 3/4" in diameter. Drill a 1/2" hole through the centre of each. Centre and glue each small circle to its larger counterpart. Slipping each set of circles temporarily over the 1/2" steel rod prior to gluing will insure that they remain centred. After the glue has dried, attach the large circles to the ends of the barrel, (as illustrated on Detail A), with four 1/4" x 1 1/4" stove bolts per circle. Keep all the holes aligned.

6. File down each end of the steel rod by 1/2" to provide two flat parallel surfaces for drilling. Drill a 3/16" hole in each flattened end of the rod. Centre punching the holes first will make them easier to drill.

7. For the support frame, take the 8' 2 x 4s and cut 4 pieces 40" long for the uprights, 2 pieces 29 3/4" long for the frame (horizontal pieces) and 2 pieces 27" long for the cross boards. On the horizontal pieces, drill a 1/2" hole in the exact centre of the board (14 & 7/8" from each end) to hold the steel rod. On the outer narrow side of the uprights, mark and chisel out horizontal dado cuts for 1 x 3 side bracing. Start these 23" up from the bottom. The cuts should be 2 1/2" wide by 3/4" deep.

8. Assemble the two ends of the frame with glue and two 1 1/2" No. 10 screws per joint. Use a corner lap joint between the uprights and the frame horizontal pieces. For additional support, brace the two U-shaped ends with the cross boards set at an angle. Pilot drill all screw holes with a 3/16" bit.

9. For the 1 x 3 side supports cut 2 pieces 41" long and 4 pieces 23 3/4" long. Slip the steel rod through the wooden bearing pieces on the barrel and fit the barrel assembly through the holes on the support frame ends. Insert a washer and steel cotter pin through each end of the steel rod and bend back the pin to keep the barrel in place.

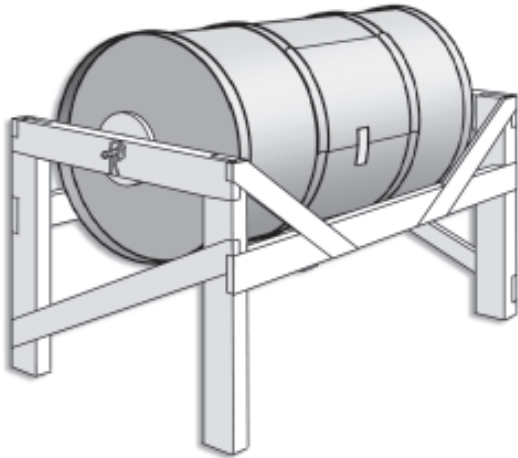
10. Stand up the end frames and insert and fasten the two 1 x 3 side braces to the dadoed uprights with glue and 1 1/2" No. 10 screws. Attach the corner braces in the same manner and trim the ends to fit. Pilot drill all No. 10 screw holes with a 3/16" bit.

11. In order to keep material properly turning in the barrel and not simply sliding along the bottom as it is rotated, take one or two remaining 2 x 4 scrap pieces, cut them to fit and wedge them into the barrel at an angle.

## VARIATIONS ON THIS BIN PLAN:

The illustrations to these instructions show fully lapped joints, which are not required in the plans but are stronger. For more detailed variations on this plan, please see the additional plans "Variations: Rotating Bin".

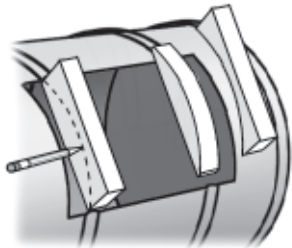




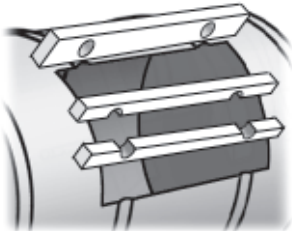
Building the rotating barrel bin represents an investment of time and money greater than that of most composting bins. As those who are willing to make that investment are also likely to “go the extra yard” to build a more refined bin, we have developed a few recommendations. The following suggestions also address safety issues associated with exposed metal edges and moving parts—not a concern with most other bin types.

## WOODEN DOOR FRAME

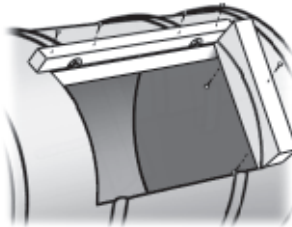
1. After cutting out the door from the side of the bin, be sure to carefully file the metal to remove any burrs or sharp edges. Cut two lengths of good scrap 2x 4 about 1/2 inch less than the edge-to-edge height of the doorway, hold each piece against the curve of the doorway sides, and scribe the curve onto each piece. Cut along these curved lines with a coping or jig saw.



2. Cut two lengths of 2x4 about 3” longer than the edge-to-edge width of the doorway. Hold one piece against the barrel ribs, being careful that it extends 1-1/2” beyond the doorway edges on either side. Mark a line vertically across the 2x4, above the dead centre of each barrel rib. At the mid-point of each line marked, bore a hole using a wood auger blade of the same width as the barrel ribs. Cut both pieces of 2x4 length-wise, leaving two 2x2” lengths with ‘half-circles’, and two 2x2” lengths without.

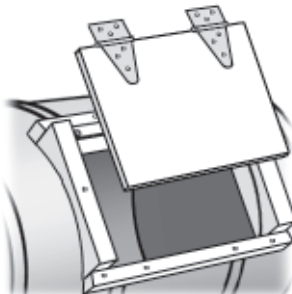


3. Place each piece as shown, being careful that the metal edge is concealed by 1/4” of wood along every edge. You may want to trim the outer side pieces for a better fit. Pre-drill holes for 3-1/2” deck screws or 4-1/4” bolts.



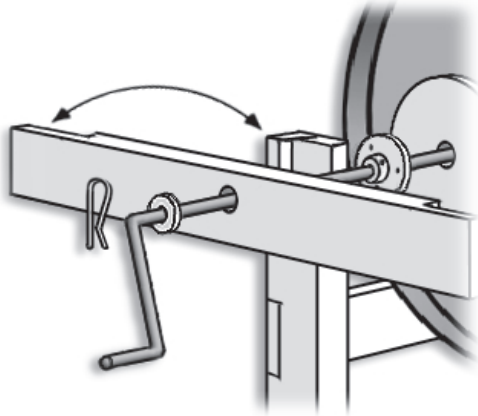
4. Mix up to a half-cup of sawdust with a quarter-cup of wood glue, and apply generously between the wood parts and any gaps which conceal metal edges. Screw or bolt everything tightly in place, wiping away excess or adding more sawdust/glue filler as required.

5. Cut and finish a door from scrap plywood, being sure that it fits inside the edge-framing. Attach hinges and a hasp to the door before pre-drilling and screwing the hinges and hasp to the edge-frame.



*See over for more ideas....*



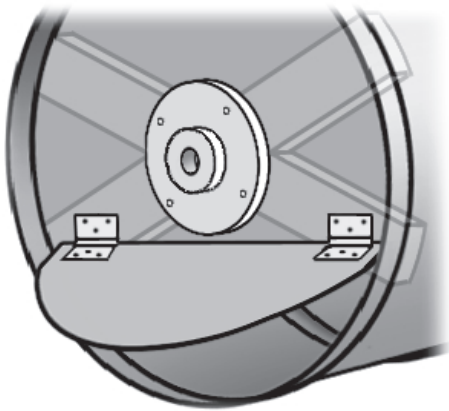


## TURNING CRANK FOR ROTATING BIN

The standard plans for building a rotating barrel bin don't include a hand crank for four reasons: It's easier to build it without the crank; it works just as well without the crank; a spinning barrel means a moving crank, which presents a significant threat to the eyes or teeth of a child; and finally, you'd probably rather work out some kind of wind-powered device anyway....

If you are determined to build a hand-cranked model, you will need the steel rod which passes through the barrel to be an extra foot long, with right-angle bends made 11" from the end (for the shaft, and providing a little bit of clearance from the frame) and at the 4" mark (for the handle).

You will also have to consider a more sturdy attachment of the rod to the barrel itself, rather than the plywood disks on either end—which merely keep the barrel rim from rubbing on the frame. A metal flange which clamps to the rod should do the trick. Substitute the flange for the smaller (2") plywood spacer, and firmly bolt the flange and the 8" spacer to the barrel.



## BARREL-END DISCHARGE DOOR

It can be a bit of a reach trying to get every last ounce of compost from a rotating barrel bin, as the door is in the side of the bin and will usually need to be turned downward for unloading. A semi-circular door cut into one of the ends will allow reaching in with a hoe or rake, and scraping every last bit of compost from end-to-end.

Be sure to leave enough metal on the drum ends to properly affix the plywood spacer disks—and avoid weakening the entire end by radical cutting. You may need to reinforce this door (and protect against sharp edges) by building a frame similar to the side door, which includes crossed 2x4s bolted to the inside of the barrel end. The axial rod would pass through a hole drilled at the centre of these 2x4s.

You will also need to make sure that the end-door is not blocked by the cross-brace on the frame legs. This brace may have to be placed quite low, and horizontally rather than at an angle. To retain strength, substitute a length of 2x4 for the 1x3 bracing, and use lapped, glued and screwed joints.