

# Potter's Wheel Plans



Throwing Pottery on a wheel is the most challenging form of pottery making and the most fun. You can spend countless enjoyable hours at this hobby. And produce beautiful teapots, bowls and vases.

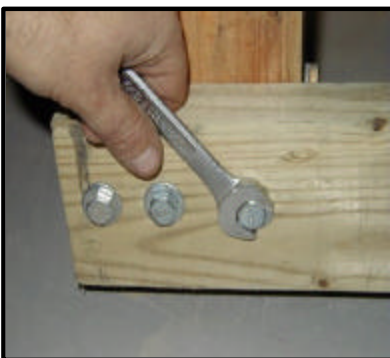
Prices on ready-made Pottery Wheels can run several hundred dollars. Which makes them too expensive for a hobby. But our wheel can be made for about \$100. The wheel shown is "kicked-powered" which is best for a beginner. But if you're reluctant to spend that much energy, we show a method of electrically powering the wheel.

The first step is to gather the material. Outside the lumber, screws and bolts you'll need a couple of heavy bearings and a steel shaft.

The bearings usually can be purchased where power tools are sold. This includes some larger mail-order houses. The shaft is just a length of cold-rolled steel rod. For the potter's wheel shown we just went to a machine shop, told them what we wanted and they sold us both bearings and the steel shaft.

You also can buy "kits" for a potter's wheel as well as individual parts such as the "head" (throwing wheel) made of metal. Should you use a metal head, get it before you select the shaft and bearings to make sure all the parts match.

Cut the 4 x 4's to length and start assembling the frame. [Fig. 3](#) Do this on a level surface and keep the corner posts plumb and square to the



All joints in frame are fastened with bolts or lag screws: No glue used. This permits tightening joints that loosen.



Bottom bearing is flange-type, I should have used a 2 hole. "Oh Well." A recess is made in 4x4 support for the rod end.



Flywheel is poured in form made by tacking tar paper to plywood disk. Partly set concrete is "broom-finished."

cross braces. Lag screws and washers are used to join the frame. Stagger the screws to avoid splitting the wood and drill clearance and pilot holes for them.

The two crosspieces under the seat (Fig. 3) are ripped at an 80-degree angle to create a slope. (A completely horizontal seat will create pressure on the back of your leg when you kick the wheel.) The inside 2 x 4 brace is located flush with the top of the 4 x 4 corner posts. While the outside brace under the seat is positioned to have the upper edge  $\frac{3}{4}$  in. above the posts.

Note: The bottom side braces extend past the 4 x 4 corner posts and over the ends of the front and back braces. The upper side braces are shorter and the ends are flush with the front surfaces of the front posts. Attach the plywood seat with the wood screws, countersinking the heads so they can be covered over with wood putty. You want the surface of the seat smooth and snag free.

Cut the splash pan from marine or exterior grade plywood. Screw it to the top cross braces, but allow a space of  $\frac{3}{4}$  in. at the back and both sides, so the side and back pans are flush with the outside of these members. The back and side pans are held in place with wood screws.

With the frame assembled, fit the shaft and bearings in place. (Fig 1) Cut a hardwood 2 x 4 to fit between the side splash aprons and find the center. Position a pillow block bearing on this center and bolt it in place. Locate the bearing and block on the frame assembly with the center of the bearing  $3\frac{1}{2}$  in. from the front edge of the splash pan. Drill a 1-in. hole through the pan below the bearing hole. Drop a plumb line down through the hole from the center of the bearing to locate the bottom bearing. Be sure your assembly is square and level. Cut the 4 x 4 cross-piece (14), notch it to fit over the lower side braces and mark the spot where the plumb line contacts it. Remove the plumb bob and replace it with the shaft.



Upper bearing is bolted to hardwood 2 x 4 that is bolted to top-side braces. Turning wheel can be plywood or purchased metal one.

Make sure the shaft spins easily when positioned on the mark. If it does, remove the shaft and fasten the bottom bearing to the 4 x 4. Replace the shaft through the two bearings and again check to make sure it rotates freely. If it does, clamp the 4 x 4 brace in place. Drill the clearance holes and bolt the brace to the lower side brace.

Now comes the tricky part of casting the flywheel. Cut a disk of 3/4" plywood 29" in diameter and drill a 1" hole at the exact center. Grind or file the inside of the 3/4" pipe flange so that it slides easily over the 1" shaft. Fit the shaft in the upper bearing and lock it with the set screw so that the lower end is about 6" above the lower bearing.

Attach the pipe flange over the hole in the plywood disk using 3" wood screws and allowing them to project up through the plywood disk. Drive the other 3" screws about 1" in from the edge of the disk all the way around the circumference spaced about ten inches apart. These will help hold the concrete.

Now fit the plywood and the flange on the shaft, then the bearing collar and flange. Loosen the upper bearing collar and drop the assembly into the flange support. Lock the upper and lower collar then pull up the plywood disk with its pipe flange and drop it out of the way. Tape the bottom bearing with masking tape then smear the top of the bearing collar and about 3" of the shaft with epoxy glue. Also smear glue on the underside of the pipe flange and drop the flange down against the collar. Use a square to be sure the disk flange flywheel support is square with the shaft. Then prop the disk in place and let the epoxy glue set overnight.

For the concrete form you can fold a 6" width of tar paper double to be 3" or you can use sheet metal or even dampened hardboard. Tack on the tar paper or other material to the disk. Then bind it with a ring of wire. Mix the 90 lb. sack of concrete with twice its volume of sand plus water and gently pour it into the "wheel mold"

FIG. 1

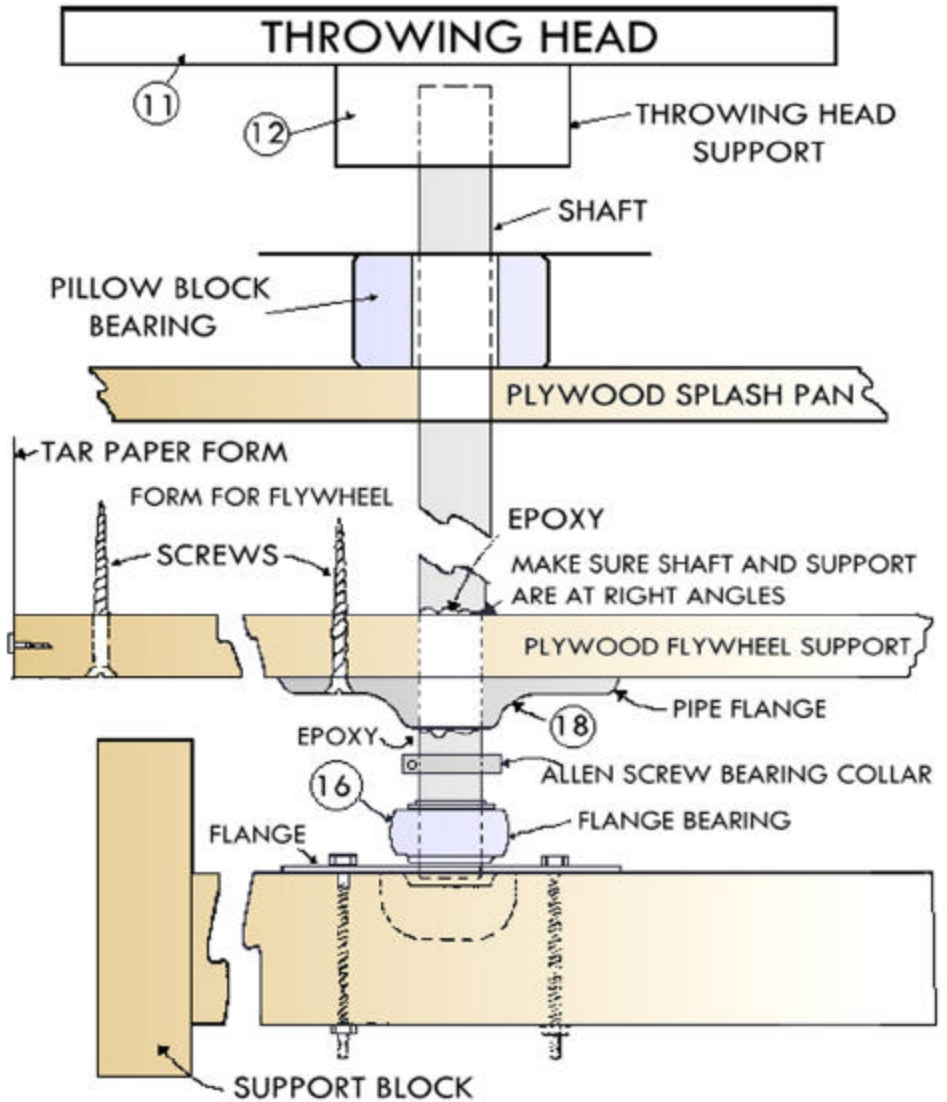


Fig. 2

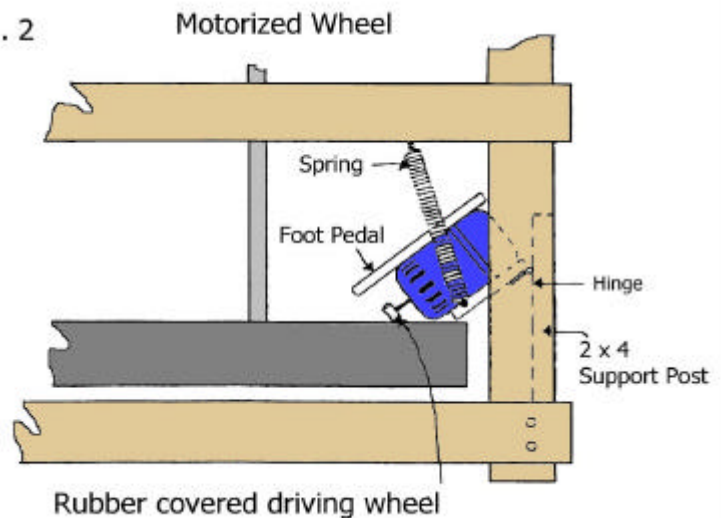
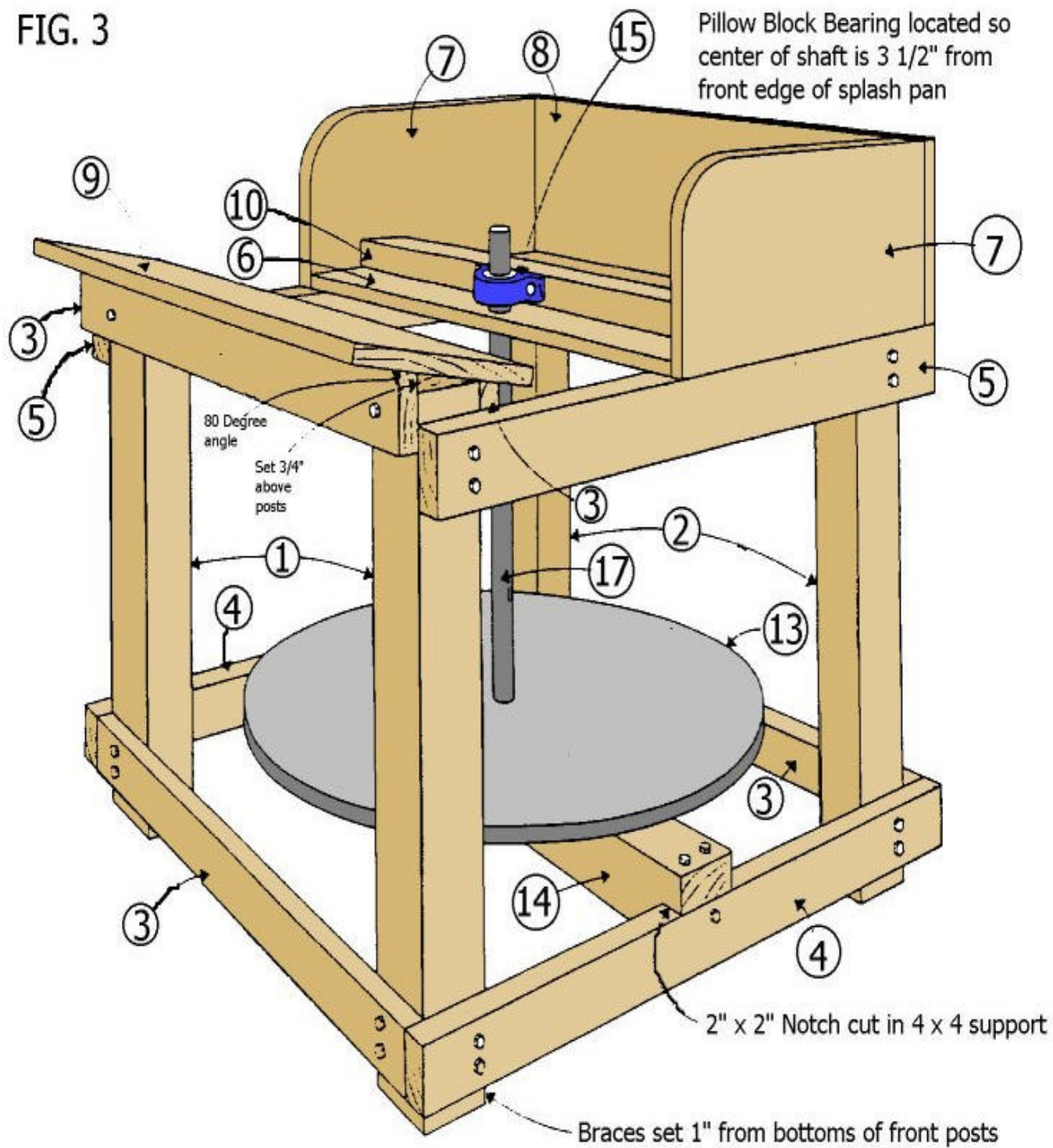


FIG. 3



I purchased a 12" aluminum Shimpo Wheel Head with a 1" bore.

## Material List

1.	Front posts	4" x 4" x 30"	2 required
2.	Back posts	4" x 4" x 29"	2 required
3.	Front and back braces	2" x 4" x 36"	5 required
4.	Bottom side braces	2" x 4" x 37 1/2"	2 required
5.	Top side braces	2" x 4" x 36"	2 required
6.	Splash pan (37" is an approximation)	3/4' Plywood 20 3/4" x 37"	1 required
7.	Side splash aprons	3/4' Plywood 9" x 20 3/4"	2 required
8.	Back splash apron	3/4' Plywood 9" x 39"	1 required
9.	Seat (move seat for desired comfort)	3/4' Plywood 9 1/2" x 39"	1 required
10.	Top bearing support	Hardwood 2" x 4" x 36"	1 required
11.	Throwing wheel (Fig. 1)	3/4' Plywood x 14" diameter	1 required
12.	Throwing Wheel Support (Fig. 1)	Hardwood 2" x 3" diameter	1 required
13.	Flywheel support	3/4' Plywood x 29" diameter	1 required
14.	Flywheel support	4" x 4" x 39"	1 required
15.	Pillow-block	1" Inside diameter	1 required
16.	Flange or thrust bearing (Fig. 1)	1" Inside diameter	1 required
17.	1" Steel rod (cold rolled)	1" Diameter rod	1 required
18.	3/4" Pipe flange	3/4' Female pipe thread	1 required

## Miscellaneous

3/8" x 6" Bolts (24) required ( I used a lot more)

3/8" x 6" Lag screws (16) required

Package Epoxy Glue

No. 10 x 1 1/2" Wood screws (1 dozen required)

No. 10 x 3" wood screws (1 dozen required)

One 90lb. Sack of cement

Sand

Building paper (tar paper)

Roofing nails

Level the concrete. When it starts to set, then give it a broom finish. This rough surface assures a "grip" for your feet. Or a drive motor.

The least expensive motor drive is to fit a small rubber tired wheel on the motor shaft. With the motor pivoted and spring mounted. Fig.4 so it must be pressed down to contact the flywheel. Light pressure allows the motor to slip somewhat. So the speed is slow. Firm pressure maintains full contact and the speed is higher. Alternately, a rubber tired drive wheel can be kept in constant contact. With the motor speed varied by an electronic speed control. For either setup it probably will be necessary to kick the wheel to start it. As smaller motors will not be able to overcome the inertia of the heavy flywheel.

Here is a brief little history about these plans.

I have been meaning to build this wheel since I was in my high school art class and working for Peter Petrie the owner of Middle Earth Pottery. I'm 41 now so you do the math. (grin) I even had the original plans out of the 1973 May-June issue of "WorkBench Magazine" but I lost them long ago. So imagine my surprise when I went to the Internet looking for something similar and coming across the same set. After all these years I see this wheel is still popular, but the copies of copies of copies have become very hard to read. I'm not sure who the original author was, and I hope he doesn't become too upset at me. But I took the liberty of cleaning up the plans a little. And here you go ! What would be fun is to see some of the wheels that have actually been made with this set of plans. If anyone is interested in passing on a few pictures I'll get them up on my web page at <http://www.dreamscape.com/smiths> Thanks

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