

Turning a Click-In® Crushgrind® Mill

Supplies Needed

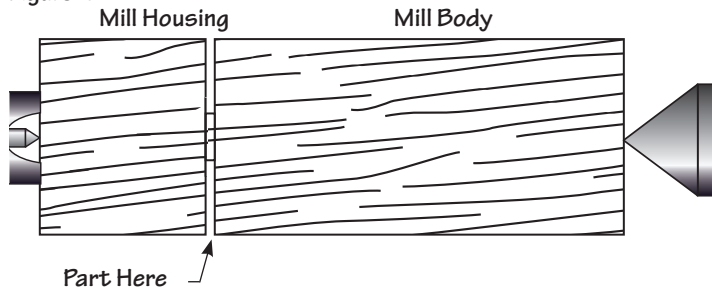
- Blank
- Sandpaper/Finish
- 1-3/4" Forstner Drill Bit
- Drill or Drill Press
- 1-1/16" Forstner Drill Bit
- Eye and Ear Protection
- 1-1/2" Forstner Drill Bit
- Epoxy
- Drill Bit Extender (Optional)

Selecting the Blank

1. Sketch and design the shape of your mill using the **critical dimensions** shown in the drawing.
2. Select a 2-3/4" square blank that is at least 1" longer than the mechanism. Note: You can make the mill as long as desired.

Mounting the Blank

Figure 1



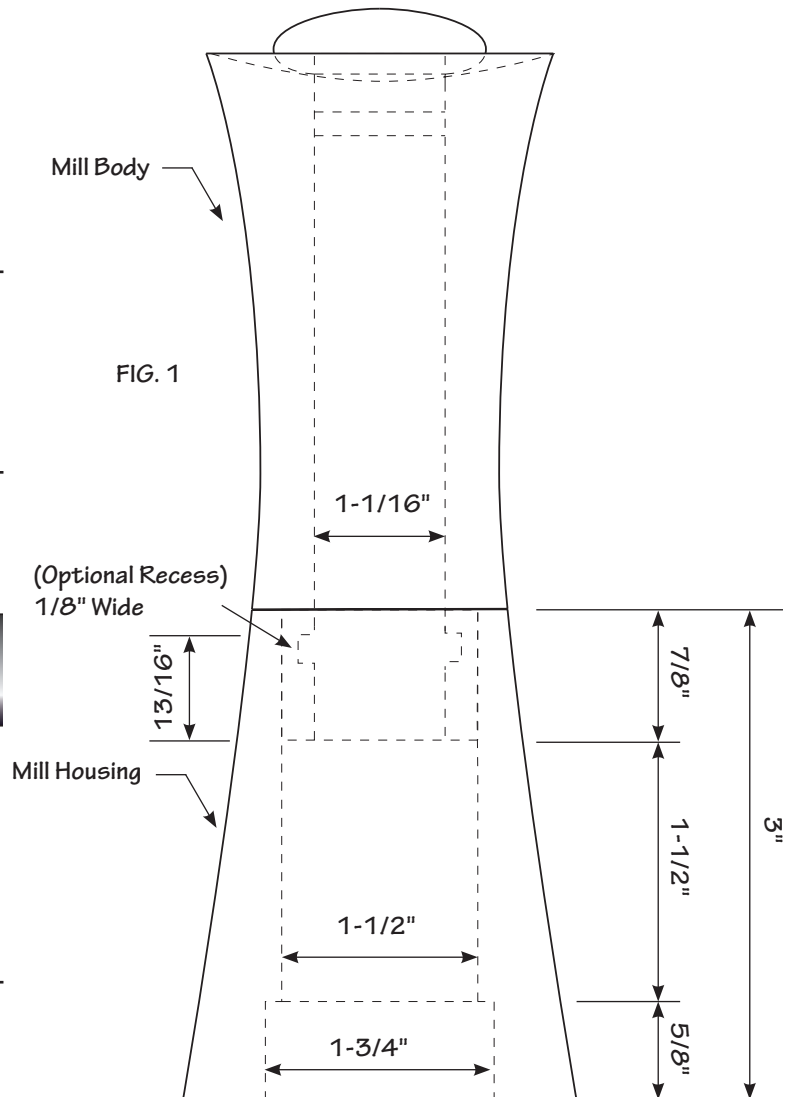
1. Mount the blank between centers and rough turn to about 2-1/2" in diameter (see figure 1). Layout the Mill Body and Mill Housing on the blank and part them.

Drilling the Mill

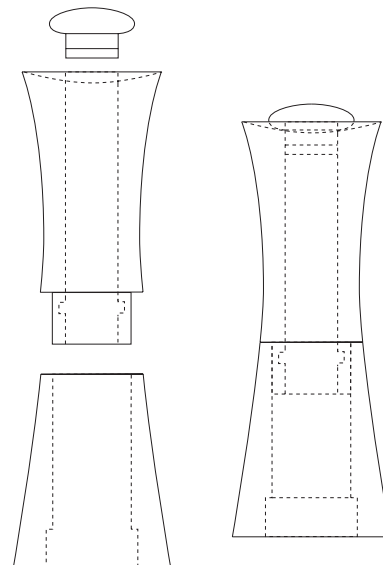
1. Mount the Mill Housing in a chuck and drill a 1-3/4" x 5/8" deep hole into the base of the Mill Housing.
2. Next mount a 1-1/2" Forstner bit and drill through the rest of the Mill Housing.
3. Drill a 1-1/16" hole completely through the top of the Mill Body.

Turning the Mill Housing and Mill Body

1. To make a drive tenon, mount a 2" to 3" diameter by 2" thick waste block on the lathe with a chuck or faceplate.
2. Turn a 1" long tenon to fit very snugly into the 1-1/16" hole in the Mill Body. Leave a small shoulder around the tenon. Test the fit of the tenon to the hole until you have the right fit. (Figure 2.)
3. Turn a 1-1/2" Dia. by 7/8" long tenon that will fit into the top of the mill housing. The tenon should fit snugly but not too tight. Test fit of the tenon into the housing often. Note that it is critical that all of the dimensions are correct in this area of the mill. (Figure 2.)
4. (Optional) Using the recess tool cut a 1/8" wide recess, 13/16" from the end of the tenon. See Figure 1.



Sample Shape



Turning the Mill Housing and Mill Body (cont).

5. Mount a new waste block in a chuck and turn a 1-3/4" drive tenon. Mount the Mill Body and Mill Housing together between the drive tenon and revolving center. (Figure 3.)
6. Turn, sand and finish the Mill Body and Mill Housing according to your sketch. Remember the internal hole diameter in order to maintain sufficient wall thickness.

Turning the O-Ring Plug

1. Start with a blank that is 1-1/2" square (minimum) and 1" longer than your finished length of the plug.
2. Mount the blank in a chuck.
3. Turn a 1-1/16" Dia. by 3/4" long tenon to fit into the hole in the top of the Mill Body. The fit should be slightly loose. The O-ring will provide the friction that will hold the plug in place.
4. With the point of the skew, laying flat scrape a small Vee groove in the tenon. Stop the lathe and slide the O-ring onto the groove and test the fit of the plug into the top of the mill body. You may need to cut the Vee groove deeper/wider in order to decrease the outside diameter of the O-ring. Keep testing the fit until the plug fits snugly into the hole.
5. Turn and finish the plug to your desired shape.
6. Part off the plug, then hand sand and finish the area on top of the plug.

Assembly

1. The mechanism is designed to fit into metric holes. In order to fit into standard holes some modification may be necessary.
2. Test the fit of the mechanism into the base of the mill housing to see if it will seat against the shoulder. If the mechanism will not seat, remove the 6 ribs around the base of the mechanism and test it again.
3. Once the mechanism fits, carefully glue the outer surface of the mechanism with epoxy avoiding any moving parts. Press it into the 1-1/2" hole, clean up any excess glue and set it aside to dry.
4. Press the tenon end of the mill body onto the finger of the mechanism.
5. Lightly spread a thin layer of epoxy into the bottom of the Mill body hole. Press the assembled Mill body and Mechanism into the glued hole, clean up any excess glue and set it aside to dry.

How the Mill Works

1. The mill coarseness is adjusted by turning the small wheel on the bottom of the mechanism. To fill the mill with pepper or salt, pull the O-Ring Plug out and fill the Mill Body and re-install the plug.

