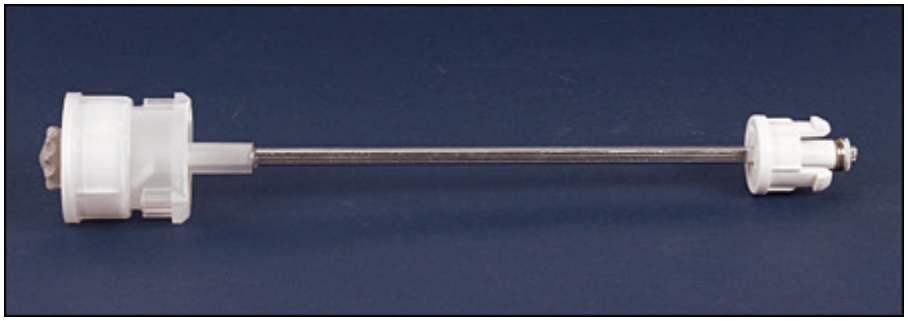
Mechanism with Shaft



Measuring 10-1/2" overall, the shaft-driven mechanism will make a 12" mill. The 8-1/2" long aluminum shaft can be cut to length to produce a mill as little as 5" tall.

Grind-adjustment knob is located at the bottom of the mechanism.

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Mechanism with Shaft

(93K03.15)

The following instructions were provided by the manufacturer.

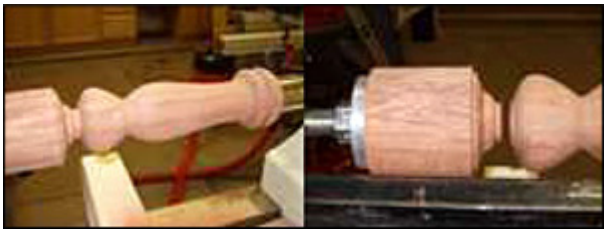
1. Boring the housing

a. Bore a 1-3/4" (45 mm) to 2" (50 mm) hole 1" (25 mm) into the blank.
b. Bore a 1-9/16" (40 mm) hole 1-1/2" (38 mm) further into the blank.
c. Bore a 1-1/16" (see note below) (26 mm) hole as deep as is necessary to completely penetrate the housing.

Mill Blank 50mm bore 39mm bore

2. The housing profile

a. Turn whatever housing profile is pleasing to you or your customer's eye.
b. Finish sand the profile to the desired grit.
c. Part-off the housing from the blank.



Housing profile Housing part-off

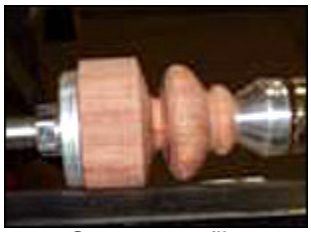
3. Boring the stopper

a. Bore a 15/16" (24 mm) hole 1-1/4" (32 mm) into the remaining blank for the stopper insert.
b. You might want to face-off the blank prior to boring the stopper.

Stopper blank Stopper bore

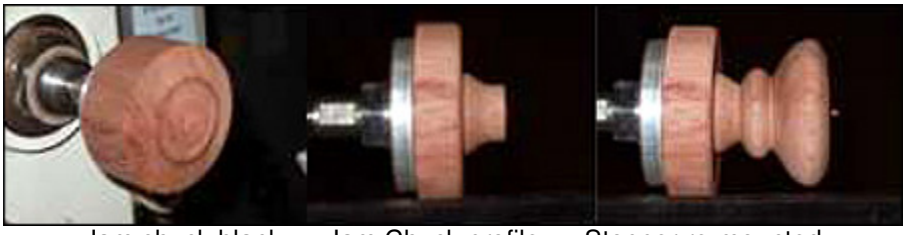
4. Profiling the stopper.

a. Turn a profile that compliments the housing.
b. This should automatically part-off the stopper.


Stopper profile

5. Make a "Jam Chuck"

a. With what is left of the blank, create a tapered jam chuck.
b. The taper should create a snug fit for the stopper.
c. Re-mount the stopper to the jam chuck to finish the profile for the top of the stopper.
d. Finish sand the stopper to the desired grit.


Jam chuck blank Jam Chuck profile Stopper re-mounted

6. Congratulations!

You have completed the boring and profiling of your mill. Now you can move on to whatever finishing process you prefer.


This is a design I call "The Queen"

* Advanced turners can skip the part-off of the housing step. Just continue the initial bore to account for the width of your part-off tool and the depth of the stopper bore. Turn the entire mill profile and then part-off the housing and stopper (requires a high level of confidence and skill in the accuracy and depth of the boring process).

* Use of fractional bits may require slight modification of the mechanisms. The mechanisms will also need to be glued in. I recommend a 5 minute epoxy. For oily wood, pre-treat the area to be glued with acetone and let dry prior to applying any glue.

*At 1-1/16" , the stopper will have a slight amount of play when fitted to the housing. To avoid this, bore a 1" through hole and then turn down the outside diameter of the stopper insert for a perfect fit.

* IF YOU PLAN TO GLUE-IN THE MECHANISM, THE "CLIP-IN" NOTCHES DO NOT NEED TO BE CUT.

Shaftless Mechanism

The shaftless mechanism measures 3" long
and allows you to depart from traditional mill design. It can be
mounted along the body at different positions to vary the proportions.

Grind-adjustment knob is located at the bottom of the mechanism.

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Shaftless Mechanism

(93K03.17)

The following instructions were provided by the manufacturer.

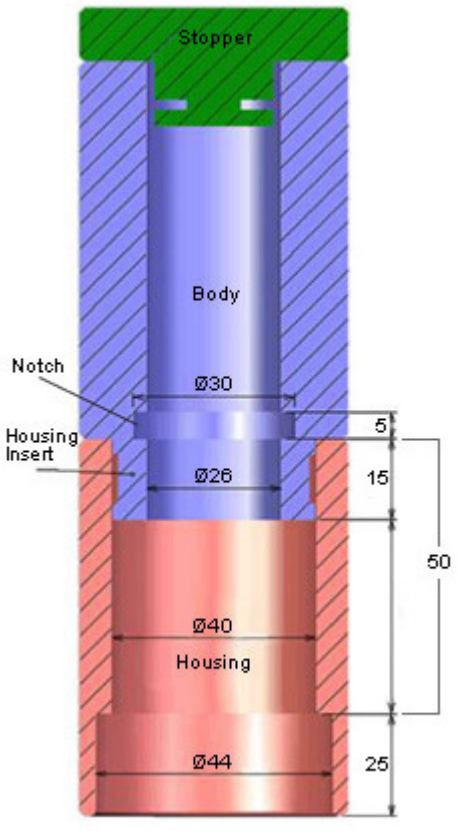
Note: *Making mills of this design with this mechanism requires a high level of skill as a woodturner and some complex mathematics. Please contact us with any questions or concerns regarding these instructions.*

1. The housing

a. Bore a 1-3/4" (44 mm) to 2" (50 mm) hole 1" (25 mm) into the blank.
b. Bore a 1-9/16" (40 mm) hole 2" (50 mm) further into the blank (add the width of your part-off tool to this dimension).
c. Part-off the housing.

2. The body

a. Bore a 1-1/16" (26 mm) hole as deep as is necessary to completely penetrate the body.
b. Be sure to allow an additional 9/16" (15 mm) in body length to account for the housing insert.
c. Turn down the 9/16" (15 mm) housing insert so that it fits snuggly into the housing but turns freely.
d. Cut a notch on the inside of the body that is 1/8" deep and 9/16" from the bottom.
e. Part-off the body from the blank.



3. The stopper

a. Turn down the blank so that 3/4" of the stopper fits snugly into the body.
b. If you are planning to install a plastic/rubber ring on the stopper insert you can loosen the fit into the body. The ring acts to snug the fit. You can also turn threads and screw the stopper into the body.
c. Turn the stopper profile and part it off from the blank.

4. Profiling the housing and body

a. Make a jam-chuck and re-mount the housing.
b. Turn whatever profile for the housing that pleases your eye.
c. Sand the housing to the desired grit.
d. Turn down the jam-chuck so you can mount the body and turn its profile as well (I do them in this order so I can re-use the jam-chuck and to be sure the profiles complement each other by occasionally installing the housing to the end of the body).
e. Sand the body to the desired grit.
f. While the body is still mounted to the jam-chuck, insert the stopper and sand it to the desired grit.

5. Congratulations!

You have completed the boring and profiling of your mill. Now you can move on to whatever finishing process you prefer.

6. Install the mechanism

a. Press or glue the mechanism into the housing.
b. With the mechanism secured in the housing, press the body into the housing until the "catchers" clip into the notches.
c. The mechanism is now installed.

* Use of fractional bits may require slight modification of the mechanisms. The mechanisms will also need to be glued in. I recommend a 5 minute epoxy. For oily wood, pre-treat the area to be glued with acetone and let dry prior to applying any glue.

* The height of this mill can be adjusted to a maximum of 8 inches. This is done by extending the body length. Taller mills are possible. Contact us for special instructions if you are attempting a mill greater than 8 inches.

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