Crush Grinder

DESIGNING THE MILL

The crush grind mill has several unique features that must be taken into consideration when designing your mill.

- The maximum body height is 9".
- The minimum height of the body is 3 1/2". Note that the shaft will need to be cut with a hacksaw for body heights less than the maximum (explained in assembly section).
- The minimum finished height of the head is 1 1/2".
- Make a simple sketch for your design and all of the different holes before you start (Fig. 1). This will help to familiarize you with the boring and turning process.

PREPARING THE BLANK

- Select a block of wood about 2 3/4" x 2 3/4" and at least 1" longer than the length of the mechanism.
- Mount the blank between centers of the lathe and rough turn to about 2 1/2" diameter.
- Square the end of the blank with a parting tool.
- Using a pencil, mark the body and head locations of your design onto the blank.
- Use a parting tool and cut down the parting line between the body and head, stopping when about 3/4" of wood is left.
- Stop the lathe and finish cutting with a handsaw.

BORING THE MILL BODY

- Bore a 1 3/4" hole 1" deep into the base of the mill body.
- Use the center mark from the previous hole and bore a 1 9/16" hole 1 1/2" further into the blank (2 1/2" overall).
- Bore a 1 1/16" hole using the center mark from the previous hole and drill completely through the mill body.

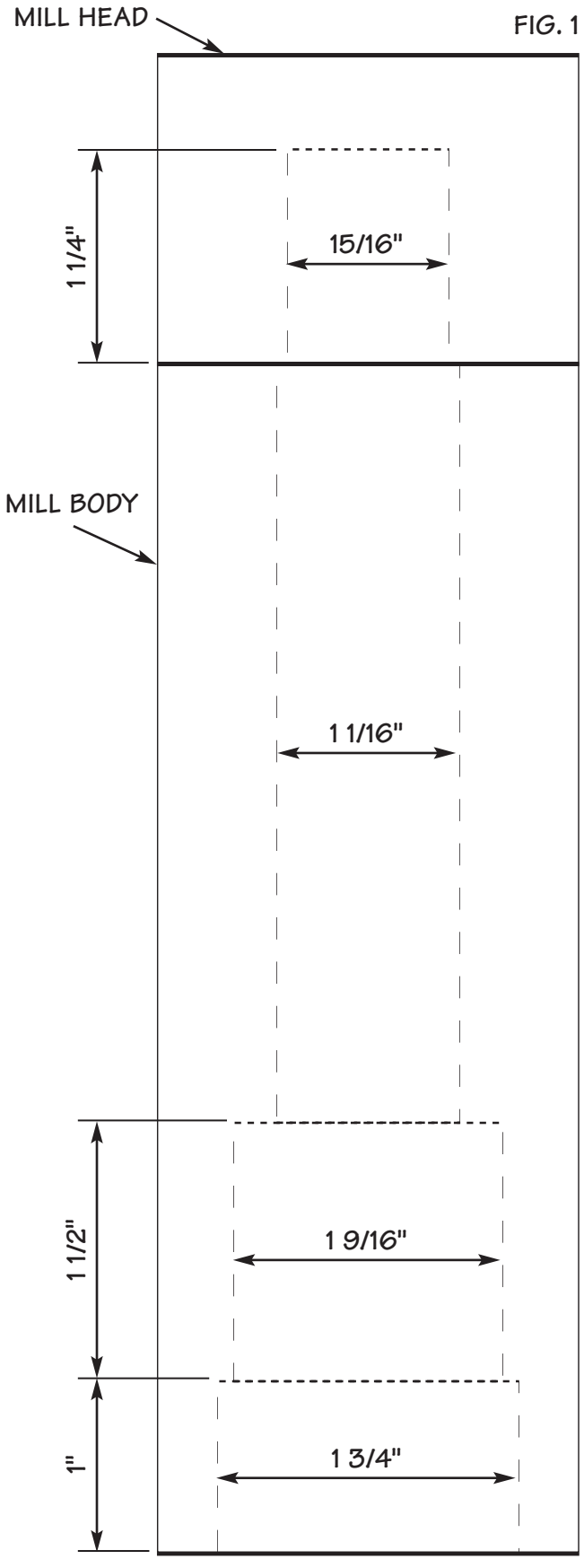
BORING THE MILL HEAD

- Bore a 15/16" hole 1 1/4" deep into the bottom of the mill head.

TURNING THE MILL BODY

- Mount the body between centers using a drive tenon and cone center as shown in Figure 2 (on back).
  To make a drive tenon, mount a 2" to 3" diameter by 2" thick waste block on the lathe with a chuck or faceplate. Turn a 1/4" long tenon to fit snugly into the 1 3/4" hole. Leave a small shoulder around the tenon.
- Turn, sand and finish the body according to your sketch. Remember the internal holes in order to maintain sufficient wall thickness.

FIG. 1



TURNING THE MILL HEAD

- Mount the head between a drive tenon and cone center as shown in Figure 3.
- To make a drive tenon, mount a 2" to 3" diameter by 2" thick waste block on the lathe with a chuck or faceplate.
- Turn a 3/4" long tenon to fit very snugly into the 15/16" hole in the mill head. Leave a small shoulder around the tenon. Test the fit of the tenon to the hole until you have the right fit.
- Mount the head onto the drive tenon and bring the revolving center up against the blank for support.
- Turn, sand and finish the head according to your sketch. Remember the internal hole diameter in order to maintain sufficient wall thickness.

ASSEMBLY

- In order to ensure a good fit we recommend that the mechanism be glued in place.
- Lightly coat the inside wall of the hole in the mill head with epoxy. Press the stopper into the hole and set it aside until it is dry.
- Cut off the two clip-in clips on the top of the mill mechanism (Fig. 4).
- Lightly coat the inside wall of the 1 3/4" hole in the mill body base with epoxy. Press the mechanism into the hole and set it aside until it is dry. Make sure that the epoxy does not interfere with any moving parts.
- Using a hacksaw, cut the hex shaft off leaving 1 1/8" extending out of the mill body.
- Press the stopper and head onto the hex shaft until the head and body are touching. The shoulder of the stopper will center the head with the body of the mill.

HOW THE MILL WORKS

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 mill top off and fill from the top.

FIG. 2

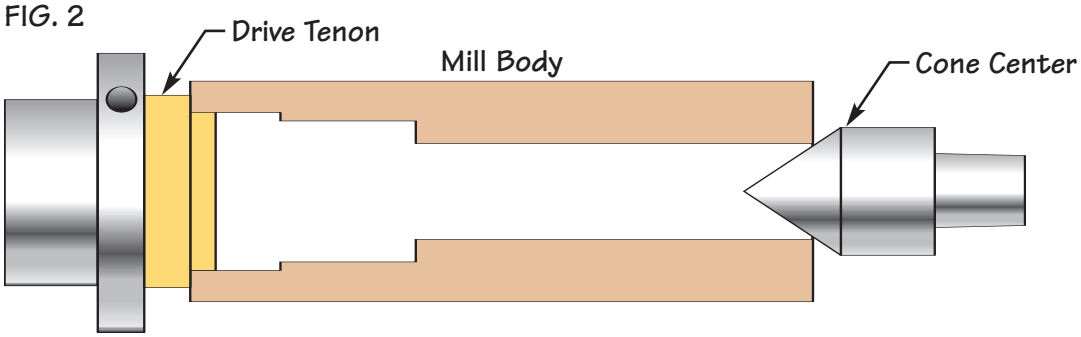
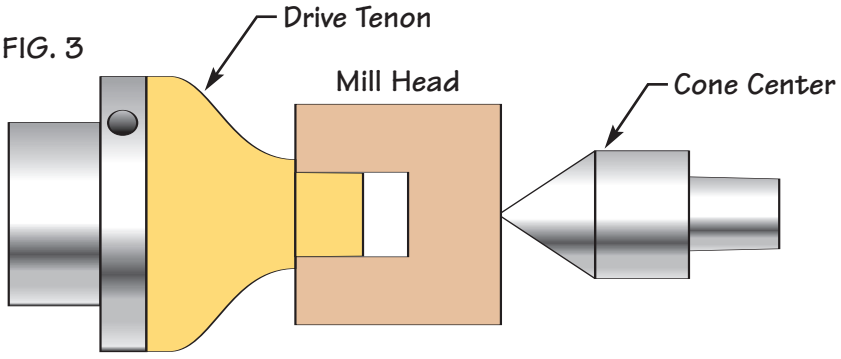
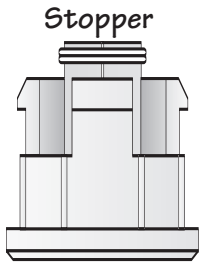


FIG. 3





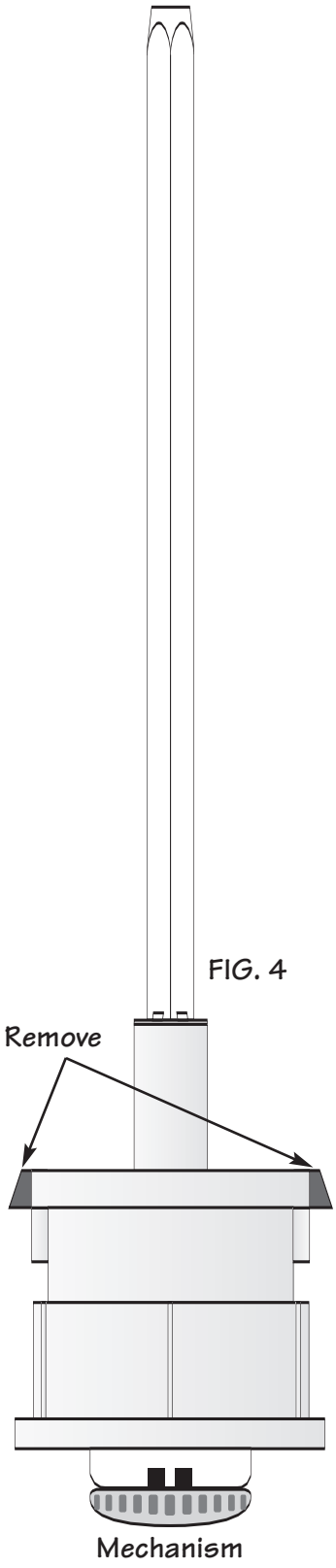


FIG. 4