

HOW TO DO MILLING WORK WITH A LATHE

CUTTING ACCURATELY SPACED GROOVES with a milling machine having an indexing head is a fairly simple job. The same work can be done on a lathe, however, when no milling machine is available. Here's how a lathe can be set up to cut axial grooves on the surface of a brass cylinder.

Having established the centers and turned the outside diameter of the cylinder, bolt a change gear, with the same number of teeth as the grooves needed,

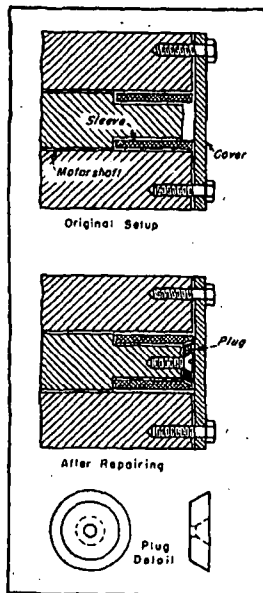
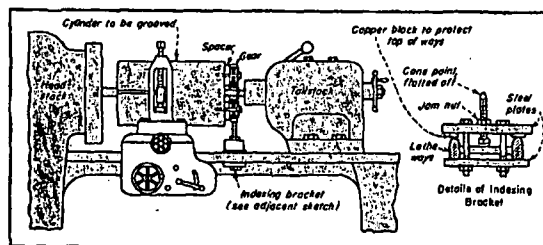
to the end of the cylinder by means of holes drilled through the arms. Center the gear with respect to the cylinder axis and clamp in a manner that will not interfere with application of the tailstock center to the work.

Assemble bracket to hold an indexing screw, as shown in the sketch below, and bolt to the lathe ways. The indexing screw should be a fine-thread bolt, threaded into the plate and secured by a jam nut. Turn a conical point on the

screw, concentric with the thread. Flat it off so the screw blade between the teeth and does not bottom in the root of the gear.

To cut the axial grooves, grind the lathe tool to the desired shape and secure in the tool post lying on its side. Gear the lathe to give a coarse longitudinal feed and a slow spindle speed. The grooves are cut by traversing the carriage toward the tailstock with the work held in position by means of the screw in the indexing bracket. Remove the lathe dog and lubricate the tailstock center with white lead during the cutting. After completing the cutting of each groove, index the work one tooth on the gear.

In doing work of this kind, as many cuts may be taken on each groove as necessary, but only a light cut can be made without chattering. Of course, the index gear need not have the same number of teeth as the number of grooves desired in the work as long as the teeth are evenly divisible by the grooves. The indexing screw may be engaged every second, third, fourth, etc., tooth. M C MOORE, Swampscott, Mass.



Plug-Type Cap Holds Shaft Sleeve in Place

A USED COMPRESSION UNIT, when installed in our plant, was found to have the outboard end of the motor shaft bolted up with a sleeve as shown in the top sketch at left. We assumed that the shaft had been damaged and rebuilt in this fashion to fit the bearing.

As everything looked shipshape otherwise, the unit was placed in service and ran steadily six days a week during a period of about six months. Then one day while the unit was running the sleeve was found projecting through the cover plate. It had loosened from the shaft and neatly drilled a hole through the cover plate—as smooth a job as a drill press could do.

To prevent a recurrence of this trouble another sleeve, similar to the one that had loosened, was prepared but it was chamfered at the outboard end. A plug was made to fit the chamfered end of the sleeve and a hole drilled and tapped in the end of the motor shaft. These elements were assembled and held together with a $\frac{3}{8}$ -in. bolt, as shown in the sketch. The unit has run $1\frac{1}{2}$ years without further trouble of this or any other nature.

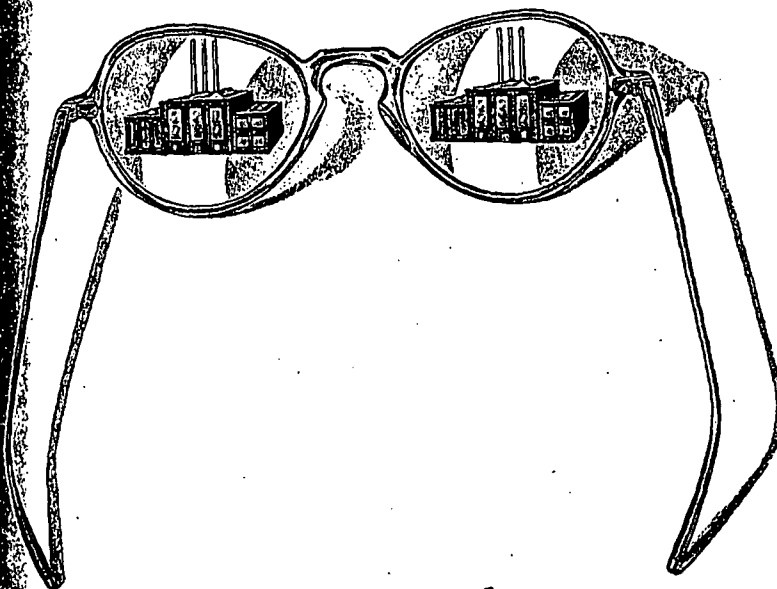
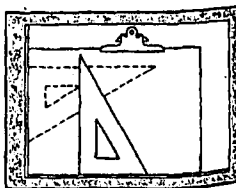
JOHN B THURMAN Buffalo, N. Y.

Edge Strips on Clip Board Aid Drawing

THE 11x14-IN. CLIP BOARD shown below has $\frac{1}{8}$ -in. maple strips fastened to its left and bottom edges. These strips project $\frac{1}{8}$ in. above the board's surface. The clip allows quick removal or insertion of sketch sheets, which automatically square up against the projecting strips. Vertical and horizontal lines can be quickly and accurately drawn with the aid of standard triangles as shown. Edges of the board must be squared up before attaching the strips.

This board has been found to have great utility in the field, away from usual drafting-room conveniences, and even in the shop and office.

T E MILLER Guild, Tenn.



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