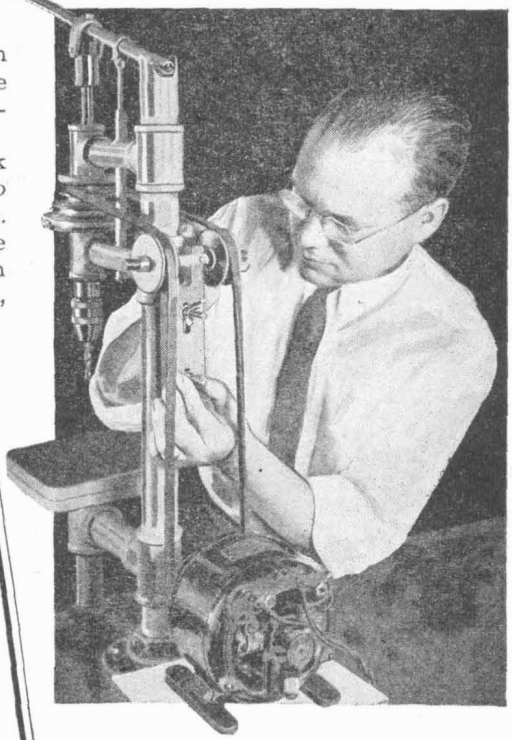
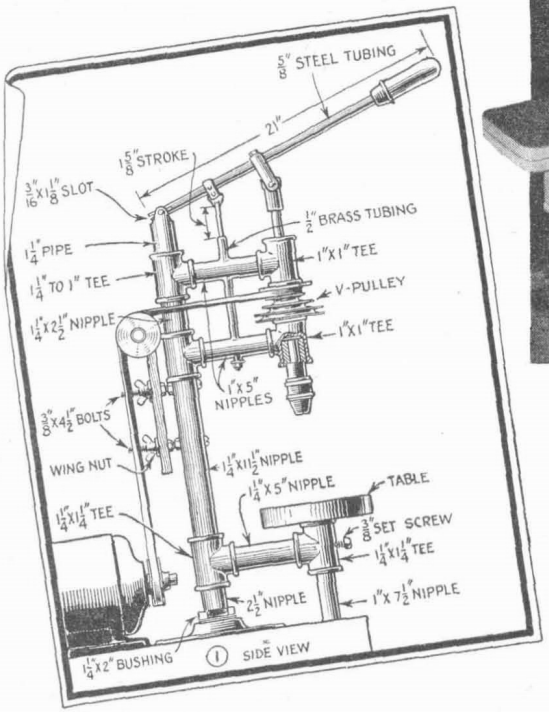
Homemade Ball-Bearing DRILL PRESS



CONSTRUCTED almost entirely from pipe fittings, this drill press will be found exceptionally rigid, neat in appearance and quiet in operation.

First get a cone pulley having a thick hub to allow a slot for the key. Refer to Figs. 1 and 6, and construct the frame. Drill through for the spring-assembly tube before screwing on the table support. Bush the 1-in. tees with 1-in. pipe as shown,



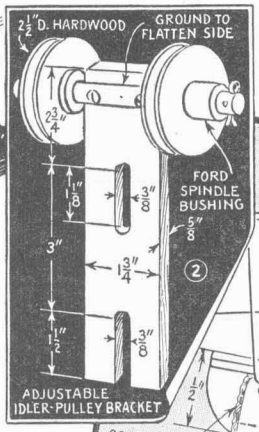
cut off and carefully drive in model-T Ford spindle bushings after having reamed to fit ½-in. drill rod. Insert the shaft and aline the bearings by tapping the shaft. With the shaft in place, pour molten babbitt around the spindle bushings. Now fasten a pulley on the shaft, take up the end play with a shaft collar, place it under power and turn down a groove as shown in Fig. 3. The long slot is cut easily with a plane made of two hack-saw blades clamped between two thin boards and a third board extending below to guide against the shaft. Make a key to fit this slot as in Fig. 4, and drive it into a slot cut in the top of the pulley. The upper pulley grease retainer is made by cementing a 1/16-in. aluminum disk to the pulley. Allow 24 hours for drying and then cement a ¼-in. plywood ring to the disk. Turn this true and cement the upper disk, which is cut out to clear the tee. Turn the whole assembly true with a file. The lower grease retainer is simply a brass cup, Fig. 2, made by wiring sheet brass around a ¾-in. pipe and soldering

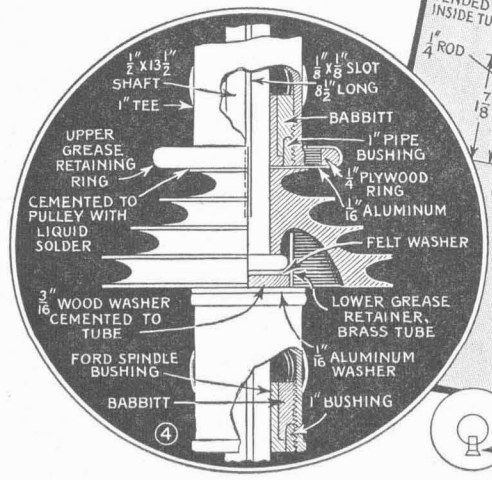
bearing grease retainer assembly as shown. The cover slides to a tight fit on the ¾-in. pipe. Cut off a Ford spindle bushing and drive it into the ¾-in. pipe after bushing with split tubing or tin. Drill through and tap for ¼-in. studs. The studs must have cut threads to avoid turning through into the shaft. See that all pivoting points in the handle lever are in alinement by inserting long rods in the holes and sighting along these. If not lined up properly the top bearing will heat up rapidly.

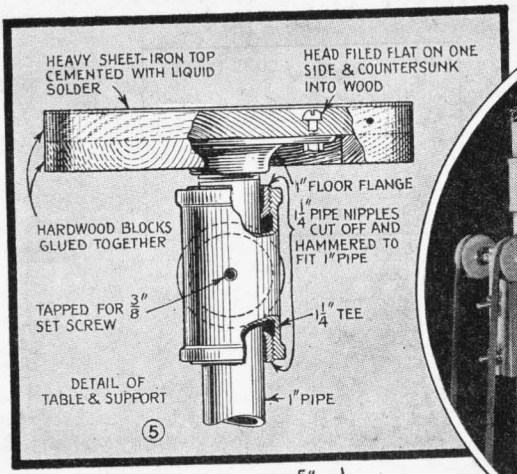
Construct the spring plunger assembly next as in Fig. 3. Use a spring having at least a 12 to 15-lb. pull when extended 1 in. The tube -inclosing the spring is

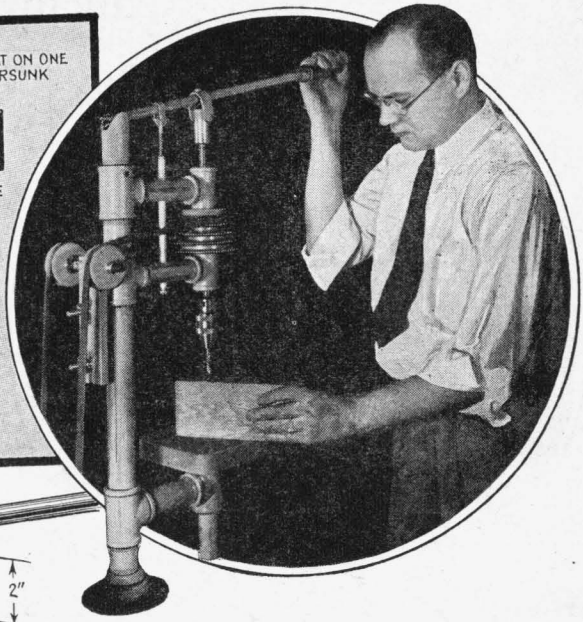
the joints. Cement a wood plug in the bottom as shown. Make a large aluminum washer to support the lower ball-bearing assembly.

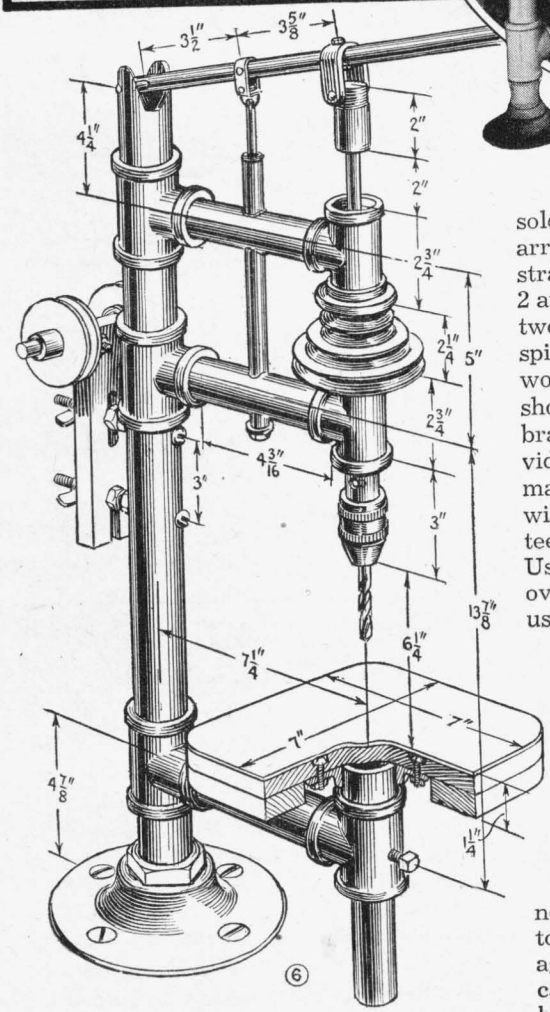
To assemble the shaft, drop the lower ball-bearing cup down into the tee and slide the pulley in place. Raise the grease retainer cup into place and slide the washer beneath. Then insert the shaft upward through the pulley. Refer to Fig. 3 to make the upper ball-











soldered to the frame as in Fig. 1. This arrangement relieves the upper bearing of strain, allowing high speeds. Refer to Fig. 2 and construct the bracket as shown using two ⅜-in. bolts to support it. Drive a spindle bushing through a hole in a hardwood block and turn it to the dimensions shown. Wing nuts and lock nuts hold the bracket firmly in the desired position, providing for belt adjustment. The table is made as shown in Fig. 5. Level it square with the shaft by bending the malleable tee slightly, with blows of the hammer. Use a well-made chuck having a short overhang. A standard 58-in. V-belt is used.

Magnet Prevents Oilcan From Falling Off Machine

A mechanic who often had an oilcan fall off a machine when he set it down while making an adjustment, stopped the trouble by fastening a small magnet to the can. Attraction of the magnet to metal of the machine will hold the can against ordinary vibration. The magnet can be held on the can either by rubber bands or by a drop of solder.