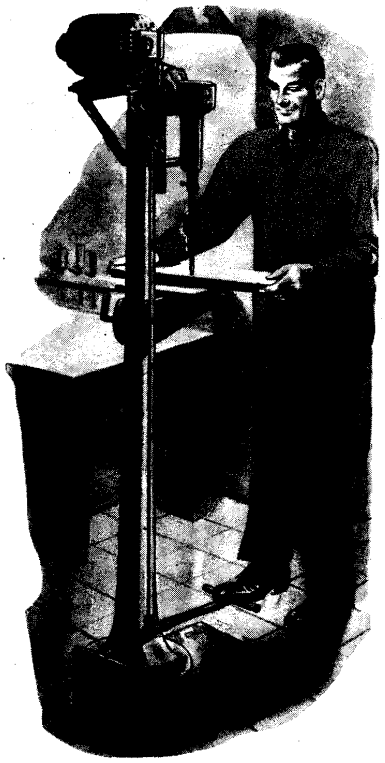
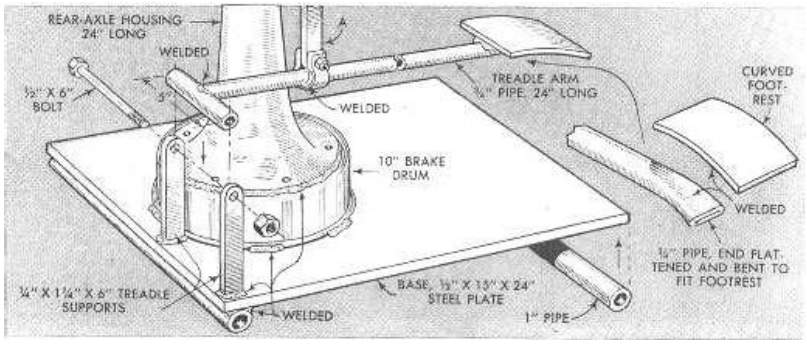
DRILL PRESS
made from auto parts



UNUSUAL simplicity of design and construction are features of this inexpensive drill press that will appeal to craftsmen and shop mechanics who like to make their own power tools. The spindle is motor driven through bevel gears adapted from an auto-differential spider, and is actuated by foot feed only, no hand feed being provided. This feature eliminates most of the accurate machine work which otherwise would be necessary. The motor, motor bracket and drill head lower as a unit and the head is returned to the original position by a tension spring.

Details below show the construction of the base and the lower end of the column. The steel base plate should be large enough for mounting the treadle supports in the position shown. The construction of these parts will be clear from the details and notes, which give the important dimensions. Likewise, details on page 197 show the construction of the combined slide and motor support, the spindle assembly and the drill table. First, note the part A, below, and also part A on page 197. The part labeled A in both details is the long treadle link between the treadle arm and the drill head. The lower end of the link is attached to the treadle arm by a U-shaped clamp,



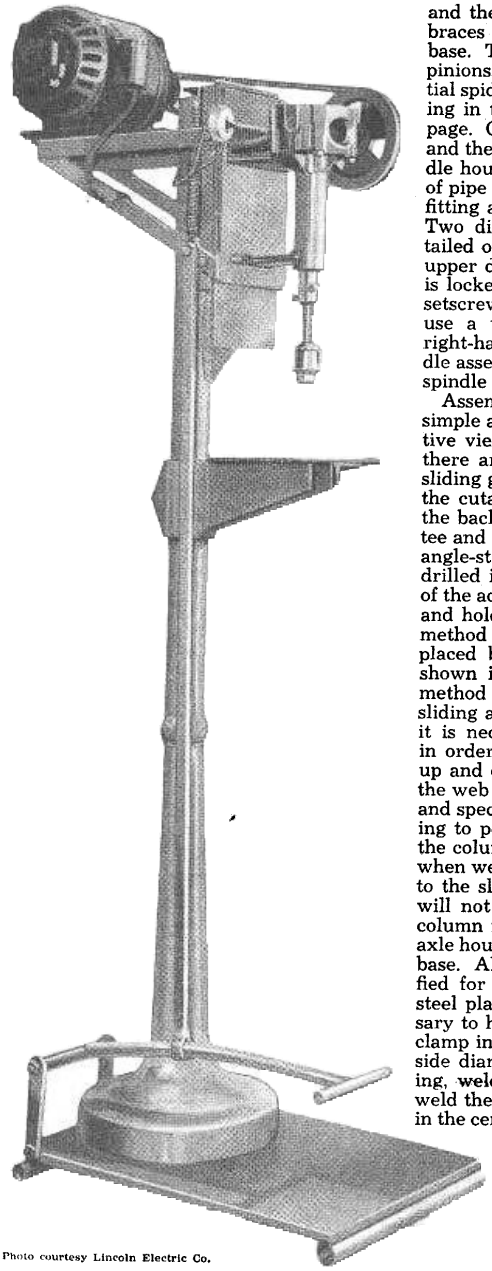


Photo courtesy Lincoln Electric Co.

and the upper end is bolted to one of the braces supporting the motor mounting base. The spindle is driven by two bevel pinions, which are taken from the differential spider, and mounted in the spider housing in the manner shown on the opposite page. One pinion is welded to the spindle and the other to the pulley shaft. The spindle housing is formed by welding a length of pipe to the spider housing as shown, and fitting a bronze bushing at the lower end. Two different spindle assemblies are detailed on the opposite page, the one in the upper detail using a tapered sleeve which is locked on the end of the spindle with a setscrew. On this spindle it is necessary to use a tapered chuck arbor. The lower right-hand detail shows an alternate spindle assembly in which the lower end of the spindle itself is tapered.

Assembly of the sliding drill head is quite simple and is clearly shown in the perspective view. However, it will be noted that there are two methods of assembling the sliding gibs. By the first method, shown in the cutaway perspective, the gibs ride on the back face of each leg of the structural tee and are placed between the tee and the angle-steel guides. Two blind holes are drilled in each gib and the threaded ends of the adjusting setscrews enter these holes and hold the gibs in place. In the second method of mounting the slide, the gibs are placed between the slide and the tee as shown in the sectional view. This latter method results in an exceptionally smooth sliding action but has one disadvantage as it is necessary to slot the leg of the tee in order to permit the setscrews to move up and down with the head. In any case, the web of the tee is welded to the column and special care must be taken while welding to position it parallel with the axis of the column. The same care must be taken when welding the spindle-support brackets to the sliding head as, otherwise, the drill will not run true. The lower end of the column is welded to the upper end of the axle housing which forms a part of the floor base. Although ½-in. steel plate is specified for the drill table, ⅜ or even ¼-in. steel plate may be used. It will be necessary to heat the two members of the table clamp in order to bend them to fit the outside diameter of the column. After bending, weld the members to a spacer, then weld the table in place. Although the hole in the center of the table is shown, it should be drilled after the table and clamp have been assembled on the column. Otherwise, the hole may not be centered. The table-adjusting screw is made from ½-in. steel rod, one end being bent to form a handle.