

## Expanding Mandrel Holds

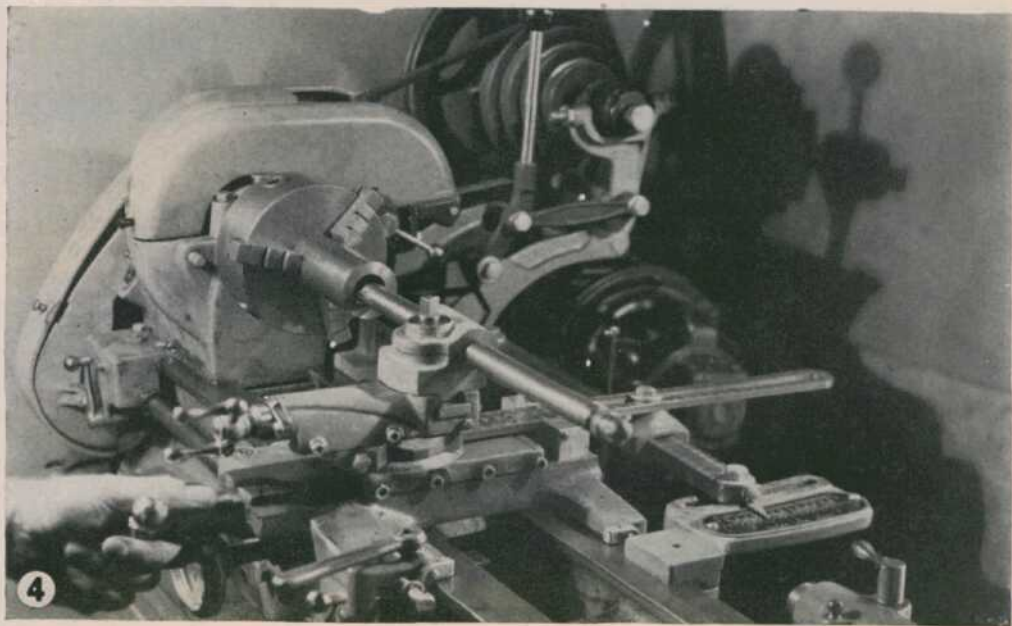


THE expanding mandrel shown in use in Fig. 1 consists of a tapered arbor and a split bushing taper-bored to fit it. This bushing is turned parallel on the outside, and expands evenly when the arbor is driven into it. Several bushings of different outside diameters may be used with the same arbor. For heavy duty, both parts should be of tool steel, hardened and spring-tempered. For occasional use, unhardened machine steel will serve.

Centerdrill stock for the arbor carefully, and turn it as in Fig. 2 to the dimensions given in the drawings. To make the bushing, chuck a short steel bar and drill a  $\frac{3}{4}$ " hole through it as in Fig. 3. Bore out the taper to match that of the arbor (Fig. 4).

Drive the arbor into the bushing to turn the outside to size as in Fig. 5. Lay out six evenly spaced holes at each end of the bushing as in the drawing. Center-punch and drill these (Fig. 6).

The slots are easily cut with a milling attachment and cutter in the lathe (Fig. 7). A steel plug in the bushing holds it in shape during this operation. File smooth any rough edges.—C. W. WOODSON.



## Bored Work Between Centers

