

In which certain methods in turret lathe production are described, by which output is increased by simple means, not entailing speeding up of the actual cutting processes, and effecting real time-savings.

Time-Saving Cuts in Turret Lathe Work

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Written exclusively for Canadian Machinery

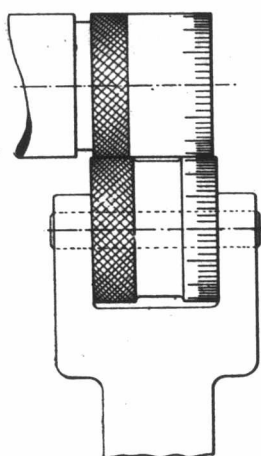


Fig. 1—Knurling and graduating at same time.

ATENTION is here drawn briefly to certain methods in turret lathe production, by which output is increased by simple means not entailing speeding up of actual cutting processes.

One of the simplest practices is to eliminate one or more separate tool stations by incorporating certain cuts in other tools, such as the making of a chamfer with a parting-off tool, or the setting in of a neck with a form tool in addition to shaping the head of a piece, the neck reducing the work to be afterwards done with a box tool or hollow mill, or avoiding the necessity for a separate necking tool.

Knurling on a bar before it is fed out for another cycle also helps in many kinds of articles, instead of performing this process as a part of the cycle.

Example of Time-Saving

An interesting example of time-saving may be cited, Fig. 1, that of simultaneous knurling and graduating on a piece which has to be drilled and counterbored, and cut off. This duplex operation takes place in the time of one operation.

Another instance, occasionally followed, is to make a forming out simultaneously with a facing one, the latter not being conveniently included on the form tool, but done with a separate tool close by. Feeding of the facing tool, of course, starts before the form tool comes into action, but there is a saving of time

by comparison of that of two separate operations.

The advantages of trepanning instead of drilling out a solid core of metal are obvious in a great many cases, but the method may be made still more valuable by modifying the procedure so as to utilize the removed core instead of letting it become a lump of scrap.

Reference to Fig. 2 will explain this, where the production of the larger ring from bar is arranged so as to also make a smaller ring. To this end the forming tool has such shape that it cuts the profile drawn in view A, while a drill penetrates as shown. Then the trepanning tool works in with the result shown at B. When two parting tools are set to work the one breaks into the trepan groove, the other into the drilled hole, resulting in two rings C, leaving the bar end as at D, reduced ready for the slight amount to come off in the forming process, and with the face centred for starting the drill.

Producing Narrow Rings

Another practice particularly adapted to the production of the narrower rings, washers, nuts, ferrules, and so forth is to complete the forming operation with a wide tool on two, three, or four pieces at the first operation, also to drill partly in, and then get off the set at this one feeding out of the bar by successful parting.

If the objects are narrow, the drill may go through far enough to let them all fall off in turn, or the hole can be increased in depth gradually to make concentricity more sure, or to suit the con-

ditions of the cycle of a multiple-spindle automatic, as in Fig. 3.

This represents only operations one, two and five of the sequence, three and four being that respectively of drilling in deeper, and of cutting-off the last but one of the set of nuts.

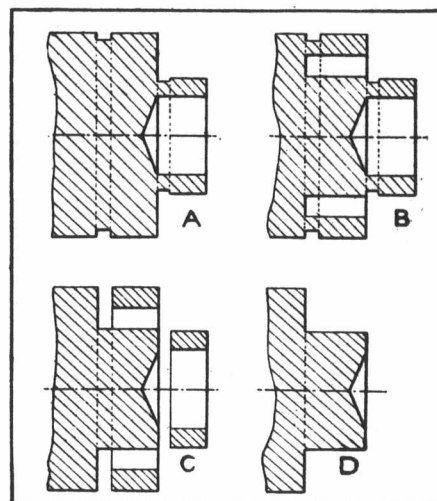


Fig. 2—Example of trepanning which produces another piece, instead of scrap.

A different sort of duplicated production is occasionally done from castings or forgings, when the product is not particularly long. In order to reduce chucking difficulties the rough piece is made long enough to cut more than one component, and is partially finished, then turned end for end in the chuck, the re-

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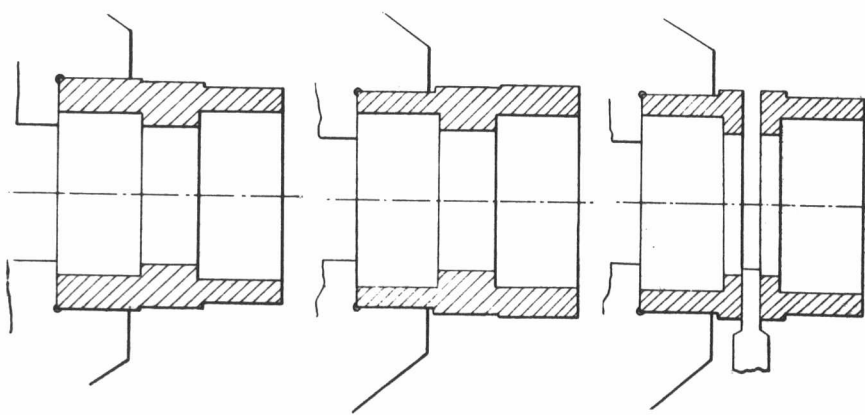


Fig. 4—Forging which results in two pieces.