Dec. 19, 1944. W. H. KAY 2,365,197

KNURLING TOOL

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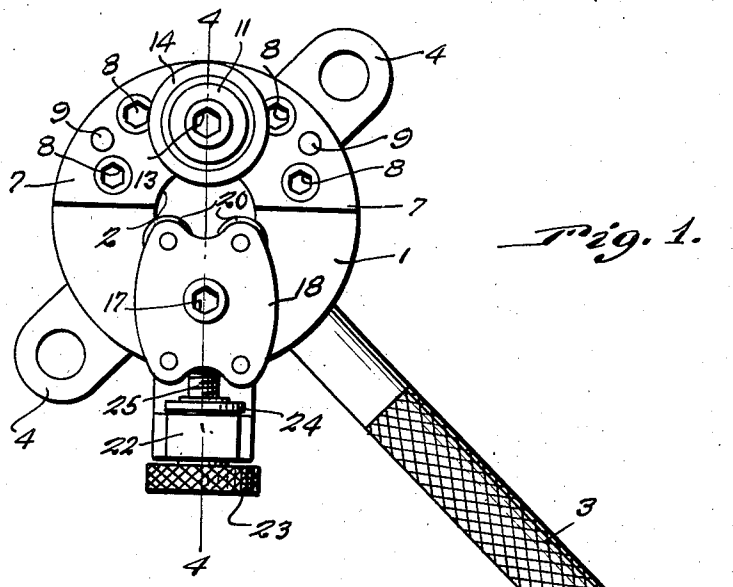


Fig. 1.

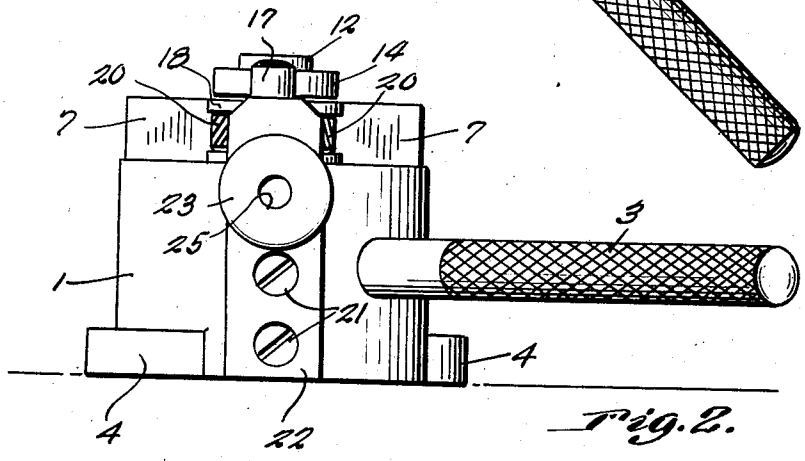
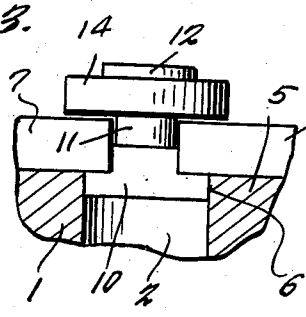


Fig. 2.

Fig. 3.



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Fig. 4.

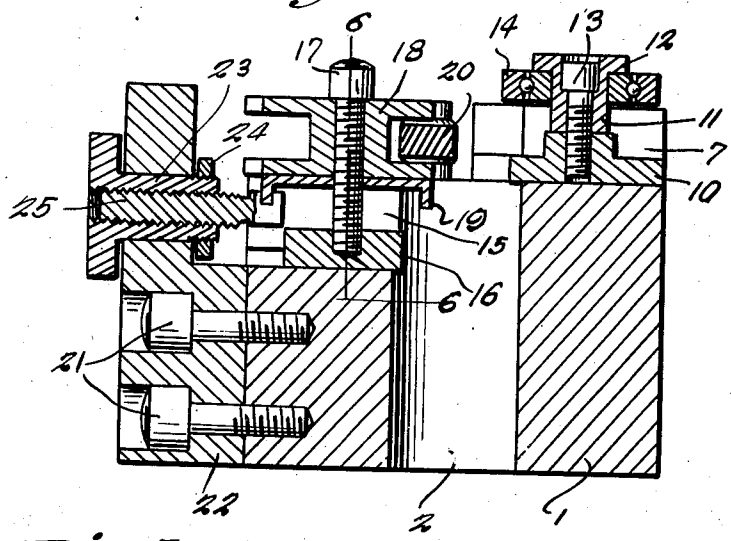


Fig. 5.

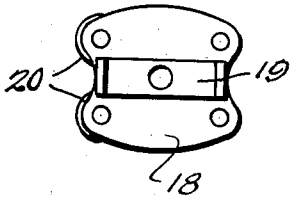


Fig. 6.

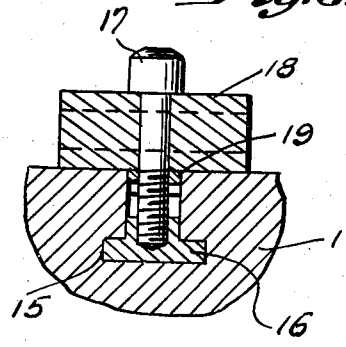
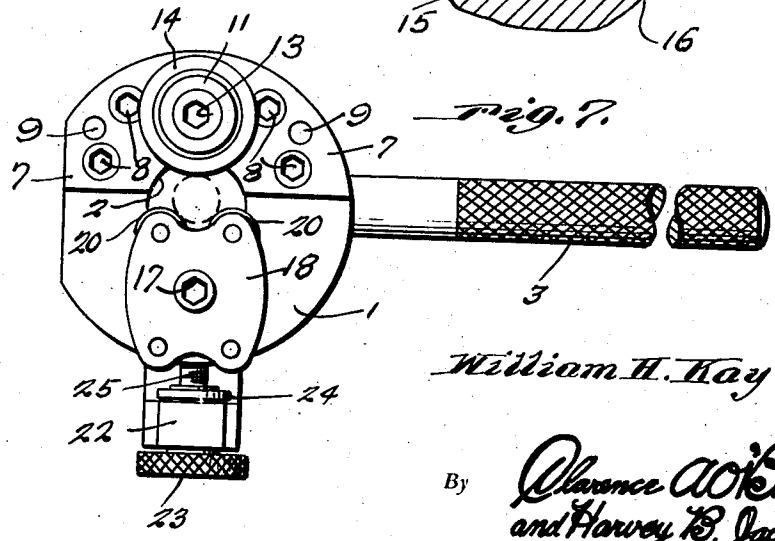


Fig. 7.



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UNITED STATES PATENT OFFICE

2,365,197

KNURLING TOOL

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Application October 6, 1943, Serial No. 505,234

3 Claims. (Cl. 80—5.1)

The present invention relates to new and useful improvements in knurling tools, and has for its primary object to provide, in a manner as hereinafter set forth, a device of this character which is particularly adapted to be used in conjunction with drill presses, lathes and other machine tools for expeditiously knurling round metal bars of various lengths and diameters.

Another very important object of the invention is to provide a tool of the aforementioned character which embodies novel means for adjusting the knurling rollers.

Other objects of the invention are to provide a knurling tool of the character described which will be comparatively simple in construction, strong, durable, highly efficient and reliable in use, compact, and which may be manufactured at low cost.

All of the foregoing, and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings, wherein like characters of reference designate corresponding parts throughout the several views and wherein:

Figure 1 is a top plan view of a knurling tool constructed in accordance with the present invention.

Figure 2 is a view in front elevation of the device.

Figure 3 is a fragmentary view in vertical section through an upper portion of the tool.

Figure 4 is a vertical sectional view, taken substantially on the line 4—4 of Figure 1.

Figure 5 is a detail view in bottom plan of the knurling roller holder.

Figure 6 is a fragmentary view in vertical section, taken substantially on the line 6—6 of Figure 4.

Figure 7 is a top plan view of an embodiment for use in conjunction with lathes and other horizontal machine tools.

Referring now to the drawings in detail, it will be seen that reference character 1 designates a block-like substantially cylindrical metallic body having a centrally located bore 2 extending vertically therethrough for the passage of the stock to be knurled. The body 1 is mounted on one end of a knurled handle 3. Apertured ears 4 project from the lower portion of the body 1, whereby said body, if desired, may be secured in position on the table or bed of a drill press or other machine tool.

The body 1 includes, on one side, a raised or comparatively high top portion 5 having therein a groove 6 (see Fig. 3) which communicates with the bore 2. Substantially segmental metallic plates 7 are removably secured by hollow-head screws 8 on the raised upper portion 5 of the body 1 on opposite sides of the groove 6. As also illustrated to advantage in Figure 3 of the drawings, the plates 7 project over the groove 6 in a manner to define a T-slot in conjunction therewith. Dowels 9 in the plates 7 are engageable in bores which are provided therefor in the body 1.

A T-member 10 is mounted for sliding adjustment in the groove 6 and between the plates 7. The plates 7 clamp the member 10 in adjusted position. Mounted vertically on the member 10 is a spindle or the like 11 comprising a flanged upper end portion 12, said spindle being secured in position by a bolt 13. A roller 14 is journalled on the upper portion of the spindle 11 beneath the flange 12.

Also communicating with the bore 2 in the upper portion of the body 1 is a T-slot or groove 15. A T-member 16 is mounted for sliding adjustment in the groove 15. Rising from the member 16 is a bolt 17. Mounted on the bolt 17 is a frame 18 which, as best seen in Figure 6 of the drawings, rests on top of the body 1. Fixed by suitable means, such as welding or countersunk screws, to the under side of the frame 18 and operable in the upper portion of the groove 15 is a metallic U-member 19. Knurling rollers 20 are journaled for rotation in a horizontal plane in the forward end portion of the frame 18. The bolt 17 secures the frame 18 in adjusted position. The frame 18, in addition to being slidably adjustable, is also reversible and knurling rollers may be provided in both ends thereof.

Secured by bolts 21 on the body 1 adjacent the handle 3 is a vertical metallic bar 22. Journaled horizontally in the upper portion of the bar 22 is a manually rotatable, internally threaded sleeve 23. A nut 24 rotatably retains the sleeve 23 in the bar 22. A rod 25 is threaded for adjustment in the sleeve 26 and has a slot in its inner end receiving the adjacent depending end portion of the U-member 19 so as to be operable for shifting the knurling rollers 20.

It is thought that the operation of the tool will be readily apparent from a consideration of the foregoing. Briefly, the stock to be knurled is mounted in the chuck of the drill press, for example, and the body 1 is placed in position on the table or bed of the machine with the bore 2 in vertical alignment with the stock, or substantially so. With the rollers 14 and 20 properly adjusted, the work is fed downwardly through the bore 2

and, of course, as it passes the rollers **20**, said work is knurled thereby. The knurling rollers **20** may be expeditiously and accurately adjusted to exert any desired pressure against the work through the medium of the sleeve **23**.

The embodiment illustrated in Figure 7 of the drawings is for use in conjunction with lathes and other horizontal machine tools. Toward this end, the handle **3** is removed from the body **1**. The device is placed on the cross slide of the machine on center by being held on the cross slide by a bolt to fit the T slides of whatever type horizontal machine is used. The feeding of the materials to be knurled is done through the head stock of the machine to whatever length said machine will accommodate.

It is believed that the many advantages of a knurling tool constructed in accordance with the present invention will be readily understood, and although preferred embodiments of the device are as illustrated and described, it is to be understood that further modifications and changes in the details of construction may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:

1. A knurling tool comprising a body having a bore therein for the passage of a piece of work, said body further having a T-groove therein communicating with the bore, a T-member slidable in the groove, a frame slidable on the body above the groove, knurling rollers journaled in said frame, a bolt connecting the frame to the T-member for securing said member and said frame in adjusted position on the body, and means for adjusting the frame.

2. A knurling tool comprising a body having a bore therein for the passage of the work, a supporting roller on the body engageable with the work, a frame carrying a pair of knurling rollers and mounted on the body and slidable toward and away from the work, and means for adjusting said frame, said means including a substantially U-shaped member fixed to the under side of the frame and operable in the groove, a bar mounted on the body, a manually rotatable sleeve journaled in said bar, and a rod threadedly mounted in the sleeve and connected to said U-member.

3. A knurling tool of the character described comprising a body having a bore therein for the passage of a piece of work, said body further having a groove therein communicating with the bore at one end, a T-member adjustable in the groove, plates removably secured on the body on opposite sides of the groove and projecting thereover for engagement with the T-member for securing said T-member in adjusted position, a vertical spindle mounted on the T-member, a work engaging roller journaled on said spindle, and a pair of knurling rollers mounted on the body.

WILLIAM HARRY KAY.