

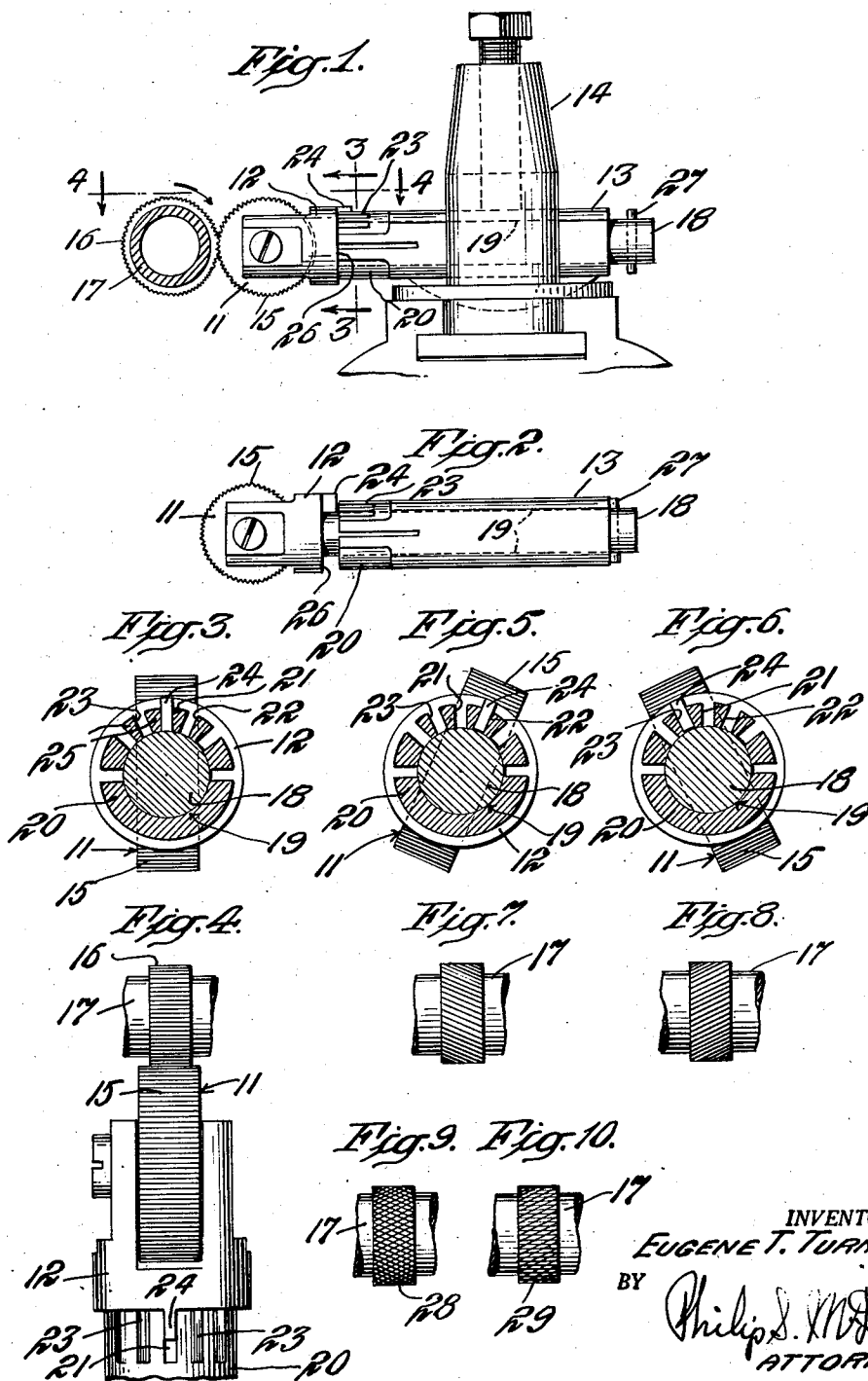
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KNURLING TOOL

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KNURLING TOOL

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2 Claims. (Cl. 80—5.1)

The invention herein disclosed relates to knurling tools.

Objects of the invention are to provide a simple, practical and efficient tool which will be capable of producing the various different kinds of knurling ordinarily required in good machine shop practice.

Heretofore a separate tool has been required for each type of knurling.

The present invention makes it possible to produce the several kinds of knurling required for different purposes from a single tool capable of being quickly adjusted or set for such purposes.

The novel features of invention by which the foregoing and other desirable objects are attained are set forth in the following specification, illustrated by way of example in the accompanying drawing and broadly covered in the claims.

In the drawing:

Fig. 1 is a side elevation of the tool as mounted in the tool post of a lathe.

Fig. 2 is a detached side elevation of the tool, showing the head of the tool pulled out ready for setting in different angled relations.

Fig. 3 is an enlarged part sectional view on substantially the plane of line 3—3 of Fig. 1.

Fig. 4 is a broken plan view of the tool as on the line 4—4 of Fig. 1, producing a straight cut knurl on a piece of work.

Figs. 5 and 6 are cross-sectional views similar to Fig. 3, showing the tool set in oppositely angled positions and Figs. 7 and 8 are broken details illustrating the work produced by such settings.

Fig. 9 is a broken detail illustrating a "diamond" type knurl effect obtained by combining the cuts of Figs. 5 and 6.

Fig. 10 is a similar view illustrating the effect of combining the straight cut of Fig. 4 and the angle cut of Fig. 8.

Basically, the invention comprises a knurling wheel or roll 11, journaled in a supporting yoke 12, which can be turned to different angular positions in a holder 13.

The holder is shown in the form of a block or bar generally approximating the size of an ordinary lathe tool, so that it may be held in an ordinary tool post such as represented at 14.

The knurling roll is shown as having straight cut teeth 15, sharply ridged, to produce in the example illustrated in Fig. 4, the straight knurls 16, extending longitudinally of and parallel to the axis of the knob or other work piece 17.

The supporting yoke 12 is shown as having a cylindrical stem or spindle 18, rotatable and lon-

gitudinally slidable within a longitudinal bore 19, extending through the holder.

The forward end of the holder is shown reduced to a cylindrical portion 20, and the end of this cylindrical portion is slotted inwardly at the center at 21, and on opposite sides of the center at 22, 23, to receive a tang or tongue 24, projecting back from the head of the yoke.

The reduction of the end portion of the holder and the slotting of such thinned portion introduces a spring quality in the teeth or strips 25, left between the longitudinal cuts. This in turn permits of making these cuts approximately the same width or slightly less than the width of the tongue 24, so that the latter will be frictionally and yieldingly gripped at any slot into which it may be entered.

The yoke is further shown as having an annular shoulder 26, at the back of the same which will abut solidly against the split end of the holder when the tool is in operation as in Figs. 1 and 4. A cross pin 27, in the outer, projecting end of the spindle serves, by engagement with the outer end of the holder, to limit the inward or unclutching movement of the head to a position such as shown in Fig. 2, where the locking lug 24, will clear the end of the holder, ready to be entered in a selected slot.

For straight knurling, the knurling head is locked in the center position with the lug 24, entered in the center slot 21, of the holder, thus to produce results such as shown in Fig. 4.

Upon withdrawing the head and turning it to enter the lug in the right hand slot 22, the inclined knurls such as shown in Fig. 7, will be produced. Conversely, by inclining in the reverse direction and engaging the lug 24, in slot 23, Fig. 6, the reversely inclined knurls such as illustrated in Fig. 8 will be produced.

By superposing one set of angled cuts on another, that is, by combining the cuts of Figs. 7 and 8, the diamond knurling, such as shown at 28, in Fig. 9, will be produced.

Fig. 10 illustrates a half-diamond form of knurling 29, produced by superimposing the straight and inclined cuts such as illustrated in Figs. 4 and 7. A reverse effect can be obtained by combining the straight cuts with the other inclined cuts, such as shown in Fig. 8, and if desired, all three types of cuts can be combined.

The invention makes it possible to produce the different styles of knurling all with a single setting of the tool in the tool post, the change from one style of cut to another being accomplished by simply backing the tool off from the work

sufficiently to permit the unlocking of the knurling head and the locking of it in a new position.

While in the present disclosure the roll has been shown as having plain straight knurling teeth, it is contemplated that curved or angled 5 or other forms of teeth may be employed and that the results attained by setting the tool in different positions may be varied accordingly.

The spring fingers in addition to releasably holding the knurling head in the position in 10 which it may be set, avoid looseness and prevent rattling or vibration of parts while the tool is in use.

What is claimed is:

1. A knurling tool, comprising a bar of a size 15 and shape to be removably and adjustably held in an ordinary lathe tool post, said bar having a longitudinal passage therethrough, a stem longitudinally and rotatably adjustable in said passage, a head on the front end of said stem for 20 abutting engagement with the front end of said

bar, said end of the bar having longitudinal slots therein and said head having a projecting lug for selective interlocking engagement in one of said slots, a knurling roll journaled in said head, the opposite end of said stem projecting from the opposite end of said bar, and a cross pin on said opposite end of said stem engageable with the opposite end of said bar to limit longitudinal movement of the stem in said passage to an extent sufficient to effect disengagement of said lug from said slots.

2. A knurling tool, comprising a tubular holder having spaced spring fingers at one end of the same, a yoke having a head portion in abutting engagement with the end of said holder and a positioning lug entered between and yieldingly held by said spring fingers, said yoke having a stem portion rotatably and longitudinally shiftable in said tubular holder, and a knurling wheel 20 journaled in said yoke.

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