M. KATZMAREK.

ROD TRIMMER OR REDUCER.

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1,240,221. Patented Sept. 18, 1917.

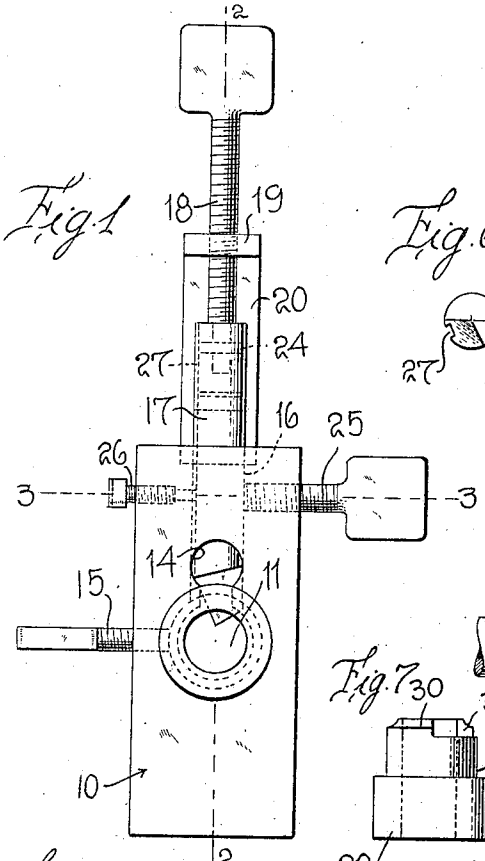

Fig. 1

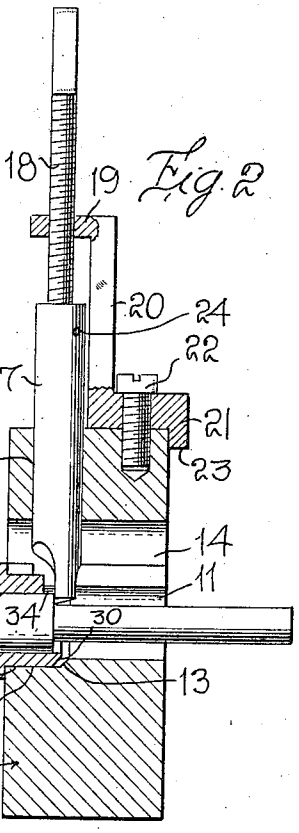

Fig. 2

Fig. 6

Fig. 7

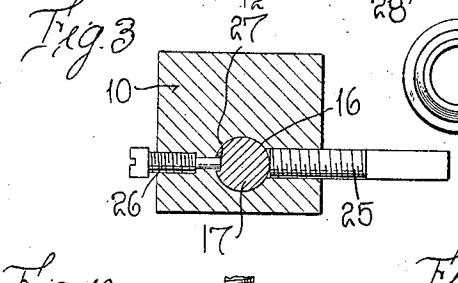

Fig. 3

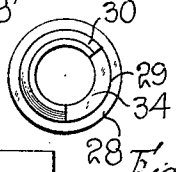

Fig. 8

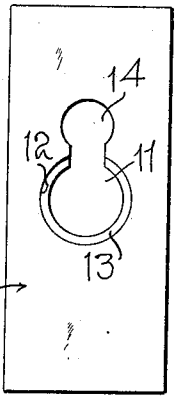

Fig. 5

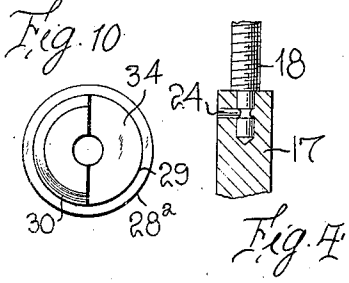

Fig. 4

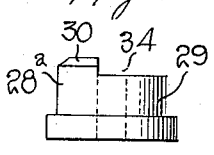

Fig. 9

Fig. 10

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ROD TRIMMER OR REDUCER.

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To all whom it may concern:

Be it known that I, MICHAEL KATZMAREK, a citizen of the United States, residing at the city of Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Rod Trimmers or Reducers, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to tools for cutting metallic rods, and particularly to tools for reducing the diameter of a rod. It is oftentimes desirable, in machine shops, to reduce the diameter of the rod for a portion of its length, thus providing blanks for making the screws, pins, etc., and the general object of my invention is to provide a very simple device which may be used for this purpose and which I have found to be entirely effective in practice.

A further object of the invention is to provide a device of this character which includes a body and a cutter adapted to be disposed upon the rod to be reduced in diameter and rotated on the rod, while the rod is held, or the tool may be held while the rod is rotated, means being provided for feeding the rod inward to any desired extent to secure the proper reduction in the size of the rod.

A further object of the invention is to provide a tool of the character before described, including various sized collars for supporting the rod while it is being cut.

Other objects will appear in the course of the following description.

My invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a front elevation of my invention;

Fig. 2 is a vertical sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a section on the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary sectional view through the upper end of the shank 17 showing the swivel connection to the screw 18;

Fig. 5 is a face view of the body 10;

Fig. 6 is a bottom plan view of the cutter;

Fig. 7 is a side elevation of one of the collars;

Fig. 8 is a plan view thereof;

Fig. 9 is a side elevation of the other collar; and

Fig. 10 is a plan view thereof.

Referring to these figures, 10 designates the body of the tool, which, as illustrated, is rectangular in form, and extending through this body, from one face to the other, is a bore 11, which is enlarged for a portion of its length to form a seat 12 for a flat collar, as will later appear. The shoulder at the end of this enlargement 12, or counterbore, is beveled, as at 13. Also passing through the body 10, above the bore 11, is a bore 14, which opens into the body 10, so that the two bores 11 and 14 together constitute a key-hole slot extending entirely through the body. A set screw 15 extends through one side of the body and intersects the collar seat, and extending inwardly from one end of the body is a bore 16, which intersects the bore 14 and is designed to support the tool 17. This tool 17 has a shank which is circular in form so as to fit the bore 16 and the outer extremity of the tool is swiveled to a feed screw 18. This feed screw has screw-threaded engagement with the angular end 18 of a bracket 20, the inner extremity of which is angled to provide a base 21 held to the body by means of a screw 22 or other like device. Preferably the base 21 has an angularly extending lug 23 engaging over the corner of the body. The screw 18 is provided with a suitable head whereby it may be rotated by hand. Preferably the end of the screw is reduced and inserted in a recess in the extremity of the tool, this reduced end of the screw being grooved and a screw pin 24 extending into this groove so as to swivel the screw 18 to the tool 17. A screw 25 extends inward from one side of the body and is adapted to bear against the shank of the tool 17 and opposite this screw 25 is a small set screw 26 which also bears against the side of the tool. The screw 26 has a reduced extremity which fits within a longitudinally extending groove 27, formed in the tool shank 17, this screw preventing any rotation of the tool shank when the feed screw 18 is turned and holding the tool in the position necessary in order for it to make its cut.

Adapted to be seated upon the seat 12 and to support the rod of steel which is to be operated on, are the collars 28 and 28ª. I have only illustrated two collars, though it is to be understood that more will be used. Each of these collars has approximately the same form. The collars at their butt ends have a diameter greater than the interior diameter of the seat 12 and then are

reduced as at 29 to fit within the seat, each collar having a somewhat beveled end 30, approximately fitting the beveled shoulder 13, and each collar is cut away at its extremity upon one side, as at 34. As illustrated, the collar 28 has this cut-away portion 34 extending about one-third of the circumference of the collar, while the collar 28^a has this cut-away portion extending about one-half of the circumference of the collar. Each collar is annular in form, there being a central passage 35. In the collar 28 this passage is relatively large, while in the collar 28^a, the passage is relatively small. These collars are designed to support the rod which is to be reduced, and particularly to support the rod immediately beneath the cutter. There are as many of these throat collars as are deemed desirable and commonly there will be six of these throat collars, each having a different internal diameter to support different sizes of rods. For instance, the collar for the smallest rod may have its rod passage $\frac{3}{16}''$ in diameter, the next size will be $\frac{1}{4}''$, the third size will have the central passage $\frac{5}{16}''$ and so on up to the largest size, which may have an internal diameter of $\frac{9}{16}''$. It will be obvious that various other intermediate sizes may be used.

In the practical use of this invention the proper collar for the rod to be reduced is disposed within the rod seat and held firmly therein by the set screw 15, the cut away portion 34 of the collar being directed toward the cutting tool. While I do not wish to limit myself to the particular form of cutting tool, I have illustrated this tool as being formed to provide a cutting extremity which is somewhat triangular in form, this cutter being made of hardened steel. The rod to be cut is then disposed within the throat collar, the rod being placed in a vise or other means for holding it rigidly from rotation, and my improved tool is then rotated upon the rod. As it rotates, it cuts and it is forced inward until the rod has been reduced to a certain extent for the length desired and then the feed screw 18 is given another turn and a further reduction is made, and so on until the rod is reduced to the extent desired. I have found that in actual practice, this device works very effectively and very quickly, without the necessity of putting the rod in a lathe and so reducing it, and by this means it is possible to make screw blanks, pin blanks, and other like articles, very rapidly and expeditiously. The opening 14 permits the discharge of chips and also permits the cutter to be lubricated.

While I have illustrated a form of my device which in actual practice has been found particularly good and convenient, I do not wish to be limited to this form, as it is obvious that many minor changes may be made in the device within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described my invention, what I claim is:—

1. A rod trimmer comprising a body having a transversely extending bore, a cutting tool passing through one end of the body and into said bore, a feed screw swiveled to the cutting tool, a bracket detachably mounted upon the end of the body and with which said feed screw has screw-threaded engagement, means for preventing a rotation of the cutting tool, a rod supporting collar having a reduced portion insertible into said bore, the extremity of the reduced portion being cut away for a portion of its circumference, this cut-away portion facing the tool, and means for holding the collar detachably in place within the bore.

2. A rod trimmer comprising a body having a transversely extending bore, a cutting tool passing through one end of the body and into said bore, a feed screw swiveled to the cutting tool, a bracket detachably mounted upon the end of the body and with which said feed screw has screw-threaded engagement, means for preventing a rotation of the cutting tool, a rod supporting collar having a reduced portion insertible into said bore, the extremity of the reduced portion being cut away for a portion of its circumference, this cut-away portion facing the tool, and means for holding the collar detachably in place within the bore, the body having a bore extending parallel to the first named bore and opening thereinto and through which bore the cutter passes, said last named bore permitting the lubrication of the cutter and the removal of the chips.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

MICHAEL KATZMAREK.

Witnesses:
THEO. L. CROPPEN,
AGNES CARMODY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."