Jan. 15, 1952 H. BACHLI ET AL 2,582,406

TUBE CUTTER

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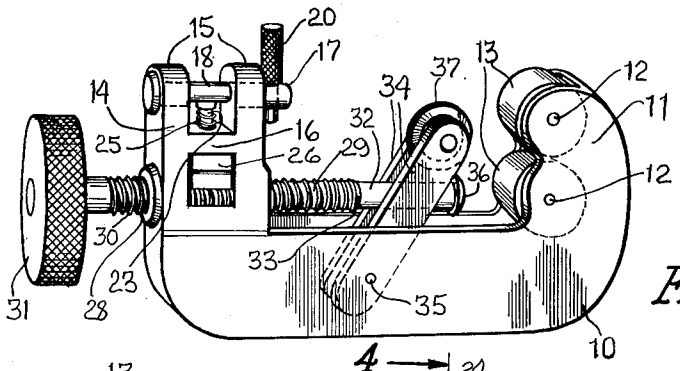


Fig. 1.

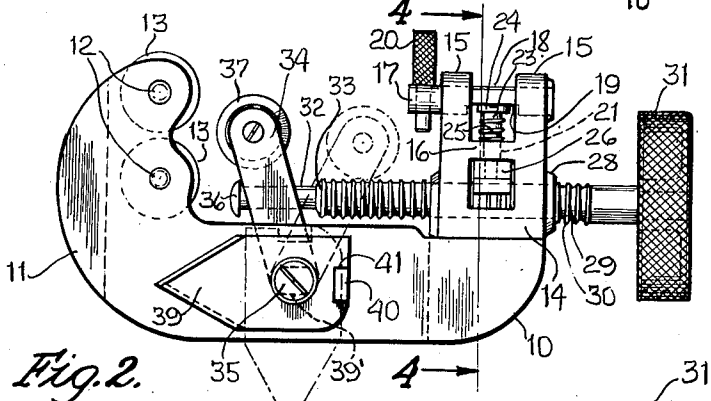


Fig. 2.

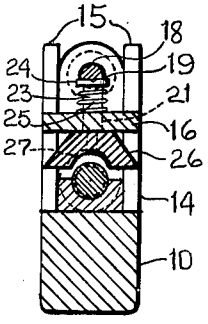


Fig. 4.

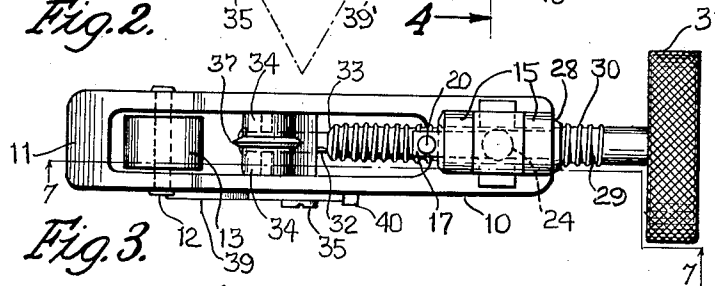


Fig. 3.

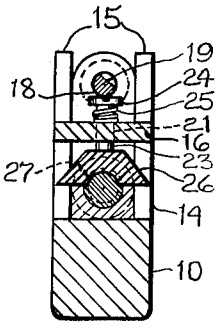


Fig. 5.

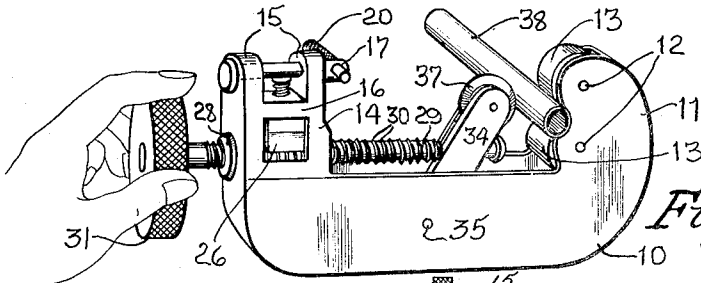


Fig. 6.

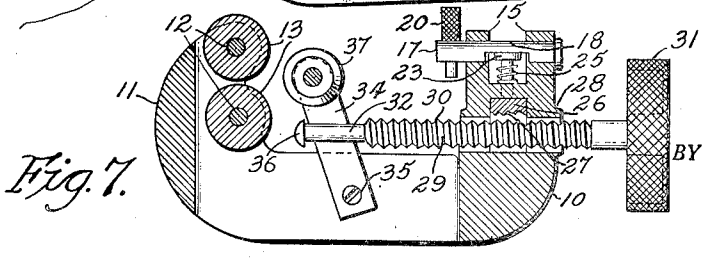


Fig. 7.

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UNITED STATES PATENT OFFICE

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TUBE CUTTER

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2 Claims. (Cl. 30—102)

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This invention relates to a tube cutter particularly adapted for cutting copper, brass, or other tubing or relatively soft material into predetermined lengths or for severing excessive portions of such tubing.

A principal object of our invention is to provide a device of this character of a simplified construction, one capable of easy operation and economical manufacture.

A further and equally important object of the invention is to provide an arrangement for speedy or quick adjustment of the cutting wheel into cutting engagement with the tube, the said arrangement including a provision for quickly adjusting thread-engaging parts with respect to each other.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

Fig. 1 is a perspective view of our invention;

Fig. 2 is a side elevational view of the same;

Fig. 3 is a top plan view of the same;

Fig. 4 is a sectional detail view taken substantially on line 4—4 of Fig. 2, showing the feed screw engaging parts in a disengaged position with respect to the screw;

Fig. 5 is a sectional detail view similar to that shown in Fig. 4, but showing the parts in clamping engagement with the feed screw;

Fig. 6 is a perspective view similar to Fig. 1, showing the parts in position for adjusting the cutting wheel into engagement with the tube; and

Fig. 7 is a longitudinal sectional view of the tube cutter taken substantially on line 7—7 of Fig. 3.

The preferred form of construction of our invention is illustrated in the drawings. In this connection the tool body embodied in the invention is shown at 10. This body may be formed of a casting or forging to provide at one end portion a laterally extending bearing 11. This bearing 11 supports, upon pins 12, confronting rollers 13.

The opposite end portion of the body 10 provides a lateral extension 14. This extension 14 comprises parallelly extending arms 15 connected together, intermediate their outer end portions, by a web 16.

Pivotally supported by the arms 15 outwardly

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of the web 16 is a latch cam 17 providing a cam surface 18 and recessed portion 19.

This latch cam is provided with a handle 20 which facilitates rotating the cam about its long axis.

Slidably extending through an opening 21 formed in the web 16 is a pin 23 providing at one end an enlarged head 24 adapted to be engaged by the latch cam 17. A spring 25 is arranged upon the pin 23 between the head 24 and the web 16 whereby normally to urge the pin 23 in an outward direction.

The opposite end portion of the pin 23 carries a clamp plate 26 having a thread-bearing groove 27.

Extending through a bushing 28 provided by the extension 14 is a feed screw shaft 29, the threads 30 of which confront the threads of the groove 27 of the clamp plate 26.

One end of this shaft 29 provides a hand wheel 31 whereby to effect rotation of the shaft 29.

This shaft 29 provides a reduced portion 32 to provide a shoulder 33. This reduced portion 32 extends between a pair of lever plates 34.

These plates 34 are pivoted to the body 10 as at 35. The end of the reduced portion 32 of the shaft 29 provides a stop shoulder 36. The lever plates 34 support therebetween at their outer end portions a cutter wheel 37.

The lever plates 34 are adapted to be pivoted relatively to the rollers 13 into and from engagement with a tube 38 arranged between the cutter wheel 37 and the rollers 13.

To complete the invention we provide a reamer plate or scraper 39. This plate 39 is pivoted upon the same axis as the lever plates 34 and is provided with an elongated slot 39' to permit shifting of the plate relatively to the pivot 35, whereby to permit pivoting of the plate from the full-line position shown in Fig. 2 to the dotted-line position there shown.

A suitable lug 40 is provided on the body 10 and this lug is adapted to frictionally fit into a notch 41 of the plate 39 whereby to latch the plate in an inactive position as shown in full-lines in Fig. 2.

For correct adjustment of the cutter wheel 37 into engagement with the tube 38, the cam 18 is pivoted from the position shown in Fig. 5 to that shown in Fig. 4 to permit the clamping plate 26 under the action of the spring 25 to be disengaged from engagement with the shaft 29. The shaft 29 may then be moved longitudinally in the direction of its length to move the cutter wheel 37 into or from engagement with the tube 38. Upon adjustment of the cutter wheel 37 into

engagement with the tube the clamping plate 26 is then brought into engagement with the shaft 19 by the adjustment of the cam against the head 24 of the pin 23. In this position of the clamping plate 26, threaded engagement is provided between the shaft 29 and the plate 26 whereby the shaft 29 may be rotated to adjust the cutter wheel 37 into cutting engagement with the tube.

Our improved tube cutter is of a simplified construction. It comprises relatively few parts arranged in combination such as will permit quick and easy adjustment of the cutter wheel into engagement with a tube, which tube is disposed between the wheel 37 and the rollers 13, as shown in Fig. 6.

While we have illustrated and described the preferred form of construction for carrying our invention into effect, this is capable of variation and modification without departing from the spirit of the invention. We, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail ourselves of such variations and modifications as come within the scope of the appended claims.

Having thus described our invention, what we claim as new and desire to protect by Letters Patent is:

1. A pipe cutter comprising a body having at one end portion a lateral extension and a pair of spaced rollers at its opposite end portion, a lever structure pivotally supported by the body substantially midway between its opposite end portions, a thread bearing feed screw carried by the body for adjustment longitudinally thereof and having means providing connection with the lever structure for pivotal movement relative to the body, a cutter wheel carried by the lever structure for movement in a direction toward said rollers, a thread bearing clamping plate carried by the body and adapted for engagement with the feed screw to provide a threaded connection between the body and the feed screw, a pin carrying said plate and carried by the extension and extending perpendicular to the long axis of said feed screw, a rotatable cam member carried by said extension and extending at right angles with respect to said pin and parallel with respect to said feed screw and adapted to be rotated against said pin to cam the latter in a direction relative to its long axis to move the clamping plate into operative engagement with the threads of said feed screw, a handle on said cam member for rotating the same, and spring means acting on said pin for bearing said pin against said cam member and for moving said pin and said clamping plate in an opposite direction with respect to the feed screw.

2. The combination defined in claim 1 in which the pin and cam member cooperate to latch the clamping plate in operative engagement with the feed screw.

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