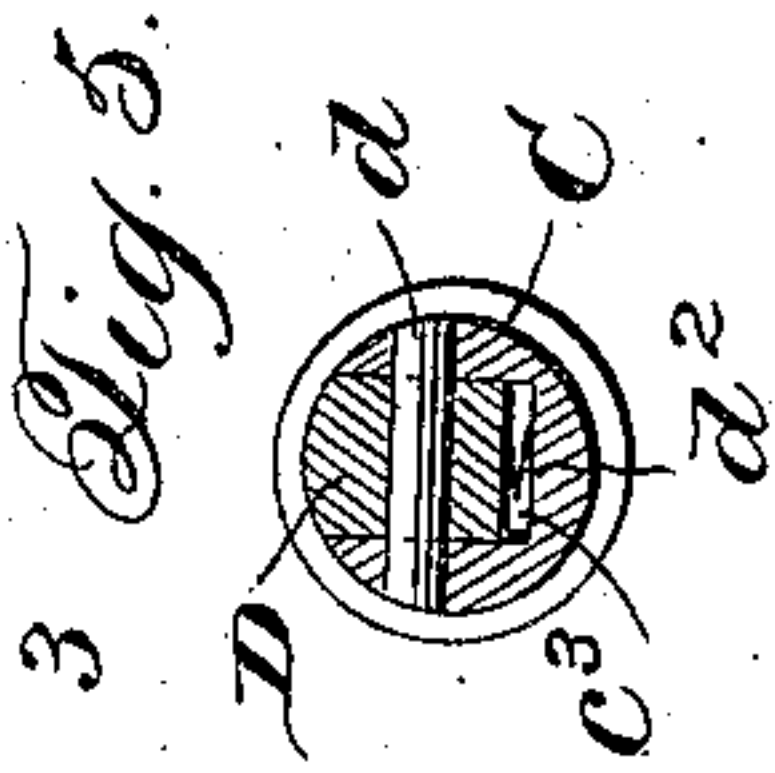
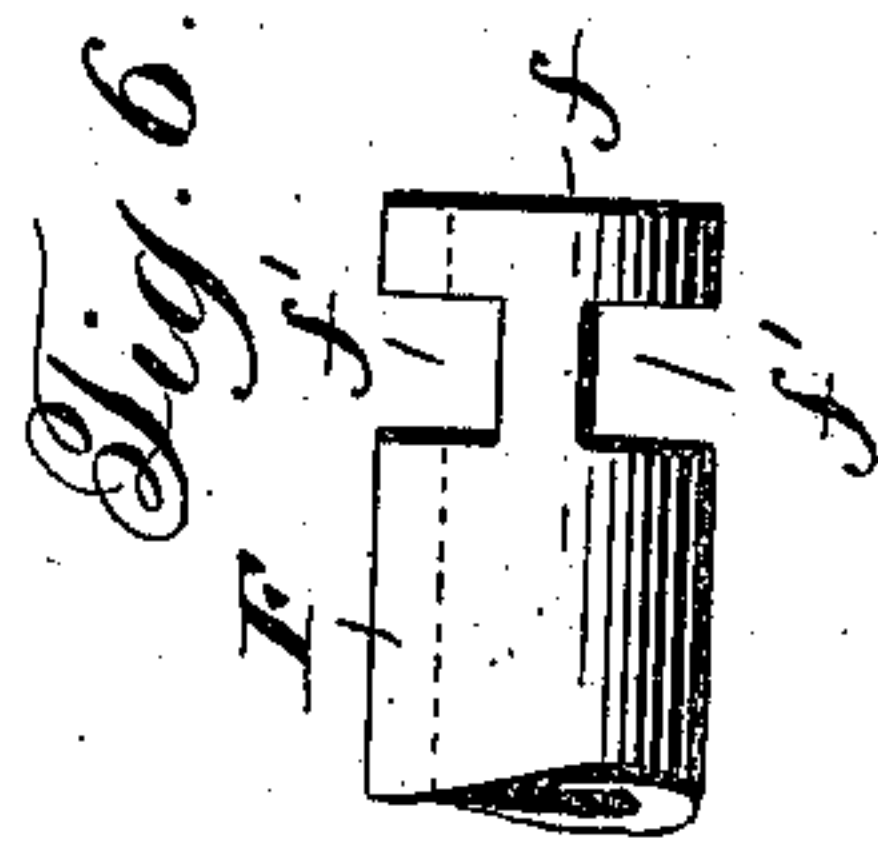
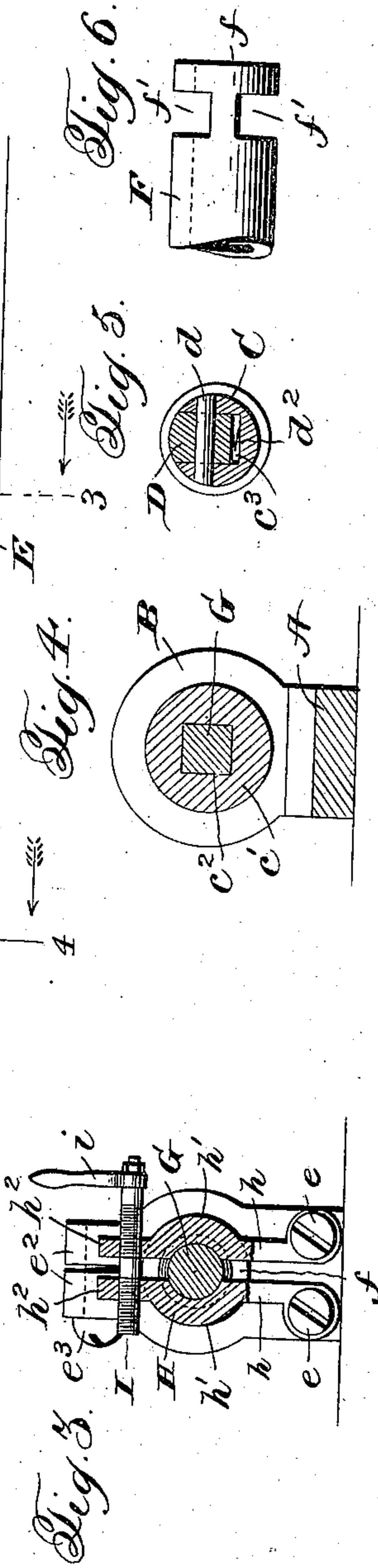
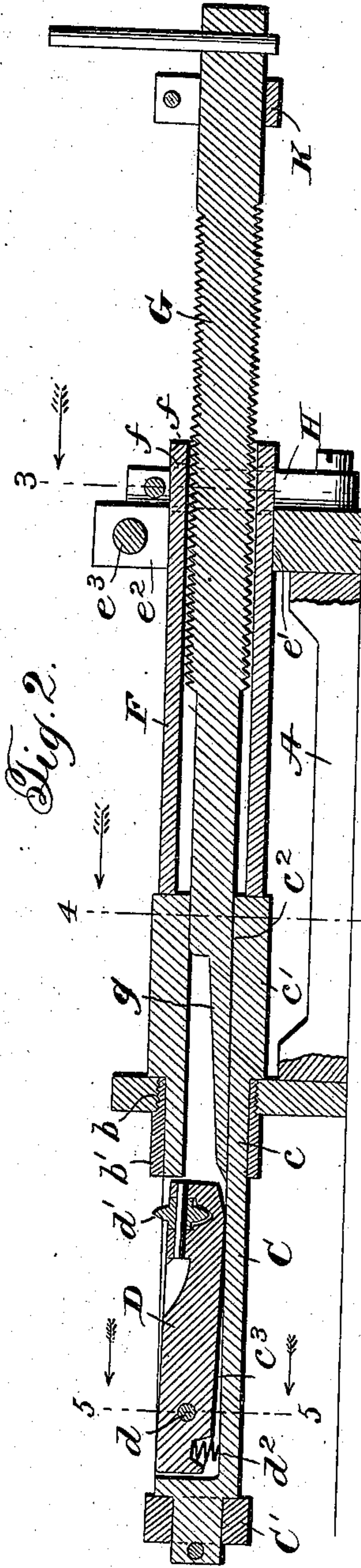
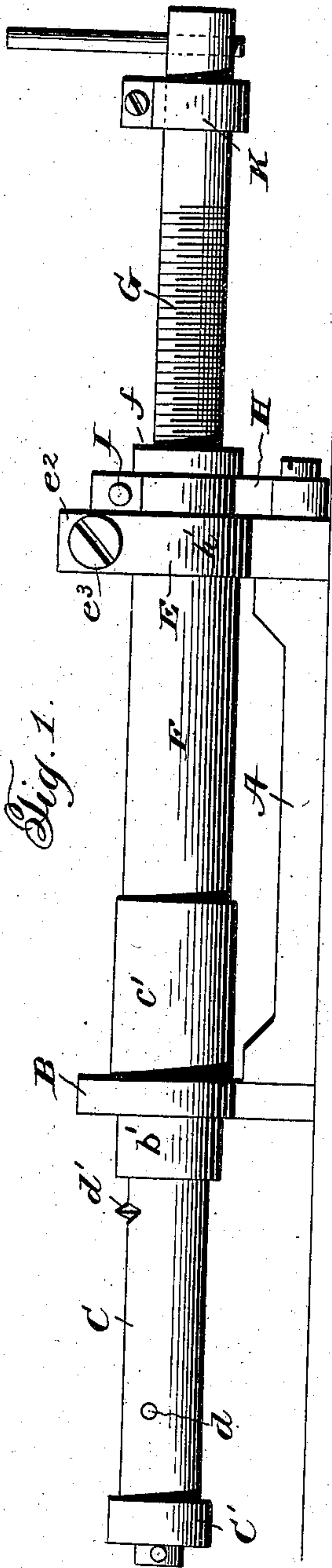


No. 881,358.

PATENTED MAR. 10, 1908.

O. THOMAS & G. BLACKWELL.
TUBE CUTTER.

APPLICATION FILED AUG. 9, 1907.



Witnesses:

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UNITED STATES PATENT OFFICE.

OMER THOMAS AND GRANT BLACKWELL, OF BEDFORD, INDIANA.

TUBE-CUTTER.

No. 881,358.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed August 9, 1907. Serial No. 387,917.

To all whom it may concern:

Be it known that we, OMER THOMAS and GRANT BLACKWELL, citizens of the United States, residing at Bedford, in the county of Lawrence and State of Indiana, have invented certain new and useful Improvements in Tube-Cutters, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to an improvement in tube cutters, and more particularly to that class of tube cutters known as inside cutters, in which the implement is introduced into the tube and upon rotation thereof the cutter is forced outwardly into engagement with the wall of the tube.

15 The object of the present invention is the provision in a device of this character, of means permitting the cutter to be instantaneously restored to its normal position after the tube has been cut, so that the implement may be quickly and readily withdrawn from the tube.

20 A further object of the invention is the provision in a device of this character, of means whereby the tube may be cut at any desired distance from the end thereof.

25 Other objects of the invention will be apparent from the detailed description hereinafter, when read in connection with the accompanying drawings forming a part hereof, wherein a preferable embodiment of our invention is shown, and wherein like characters of reference refer to similar parts in the several views.

30 In the drawings: Figure 1 is a side elevation of our improved tube cutter. Fig. 2 is a longitudinal section. Figs. 3, 4 and 5 are cross sections on lines 3—3, 4—4, and 5—5 of Fig. 2, and Fig. 6 is a detail view.

40 Referring now more particularly to the drawings, A designates a base plate to the forward end of which is removably secured, in any suitable manner, the upwardly extending plate B which is provided with an opening *b* therein; in which is threaded or otherwise secured a sleeve *b'*, which is adapted to support the end of the pipe which is to be cut, as will be hereinafter more particularly set forth. Rotatably mounted in the opening *b* in the plate B is the cutter carrying member C, said member comprising a substantially cylindrical member *c* which passes through the sleeve *b'* and projects therebeyond, and an enlarged cylindrical portion *c'*, which is connected to said reduced

portion by a shoulder which abuts against the inner face of the plate B and prevents longitudinal movement of the tool carrying member therethrough. The tool carrying member C is provided with a squared opening *c*² extending longitudinally thereof, and the reduced cylindrical portion *c* of said member is provided with an elongated slot *c*³ therein, which extends inwardly from the outer surface thereof to the opening *c*² extending axially thereof.

60 D designates an arm, which is of a size to fill the slot *c*³ in the reduced cylindrical portion *c*, and which is pivotally mounted therein by a pin *d*, which passes through aligned openings in said cylindrical portion *c* and in the forward end of said arm. Journaled in the rear end of said arm is a cutting disk *d'* which may be of any suitable construction. Positioned in the opening *c*² extending axially of the reduced cylindrical portion *c* is a coil spring *d*², the upper end of which contacts with the forward end of the arm D and normally serves to hold the rearward end of said arm depressed so that the cutter *d'* carried thereby will not project above the surface of the sleeve *b'* hereinbefore referred to.

80 E designates a clamping plate which is removably secured to the forward end of the base plate A by screws *e*, and which is provided with an opening *e'* therein in axial alinement with the opening *b* in the plate B secured to the rear end of said base plate. The upper portion of the plate E is split to form separated ears *e*² *e*² which are provided with aligned threaded apertures designed to be engaged by a suitable screw *e*³.

85 F designates an elongated sleeve which is adapted to be clamped within the opening *e'* in the plate E and the rear end of which projects slightly beyond the rear surface of said plate and terminates in a shoulder *f*. The sleeve F is provided between the shoulder *f* thereof and the rear surface of the clamping plate E with slots or cut away portions *f'* at each side thereof.

100 G designates an actuating shaft or rod the rear end of which is threaded for a considerable distance and the forward end of which is squared so as to engage the squared opening *c*² extending axially of the member C. The extreme forward portion of the rod or shaft G is provided with a wedge-shaped portion *g*, so that when said rod is moved forwardly into the member C, the forward edge of said wedge will pass under the rear

end of the arm D, which is slightly cut away to permit the passage of the wedge thereunder, and upon further forward movement of said rod or shaft, the rear end of said arm will be elevated and the cutter d' carried thereby will be forced into engagement with the wall of the tube which is to be cut. Positioned between the collar f of the sleeve F and the inner surface of the clamping plate E is a nut H, which is adapted to impart the necessary longitudinal movement to the shaft or rod G when the same is rotated. The nut H comprises two portions h h which are pivotally mounted at their lower ends in any suitable manner upon the rear face of the clamping plate E and which are provided with complementary threaded segmental portions h' , which are designed to project through the slots or cut-away portions f'' at each side of the sleeve F and to engage the threaded portions of the actuating shaft or rod G when the parts h h are drawn together, as will be hereinafter set forth. The portions h h terminate at their upper ends in ears h^2 h^2 which are provided with oppositely threaded aligned openings therein which are designed to be engaged by oppositely threaded portions of a bolt I, one end of which is provided with a suitable operating handle i .

K designates a collar which is mounted on the inner end of the shaft or rod G and which is designed to be adjustably secured in any suitable manner in any desired position thereon, said collar serving to limit the longitudinal movement of the rod or shaft G and consequently the depth of cut of the implement.

The reduced portion c of the member C terminates at its forward end in a suitable spindle upon which is loosely mounted a collar C' , which collar is identical in size with the collar b' carried by the plate B heretofore referred to and serves together with the collar b' as the means for supporting the pipes to be cut and properly positioning the cutter with reference thereto.

In the use of our improved tube cutter, the implement is first introduced into the end of the tube or the tube placed on the end of the implement, as the case may be, the collars b' and C' serving to properly position the cutter with reference to the tube. The handle i of the bolt I is then manipulated to draw the portions h h of the nut H together and cause the threaded portions thereof to engage with the threaded portion of the shaft or rod G. The shaft or rod G is then rotated by means of a suitable handle secured to the rear end thereof or by other suitable means, and such rotation causes the forward end of said rod or shaft to move forwardly into the opening c^2 which extends axially of the member C and will also, owing to the squared shape of said opening and of the portion of the shaft

which engages the same, cause the member C to be rotated. The rotation of the rod or shaft D is continued until the tube has been fully severed or cut to the desired depth, at which time the handle of the bolt I is manipulated to move the portions h h of the nut H so as to throw the threaded portions thereof out of engagement with the threaded portion of the shaft or rod G, when such shaft may be quickly drawn rearwardly so as to withdraw the wedge-shaped portion thereof from under the forward end of the arm G and permit the spring d' to restore said arm to its normal position, so that the implement may be readily withdrawn from the tube. Ordinarily the implement is introduced into the tube until the end of said tube contacts with the forward face of the plate B, so that the cut is always made at the same distance from the end of the tube. In cases, however, where it is desired to make the cuts at various distances from the ends of the tubes, the sleeve b' is provided with a collar b^2 , which constitutes a stop for the end of the tube which is to be cut, and which may be shifted to any desired point on the sleeve b' and clamped thereon in any suitable manner.

We do not desire to limit ourselves to the precise form and construction shown in the drawings, as it is obvious that many minor changes may be made thereto without departing from the spirit of the invention as defined in the appended claims.

Having thus described the invention, what is claimed is:—

1. In a tube cutter, a relatively fixed supporting member, a member rotatably mounted in said supporting member, a radially movable cutter carried by said rotatable member, an actuating shaft mounted in said supporting member, said actuating shaft being provided with a threaded portion and with a portion which is longitudinally movable in said rotatable member and rotatable therewith, means for forcing said cutter outwardly when said shaft is moved longitudinally of said rotatable member, a sectional nut carried by said supporting member and adapted to engage the threaded portion of said actuating shaft, and means for positively effecting a rapid adjustment of the sections of the nut back and forth.

2. In a tube cutter, a relatively fixed supporting member, a member rotatably mounted in said supporting member, a radially movable cutter carried by said rotatable member, an actuating shaft mounted in said supporting member, said actuating shaft being provided with a threaded portion and with a portion which is longitudinally movable in said rotatable member and rotatable therewith, means for forcing said cutter outwardly when said shaft is moved longitudinally of said rotatable member, and a nut carried by said supporting member compris-

ing sections pivotally connected thereto and provided with complementary threaded portions adapted to engage opposite sides of the threaded portions of said actuating shaft, and means for positively adjusting said sections back and forth.

3. In a tube cutter, a supporting member, a member rotatably mounted in said supporting member, a radially movable cutter carried by said rotatable member, an actuating shaft mounted in said supporting member, said actuating shaft being provided with a threaded portion and with a portion longitudinally movable in said rotatable member and rotatable therewith, means for forcing said cutter outwardly when said actuating shaft is moved longitudinally of said rotatable member, and a nut carried by said supporting member comprising sections pivotally connected thereto and provided with complementary threaded portions adapted to engage opposite sides of the threaded portions of said actuating shaft, said sections being provided with oppositely threaded aligned apertures, and a bolt provided with oppositely threaded portions engaging said apertures.

4. In a tube cutter, a supporting member, a plate carried thereby and provided with a sleeve projecting therefrom, a collar adjustably mounted on said sleeve, a tool carrying member journaled in said sleeve and of less diameter than said sleeve, a sleeve loosely mounted on the end of said tool-carrying member of substantially the same diameter as the first mentioned sleeve, a cutter movably secured to said tool carrying member

and normally positioned below the peripheries of said sleeves means for forcing said cutter outwardly, and means for rotating said tool carrying member.

5. In a tube cutter, a supporting member provided with a fixed tube supporting sleeve, a tool carrying member rotatably mounted in said sleeve, a cutter carried by said member, and a collar adjustably secured on said sleeve.

6. In a tube cutter, a supporting member, a tool carrying member journaled therein and provided with an opening extending axially thereof, a radially movable cutter carried by said tool carrying member and provided with a portion extending within the axial opening therein, an elongated sleeve carried by the supporting member provided with oppositely disposed slots therein, a threaded operating shaft positioned within said sleeve the end of said shaft being wedge shaped and projecting within the axial opening in the tool carrying member, a nut carried by the supporting member comprising sections pivotally connected therewith and provided with complementary threaded portions adapted to project through the slots in the elongated sleeve and to engage opposite sides of the threaded operating shaft, and means for adjusting the sections of said nut.

In testimony whereof we affix our signatures in presence of two witnesses.

OMER THOMAS.

GRANT BLACKWELL.

Witnesses:

CHAS. WM. GOBAT,

WILLIAM R. BEYERS.