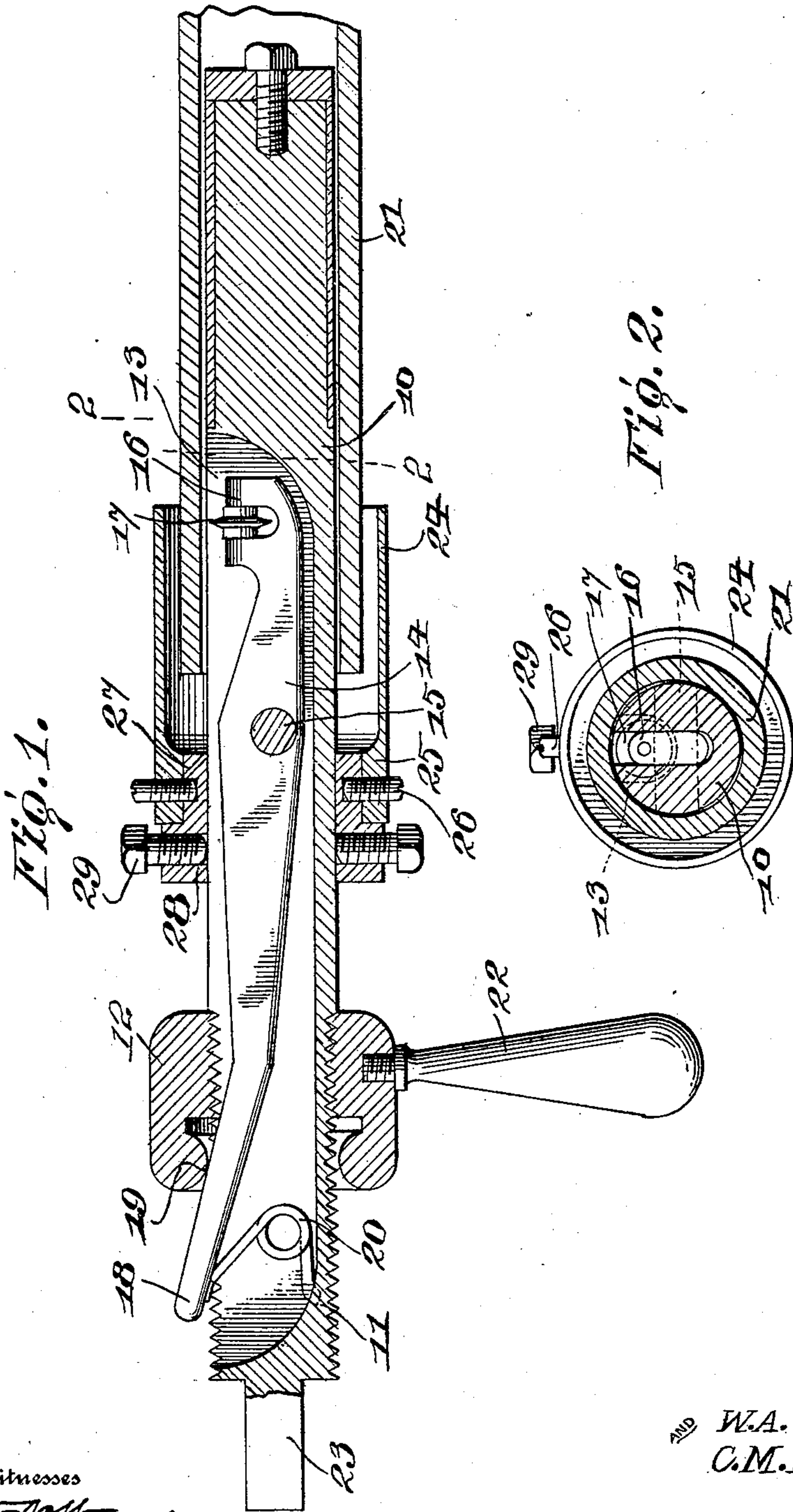


W. A. & C. M. ALTMAN.
TUBE CUTTER.

APPLICATION FILED APR. 30, 1909.

969,507.

Patented Sept. 6, 1910.



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WILLIAM A. ALTMAN AND CURTISS M. ALTMAN, OF FINDLAY, OHIO.

TUBE-CUTTER.

969,507.

Specification of Letters Patent.

Patented Sept. 6, 1910.

Application filed April 30, 1909. Serial No. 493,233.

To all whom it may concern:

Be it known that we, WILLIAM A. ALTMAN and CURTISS M. ALTMAN, citizens of the United States, residing at Findlay, in the county of Hancock and State of Ohio, have invented certain new and useful Improvements in Tube-Cutters, of which the following is a specification.

This invention relates to cutters and has particular reference to a pipe or boiler tube cutter which is adapted for cutting the ends of the pipes or such tubes.

The invention has for an object a device of this character which is of novel construction and in which a positive feed means is employed for feeding the cutter against the pipe or boiler tube while the cutter is being rotated and to thereby insure the even and positive cutting of the section of the pipe or the boiler tube being acted upon.

The invention further contemplates the provision of a device which is of simple construction, the same comprising but few operative parts and which is adapted to be actuated either by motor or by the hand through the employment of a wrench or like tool, and which is provided with a feed nut which is adapted for positive operation in connection with the device to advance the cutter wheel against the inner face of the pipe or tube to be cut.

For a full understanding of the invention reference is to be had to the following description and accompanying drawings, in which;

Figure 1 is a longitudinal section through the device showing a transverse section of the pin supporting the operating lever, and Fig. 2 is a transverse section on the line 2—2 of Fig. 1.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring to the drawings the numeral 10 designates a mandrel which is cylindrical and of elongated formation and provided with a threaded shank 11 at its outer extremity upon which is mounted a feed nut 12. The mandrel 10 is provided in one side with a longitudinal slot or recess 13, which extends practically the entire length of the mandrel, for the reception of a lever 14, which is fulcrumed upon a pivot pin 15, the pivot pin 15 being transversely disposed through the mandrel 10 intermediately of

the ends of the same. The short arm of the lever 14 is provided with fork arms 16 which are arranged in longitudinal alinement with the lever 14 between which fork arms a cutter wheel 17 is mounted and adapted for rotation in the plane of the rotation of the mandrel 10 when operated to revolve about its longitudinal axis. The outer or elongated arm of the lever 14 is provided with an up-turned extremity 18 which extends centrally through the feed nut 12, passes through the slot 13, and is engaged against a rounded surface 19 formed upon the outer end of the nut 12, the nut 12 being slidably engaged with the inclined portion 18 during the rotation of the mandrel 10. The long arm of the lever 14 is provided with a spring 20 which is disposed within the mandrel 10 in the outer end of the slot 13 and engages at its opposite ends with the arm 18 and the mandrel 10.

The spring 20 is employed for the purpose of normally holding the long arm of the lever 14 in a raised or outward position against the curved face 19 to retract the cutter wheel 17 from the pipe 21 which is disposed thereabout. The feed nut 12 is provided with an outwardly extended handle 22 to form a hand grasp for the operator to prevent the rotation of the feed nut 12 during the revolving of the mandrel 10 to cause the feed nut 12 to travel outwardly upon the shank 11 by reason of its threaded engagement with the shank 11 against the arm 18, and to thereby gradually depress the inclined extremity 18. The mandrel 10 is provided with an angular head 23 which is engaged in any suitable manner to rotate the mandrel 10, the same being capable of being attached to a motor, a wrench or the like for the purpose of causing such rotation.

For the purpose of quickly and easily positioning the mandrel 10 within the end of the pipe or tube 21, the mandrel is provided with an adjustable gage to regulate the distance in the pipe 21 to which the cutter wheel 17 is to extend. This gage comprises a sleeve 24 having a diameter considerably greater than the diameter of the mandrel 10, which is spaced concentrically about the mandrel 10 and held in such position by the formation of an inwardly enlarged portion 25 at one end of the sleeve 24 through which set screws 26 are disposed for engagement

in an annular groove formed in the outer face of a collar 27. The collar 27 is engaged upon the mandrel 10 for longitudinal movement thereto yet is snugly engaged therewith and is extended into the end of the sleeve 24 where it is engaged with the set screws 26.

The collar 27 is provided at its outer end with an annular flange 28 for engagement against the outer end of the sleeve 24, and also for the reception of set screws 29 which extend inwardly and engage against the outer face of the mandrel 10 to rigidly and adjustably retain the collar 27 and sleeve 24 in position.

In the operation of the device the collar 27 is adjusted longitudinally upon the mandrel 10 to obtain the desired length of the mandrel inwardly of the collar 27 when the set screws 29 are tightened and the collar 27, and sleeve 24 carried thereby, are fixed in position. The inner end of the mandrel 10 is now engaged within the boiler tube or pipe 21 and the collar 27 of the gage is abutted against the tube or pipe 21, or is inserted to such a distance that the inner end of the sleeve 24 strikes against the boiler tube sheet when the mandrel 10 is adjusted within the sleeve 24 relative to the boiler tube sheet; thereby positioning the cutter wheel 17 in such a manner as to cut the boiler tube the desired length either inwardly or outwardly of the boiler tube sheet.

The head 23 is now rotated in any suitable

manner to rotate the mandrel 10 and shank 11, causing the feed nut 12 to move outwardly upon the shank 11 and to ride over the up-turned end 18, depressing the long arm of the lever 14 to raise the fork arms 16 which carry the cutter wheel 17. This action presses the cutter wheel 17 against the inner face of the pipe or boiler tube 21 and causes the cutting of the same during the rotation of the wheel 17.

Having thus described the invention what is claimed as new is;—

A tube cutter including a cylindrical mandrel having a longitudinal slot in one side thereof, a feed nut disposed in threaded engagement upon the outer end of said mandrel, a lever pivoted intermediate of its ends in the slot in said mandrel, a cutter wheel carried in one end of said lever transversely to the axis of said mandrel, the opposite end of said lever being curved upward and engaged through and against said feed nut, a spring interposed between the upturned end of said lever and the inner face of said mandrel in the slot, a handle on said feed nut to rigidly hold the same, and means for rotating said mandrel.

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

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Witnesses:

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