

No. 679,274.

Patented July 23, 1901.

J. W. COLLINS.
EXPANSIBLE FLUE CUTTER.

(Application filed Dec. 1, 1900.)

(No Model.)

Fig. 1.

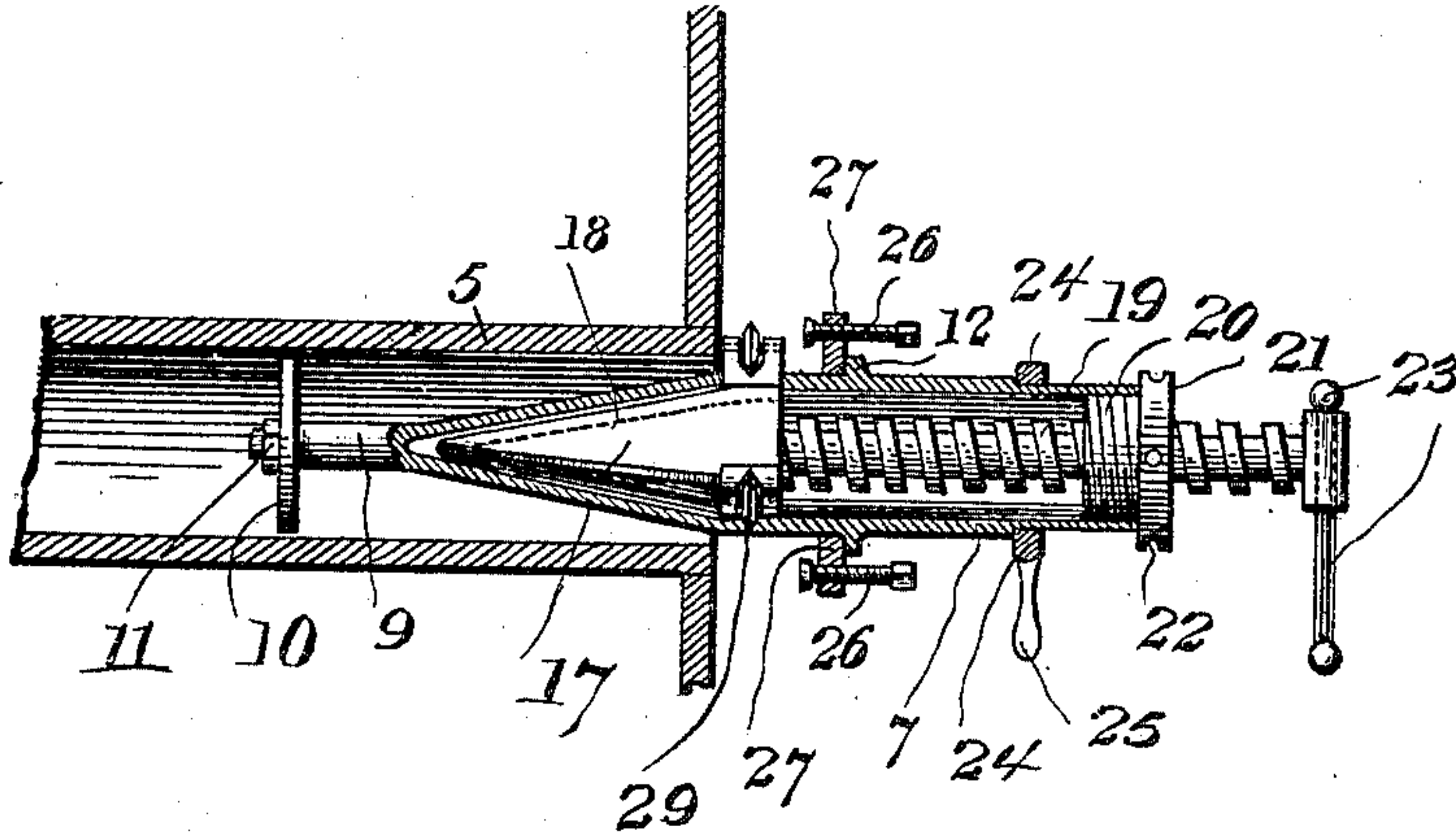


Fig. 2.

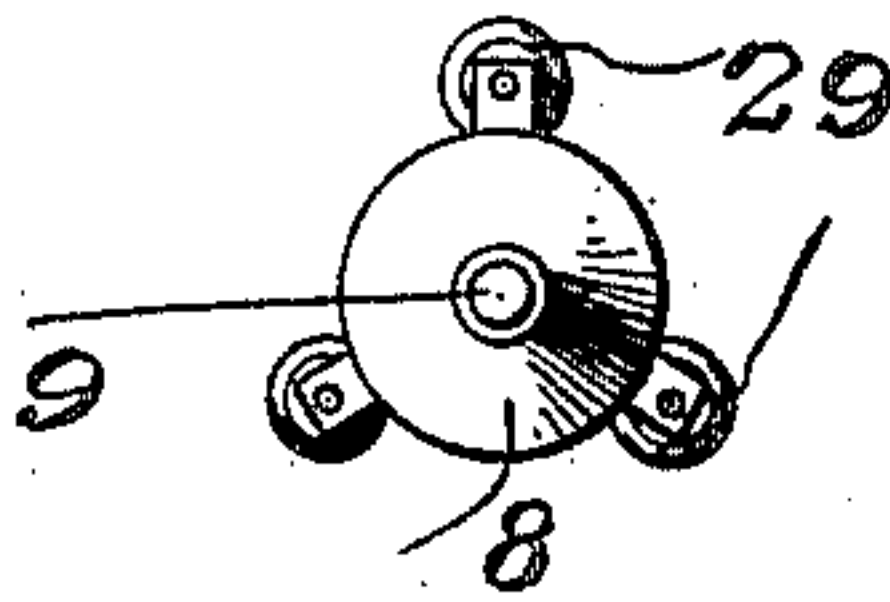


Fig. 3.

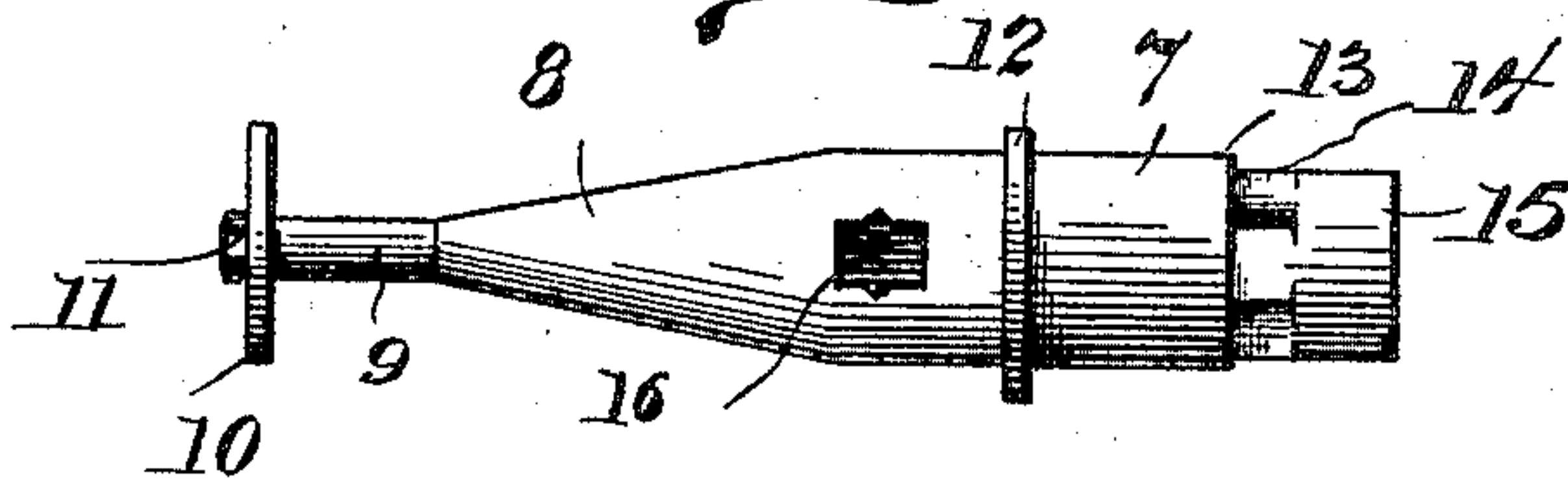
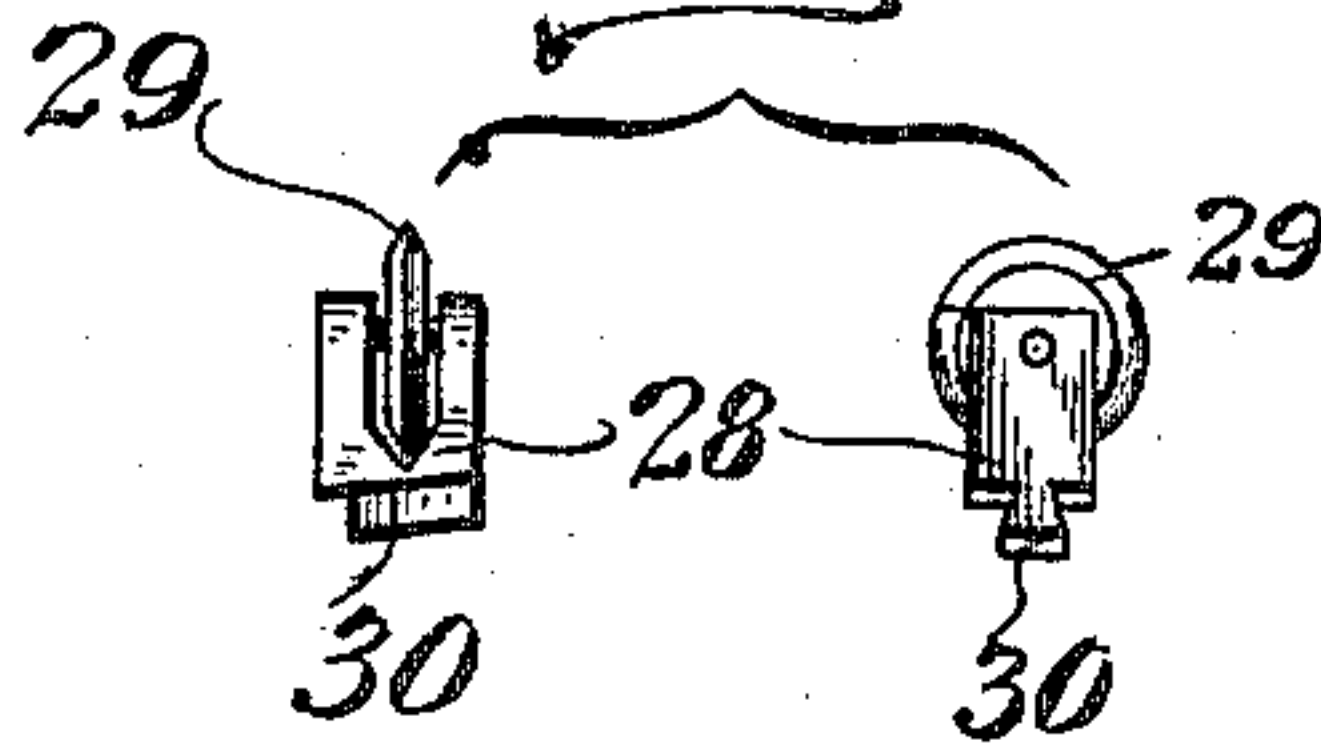


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN W. COLLINS, OF DULUTH, MINNESOTA.

EXPANSIBLE FLUE-CUTTER.

SPECIFICATION forming part of Letters Patent No. 679,274, dated July 23, 1901.

Application filed December 1, 1900. Serial No. 38,337. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. COLLINS, a citizen of the United States, residing at Duluth, in the county of St. Louis and State of Minnesota, have invented certain new and useful Improvements in Expansible Flue-Cutters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in portable expansible cutters for cutting flues, pipes, tubes, &c., the object of the invention being to generally improve the construction and operation of such devices; and with this object in view the invention consists in the improved construction, combination, and arrangement of parts hereinafter fully described and afterward specifically claimed.

In the accompanying drawings, which illustrate my invention in detail, Figure 1 represents a vertical longitudinal sectional view, partly in elevation, showing the cutter in position ready for adjustment and entry into the boiler-tube. Fig. 2 represents a view in elevation of the inner end of the main barrel or body of the cutter with the centering-washer removed and the cutters in their extreme outer position. Fig. 3 represents a view in side elevation of the main barrel or body of the cutter, a portion of the detachable parts being removed; and Fig. 4 represents, respectively, a view in side elevation and a view in end elevation of one of the cutters detached.

Like numerals of reference mark the same parts wherever they occur in the several figures of the drawings.

Referring to the drawings by numerals, 5 indicates a portion of a boiler-tube, and 6 a portion of a boiler-head.

7 indicates the main barrel or body of the device, which is substantially cylindrical and hollow and provided at its forward end with a hollow conical portion 8, terminating in a smaller cylindrical portion 9, upon which is secured a washer 10 by a nut 11 or other suitable means.

12 indicates an annular flange on the barrel or body 7; 13, a shoulder; 14, an angular portion of a reduced diameter; 15, a cylindrical

portion still further reduced, and 16 holes formed in the body.

17 indicates a cone, preferably solid, with dovetailed grooves 18, as shown in dotted lines in Fig. 1.

19 indicates a screw-stem secured to the cone 17; 20, a plug threaded on the screw-stem 19 and into the main barrel or body; 21, a collar fixed on the stem 20 and provided with holes 22 to receive a pin for the purpose of turning the plug; 23, a vise bar or lever for turning the screw-stem 19, and 24 a wrench adapted to fit upon the angular portion 14 of the main body and provided with a handle 25, by which it may be turned.

26 indicates set-screws threaded in a disk 27, fitting on the main body 7 in front of the annular flange 12.

28 indicates blocks in which are journaled disk-cutters 29, said blocks being provided on their inner ends with dovetailed feet 30. The cutter-blocks 28 are slipped radially into the openings 16 in the main body, their dovetailed feet 30 fitting into the dovetailed grooves 18 of the cone 17 in the position shown in Fig. 1. In this position it will be observed that the conical end 8 of the main body or barrel has been inserted into the tube 5 and is guided or centered therein by the washer 10. The parts are now in a position to begin operation. By turning the screw-stem 19 to the left the cone 30 will be partially withdrawn, causing the feet 30 of the cutter-blocks 28 to traverse the dovetailed grooves 18, thus drawing the cutter-blocks and cutters radially inward to a position to permit of their passage into the tube. The whole device is now pushed into the tube until the set-screws 26, previously set, strike against the boiler-head 6, which will bring the cutters into the position at which the tube is to be cut. By turning the whole instrument by means of the wrench 24 the cutters will be rotated inside of the tube, and they may be fed outward as the operation progresses by turning the screw-stem 19 to the right, this outward feeding of the cutters and turning of the whole device by means of the wrench being repeated until the tube is cut off from the inside.

From the foregoing description it will be seen that I have provided a simple, cheap, and durable device for the purposes named,

the construction of which is such that it may be readily adjusted into and withdrawn from the tube to be cut and may be adapted to various sizes of tubes by interchanging the
5 removable pieces—such as the cutter-blocks, centering-washer, and set-screw disk—for others of various sizes.

Having thus fully described my invention, what I claim as new, and desire to secure by
10 Letters Patent, is—

In a pipe or flue cutter, the combination with a main body, of radially-movable blocks carrying disk-cutters, an annular flange on the body, a disk in front of said flange, set-
15 screws threaded in said disk, the main body being provided with an angular portion to

receive a wrench, and a reduced portion beyond the angular portion to support the wrench when not engaged, a screw-plug
threaded in the outer end of the main body, 20 a screw-stem threaded through the plug and attached to the solid cone, and means for turning the screw-plug and the screw-stem independently of each other, substantially as
described. 25

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

JOHN W. COLLINS.

Witnesses:

JAMES T. WATSON,
WILLIAM MCKAY.