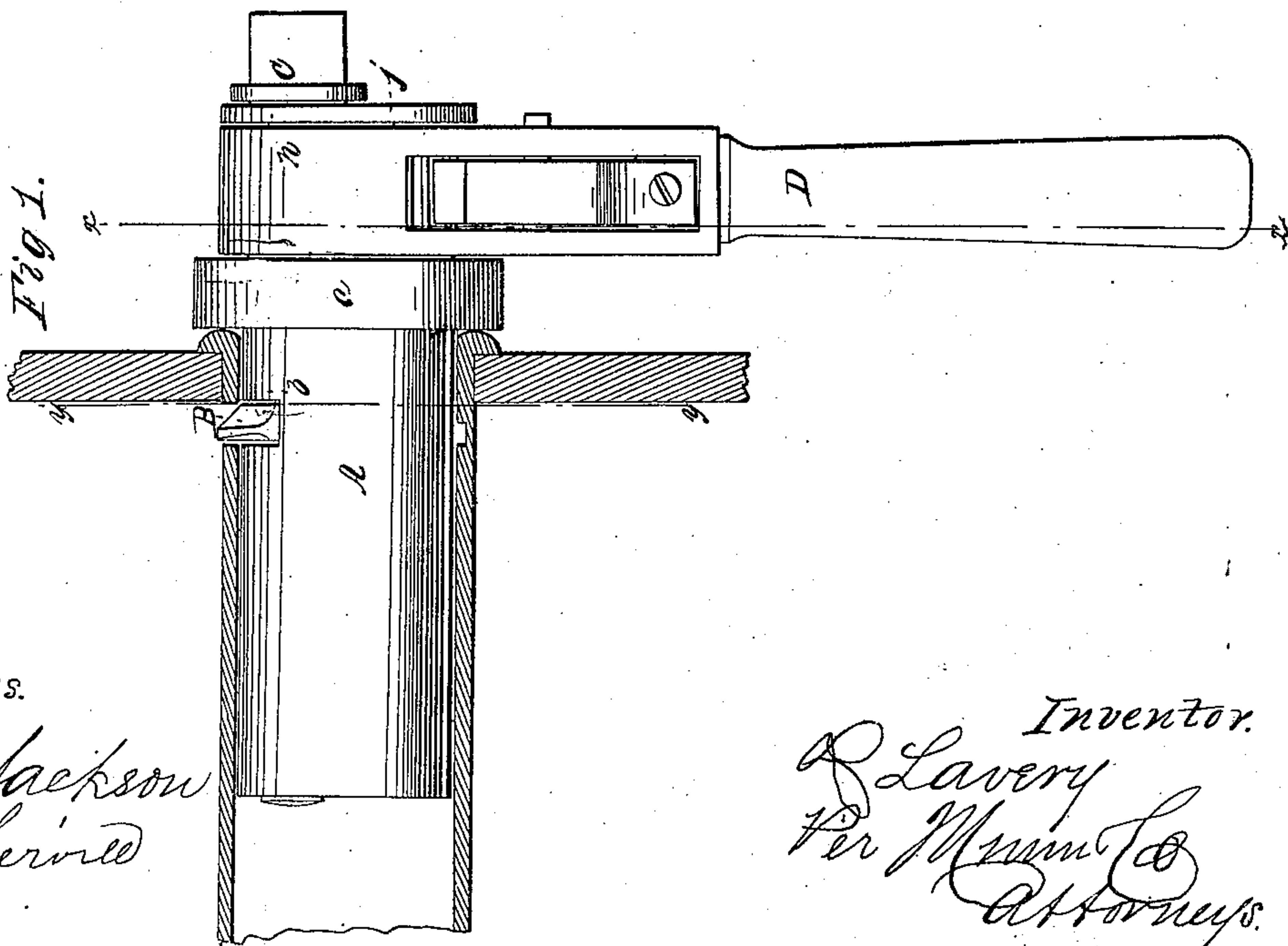
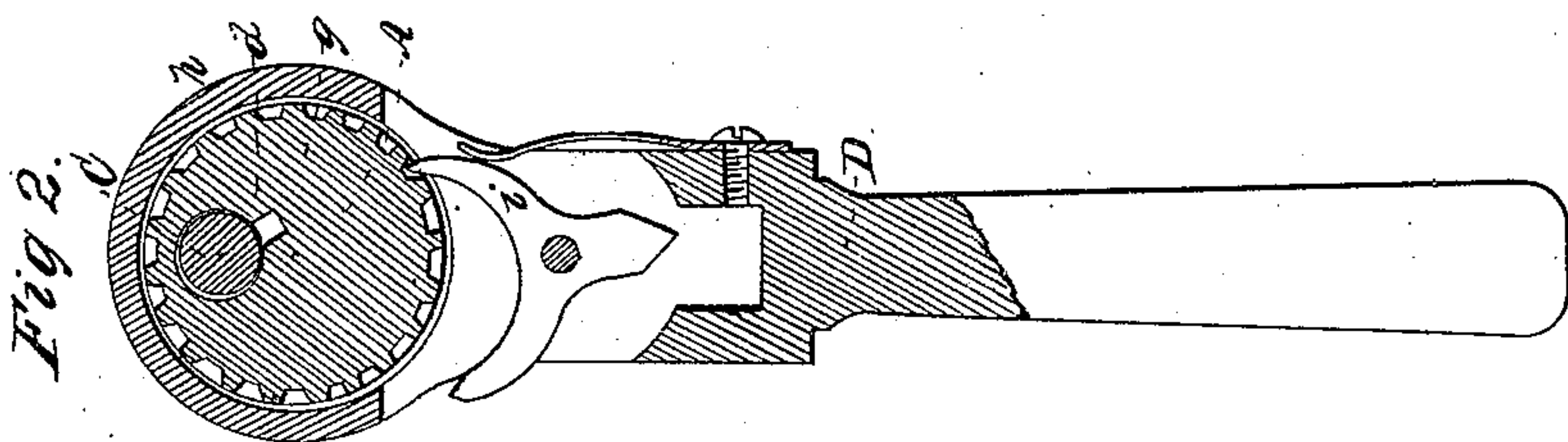
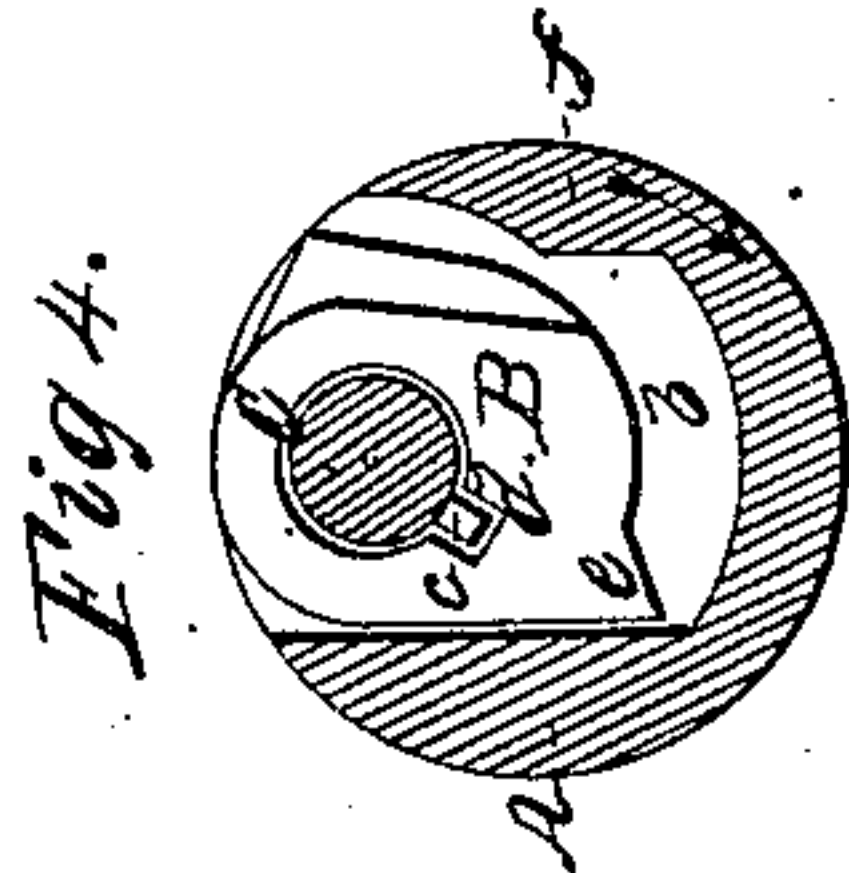
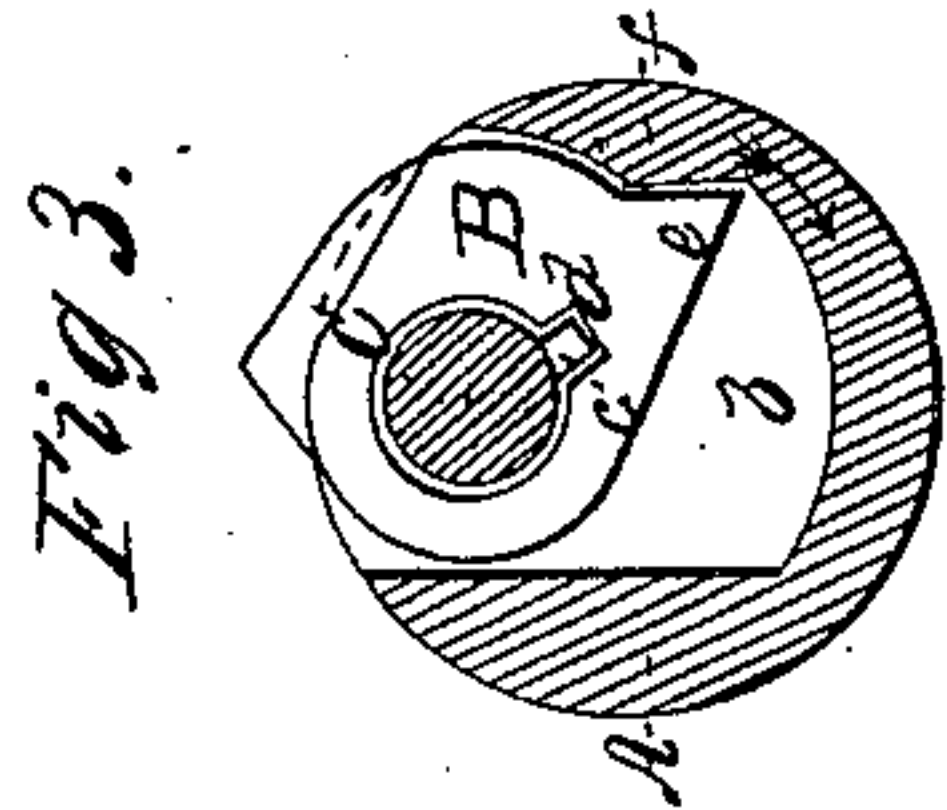


R. Lavery,

Boiler-Tube Cutter.

N^o 62,859.

Patented Mar. 12, 1867.



Witnesses.

T. A. Jackson
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United States Patent Office.

RICHARD LAVERY, OF SOUTH BOSTON, MASSACHUSETTS.

Letters Patent No. 62,859, dated March 12, 1867.

IMPROVED TOOL FOR CUTTING OFF BOILER TUBES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, RICHARD LAVERY, of South Boston, in the county of Suffolk, and State of Massachusetts, have invented a new and improved Tool for Cutting Boiler Tubes; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a side elevation of this invention.

Figure 2 is a transverse section of the same, taken in the plane indicated by the line *x x*, fig. 1.

Figure 3 is a similar section of the same, the line *y y*, fig. 1, indicating the plane of section.

Figure 4 is a similar section in the same plane, showing the cutter in a different position from the previous figure.

Similar letters of reference indicate like parts.

This invention consists in the arrangement of an eccentric cutter in a cylindrical head, which is made to fit the tube to be cut, and to which a revolving motion is imparted by a ratchet handle, or any other suitable means, in such a manner that by turning the cutter on its own axis its point or tooth can be thrown back within the surface of the cylindrical head, and, if the head is inserted in a tube and turned in the proper direction, the tooth of the cutter, when once brought in contact with the inner surface of the tube to be cut, will gradually turn up, and the tube will be cut by one revolution of the cylindrical head.

A represents a cylindrical head, which is made to fit into the tube to be cut, and which is provided with a collar, *a*, which forms a shoulder to bear against the end of the tube to be cut, and to prevent said head from passing into the tube beyond the desired point. At a suitable distance from said collar a cavity, *b*, is made into the head A, just wide enough to admit the cutter B, and a pin, C, which passes through the head in a longitudinal direction, forms the bearing for the cutter. The pin C is situated out of the centre of the head, and it is provided with a key, *c*, which catches in a corresponding notch or groove, *d*, in the cutter, so that by turning said pin the cutter can be turned from the position in which the same is shown in fig. 4 to that shown in fig. 3, and *vice versa*. By referring to these figures it will be noticed that the shape of the cutter and that of the cavity are such that, when the cutter is brought in the position shown in fig. 4, the point or cutting edge thereof is flush with or a little below the circumference of the head, and the straight back of the cutter bears against the corresponding edge of the cavity. But if the cutter is turned to the position shown in fig. 3, the lip or nose *e*, projecting from the inner edge of the cutter, bears against the shoulder of the cavity, and thereby said cutter is prevented from being turned beyond the desired position. To the end of the head is secured the ratchet handle D, which is provided with a ring, *h*, fitting over a cog-wheel, *g*, that is secured to, or cast solid with, the head A, and with a double-spring pawl, *i*, which engages with the cogs *g* when the handle is moved in one direction, and sweeps over said cogs when the handle moves in the opposite direction. A disk or washer, *j*, secured to the end of the head A, retains the ratchet handle and prevents it slipping off spontaneously. The pawl *i* is so arranged that it can be reversed, and a back motion can be given to the head for the purpose of disengaging the cutter.

The operation is as follows: When the cutter is turned down to the position shown in fig. 4, the head can readily be introduced in the tube to be cut, and, after the same has been adjusted in the required position, the pin C is slightly turned in the direction of the arrow marked on it in fig. 4, so that the point of the cutter catches against the inner surface of the tube, and at the same time the handle D is set in motion, and a rotary motion is imparted to the head A in the direction of the arrow marked on it in figs. 3 and 4. By this motion the point of the cutter crowds against the inner surface of the tube, and gradually cuts through the tube and turns up to the position shown in fig. 3, and by the time the head A has made one revolution the tube is cut.

By these means the operation of cutting boiler tubes is materially facilitated. It can be accomplished in a comparatively short time, and the cutter is rendered strong and durable by the peculiar shape given to it whereby the strain is thrown on the nose *e* and on the pin C, and said cutter is not liable to split or crack.

What I claim as new, and desire to secure by Letters Patent, is—

1. The eccentric cutter B, in combination with the head A, constructed and operating substantially as and for the purpose described.

2. The lip or nose *e* on the eccentric cutter, in combination with the shoulder *f*, in the head A, substantially as and for the purpose set forth.

3. The pin C, provided with a key *c*, in combination with the eccentric cutter B and head A, constructed and operating substantially as and for the purpose described.

4. The ratchet handle D, in combination with cogs *g* in the head A, and with the eccentric cutter B, constructed and operating substantially as and for the purpose set forth.

RICHARD LAVERY.

Witnesses:

WM. F. McNAMARA,

W. HAUFF.