

No. 791,784.

PATENTED JUNE 6, 1905.

A. A. HENDRICKSON.  
BOILER TUBE CUTTER.

APPLICATION FILED APR. 3, 1903.

2 SHEETS—SHEET 1.

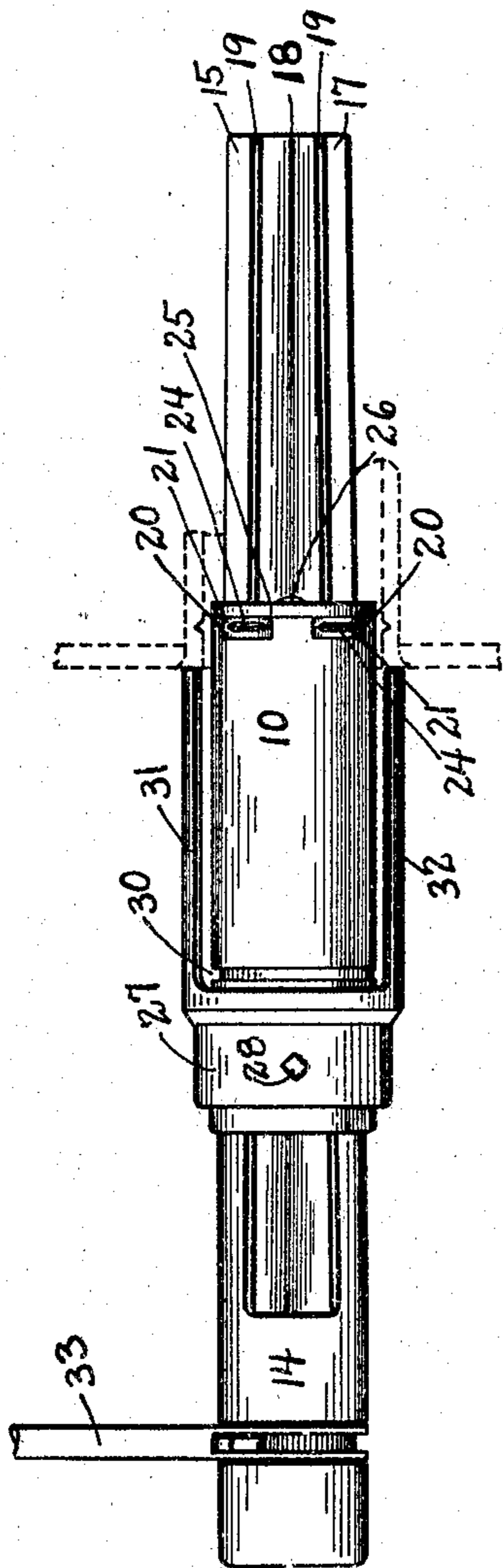


Fig. 1.

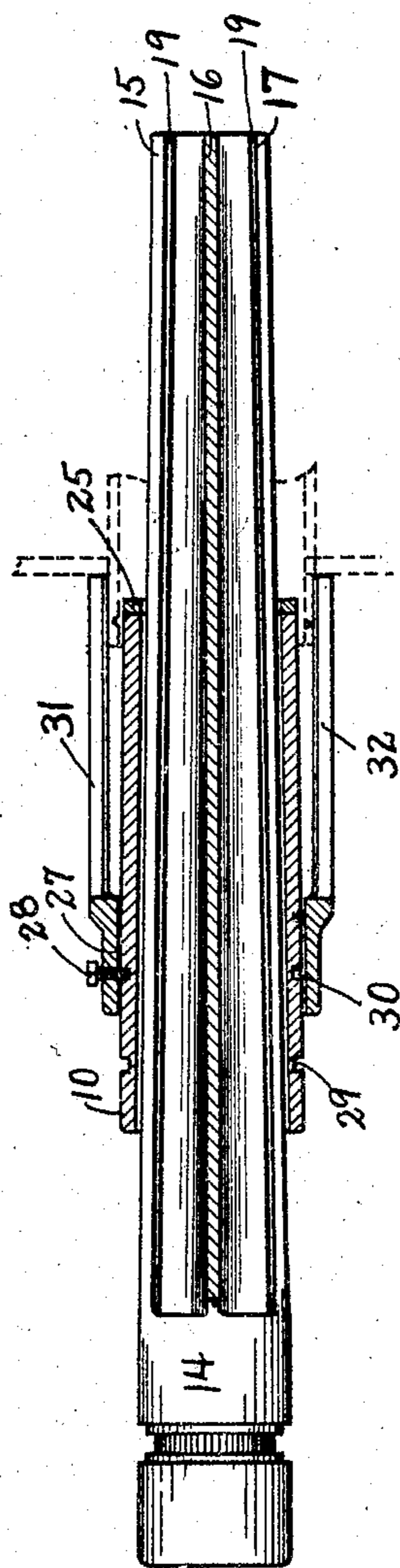


Fig. 2.

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Charles Morgan.  
Harry Ellis Chandler

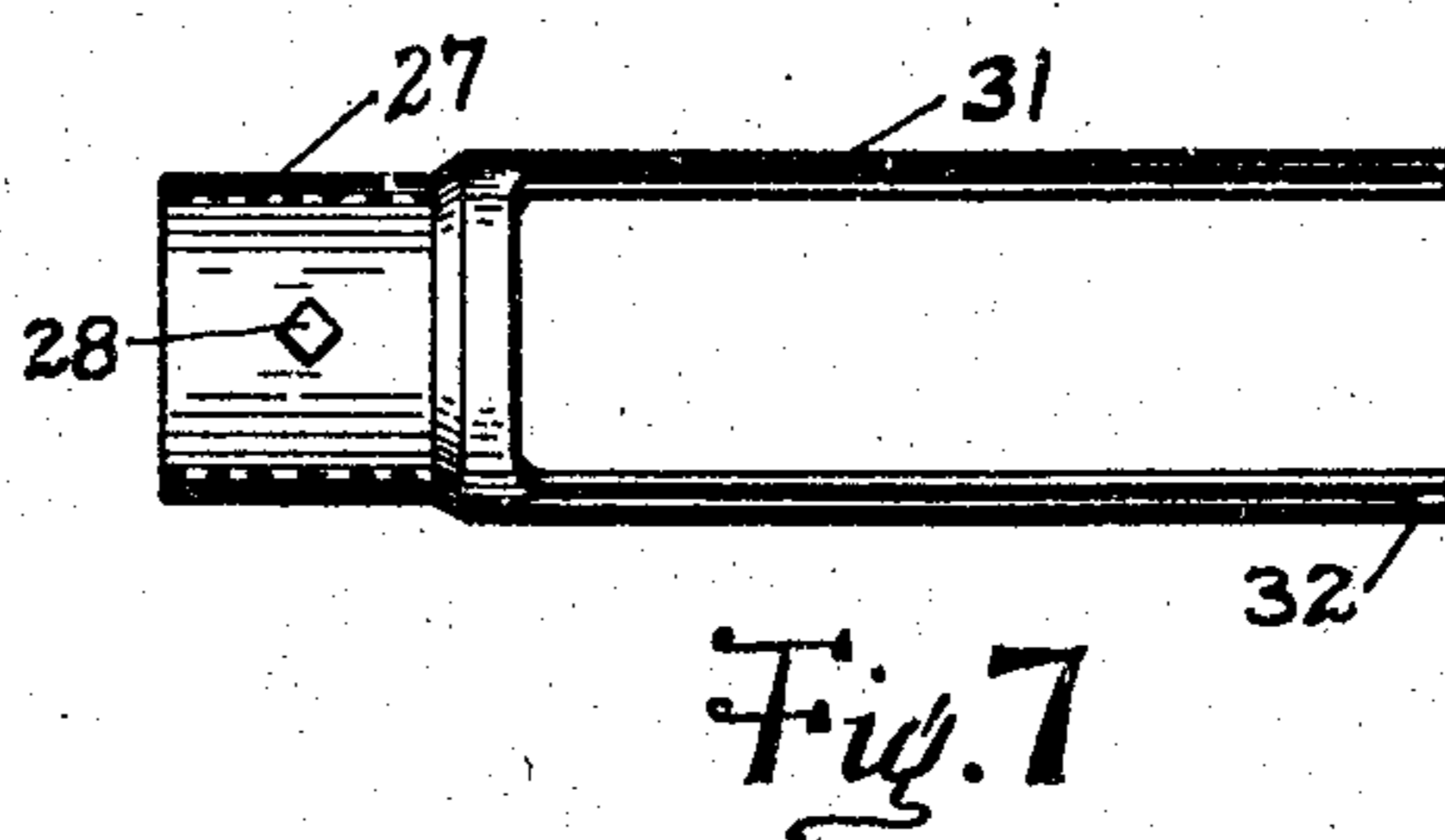
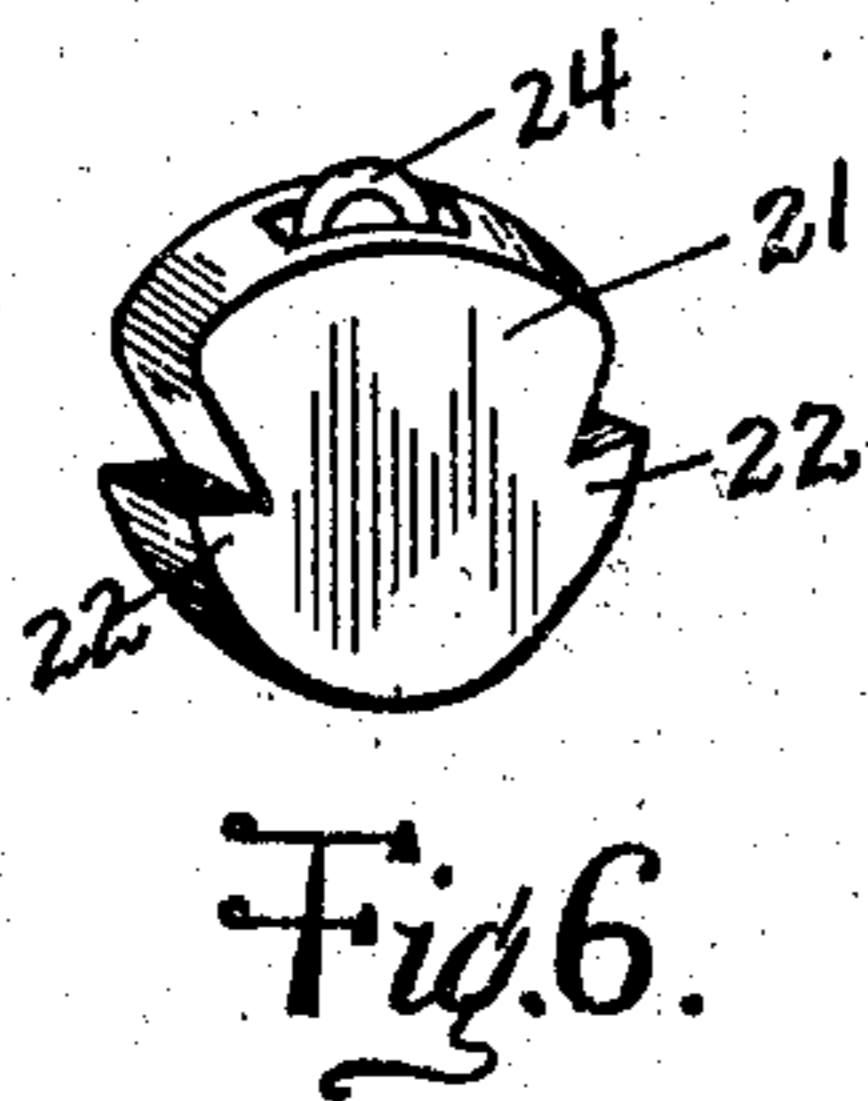
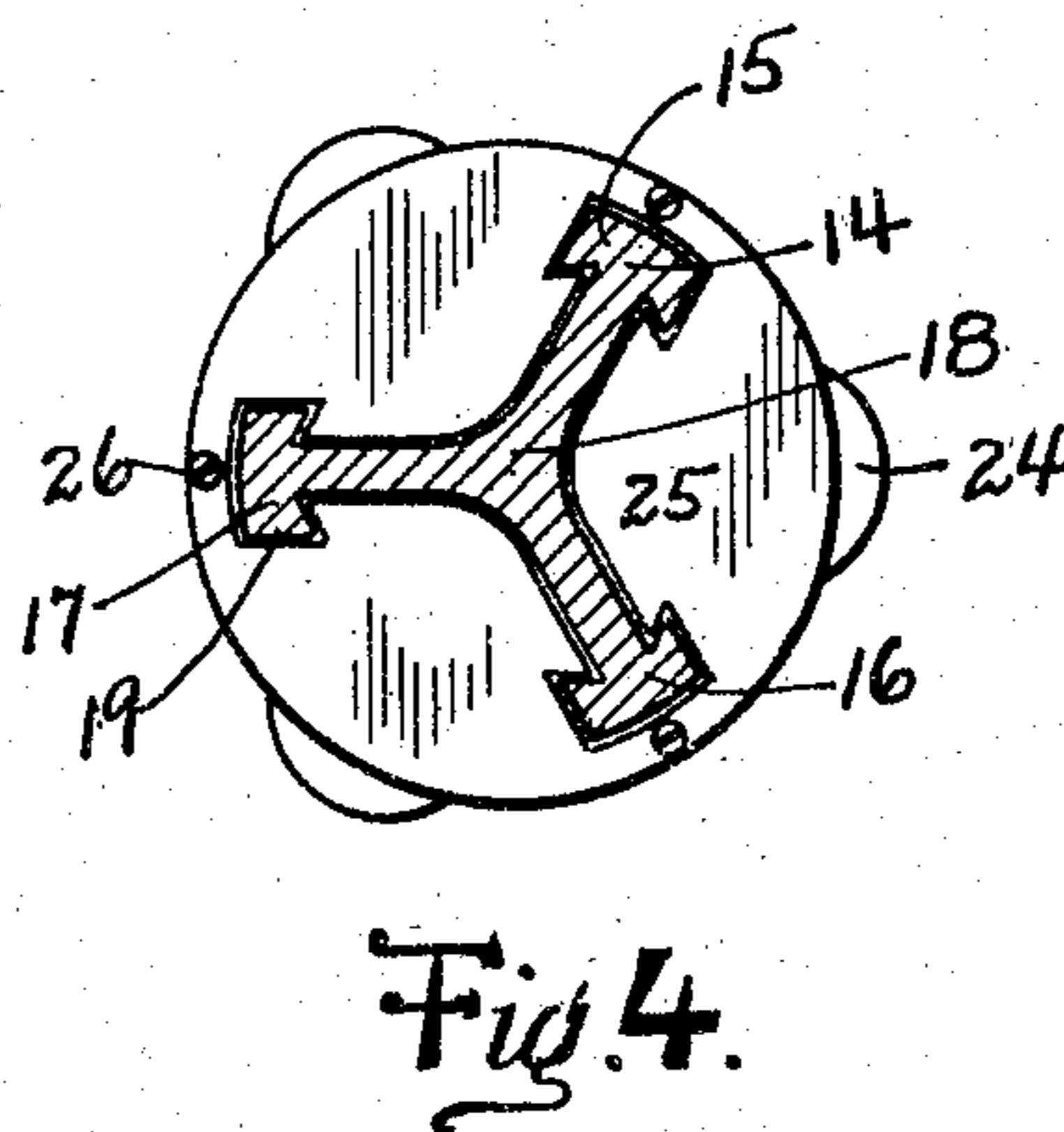
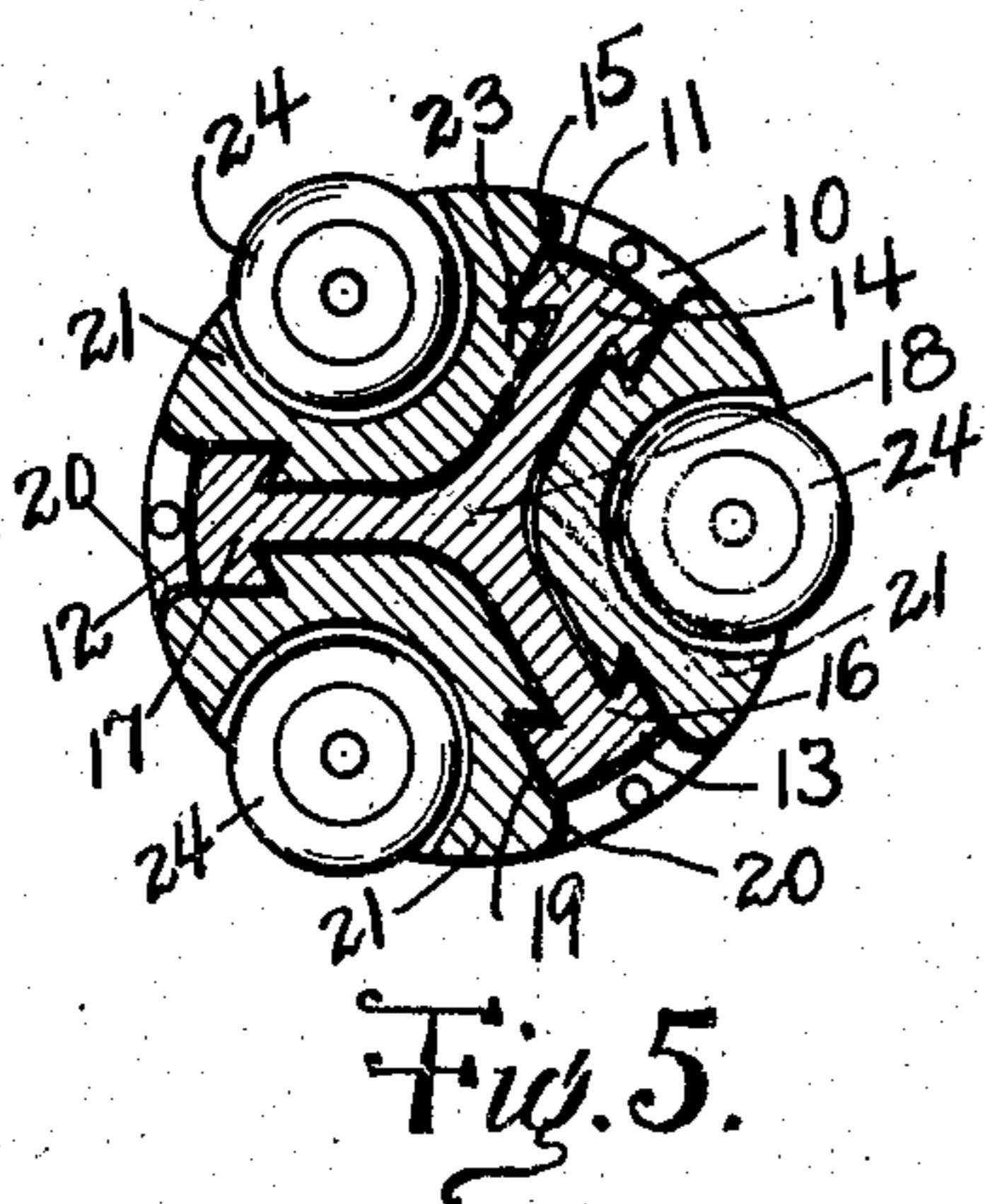
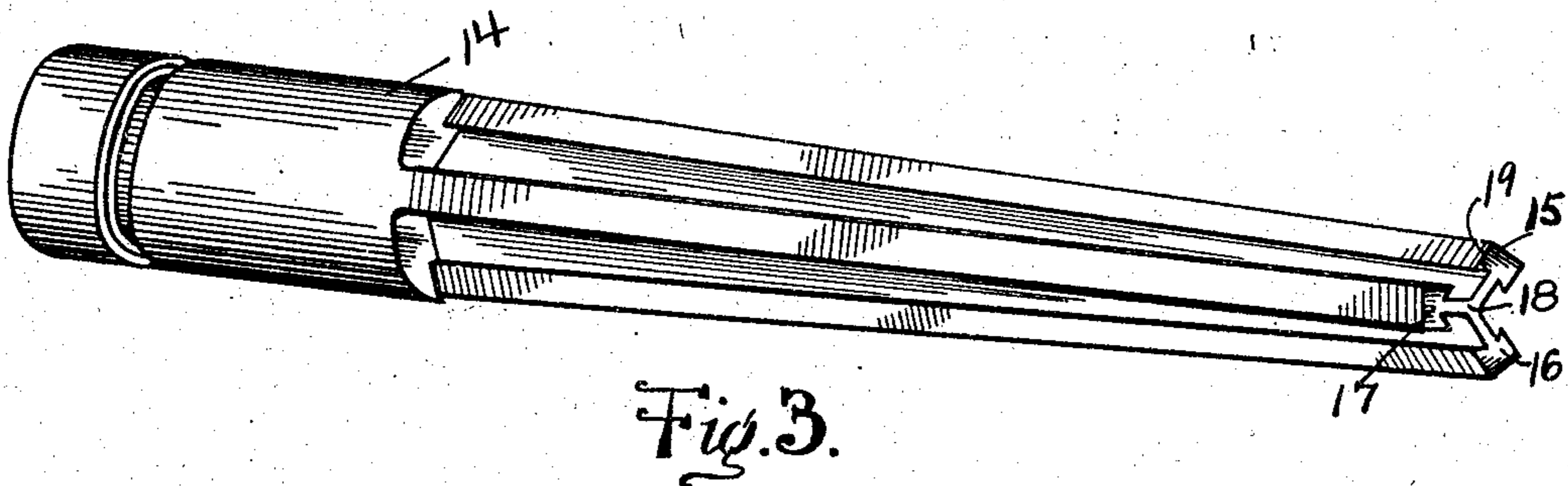
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# UNITED STATES PATENT OFFICE.

ARTHUR A. HENDRICKSON, OF BIG MOSES, WEST VIRGINIA.

## BOILER-TUBE CUTTER.

SPECIFICATION forming part of Letters Patent No. 791,784, dated June 6, 1905.

Application filed April 3, 1903. Serial No. 150,901.

*To all whom it may concern:*

Be it known that I, ARTHUR A. HENDRICKSON, a citizen of the United States, residing at Big Moses, in the county of Tyler, State of West Virginia, have invented certain new and useful Improvements in Boiler-Tube 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.

This invention relates to boiler-tube cutters; and it has for its object to provide a tool which may be used for cutting off tubes from the insides thereof and which tool may be adjusted for cutting off old tubes in boilers or for cutting off the projecting ends of tubes.

A further object of the invention is to provide a simple and efficient construction by means of which the cutting-wheels may be readily adjusted as the cut is made and in such manner that the cutting operation may be easily and quickly performed.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a side elevation of the cutting-off tool, the position of a tube which is being cut off within a boiler being indicated in dotted lines. Fig. 2 is a longitudinal section taken centrally through the tool, the parts being in position to cut off the protruding end of a boiler-tube. Fig. 3 is a perspective view of the core of the cutter. Fig. 4 is a transverse section of the tool through the core of the cutter and showing the end of the body of the cutter in elevation. Fig. 5 is a transverse section through the cutter in the plane of the cutting-wheels. Fig. 6 is a detail perspective view of one of the cutter-wheels and its carrier. Fig. 7 is a side elevation of the gage-sleeve.

Referring now to the drawings, the present tube-cutter comprises a cylindrical body portion 10, through which is formed a longitudinal passage including the three arms or channels 11, 12, and 13, which are equidistant at their outer sides and radiate from the center of the passage, the outer sides of this passage being broadened transversely, as

illustrated. This passage is formed to receive a feed-core 14 for the cutters hereinafter described. The feed-core includes a cylindrical body portion at one end, while the other end is grooved longitudinally at three equidistant points to form the wings or webs 15, 16, and 17, which radiate from the central hub 18. The outer end portion of each of the wings is rectangular in cross-section, and at the free ends of the wings and at their outer sides are the laterally-directed flanges 19, which project to a maximum at the free end of the core and gradually decrease toward their opposite ends.

The body portion 10 of the cutter has three recesses 20 therein, which open into the longitudinal passage in the body portion, and in each of these recesses is fitted a carrier 21, having a dovetail extension 22, which fits in the concave portion 23 between the corresponding wings or webs of the core, said carrier fitting also snugly against the side faces of the heads or laterally-broadened portions of said wings or webs. The central portion of the core increases gradually in thickness in the direction of the cylindrical body portion thereof, so that as said core is forced through the body 10 the carriers are moved radially outwardly through the sockets in which they are seated. Each of the carriers 21 has a transverse slot therein in which is rotatably mounted a cutter-wheel 24, which projects to a greater or lesser extent beyond the surface of the body 10 as the core is reciprocated.

To hold the carriers in their respective recesses, the end section 25 is provided for the body 10 and is fitted against the end of the body proper and held thereto by means of screws 26, said end piece or section having a longitudinal passage which registers with that of the main body portion.

When a tube is to be cut, the grooved end of the core and the adjacent end of the body 10 is passed into the tube, after which the core is rotated to rotate the body, and therewith the cutting-wheels, against the inner surface of the tube, and as the cutting progresses the core is forced gradually through the body 10 to press the carriers, and therewith the cut-

ting-wheels, outwardly or radially against the inner face of the tube to compensate for the depth that the wheels cut.

To prevent body 10 from moving into the tube as the core is pressed through the body, 5 so that proper feeding of the cutters may be insured, a stop is provided and consists of a collar 27, which is rotatably mounted upon the body 10 and has a screw 28 engaged 10 therethrough and which is adapted to engage either of the grooves 29 and 30, which circumscribe the body 10. From the collar 27 extend the longitudinal spaced arms 31 and 32, which are sufficiently separated from the body 15 10 to permit of the tube that is to be cut to enter between said arms and the body 10, so that the ends of the arms may rest against the boiler-head.

When a tube is to be cut off inside of the 20 boiler, the collar 27 is shifted rearwardly of the body 10, so that the screw 28 engages in the groove 29, at which time the ends of the arms 31 and 32 lie rearwardly of the cutter-wheels, permitting the latter to pass beyond 25 the head of the boiler. If the tube is to be cut off outside of the boiler, the collar 27 is shifted on the body 10 until the screw 28 may be engaged in the groove 30, at which time the cutting-wheel will be outside of the boiler.

30 To provide for rotating the core, and therewith the body 10 and its cutters, a lever 33 is employed and which has an ordinary pawl-and-ratchet connection with the cylindrical end portion of the core 14, so that by oscillation of the lever the core will be rotated. 35

It will be understood that while the body 10 rotates the collar 27 will remain stationary, and, furthermore, that when the core is withdrawn or moved rearwardly through the 40 body 10 the carriers will be drawn inwardly and free from the face of the tube owing to the dovetail connection or engagement of the

stems of the carriers with the grooves of the core and the formation of the flanges 19.

In practice modifications of the specific 45 construction shown may be made, and any suitable materials and proportions may be used for the various parts without departing from the spirit of the invention.

What is claimed is—

50 A boiler-tube cutter comprising a hollow cylindrical body portion having spaced notches in its forward end, carriers slidably disposed in the notches and having dovetailed projections extending into the body portion, 55 a plate removably attached to the forward end of the body portion and having radial communicating slots therein, a forwardly-tapered core slidably disposed within the body portion and having dovetailed grooves there- 60 in corresponding in number to the notches and lying one beneath each of said notches, the projections of the carriers being slidably engaged in the grooves, the portion of the core between the grooves being slidably engaged 65 in the radial slots, said core being movable longitudinally within the body portion to move the carriers in the notches, means for rotating the core and the body portion, cut- 70 ters carried by the carriers and projecting beyond the outer faces thereof, and a guide-sleeve slidably mounted upon the body and having arms, said guide-sleeve being shiftable to bring the extremities of its arms at either 75 side of the cutters, and means for holding the guide-sleeve at different points of its movement.

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

ARTHUR A. HENDRICKSON.

Witnesses:

BLAINE BOOHER,  
H. U. McELHATTEN.