

No. 764,636.

PATENTED JULY 12, 1904.

E. SHACKELFORD.
BOILER TUBE CUTTER.

APPLICATION FILED APR. 2, 1903.

NO MODEL.

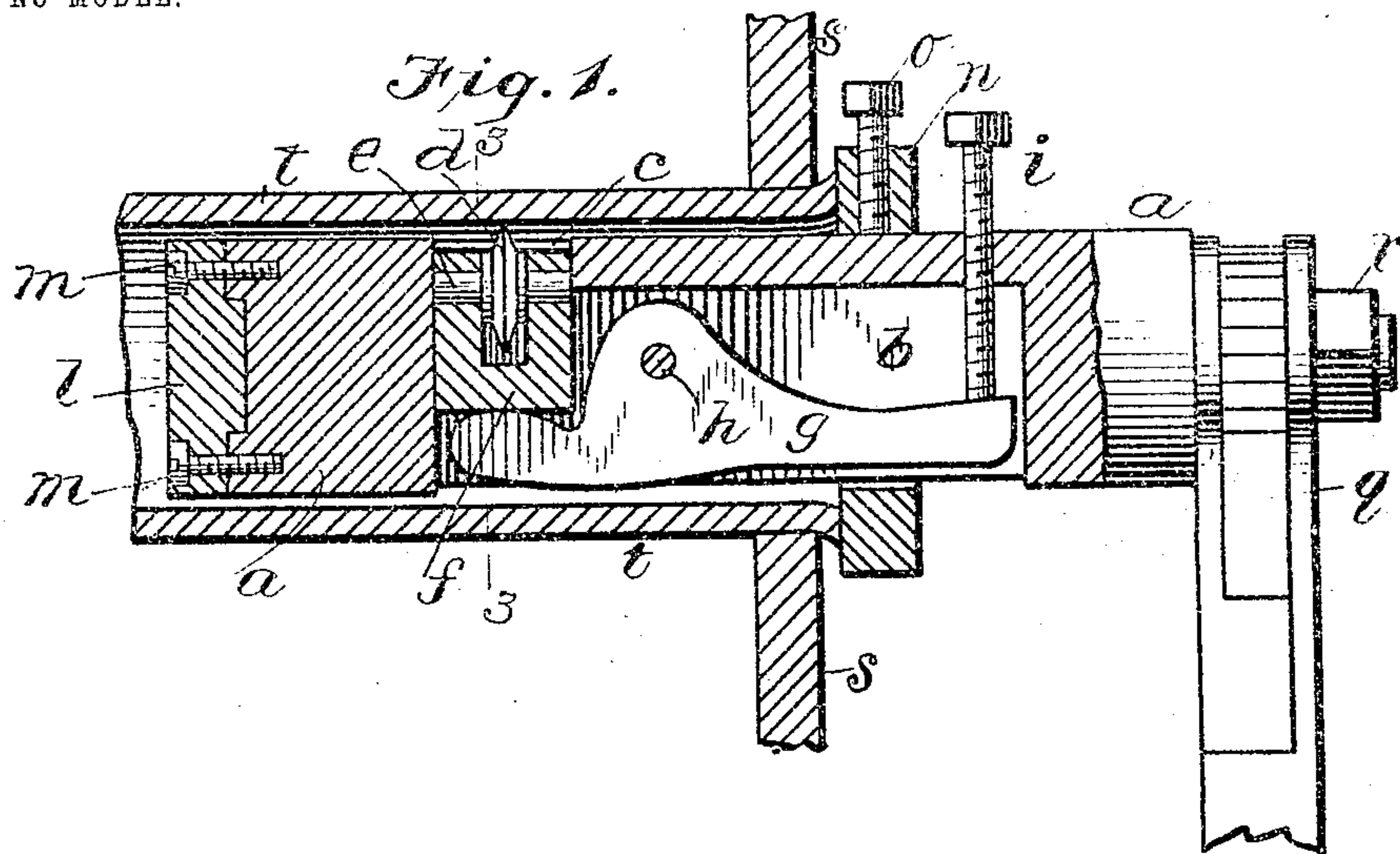


Fig. 2.

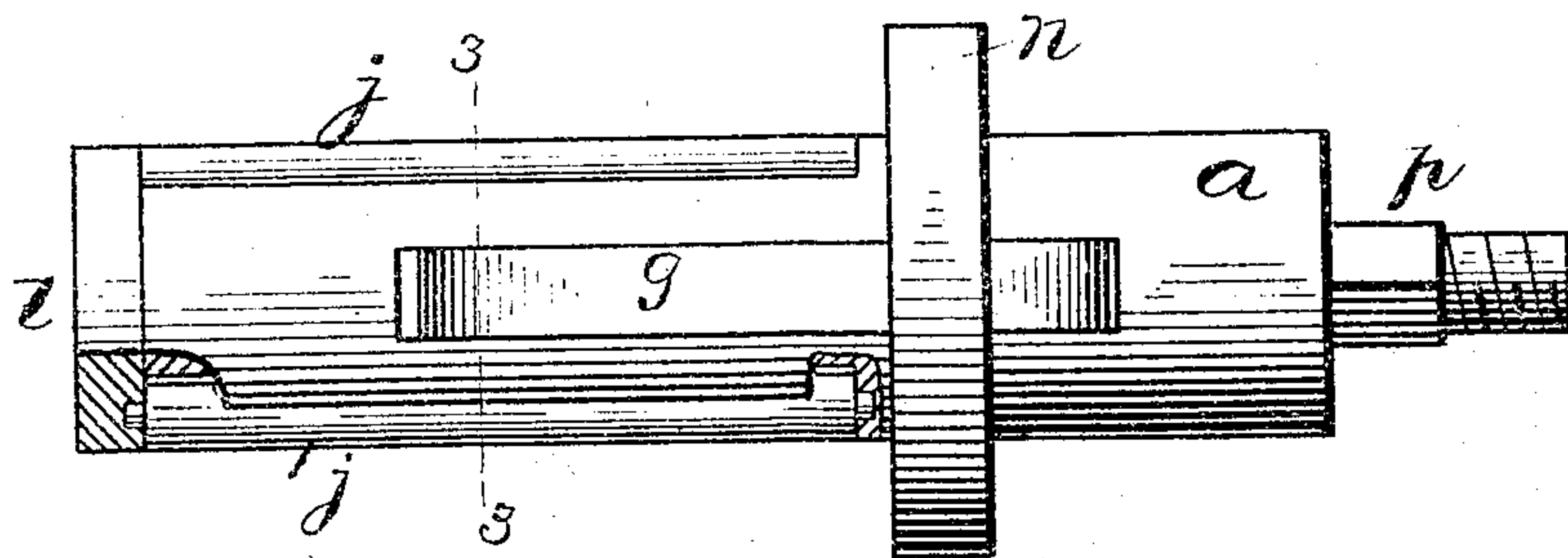
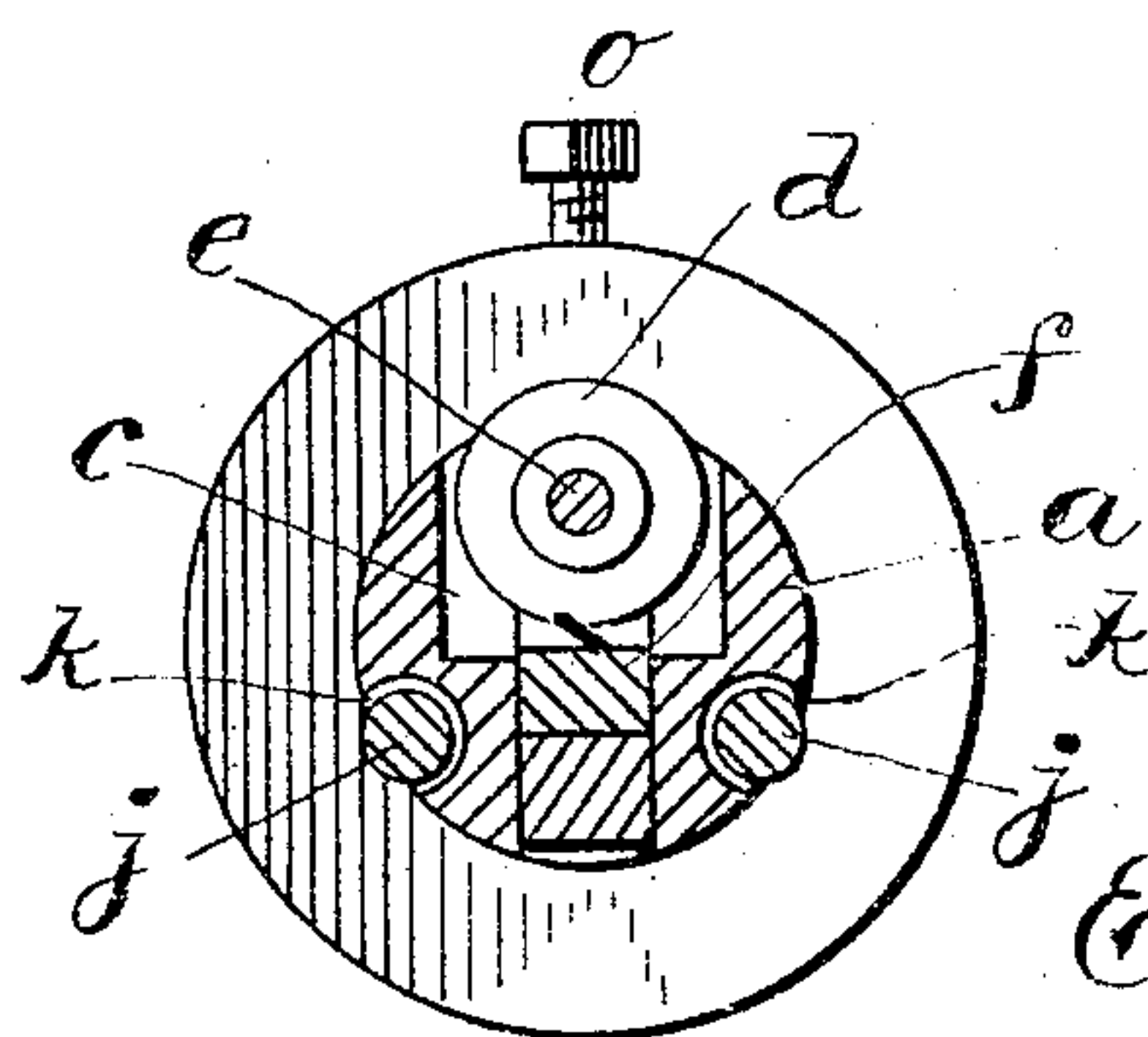


Fig. 3.



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BOILER-TUBE CUTTER.

SPECIFICATION forming part of Letters Patent No. 764,636, dated July 12, 1904.

Application filed April 2, 1903. Serial No. 150,785. (No model.)

To all whom it may concern:

Be it known that I, EDGAR SHACKELFORD, a citizen of the United States, residing at Cambridge, in the county of Dorchester and State of Maryland, have invented certain new and useful Improvements in Boiler-Tube Cutters, of which the following is a specification.

This invention relates to devices for cutting off tubes or pipes in general, but more specifically to that class of such devices as are intended for cutting out the tubes of boilers.

The object of the invention is to provide an improved tube-cutter which can be readily adjusted into position for work or removed from such position, is economical and compact in structure, and rapid and reliable in operation, and in which the cutting-tool can be instantly adjusted into place and removed for repair or renewal.

With this object in view the invention consists in the improved construction, arrangement, and combination of the parts of a tube-cutter which will be hereinafter fully described and afterward specifically claimed.

I have illustrated my invention in the accompanying drawings, in which—

Figure 1 is a longitudinal vertical sectional view illustrating the invention in position in a boiler-tube, the handle of the ratchet-wrench being broken away. Fig. 2 is a view of the device removed from the tube in bottom plan view, partly broken away to expose one of the rollers. Fig. 3 is a transverse vertical section of the device as shown in Fig. 2 on the lines 3 3 of Figs. 1 and 2.

Like letters of reference mark the same parts in all the figures.

Referring to the drawings by letters, *a* indicates the main body of the tool, which is preferably in the form of a cylinder of metal provided with a recess or chamber *b* open at the bottom and extending vertically and longitudinally a considerable portion of the length of the body. From this recess or chamber *b* a continuation thereof at the inner end of the chamber, as at *c* in Figs. 1 and 3, extends through the upper surface of the body, both chambers *b* and *c* being rectangular in cross-section. In the chamber *c* is located the cutting-tool *d*, which is freely rota-

table, being mounted upon a shaft *e*, journaled in a block *f*, which is free to rise and fall, and thus move the cutting-tool in a radial direction near to or farther from the axial line of the body *a*, such movement being effected by means of a lever *g*, pivoted on a pin *h* and located in the longitudinal chamber *b*, the forward end of said lever being located beneath and forming the support of the cutter-block *f*, while its rear end is engaged by a set-screw or adjusting-bolt *i*, threaded through the upper side of the body *a*.

j j indicate two rollers, although their number may be varied, which are pivoted or journaled in longitudinal recesses *k k* in the body *a*, preferably on its lower side, the outer end journals of said rollers *j* being located in a head or end piece *l*, secured to the inner end of the body *a* by means of screws *m*.

At *n* is shown a collar adapted to be slipped upon the body *a* and to be secured in any desired position by means of a set-screw *o*. The outer end of the body *a* is reduced and squared, as at *p*, to receive a ratchet-wrench *q*, which is held in position by means of a nut *r*.

s indicates a portion of a boiler-head, and *t* a portion of a tube secured therein.

The operation of the device may be described as follows: The parts being in position, with the cutter *d* projecting slightly beyond the circumference of the body *a*, the inner end of the instrument is inserted in the tube *t* until the cutter *d* reaches the point at which the tube is to be cut off. The collar *n* is now slipped along the body *a* until it contacts with the boiler-head or the outer head of the tube, where it is secured in position by the set-screw *o*. The screw *i* is now turned inward against the lever *g* until the cutter *d* is brought into forcible contact with the interior of the tube, the rollers *j* being in contact with the interior of the tube substantially diametrically opposite to the point of contact with the cutter. The whole implement is now turned by means of the ratchet-wrench *q* until the cutter makes an annular groove inside of the tube, after which the screw *i* is further turned inward, throwing the cutter *d* further outward, and the tool again turned until a cut

of sufficient depth has been made in the tube or the tube entirely cut off.

The implement is compact and of economical construction, all of the operating devices being substantially included within the area of the body *a* in that portion which enters the tube. The depth of the cutter in the tube is readily and quickly maintained by the collar *n* and set-screw *o* and its depth of cut quickly adjusted through the medium of the screw *i*, both of the adjusting-screws *i* and *o* being located outside of the boiled-head and readily accessible. The chambers in which the cutter, cutter-block, and adjusting-lever are located may be made in the body by casting said body, and the rollers *j*, while affording a substantially frictionless bearing on the inside of the tube, are readily insertible and removable by means of the head *l* and screws *m*.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a tube-cutter, the combination with a cylindrical body, provided with a longitudinal chamber open at the bottom and a branch therefrom open through the top, of a cutter-block mounted in the branch chamber, a rotary cutter journaled in the block, a lever pivoted in the longitudinal chamber and supporting the cutter-block at its forward end, and a set-screw threaded through the upper side of the body and bearing upon the rear end of the lever, substantially as described.

2. In a tube-cutter, the combination with a

cylindrical body, provided with a longitudinal chamber opening through the bottom and a branch therefrom opening through the top, of a cutter-block mounted in the branch chamber, a rotary cutter journaled in the block, a lever pivoted in the longitudinal chamber and supporting the cutter-block at its forward end, a set-screw threaded through the upper side of the body and bearing upon the rear end of the lever, an inner head removably secured to the body, and longitudinal rollers located in recesses in the lower side of the body, projecting slightly beyond the periphery thereof and journaled at their inner ends in the body and their outer ends in the removable head, substantially as described.

3. In a tube-cutter the combination with a cylindrical body, of a cutter mounted to move radially therein, a lever supporting at its outer end the cutter, a set-screw threaded through the body and bearing upon the outer end of the lever, a movable collar on the body, means for securing it in any adjustment, means for turning the body on its longitudinal axis, and friction-rollers projecting from the periphery of the body opposite to the cutter, the cutter and collar adjusting means being located outside the tube in which the cutter is operated, substantially as described.

In testimony whereof I affix my signature.

EDGAR SHACKELFORD

In presence of—

MURRAY G. HOOPER,
EDWIN DASHIELL.