

No. 837,426.

PATENTED DEC. 4, 1906.

G. F. SEYMOUR.  
BOILER TUBE CUTTER.  
APPLICATION FILED OCT. 23, 1905.

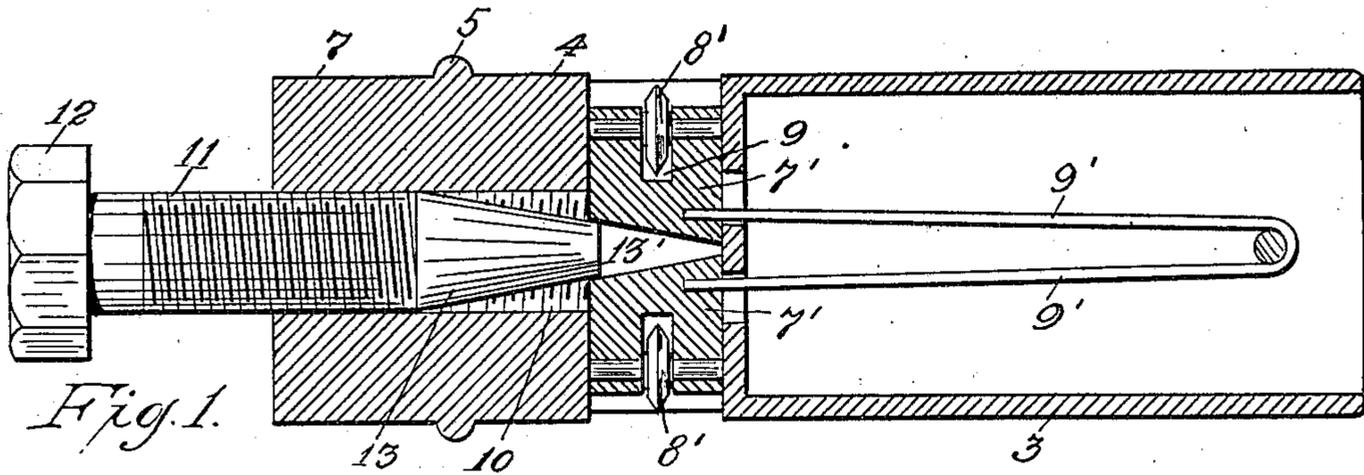


Fig. 1.

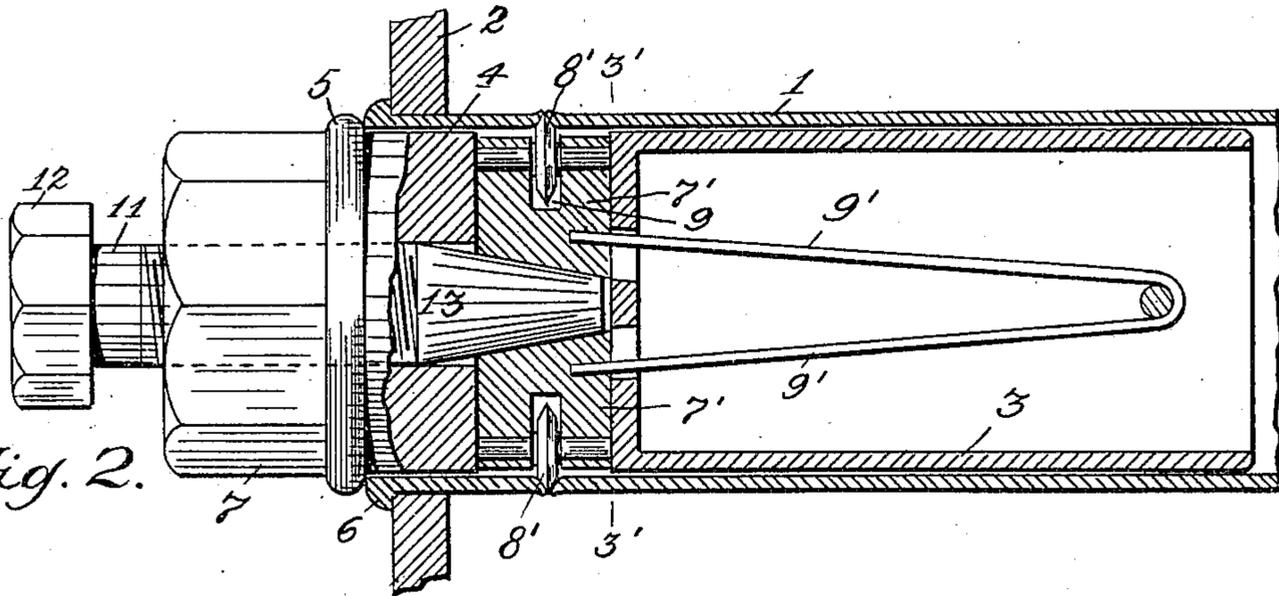


Fig. 2.

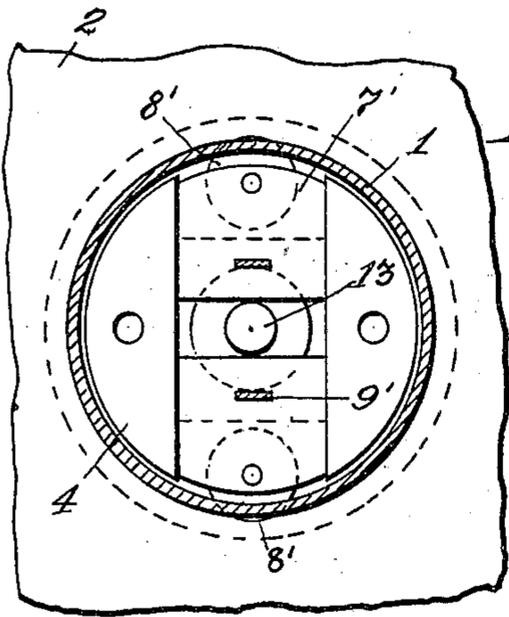


Fig. 3.

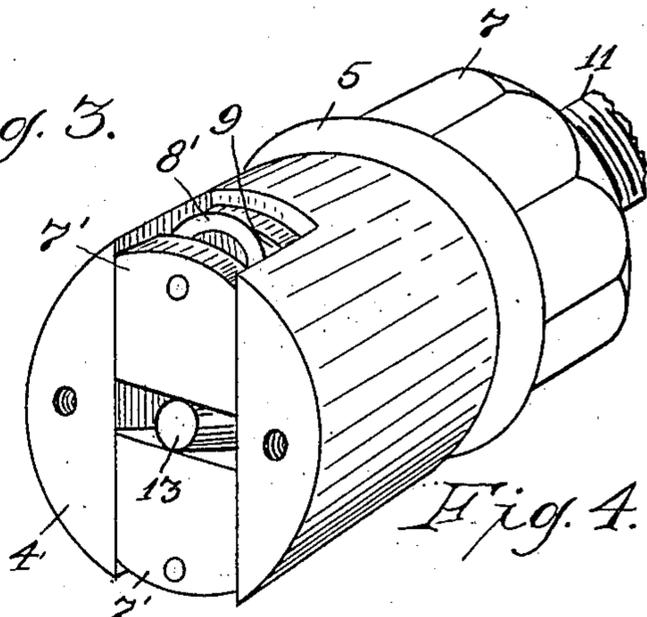


Fig. 4.

WITNESSES:

*Robert S. Sarau.*

*J. Compton.*

INVENTOR.

*G. F. Seymour*

BY

*Wacker*

ATTORNEY.

# UNITED STATES PATENT OFFICE.

GEORGE FREDERICK SEYMOUR, OF HOLLISTER, CALIFORNIA.

## BOILER-TUBE CUTTER.

No. 837,426.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed October 23, 1905. Serial No. 284,019.

*To all whom it may concern:*

Be it known that I, GEORGE FREDERICK SEYMOUR, a citizen of the United States, residing at Hollister, in the county of San Benito, State of California, have invented certain new and useful Improvements in Boiler-Tube Cutters; and I hereby declare the following to be a full, clear, and exact description of the same.

The present invention relates to a tool for the cutting of tubes within boilers so as to permit of the removal thereof without injury to the tube-sheets, the object of the invention being to provide a cutter which will permit of quicker removal of the tube from within the boiler than by the use of the tools at present employed for this purpose, at the same time providing a cutter of simple adjustment, inexpensive as to its manufacture, the cutters of which are maintained in perfect alinement, and which by reason of its lightness may be readily handled by a single workman.

To comprehend the invention, reference should be had to the accompanying sheet of drawings, wherein—

Figure 1 is a longitudinal sectional view of the tube-cutter, the feed-screw for expanding the holding-blocks carrying the cutters being illustrated in its outward position and the holding-blocks being held inwardly pressed by the spring-arms. Fig. 2 is a part longitudinal sectional view disclosing the tube-cutter fitted within a boiler-tube and the feed-screw moved inward to expand the holding-blocks carrying the cutters, the boiler-tube being sectioned. Fig. 3 is a vertical sectional end view in elevation taken on line 3' 3', Fig. 2 of the drawings; and Fig. 4 is a perspective view of the cutter, the tubular body portion being removed.

The numeral 1 is used to indicate the tubes of a boiler, and 2 one of the tube-sheets within which the ends of the tubes are flared.

The tube-cutting tool comprises a tubular body portion 3, the diameter of which is such as to allow of the same fitting snugly within the tubes of the boiler. This tubular body portion 3 acts as a guide for the proper insertion of the tool within a tube to be cut, the same being provided with a circular head 4, said head being of a diameter corresponding substantially to that of the tubular body 3. The head 4 is formed with a circular flange 5, which when the cutting-tool is fitting within the tube to be cut bears against the surface of the flared end 6 of the boiler-tube to be re-

moved. To permit of rotation being imparted to the head 4 and its body portion 3, the said head 4 is formed with an outwardly-projecting octagonal or irregular-shaped extension 7, which is adapted to be engaged by a wrench, spanner, or other suitable tool by which an operator may impart rotation to the head 4 and body portion 3.

Within the head 4 the laterally-movable holders 7' 7' are fitted, which holders carry the cutter-blades or knives 8' 8'. These blades or knives work through the blade-openings 9 9, formed in the head 4 adjacent the body portion 3. The cutter-holders 7' 7' are normally held pressed together, so that the outer edge of the cutting-blades 8' 8' are maintained flush with the outer surface of the tubular body portion 3 by means of the spring-arms 9' 9'.

Through the extension 7 and the head 4 is formed a screw-threaded longitudinally-extending bore 10, within which is fitted a longitudinally-movable feed-screw 11, which screw at its outer end is formed with an octagonal or irregular-shaped head 12, by means of which the screw is rotated, so as to feed inward and outward within the screw-threaded bore 10. The inner end 13 of the feed-screw is made tapering and enters a taper seat 13', formed in the cutter holders or blocks 7' 7'. The inner tapering end 13 of the feed-screw acts as a wedge to force outward laterally the cutter holders or blocks 7' 7' to gradually force the cutters or knives 8' 8' against the surface of the tube to be cut as the feed-screw is moved inward. This movement of the feed-screw takes place during the rotation of the head 4. As the holders or blocks 7' 7' are forced apart the cutters, blades, or knives 8' 8' cut a greater depth into the tube 1 to be removed until finally the body of material is severed.

After the wall of the tube to be removed has been cut through the feed-screw 11 is moved outward, so as to gradually remove its taper point 13 from within the taper seat 13' of the holders or blocks 7' 7' for the cutters, knives, or blades 8' 8'. As the taper point 13 is moved outward the pressure of the spring-arms 9' 9' gradually draws the holders or blocks 7' 7' toward each other, so as to draw the cutters, blades, or knives 8' 8' inward flush with the surface of the body portion 3, which permits of the entire tool being withdrawn from within the tube.

While the device has been described for

use in connection with the cutting of boiler-tubes, it is obvious that its use is not so confined, inasmuch as the cutting device may be successfully employed for the cutting of tubes  
5 and pipes generally.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. A tube-cutter comprising a rotatable  
10 head, of laterally-movable cutting means actuated thereby, a hollow body portion carried by said head, and constituting at one end a guide for the cutting means, resilient means within said hollow body portion for  
15 normally holding the cutting means inward, and means for forcing the cutting means against the inner surface of the tube to be cut.

2. A tube-cutter comprising a rotatable  
20 head, having at its inner end oppositely-disposed slotted portions for the reception of laterally-movable cutting devices, said cutting devices, a hollow body portion having a wall at its inner end connected to the head  
25 and constituting a guide for said laterally-movable cutting devices, resilient means mounted within said hollow body and passing through said wall for connection with the cutting devices for normally holding the  
30 same within the head, and means for forcing

the cutting devices against the inner surface of the tube to be cut.

3. A tube-cutter comprising a rotatable head having at its inner end oppositely-disposed slotted portions for the reception of  
35 laterally-movable cutting devices, the said cutting devices, a hollow body portion having a wall at its inner end connected to the head and constituting a guide for said laterally-movable cutting devices, means for nor-  
40 mally holding the cutting devices within the head, including a spring-bar bent back upon itself and sleeved upon a retaining means on the hollow body, the opposite arms of the  
45 springs passing through slotted portions of the said wall and connecting with the respective cutting devices, and the said slots through the medium of the arms of the  
50 spring constituting means for limiting the outward movement of the cutters, and means for forcing the cutting members against the inner surface of the tube to be cut.

In testimony whereof I have hereunto affixed my signature in the presence of witnesses.

GEORGE FREDERICK SEYMOUR.

Witnesses:

R. W. CHAPPELL,  
THOMAS HOPCROFT.