Larery & Stuart,

Stopping Leaks in Boiler Tubes.

No. 45,619. Patented Dec. 27, 1864.

Fig. 2.

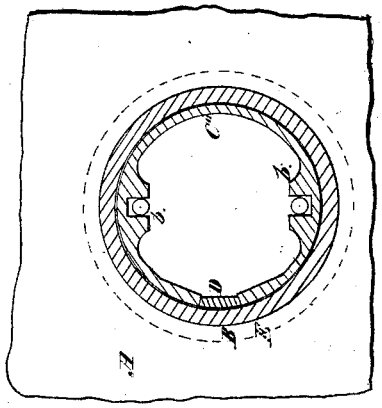


Fig. 3.

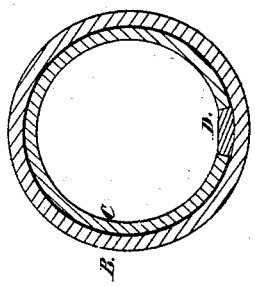


Fig. 1.

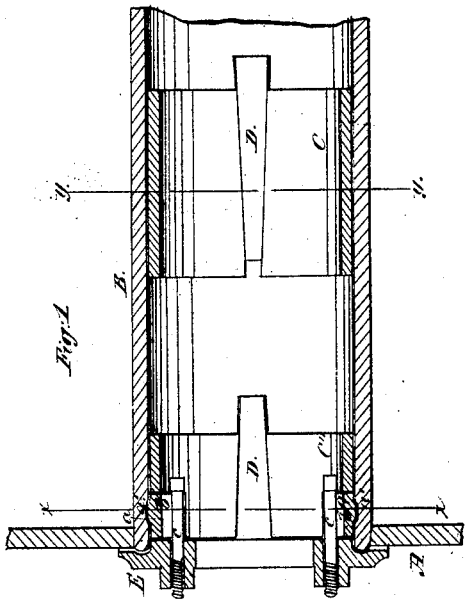
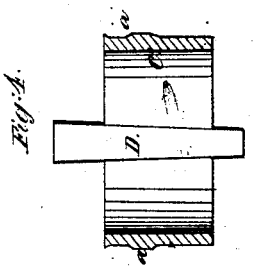


Fig. 4.



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UNITED STATES PATENT OFFICE.

R. LAVERY AND S. STUART, OF SOUTH BOSTON, MASSACHUSETTS.

IMPROVEMENT IN RINGS FOR STOPPING LEAKS IN BOILER-TUBES.

Specification forming part of Letters Patent No. **45,619**, dated December 27, 1864.

To all whom it may concern:

Be it known that we, R. LAVERY and S. STUART, of South Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Device for Stopping Leaks in Boiler-Tubes; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable those 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 longitudinal central section of our invention. Fig. 2 is a transverse section of the same, taken in the plane indicated by the line *x x*, Fig. 1. Fig. 3 is a similar section in the plane *y y*, Fig. 1. Fig. 4 is a longitudinal section of a modification of the same.

Similar letters of reference indicate corresponding parts.

The subject of this invention is a sectional or split ring to be applied to a leaky tube, and secured therein by means of one or more expanding wedges, in such a manner that by the action of said wedge or wedges the ring will be pressed firmly against the interior of the tube the leak thereby stopped. If the tube leaks at the end near the tube-sheet, the ring is provided with a bead to fit into the cavity of the tube close behind the tube-sheet, and in either case the leak is stopped simply by expanding the tube, without interrupting the free passage of the air and gases through the tube.

A represents a portion of a tube-sheet, in which the tube B is secured in the ordinary manner. If a leak occurs in the middle of the tube or at some distance from its ends, we apply a sectional or split ring, C, (see Figs. 1 and 3,) which is expanded in the tube by means of one or more wedges, D. By this action of these wedges the outer surface of the ring is pressed close up against the inner surface of the tube, and the leak is stopped without stopping the draft through said tube. If the leak occurs at the end of the tube, we employ a sectional or split ring, C′, (see Fig. 4,) which is provided with a bead, *a*, to fit into the cavity *a′* of tube close behind the tube-sheet. This cavity is produced by the tool used in fastening the tube in the tube-sheet, and when the ring is introduced into the tube and expanded by the wedge or wedges the tube is spread and pressed up close against the tube-sheet, and the leak is stopped.

By these means leaks occurring in boiler-tubes can be readily stopped with little loss of time and without closing the tube or materially interfering with the draft.

We claim as new and desire to secure by Letters Patent—

1. A sectional or split ring, to be secured within a tube by means of one or more wedges, substantially as and for the purposes herein described.

2. Constructing the aforesaid sectional or split ring with a bead, *a*, to fit within the cavity *a′* of the tube, in the manner specified.

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Witnesses:
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THEO. TUSCH.