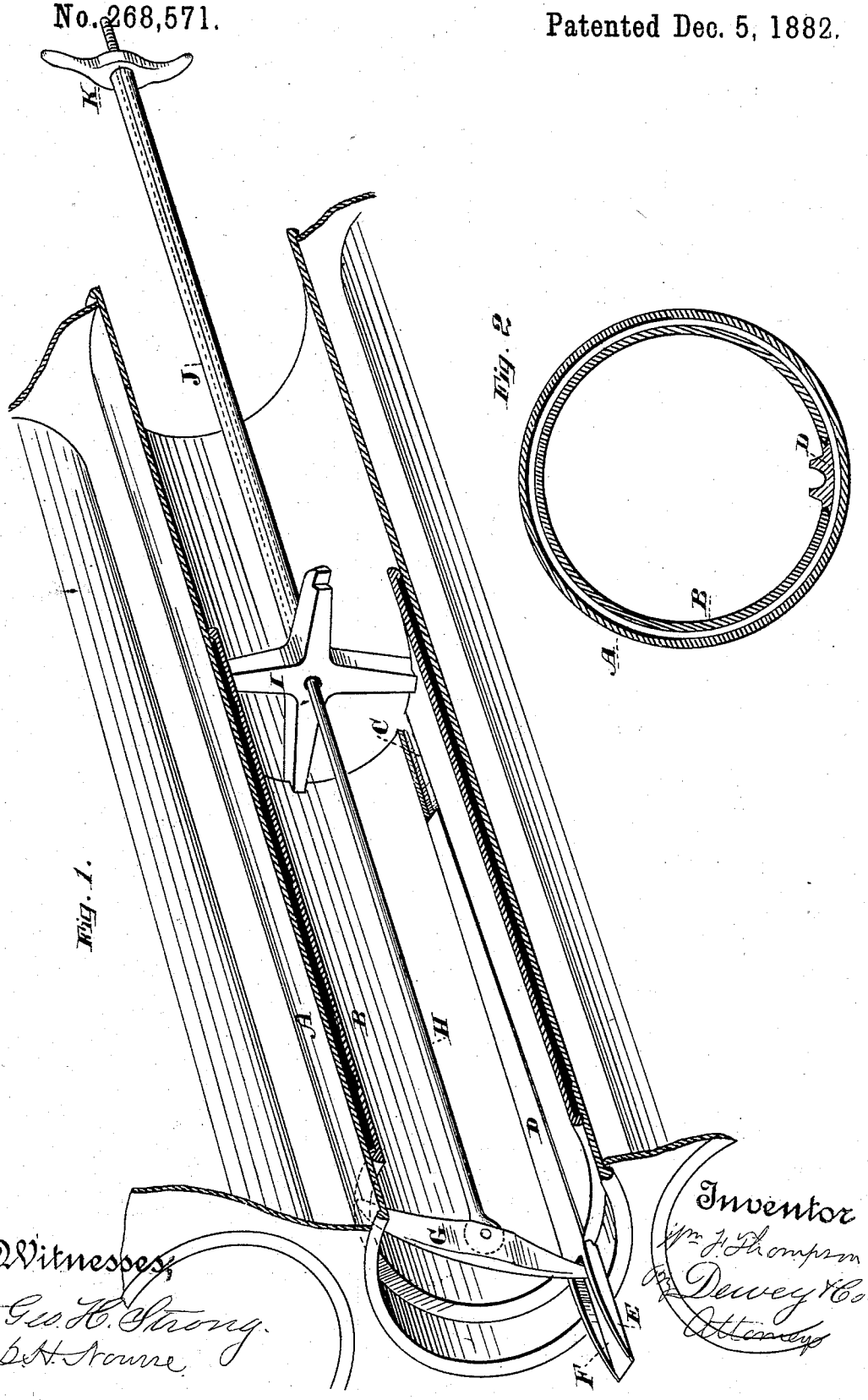
(No Model.)

W. F. THOMPSON.

LEAK STOPPER FOR BOILER TUBES.

No. 268,571. Patented Dec. 5, 1882.



Witnesses,
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UNITED STATES PATENT OFFICE.

WILLIAM F. THOMPSON, OF SAN FRANCISCO, CALIFORNIA.

LEAK-STOPPER FOR BOILER-TUBES.

SPECIFICATION forming part of Letters Patent No. 268,571, dated December 5, 1882.

Application filed August 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. THOMPSON, of the city and county of San Francisco, State of California, have invented an Improved Leak-Stopper for Boiler-Tubes; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to a device for stopping leaks in boiler-tubes; and it consists of a short section of tube small enough to enter the leaky boiler-tube, provided with a longitudinal tapering slit and a wedge, actuated by a transverse lever-arm, one end of which rests upon the edge of the tube and the other in a recess in the wedge. A rod is hinged to its center and extends back through a small tube, so as to be operated from the front, and thus force the wedge into its place, after which the rod and lever may be removed, leaving a clear opening through the boiler-tube.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a longitudinal section in perspective. Fig. 2 is a transverse section.

A is a section of boiler-tube which, having become leaky, is to be repaired.

B is a short section of tube having a small bead upon each end, so that any packing—such as red lead or other material—may be placed around it to make a tight joint between its exterior surface and the interior of the boiler-tube, and will not be forced out at the ends. This tube B has one side left open longitudinally, so as to have a tapering slot, C, the edges of which may be tongued or grooved to receive a corresponding wedge, D, which is put in from the rear, and when the section B is in place, so as to cover the hole in the boiler-tube. This wedge may be forced in, so as to expand the section and cause it to fit tight within the boiler-tube, and thus close the leak without interrupting the passage of heat through it. In order to force the wedge into the slot after the section is in place it is made slightly thicker at the end E, and a socket, F, is made in it, into which one end of the short lever G rests. The opposite end, which forms the fulcrum, rests upon the edge of the section diametrically opposite the wedge, as shown.

A rod, H, is hinged or pivoted loosely to the center of this lever G, and extends forward to a point outside the furnace-door, through which the device has been introduced into the tube.

A yoke, I, having two or more arms, is fitted to the end of the section opposite the lever G, and a small tube, J, is fitted to its center, extending thence out to the front, so that the rod H may pass through it.

A screw-thread is cut upon the outer end of the rod, and a nut, K, with arms by which to turn it, is fitted to the screw. This nut when turned presses against the end of the sleeve or tube J, causing it to press the yoke I against the end of the section B, and the rod will thus draw the lever G, and through it force the wedge D into the tapering slot at one side of the section, so as to expand the latter and cause it to fit tight within the boiler-tube.

When this device is to be introduced the parts are all put into place and the nut K is turned down upon the rod H just enough to hold the parts together; but the section will not be expanded, so that it will not enter the tube easily. When it has arrived opposite the leak it is expanded, as before described, and made snug within the boiler-tube.

In order to remove the rod H, tube J, lever G, and yoke I, so as to leave the boiler-tube clear, the nut K is turned back, leaving the rod H loose, and it is then pushed back until the lever G is released from the notch F in the wedge and from the end of the tube. One end of this lever is made heavier than the other, and when the rod has been turned so that this end is uppermost it will cause the lever to lie along parallel with the rod, when it and the rod and yoke may be withdrawn. The boiler-tube A will then be open from end to end, and no loss of heating-surface will occur.

In some cases rubber packing may be used where the heat is not too great, or where the device is applied to leaking tubes which are used for other purposes than steam-boilers.

This device is applicable to any leaking tube or pipe where it can be introduced from end to end.

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

1. The section B, having the longitudinal tapering slot at one side, and the wedge D, fit-

ted to it, in combination with the transverse lever G, the rod H, yoke I, tube J, and the nut K, substantially as herein described.

2. The section B, with its tapering wedge D, the yoke I, tube J, rod H, and the transverse lever-arm G, hinged or pivoted to the end of the rod and having one side made heavier than the other, so that when released it will turn and lie parallel with the rod to be withdrawn, substantially as herein described.

In witness whereof I hereunto set my hand.

WM. F. THOMPSON.

Witnesses:
S. H. NOURSE,
G. W. EMERSON.