T. La Blanc,

Boiler Tube Plug.

No. 111,552. Patented Feb. 7. 1871.

FIG. 1

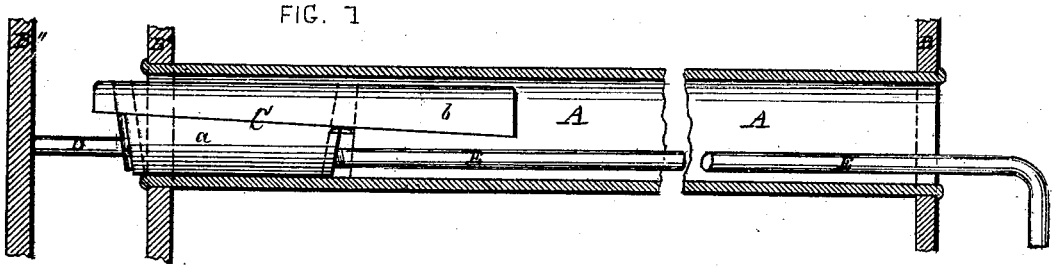


FIG. 2

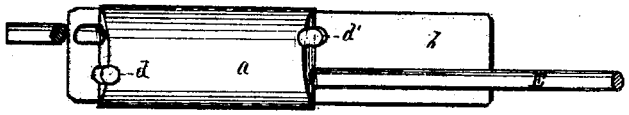


FIG. 3

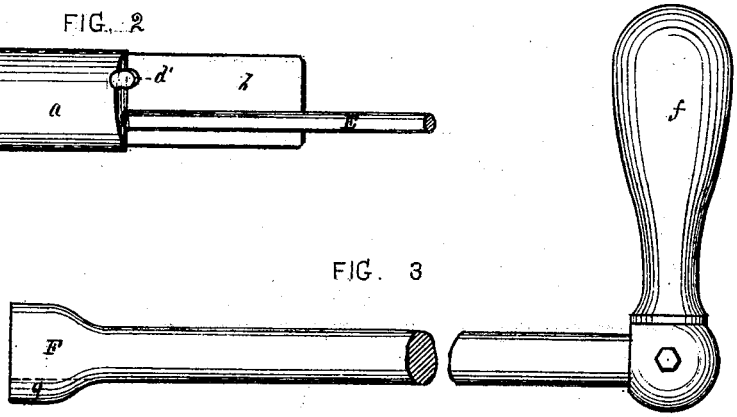


FIG. 4

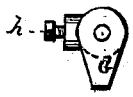
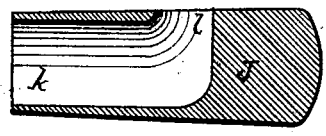


FIG 5

FIG. 6



WITNESSES

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THOMAS LA BLANC, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 111,552, dated February 7, 1871.

IMPROVEMENT IN BOILER-TUBE PLUGS.

The Schedule referred to in these Letters Patent and making part of the same.

I, THOMAS LA BLANC, of the city of Philadelphia and State of Pennsylvania, have invented certain Improvements in Boiler-Tube Plugs, of which the following is a specification.

The object of the invention is the expeditious plugging of leaky tubes in horizontal or other fire-tube boilers, without hauling or extinguishing the fire, in such a manner that the engineer or person in charge of the boiler shall not be subjected to the danger and trouble incidental to the usual mode.

I accomblish the object at the back or further end of the tube by means of a plug made in two pieces, which join each other longitudinally by a wedge-shaped joint, so that the pieces may be adjusted in relation to each other to admit of their free passage into the tube. And after their insertion, which is easily effected from the front end by means of a connected rod, the two pieces are put in position, one of them being secured lengthwise and force applied to the front end of the other which forces it over the wedge-shaped joint, as hereinafter described, so as to enlarge the diameter of the plug and close the tube.

When the tubes are vertically arranged, the connected rod, used for placing the plug in position, is provided with an adjustable elbow which rests upon the upper side of the top tube sheet.

For closing the front end of the tube I use a hollow plug, which admits of the passage of the heated water and steam contained in the tube; the same passing through the plug and from the same at one side, so as to pass off at right angles, without danger of scalding the person operating the plug; the opening in the plug also relieving the end of the latter of the greater part of the pressure against it and thus admitting of an easy closing of the end of the tube.

To enable others skilled in the art to which my improvement appertains to make a practicable application of the same I will now give a detailed description thereof.

In the accompanying drawing which make a part of this specification—

Figure 1 is a longitudinal view, partly in section, of a single boiler-tube A and and plug C, the tube being in connection with the tube-plates B B.

Figure 2 is a bottom view of the plug C.

Figure 3 is a side view of the rammer F.

Figures 4 and 5 are views at right angles to each other of the adjustable arm G.

Figure 6 is a vertical section of the front plug J.

Like letters in all the figures indicate the same parts.

A is a single tube in connection with the tube-plates B B′ in the usual manner.

C is a wooden plug, made in two pieces, *a b*, which are connected by means of a wedge-shaped joint, as seen in fig. 1, to admit of the contraction of their diameter to allow of an easy insertion in the tube A to stop the leak at the rear end, or at any intermediate point between the ends.

The rod D is adjustable in the piece *a* by means of the screw-thread on the front end to bring the plug in the right position in the tube to cover the leak, when the rear end of the rod is brought against the back connecting-plate B″.

The rod E, which is connected at one end with the lower piece *a* of the plug, is used to push the latter into its proper position in the tube.

The ends of the piece *a* are divergent from the peripheral surface of the piece and are provided with grooves to fit the pins *d d′*, the former of which has one end tight in the piece *b*.

The piece *d′* is driven loosely through the groove in the front end of the piece *a* and into a hole in the piece *b* so as to lock the two pieces together to prevent their spreading apart when being placed in the tube.

When the combined plug is thus placed in position, as shown in the drawing, the rammer F is used to force the piece *b* toward the the rear end of the tube, whereby its enlarged end is brought into connection with the piece *a* to expand the plug and close the tube.

In the action of the rammer the pin *d′* is broken off, the pin being only of sufficient strength to hold the two pieces together.

To cause the pin to break easily a nick, *e*, is made around it.

The handle *f* of the rammer is provided with a set-screw to admit of the former being adjusted in any suitable position for ramming plugs in corner tubes.

There is a groove at *g* in the rammer to admit of its clearing the rod E.

For plugging the tubes of vertical boilers the plugs are held in proper position to be tightened by means of the adjustable arm G, represented in figs. 4 and 5. The arm being placed on the rod E and tightened at its adjusted position by means of the set-screw *h*.

For closing leaks at the front ends of the tubes the hollow plug J is used.

The opening *k* takes off the greater part of the pressure of the steam and water from the end of the plug, and thus admits of its being easily driven into the end of the tube.

The steam and water escape through the discharge-opening *l* at the upper side of the tube, so as not to endanger the scalding of the person operating the plug.

What I claim as my invention, and desire to secure by Letters Patent is—

1. The bisected plug C, composed of wedge-shaped

parts *a b*, constructed substantially as described, and temporarily held together by pins *d* and *d'*, the piece *a* being provided with the rods D E, substantially in the manner and for the purpose set forth.

2. The combination of the adjustable arm G with the rod H, substantially as and for the purpose specified.

3. The hollow plug J, when constructed, arranged, and operating with the tube A, substantially in the manner and for the purpose set forth.

In testimony that the above is my invention I have hereunto set my hand and affixed my seal this 23d day of December, 1870.

Witnesses: THOMAS LA BLANC. [L. S.]
STEPHEN USTICK,
THOMAS J. BEWLEY.