D. G. FOLEY.

FUSIBLE PLUG.

APPLICATION FILED DEC. 20, 1910.

989,901.

Patented Apr. 18, 1911.

Fig. 1.

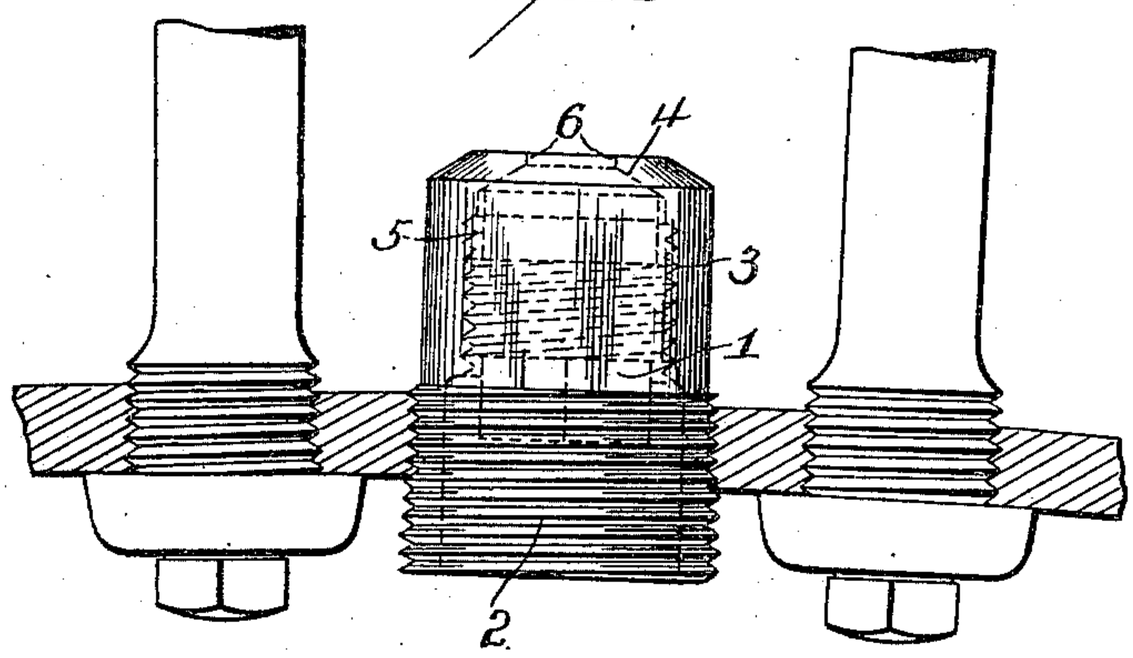


Fig. 2.

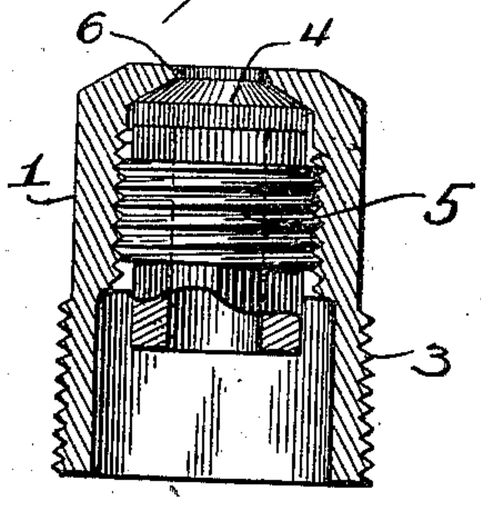
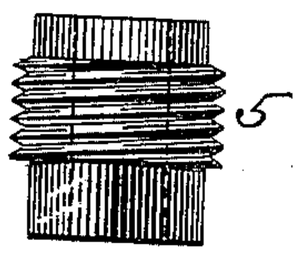


Fig. 3.

Fig. 4.

Fig. 5.



WITNESSES

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FUSIBLE PLUG.

989,901. Specification of Letters Patent. Patented Apr. 18, 1911.

Application filed December 20, 1910. Serial No. 598,373.

To all whom it may concern:

Be it known that I, DENNIS G. FOLEY, of Green Island, in the county of Albany and State of New York, have invented certain new and useful Improvements in Fusible Plugs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in fusible plugs so placed in boilers, as to melt and allow steam to escape into the fire box when a dangerous heat, due to low water in the boiler, is reached, and it consists in the details of construction as will be more fully described and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in section through the crown sheet of a boiler showing my fusible plug in place, the plug being shown in side elevation. Fig. 2 is a view in section partly in elevation of the assembled plug. Fig. 3 is a similar view of the sleeve. Fig. 4 is a detached view of the fusible metal disk and Fig. 5 is a view of the copper or brass or other hard metal follower.

1 represents a sleeve preferably made of cold rolled steel, cylindrical externally, and provided on its lower section with external threads 2, and at its upper half or section with internal threads 3. The internal threads commence preferably in the plane of the upper termination of the external threads 2, and extend to a point near the top of the sleeve. The lower end of the sleeve 1 is preferably counterbored and wholly open, for the free introduction of the fusible disk 4 and hard metal follower 5, while the opposite end has a reduced opening 6 through same. The lower inner face of this end is dish shaped or conical as shown, so as to cause the soft fusible disk 4 which is similarly shaped to be compressed toward the opening and thus effectually close and seal the latter. The disk 4 is made of lead or any alloy that will melt at a comparatively low temperature, and is compressed against the under face of the top of the sleeve, by the hard metal follower 5, which latter is screw threaded externally to engage the internal threads in the upper section of the sleeve 1. The top surface of the follower 5 is flat so as to engage the flat underside of the disk 4 and bear with equal force against approximately the entire lower face of the disk 4, so that when the latter is forced to its seat by the follower, it will be compressed evenly over its entire surface and thus securely seal the opening 6 in the upper end of the sleeve.

The lower end 7 of the follower is preferably made angular in cross section so as to be engaged by a key or wrench employed for securing the follower in place and for removing it when necessary, thus permitting any part to be removed at any time for inspection, repair or renewal.

The follower is provided with a hole or bore extending lengthwise through same, which when the parts are intact, is covered by the fusible plug, but which when the plug melts is exposed, thus permitting the steam to escape into the fire box, and indicate the dangerous condition of the boiler, due to low water therein.

The sleeves are inserted in the crown sheet (two to four to each fire box) and project some distance above the top of said sheet, so that the upper ends of the sleeves will normally be covered and protected by the water in the boiler, and also that the fusible disks may be exposed while the top of the crown sheet is still under water, thus permitting the heat transmitted through the sleeves and followers to fuse the disks before all the water covering the crown sheet can be converted into steam.

As the sleeves are inserted through the crown sheet from the outer or fire box side, they can be readily applied to old or new boilers without removing any of the crown bars, radial stays or braces, or in fact any part of the boiler, and by constructing the sleeve so that its lower end is approximately flush with the outer face of the crown sheet, but very little of the plug will be exposed to the direct or injurious actions of the fire, thereby insuring a tight joint between the sleeve and crown sheet so long as the sleeve is covered by water.

It is evident that many slight changes might be resorted to in the relative arrangement of parts shown and described without departing from the spirit and scope of my invention. Hence I would have it understood that I do not wish to confine myself to the exact construction and arrangement of parts shown and described, but,

Having fully described my invention what

I claim as new and desire to secure by Letters-Patent, is:—

1. A fusible plug for boilers comprising a sleeve adapted to be secured to a sheet of a boiler and project into the water space and having a reduced opening through its upper end, a fusible disk within said sleeve and closing the opening in the upper end of the latter, the said disk being of greater diameter than said opening, and a hard metal follower wholly below the fusible disk and screwed directly to the sleeve, for compressing the fusible disk against the under face of the upper end of the sleeve, the said follower having means for the passage of steam into the fire box after the fusible plug has been destroyed.

2. A fusible plug for boilers comprising a sleeve threaded internally at one end and externally at its other end, wholly open at the externally threaded end and having a reduced opening through its opposite end, a fusible disk of greater diameter than the smaller opening for closing the latter, and an externally threaded follower screwed into the sleeve and bearing against the fusible disk for compressing the latter against its seat, the said follower having means for the escape of steam after the fusible disk has been destroyed.

3. A fusible plug for boilers comprising a sleeve open at its lower end, externally threaded adjacent said lower end and having a reduced opening through its upper end, the inner surface of said upper end being dish shaped, a fusible disk of greater diameter than said reduced opening and resting against the dish shaped surface of the sleeve for closing said opening, and an externally threaded follower wholly below the disk and screwed into the sleeve for compressing the disk against its seat, the said follower having a hole longitudinally through same.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

DENNIS G. FOLEY.

Witnesses:
FRED PHILLIPS,
PRESLEY G. BYERS.