No. 766,606. PATENTED AUG. 2, 1904.

J. L. DOWNS.

FUSIBLE PLUG VALVE.

APPLICATION FILED FEB. 18, 1904.

NO MODEL.

Fig 1

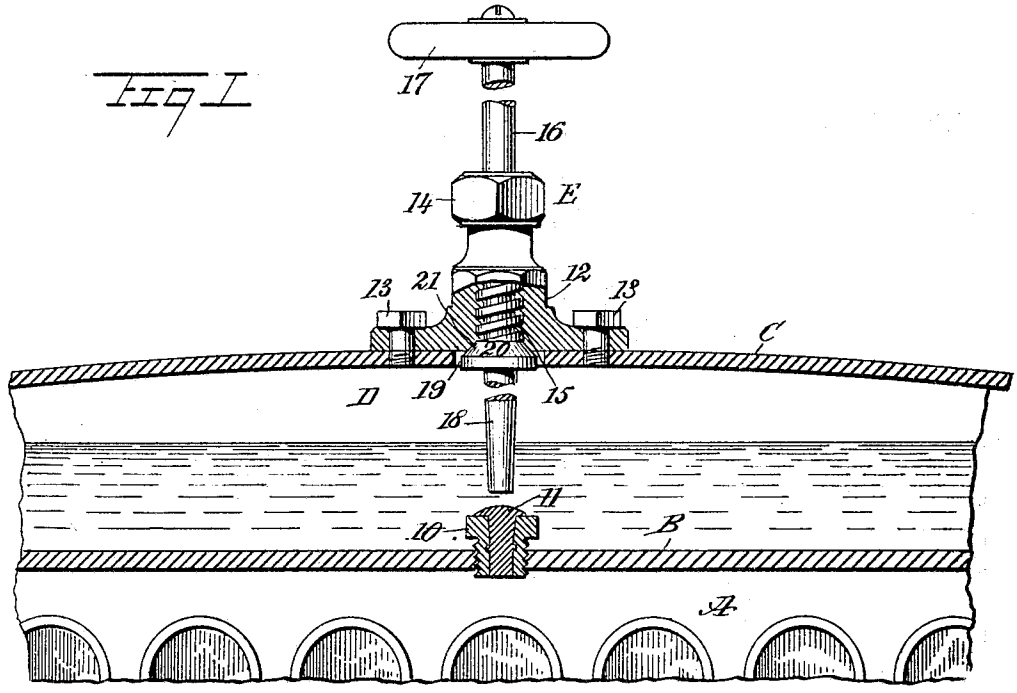
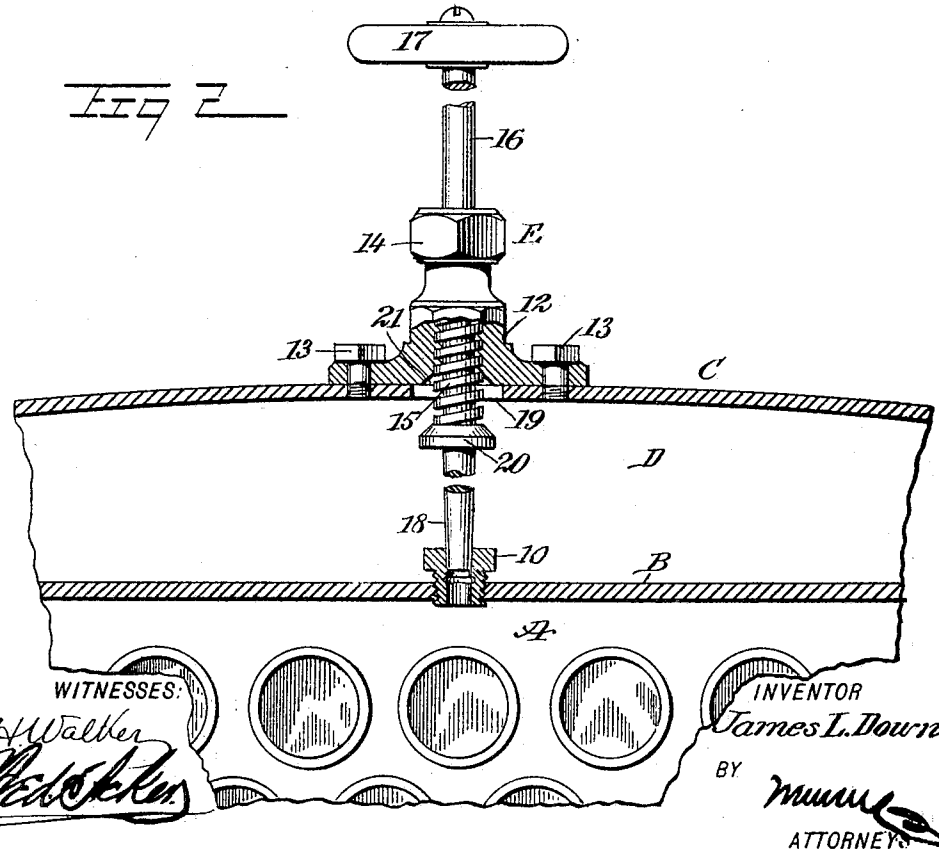


Fig 2



WITNESSES:

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INVENTOR

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BY

ATTORNEYS.

No. 766,606. Patented August 2, 1904.

UNITED STATES PATENT OFFICE.

JAMES L. DOWNS, OF NORTH BERGEN, NEW JERSEY.

FUSIBLE-PLUG VALVE.

SPECIFICATION forming part of Letters Patent No. 766,606, dated August 2, 1904.

Application filed February 18, 1904. Serial No. 194,142. (No model.)

To all whom it may concern:

Be it known that I, JAMES L. DOWNS, a citizen of the United States, and a resident of North Bergen, (West Hoboken, Station 1,) in the county of Hudson and State of New Jersey, have invented a new and Improved Fusible-Plug Valve, of which the following is a full, clear, and exact description.

The purpose of my invention is to provide a means whereby in the event the water in a boiler should become so low that the heat from the fire-box melts the fusible plug in the crown-sheet a valve may be quickly brought into action to close the receiver for the plug, and thus prevent steam from entering the fire-box and extinguishing the fire, and also enabling the fire under such conditions to be properly attended to or drawn or banked without undue peril to the stoker or fireman.

Another purpose of the invention is to so construct the valve that the gland may be removed and the valve properly and conveniently packed while the boiler is under steam.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both figures.

Figure 1 is a vertical section through a part of the upper portion of a boiler and a sectional side elevation of the improved valve, the fusible plug in the crown-sheet being shown intact and the valve in its normal or inactive position; and Fig. 2 is a view similar to Fig. 1, but with the receiver for the fusible plug omitted and the valve in operative position acting as a substitute for the fusible plug.

A represents the fire-box of the boiler; B, the crown-sheet; C, the upper portion of the boiler-shell, and D the water and steam space, which is located between the shell of the boiler and the crown-sheet B. The crown-sheet is provided with the usual receiver 10 for a bank of tin or a fusible plug 11, which fusible plug 11 is melted by the heat from the furnace when the water in the space D is exhausted, and at such time the steam in the space D enters the fire-box and has a tendency not only to put out the fire, but also to injure the attendants at the furnace. It is my object to provide a means whereby should such an accident occur the space rendered open by the melting of the fusible plug 11 may be quickly closed and the fires attended to and steam kept up as though said accident had not occurred. To that end I mount a valve E upon the upper shell C of the boiler, which valve consists of a body 12, secured to the boiler-shell C by bolts 13 or their equivalents, and the said body is provided with a suitable gland 14. A stem 16 extends down from the body 12 and is provided with a threaded surface 15 at its lower portion adapted to be received by a corresponding interiorly-threaded surface in the body 12, and that portion of the stem 16 which extends beyond the body 12 is provided with the usual hand-wheel 17 or the equivalent thereof.

The lower portion 18 of the stem 16, which is at all times within the space D between the crown-sheet B and the shell C of the boiler, is made more or less tapering or is given a suitable cross-sectional shape to enter and snugly fit into the receiver or bushing 10 constituting a container for the fusible plug 11. The valve-stem 16 passes through an opening 19 in the shell C of the boiler, and just below the threaded portion 15 of the said stem a flange 20 is formed on the stem, having an upper tapering surface which when the valve is inactive or in its normal position engages with a correspondingly-tapered seat 21 at the bottom portion of the body 12 of the valve, thus enabling any person to remove the gland 14 and repack the valve at his leisure.

When the fusible plug or bank of tin 11 is melted by reason of the water having been exhausted in the boiler, it is simply necessary for the attendant to mount to the top of said boiler and turn the valve-stem 16, so that its lower tapering portion 18 shall be carried down into the container 10 in which the fusible plug was located, thereby acting as a stopper for this container and a substitute for the fusible plug, as is clearly shown in Fig. 2. It will thus be observed that especially in

marine boilers when an accident of the kind mentioned happens to a boiler a quick substitute is found for the fusible plug and applied without danger to the operator and that a boiler under such conditions may be used with safety until a port is reached where permanent repairs can be made.

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

In boilers, the combination with a crown-sheet, a container threaded in the crown-sheet and having a tapering opening adapted to receive a fusible plug, and a boiler-shell above the crown-sheet having an opening therein above the container, of a valve comprising a casing having a downwardly-disposed, tapering valve-seat registering with the opening in the boiler-shell, and a valve member threaded in the casing and having a flange formed upon the stem thereof shaped upon its upper surface to coact with the seat, the stem being shaped below to enter said container and form a plug therefor when the fusible plug is not within the container.

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

JAMES L. DOWNS.

Witnesses:
WILLIAM R. VERDON,
JOHN HAMILTON.