J. Smith,

Steam Safety Valve.

No. 47,076. Patented Mar. 28, 1865.

Fig: 1.

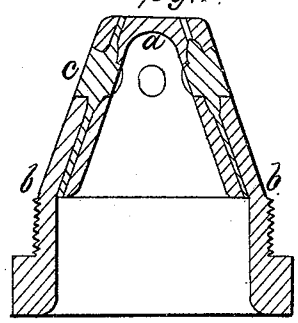


Fig: 2.

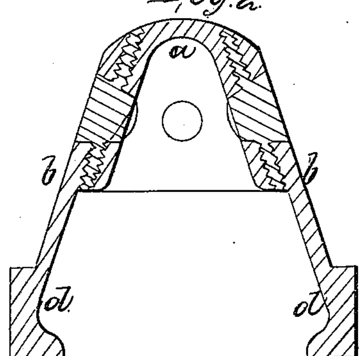
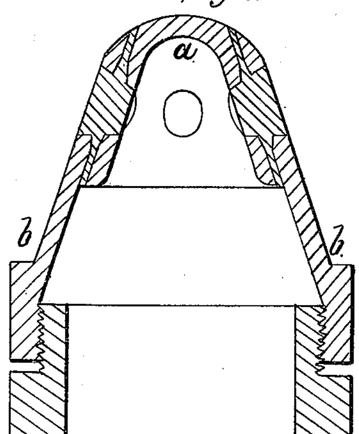


Fig: 3.



Witnesses:

Inventor:

John Smith

AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

JOHN SMITH, OF WENTWORTH ROAD, ENGLAND.

IMPROVEMENT IN FUSIBLE PLUGS FOR BOILERS.

Specification forming part of Letters Patent No. **47,076**, dated March 28, 1865.

To all whom it may concern:

Be it known that I, JOHN SMITH, of Edward Street, Wentworth Road, Bow Road, East, in the county of Middlesex, Kingdom of Great Britain, engineer, have invented certain new and useful Improvements in Fusible Plugs for Steam-Boilers; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying sheet of drawings, and to the letters of reference marked thereon.

My invention consists of improvements in fusible plugs made use of to prevent danger or injury to steam-boilers by deficiency of water. I form the body of the plug (which has usually been made in one piece screwed direct into the crown of the boiler-furnace) in two parts, so that the one part containing the plug may at any time be removed without disturbing the part which is screwed into the boiler. In some cases I make these plugs to be inserted or fixed entirely from the inside of the fire-box or flue without the necessity of entering the boiler for the purpose. I form that part of the plug which is intended to be blown out by the fusion of the soft holding metal and the hole in which it is placed in such manner as to present a greatly-increased resistance to the blowing out of the plug by pressure alone. I effect this either by cutting grooves or screw-threads in the hole and similar grooves or threads in or upon the blow-out piece and running the fusible metal between, so that the whole depth of the fusible metal must be sheared for pressure alone to have the effect referred to. Otherwise, instead of turning grooves in or screwing the two parts, as described, I form each of them with a recess so that the two, when placed together, will form a cavity in which the fusible metal may be run, and which will effect a similar object.

The following more full description will enable competent persons to make and use my invention.

Figure 1 of the accompanying sheet of drawings is a vertical section of a fusible plug constructed according to my invention. In this case the plug is intended to be inserted from the flue or fire-box without the necessity of entering the boiler for the purpose. The part of the plug *a*, intended to be blown out, is in this instance united to the main body *b* of the plug by means of fusible metal run into a space, *c*, formed by turning a groove or recess in each of the parts *a* and *b*. The strength of the plug to resist pressure alone is further increased by drilling holes, as shown, through the two parts of the plug, so that the fusible metal may penetrate into and fill them.

Fig. 2 is a modification of the foregoing, in which screw-threads are cut in each of the parts *a* and *b*, and the fusible metal run between them In this, as in the former case, the strength of the fusible metal to resist pressure is increased by drilling holes through the two parts, as shown.

Fig. 3 represents a plug in which the parts *a* and *b* are united, as in Fig. 1, but which is formed with an additional part, *d*, intended to remain screwed into the boiler, and being of brass or gun-metal to facilitate the removal, when required, of the parts united by the fusible metal.

Having now fully described and ascertained the nature of my said invention and the manner in which the same may be performed, I would have it understood that, without limiting myself to the precise details represented, I claim as my invention and desire to secure by Letters Patent—

1. The construction of fusible plugs with recesses or grooves for the purpose of increasing the power of the fusible metal to resist shearing, substantially as described.

2. The construction of fusible plugs with an additional part which may remain screwed into or otherwise attached to the boiler, when the part containing the fusible metal is removed, as described.

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

London, December 13, 1864.

JOHN SMITH.

Witnesses:

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