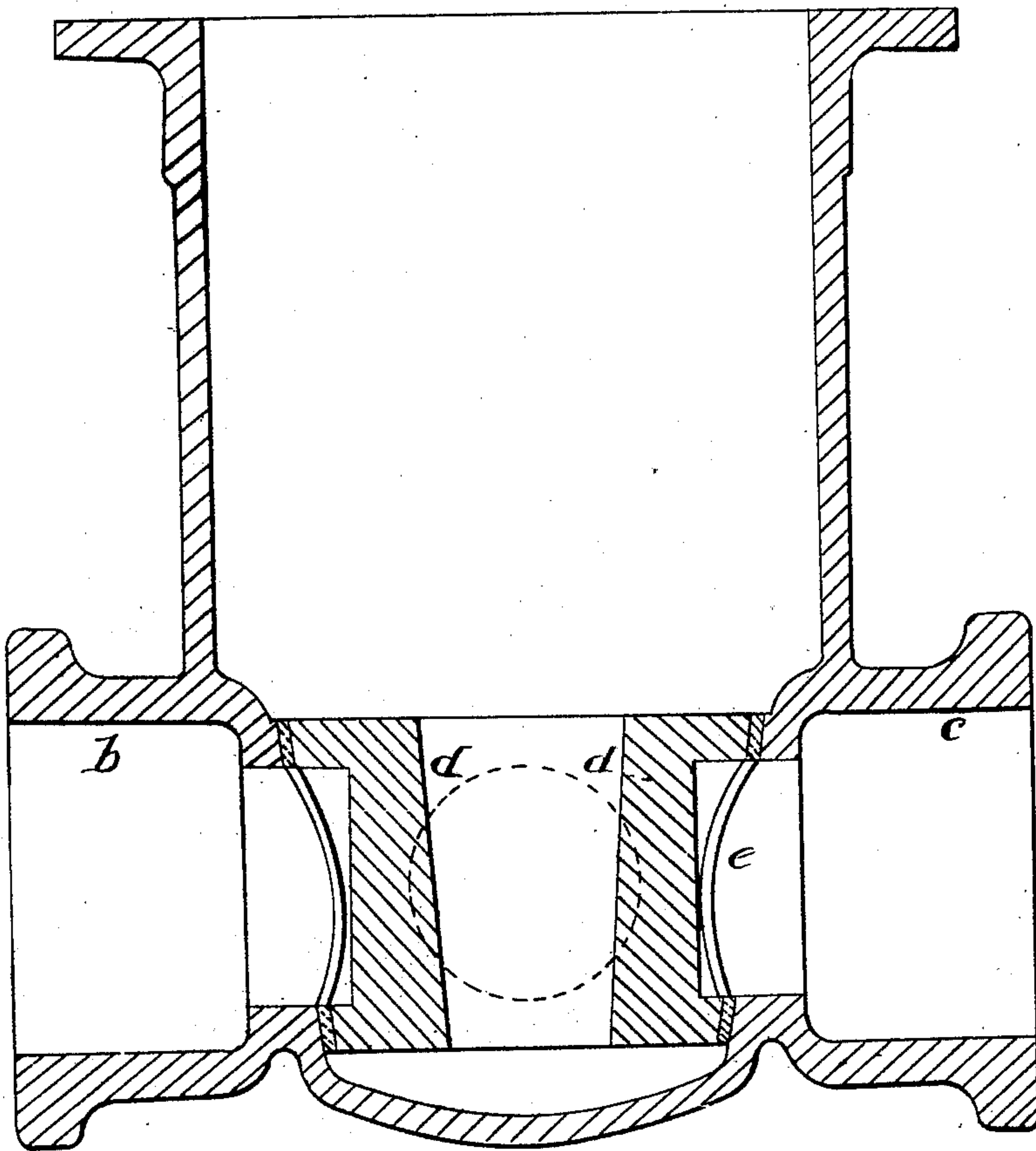


W. M. & J. B. Ellis,

Fire Plug.

No 27,896.

Patented Apr. 17, 1860.



UNITED STATES PATENT OFFICE.

WILLIAM M. ELLIS AND JONAS B. ELLIS, OF WASHINGTON, D. C.

IMPROVEMENT IN CASTING FIRE-PLUGS.

Specification forming part of Letters Patent No. 27,896, dated April 17, 1860.

To all whom it may concern:

Be it known that we, WILLIAM M. ELLIS and JONAS B. ELLIS, of the city of Washington, in the District of Columbia, have invented a certain new and useful Improvement in Making Fire-Plugs; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, and to the letters and marks thereon.

In making fire-plugs of cast-iron (the metal of which they are generally constructed) it has always been deemed necessary to have the seat of the valve or plug, or that surface which is in immediate contact with the valve, lined or coated with brass or like metal. If this coating be made distinct and separate from the body of the plug, it is very difficult to give it firm and permanent connection therewith, as when it is made distinct and separate, whether it be attached to the seat by being driven in or secured by means of screw-threads upon each of the surfaces to be brought in contact, the expense of so constructing the plug is great when compared with that of our invention, and the connection of the two surfaces in contact is neither perfect nor permanent.

In endeavoring to make a good and enduring fire-plug at a reasonable cost we sought to make the connection between the cast-iron and the brass by placing the piece formed of brass or like metal in the casting mold or flask and casting the iron around it. In doing this we found that the brass, melting at so much lesser temperature than the iron, would be so much affected by the heat of the molten iron as to prevent a good valve-seat being formed by this plan. Our efforts were therefore directed toward remedying the difficulty which thus existed and which tended to the destruction of the lining or coating metal. These efforts have finally been successful, and that improvement which constitutes our invention enables us to make a very excellent and durable fire-plug at reasonable expense.

The drawing forming part of this specification shows by vertical section the body of the fire-plug, *a* indicating the vertical or upright part of it, and *b* and *c* the branches thereof.

The lining to that part which constitutes the seat is indicated by red lines, and within this lining is shown a block of metal, *d*, having a central hole, or it might be called with propriety a "tube of metal," of considerable thickness.

The manner in which we carry out our invention is this: We place within the mold or flask, properly supported, the piece of brass or like metal, and place, in connection with the sand, within it the block or tube *d*, which is of iron or of some other metal, and which is of the nature of a core, as commonly used in molding and casting, and we then run into the mold the molten iron which is to form the fire-plug. The heat of the molten iron will not melt the brass with which it comes into immediate contact, but will form a good and tight-fitting surface and a complete and durable joint. The brass piece will not be melted, as the heat will be rapidly transferred to the block or tube *d*. Thus, when the casting has sufficiently cooled to be taken out of the mold, and the block *d* and the core-sand removed, and which can be readily done without the least difficulty, the thin sheet or coating of brass or the like metal lining will be found firm and compact and in fit condition to give a perfectly durable and sound seat for the valve. This block *d* we make of cast-iron, leaving the interior part to be filled with sand, and to be in connection with the core; but it may be made of copper or of other metal.

It is evident that this plan of making fire-plugs may be extended to the making of large cocks or faucets or regulating-valves.

What we claim as our invention, and desire to secure by Letters Patent in the making of fire-plugs, is—

Preventing the heat of the molten metal from injuring the brass or other metal which is to form the lining or seat-surface for the plug or valve by the use of the block *d* or its equivalent, as herein set forth.

WM. M. ELLIS.
J. B. ELLIS.

Witnesses:

J. D. CLARK,
JOHN A. C. J. SMITH.