J. FEIX.

Shields for the Tops of Crucibles or Melting Pots.

No. 206,098. Patented July 16, 1878.

Fig. 1.

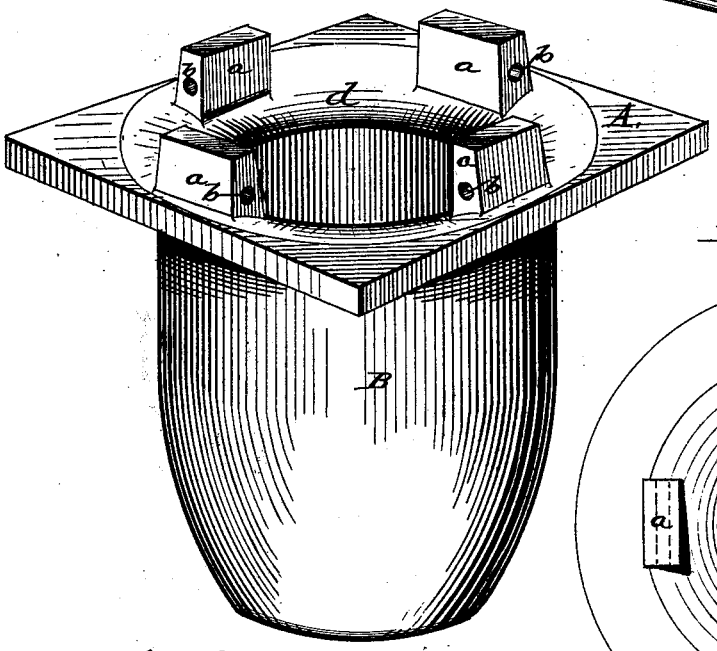


Fig. 2.

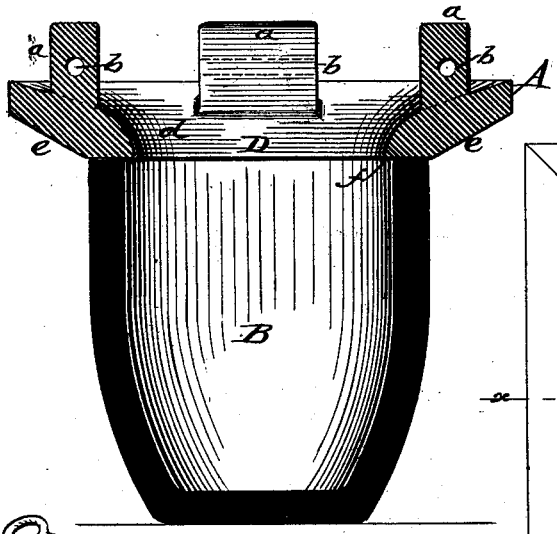


Fig. 5.

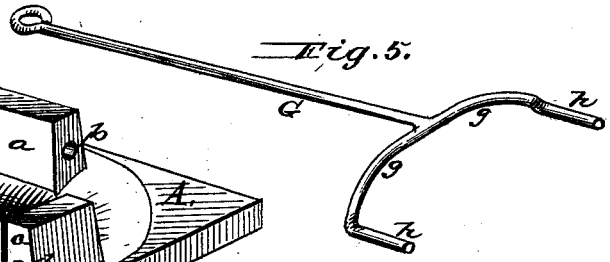


Fig. 4.

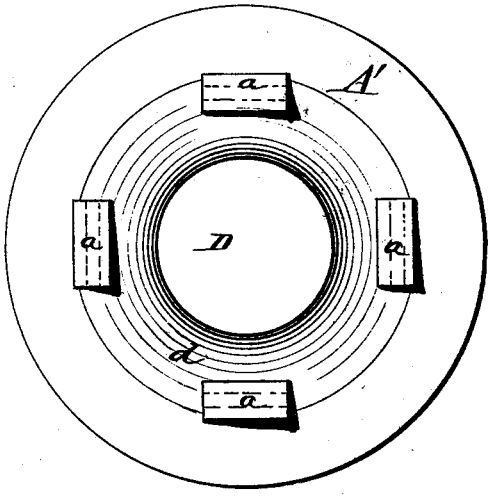


Fig. 3.

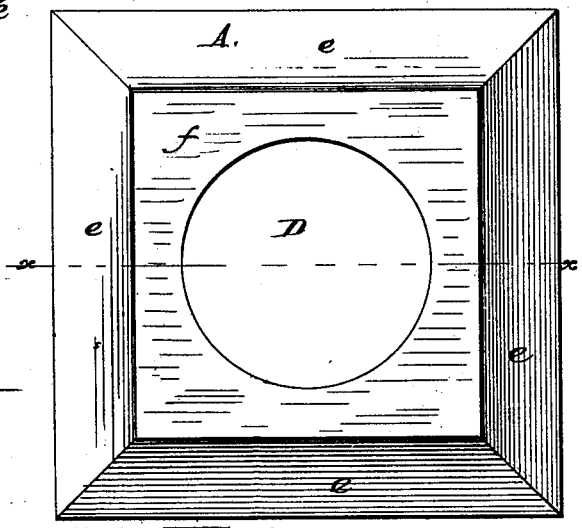
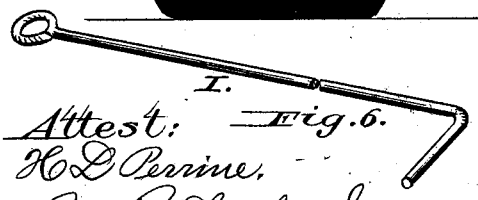


Fig. 6.



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By. James L. Norris, Atty.

UNITED STATES PATENT OFFICE.

JOHN FEIX, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN SHIELDS FOR THE TOPS OF CRUCIBLES OR MELTING-POTS.

Specification forming part of Letters Patent No. **206,098**, dated July 16, 1878; application filed June 10, 1878.

To all whom it may concern:

Be it known that I, JOHN FEIX, of San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Attachments to Crucibles, of which the following is a specification:

My invention relates to an improved protector or shield for the tops of crucibles or melting-pots.

Its object is to prevent the loss of metal by dropping from the ladle into the furnace when dipped from the crucible or pot, and to protect the attendants from the heat of the furnace and molten metal.

To this end I use a platform or table made of fire-proof material, having a central opening, and adapted to rest upon and be supported by the top edge of a crucible or melting-pot, the opening thereof coinciding with, but being somewhat smaller than, the mouth of said crucible or pot, and the edges projecting outward beyond the wall thereof.

On its upper surface the protector, shield, or platform is provided with two or more pairs of lugs, extending upward, and having apertures or openings parallel with the surface from which said lugs project. The edges of the central opening are beveled or dished, so as to form an incline toward the interior of the crucible, and down which any metal dripping from a ladle will run back into said crucible. The lugs are arranged opposite each other, and on four sides of the opening, so that the protector may be removed by the attendant standing at either side. In removing the protector, suitable hooks, as hereinafter described, are inserted into the openings in the lugs, or a long forked handle, having its prongs suitably bent, and at a proper distance apart to enter the apertures in the lugs, may be used. The body of the protector I propose to form of asbestus, plumbago, fire-clay, soapstone, or any other suitable fire-proof material, and preferably of the material which, while practically fire-proof, is a poor conductor of heat, so that the attendants will be well shielded.

Bonnets, hoods, or shields of sheet metal have been used on the tops of crucibles; but they soon become heated to such a degree as to render them useless for the purpose of intercepting the radiated heat of the furnace, and as they are formed of metal, another metal in a molten state adheres very firmly thereto, so that the cleaning of the said bonnets, &c., by scraping is difficult and imperfect, and in the case of precious metals the loss from the adherence thereof to the metal surfaces is considerable.

In the accompanying drawing, Figure 1 is a perspective view of a crucible with my protector or shield resting upon its top edge. Fig. 2 is a central vertical section of the same. Fig. 3 is a bottom view of the protector or shield detached. Fig. 4 is a plan view of a modified form of protector. Fig. 5 is a perspective view of the lifter; and Fig. 6 shows a form of lifter, two of which may be used to remove and replace the protector.

The letter A indicates the protector, shown in Figs. 1 and 2 as arresting upon the top edge of a crucible, B, and projecting both outward and inward beyond the wall thereof, the outward projection being the greatest, as shown in this instance.

Upon the upper surface of the protector A are fixed four lugs, *a*, one at each side. These lugs are provided with horizontal openings *b*, into which the hooks or lifter may be inserted for the purpose of removing the protector from or placing it upon the crucible. These lugs may be formed of the same material and in one piece with the body of the protector, or may be of iron and embedded therein, as desired.

The top surface of the protector around the edge of the opening D; I bevel, as shown at *d*, to form an incline toward the interior of the crucible, so that metal dropping or accidentally spilled from a ladle by which it has been dipped from the crucible will quickly flow back and before it has time to solidify. The under surface of the protector I prefer to bevel toward the center, as shown at *e*, leaving sufficient flat surface, as shown at *f*, to form a steady bearing upon the top of the crucible.

The form of the protector is not material, provided it projects outwardly beyond the wall of the crucible a sufficient distance to cover the space between the wall thereof and the

wall of the furnace, so as to shield the attendants from the furnace heat; and it should also extend inwardly so far that its beveled or inclined top portion will conduct dropping or spilled metal back into the crucible.

In the drawing, Fig. 4, A′ designates a round protector, and it may, of course, be polygonal, if desired.

For the material of the protector, I use plumbago, asbestus, fire-clay, soap-stone, or any other suitable fire-proof substance, giving the preference to that which, while resisting the destructive action of heat, is also a poor conductor thereof.

For moving the protector to or from the crucible or melting-pot, I prefer to use the form of lifter indicated by G, Fig. 5, consisting of a rod having at one end oppositely-projecting arms or prongs *g*, curved downward, as shown, and bent outward to form two parallel tongues, *h*, at a proper distance apart for each to be inserted respectively in the openings *b* of two opposite lugs, *a*.

In Fig. 6, I designates a form of hook, two of which may be used for lifting the protector, one person using each.

My protector will be very valuable in large refining establishments, chemical works, mints, &c., for use with crucibles and melting-pots set in various kinds of furnaces.

The modes of setting these crucibles and pots are so well known that I have thought it unnecessary to illustrate any particular style in my drawings.

Having now fully set forth my invention, I claim—

1. The protector formed of fire-proof material, having a central opening, and adapted to rest upon the top edge of a crucible or melting-pot, and project either outwardly or inwardly therefrom, or both.

2. The protector A, having one or more pairs of perforated lugs or ears, substantially as described, and for the purpose set forth.

3. The fire-proof protector A, adapted to rest upon the top edge of a crucible, and provided with a central opening, the wall of which is beveled or inclined, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of the subscribing witnesses.

JOHN FEIX.

Witnesses:
E. V. SUTTER,
CHAS. T. STANLEY.