

No. 711,467.

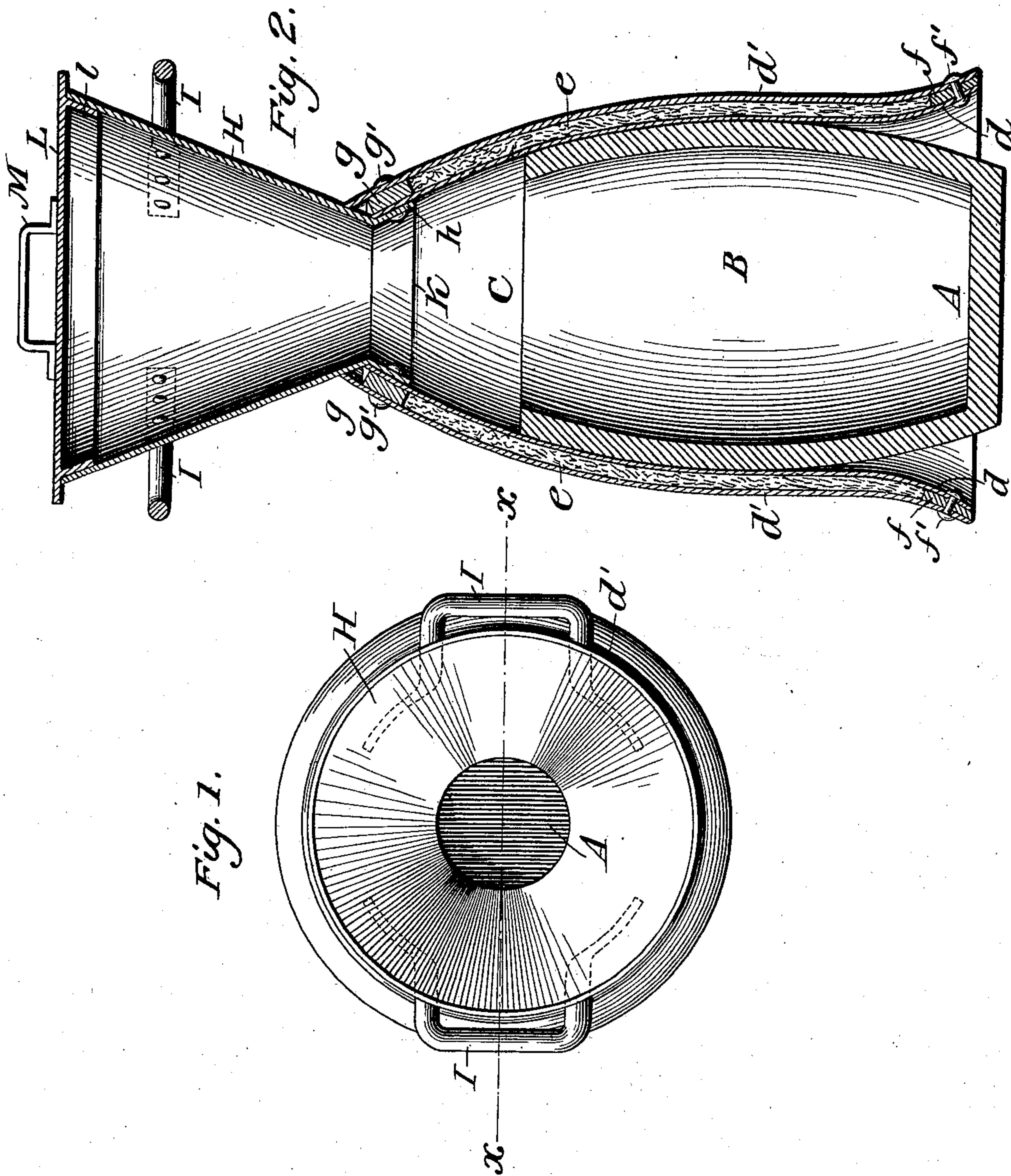
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G. B. BROWN.

SHIELD AND FUNNEL FOR RECHARGING CRUCIBLES.

(Application filed Mar. 21, 1901.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

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SHIELD AND FUNNEL FOR RECHARGING CRUCIBLES.

SPECIFICATION forming part of Letters Patent No. 711,467, dated October 21, 1902.

Application filed March 21, 1901. Serial No. 52,140. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. BROWN, of Reading, Pennsylvania, have invented certain Improvements in Shields and Funnels for
5 Recharging Crucibles, of which the following is a specification.

The object of my improvement is to facilitate the recharging of smelters' crucibles immediately after the molten metal has been
10 poured out of them, and thereby guard such crucibles against the injury to which they are liable from contraction if they are permitted to cool down.

The mechanism by which I accomplish my
15 object is a protector consisting of a hollow, tapering, and preferably asbestos-filled shield, which is adapted in part to fit the upper portion of an ordinary barrel-shaped crucible and which projects somewhat above the
20 mouth of the crucible with a continuing taper and at its upper end is united to the lower end of a hollow truncated cone which serves as the funnel through which the charge is fed into the crucible. The funnel is provided
25 on the opposite sides with handles for the application of manual or other power by which the shield and crucible are shaken. Preferably the lower end of the shield is given
30 a flaring shape to facilitate its application to the crucible.

My mechanism is advantageous in a variety of ways. It prevents the loss of heat by radiation from the crucible. It protects the bystanders from the heat of the hot crucible.
35 It presents a convenient receptacle for the charge, and its handles facilitate the shaking by which the charge is made to settle down from the funnel and in the crucible. Finally it is susceptible of easy and rapid application, because being what may be called a
40 "drop-shield" its seating upon the hot crucible is assisted by its own gravity. In other words, the shield is adapted to be dropped over the crucible in order to seat it about the crucible as distinguished from shields which
45 are opened and then closed about the crucible.

The accompanying drawings, illustrating the improvement applied to a crucible, are as follows:

50 Figure 1 is a top view with funnel-cover re-

moved. Fig. 2 is a central vertical section taken through the plane indicated by the dotted line *xx* on Fig. 1.

The drawings are designed to represent an ordinary graphite crucible, having a flat bottom A and an approximately barrel-shaped body B, with an open mouth C. The shield D is preferably composed of an inner comparatively thin iron shell *d* and an outer thicker iron shell *d'*, inclosing a sheet of
55 asbestos *e*. A ring *f*, interposed between the shells *d* and *d'*, is perforated to admit the passage through it of the rivets *f'*, by means of which the members of the shield are secured to each other at the bottom. A similarly-perforated ring *g* admits the rivets *g'*,
60 by which the upper ends of the shells *d* and *d'* are fastened together and to the suitably-perforated flaring lower end *h* of the funnel H.

Handles I I are secured to opposite sides of the funnel H, preferably near its upper end, in order to afford ample leverage for tilting the shield and crucible back and forth for the purpose of settling down the charge in the crucible. The shield is intended to fit the
75 upper tapering part of the body of the crucible and extend downwardly from the part of the body of the crucible having the largest diameter to a plane suitably higher than that of the floor upon which the crucible rests.
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The lower end of the shield is preferably formed with the outward flare K, which assists in the guidance of the shield downward upon the hot crucible and which by reason of the body of air between it and the lower
85 part of the crucible is especially effective in protecting the bystanders from the heat radiating therefrom.

In practice the crucible is at first partially filled with scrap metal, and there is then introduced into the funnel a mixture of scrap
90 metal and fine charcoal. The charcoal is soon ignited, and to keep the outside air from it, and thereby lessen the extent of its combustion, I close the top of the funnel with a
95 suitable cover—such as, for example, the cover L—preferably provided on its under side with the conical flange *l*, adapted to fit inside the wall of the funnel.

Although not absolutely essential, it is pre- 100

ferred to so proportion the diameter of the upper end of the shield and the bottom of the funnel that the charge in falling will be directed toward the middle of the mouth of the crucible.

It will be perceived that the shield, which is easily applied by merely lowering it upon the crucible, is also easily detached therefrom by raising it.

What is claimed as the invention is—

1. In combination with a smelter's crucible having an upwardly-tapering upper portion, an exterior protector consisting of a hollow drop-shield fitting a prescribed part of the upwardly-tapering upper portion of the body of said crucible and having an outwardly-flaring lower end.

2. In combination with a smelter's crucible having an upwardly-tapering upper portion, a hollow drop-shield fitting a prescribed part of the upwardly-tapering upper portion of the body of said crucible and terminating at its lower end in a plane somewhat higher than the bottom of said crucible.

3. In combination with a smelter's crucible having an upwardly-tapering upper portion, a hollow drop-shield fitting a prescribed part of the upwardly-tapering upper portion

of the body of said crucible and extending a prescribed distance above the top of said crucible.

4. In combination with a smelter's crucible having an upwardly-tapering upper portion, a tapering hollow drop-shield fitting a prescribed part of the upwardly-tapering upper portion of the body of said crucible and extending above and at its upper extremity having a smaller diameter than the inside diameter of the top of said crucible.

5. A hollow drop-shield for a smelter's crucible and a funnel surmounting and fastened to the upper end of said drop-shield.

6. A hollow drop-shield adapted to fit a prescribed portion of the body of a smelter's crucible; a funnel surmounting and fastened to the upper end of said drop-shield, and handles affixed to said funnel.

7. A shield adapted to fit a prescribed portion of the body of a smelter's crucible; a funnel surmounting said shield, and a cover adapted to close the upper end of said funnel.

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Witnesses:

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