July 8 1924. 1,500,741

B. H. HOWARD ET AL

FEEDER FOR INGOT MOLDS

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Fig. 1.

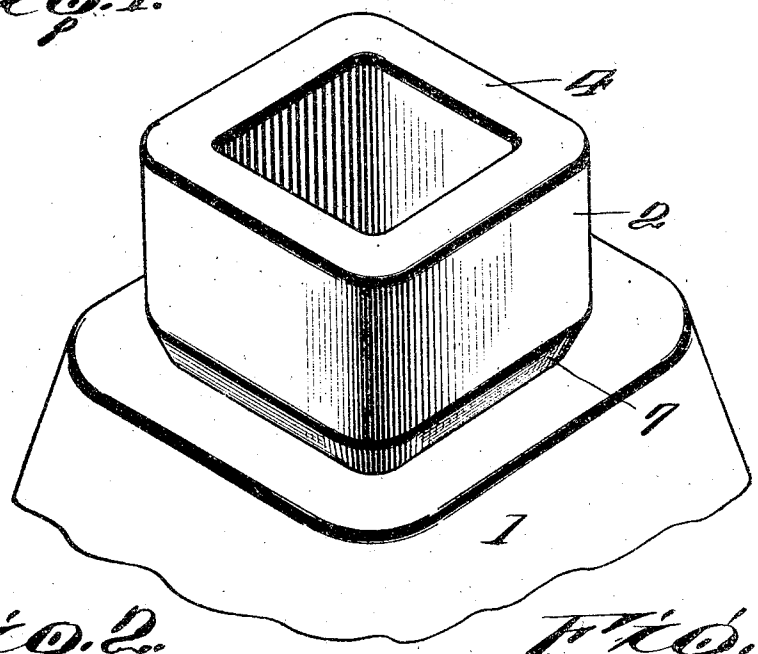


Fig. 2.

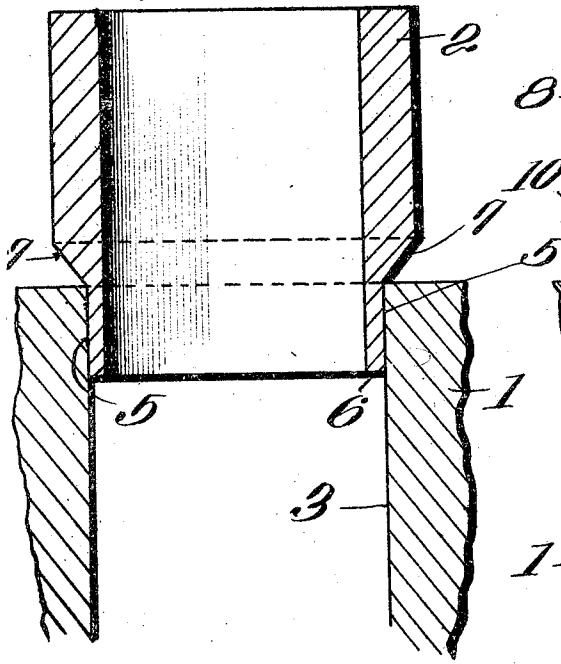
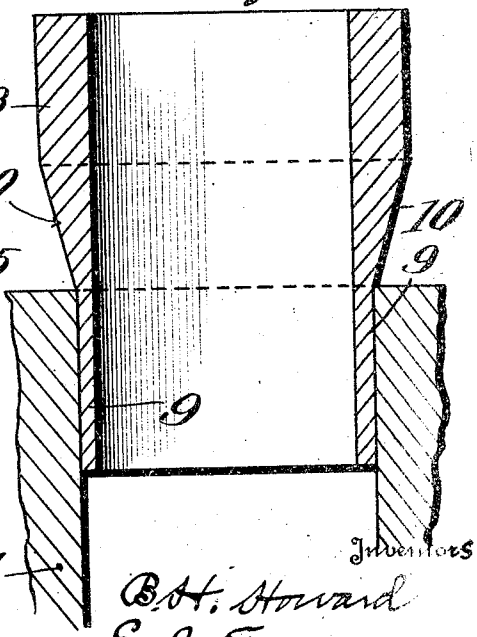


Fig. 3.



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FIG. 4.

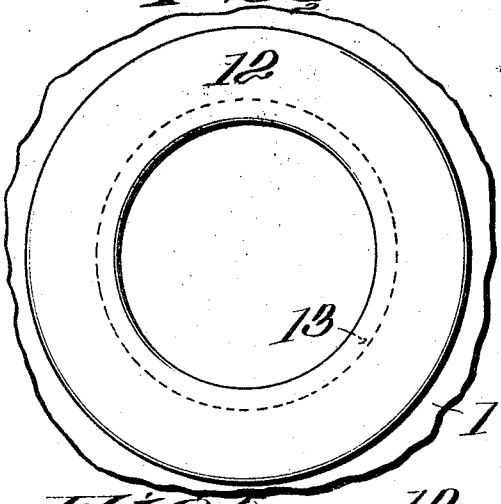


FIG. 6.

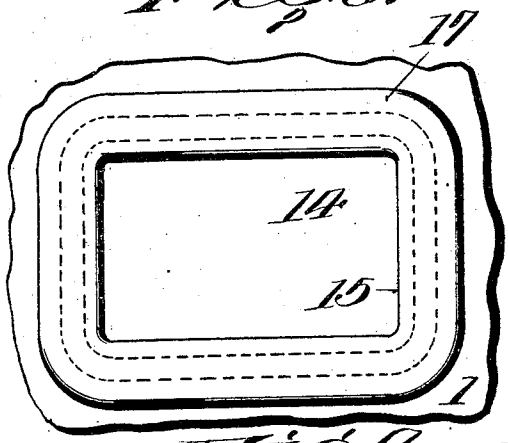


FIG. 5.

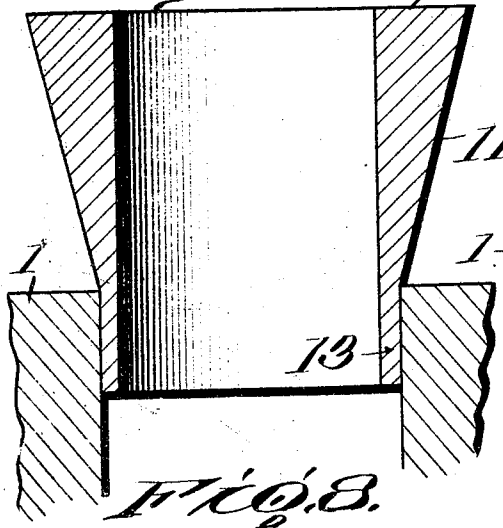


FIG. 7.

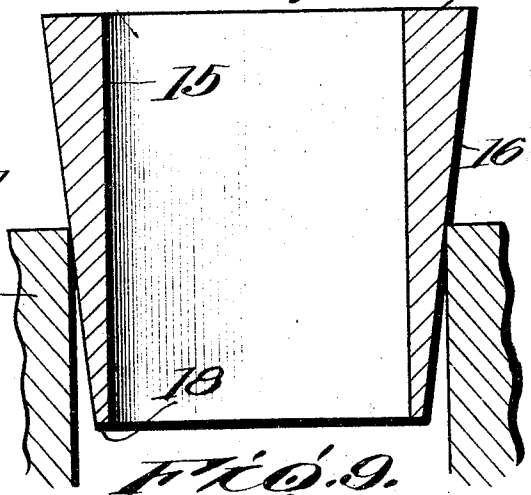


FIG. 8.

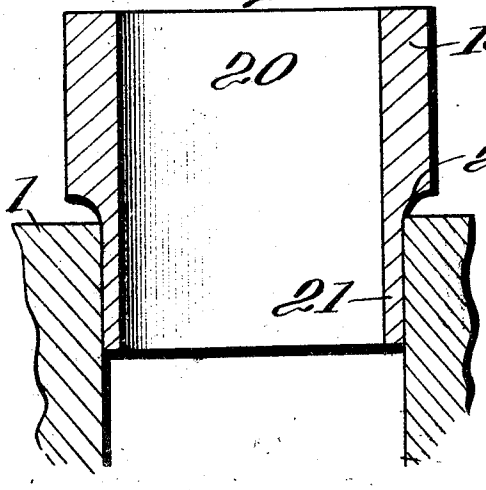
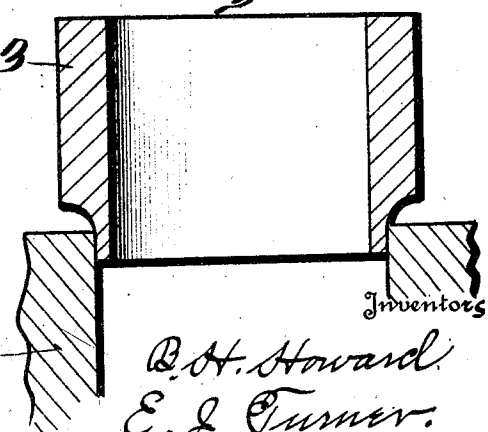


FIG. 9.



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FEEDER FOR INGOT MOLDS

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Fig. 10.

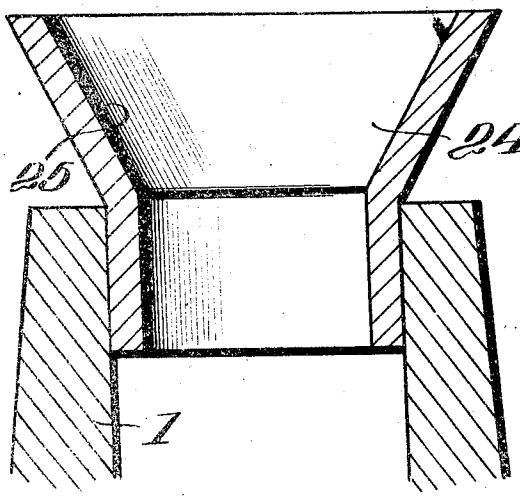


Fig. 11.

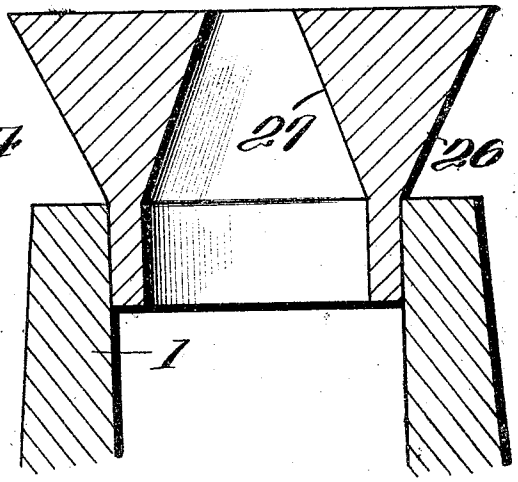


Fig. 12.

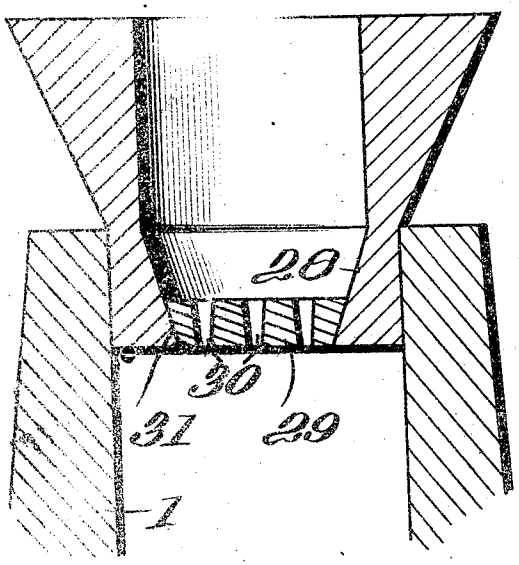
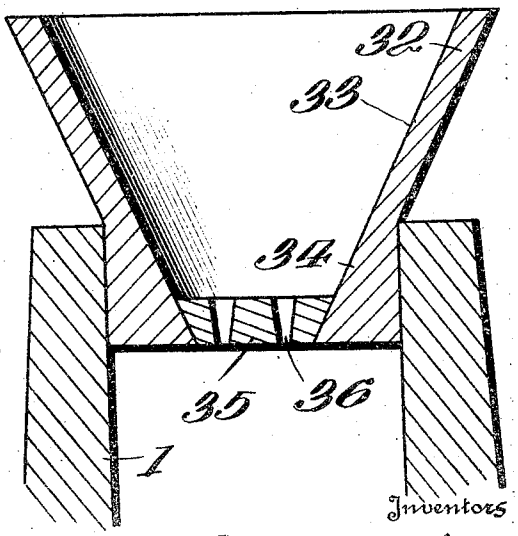


Fig. 13.



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UNITED STATES PATENT OFFICE.

BLOOMFIELD H. HOWARD, OF WASHINGTON, DISTRICT OF COLUMBIA, AND ERNEST J. TURNER, OF PITTSBURGH, PENNSYLVANIA.

FEEDER FOR INGOT MOLDS.

Application filed February 8, 1924. Serial No. 691,734.

To all whom it may concern:

Be it known that BLOOMFIELD H. HOWARD and ERNEST J. TURNER, citizens of the United States, residing, respectively, at Washington, District of Columbia, and Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Feeders for Ingot Molds, of which the following is a specification.

Our invention relates to improvements in hot top feeders for ingot molds.

The object of our invention is to provide a feeder for ingot molds adapted to be readily inserted and held on the upper end of the mold and at the same time provide a feeder which will prevent the formation of what is known as "piping" and at the same time reduce segregation.

Another object of our invention is to provide a hot top feeder for ingot molds having means whereby it is tightly held in the upper end of the mold and at the same time providing means to allow for any slight variation in the relative size of the bore of the mold and the exterior diameter of the feeder.

A further object of our invention is to provide a simple, cheap and effective feeder having certain details of structure and combination of parts hereinafter more fully set forth.

In the accompanying drawings:

Figure 1 is a perspective view of a mold showing our improved feeder applied thereto.

Figure 2 is a vertical transverse sectional view of Figure 1.

Figure 3 is a vertical transverse sectional view similar to Figure 2 showing a slightly modified form of feeder.

Figure 4 is a top plan view showing the mold partly broken away and showing a circular feeder applied thereto.

Figure 5 is a vertical transverse sectional view of Figure 4.

Figure 6 is a top plan view showing the mold broken away and showing a rectangular form of a still further modified form.

Figure 7 is a longitudinal vertical sectional view of Figure 6.

Figure 8 is a vertical transverse sectional view of a mold showing a still further modified form of feeder.

Figure 10 is a vertical sectional view of another modified form of feeder.

Figure 11 is a vertical sectional view of a still further modified form of feeder.

Figures 12 and 13 are vertical sectional views of modified forms of feeders showing means for supporting the distributor plate therein.

Referring now to the drawings, 1 represents the ingot mold and 2 the feeder. As shown, the feeder is of a shape to correspond with the bore 3 of the ingot mold and while we have shown this feeder of a square form, it is understood that the invention can be applied to a feeder of any desired contour.

The feeder 2 as shown in Figures 1 and 2 of the drawings is of a rectangular form having a passage 4 therethrough which is of a diameter slightly less than the bore of the cylinder. The lower end of the feeder 2 has its outer wall cut away as indicated at 5 forming a reduced portion 6, the outer periphery of which is of a diameter approximately that of the bore of the cylinder and is adapted to enter the same as clearly shown in Figure 2 of the drawings. The cut away portion 5 has its upper end beveled as indicated at 7 which forms a supporting surface for holding the feeder in the upper end of the mold.

From the description shown and described in Figures 1 and 2 of the drawings it will be seen that the beveled surface 7 of the cut away portion of the feeder forms a support for the feeder and also provides means whereby the feeder is tightly wedged in the bore of the mold. This beveled surface 7 has a particular advantage when there is a slight variation in the exterior diameter of the reduced portion of the feeder and the interior diameter of the mold. This allows the feeder to enter the mold, until the beveled surface 7 tightly wedges the feeder in the upper end of the mold.

In the modification shown in Figure 3 the mold is similar to that shown in Figures 1 and 2 and the feeder 8 has the reduced portion 9 of a greater length and the tapered wall 10 is also of a greater length whereby under certain conditions the feeder would more firmly wedge itself in the upper end of the mold.

In the modification shown in Figures 4 and 5 we have shown a round mold and feeder, the tapered wall 11 starting at its extreme upper end 12 and ending at the

vertical wall 13 which enters the bore of the mold. This form will perform all of the functions shown and described in respect to Figures 1, 2 and 3 and will also allow the feeder to be used in molds, the bores of which show a considerable difference in diameters.

In the modification shown in Figures 6 and 7 we have shown a rectangular mold and feeder 14 having the bore 15 therethrough and the outer wall 16 tapering from the upper end 17 to the lower end 18 whereby the feeder is capable of being used on molds, the bores of which vary to a greater extent than that described in respect to Figures 4 and 5.

In the modification shown in Figure 8 the feeder 19 has a central bore 20 and its lower end 21 reduced and terminating in the curved wall 22 which would also wedge the feeder in the upper end of the mold.

In the modification shown in Figure 9 the feeder 23 is constructed exactly like that shown in Figure 8, except that a less portion of the feeder is reduced whereby a less portion thereof extends into the mold and a greater portion extends above the mold.

In the modification shown in Figure 10 the bore of the feeder 24 is flared outwardly and indicated at 25 thus enabling the metal to be readily poured into the feeder which also saves a considerable amount of material in the manufacture of the feeder as the wall is of the same thickness throughout its length.

Figure 11 is a vertical sectional view similar to Figure 5 except that it shows the inner wall of the feeder 26 extending inwardly as indicated at 27.

In Figure 12 the feeder is constructed exactly like that shown in Figure 5 except that the bore is drawn inwardly as indicated at 28 and a distributor plate 29 having openings 30 therein rests on and is supported by the tapered wall 31.

In Figure 13 the feeder 32 is constructed somewhat similar to Figure 10 except that the inner wall 33 tapers from its upper to its lower end as indicated at 34 and is adapted to support the distributor plate 35 having openings 36.

Having thus fully described our invention what we claim is:—

1. A feeder for ingot molds comprising a body portion having its outer periphery reduced towards its lower end.

2. A feeder for ingot molds comprising a body portion having its outer periphery reduced adjacent its lower end and having a beveled wall.

3. A feeder for ingot molds comprising a body portion having its outer periphery tapered towards its lower end.

4. A feeder for ingot molds comprising a body portion having a tapered wall below its upper end.

5. A feeder for ingot molds comprising a body portion having its outer periphery tapered below its upper end.

6. A feeder for ingot molds comprising a body portion having a portion of its outer periphery tapered towards its lower end and terminating in a vertical wall.

7. A feeder for ingot molds comprising a body portion the upper portion of which is of a greater thickness than the lower portion and the two portions being connected by a beveled section.

8. A feeder for ingot molds comprising a body portion, the upper portion of which is of a greater thickness than the lower portion and the two portions connected by a curved section.

9. A feeder for ingot molds comprising a body portion having a wedged supporting outer wall.

10. A feeder for ingot molds comprising a body portion having its outer periphery tapered towards its lower end and having a tapered bore therethrough and a pouring plate placed in the lower end thereof.

In testimony whereof we affix our signatures.

BLOOMFIELD H. HOWARD.
ERNEST J. TURNER.