Jan. 13, 1925.

1,523,209

B. H. HOWARD ET AL

FEEDER FOR INGOT MOLDS

Filed Nov. 1, 1924

Fig. 1.

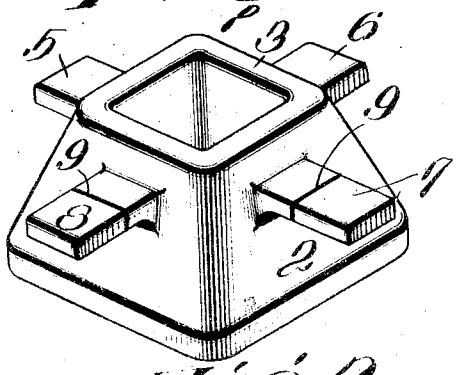


Fig. 4.

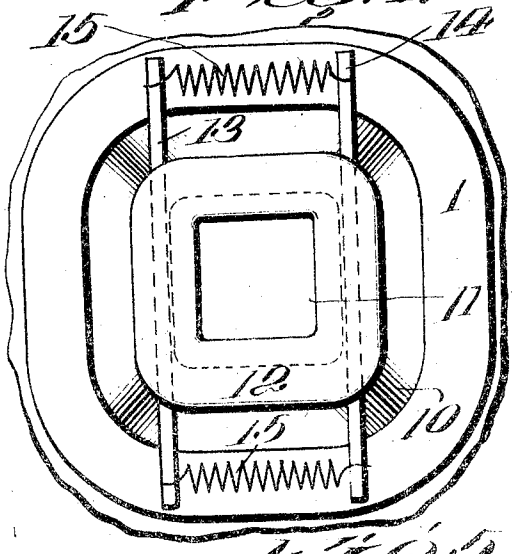


Fig. 2.

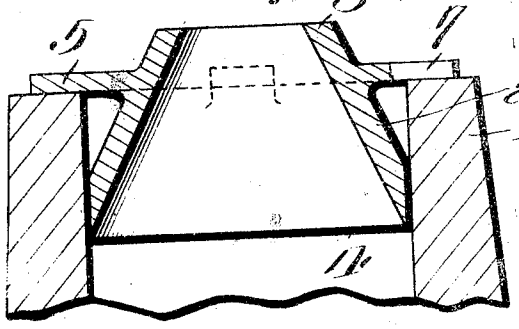


Fig. 5.

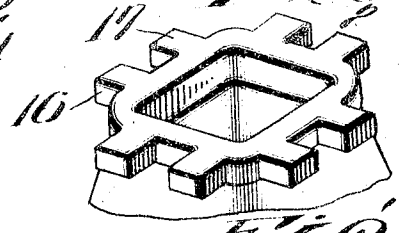


Fig. 3.

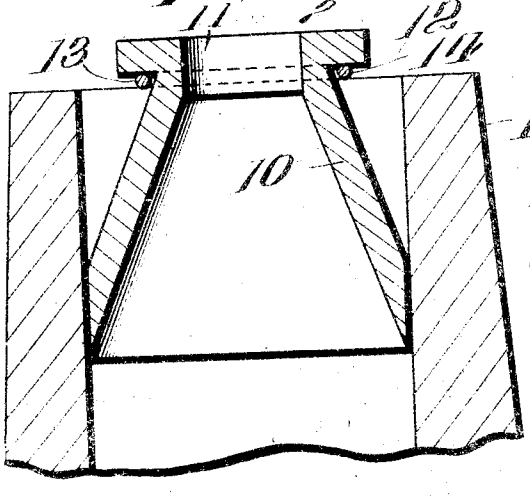


Fig. 6.

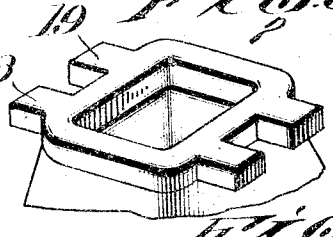
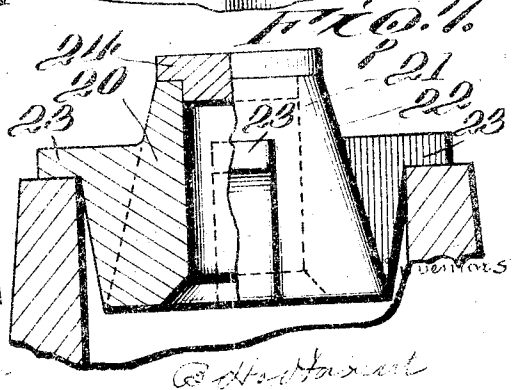


Fig. 7.



Witnesses

By

Attorneys

Patented Jan. 13, 1925. 1,523,209

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 November 1, 1924. Serial No. 747,331.

To all whom it may concern:

Be it known that we, 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 feeders for ingot molds.

The object of our invention is to provide a feeder for ingot molds for casting iron or steel ingots in which the heat is retained at the upper end of the mold and thus prevent holes and seams known as "piping" and at the same time reduce segregation to a minimum.

Another object of our invention is to provide a feeder of this character in which the upper end of the feeder is so contracted that the heat in its upward passage engages the walls of the feeder, and is reflected back against the molten metal, and prevents the rapid cooling thereof.

A further object of our invention is to provide means whereby a contracted feeder can be supported on the upper end of the mold.

A still further object of our invention is to provide a simple, cheap and effective feeder of this character 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 our improved feeder.

Figure 2 is a vertical sectional view of a mold showing our improved feeder therein.

Figure 3 is a vertical sectional view of a mold showing a modified form of feeder therein.

Figure 4 is a top plan view of Figure 3.

Figure 5 is a perspective view showing a modified form of feeder.

Figure 6 is a perspective view similar to Figure 5 showing a further modified form of feeder.

Figure 7 is a vertical sectional view of a mold showing a modified form of feeder therein partly in section and partly in side elevation.

Referring now to the drawings, 1 represents the mold and 2 the feeder. The feeder 2 as shown, has its side walls contracted towards its upper end as indicated at 3, whereby the open upper end of the feeder is of a diameter considerably less than the lower end 4, which fits in the bore of the mold. The upper end of the feeder is provided with four outwardly extending arms 5, 6, 7 and 8 which extend outwardly beyond a vertical line with the lower end of the feeder, and rest upon the upper end of the mold. These arms 5, 6, 7 and 8 may be scored as indicated at 9 so that they can be broken off so as to allow the feeder to drop down into the mold after the ingot is formed and to follow the molten metal as it cools within the mold.

In the form of feeder shown in Figures 1 and 2, the walls of the feeder being contracted so that the open upper end is considerably less than the lower end, it will be seen that the heat from the molten metal will strike sloping walls thereof and absorb the heat and also reflect the heat back into the mold against the molten metal. It will be seen that the heat will not readily escape from the feeder, but will be retained in the feeder and mold to prevent piping and segregation.

In the modification shown in Figures 3 and 4 the feeder 10 is tapering towards its upper end and is provided with a vertical passage 11 at its extreme upper end. The outer wall of the feeder at its upper end is provided with a flange 12 extending entirely there around, and in order to support the feeder within the mold in the position shown, we provide the two rods 13 and 14 which extend under the flange 12 and have their outer ends resting upon the upper end of the mold. In order to hold the two rods in the positions shown, we provide a coil spring 15 at each end of the rods which normally draws them together and maintains them under the flange at the upper end of the feeder. In this form when it is desired to allow the feeder to drop down into the mold, as the molten metal recedes, as it cools, the rods 13 and 14 can be moved from under the flange.

In Figure 5, instead of having the flange continuous, we have it cut away, which provides on each side the two outwardly extending lugs 16 and 17 under which the

rods 13 and 14 would pass, and the feeder supported in the same manner as that described in respect to Figures 3 and 4.

In the modification shown in Figure 6, only two walls of the feeder are provided with the outwardly extending lugs 18 and 19.

In the modification shown in Figure 7 the feeder 20 is provided with a cylindrical bore 21 and the outer walls of the feeder converge towards the upper end as indicated at 22. These converging walls are provided with outwardly extending arms 23 which extend out and rest upon the upper end of the mold. In this form we have employed a cover 24 which closes the upper end of the cylindrical bore of the feeder and maintains the heat within the upper end of the mold.

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

1. A feeder for ingot molds comprising a body portion having its lower end adapted to enter the mold and having its inner walls converging towards its upper end, and means carried by the upper end of the feeder for supporting it on the upper end of the mold.

2. A feeder for ingot molds comprising a body portion having its lower end adapted to enter the bore of the mold, and having its inner walls converging towards the upper end, and means carried by the upper end of the feeder for supporting it on the upper end of the mold.

3. A feeder for ingot molds comprising a body portion having its lower end of a diameter to enter the bore of the mold and having its inner walls converging towards the upper end, and means carried by the upper end of the feeder for supporting it on the upper end of the mold.

4. A feeder for ingot molds comprising a body portion having its lower end of a diameter to enter the bore of the mold and having its inner walls converging towards the upper end, and outwardly extending arms carried by the upper end of the feeder for supporting it upon the upper end of the mold.

5. A feeder for ingot molds comprising a body portion having its lower end of a diameter to enter the bore of the mold, and having its inner walls converging towards its upper end, and an outwardly extending member carried by the upper end of the feeder for supporting it upon the upper end of the mold.

6. A feeder for ingot molds comprising a body portion having its lower end of a diameter to enter the bore of the mold, and having its inner walls converging towards its upper end, and outwardly extending arms carried by the upper end of the feeder and adapted to rest upon the upper end of the mold, and supporting the feeder within the mold.

7. A feeder for ingot molds comprising a body portion having its lower end of a diameter to enter the bore of the mold, and having its inner walls converging towards the upper end of the mold, and the upper end of the feeder having outwardly extending arms resting upon the upper end of the mold, and said arms scored so that they can be broken off to allow the feeder to drop into the bore of the mold.

8. A feeder for ingot molds comprising a body portion having its lower end of a diameter to enter the bore of the mold, and having its inner walls converging towards the upper end, an outwardly extending member carried by the upper end of the feeder, and rods resting upon the upper end of the mold below the outwardly extending member of the feeder, whereby the feeder is supported within the upper end of the mold.

9. A feeder for ingot molds comprising a body portion having its lower end of a diameter to enter the bore of the mold, and having its inner walls converging towards its upper end, outwardly extending members carried by the upper end of the feeder, rods resting on the upper end of the mold under the outwardly extending member, whereby the feeder is supported within the upper end of the mold.

In testimony whereof we affix our signatures.

BLOOMFIELD H. HOWARD.
ERNEST J. TURNER.