No. 753,465. PATENTED MAR. 1, 1904.

B. H. BENNETTS.

COPPER POURING SPOON.

APPLICATION FILED APR. 17, 1903.

NO MODEL.

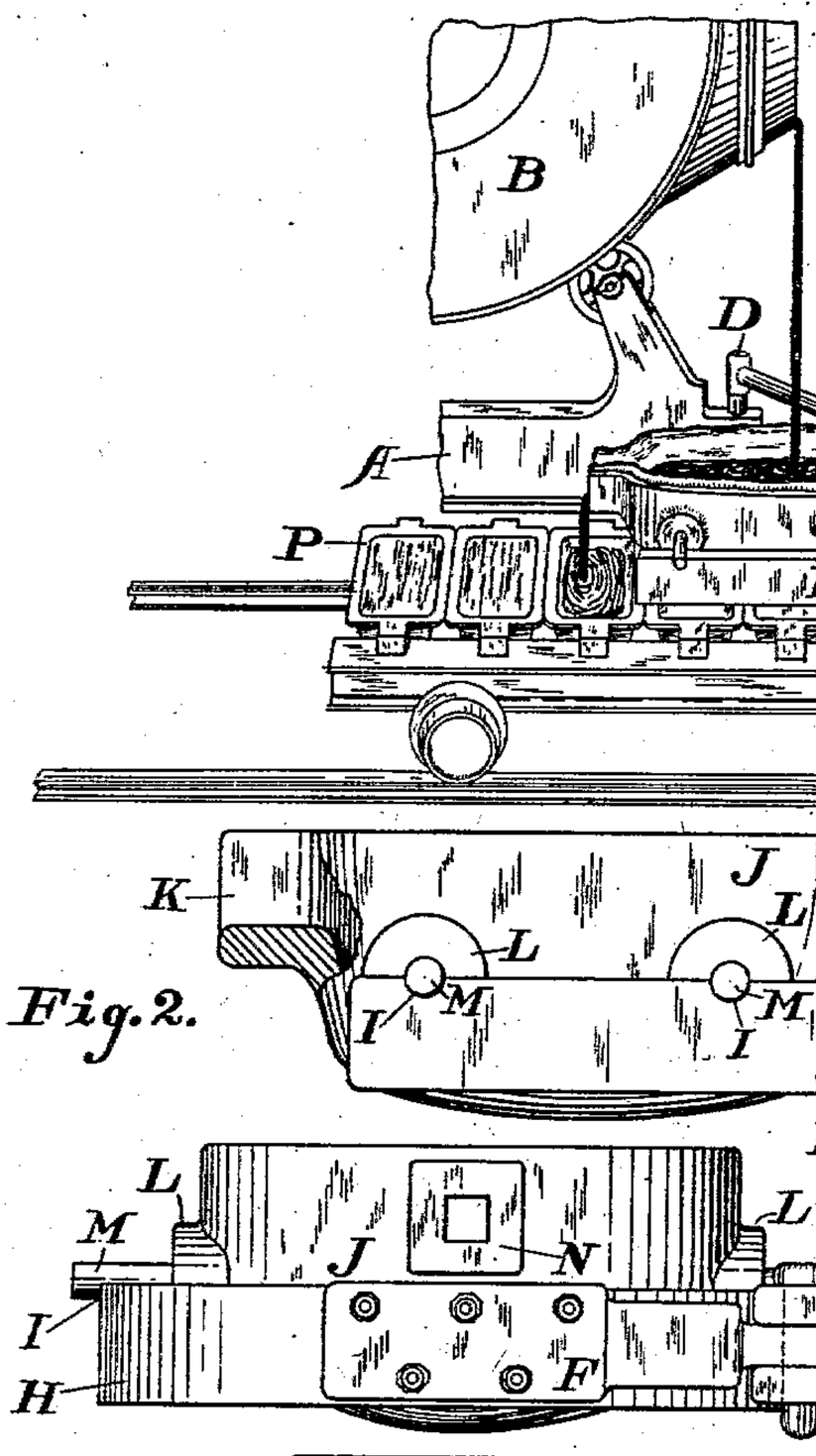

Fig. 1.

Fig. 2.

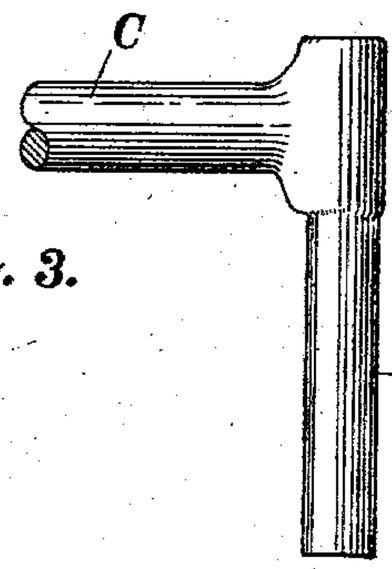

Fig. 3.

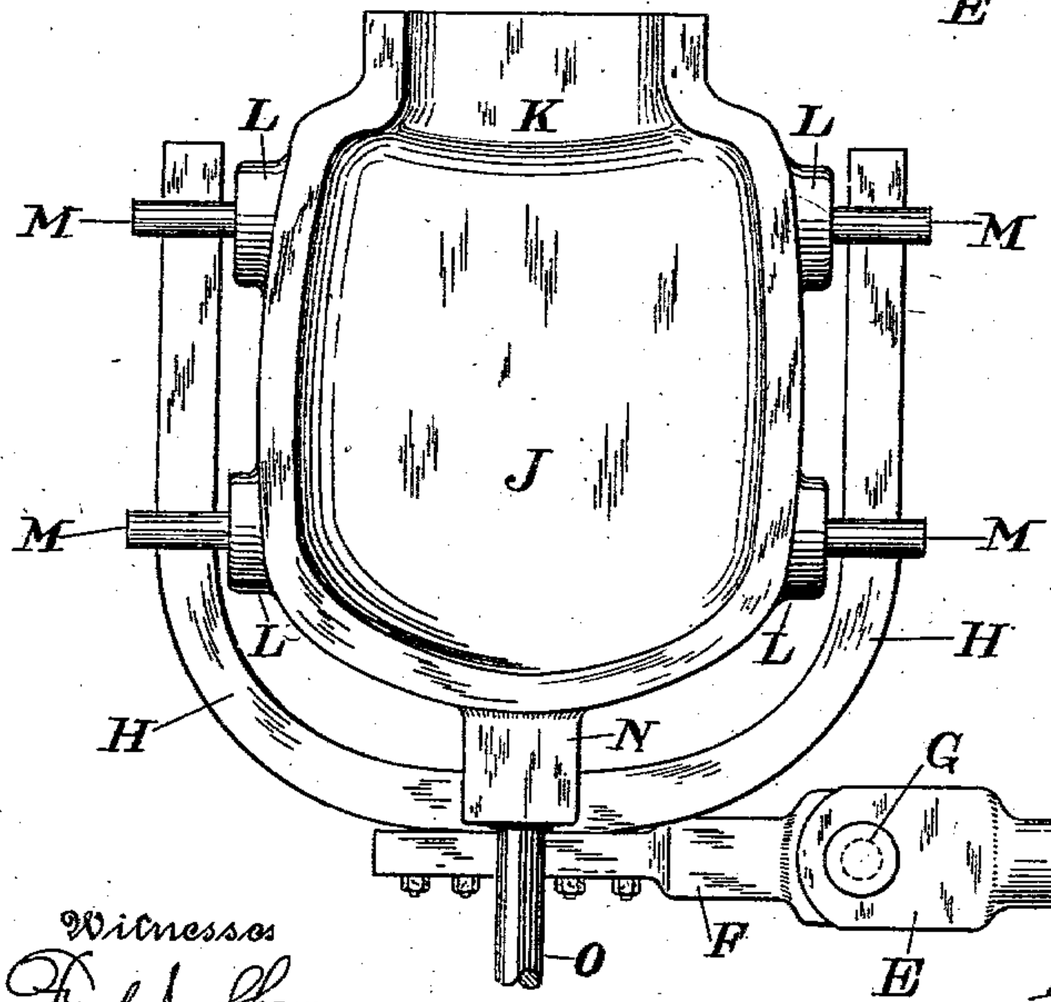

Fig. 4.

Witnesses
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No. 753,465. Patented March 1, 1904.

UNITED STATES PATENT OFFICE.

BENJAMIN H. BENNETTS, OF TACOMA, WASHINGTON.

COPPER-POURING SPOON.

SPECIFICATION forming part of Letters Patent No. 753,465, dated March 1, 1904.

Application filed April 17, 1903. Serial No. 153,083. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN H. BENNETTS, a citizen of Tasmania, residing at Tacoma, in the county of Pierce and State of Washington, have invented a new and useful Copper-Pouring Spoon, of which the following is a specification.

My invention relates to improvements in spoons used in smelting copper, the spoon being placed between the converter and the molds; and the objects of my improvement are to guide and control the pouring of the molten copper into the molds, to prevent the splashing of the molten metal, to lengthen the life of the spoon and of the lining thereof, and to facilitate the pouring of the metal into the last mold of a series. I attain these objects by the devices illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my device in operation. Fig. 2 is a side view of my device, the mouth thereof being in section. Fig. 3 is a rear view, and Fig. 4 is a plan, of my device.

Similar letters of reference refer to similar parts throughout the several views.

The spoon or rather guide in general use at the present time consists of a curved channel lined with refractory materials, the stream of molten metal being poured from the converter against the inner side of the trough or channel and running down the channel into the molds. This plan has several serious objections: First, the metal impinging on the lining of the spoon hits in one spot and soon eats away the lining and very shortly renders the spoon worthless; second, the metal flows practically unchecked from the converter to the molds, reaching them with a considerable velocity and causing an unreasonable amount of splattering of the hot metal, and, third, when the last mold is reached the converter must be controlled quite accurately, so as to neither fill the mold too full nor to let it pass with too little metal in it. My invention overcomes these objections and has numerous other advantages as well.

To the base A of the converter B is journaled the arm C, consisting of the vertical pivot D, the main arm C, and the forked head E. The short arm F is pivoted to this arm C between the forks of the head E by means of the bolt or similar pivot G. To the other end of the arm F is securely fastened by bolts or otherwise the U-shaped holder H, as shown in Fig. 4. This holder consists of a heavy piece of metal bent into the form shown and of sufficient width between its parallel extremities to allow the hereinafter-described spoon to be held between them. The parallel sides of H are also made with four semicircular notches I, so located as to receive the four suspending trunnion-bars of the spoon.

The spoon itself consists of a bowl J, with easily-curving sides and bottom and having a wide pouring-mouth K. In practice I make the spoon of cast-iron and line it with a heavy lining of silica.

On each side of the spoon I cast the bosses L, two on each side, placed opposite to each other, and in the bosses L, I insert the round trunnion-bars M, which serve as supports for the spoon and as bearings for it when it is tipped. These bars M fit in the above-described notches I in the holder H. On the rear of the spoon is cast the lug N, having a square hole therein into which the handle O is placed.

The spoon when mounted and in place for work is hung only a few inches above the molds P, which are supported in the usual manner on the truck Q, traveling on the rails R between the base-frames A of the converter B. When not in use, the spoon is swung to one side out of the way. When it is desired to pour the copper from the converter, the spoon is placed with the bowl under the mouth of the converter about parallel with the rails and with its mouth over the first mold. The copper is then poured from the converter into the bowl, filling it with molten metal, which then flows out of the mouth into the mold. The hot metal falling from the converter into the hot metal already in the bowl does not splatter, neither does it eat away the silica lining. The metal falling from the spoon into the mold falls such a short distance that there is very little if any splattering. When one mold is full, the truck is moved so that the next mold comes in position; but should this

not be done promptly or properly the spoon can be moved so that its bowl is still under the converter-mouth, but its own mouth is over the next mold. As the last mold is approached the converter is turned up, shutting off the stream from its mouth, and the metal in the bowl is poured therefrom into the mold by lifting the handle O and tipping the spoon on the front pair of trunnions M.

What I claim, and desire to secure by Letters Patent, is—

1. In a copper-pouring spoon, the combination of a horizontal receiving-bowl intermediate between the converter and the molds, a U-shaped supporter engaging and supporting said bowl, and a horizontally-jointed arm secured to and carrying said supporter in such manner that said bowl may be moved in any direction in the horizontal plane.

2. In a copper-pouring spoon, the combination of a horizontal receiving-bowl intermediate between the converter and the molds, trunnions secured to said bowl, a U-shaped supporter engaging and supporting said bowl by means of said trunnions, and a horizontally-jointed arm secured to and carrying said supporter.

3. In a copper-pouring spoon, the combination of a receiving-bowl intermediate between the converter and the molds, two pairs of trunnions secured to said bowl, a U-shaped supporter engaging and supporting in a substantially horizontal position said bowl by means of said trunnions, and a horizontally-jointed arm secured to and carrying said supporter.

4. In a copper-pouring spoon, the combination of a receiving-bowl intermediate between the converter and the molds, two pairs of trunnions secured to said bowl, a handle secured to and extending outward from said bowl, a U-shaped supporter engaging and supporting in a substantially horizontal position said bowl by means of said trunnions but allowing said bowl to be tipped on the front pair of trunnions when said handle is lifted, and a horizontally-jointed arm secured to and carrying said supporter.

5. In a copper-pouring spoon, the combination of a receiving-bowl intermediate between the converter and the molds, two pairs of trunnions secured to said bowl, a handle secured to and extending outward from said bowl, a U-shaped supporter supporting in a substantially horizontal position said bowl by means of said trunnions, notches on the upper surface of said supporter and engaging said trunnions, allowing said bowl to be tipped on the front pair of trunnions when said handle is lifted, and a horizontally-jointed arm secured to and carrying said supporter.

6. In a copper-pouring spoon, the combination of a receiving-bowl, a pouring-mouth, two pairs of trunnions secured to said bowl, a handle secured to and extending outward from said bowl, a U-shaped supporter supporting in a substantially horizontal position said bowl by means of said trunnions, notches on the upper surface of said supporter and engaging said trunnions allowing said bowl to be tipped on the front pair of trunnions when said handle is lifted, and a horizontally-jointed arm secured to and carrying said supporter.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

B. H. BENNETTS.

Witnesses:
L. D. CRAIG,
H. A. ARMSTRONG.