F. SHICKLE.

Ladle for Pouring Metal.

No. 216,354. Patented June 10, 1879.

Fig. 1.

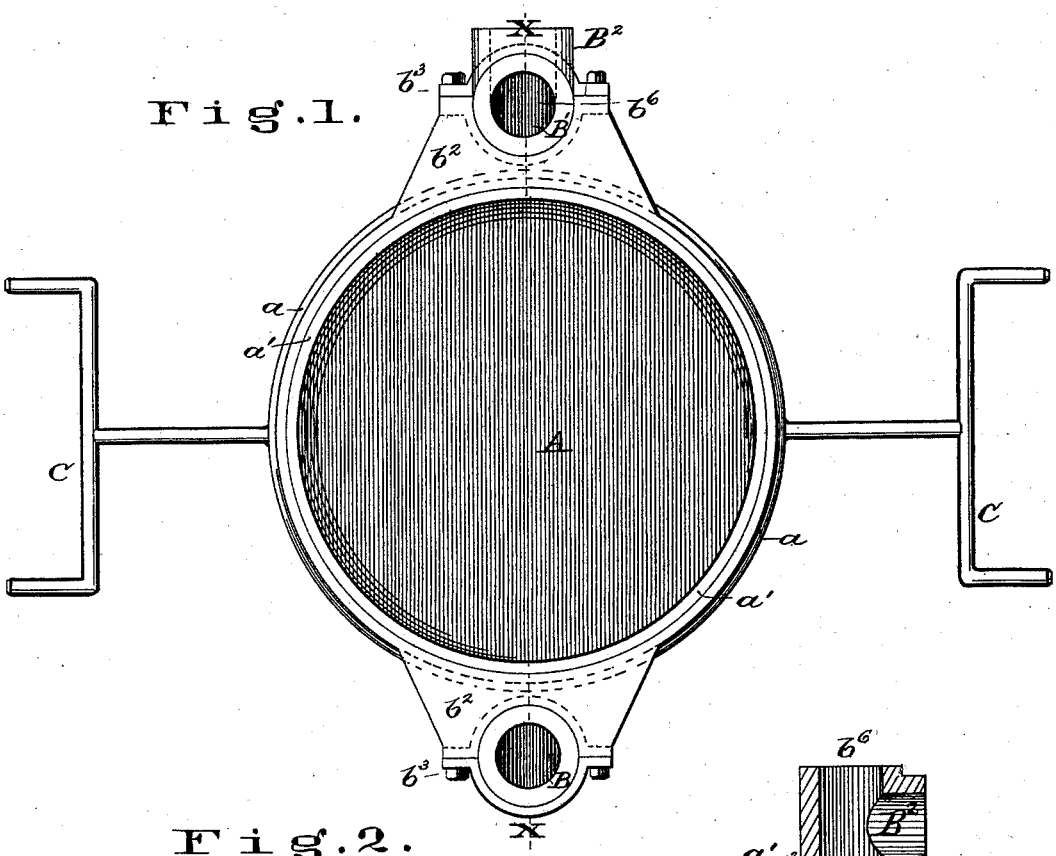
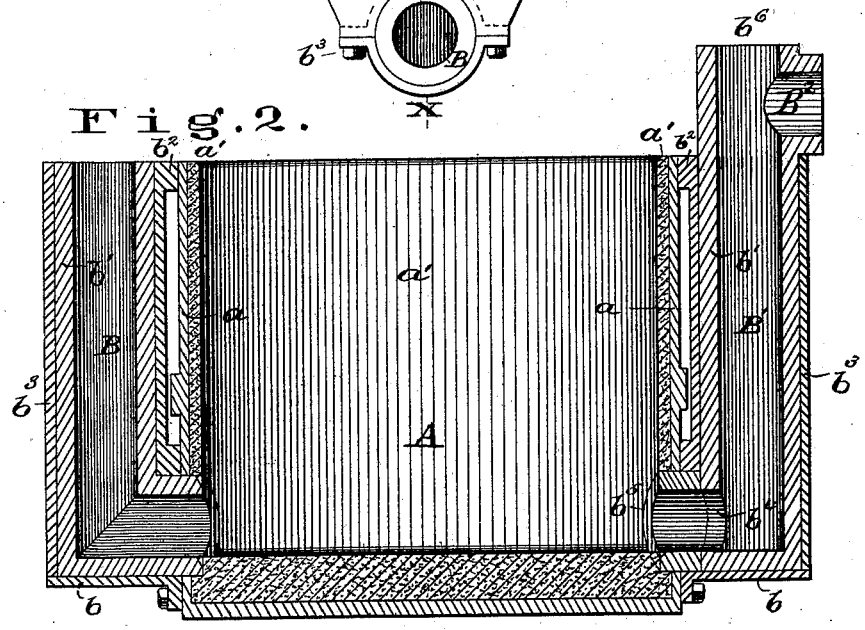


Fig. 2.



Attest.

Robert Burns

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by Chas. D. Moody.

atty.

UNITED STATES PATENT OFFICE.

FREDERICK SHICKLE, OF ST. LOUIS, MISSOURI, ASSIGNOR OF TWO-THIRDS HIS RIGHT TO JOHN W. HARRISON AND THOMAS HOWARD, OF SAME PLACE.

IMPROVEMENT IN LADLES FOR POURING METALS.

Specification forming part of Letters Patent No. **216,354**, dated June 10, 1879; application filed March 21, 1879.

To all whom it may concern:

Be it known that I, FREDERICK SHICKLE, of the city of St. Louis, Missouri, have made a new and useful Improvement in Ladles for Pouring Metals, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a plan of the invention, and Fig. 2 a vertical section taken on the line X X of Fig. 1.

The same letters denote the same parts.

In pouring from the ordinary ladle the scoria that floats on the top of the metal in the ladle is liable to be poured with the metal into the mold. To prevent this a skimmer is generally used; but even with the greatest care the scoria often escapes into the mold, injuring the casting and sometimes rendering it worthless.

Attempts also have been made, by means of a vertical partition extending from the top of the ladle downward nearly to the bottom thereof, to divide the ladle into two compartments of unequal size, the larger thereof being the chamber into which the metal is tapped, flowing thence under the partition up into the smaller compartment, whence it is poured into the mold. Such a construction serves to keep the scoria back in the ladle; but it is objectionable because the excessive heat of the molten metal in the main compartment soon causes the partition to give way. The same objection also exists against a tubular conduit or pipe leading from the center of the ladle, through the surrounding metal, to the side of the ladle, that portion of the tube that is enveloped in the metal being speedily destroyed by the action of the molten metal.

I overcome the difficulty referred to, and provide a practical means by which the pure metal only is discharged from the ladle, by furnishing the ladle with a discharge-pipe leading from the side of the ladle, at the bottom thereof, outward from the side, and thence upward to the level, or thereabout, of the top of the body.

The invention is carried out practically as shown in the annexed drawings, where A represents the body of the improved ladle, and B B^1 the outlets through which the metal is discharged from the ladle.

The body A is preferably cylindrical in form, and it consists of a metallic shell, *a*, and the usual lining *a'* of loam. The outlets B B^1 are in the form of spouts. They lead from the body A, as near the bottom thereof as is practicable, outward, so as to be clear of the side of the body, and thence upward to the level, or thereabout, of the top of the body.

The spouts also consist, mainly, of an outer shell, *b*, and an inner lining, b^1. The shell *b* is composed, preferably, of two parts, one, b^2, that is attached to the body A, and the other, b^3, which is in the form of a cap, and made to be bolted to the part b^2. The manner of attaching the part b^2 to the body A is immaterial, provided it be such as to enable the air to circulate freely around, or nearly around, the spout, and thus keep down the temperature of the spout, which otherwise would become unduly heated by the molten metal and soon be destroyed.

The lining b^1 is preferably a fire-clay pipe.

It is well understood that the lining of a ladle used in pouring metal must be frequently renewed in consequence of the action of the molten metal upon it. For the same reason provision must be made for the renewal of the lining of the spouts B B^1. This is accomplished readily by removing the cap b^3, whereupon a new pipe, b^1, can be inserted. If desired, the pipe b^1 can be made straight, with a perforation, b^4, opposite the opening b^5 in the side of the body A, in which case the lining in the spout between the openings b^4 b^5 can be completed by the ordinary daubing. In all cases the various joints in the pipe and between the pipe and body A are suitably luted.

In this way the maintaining of the lining of the spouts is greatly facilitated and cheapened. An advantage is also derived from the isolation of the spouts from the body A, as shown. The excessive heat of the metal within the body is prevented from injuring the materials of which the spouts are composed.

The spout, so far as its isolation from the

body is concerned, may terminate as shown at B; but to better direct the flow of the metal therefrom, the spout is furnished with the part B^2. The latter is extended from the side of the part B^1 near the upper end of the latter. It may be in the form of an open trough; but to concentrate the stream of metal so that it can be directed into a small opening, it is preferably tubular, as shown, and it may be smaller in diameter than the main part B^1. This form is also a more durable one for resisting the action of the metal.

The spout B^1 is left open at its upper end, b^6, to render its interior more accessible for repair, and also for breaking any film of congealed metal that may form upon the metal in the spout.

The ladle may have one, B, or two, B B^1, spouts, as desired. It is preferable to use two, and to arrange them upon opposite sides of the body, as thereby the ladle is better balanced upon the handle C, and the metal can be more conveniently discharged.

I claim—

1. The combination of the body A and the spout B, the latter consisting of the parts b^1 b^2 b^3, substantially as described.

2. The combination of the body A, spout B^1, and tubular extension B^2, the spout B^1 being open at the top thereof, as and for the purpose set forth.

3. The body A, having a spout, B, the latter being provided with a detachable fire-clay pipe, b^1, substantially as described.

Witness my hand.

FREDERICK SHICKLE.

Witnesses:

CHAS. D. MOODY,

SAML. S. BOYD.