A. STEITZ, dec'd, J. STEITZ, Adm'r.
Apparatus for Transferring Molten Metal.

No. 196,997. Patented Nov. 13, 1877.

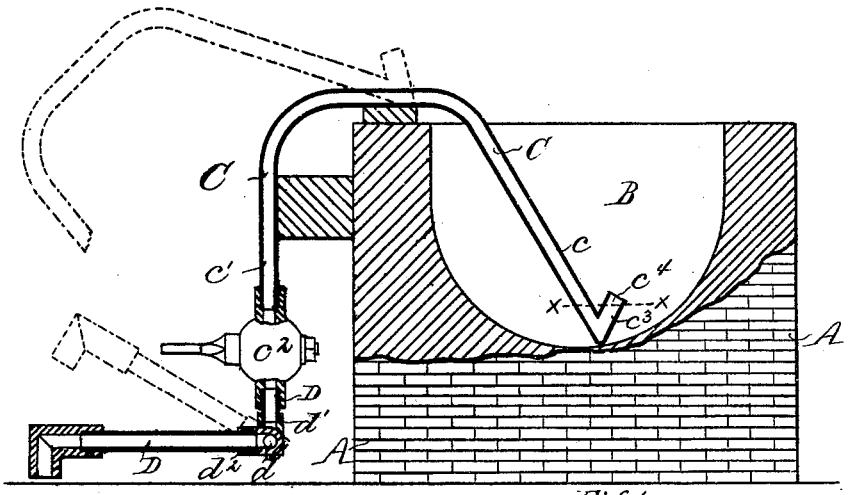

Fig. 1.

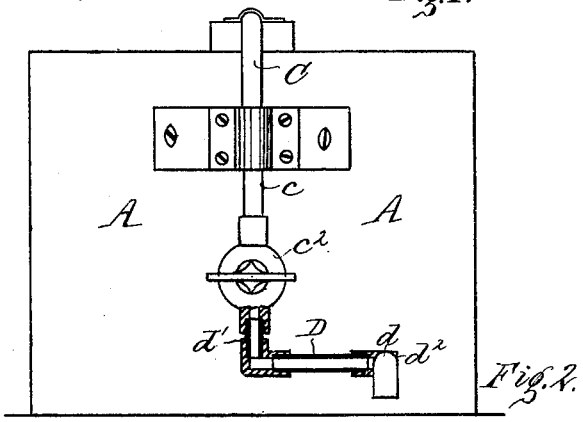

Fig. 2.

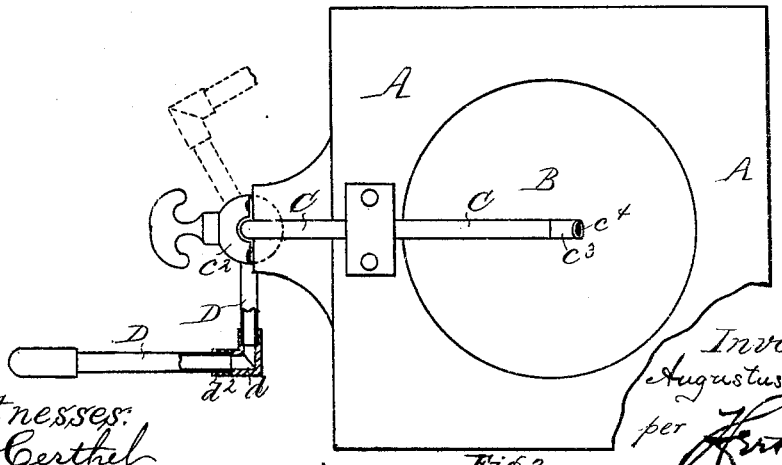

Fig. 3.

Witnesses:
J. W. Berthel.
Chas. A. Meisner.

Inventor
Augustus Steitz
per Berthel & Co
Attys

UNITED STATES PATENT OFFICE.

JOSEPHINE STEITZ, OF ST. LOUIS, MISSOURI, ADMINISTRATRIX OF AUGUSTUS STEITZ, DECEASED.

IMPROVEMENT IN APPARATUS FOR TRANSFERRING MOLTEN METALS.

Specification forming part of Letters Patent No. **196,997**, dated November 13, 1877; application filed August 30, 1876.

To all whom it may concern:

Be it known that AUGUSTUS STEITZ, of St. Louis, Missouri, did invent an Improved Siphon Apparatus for Transferring Molten Metals, of which the following is a specification:

This invention relates to an improved mode and means whereby molten metals or alloys can be transferred from one receptacle or vessel into another.

Specially is this invention adapted for smelting and refining purposes, in transferring the molten metal—as, for instance, from the desilverizing-kettle to the refining-furnace, and from thence to the molds.

The ordinary ways and means employed for the purposes stated consist, first, in ladling the contents out of the kettle, or, secondly, by applying a pipe to the bottom of the kettle containing the molten contents. The former incurs extra time, labor, and expense, as is apparent, besides being most unwholesome to the operator. The latter way is very objectionable, owing to the effects arising from expansion of the kettle and pipe, which said expansion produces leakage, and consequently a loss of valuable metal, loss of kettles, and also incurs extra time and labor. Thus a great desideratum exists in achieving an easy, simple, and effective process, mode, and apparatus for accomplishing the objects and purposes stated.

This want this invention is intended to supply; and the nature thereof consists in a siphon apparatus constructed in the manner and as now will more fully appear.

Of the drawings, Figure 1 is a sectional elevation, representing the invention as applied for use. Fig. 2 is a front elevation, part of the pipe being in section. Fig. 3 is a top plan, with part of siphon in section.

A represents a furnace; B, the kettle or chamber containing the molten alloys or metal. C represents the siphon apparatus for transferring the metal from furnace or kettle, while D is the branch attachment used with siphon in case for molds or a series of vessels.

The siphon C has its pipe part c made inclined, while the part c^1 is made vertical. (See Figs. 1 and 2.) The end of c extends within reach of the bottom of the kettle when inserted, while the end c^1 extends down the front of the furnace, near bottom thereof. (See Figs. 1 and 2.) The lower end of c^1 has a suitable stop-cock, c^2, to control, regulate, and otherwise facilitate the action of the siphon or its flow. The end of c has or is made an L at c^3, (see Fig. 1,) and it is to this feature and its construction that great importance is here laid.

The great obstacle heretofore existing in adapting the siphon principle for the purposes here treated of was the impossibility of retaining the contents in the siphon, and at same time insert it in operative position. This L retains the contents in the siphon, and enables it to be dipped in kettle or furnace, so as to utilize the atmospheric pressure.

The L is therefore made so that its extremity at c^4 shall extend beyond, above, or slightly higher than the point along the line $x\ x$, (see Fig. 1,) this feature being to close the opening which otherwise would exist, and allow air to enter the siphon and render it inoperative. The L, however, rising above the angle, and the contents of the siphon finding level along the line $x\ x$, or above it, no opening exists, and thus it is that the air is kept out of the siphon; and this, when filled, can readily be inserted in the kettle or furnace without danger of the contents of the siphon flowing back, but, on the contrary, as soon as the cock is opened, by the pressure of the atmosphere is caused to flow out of the discharge end of siphon, and keeps on doing so until the kettle or furnace is emptied.

The dotted lines represent the siphon in the condition to be filled preparatory for action. This filling is done with the ladle. The siphon first filled is next inserted, dipped, or placed in operative condition. (Shown in full lines.)

For the filling of a multiplicity of vessels, such as molds, a further pipe attachment, D, is provided. This attachment D, as shown in Fig. 2, is but a right-angled extension of the siphon C, and is connected to this latter, so as to have a universal motion. The joint for the motion of D is an elbow, d, (see figures,)—that is, the lower end of siphon part c^1 is internally threaded, and the upright part d^1 of the elbow d is also internally threaded; and said threads being partly united, it is plain that the elbow

and branch D can be swung in a horizontal direction. This lateral turning of the branch D, having the end of c^1 as its fulcrum, is to enable said branch to have its outlet brought in line with the next mold or vessel to be filled. Hence the elbow *d* has its horizontal part at d^2 again threaded internally, to receive the threads on the contiguous end of D. Besides the required joint thus obtained by the threads, the two motions, both horizontally and vertically, are obtained. The siphon is thus adapted to assume the required positions for the next mold, and this or a series thereof can readily be filled.

The different motions assumed by the branch D are for this purpose. (Shown in dotted lines in Figs. 1 and 3.) As apparent, the siphon C itself can be used without the branch D. In either case a great saving of time, labor, and expense is achieved.

What is claimed is—

A siphon apparatus for the transferring of molten metals from one receptacle to another, consisting of the pipe C, having an L at c^3, stop-cock c^2, the elbow *d*, and branch D, all combined and operating as described.

In testimony of said invention I have hereunto set my hand.

JOSEPHINE STEITZ,
Administratrix of the estate of Augustus Steitz, deceased.

Witnesses:
WILLIAM W. HERTHEL,
J. W. HERTHEL.