C. A. PHILIPPI.

CONVEYING AND POURING DEVICE FOR MOLTEN METAL.

APPLICATION FILED DEC. 23, 1920.

1,437,010. **Patented Nov. 28, 1922.**

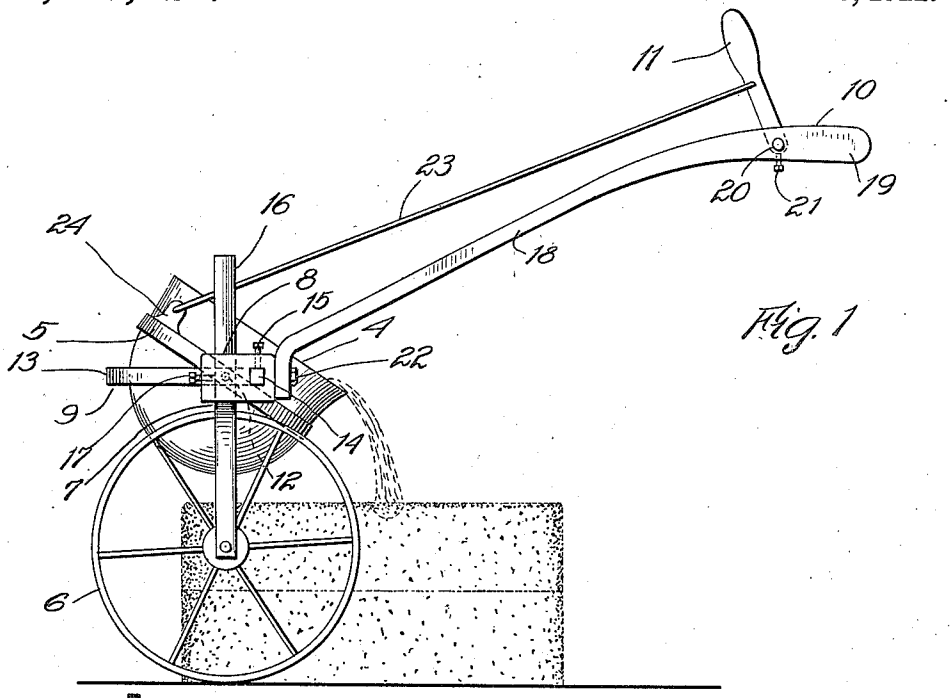


Fig. 1

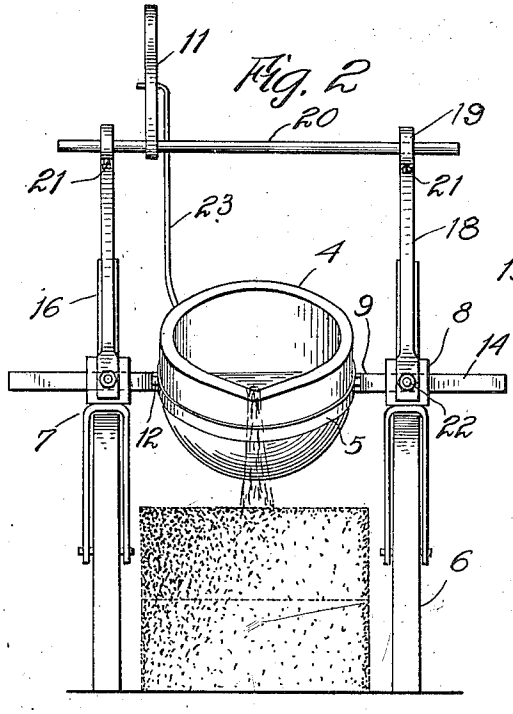


Fig. 2

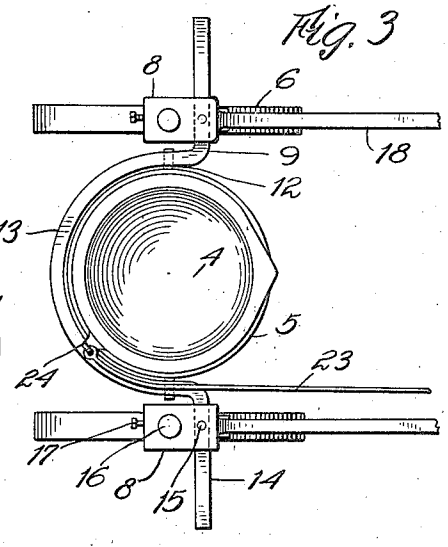


Fig. 3

Inventor
Carl A. Philippi
By Miller Chindahl Parker
Attys.

Patented Nov. 28, 1922. 1,437,010

UNITED STATES PATENT OFFICE.

CARL A. PHILIPPI, OF NEW YORK, N. Y.

CONVEYING AND POURING DEVICE FOR MOLTEN METAL.

Application filed December 23, 1920. Serial No. 432,725.

To all whom it may concern:

Be it known that I, CARL A. PHILIPPI, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Conveying and Pouring Devices for Molten Metal, of which the following is a specification.

The invention has reference to a device particularly adapted for use in foundries, for facilitating the transportation and pouring of the molten iron or other metal.

Heretofore the common practice has been to transport the molten metal in hand ladles, the advantage in this mode of conveyance being that such ladles are adapted for easy and accurate manipulation in directing the flow of molten metal into molds of small and medium sizes.

The object of the present invention is to provide a device mounted upon wheels whereby a relatively larger quantity of metal may be transported from the source of supply to the place of pouring, without substantial effort, and which enables the pouring operation to be accomplished without transferring the molten metal from the original ladle to smaller hand ladles. In the past it has been the practice in some instances, as where the distance between the cupola and the place of pouring is very great, to transport the metal by a four-wheeled carriage or truck from which the metal is necessarily transferred to the pouring ladles.

A further and incidental aim of the invention is to provide a pouring device of a very practical character, of light weight and yet of a substantially rugged character, and capable of easy adjustment and accurate manipulation.

The objects of the invention thus generally stated, together with other and ancillary advantages which will be apparent as the description proceeds, are attained by the construction and arrangement illustrated in the accompanying drawings forming part hereof, in which Figure 1 is a side elevation of a device embodying the invention and illustrating the pouring operation. Fig. 2 is a front end view of the same. Fig. 3 is a fragmentary top plan view of the device.

In the drawings 4 designates a ladle of suitable or ordinary construction, having a supporting ring 5 through the medium of which it is mounted upon a pair of wheels 6 laterally spaced apart and mounted in forked standards 7. Upon said standards 7 above the wheels 6 are mounted bearing blocks 8, and the blocks of the two standards carry between them a supporting frame 9 upon which the ladle ring 5 is pivotally mounted. A handle frame 10 fixed to the bearing blocks 8 provides means whereby the device may be drawn and otherwise manipulated, and a hand lever 11 pivoted upon the frame 10 and connected to the ring 5 affords means of manipulation for the ladle.

The ladle 4 is constructed so as to fit snugly within its supporting ring 5, and when thus supported the lower portion thereof forms substantially a semi-circle. At diametrically opposite sides of the ring, I provide pivot studs 12 which are journalled in a substantially semi-circular portion 13 of the supporting frame 9; and the opposite ends of the frame 9 are in the form of laterally extending stems 14, squared, and inserted in similarly shaped apertures in the bearing blocks 8. These stems 14 are made of substantial length so as to be capable of lateral adjustment in the blocks 8 when it is desired to vary the distance between the two supporting wheels. Suitable means such as set screws 15 may be employed to secure the stems and bearing blocks in the desired relative position.

The standards 7, which are forked at their lower ends to carry the wheels 6, have rounded upper end portions or uprights 16 also entered through the bearing blocks 8 but vertically thereof. These uprights are made of substantial length so as to permit of the vertical adjustment of the blocks 8 thereon, whereby to support the ladle at various elevations from the ground or floor. Any suitable means such, for example, as set screws 17 may be employed for holding the bearing blocks against movement upon the upright 16.

It will be observed that the lower portions of the standards 7 together with the transverse portion or frame 9, constitute a supporting structure, substantially in the form of a U, in which the ladle is mounted for tilting movement on an axis approximately in the vertical plane of and parallel with the axes of the wheels.

The handle frame 10 comprises, preferably, two elongated members 18 rigid at their inner ends with the bearing blocks 8 and provided at their outer or free ends with

handles 19. A rod 20 serves to connect the members 18 together, and the rod is adjustably secured to the members as by means of set screws 21. The members 18 may be secured to the bearing blocks in any suitable way. Herein they are shaped so as to engage with the forward faces of the blocks and are secured thereto as by means of bolts 22.

The rod 20 provides a pivotal support for the hand lever 11, which is connected with the ladle to enable the operator to tilt the latter as desired. The connection between the lever and the ladle may comprise a rod 23 pivoted at one end to the lever and at its other end to an upstanding lug 24 formed upon the ladle ring 5.

In the operation of the device the molder or other workman places one hand on the handle frame 10 and the other upon the hand lever 11, drawing or pushing the device by means of the handle frame, with reference to the molds into which it is desired to pour the metal, and tilting the ladle by means of the hand lever, in pouring. As shown in Figs. 1 and 2 the wheels 6 are arranged to straddle the molds, which are arranged in rows in the usual way.

By the construction and arrangement which I have provided, the device is capable of easy adjustment to vary not only the distance between the wheels so as to accommodate between them molds of varying widths, but also to support the ladle at various elevations to adapt the device for use with molds of varying heights.

The device is of relatively light-weight construction, but of a sufficiently rugged character to support effectively the molten metal in substantially greater quantities than can be transported by hand, as in the past. Moreover the device is of a flexible and readily mobile character so that it may be quickly and easily manipulated so as to secure the advantages of the hand ladle as well as to eliminate the necessity of manually supporting the weight of the molten metal both in its transportation from the cupola or other source of supply, and while pouring.

My device, it will be observed, is particularly adapted for use in the pouring operation by reason of the ease with which this operation may be performed as compared to the prior wholly manual operation, and it will be understood that if desired, the molten metal may be transported from the cupola by means of large carrying ladles commonly known as "bull-ladles," or by means of the transporting trucks hereinbefore referred to. In this event, the metal is transferred to the present devices at the places of pouring.

While the invention is herein illustrated and described with considerable particularity, it is to be understood that in the interpretation of the appended claims they are not to be limited to the precise construction and arrangement set forth, except as may be necessitated by the state of the prior art.

I claim as my invention:

1. A conveying and pouring device comprising a ladle, supporting wheels for the ladle, means for pivotally mounting the ladle upon the wheels to support it at various elevations, and means pivotally connected with the ladle for tilting it on its pivot.

2. A conveying and pouring device comprising, in combination with a ladle, a pair of supporting wheels spaced laterally to straddle a mold, means for mounting the ladle upon said wheels, including a pair of upright standards, means mounted upon said standards for pivotally carrying said ladle, and means rigid with the standards providing a drawing ladle for the device.

3. A conveying and pouring device comprising, in combination with a ladle, a pair of supporting wheels spaced apart to straddle a mold, and means for mouting the ladle upon said wheels adapted to permit of the vertical adjustment of the ladle and the relative lateral adjustment of the wheels so that said device may be made to straddle molds of different heights and widths.

4. A conveying and pouring device comprising, in combination with a ladle, a pair of supporting wheels, a supporting ring for the ladle pivotally mounted between said wheels so as to permit of the vertical adjustment of the ladle and the relative lateral adjustment of the wheels, and means for tilting the ladle.

5. A conveying and pouring device comprising, in combination with a ladle, a pair of supporting wheels spaced apart to straddle a mold, a pair of standards carried on said wheels, means mounted upon said standards for pivotally carrying the ladle, a handle secured to one of said standards whereby the device may be drawn, and means operatively associated with said handle for tilting the ladle.

6. A conveying and pouring device comprising, in combination with a ladle having a supporting ring, a pair of wheels, means for pivotally mounting said ring upon the wheels including a pair of upright standards and a horizontal U-shaped frame carried by said standards and having said supporting ring pivotally mounted therein, and means for tilting said ring and thereby the ladle supported therein.

7. A transporting and pouring device comprising, in combination with a ladle having a supporting ring, a pair of wheels, means for pivotally mounting said ring upon the wheels including a pair of upright standards and a horizontal frame carried by said standards and having said supporting ring

pivotally mounted therein, a drawing handle-frame rigid with said standards, and a hand lever pivoted to said handle-frame and operatively connected with said ring whereby to tilt the ladle.

8. A device of the character described comprising, in combination, a ladle supported upon a pair of wheels laterally spaced apart with the ladle between them, and means for supporting the ladle comprising a ring pivotally mounted at diametrically opposite sides, the portion of the ladle below said ring constituting substantially a semicircle.

9. A combined transporting and pouring device for molten metal comprising, in combination with a ladle, a single pair of wheels, and means connecting said wheels in laterally spaced relation and providing a pivotal mounting for the ladle whereby the latter is supported for tilting movement on an axis located approximately in the vertical plane of the axes of the wheels.

10. A device of the character described comprising, in combination, a ladle, a pair of wheels, means pivotally supporting the ladle between the wheels, a drawing handle for the device, and a tilting handle for the ladle operatively associated with said drawing handle.

11. A device of the character described comprising, in combination, a ladle, a pair of wheels, a pair of standards supported by said wheels, means connecting said standards together for relative lateral adjustment and pivotally supporting said ladle, and means for tilting the ladle.

12. A device of the character described comprising, in combination, a ladle, a pair of supporting wheels, a pair of standards, means mounted upon said standards for vertical adjustment and adapted to connect said standards together for relative lateral adjustment, said ladle being pivotally mounted between said standards, and means for tilting the ladle.

13. A device of the character described comprising, in combination, a ladle, a pair of wheels, a pair of standards carrying said wheels, means connecting said standards together for relative lateral adjustment including a member having a substantially U-shaped central portion and opposite stem portions, said ladle being pivotally mounted in said U-shaped portion, and bearing blocks adjustably mounted on said standards and having said stems mounted therein for lateral adjustment.

14. A combined transporting and pouring device for molten metal comprising, in combination, a single pair of wheels, a ladle, and a supporting structure for the ladle comprising a pair of standards supported by the wheels, and a transverse connecting portion between the standards, said standards and transverse portion being substantially in the form of an inverted U in which said ladle is mounted for pivotal movement on an axis parallel with the axes of the wheels.

15. A ladle for molten metal mounted upon wheels for support at various elevations, with the wheels adapted to be variously spaced apart laterally relative to each other, said ladle being pivotally mounted on a horizontal axis, and means for tilting the ladle on said axis.

16. In a two-wheeled conveyor of the class described, the combination with a ladle having a pair of supporting wheels and means spacing said wheels laterally to straddle a mold and providing a support for said ladle, said means being constructed to permit of the relative lateral adjustment of said wheels.

In testimony whereof, I have hereunto set my hand.

CARL A. PHILIPPI.

Certificate of Correction.

It is hereby certified that in Letters Patent No. 1,437,010, granted November 28, 1922, upon the application of Carl A. Philippi, of New York, N. Y., for an improvement in "Conveying and Pouring Devices for Molten Metal," errors appear in the printed specification requiring correction as follows: Page 2, line 86, claim 2, for the word "ladle" read *handle;* same page, line 90, claim 3, for the misspelled word "mouting" read *mounting;* and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 9th day of January, A. D., 1923.

[SEAL.] KARL FENNING,

Acting Commissioner of Patents.