

E. F. THIEMANN.
 MEANS FOR FILLING MOVING FLASKS.
 APPLICATION FILED AUG. 15, 1912.

1,084,049.

Patented Jan. 13, 1914.

FIG. 2.

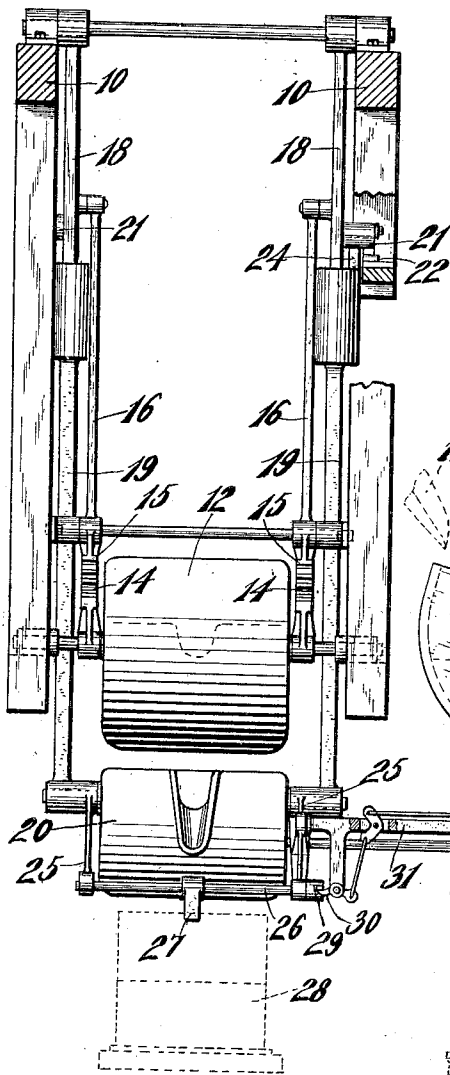
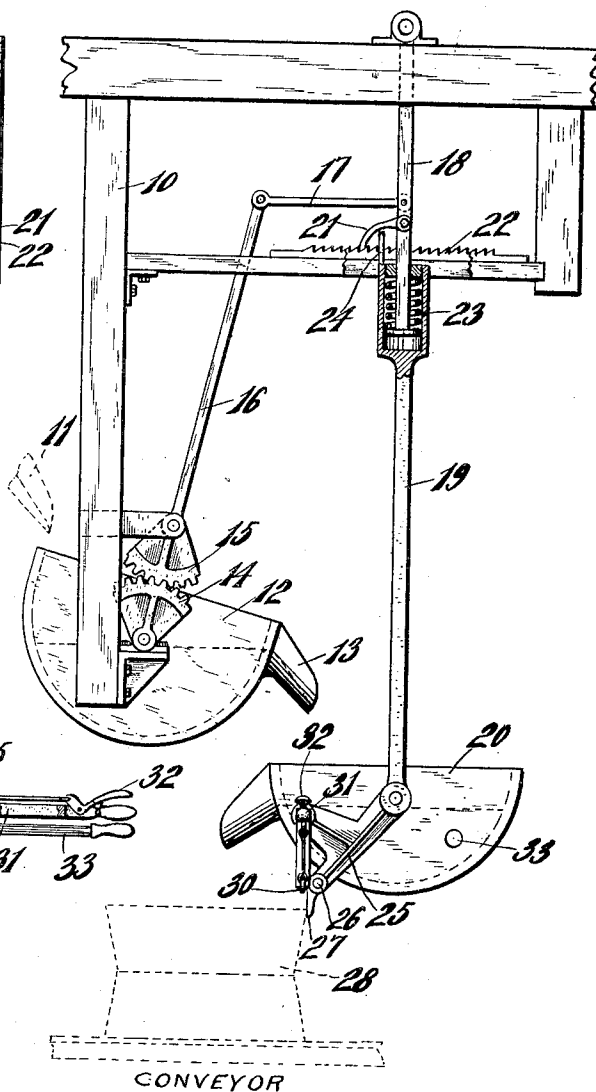


FIG. 1.



Witnesses

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MEANS FOR FILLING MOVING FLASKS.

1,084,049.

Specification of Letters Patent.

Patented Jan. 13, 1914.

Application filed August 15, 1912. Serial No. 715,152.

To all whom it may concern:

Be it known that I, ERNEST F. THIEMANN, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Means for Filling Moving Flasks, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention relates to a ladle for use in molding with traveling flasks such as described in my pending applications for Letters Patent for molding machines, Serial No. 646,456, filed August 28th, 1911 and Serial No. 682,121, filed March 7, 1912, and has for its object to provide for automatically filling the ladle when the supply of molten metal therein is required to be replenished.

Another object of the invention is to so mount the ladle as to permit it to move with the flask as long as desired for the filling operation and then become released and remain in position awaiting the approach of the succeeding flask, the travel of the ladle with the flask being accomplished by its engagement of the flask and such engagement being within the control of the operator.

With the above and other objects in view the invention consists in the ladle for molding as herein claimed and all equivalents.

Referring to the accompanying drawings in which like characters of reference indicate the same parts in the different views: Figure 1 is a side elevation with parts sectioned of a ladle for molding constructed in accordance with this invention; and Fig. 2 is an end view thereof parts being in section.

In these drawings 10 indicates a frame for supporting the structure which is intended to be located close to a blast furnace or other means for supplying molten metal, the position of the discharge spout 11 of which is indicated by dotted lines in Fig. 1. On this frame is pivotally mounted a charging vessel 12 in position to receive the molten metal from the spout 11 of the blast furnace and being itself provided with a spout 13 through which the metal may be poured therefrom. A toothed sector 14 on the charging vessel 12 meshes with a similar toothed sector 15 pivotally mounted on the frame and carried by a lever arm 16 which is connected at its upper end by a link 17 with a swinging arm 18 pivotally mounted

on the frame. At the lower end of the arm 18 is slidably mounted a hanger 19 by means of which a ladle 20 is suspended, the ladle being pivotally mounted on the lower end of the hanger 19. The hanger 19 and the arm 18 form a suspending connection for the ladle 20 permitting the ladle to swing as a pendulum. A dog 21 pivotally mounted on the arm 18 is adapted to engage the teeth of a rack 22 on frame 10 as the ladle swings away from the charging vessel 12 to prevent its return movement, but provision is made for releasing the dog 21 from engagement with the rack when the metal has been poured from the ladle to a sufficient extent to require a new supply from the charging vessel 12. For this purpose the upper end of hanger 19 is formed cylindrical and the lower end of arm 18 forms a plunger fitting therein while a spring 23 bearing on the plunger and the end of the cylindrical formation permits the ladle to occupy a higher or lower position according to the weight of the molten metal therein. A lug 24 standing up from the end of hanger 19 engages the dog 21 and lifts it from the teeth of the rack 22 when a sufficient quantity of molten metal has been poured from the ladle to reduce its weight to such an extent as to permit the spring to lift it.

The mechanism as described is present on both sides of the device as seen in Fig. 2 and each hanger 19 has a bracket 25 rigidly mounted on its lower end and a rock shaft 26 connects such brackets and carries a lug 27 projecting downwardly into the line of travel of flasks 28 which are continuously fed beneath the ladle on any suitable conveyor. The turning of the rock shaft 26 in the brackets 25 will permit the lug 27 to swing so as to allow the flasks to pass therebeneath but this turning movement of the shaft 26 may be prevented by a stop lug 29 thereon engaging a dog 30 which is pivotally mounted on an operating arm 31 projecting from one of the brackets 25. The position of the dog 30 is controlled by a hand lever 32 on the operating arm 31 which hand lever has a link and bell crank connection with the dog. A ladle tilting arm 33 projects from the ladle and by means of it the ladle may be tilted as desired for pouring the metal into the flasks.

In operation the ladle in the position shown in Fig. 1 is adapted to receive a supply of molten metal from the charging

vessel 12 which is then in an inclined position to pour the metal through the spout 13. When a moving flask 28 engages the downwardly projecting but locked lug 27 5 the ladle is caused to swing and move with it and during this movement the operator lifts the ladle tilting arm 33 to tilt the ladle and pour the molten metal therefrom into the flask. As soon as the desired quantity 10 of metal has been poured into the flask the operator releases the dog 30 from engagement with stop 29 and thereupon the lug 27 swings to permit the flask to pass. The ladle does not return at once to its position beneath the charging vessel, for during the 15 swinging movement of the ladle in traveling with the flask the dog 21 has slipped over the teeth of rack 22 and now by its engagement with the rack it holds the ladle until the next flask arrives and carries the 20 ladle a farther distance in the same manner. The lug 27 is restored to its position for engaging the flask by its own weight as soon as the released flask passes from 25 beneath it and the release of the hand lever 32 locks it in this position. When the operation has been repeated a sufficient number of times to reduce the weight of the contents of the ladle to such an extent as to 30 permit the spring 23 to release the dog 21 the ladle swings to its normal position. The movement of the ladle toward the charging vessel causes the latter to tilt and pour a new supply of molten metal into the ladle 35 and the backward traveling of the ladle in moving with the flasks causes the charging vessel to turn in the other direction to stop the flow of metal therefrom. The charging vessel may be refilled as desired from the 40 blast furnace without interrupting the pouring operation.

By means of this invention it is possible to fill the flasks while they are in motion and thus permits of a continuous molding 45 operation.

What I claim as new and desire to secure by Letters Patent is:

1. A means for filling moving flasks, com-

prising a ladle suspended to have a pendulum movement and provided with means for 50 engaging a moving flask, and a charging vessel having connection with the ladle for causing it to pour metal into the ladle when the ladle is on its way to its starting position. 55

2. A means for filling moving flasks, comprising a ladle, a swinging arm on which the ladle is mounted to have a pendulum movement, means for tilting the ladle, and means carried with the ladle for engaging 60 a traveling flask to cause the ladle to move with the flask.

3. A means for filling moving flasks, comprising a suspended ladle, a charging vessel for filling the ladle in one position thereof, 65 means connected with the ladle for engaging a moving flask to cause the ladle to travel with the flask, ratchet means for holding the ladle against a return movement, and means dependent upon the contents 70 of the ladle for releasing the ratchet means.

4. A means for filling traveling flasks, comprising a pivotally mounted arm, a hanger suspended from the arm, a ladle 75 pivoted on the hanger, a spring positioned between the hanger and the arm and bearing the weight of the ladle and its contents, a pivotally mounted charging vessel, means for tilting the charging vessel having connection with the swinging arm, a dog carried by the swinging arm, a rack bar engaged by the dog for holding the ladle 80 against return movement, means on the hanger for releasing the dog from its engagement with the rack when the spring 85 lifts the ladle owing to the reduced weight of the contents thereof, means for tilting the ladle, and releasable means carried with the ladle for engaging a moving flask. 90

In testimony whereof, I affix my signature, in presence of two witnesses.

ERNEST F. THIEMANN.

Witnesses:

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