

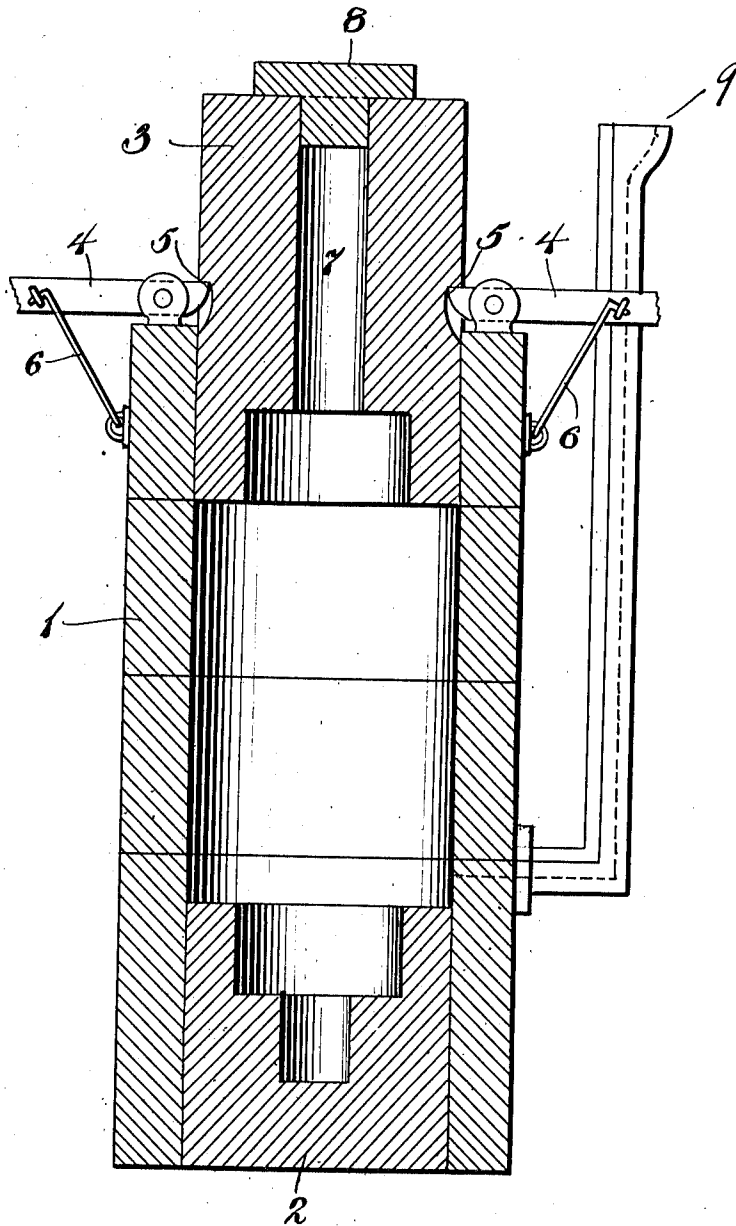
G. F. McKEE & W. F. SCHILLING.

CASTING APPARATUS.

APPLICATION FILED MAR. 10, 1909. RENEWED AUG. 5, 1911.

1,019,906.

Patented Mar. 12, 1912.



WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE F. McKEE AND WILLIAM F. SCHILLING, OF ASPINWALL, PENNSYLVANIA,
ASSIGNORS TO McKEE-SCHILLING PERMANENT MOLD COMPANY, OF PITTSBURGH,
PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

CASTING APPARATUS.

1,019,906.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Application filed March 10, 1909, Serial No. 482,512. Renewed August 5, 1911. Serial No. 642,492.

To all whom it may concern:

Be it known that we, GEORGE F. McKEE and WILLIAM F. SCHILLING, citizens of the United States, residing at Aspinwall, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Casting Apparatus, of which the following is a specification.

Our invention relates to permanent molding apparatus adapted for repeated use. The principal object of our invention is: the provision of an improved means for preventing the formation of flaws in castings.

In the accompanying drawing, which forms a part of this specification, we have shown our invention as applied to a mold for casting rolls. The figure is a longitudinal section through the mold and through the improved follower, which constitutes the means for the prevention of flaws in the casting.

In carrying out our invention we employ a main body portion 1, having mounted in its lower end a block 2 forming the bottom of the mold and of a configuration suitable to the article to be cast, and having mounted in its upper end a movable heavy follower 3. This follower, like the rest of the mold parts, is formed of metal or any other suitable material and is adapted for repeated use. It is held from movement during the pouring operation by means of arms 4—4 pivotally mounted on the body portion 1 and engaging notches 5—5 in the follower 3. These arms are held against movements by means of hooks 6—6 fastened to the sides of the mold portion 1 and engaging the arms, from which they are disengaged after the completion of the pouring, thus permitting the follower 3 to rest upon the casting. The follower is provided with an opening 7 which forms a part of the mold and also constitutes a vent for the escape of gases during the pouring, and through which, if it is desired, the pouring may be accomplished, instead of employing a gate as indicated in the figure. This gate, indicated by the numeral 9, is of the same general type of construction as that illustrated in our copending application, Serial Number 482,510, filed Mar. 10, 1909, it being formed in separate parts adapted to be taken apart in such manner as to relieve the parts of any pinch caused by the shrinking of the metal in cool-

ing, no further description being herein made, as the gate is not claimed in this application *per se*. In the present showing the wabblers of the roll is formed in the opening 7. After the pouring has been accomplished and before the arms 4—4 are thrown out of engagement with the follower, the block 8 is placed over the opening 7 to prevent any possible air suction or the escape of molten metal. When the follower is released it is entirely carried by the casting and is free to follow the metal as it shrinks in cooling, continually exerting pressure thereon by means of its weight. This movement of the follower prevents any suction or drawing in the metal and thus prevents the formation of pipes, cracks and other flaws in the casting.

The advantages of our construction are apparent. The provision of the follower does away with the loss of the mass of molten metal which is of necessity used in heading or venting ordinary sand molds to form a header or feeder for the metal of the casting as it cools; it saves a great amount of metal which must usually be cut away; by forming the wabblers on both ends it saves the present cost of machining, cutting and boring; and the total cost of continuous production is greatly lessened. These and other advantages will readily occur to those familiar with the art.

It is obvious that while we have shown our invention applied to a mold for making rolls, its principle can be applied to any form of casting wherein suction or drawing of the metal and the resultant formation of flaws are apt to occur and must be obviated.

Having thus described our invention and illustrated its use, what we claim as new and desire to secure by Letters Patent is the following:—

1. A permanent casting apparatus comprising in combination, a main mold portion, a supplemental mold portion mounted in the upper end thereof and freely movable with respect thereto, and means for detachably holding the supplemental mold portion in raised position, the said portion being adapted to follow the casting downward as the latter shrinks in cooling when the holding means is released.

2. A permanent casting apparatus comprising in combination a main metal mold

portion, a heavy supplemental metal mold
portion mounted in the upper end of the
main mold portion and freely movable with
respect thereto, and means for detachably
5 holding the supplemental mold portion in
raised or upper position, the said portion be-
ing adapted to follow the casting downward
and exert pressure thereon as it shrinks in
cooling upon release of the holding means.
10 3. A permanent casting apparatus com-
prising in combination a main mold por-
tion, a heavy metal block mounted in the
upper end thereof and freely movable with
respect thereto, an opening in the block for
15 venting or gating the mold, and means for

detachably holding the block in raised or
upper position, the said block being adapted
to follow the casting downward automati-
cally and exerting pressure thereon as the
latter shrinks in cooling upon release of the 20
holding means.

In testimony whereof we have hereunto
signed our names in the presence of the two
subscribed witnesses.

GEORGE F. McKEE.
WILLIAM F. SCHILLING.

Witnesses:

HARVEY L. LECHNER,
ARCHWORTH MARTIN.