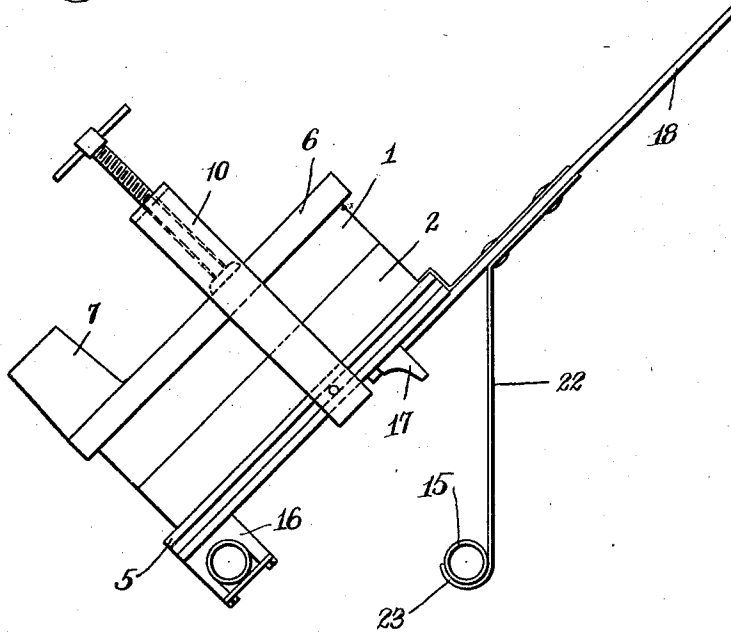


R. GUTMUELLER.  
CASTING APPARATUS.  
APPLICATION FILED JUNE 11, 1920.

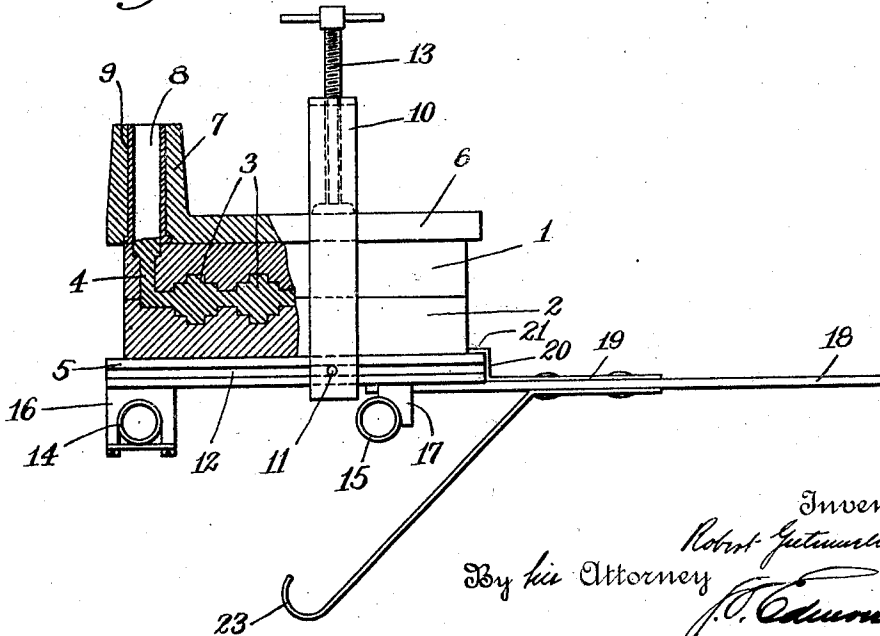
1,393,216.

Patented Oct. 11, 1921.

*Fig. 1.*



*Fig. 2.*



Inventor  
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By his Attorney  
*J. O. Edwards*

# UNITED STATES PATENT OFFICE.

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## CASTING APPARATUS.

1,393,216.

Specification of Letters Patent.

Patented Oct. 11, 1921.

Application filed June 11, 1920. Serial No. 388,303.

*To all whom it may concern:*

Be it known that I, ROBERT GUTMUELLER, a citizen of the United States, residing at Woodhaven, in the county of Queens and State of New York, have invented certain new and useful Improvements in Casting Apparatus, of which the following is a specification.

My invention relates to casting apparatus and more particularly to the type thereof in which the mold cavities are formed in a plastic composition mold, this apparatus being particularly adapted for use in the production of what are known as "finished castings". In the production of finished castings it is essential not only to secure accuracy in the dimensions of the castings produced, but to have the finish of the castings smooth and the dimensions uniform in all castings made.

Such castings, as well as others, are injured if dross or other impurities are permitted to enter the mold cavities. This may be prevented to a greater or less extent by the provision of a so called "skimmer" in the nature of a restriction in the gate passage of the mold. My present invention provides means for preventing the entrance of dross or other impurities into the mold cavities, which may be used as an additional safeguard against the entrance of dross. My improved construction consists in so mounting a mold that it may be swung about a pivotal support to raise one end or portion of the mold, above the end or portion thereof, at which the gate is situated. By so tilting the mold, the molten metal which flows into the mold cavities will be forced to move upwardly in the cavities at a slow rate, the metal passing through the ingate of the mold in a stream which may have as slight an inclination to the horizontal as desired. By this means the entrance of the metal into the mold cavities will be retarded and the dross correspondingly prevented from entering. As the pouring of the mold continues, the mold is permitted to slowly return to its original horizontal position.

The object of my invention is to provide improved constructions by which the effect referred to above may readily be achieved. The desired result may readily be obtained by pivotally supporting the mold at one end, or in approximate alinement with the

handle member which may be secured to the opposite end of the mold and manipulated to raise and lower the mold about its pivotal support as desired.

In order that a clearer understanding of my invention may be had, attention is hereby directed to the accompanying drawings forming part of this application and illustrating one embodiment of my invention. In the drawings Figure 1 represents a side elevation of a mold provided with one form of my invention, the mold being tilted to an extreme position; and Fig. 2 is a similar view with the mold in horizontal position, part of the construction being shown in section.

I have illustrated my invention as applied to the type of casting apparatus described in Patent 1,308,862, Pack and Nock, July 8, 1919, and A. G. Gutmueller, 1,300,723, April 15, 1919.

Referring to the drawings, the mold of plastic material is represented as comprising sections indicated at 1 and 2, having a plurality of mold cavities 3, 3 therein, together with an ingate 4. There may, of course, be any desired number of mold cavities connected together with the ingate by runs and branches in the usual manner. The mold thus formed is representing and resting upon a base plate 5 which may conveniently be formed of metal.

The mold is represented as provided with a supplemental member 6 adapted to rest upon the top of the upper mold section 1. Member 6 is provided with an upward extension 7, preferably at one end of the same, through which extends an ingate 8 adapted to be alined with the ingate 4 of the mold. The ingate 8 is preferably provided with a lining 9 of refractory material. If desired, the supplemental ingate 8 may be of greater diameter than the ingate 4 of the mold, or may be of greater diameter than the lower part of the ingate 4 to facilitate the separation of the clean metal from the dross.

In the form of apparatus illustrated, the mold sections are secured together and upon the base plate 5 by means of the clamping device described in Patent 1,300,723 referred to. As illustrated, the yoke 10 is secured at its lower end to the base plate 5, preferably by engagement of the lugs 11, which are secured to the two legs of yoke 10, with the horizontal grooves 12 formed on the side

ingate and providing a separable lever or

edges of plate 5. A screw 13 extends through the top member of the yoke and may be screwed into contact with the upper surface of the supplemental or top member

5 6 when the latter is in position on the mold. The base plate 5 is adapted to be mounted on a pair of supports, preferably sections of pipe 14 and 15. Plate 5 is provided with a downwardly extending bearing member 16, preferably in the form of a yoke, adapted to extend over the cylindrical support 14 and to pivotally support plate 5 and the mold thereon. Plate 5 is also preferably provided with a bearing lug 17 adapted to rest against the pipe section 15. The pivotal support 16 is preferably at one end of plate 5 in substantial alinement with the ingates 4 and 8, and the bearing lug 17 is located adjacent the opposite end plate 5, in position to bear upon support 15.

Some form of hand lever or readily operated manual means is provided for tilting plate 5 and the mold. This preferably takes the form of a rod 18 which may be secured to an end of plate 5 when the mold is to be poured. Rod 18 preferably has a member 19 secured to the upper surface thereof, member 19 having its inner end bent upwardly, as shown at 20, and then inwardly, as is shown at 21. When the hand member is to be used, the inner portion of bar 18 is pushed beneath plate 5 until the upwardly bent portion 20 of member 19 contacts against the end surface of plate 5, the inwardly extending portion 21 of member 19 engaging the upper surface of plate 5.

Hand member 18 is also preferably provided with a downwardly extending stop member 22 which may comprise a rod secured to member 18 and bent to extend downwardly therefrom at an angle. The lower end of rod 22 is curved, as is shown at 23, to engage the pipe section 15 when the mold is tilted upwardly into its extreme upper position.

With the device described, the mold being clamped on plate 5, the latter is tilted upwardly by means of handle member 18 until the curved end 23 of rod 22 engages support 15. The axes of ingates 8 and 4 are thereby located at an angle to the horizontal, which is considerably less than in their normal position. Preferably, the ingates are tilted into an angle of about 45° at the start of the pouring. Metal will accordingly flow through the same much more slowly than if the ingates were vertical, and the dross rises easily to the top of the molten metal. As the pouring continues and the metal moves upwardly through the mold cavities, the mold may be gradually lowered by hand until it is in the horizontal position indicated in Fig. 2 at the end of the operation.

It should be understood that my invention is not limited strictly to the form of

construction described, but is as broad as is indicated by the accompanying claims.

What I claim is:—

1. In a casting apparatus, the combination of a mold having a mold cavity arranged therein and a gate opening extending through the upper surface of the mold, a pivotal support for said mold beneath the same, a second support upon which said mold is adapted to rest, and a handle member adapted to extend from a side of said mold adjacent to said second support, by which the mold may be swung upwardly about said pivotal support, said handle member having a stop member secured thereto, adapted to engage said second support when the mold has been swung upwardly to a sufficient height.

2. In a casting apparatus, the combination of a mold having a mold cavity arranged therein and a gate opening extending through the upper surface of the mold, a pivotal support for said mold beneath the same, a second support upon which said mold is adapted to rest, lever means for swinging said mold upwardly about said pivotal support, and a stop member having a curved lower end adapted to engage said second support when the mold has been swung upwardly to a sufficient height.

3. In a casting apparatus, the combination of a mold having a mold cavity arranged therein and a gate opening extending through the upper surface of the mold, a bottom plate for the mold having bearing means adjacent one end, adapted to pivotally support the same on a cylindrical support, said plate having a bearing surface adapted to rest on a second support, adjacent the opposite end, and a handle member adapted to be inserted beneath the last named end of said plate, with an upwardly and inwardly extending portion adapted to engage the adjacent end and upper surfaces of said plate.

4. In a casting apparatus, the combination of a mold having a mold cavity arranged therein and a gate opening extending through the upper surface of the mold, a bottom plate for the mold having bearing means adjacent one end, adapted to pivotally support the same on a cylindrical support, said plate having a bearing surface adapted to rest on a second support, adjacent the opposite end, and a handle member adapted to be removably secured to the last named end of said plate to extend therefrom, said handle member having a downwardly extending rod attached thereto, said rod having a curved end adapted to engage beneath said second support to act as a stop to prevent excessive upward movement of said plate and mold.

5. In a casting apparatus, the combination of a mold having a mold cavity arranged therein and a gate opening extending through the upper surface of the mold, a

bottom plate for the mold having bearing means adjacent one end adapted to pivotally support the same on a cylindrical support, said plate having a bearing surface adapted to rest upon a second support adjacent the opposite end, and a handle member adapted to be removably inserted beneath the last named end of said plate to extend therefrom, said handle having a downwardly extending rod attached thereto, said rod having a curved portion adapted to engage beneath said second support to act as a stop to pre-

vent excessive upward movement of said plate and mold, said handle also having an upwardly and inwardly extending portion adapted to engage the adjacent end and upper surface of said plate.

This specification signed and witnessed this 7th day of June, 1920.

ROBERT GUTMUELLER.

Witnesses:

CHARLES E. CHAPPLE,  
HARRY B. GILLESPIE.