April 14, 1925. 1,533,734

O. GÖTZE

CHILL MOLD

Filed Jan. 3, 1924 2 Sheets-Sheet 1

Fig.1.

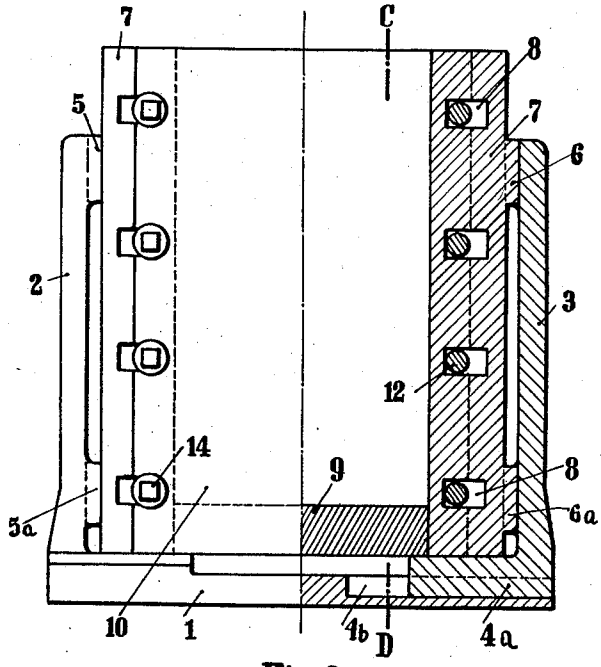


Fig.3.

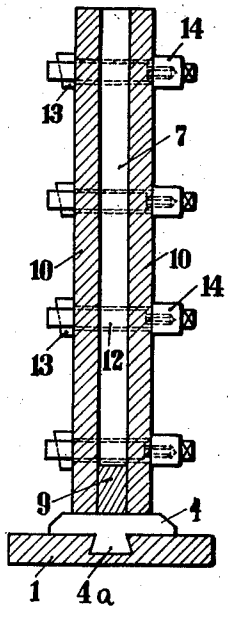


Fig.2

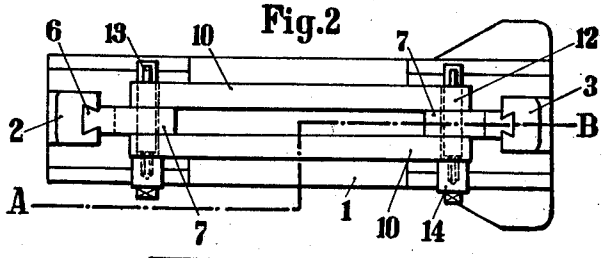


Fig.5.

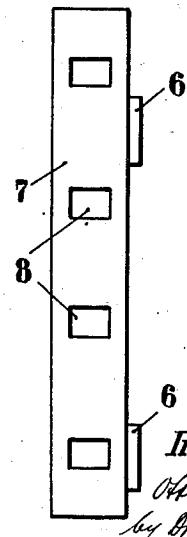
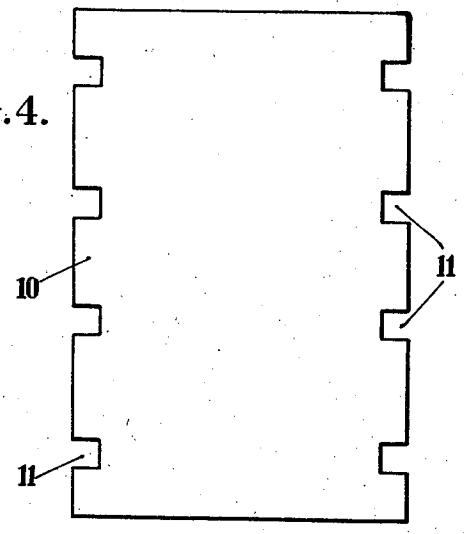


Fig.4.



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Fig. 6.

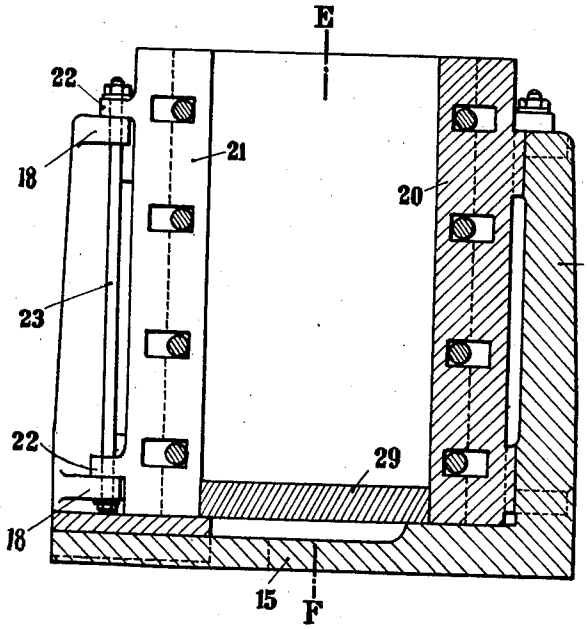
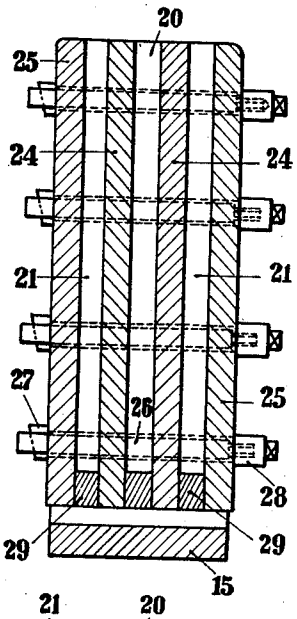


Fig. 8.



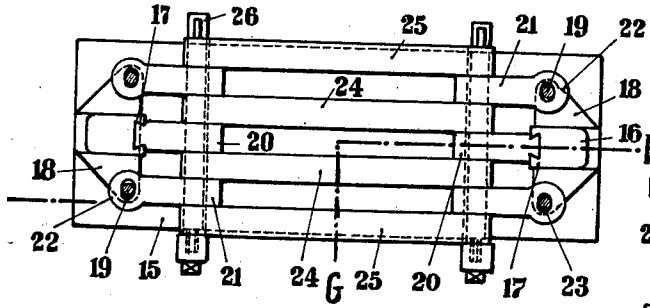


Fig. 7.

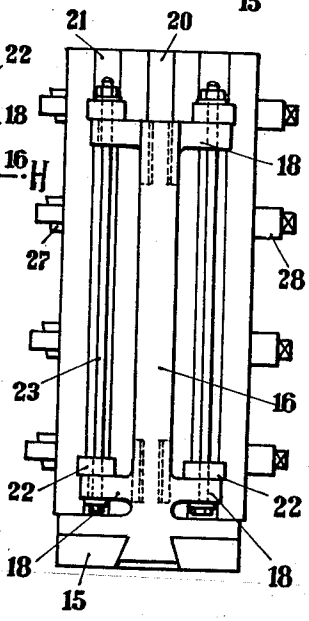


Fig. 9.

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UNITED STATES PATENT OFFICE.

OTTO GÖTZE, OF MESSINGWERK, NEAR EBERSWALDE, GERMANY, ASSIGNOR TO HIRSCH, KUPFER-UND MESSINGWERKE AKTIEN GESELLSCHAFT, BERLIN, GERMANY, A CORPORATION OF PRUSSIA, GERMANY.

CHILL MOLD.

Application filed January 3, 1924. Serial No. 684,147.

To all whom it may concern:

Be it known that I, OTTO GÖTZE, engineer, a citizen of the German Republic, residing at Steinfurterstrasse, Messingwerk, near Eberswalde, Germany, have invented certain new and useful Improvements in or Relating to a Chill Mold, of which the following is a specification.

My invention relates to chill molds; more especially it relates to a chill mold intended chiefly for casting ingots, plates, and the like, of brass or a similar alloy. Chill molds intended for this purpose require cleansing after every casting, and the residues adhering to the mold parts must be removed. For this purpose it has already been proposed to have the mold provided with detachable side-plates which can be removed completely from the other mold parts after every casting. The object of the present invention is to furnish a more convenient device than has heretofore been used, and one which can be used for casting ingots, plates, and the like of different thicknesses and heights. To this end the invention consists in the novel construction as will be hereinafter described.

My invention is illustrated by way of example in the accompanying drawings in which Figures 1–5 show a chill mold of my improved construction and Figures 6–9 show a modification thereof.

Figure 1 is partly a front-view of the mold and partly a vertical section thereof in line A—B of Figure 2.

Figure 2 is a plan of the mold.

Figure 3 is a vertical section in line C—D of Figure 1.

Figure 4 is an elevation of one of the detachable side-plates.

Figure 5 is an elevation of an intermediate member forming a part of the mold.

Figure 6 is an illustration similar to Figure 1 showing partly a front-view and partly a vertical section of the modification, the section line being G—H of Figure 7.

Figure 7 is a plan of this modification.

Figure 8 is a vertical section in line E—F of Figure 6.

Figure 9 is a side-view of this mold showing the left side thereof with respect to Figure 6.

Referring to Figures 1–5 the mold consists of a base plate 1 bearing a stationary column or standard 2 which may be integral with said base plate. A similar column or standard 3 is provided at the opposite end of the base plate and can be shifted, i. e. adjusted, therein. This column has a foot 4 provided at its bottom side with a dovetailed guide ledge 4^a which is shiftable in a corresponding guide-slot 4^b provided in the base-plate 1. The distance between the two columns or standards can, thus, be varied according to the requirement.

Each column or standard is provided with an upper guide ledge 5 and with a lower guide ledge 5^a, each having a dovetailed guide slot receiving a correspondingly shaped guide-ledge 6, or 6^a respectively, of vertical intermediate members 7, the thickness of which corresponds to the thickness of the plates to be produced in this mold. Each intermediate member 7 is provided with a plurality of quadrangular oblong holes 8 receiving each a bolt 12. Between the members 7 is arranged a horizontal ledge 9 supported on the base plate 1. The bolts 12 serve for connecting the intermediate members 7 with two equal vertical plates 10 having each at its vertical edges or rims as many recesses 11 as there are holes in said intermediate members. The arrangement of the bolts relatively to the members 7 and the plates 10 is illustrated distinctly in Figure 3. In this example each bolt has at one end a transverse slot receiving a wedge 13, and at the other end a thread receiving a cap nut 14. The plates 10 are firmly secured in place by means of said wedges and nuts. This having been done, the mold is ready for casting.

The casting having been effected, the bolts 12 are disconnected from the mold either by screwing off the cap nuts or by removing the wedges, whereby the plates 10 are released and can be removed so that also the cast plate can be removed from the mold. The plates 10 can then be cleansed very easily and conveniently by removing the adhering particles, whereafter the mold parts are again assembled for the next casting. But in again assembling the mold parts the plates 10 are turned over in such a manner that the other face of each thereof lies at the inside of the mold, and this change

takes place after every casting so that the two faces of each side plate are used alternately and the plates are prevented from being worn off on only one side, and from being affected by undue internal strains.

The intermediate members may be exchanged for thinner or thicker ones, as may also the horizontal bottom ledge 9, in order to cast thinner or thicker plates, and the column or standard 3 may be shifted towards, or away from, the column or standard 2 in order to vary the size of the plate to be made. These matters will be clear without further details in the drawing and in this specification.

Referring now to the modification illustrated in Figures 6–9, this mold is so devised that three plates can be produced at a time. There is also in this case a base-plate 15 having two standards or columns 16, of which one is shiftable or adjustable practically in the same manner as has been described with respect to Figures 1 and 3. There are, furthermore, also in this instance vertical intermediate members 20 which are equivalents to the members 7 of Figures 1 and 5. The standards 16 are provided with pairs of lateral lugs 18 having each an oblong hole and supporting additional intermediate members 21 arranged parallelly to the members 20. The additional members 21 are provided with ears 22 bearing on the lugs 18 of the standards 16, and long vertical bolts 23 extend through the ears 22 and the lugs 18, as shown in Figures 6 and 9. These parts form, thus, hinges for the vertical intermediate members 21.

There are in this case four side plates, viz, two plates 24 which are equivalents to the plates 10 of Fig. 4, and bear against the central intermediate members 20, and two plates 25 which bear against the additional intermediate members 21. The base-plate 15 supports three horizontal ledges 29 which are equivalents to the ledge 9 of Figs. 1–3. The holes 19 of the lugs 18 are oblong in order to permit the members 21 to give way if the plates 24 are, perhaps, unequally thick, or the members 21 are of different thickness for the purpose of casting a plate of another size.

The vertical members 20, 21 and the plates 24, 25 are held together by bolts 26 of the same kind as the bolts 12 of Figs. 2 and 3, only suitably longer. When the bolts have been removed, the plates 25 can be taken off the members 21, and these latter can be swung outwards on the bolts 28, whereafter also the plates 24 can be removed. Reassembling the parts proceeds, of course, in the reverse succession.

It is obvious that three plates can be cast at a time, and that the thickness and size of the plates can be varied in certain limits by shifting the shiftable standard and by exchanging the vertical ledges, as well as the horizontal ones, practically exactly as already described with respect to Figures 1–5. Cleansing the plates, etc., and removing adhering particles is effected, of course, also in just the same manner, and the outer plates are turned over after each casting, just as has been described with respect to the plates 10 of Figure 4.

It is further obvious that the mold can be devised for the casting of two plates or for more than three, and the structural details may be varied without departing from the spirit of the invention, thus, for instance, the dovetailed guide-parts may be replaced by guide-parts of another description and connecting the vertical ledges and the plates with each other may be effected by other means than by bolts. Also the means for attaching the vertical ledges to the standards may be other than those shown. But it is essential that a certain adjustability exists in order to be in the position to produce plates or ingots of various sizes by means of one mold. The examples illustrated in the drawings are intended for plates, but it is evident that the dimensions of the mold parts may be such that ingots instead of plates can be cast.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A chill mold, comprising, in combination, spaced detachable side-plates adapted to be reversed so as to have either face located at the interior of the mold; intermediate members adapted to close the gap between said plates and the sides; standards to which said intermediate members are detachably attached; a base plate bearing said standards; and means for connecting said plates and the intermediate members with each other.

2. A chill mold, comprising, in combination, pairs of spaced detachable side-plates adapted to be reversed so as to have either face located at the interior of the mold; pairs of intermediate members adapted to close the gaps between said plates and the sides; standards to which the outer members closing the gaps at the sides are hinged; a base plate bearing said standards, and means for connecting all said plates and said members with each other.

3. A chill mold, comprising, in combination, pairs of spaced detachable side-plates adapted to be reversed so as to have either face located at the interior of the mold; pairs of intermediate members adapted to close the gaps between said plates and the sides; standards to which the outer members closing the gaps at the sides are hinged; means adapted to permit a certain lateral movement between said standards and outer

members, a base plate bearing said standards, and means for connecting all said plates and said members with each other.

4. A chill mold, comprising, in combination, pairs of spaced detachable side-plates adapted to be reversed so as to have either face located at the interior of the mold; pairs of intermediate members adapted to close the gaps between said plates and the sides; standards to which the outer members closing the gaps at the sides are hinged; lateral lugs at said standards and oblong holes in said lugs; bolts extending through these holes and connecting the hinged ledges with the said standards; a base plate bearing said standards, and means for connecting all said plates and said members with each other.

5. A chill mold, comprising, in combination, spaced detachable side-plates adapted to be reversed so as to have either face located at the interior of the mold; intermediate members adapted to close the gap between said plates at the sides, standards adjustably arranged against each other, to which said intermediate members are detachably attached; a base plate bearing said standards; and means for connecting said plates and the intermediate members with each other.

6. A chill mold, comprising, in combination, spaced detachable side-plates adapted to be reversed so as to have either face located at the interior of the mold; intermediate members adapted to close the gap between said plates and the sides; a stationary standard and an adjustable standard to which said intermediate members are detachably attached, said shiftable standard being adjustable relatively to said stationary one; a base plate bearing said standards and having a guide for the said shiftable standard; and means for connecting said plates and the intermediate members with each other.

7. A chill mold, comprising, in combination, spaced detachable side-plates adapted to be reversed so as to have either face located at the interior of the mold; intermediate members adapted to close the gap between said plates at the bottom and the sides; standards to which said intermediate members closing the gap at the sides are detachably attached; a base plate bearing said standards; exchangeable horizontal ledges arranged between the said intermediate members closing the said gap at the bottom and being supported on said baseplate; and means for connecting said plates intermediate members, and ledges with each other.

In testimony whereof I have affixed my signature.

OTTO GÖTZE.