Nov. 1, 1949 O. H. SELKE 2,486,802

MOLD ANCHOR

Filed June 9, 1948

Fig. 1.

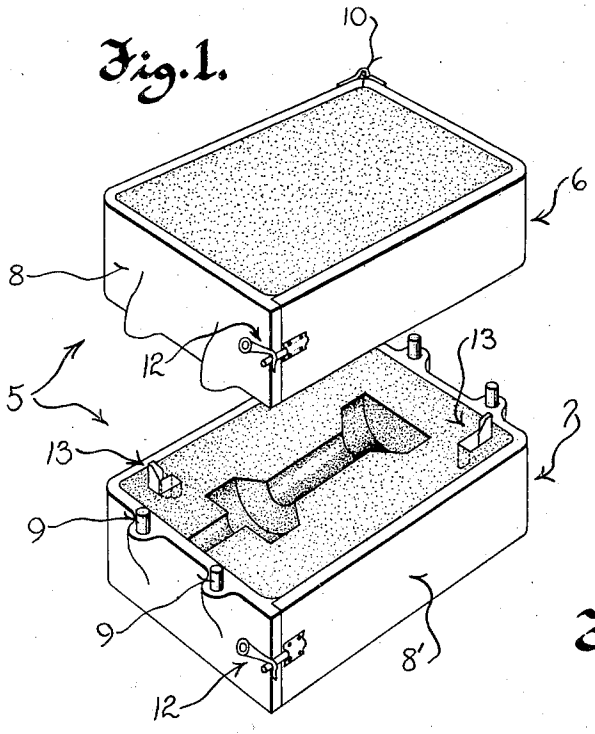


Fig. 2.

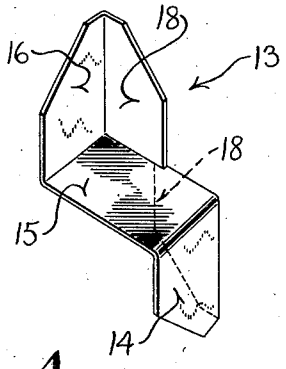


Fig. 4.

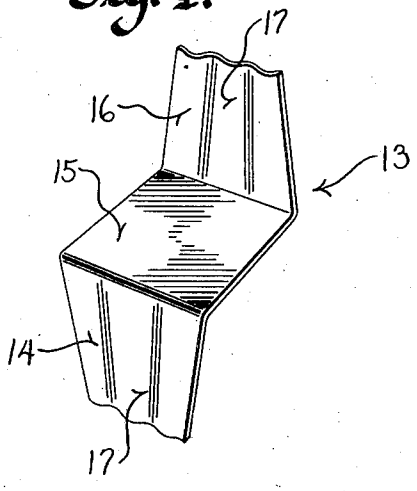
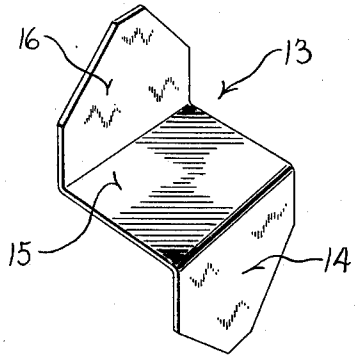


Fig. 3.



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MOLD ANCHOR

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1 Claim. (Cl. 22—129)

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This invention relates to foundry practice and refers more particularly to a means for anchoring the cope and drag, i. e. the upper and lower sections of a sand mold, against relative displacement.

In quantity production of sand castings it is customary to ram or pack the molds mechanically, and as soon as each mold has been prepared for the pouring operation the flask is removed therefrom so that the flask may be used for the preparation of another mold even before the first one has been poured. Thus only a relatively small number of flasks are required even though numerous molds are in use. This practice is particularly prevalent where the prepared molds are placed upon a conveyor belt to be poured in rapid succession.

When the flask is permitted to remain around the mold until the pouring operation is completed, lateral displacement or shifting of the cope with respect to the drag is entirely precluded by interengaging means on the cope and drag portions of the flask. However, when the flask is removed from the mold before the casting operation is performed the two parts of the mold are susceptible to lateral displacement along the parting plane in the course of placement of the mold upon the conveyor belt or as a result of bumping or joggling while the mold is being moved along the conveyor or during the pouring operation. This susceptibility is increased by the fact that the parting compound which is spread between the cope and drag portions of the mold is designed to preclude adhesion between the sand of the cope and drag, and the possibility of such displacement is further aggravated in the case of small molds because the weight of the cope is not sufficient to resist shifting as a result of bumps or jolts.

It is therefore an object of this invention to provide a simple and efficient device whereby displacement or shifting of the cope with respect to the drag along the parting plane of the mold is precluded, even though the flask has been removed from the mold elements.

Another object of this invention is to provide a device of the character described which is particularly easy to put into place when the mold elements are assembled preliminary to the pouring operation and which, by reason of its compactness, may be used with relatively small molds without danger of its intruding into the mold cavity.

Another object of this invention is to provide a simple device for the purpose described which

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may be readily stamped from light gauge sheet metal and thus produced in quantity at low cost.

With the above and other objects in view, which will appear as the description proceeds, this invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the hereindisclosed invention may be made as come within the scope of the claims.

The accompanying drawing illustrates one complete example of the physical embodiments of the invention constructed according to the best mode so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a perspective view of the cope and drag portions of a mold which has been prepared for pouring, with the mold anchors of this invention in place in the drag thereof; and

Figures 2, 3 and 4 are perspective views of three embodiments of the mold anchor per se.

Referring now to the accompanying drawing in which like numerals designate like parts throughout the several views, the numeral 5 designates generally a sand casting mold having the usual cope portion 6 and drag portion 7. Flask portions 8 and 8' surround the cope and drag respectively and serve to retain the sand in place during the ramming operation.

Dowel pins 9 on the drag portion 8 of the flask engage in mating wells (not shown) on the cope portion of the flask to retain the cope and drag portions assembled in proper relation to one another during the ramming operation and again during the pouring operation if it is desired to leave the flask in place.

However, in quantity production molding work, as pointed out above, the flask is frequently removed from about the mold before the casting operation is performed. To this end one corner of each portion of the flask is equipped with a hinge, as at 10, and the opposite corner thereof is separable and is secured with readily detachable fastening means 12.

In its simplest form the mold anchor 13 of this invention comprises a strip of relatively light material bent to substantially a Z shape as shown in Figure 3. After the ramming operation is completed and the pattern is removed from the sand, one leg 14 of the mold anchor is pressed into the sand of the drag until the center section 15 lies flat along the parting plane. When the cope and drag portions are reassembled, the other leg 16 is pressed into the sand of the cope.

The two parts of the mold are of course guided into accurate alignment by the engagement of the dowel pins 9 into mating wells in the cope portion of the flask, and when the flask is removed from around the mold the anchors, by extending into the two mold portions, securely retain the same against lateral shifting. It is of course understood that a suitable parting compound is spread over the top surface of the drag before the cope portion of the mold is formed.

In using the mold anchor of the Figure 3 embodiment four anchors are preferably employed, one at each corner of the mold, so disposed that the plane of the legs of the anchor in any one corner is at right angles to the plane of the legs of the anchors in the adjacent corners. In this way a relative shift of the cope and drag portions in opposite directions is positively prevented.

Where only two anchors can be employed the Figure 2 or Figure 4 embodiment is used.

In the embodiment of the mold anchor of this invention depicted in Figure 4, each of the legs 14 and 16 is longitudinally crimped, as at 17, to resist displacement of the anchor in the plane of the surfaces of the leg.

In the embodiment of the mold anchor shown in Figure 2 each leg of the anchor is provided with a flange 18 which is mutually perpendicular to the leg and to the medial portion 15 of the anchor. These flanges or wings 18 will positively resist any tendency toward displacement of the anchor in the plane of the main portion of its legs 16 and 14.

In all embodiments of the anchor the center section 15 plays an important part in the function of the anchor as a whole. In the first place, it insures that the anchor legs 14 and 16 will engage the cope and drag portions in substantially parallel relation and at right angles to the parting planes of the cope and drag portions. This of itself is a material aid in aligning the cope and drag portions and overcomes an obvious defect which would be present if mere straight strips piercing both the cope and drag portions were employed. In addition, the flat central section 15 serves as a means for utilizing the weight of the cope portion 6 to render the anchor more effective to prevent displacement.

From the foregoing description taken with the accompanying drawing it will readily be seen that this invention provides an extremely simple but efficient means for preventing shifting of the two parts of a sand casting mold with respect to one another even though the flask is removed therefrom to facilitate quantity production casting. The mold anchor of this invention is obviously extremely inexpensive in itself, and moreover can substantially reduce foundry costs by materially reducing scrap losses and grinding and machining costs resulting from shifted castings in production work.

What I claim as my invention is:

A two part sand casting mold comprising: a drag portion; a cope portion; and means for preventing relative lateral shifting between said cope and drag portions, said means including a flat plate of inconsequential thickness lying flatwise in the parting plane between the cope and drag portions, a leg extending upwardly from said plate into the sand of the cope, and another leg extending downwardly from said plate into the sand of the drag, said legs being rigidly attached to said plate so that the weight of the cope upon the plate substantially precludes tilting of the legs within the sand.

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