H. J. & T. H. GRAF.

MOLDING FLASK.

APPLICATION FILED MAY 12, 1910.

980,868.

Patented Jan. 3, 1911.

2 SHEETS—SHEET 1.

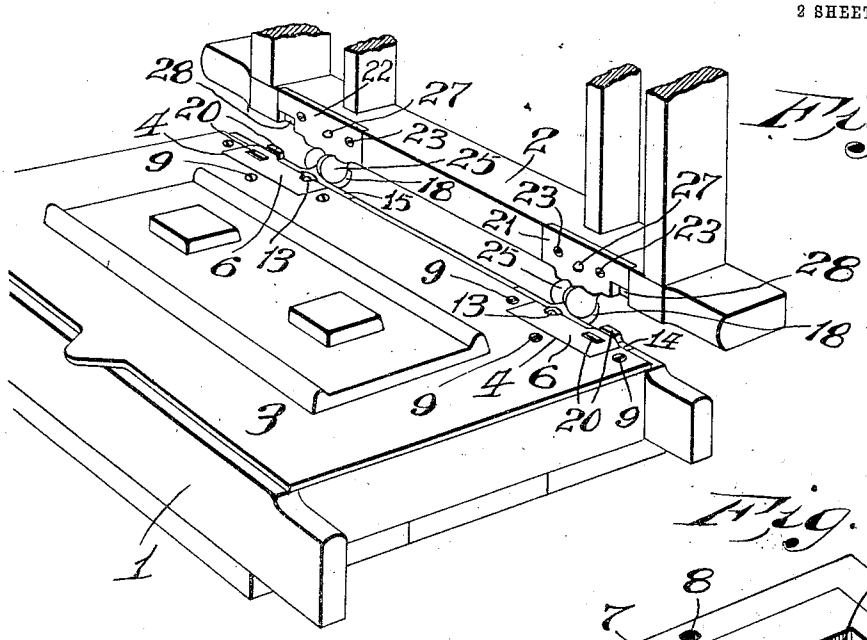

Fig. 1.

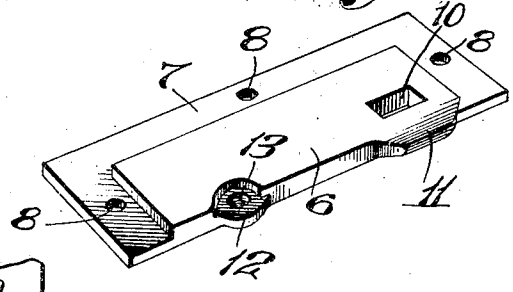

Fig. 2.

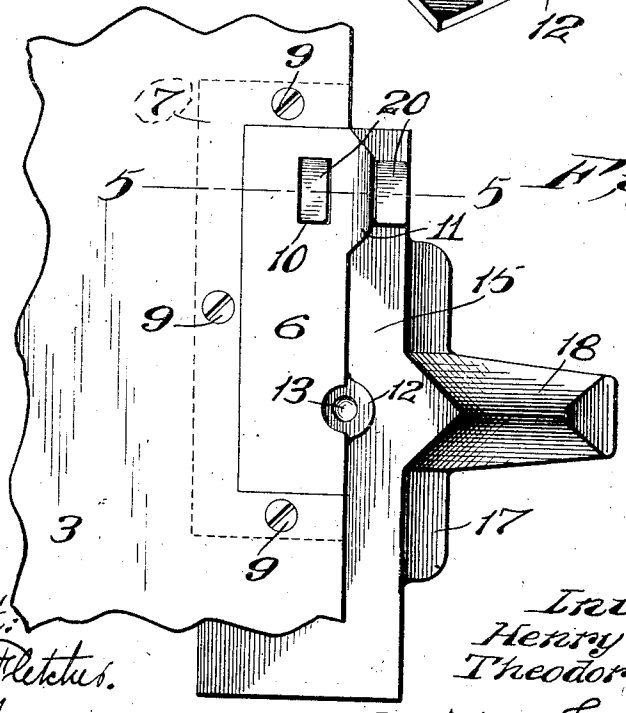

Fig. 3.

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Fig. 4.

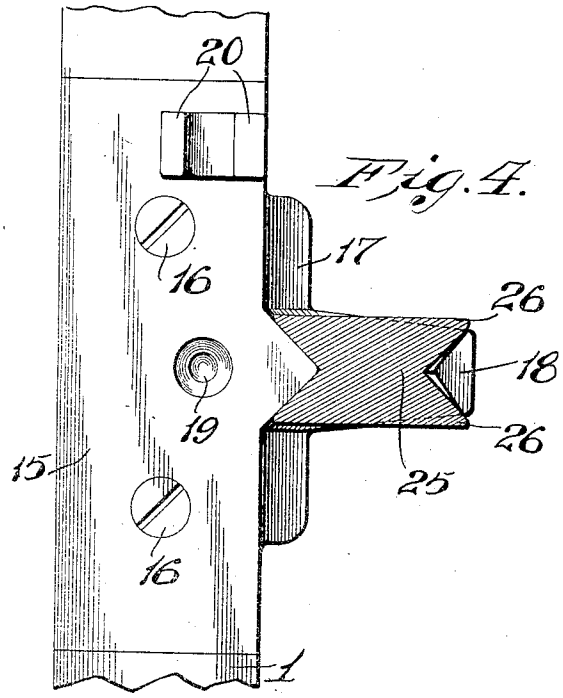


Fig. 5.

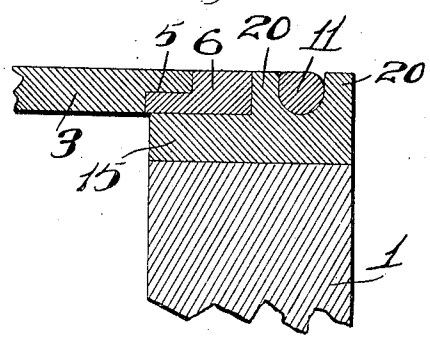


Fig. 8.

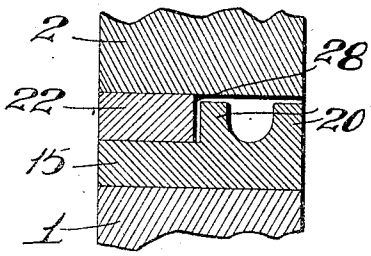


Fig. 6.

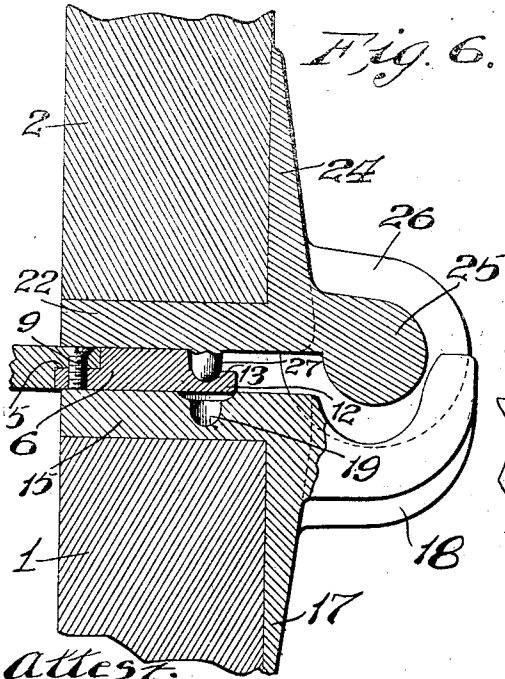
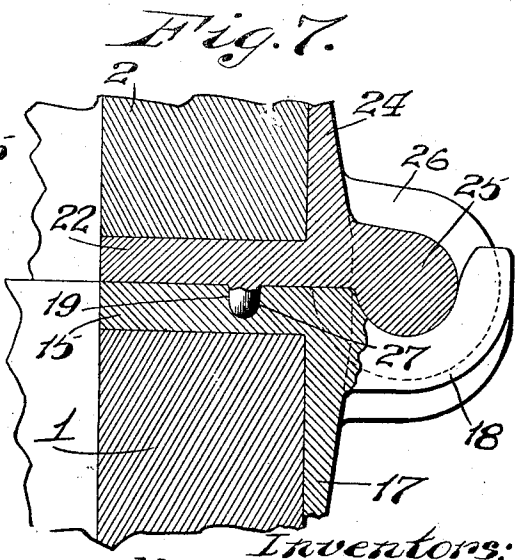


Fig. 7.



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UNITED STATES PATENT OFFICE.

HENRY J. GRAF AND THEODORE H. GRAF, OF LOUISVILLE, KENTUCKY.

MOLDING-FLASK.

980,868. Specification of Letters Patent. Patented Jan. 3, 1911.

Application filed May 12, 1910. Serial No. 560,812.

To all whom it may concern:

Be it known that we, HENRY J. GRAF and THEODORE H. GRAF, citizens of the United States, and residents of Louisville, Jefferson county, Kentucky, have invented certain new and useful Improvements in Molding-Flasks, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

Our invention relates to improvements in molding flasks and is particularly directed to the construction of the hinge members for the cope and drag as well as a hinge member for the match plate.

The primary object of our invention is to construct hinge members for the cope, drag and match plate which will permit of the rolling up of the cope and match plate, which hinge members are provided with guides for the purpose of directing the cope and match plate to perfect registering positions and which hinge members permit the ready withdrawal or removal of the match plate.

Heretofore in the molding of castings with match plates, the cope and the match plate were lifted or drawn from the drag and there were guide pins on the flask for the purpose of guiding the cope and the match plate to registering positions. This lifting or drawing the cope required some considerable skill on the part of the molder and if the flask was of any great size the molder required assistance, due to the weight of the cope.

For the above purposes our invention consists in certain novel features of construction and arrangement of parts as will be hereinafter more fully described, pointed out in the claims and illustrated by the accompanying drawings, in which:

Figure 1 is a perspective illustrating our improved hinges as applied to a flask, portions of the cope being removed, the cope being in an open position; Fig. 2 is a perspective of one of the hinge members for the match plate; Fig. 3 is a plan of the drag hinge member and a portion of the match plate showing the relative positions of parts with the cope removed; Fig. 4 is a plan similar to Fig. 3 with the match plate and its hinge removed and illustrates in section a portion of the cope hinge member; Fig. 5 is a transverse, sectional elevation taken on the line 5—5 of Fig. 3; Fig. 6 is a transverse, sectional elevation illustrating the hinge members as when employed with the match plate; Fig. 7 is a view similar to Fig. 6 with the match plate removed; and Fig. 8 is a transverse, sectional elevation of the cope and drag hinge members taken on a line through the journal bearing for the hinge plate of the match plate.

Referring by numerals to the accompanying drawings: 1 designates the drag which may be of ordinary construction.

2 designates the cope which may be of ordinary construction.

3 designates the match plate which is of ordinary construction except for the cut away portions 4, the margins of which cut away portions are reduced for approximately one half the thickness of the plate and which reduced margin is designated by the numeral 5.

6 designates the hinge members for the match plate which, in general appearance resemble, rectangular plates, the inner margin and both end margins of the hinge plate are reduced, which reduced portions are designated by the numeral 7 and which reduced portions are arranged to fit the reduced portions 5 of the match plate.

8 designates threaded apertures formed in the reduced portions 7, which are arranged to receive the screws 9, which screws are inserted through apertures formed through the reduced portions 5 of the match plate and seated in the apertures 8 to securely hold the hinge plates 6 in place.

In each of the hinge plates 6 there is formed a rectangular opening 10 and formed in alinement with the opening 10 there is a marginal extension 11, the edge of which marginal extension is preferably rounded.

12 designates an integral, semicircular marginal extension formed on each of the plates 6 adjacent the end of the plates opposite the marginal extension 11, the extension 12 being of less thickness than the plate 6 proper, the material of the plate, about its margin on top of the extension 12, being removed and the upper face of the extension 12 being provided with a depression 13.

The hinge plates 6 are exact counterparts of each other except for the arrangement of the parts to adapt them to right or left hand sides.

14 and 15 designate the body portions of the drag hinge members, the bases of which are substantially of the shape of rectangular plates which are secured to the side member of the drag by the screws 16, the heads of which are flush with the upper faces of the hinge members when fully seated.

Projecting downwardly from each of the plates 14 and 15 are the flanges 17, their inside faces being flush with the outside margins of the body portions, and formed integral with each of the flanges 17 is a bracket 18 which is in the form of a hook and being substantially semicircular with its upper faces V-shape in cross section. Formed in the face of each body portion in alinement with the hooks 18 are the depressions 19.

20 designates integral bosses formed on the upper faces of the plates 14 and 15 which are spaced slightly apart and which form a bearing for the journal formed by the marginal extension 11 of the hinge plate of the match plate, the body portions 14 and 15 together with the hooks 18 and bosses 20 forming the hinge members for the drag and are the exact counterpart of each other except for the location of the bosses 20.

21 and 22 designate the body portions of the hinge members for the cope which are secured to the cope by means of the screws 23.

24 designates marginal, up-turned flanges formed integral with the body portions, the inside faces of which are flush with the outside margins of the body portions 21 and 22.

25 designates the hinge member proper which is formed integral with the flanges 24, the body portion of which, as shown in Figs. 6 and 7, is substantially circular.

26 designates integral guides, the inside faces of which incline from the body portion 25 outwardly and are shaped to conform with the upper faces of the hooks 18.

On the end face of each of the body portions 21 and 22 and in alinement with the body 25 of the hinge there is a boss or guide pin 27 ararnged to seat in the depressions 13 formed in the hinge plates of the match plate or in the depressions 19 in the drag hinge members when the match plate is removed. As shown, each of the body portions 21 and 22 is cut away at 28 to form a space to accommodate the outermost bosses 20 carried by the drag hinges.

The flask, as described, is employed generally as the ordinary flask except for the lifting of the cope and match plate from the drag. In the ordinary flask the guide pins were employed to assure perfect registering of the prints of the patterns in both the cope and drag. When such pins were employed, as previously stated, it was necessary to lift the cope as well as the match plate which required two operators. With a flask having hinges, as shown, the cope may be rolled up and the match plate may be rolled up, there being guides both on the hinge members of the cope and drag as well as on the hinge members of the match plate to assure perfect registering of parts at all times, no other guiding means, such as pins in the ordinary flasks, being employed.

We claim:

1. In a molding flask, the combination with means for hingedly connecting the cope and drag, which means are provided with coöperating guides which assure registration of the cope and drag when placed in operative positions, a match plate detachably, hingedly connected with the hinging means of the cope and drag and a guide carried by the match plate arranged to coact with the other guides.

2. In a molding flask, a drag, hinge members secured to the drag, guides arranged on said hinge members, a cope, hinge members carried by the cope, guides on said hinge members, a match plate, detachable hinge members carried by said match plate and guides on said detachable hinge members which coöperate with the guides on the drag and cope hinge members for holding the parts of the mold in registration when closed.

In testimony whereof, we have signed our names to this specification, in presence of two subscribing witnesses.

HENRY J. GRAF.
THEODORE H. GRAF.

Witnesses.
WM. H. JOHNSTON,
C. J. GRAMIG.