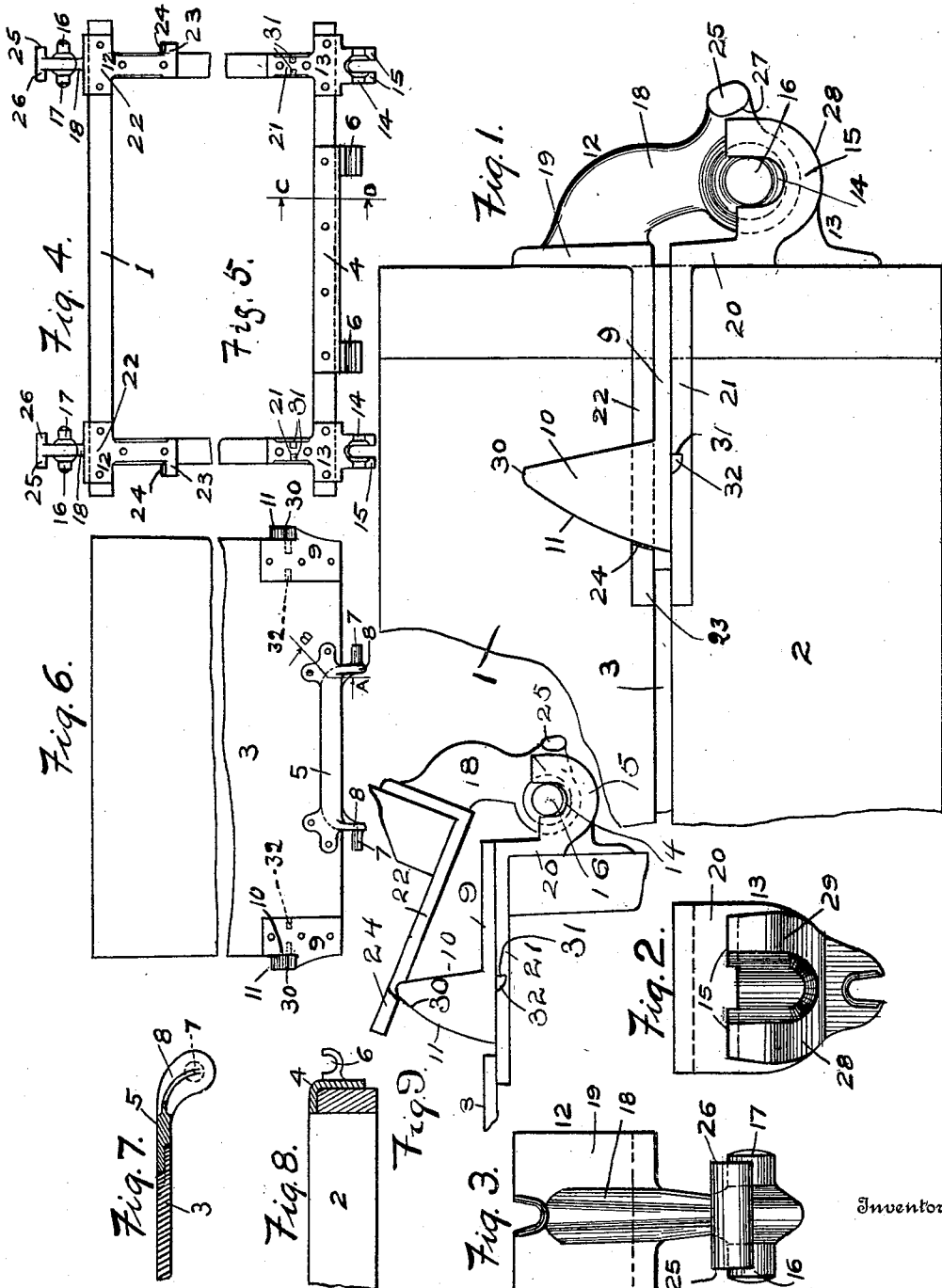


1,008,221.

Patented Nov. 7, 1911.



Witnesses
 Leon H. Gohmann
 T. Gerstner Jr.

Inventor
 Daniel T. Turney.
 By Mason Smith Lawrence,
 Attorneys

UNITED STATES PATENT OFFICE.

DANIEL T. TURNEY, OF NEW ALBANY, INDIANA.

MOLDER'S FLASK.

1,008,221.

Specification of Letters Patent.

Patented Nov. 7, 1911.

Application filed September 6, 1910. Serial No. 580,771.

To all whom it may concern:

Be it known that I, DANIEL T. TURNEY, a citizen of the United States, residing at New Albany, in the county of Floyd and State of Indiana, have invented certain new and useful Improvements in Molders' Flasks, and do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in molders' flasks, and more particularly to the hinged mechanism for that type of a flask with which match-plates are used.

The object of the present invention is to provide an improved hinge to co-act with the match-plate to prevent the jarring of the sand in the cope section of the flask when the same is hinged back to substantially a vertical position upon the drag.

A further object of the invention is to provide means upon the flask to prevent the dropping of the cope when the same is being raised until the mold therein has cleared the pattern on the top side of the match-plate.

A further object of the invention is to provide means upon the match-plate for gradually lowering the pintles upon the cope section of the hinge into an elongated bearing upon the drag section of same.

A further object of the invention is to provide a locking hinge upon the flask whereby the cope is locked to the drag against displacement when the cope is in a raised position.

A further object of the invention is to provide means upon the flask hinge for supporting the cope in a substantially vertical position upon the drag.

A further object of the invention is to provide upon the hinge, members for simultaneously locking and supporting the cope upon the drag in a raised position.

With these and other objects in view, the invention comprises certain novel constructions and arrangements of parts which will be hereinafter more fully described and claimed.

In the drawings Figure 1 is a fragmentary side elevational view of my improved flask and hinge, with the match-plate between the cope and the drag. Fig. 2 is a rear elevational view of the lower half of the cope

and drag hinge. Fig. 3 is a rear elevational view of the top half of the cope and drag hinge. Fig. 4 is a fragmentary inverted plan view of the cope showing the manner of attaching the top section of the cope and drag hinge to the cope. Fig. 5 is a top plan view of a portion of the drag, showing part of the drag hinge and a part of the match plate hinge. Fig. 6 is a top plan view of the match-plate showing the manner of attaching the top section of the match-plate hinge, and the members for steadying the cope when the same is being raised to a substantial vertical position upon the drag. Fig. 7 is a sectional view taken on line A.—B. of Fig. 6. Fig. 8 is a view in vertical section, taken on line C.—D. of Fig. 5. Fig. 9 is a detail view showing the cope raised from the drag.

Referring to the drawings by numerals, 1 represents the cope, 2 the drag and 3 the match-plate. Secured to the drag 2 is the bottom section 4 of the match-plate hinge, and to the match-plate 3 is secured the top section 5 of the hinge. The hinge section 4 is provided with a pair of bearings 6 which are adapted to receive the pintles 7 of the top section 5 of the hinge. To prevent the match-plate 3 from shifting sideways upon the drag 2, the hinge section 5 is provided with extension members 8, which support the pintles 7, and engage the inner ends of the bearings 6. The top faces of the hinge sections 4 and 5, are made flush with the top faces of the drag 2 and match-plate 3 respectively, to allow the match-plate to lie flat on the drag, and the cope to lie flat on the match-plate.

Secured to the match-plate 3 at the two rear corners thereof and flush with the top are plates 9, having outwardly extending and up-standing curved lugs 10. The lugs 10 are provided with curved faces 11, the purpose of which will be described later.

The match-plate 3 is usually made of aluminum and cast integral with and upon each side thereof, are the patterns (not shown) from which the finished castings are made.

Secured to the cope and counter-sunk into the material of same are the top sections 12 of the cope and drag hinges and counter-sunk into the drag 2, are the bottom sections 13 of the same hinges. The walls of the elongated openings 14, (formed in extension

members 15,) serve as bearings for the pintles 16 and 17, which extend at right angles from the sides of a downwardly projecting member 18 upon the hinge section 12. The end of the downwardly projecting member 18 is positioned between the spaced extensions 15 and is free to move therein as the pintles 16 and 17 are moved up and down by raising and lowering the cope from its two extreme positions with respect to the drag. The downwardly extending member is preferably cast integral with the vertical plate 19 of the hinge section 12, and the extension member 15 is preferably cast integral with the vertical plate 20 of the hinge section 13. The hinge section 13 is provided with a horizontal extension plate 21, which is connected to and set in flush with the top faces of the side members of the drag as shown in Figs. 1 and 5.

The hinge section 12 is provided with a longitudinally extending plate 22, which is connected to and set in flush with the bottom faces of the side members of the cope, as shown in Figs. 1 and 4. Extending outwardly from the inner ends of the plate member 22 is a projection 23, having a curved surface 24, the curvature of which is the same as the curvature of the curved surface 11, on the lug 10, the curve in each case being the arc of a circle having a common center.

One of the advantages of the lug 10, is to permit the pintles 16 and 17 to pass to the bottom of the elongated opening 14, only after the cope has been raised to a position of substantially 45° with respect to the drag. At that time the mold will have cleared the pattern, and the former will not be in danger of injury. The distance between the lower portion of curved surface 11 and the bottom of the socket 14 is not sufficient to permit pintle 16 to reach its lowest point when the cope is in its closed position. Another advantage of the lug 10 is to permit the pintles 16 and 17 to pass to the bottom of the elongated openings 14, gradually, instead of dropping suddenly. This is accomplished by the curved surfaces 24 frictionally engaging the curved and cam-shaped surface 30 at the top of the lug 10, when the pintles 16 and 17 are descending into the elongated openings 14.

To provide means for locking the cope to the drag when the former is in a raised position, a pair of lugs 25 and 26 are cast integral with the downwardly projecting member 18, the lugs being provided with convex surfaces 27, which engage the curved surfaces 28 and 29 on the bottom half of the hinge when the cope is in a raised position upon the drag. With the cope in this position the lugs 25 and 26 wedge against the bottom of the extension members 15, and prevent the cope either from being thrown

back of a substantially vertical position upon the drag, or from being lifted therefrom. This wedging operation is facilitated by the fact that portions of the curved surfaces 27 and 28 tend at all times to converge, as shown in Fig. 1, being disposed tangentially.

In raising the cope upon the drag considerable pressure is brought to bear against the lug 10 through the medium of the circular projections 23. This pressure tends to shift the match-plate upon the drag. To overcome this tendency notches 31 are formed in the members 21, into which project lugs 32 carried by the plates 9, which are secured to the match-plate 3.

In the operation of my improved flask, the drag is placed upon the match-plate with the bottom side up, and with one half of the pattern extending into the drag. The drag is then filled with sand which is rammed around the pattern in the usual way. The drag is then inverted with the match-plate, and the cope placed upon the match-plate and filled with sand and rammed in the usual way. Before removing the match-plate from the flask, the cope is raised on its hinges and at the same time the curved surface 24 engages the curved surface 11, and by this means the pintles 16 and 17 are held against descent until the mold in the cope has cleared the pattern on the top side of the match-plate, at which time the pintles are permitted to gradually descend to the bottom of the elongated bearing by the action of the curved surfaces 24 in engagement with the curved surfaces 30 at the top of the lugs 10. After the cope has reached its extreme rearward position, graphite or other suitable material is sprinkled into the mold for "printing" later on. The match-plate is then raised on its hinges, the bottom sections of which are secured to the drag and the top sections to the match-plate, as shown in Figs. 5 and 6 respectively. Graphite or other suitable material is then sprinkled into the mold in the drag, and the match-plate then returned to its original position as shown in Fig. 1 to "print" the bottom half of the pattern. The cope is then raised again to allow the match-plate to be raised and removed from the flask entirely, at which time the cope is returned to a horizontal position upon the drag, and the flask is then ready for pouring.

What I claim is:

1. The combination, with a flask comprising a cope and drag, of a match-plate positioned between said cope and drag, hinge sections carried by said cope and drag, an elongated opening formed in said drag section, pintles carried by said cope section and being normally positioned at the top of said openings and means including an up-standing member having an arc-shaped surface merging at one end into a cam-shaped

cope-retarding surface carried by said match-plate and said cope to prevent said pintles from dropping into said elongated opening while said cope is being raised until said cope has reached a position of substantially 45° with respect to said drag.

2. In a molding flask, the combination with the cope and drag portions thereof, of a match-plate positioned between said cope and drag, a hinge mounted on said flask, pintles carried by said hinge and means including an up-standing member having an arc-shaped surface merging at one end into a cam-shaped cope-retarding surface carried by said match-plate and said hinge for governing the movement of said pintles when said cope is raised on said drag.

3. In a molding flask, the combination with the cope and drag portions thereof, of a match plate connected with said flask, a hinge mounted on said flask and consisting of top and bottom sections secured to said cope and drag respectively, an elongated opening formed in said bottom section, pintles carried by said top section, said pintles being positioned in said elongated opening and means including an up-standing member having an arc-shaped surface merging at one end into a cam-shaped cope-retarding surface carried by said match-plate and said top section for governing the movement of said pintles in said elongated opening.

4. In a molding flask, the combination with a drag, a movable cope and match-plate, of a hinge carried by said flask and means including an up-standing member having an arc-shaped surface merging at one end into a cam-shaped cope-retarding surface carried by said match-plate for governing the movement of said hinge when said cope is moved.

5. In a molding flask, the combination with a drag, cope and match-plate, of a hinge formed in two sections, one section carried by the cope and the other section carried by the drag, the cope section having pintles mounted thereon and the drag section having elongated openings formed therein for receiving said pintles and means including an up-standing member having an arc-shaped surface merging at one end into a cam-shaped cope-retarding surface carried by said match-plate and said cope section for governing the movement of said pintles in said opening when said cope is moved on said drag.

6. The combination with a flask comprising a cope and drag, of a match-plate adapted to be arranged between said cope and said drag, hinge sections on said cope and said drag adapted to engage one another, pintles carried by said cope section, means carried by said drag section to allow said pintles to move up and down and means including an up-standing member having an

arc-shaped surface merging at one end into a cam-shaped cope-retarding surface carried by said match-plate and said cope section for governing the movement of said pintles.

7. The combination, with a flask comprising a cope and drag, of a match-plate connected with the cope and drag, hinge sections carried by the cope and drag, means carried by the sections for permitting of an up and down movement of the cope section with respect to the drag section and means including an up-standing member having an arc-shaped surface merging at one end into a cam-shaped cope-retarding surface carried by the match-plate for governing the up and down movement of the cope section.

8. A molder's flask comprising a cope and drag, a match-plate hinged upon said drag, hinge sections carried by said cope and drag independently of said match-plate hinge, an elongated opening formed in said drag section, a pintle carried by said cope section, said pintle being normally positioned in said opening, a curved projection carried by said cope section and adapted to engage an up-standing lug having an arc-shaped surface merging at one end into a cam-shaped cope-retarding surface, and carried by said match-plate for governing the movement of said pintle in said opening when said cope is raised or lowered upon said drag.

9. In a molding flask comprising a cope and drag, hinge sections mounted upon said cope and drag and adapted to engage one another, and means including a plurality of curved members the surfaces of which are disposed tangentially, said members being carried by said hinge sections for locking the sections together when the cope is raised to an angle of substantially forty-five degrees with respect to the drag and for simultaneously unlocking the sections, when the cope is lowered to a position below said angle.

10. The combination, with a flask comprising a cope and drag, of a hinge secured to said cope and drag and formed in two sections, means including a plurality of curved members the surfaces of which are disposed tangentially, said members being carried by said hinge sections for locking the sections together when the cope is raised above an angle of substantially forty-five degrees with respect to the drag and for simultaneously unlocking the sections when the cope falls below said angle, and means for limiting the backward movement of the cope with respect to the drag.

11. In a molding flask, the combination with the cope and drag portions thereof, of a match-plate positioned between said cope and drag, a hinge comprising two sections, one section being secured to the cope and one to the drag, pintles carried by the cope

70

75

80

85

90

95

100

105

110

115

120

125

130

section, an elongated opening formed in the
drag section and adapted to receive the pin-
tles, means carried by said match-plate and
the cope section of said hinge for governing
5 the movement of the pintles in the elongated
opening and means carried by the sections
for automatically locking and unlocking the
same during the passing of the cope

through an obtuse angle with respect to the
drag.

In testimony whereof I affix my signature
in presence of two witnesses.

DANIEL T. TURNEY.

Witnesses:

LEON H. GOHMANN,

WM. J. RECEVEUR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."