

S. D. ROBINSON.
MOLDING FLASK SLIDING HINGE.
APPLICATION FILED JULY 25, 1910.

975,159.

Patented Nov. 8, 1910.
2 SHEETS—SHEET 1.

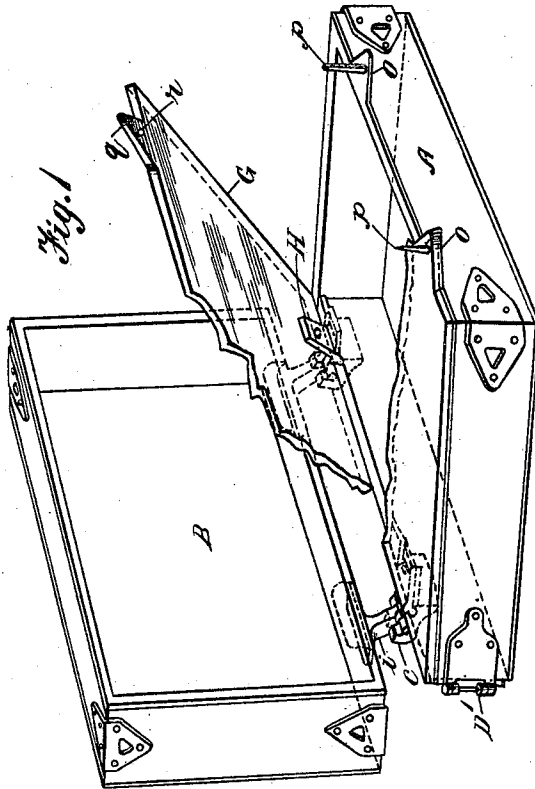


Fig. 1

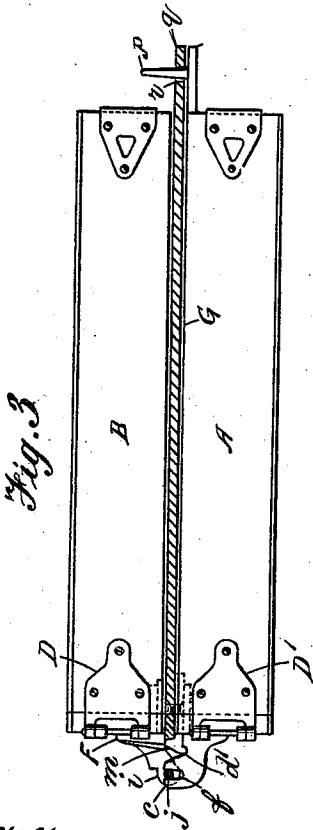


Fig. 3

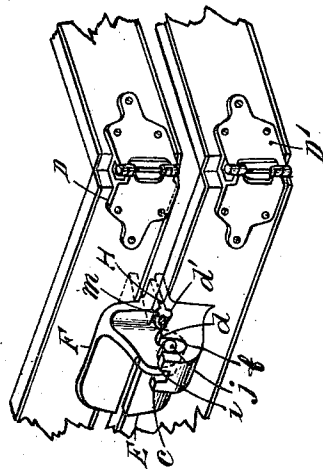


Fig. 2

Witnesses.

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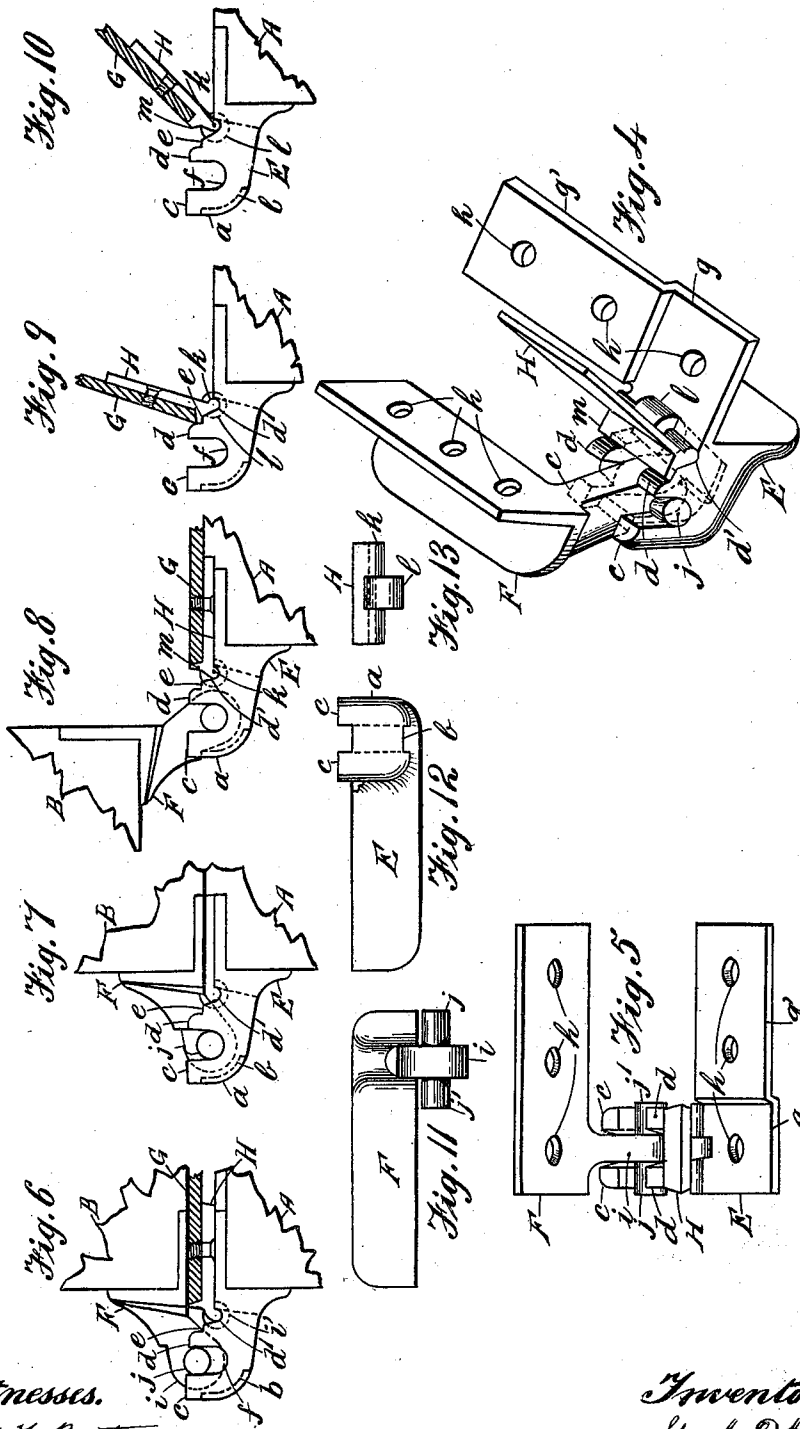
Stanley D. Robinson,
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

STANLEY DENNIS ROBINSON, OF HAMILTON, ONTARIO, CANADA.

MOLDING-FLASK SLIDING HINGE.

975,159.

Specification of Letters Patent.

Patented Nov. 8, 1910.

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To all whom it may concern:

Be it known that I, STANLEY DENNIS ROBINSON, a citizen of the Dominion of Canada, residing at No. 34 Charlton avenue, East, in the city of Hamilton, county of Wentworth, in the Province of Ontario, Canada, have invented a new and useful Molding-Flask Sliding Hinge; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same.

The invention relates to an improvement in molding flask hinges which are specially adapted for molding from match patterns, and also equally adapted for ordinary molding patterns.

The object of the invention is to enable the two parts of a molding flask to fit rigidly yet easily, be true and accurate, with no liability of the pattern plate moving or part of the flask shifting.

A further advantage is that the cope part of the flask can be lifted off the lower part without the liability of any side shifting, the pattern plate removed without abrading the mold and the plate can be returned to face print the mold without skilled labor.

A further object is that thin or thick pattern plates can be equally used to advantage with the improved hinge.

The device consists of three hinge parts one part secured to the cope of the flask one part secured to the nowel, both of peculiar construction and operation as will be fully shown hereinafter, and one part attached to the molding pattern plate.

Reference being had to the accompanying drawing,—Figure 1, is a perspective view of two parts of a molding flask and hinges attached thereto. Fig. 2, is a perspective view of two parts of the flask broken away, showing one hinge and corner fastening. Fig. 3, is a side view of flask and pattern plate between them. Fig. 4, is an enlarged perspective view of the several parts of the hinge, detached. Fig. 5, is a slightly perspective view from the front of the three parts of the hinge. Fig. 6, is a side view of the hinge and pattern plate between the two parts of the flask, which shows only the corners broken away. Fig. 7, is a similar view showing the pattern plate removed. Fig. 8, is a similar view showing the cope or top part of the flask open, or standing upright with the section of the pattern plate,

on the lower part of the flask. Fig. 9, is an end view of the lower part of the hinge and small hinge plate which is bolted to the pattern plate. Fig. 10, is a similar view showing the end of pattern plate in position to be withdrawn. Fig. 11, is a rear view of upper part of the hinge attached to the cope. Fig. 12, is a rear view of the lower portion of the hinge attached to the nowel. Fig. 13, is a rear view of the middle portion of hinge attached to the pattern plate.

Similar letters refer to similar parts throughout the several views.

In the drawing A, Fig. 1, represents the nowel or under section of a molding flask, B, represents the cope or upper part of the flask, G, represents a molding or match pattern plate to form a mold in the flask.

D, is a metal hinge plate fastening for a corner of the cope. D', is a similar device for a corner of the nowel or under part of the flask, which allows both parts to be opened out sidewise when desired, but upon which nothing is claimed.

The peculiar feature of the invention is in the construction of the hinge that unites the two parts of the flask and the section that is secured to the match plate which is made to intervene between the two parts of the hinge, all of which may be described as follows. The female portion of the hinge, E, is attached to the nowel, A, or under portion of the flask, one near each end, and the same being formed with a projecting lug, *a*, through which is a vertical opening, *b*, the use of which will be shown hereinafter. The walls on each side of the said central opening, *b*, extend upward in four projections, two outer ones, *c, c*, and two inner ones, *d, d*, the latter having a notch, *e*, formed on their inner side, the use of which will be shown hereinafter. Between the outer projections, *c, c*, and the inner ones, *d, d*, a vertical recess, *f*, is formed half circular at the bottom and behind the inner projections, *d, d*, a similar but smaller rounded recess, *d'*, is formed the use of which will be shown hereinafter. The rear portion of the said hinge has a flat recess, *g*, which forms a bed for the reception of that part of the double hinge attached to the match plate, G, which will be more fully described hereinafter, and a shank, *g'*, extending at right angles to the recessed portion, *a*, containing holes, *h*, to receive screws

by which to fasten the hinge to one section of the flask.

The upper or male portion of the hinge, F, consists of a plate with screw holes, by which to fasten it to the cope of the flask and a projection, *i*, at right angles thereto, terminating in a rounded projection *j*, on each side of the same as shown at Fig. 11. When the upper and lower parts, E, F, of the hinge come together the projection, *i*, of the top one enters the central opening, *b*, in the lower one, and the rounded or cylindrical projections, *j*, *j*, on the sides of the projection, *i*, rest in the vertical recess, *f*, in the lower half, E, as shown at Figs. 4, 5, 6, 7 and 8.

The match plate, G, which forms the mold is made to extend to the outer limits of the flask, and has attached thereto two small hinge plates, H, (which may be secured to the said match plate by screws or cast integrally with it), and the said hinge plates are placed on the match plate, G, so as to fit on the lower part, E, of the hinge. The outer end of the said plate, H, is formed in cylindrical shape, *k*, as shown at Figs. 6, 7, 8, 9, and 10, and is intended to fit in a rounded recess, *d'*, in the under half, E, of the hinge, and in the center of the outer end of the said plate, H, a circular projection, *l*, is formed, which enters the rear end of the large opening, *b*, in the under half, E, of the hinge, and impinges on the walls of the rear projections, *d*, *d*, of the same which prevents any side movement of the match plate, when in the flask, and also when withdrawing the match plate from the mold.

A raised rib or flange, *m*, is formed on the upper side of the said plate, H, above the cylindrical part, *k*, which is for the purpose of engaging with the notch, *e*, in the under portion E, of the hinge, to prevent the match plate, G, from coming in contact with the mold impression in the cope, B, of the flask, when the match plate, G, is to be withdrawn from the sand in the nowel or lower half, A, of the flask. The nowel or under side of the flask, A, has two extension lips, *o*, *o*, with a vertical pin, *p*, attached to each, and the match plate, G, has two corresponding lips, *q*, *q*, on its outer front edge immediately opposite to the corresponding extension lips, *o*, in the nowel, A, each provided with a hole, *r*, for the pins, *p*, *p*, to enter and hold the front of the match plate from shifting between the two portions of the flask.

Fig. 3, shows the upper and lower sides of a flask with the match-plate, G, between them, and one extension, *q*, with pin, *p*, passed through the hole, *r*, in the lug, *q*, of the match plate. It will be seen that when the match-plate, G, is between the two portions of the flask, A, B, the circular projecting bearings or axles, *j*, *j*, of the male por-

tion, F, of the hinge, are at the top of the vertical rounded bottom recess, *f*, in the lower half, E, of the hinge, as shown in Figs. 2, 3, and 6, and when the match plate is withdrawn and the cope, B, swung on to the nowel, A, they come close together and the said projections, *j*, *j*, are automatically lowered into the rounded bottom of the recess, *f*, as shown at Figs. 4, 7, and 8.

When the two parts of the flask are filled with molding sand the match-plate being between them, the sprues being placed in the ordinary manner, and the match-plate ready for withdrawal, the cope, B, is raised perpendicularly on the hinges E, F, the projections, *j*, *j*, of the upper half operating in the recesses, *f*, of each lower half, E, of the hinge, as seen in Fig. 6, the front of the match plate, G, is then raised to an angle, its hinge projections, *k*, and *l*, of the attached plate, H, resting in their respective recesses *f*, and *d'*, as seen in Fig. 9, the mold is then faced with the necessary facing and the match-plate, G, lowered into the mold (to cause a bright faced casting) and printed with the same, then afterward raised again at a certain angle as seen at Figs. 1, and 10, and in that slanting position, drawn forward without disturbing the mold, the double hinge keeping it from sliding side or end wise until it is entirely free from the mold. It will further be observed that after the match-plate, G, is removed from the mold the cope closes down square on the nowel as in the ordinary method of molding, and fills up the space occupied previously with the match-plate, leaving the mold intact ready for pouring in the molten metal. It will further be seen that both parts of the flask can be reversed that is to say the nowel, A, can be on top of the cope and lifted up when necessary just the same as it is shown with the cope on the nowel. It will further be seen that one of the principal features of the invention is the adaptability of the two main parts of the hinge, E, E, to the two parts of the flask when the matched plate, G, is between them and when it is removed from the flask in one case when the cope, B, is closed down on the matched pattern, G, the circular ends, *j*, *j*, of the hinge portion, on the lug, *i*, are at the top portion of the recesses, *f*, in the lower half of the hinge and descend to the bottom of the same when the cope is lifted upward.

To render the features of the invention still more clear so as to be thoroughly understood by any one skilled in the art, it will be seen that the essential nature of the improved hinge, is the fact, that the pivot axles, *j*, *j*, of the male portion of the hinge, F, are contained in the vertical recess, *f*, of the female portion, E, of the hinge and are capable of sliding vertically therein and operate equally well when the match plate is in

the flask, when the said pivot axles, *j, j*, are at the top of the recess. When the upper part of the flask is open and the pivot axles, *j, j*, slide down to the bottom of the recess, *f*, to withdraw the match plate, *G*, the circular projection, *i*, between the said pivot axles, *j, j*, operating in the other recess, *b*, of the female part, *E*, of the hinge effectually prevents any lateral displacement of the two parts of the flask. At the same time the cylindrical portion, *k*, of the plate, *H*, attached to the match plate operating in the rear recess, *d'* of the female portion of the hinge *E*, and the central circular shaped projection, *i*, on the said plate operating in the recess, *b*, of the female part of the hinge, *E*, effectually prevents lateral displacement of the match plate, either in the mold or withdrawing from the same.

Having thus described the device and its advantages, what I claim and desire to secure by Letters Patent, is.

1. A double hinge for molding flasks comprising a female portion secured to one half of the flask and constructed with a projecting lug extending outward and upward, a central vertical opening through said lug, a vertical recess formed in the side walls on each side of the central opening, a male portion of the hinge formed with a circular shaped downwardly projecting lug for insertion into the central vertical opening, and a cylindrical axle bearing attached on each side of the lug to operate in the aforesaid recesses of the female portion when the matched pattern plate is between the two portions of the flask, or withdrawn from

the flask, substantially as set forth and for the purpose specified.

2. A double hinge for molding flasks with matched pattern plates, comprising a female portion secured to one half of a flask and constructed with a projecting lug extending outward, and upward, a central opening through said lug, an upright recess formed in the side walls on each side of the central opening, a notch formed in the rear of the back projections and a half circular recess formed in the rear of the said projections, a male portion of the hinge formed with a projecting lug, and a circular shaped axle or bearing on each side of it to operate in the said vertical recess in the female die, a hinge plate attached to the match-plate, formed with a cylindrical shaped end to operate in the small recess in the female part of the hinge, and a round projection made to extend into the central opening of the female portion of the hinge, and an upwardly extended rib or flange formed near the outer end of the said hinge plate to engage with the notches in the rear projections of the female part of the hinge, to prevent the match plate from coming in contact with the cope when it is raised previous to withdrawing the match-plate from the mold substantially as and for the purpose described.

Signed at Hamilton, Ontario, this 20th day of July, 1910.

STANLEY DENNIS ROBINSON.

In the presence of—

ALFRED T. BRATTON,
WM. BRUCE.