C. TRUESDALE.

Molders' Flasks.

No. 138,960. Patented May 13, 1873.

Fig. 1.

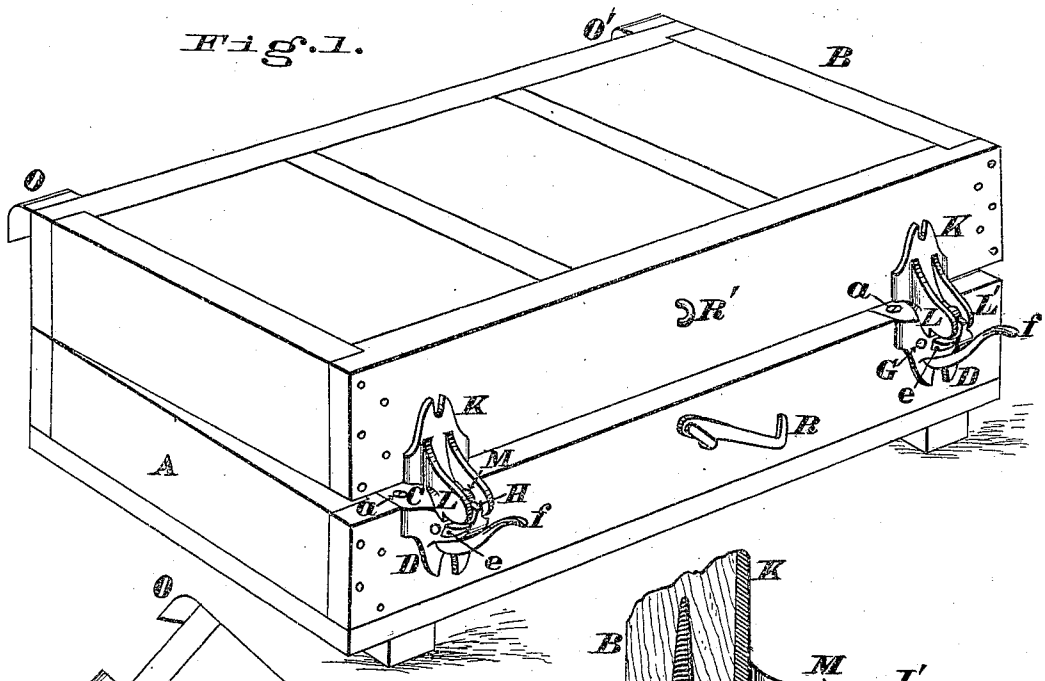


Fig. 2.

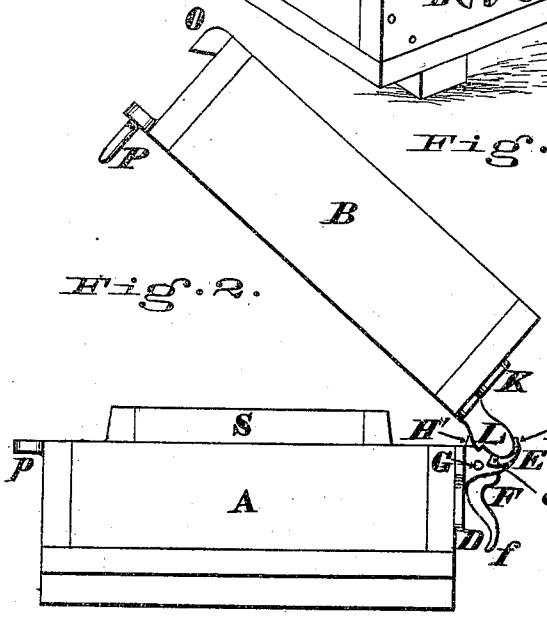


Fig. 3.

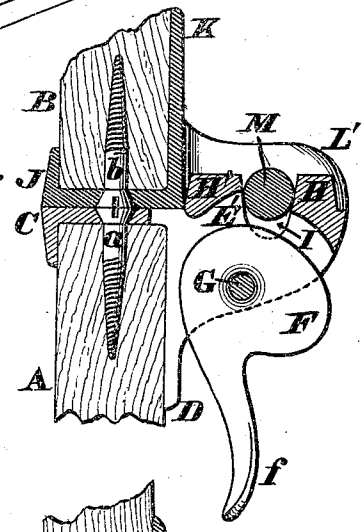


Fig. 4.

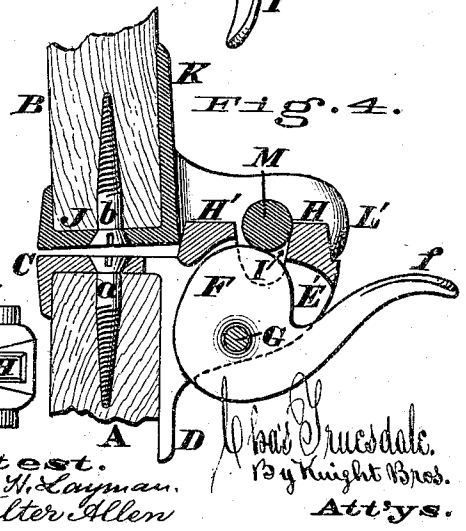


Fig. 5.

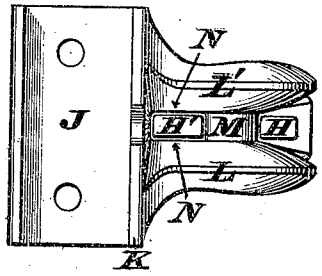
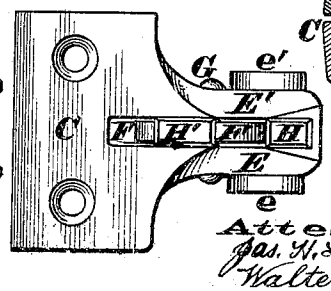


Fig. 6.



Attest.
Jas. H. Layman.
Walter Allen

Chas. Truesdale.
By Knight Bros.
Att'ys.

UNITED STATES PATENT OFFICE.

CHARLES TRUESDALE, OF CINCINNATI, OHIO.

IMPROVEMENT IN MOLDERS' FLASKS.

Specification forming part of Letters Patent No. **138,960**, dated May 13, 1873; application filed March 8, 1873.

To all whom it may concern:

Be it known that I, CHARLES TRUESDALE, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Hinge for Molders' Flasks, of which the following is a specification:

Nature and Objects of the Invention.

My invention relates to a peculiarly-constructed hinge, which enables the molder to raise the hinge side of the cope before "rolling," when it is necessary, in order to secure a clean lift of the sand from flanges or depressions in pattern without the use of wedges.

In addition to these advantages, peculiar to my device, it possesses the advantage, common to hinged flasks, of preventing either lateral or longitudinal displacement of the cope while the flask is being rammed.

The hinge consists, essentially, of two separate plates or members, of which the lower one is secured to the drag, while the upper one is attached to the cope. On one member, preferably the lower one, is pivoted a cam or eccentric, having a projecting handle or lever, which, when properly operated, elevates the aforesaid upper member a short distance, thereby slightly separating the cope from the drag in a gradual and steady manner so as not to loosen the sand within the flask, or otherwise injure the impression, by causing it to strike or press against some prominent part of the pattern while turning upon the hinge. After the act of separating these two members of the flask has been initiated by the operation of the eccentric, the molder grasps the side of the cope remote from the hinges and turns it back in the usual manner for the opening of the flask so as to enable him to withdraw the pattern.

In the preferred form of my device it is so arranged that while the cope is being turned back, and after it reaches a proper place, the pintle of the upper plate of the hinge is automatically elevated above the eccentric, thus allowing the latter to drop back to its original perpendicular position, and thereby to gently relieve the eccentric pivot of the weight of the cope. This liberation of the eccentric from the weight of the cope is caused by two checks of the upper plate rolling upon flanges that are cast upon the lower plate, as hereinafter more fully described.

It will thus be seen that my improved hinge enables the molder to dispense entirely with the inconvenient and unreliable wedges which have heretofore been employed for "starting" the cope from off the drag on the hinge side.

Specific Description.

Figure 1 is a perspective view of a molders' flask provided with my improved hinge, the eccentric levers being shown elevated so as to separate the cope from the drag on the hinge side. Fig. 2 is an elevation of the flask, showing the cope turned back far enough to relieve the eccentric of the weight of the same. Fig. 3 is an enlarged section of the closed hinge with the eccentric lever shown in its normal or inactive position. Fig. 4 is another sectional view having the eccentric lever turned up so as to cause a separation of the two members of the hinge. Fig. 5 is a plan of the complete hinge, and Fig. 6 is a plan of the lower member of the hinge.

A represents the drag, and B the cope of a molders' flask, of any approved form. The lower member of the hinge, which is attached to the drag by screws *a*, consists, essentially, of a horizontal plate, C, a vertical one, D, and two projecting jaws or cheeks, E E′, between which latter is located the eccentric F, that is suspended upon a pivot, G, and is provided with a curved handle or lever, *f*. The horizontal plate C rests upon the top of the drag, and is flush therewith, while the portion D of the hinge bears against the vertical side of said drag, as clearly shown in Fig. 1. Projecting vertically from and serving to unite the upper portions of the cheeks E E′ are two studs, H H′, having an interval, I, between them for a purpose which will presently appear. Projecting laterally from the cheeks E E′ are curved flanges *e e′*, which, at the proper time, support the entire weight of the rammed cope, as hereinafter fully explained. The upper member of my hinge, which is secured to the cope by screws *b*, consists of a horizontal plate, J, a vertical one, K, and two cheeks, L L′, that are united by the cylindrical pintle M, an interval, N, being formed between the members K, L L′, and M for the reception of

the inner stud H′. Attached to the cope are cleats or ears, O O′, which serve as handles to facilitate its being turned back on its hinges, as shown in Fig. 2. The cope is also provided with the customary pins P, that enter eyes or perforated lugs *p*, which latter are secured to the drag. A hook and staple, R R′, or equivalent locking device, is provided for maintaining the flask in its closed condition. S represents a portion of a pattern projecting above the level of the drag parting.

Operation.

When the cope is placed in its proper position upon the drag, the lugs H H′ bear against the pintle M and checks L L′, and thereby prevent—in connection with the pins P—either lateral or longitudinal displacement of the flask. In this closed condition of the flask, the checks L L′ rest upon the curved flanges *e e′*, and no strain whatever is brought to bear upon the eccentric F, or its pivot.

After the cope has been rammed and it is desired to separate it from the drag, the molder, previously to rolling, grasps the two handles, *f*, of the pivoted eccentrics and lifts them toward a horizontal position; this act causes the eccentrics F to bear against the under sides of the pintle M, thereby elevating the upper member of the hinge, and consequently parting the cope and drag on the hinge side. By this means the separation of the cope and drag on the hinge side of the flask is effected previous to rolling, and much more securely, as far as the impression in the sand is concerned, than would be done by driving in wedges between the cope and drag, as is the usual custom in foundries, or by "rolling up" without first relieving the hinge side.

It is well known to molders that those parts in close proximity to the hinge side in a common hinged flask are, from the shortness of the radius, unavoidably subjected to a sharp lateral movement of the cope, such as to break down abrupt prominences in the sand; and the object and effect of my device is to so elevate and slightly press forward the hinge side of the cope before rolling as to relieve these projecting parts in the subsequent operation of rolling.

The eccentrics operate to start the cope from the pattern in an almost vertical direction, and consequently there is no danger of the impression being injured or forced out of its proper shape by the sand being brought in contact with a rib or flange projecting upwardly from the pattern. The elevation of the handle *f* lifts the pintle M from the interval I, and causes said pintle to bind between the eccentric F and inner side of the lug H, in such a manner as to prevent the cope dropping. After the hinge side of the cope has been thus separated from the drag, the molder then reaches over, grasps the handles O O′, and turns the cope back for the purpose of finishing the mold as seen in Fig. 2. During the last act of turning back the cope the cheeks L L′ roll upon the curved flanges *e e′*, until they gradually have the entire weight of this portion of the flask thrown upon them, and the moment this is accomplished the eccentrics F are relieved of any pressure, and drop to their normal position. By this arrangement the strain incidental to the full weight of the cope is never brought to bear upon the pivot of the eccentric.

I am aware that it has been proposed to so construct a flask hinge as to cause an elevation of the pintles to accompany the opening of the flask on the opposite side; but this plan is valueless from several causes of a practical character, namely, owing to the slack motion of the bearing-surfaces the action of the inclined surfaces of the hinge does not commence the instant that the flask is opened, and the mischief is done before said action becomes effective—that is to say, in the first few degrees of elevation of the cope; and it is increasingly defective when the bearing-surfaces become separated by the swelling of the wooden portions of the flask, which is often the case, and which causes said surfaces to be non-effective for a considerable elevation of the cope, the flask, bearing by its wooden surfaces, and as it becomes open slipping suddenly from them with a jolting action. I therefore do not claim as new the elevating of the pintle in the jaws of the opposing member except by an eccentric distinct from either member, and pivoted in that one of them which does not carry the pintle, said eccentric being provided with a handle for the purpose of enabling the molder to elevate the hinge side of the cope previous to rolling.

Claims.

I claim as new and of my invention—

1. A hinge for molders' flasks, consisting of two separable members, one of which has pivoted within it an eccentric that is adapted to operate against the pintle of the other member, substantially as herein described, and for the purpose stated.

2. The combination of the plate D, cheeks E E′, pivoted eccentric F *f* G, studs H H′, interval I, plate K, cheeks L L′, pintle M, and flanges *e e′*, as and for the purpose described.

In testimony of which invention I hereunto set my hand.

CHAS. TRUESDALE.

Attest:
GEO. H. KNIGHT,
JAMES H. LAYMAN.