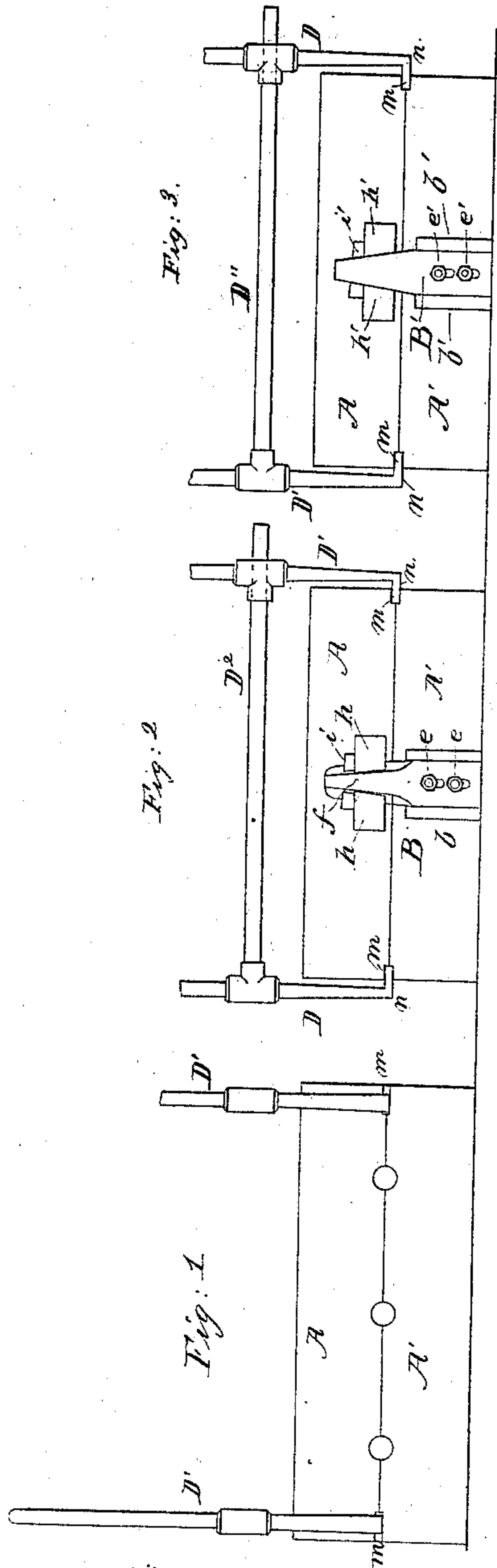


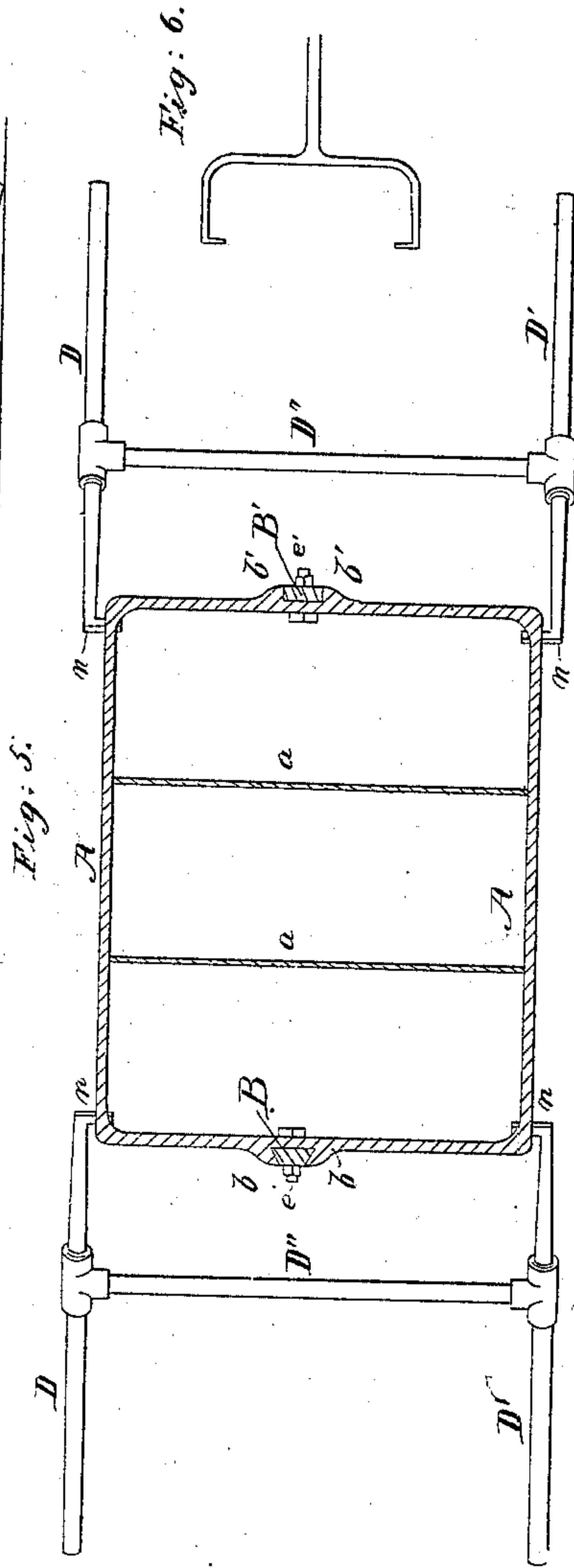
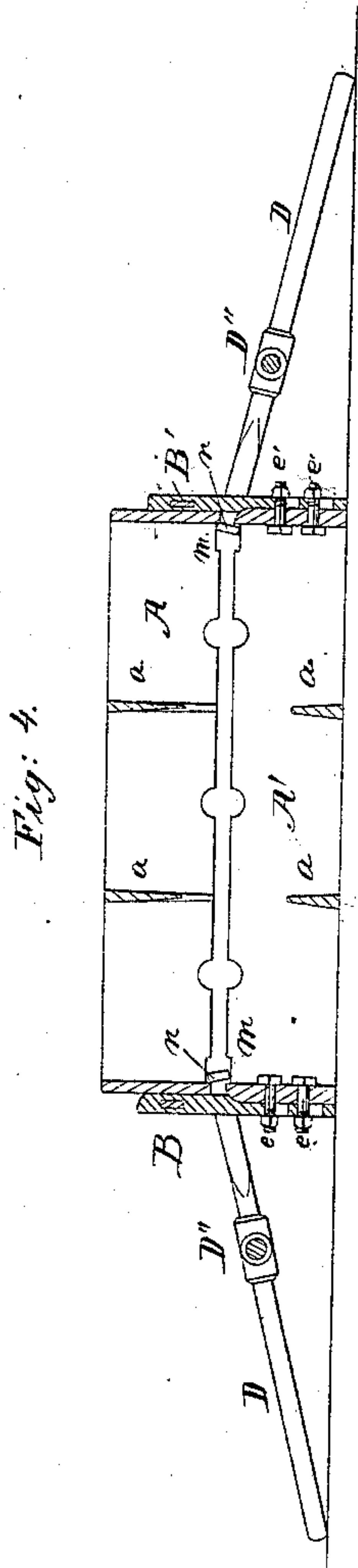
T. L. Luders, Molders' Flask.

N^o 66,508.

Patented July 9, 1867.



Witnesses:
Wm. Albert Stahl
John Parker.



Inventor:
T. L. Luders
By J. P. Moore

United States Patent Office.

THOMAS L. LUDERS, OF OLNEY, ILLINOIS.

Letters Patent No. 66,508, dated July 9, 1867.

IMPROVEMENT IN MOULDING-BOXES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, THOMAS L. LUDERS, of Olney, Richland county, Illinois, have invented certain Improvements in Moulding-Boxes; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention relates to improvements in boxes or flasks for moulding, and consists, first, in the combination with a flask or box, constructed substantially as described hereafter, of certain lifting-bars, whereby the upper portion of the box may be slowly and gradually raised above the lower portion, before it is entirely removed therefrom by the usual appliances; secondly, of an adjustable tapering bevel-edged guide on one portion of the box, in combination with corresponding lugs or their equivalents on the other portion; thirdly, of a tapering bevel-edged guide and certain lugs on one end of the box, in combination with a tapering plain-edged guide and corresponding lugs on the opposite end of the box.

The object of my invention, which is minutely described hereafter, is to obviate the jerking of the upper portion of the box, on imparting to it the first lift, and thereby prevent the disturbance of the sand and disarrangement of the impression left therein by the pattern. A further object of my invention is to insure a proper coincidence of the impressions left in the sand of the two portions of the box after the pattern has been withdrawn, and the upper is adjusted to the lower portion of the box.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing, which forms a part of this specification, and in which—

Figure 1 is a side view of a moulding-box or flask with my improvement.

Figures 2 and 3, views of the opposite ends of the box.

Figure 4, a vertical section.

Figure 5, a sectional plan; and

Figure 6, a modified form of lifting-lever used in connection with my improvement.

Similar letters refer to similar parts throughout the several views.

A is the upper portion, and A' the lower portion of a moulding-box or flask, each having transverse ribs *a*, arranged to suit the pattern from which the mould has to be made, for it should be understood that my invention is not confined to boxes for moulding particular objects, but refers and is applicable to all ordinary boxes or flasks used in foundries. To the lower portion A', at that end of the box seen in fig. 2, and between two ribs *b b*, is secured the guide B, by means of bolts *e e*, which, passing through elongated holes in the said guide, permit the latter to be adjusted vertically for a purpose rendered apparent hereafter. The upper portion *f* of this guide is made of the tapering form represented in fig. 2, and is bevelled at the edges, as seen in fig. 4, so as to be dove-tailed between the two lugs *h h*, (figs. 2 and 5.) A tapering key, *i*, passing through a slot near the top of the guide, bears against the lugs and serves to bind the upper to the lower portion of the box. At the opposite end of the box or flask, shown in fig. 3, is arranged a guide, B', which is similar to that described, with this exception, that the upper tapering portion is not bevelled at the edges, the latter being at right angles to the face, and the lugs *h' h'* being arranged accordingly. At each corner of the box, where the upper and lower portions of the same meet each other, are horizontal recesses *m m*, a portion of each recess being in the upper and a portion in the lower portion of the box. Each recess may, however, be formed entirely in the upper or entirely in the lower portion, providing it is adapted to the reception of a projection, *n*, on a lifting-arm or lever, and providing the under side of this projection bears on the lower portion of the box, and the upper side of the projection can be brought to bear on the upper portion of the box. Two lifting levers are required for each box, each lever consisting in the present instance of two arms, D and D', connected together by the cross-bars D'', the whole being made of iron tubing, and being light and easy to handle. For boxes of the smaller class, the lifting-arm may consist of the simple forked instrument illustrated in fig. 6, which will be readily understood without description. In green-sand moulding, after the sand has been thoroughly rammed on and about the pattern contained in the box, great caution is necessary in lifting the upper from the lower portion, a slow, gradual movement, free from all jerks, being required in the first instance, in order to prevent the displacement of the sand and the mutilation of the impression left therein by the pattern. When a crane is used for lifting the upper portion of the box, the coiling of the chain round the barrel or round the pulleys of the

blocks is frequently the cause of these detrimental jerks, as is also careless lifting by hand, the result in both cases being an imperfect mould, which cannot be repaired without tedious manipulation. In order to effectually obviate this difficulty, the lifting-arms and levers above described are brought into play when the first lift has to be imparted to the upper portion of the box. The two levers are first held in a vertical position, and so that the projections of one lever may be introduced into the recesses *m* at one end of the box, while those of the other lever are inserted into similar recesses in the opposite end of the box. The two levers are then lowered to the position seen in fig. 4, gradually and as simultaneously as possible. In doing this the projections *n n* have a cam-like action on the upper portion of the box, tending to raise the latter at the slow speed necessary to preserve the integrity of the impression and to prevent a resort to tedious repairs. After the upper portion of the box has been thus slightly elevated, the usual appliances may be employed for raising it clear of the lower portion and conveying it to any part of the moulding floor, prior to removing the pattern from the lower portion of the box. After a pattern has been removed and the proper finish has been imparted to the mould, it is important, in replacing the upper portion of the box, that its impression should exactly coincide with that in the lower portion. Cylindrical pins on one portion of the box, passing through holes in lugs on the other portion, have hitherto been used for the purpose of adjusting the two portions of the box to each other; but these pins and holes soon become so worn as to permit a slight lateral movement of the upper portion of the box, a movement which results in an imperfect joint and such ridges and inequalities on the casting as to frequently render the latter useless. I discard these pins and holes, and in their places use the guides *B* and *B'*, which, when the upper is in proper contact with the lower portion of the box, are wedged comparatively tight between the lugs *b b* and *b' b'*, so that all possibility of a lateral movement of the upper independently of the lower portion of the box is obviated. When these guides become slightly worn they can be readily elevated and secured after adjustment, so as to be as efficient as when first used. The guide *B* being dove-tailed as well as wedged between the lugs *h h*, retains the upper portion of the box in its proper longitudinal position in respect to the lower portion, at the same time the two portions of the box are free to expand or contract, independently of each other, to a limited extent, as they are unrestricted as regards this tendency by the guide *B'* which is not dove-tailed between its lugs. It will be evident that by the above arrangement of tapering guides, a coincidence of the impressions left by the pattern in the sand of the upper and lower portions of the box is insured. It will also be evident that my invention is applicable to boxes consisting of three or even more portions.

I claim as my invention, and desire to secure by Letters Patent—

1. In combination with a flask or box, constructed substantially as described, I claim the lifting-levers, as and for the purpose set forth.
2. The adjustable tapering and bevel-edged guide *B*, on one portion of a moulding-box, in combination with the lugs *h h*, or their equivalents, on the other portion of the box.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOS. I. LUDERS.

Witnesses:

JOHN LYNCH,
E. KITCHELL.