

H. L. EAMES

Molders' Flasks and their Accessories.

No. 198,490.

Patented Dec. 25, 1877.

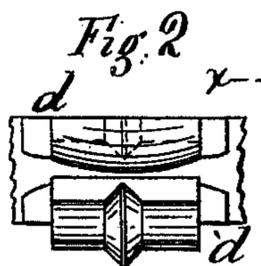
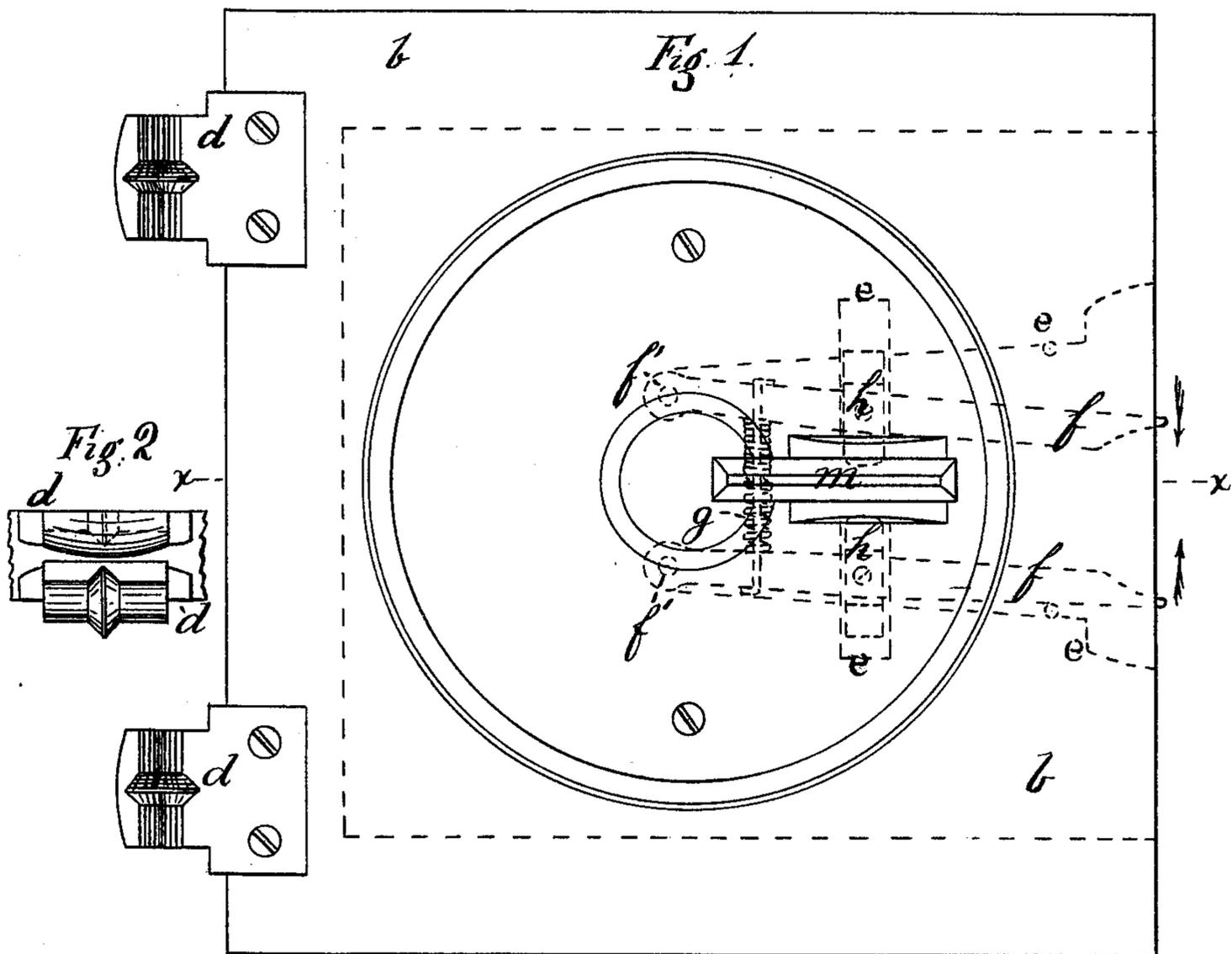
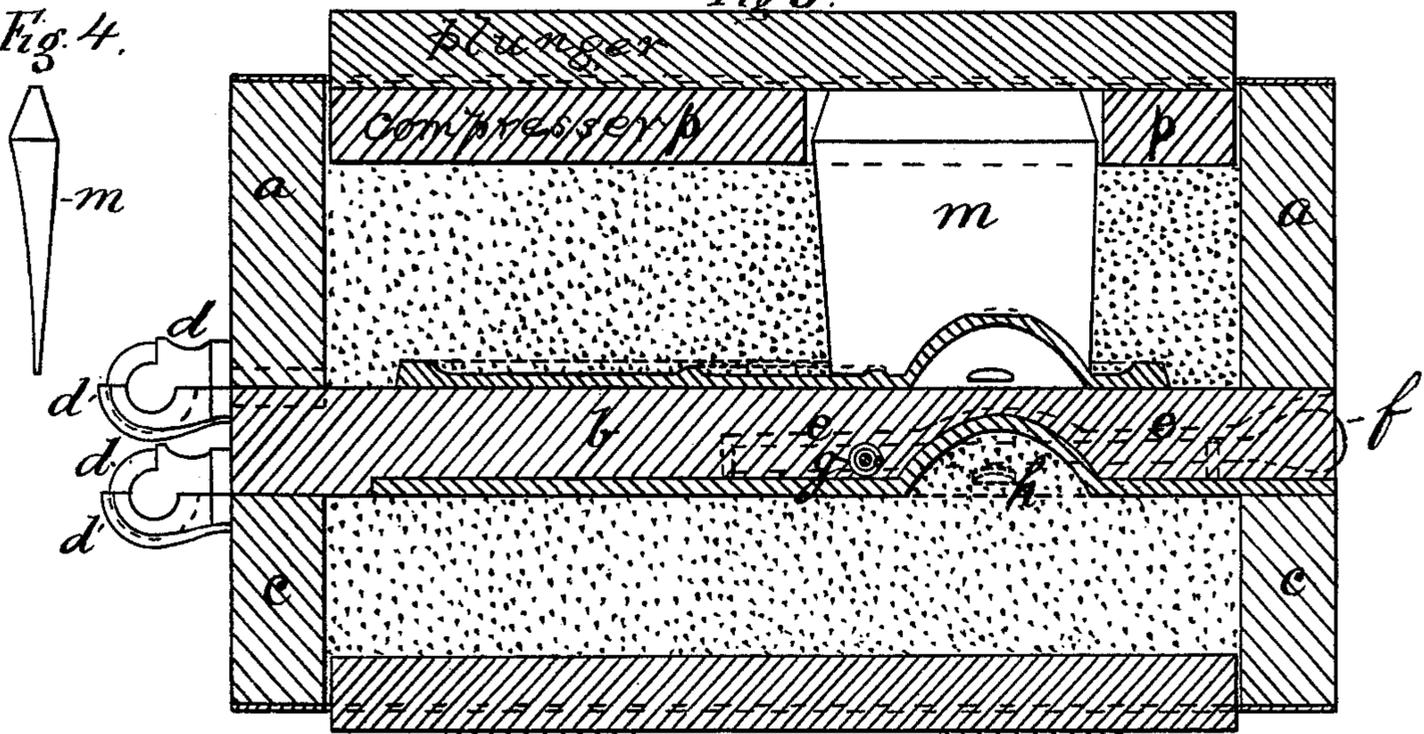


Fig. 3.

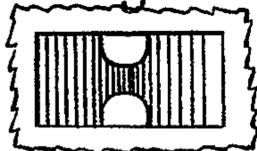
Fig. 4.



Witnesses  
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Fig. 6.



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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN MOLDERS' FLASKS AND THEIR ACCESSORIES.

Specification forming part of Letters Patent No. **198,490**, dated December 25, 1877; application filed August 16, 1877.

*To all whom it may concern:*

Be it known that I, HORACE L. EAMES, of Bridgeport, Connecticut, have invented certain new and useful Improvements in Molders' Flasks and their Accessories; and that the following, taken in connection with the drawings, is a full, clear, and exact description thereof.

In the drawings, Figure 1 is a top view of a match-plate and attached pattern with my improvements applied thereto. Fig. 2 is an elevation of one set of the leaves or hinges thereof. Fig. 3 is a vertical section through the same match-plate in place in a flask. Fig. 4 is an end elevation of my sprue-pattern. Fig. 5 is a section through the lifting-socket of a stove-cover, and Fig. 6 is a plan of the same.

My improvements are in the hinges of match-plates and flasks, in the contrivance applied to a match-plate by means of which the ears of a lifting-socket are molded, and in the sprue-pattern.

Before commencing my description, I desire it to be understood that I know that hinges have been applied to flasks, and that contrivances for molding the ears of lifting-sockets have been applied to patterns, and that sprue-patterns are old contrivances.

I will first describe the improvement in the hinges of match-plates and flasks.

In molding by means of a match-plate one half the flask—the drag—is placed on top of the match-plate, which is fitted with a pattern or patterns; then the sand is filled in and rammed or compressed; next, the drag and match-plate are turned upside down. The other half of the flask—the cope—is now applied on top of the match-plate, and it is filled with sand, which is rammed or compressed; then the cope is lifted off; next, the match-plate is lifted off, and, finally, the cope is placed on top of the drag.

In these operations it is necessary that both cope and drag should be applied with exact precision to the match-plate and to each other. This accurate relative location of the parts has usually been secured by means of dowel-pins and sockets, although hinges of a peculiar kind have been applied to the cope and drag, but never, to my knowledge, to the match-plate.

What I call hinges are really a half-ball joint for one leaf, and a half-socket for the other leaf; and, although I intend to use balls and counterpart sockets, and call them "balls and sockets," I prefer to use cylinders with conical rings or collars upon them in place of balls and sockets, which are counterparts of these cylinders and their rings or collars.

In the drawings the cope is shown at *a*, the match-plate at *b*, and the drag at *c*, the leaves of hinges being represented at *d d*.

By observation of the drawings it will be perceived that two socket-leaves of a hinge are secured to the drag, that two socket and two ball leaves are attached to the match-plate, and that two ball-leaves are fastened to the cope.

When the drag is turned upside down on the match-plate, the two will be adjusted in place by the sockets on the drag fitting over the balls on the match-plate. When the drag has been filled and the sand in it rammed, the two are turned upside down, so as to occupy the position shown in Fig. 3. Then the cope is adjusted in place by the ball-leaves on it taking into the socket-leaves of the match-plate. After the cope has been swung up and lifted off, the match-plate can be swung up and lifted off, and, finally, the ball-leaves on the cope can be entered into the socket-leaves of the drag, and the cope turned down into place upon the drag, both cope and drag occupying exactly their proper relative positions.

In all these operations the leaves are first put in proper engagement, and the parts turned, as on a hinge, into place—a much easier and more expeditious way of securing adjustment of the parts than by lowering the parts vertically onto each other after dowel-pins have been felt into the openings of their sockets.

In stove-covers as now used there is a socket cast in the plate, into which two little ears project, so that the end of a poker or a hook may be put into the socket and under the ears, (see Figs. 5 and 6,) and the cover may then be raised from its place.

It is a very easy matter to mold the socket; but the ears are a more difficult job, and a contrivance was invented many years ago by means of which two points, which were the patterns for the ears, could be forced into the

sand, or, more precisely, the hump of sand which formed the core for the socket. These points were attached to little levers secured upon the pattern, and the difficulty with the contrivance was that these levers were not only molded in the sand unnecessarily, but were also apt to be clogged by the sand.

I have remedied both difficulties by combining levers and points with a match-plate in such manner that the levers are located in a cavity in the match-plate, are consequently not liable to clogging, are not molded up in the sand, and are more convenient in use.

In order to apply this improvement, I take an ordinary match-plate and hollow it out, or form it hollow, substantially as shown by dotted lines *e e*, Figs. 1 and 3, and apply in the cavity two levers, *f f*, pivoted at *f' f'*. To each of these levers is pivoted or otherwise secured a piece, *h*, the adjacent ends of these pieces being the points or patterns for the ears in the socket.

After the sand in the drag has been rammed, or at any time before the match-plate is removed from the drag, the thumb and finger are applied to the outer ends of these levers, and the points shoved into the sand, and then retracted again into the match-plate. In order to save time, I, however, sometimes apply a small spring, *g*, between the levers, which spring not only retracts the points, but keeps

them within the match-plate until they are operated to act as patterns.

When the sand is compressed in the cope of a flask by a molding machine or press, there has been hitherto some difficulty in molding the sprue-hole. I have obviated this difficulty by beveling the sprue-pattern *m* on all sides in two directions, (see Figs. 1, 3, and 4,) and by combining with it a compressing-board, *p*, provided with an orifice, through which the sprue-pattern can pass as the board is shoved down to compress the sand.

I claim as of my own invention—

1. A match-plate provided with both a ball-leaf of a hinge and a socket-leaf of a hinge, which may be used in connection with a cope and drag, which are provided the one with a ball-leaf and the other with a socket-leaf of a hinge, substantially as described.

2. In combination with a match-plate, and located in a cavity therein, a lever and a point or pattern for an ear, the combination being substantially as set forth, whereby an ear may be molded, substantially as described.

3. A sprue-pattern shaped substantially as described, in combination with a compressing-board having an orifice in it, as specified.

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Witnesses:

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