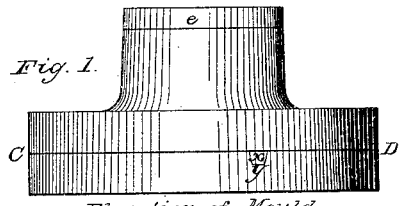
H. DILLAWAY.

GLASS MOLD.

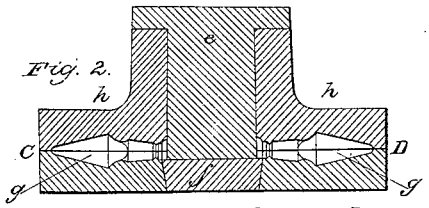
No. 2,226. Patented Aug. 21, 1841.

Fig. 1.



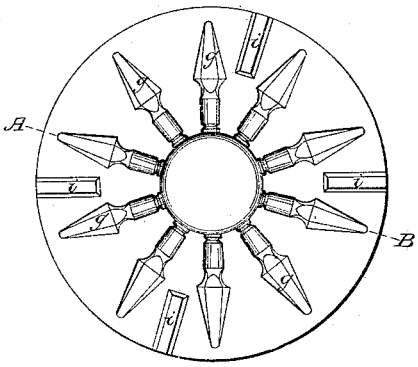
Elevation of Mould, shewing top of plunger.

Fig. 2.



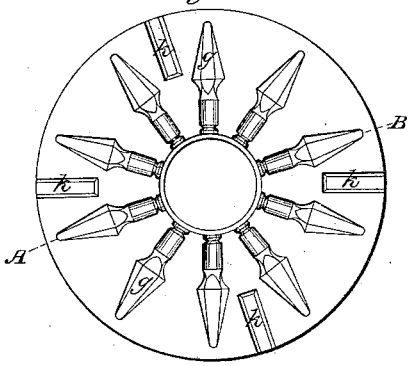
Section of Mould on A.B. shewing plunger and moveable bottom piece.

Fig. 3.



Horizontal Section on C,D. shewing underside view of top part of Mould.

Fig. 4.

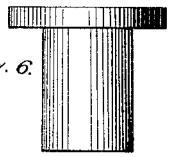


Horizontal Section on C,D. shewing top view of lower part of Mould.

Fig. 5.

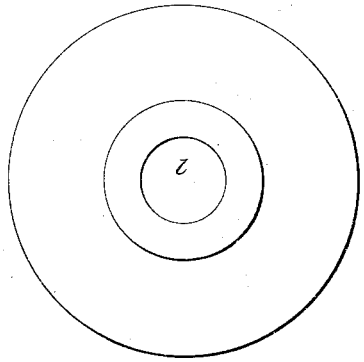
Moveable bottom piece.

Fig. 6.



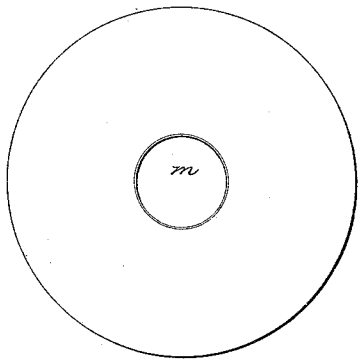
Plunger.

Fig. 7.



Top view of Mould without the plunger.

Fig. 8.



Underside view of Mould, without the moveable bottom piece.

UNITED STATES PATENT OFFICE.

HIRAM DILLAWAY, OF BOSTON, MASSACHUSETTS.

CONSTRUCTION OF MOLDS FOR PRESSING GLASS.

Specification forming part of Letters Patent No. 2,226, dated August 21, 1841; Reissued May 1, 1855, No. 308.

To all whom it may concern:

Be it known that I, HIRAM DILLAWAY, of the city of Boston, in the county of Suffolk and Commonwealth of Massachusetts, machinist, have invented a new and useful Improvement in the Art of Pressing Solid Articles of Glassware in Molds, of which the following is a full and exact description.

My said invention consists in such a formation of the mold, as shall cause the forms, by which I mean the cavities into which the articles are pressed or molded, to be filled with the melted glass, by means of a pressure applied to a mass of that material in a larger fountain connected with the forms; and it may be applied either to pressing a single article or a number of articles at one operation.

I will describe that mold which I have found convenient for pressing a number of small articles at once, but the relative positions of the fountain and the forms may be raised according to circumstances in molding different articles. A block, of a circular, or other convenient form, proportioned to the size of the article and number of them to be formed at once, is made with a central elevation, or neck, on the top, in diameter equal to about half, and in height equal to about the whole, of that of the body of the block. The block is divided horizontally through the middle, so as to make an upper and lower section, which constitute the two parts of an open and shut mold. Through the center of this elevation or neck the upper section is bored vertically so as to have a cylindrical hollow of a diameter about half that of the neck passing entirely through it. The lower section is also bored vertically through the center, but so as to have a bore, of a diameter a little larger than that of the bore of the upper section. The lower edge of the bore of the upper section is then hollowed, or grooved, out, so as to make it meet, and match, that of the lower section when the two parts are put together. All that part of the cylindrical hollow thus made through the entire block, which is not occupied by the bottom piece hereinafter described, I call the fountain.

The forms of the articles to be pressed are made by cavities, on the inner surfaces of the upper and lower sections of the block, cut to the shape designed; those in the upper matching with those in the lower section, and so disposed as to communicate with the central cylindrical hollow. And when it is desirable to cast more than one article by one operation, the forms or cavities may be made to radiate from the central bore toward the outer circle of the block as in the mold I am now describing. It may be found convenient to have, in that part of the forms next to the central bore, a small elevation with a sharpened edge, sufficient to form a slight indentation around the end of the article pressed. These forms may be as numerous as the size of the article to be made, and of the block containing them, will admit. To the bore of the lower section, is fitted a bottom piece reaching as high as the lower edge of the forms, and entirely filling the bore to that point. This bottom piece may be made permanent, or movable, as shall be found most convenient in use. A plunger is fitted to the hollow, in the neck of the upper section, so as to pass down the bore to the bottom piece. When the plunger is brought down entirely home to the bottom piece, the diameter of the bore of the lower section, being larger than that of the bore of the upper, and consequently than that of the plunger which is fitted to it, and the lower edge of this upper bore being hollowed out to meet the upper edge of the lower one as above described, there is left, around the bottom of the plunger, a vacant chamber into which all the forms open, so that the plunger, however far pressed down, cannot close or obstruct the mouths of the forms.

It may be found convenient to have as in the mold I am now describing, on the inner surface of the upper section, at convenient points near its circumference, elongated square elevations, and on that of the lower one, corresponding depressions, matching the one into the other, for the purpose of keeping each part of the mold secure in its proper place.

The block may be made of cast iron, or other metal sufficiently firm for the purpose, and capable of bearing heat, and the central hollow and plunger may be made square, instead of cylindrical, when a number of articles are to be made at once, of such a shape as to make that form most convenient.

For the better specification of my said improvement, I refer to the accompanying drawings as follows:

Figure 1, is the block showing the hori-

zontal division C, D; one of the matched elevations and depressions E, F, and the top of the plunger E, dropped entirely down, to reach the bottom piece. Fig. 2, is a vertical section of the block A, B, showing the plunger *e*, and movable bottom piece *f*, and a sectional division of the forms *g*, and of the hollowing out of the lower edge of the bore, in the upper section, to meet the larger diameter of the bore in the lower section, *h*. Figs. 3 and 4, are horizontal sections of the mold on C, D, showing plan of the forms—*g*, in the inner surfaces of the upper and lower sections of the mold, also the elevator *i*, and depression *k*. Fig. 5, is a movable bottom piece. Fig. 6, is a plunger. Fig. 7, is a top view of the mold without the plunger showing the aperture *l*, into which the plunger passes. Fig. 8, is an underside view of the mold without the movable bottom piece showing the aperture into which it is placed.

The mode of using my said mold is described as follows: The mold being properly heated, a quantity of metal sufficient to fill all the forms, and a portion of the central hollow besides, is gathered and dropped in, at the neck of the upper section. The plunger is then brought down upon it, with a pressure sufficient to force the metal out laterally, from the central hollow, into all the forms communicating with it. Should the quantity gathered and dropped in at any time, be so little more than enough to fill the forms, as to allow the plunger to be forced down below their upper edges, the metal, not required to fill the forms, remaining in and filling the chamber, above described, will be sufficient to prevent any imperfection in the pressing. After the metal is partially cooled, the upper section is removed, and the pressed glass taken from the lower one, and the articles broken from the central mass, at the indentation made by the edged elevation before referred to. The object of making the bottom piece movable is, that if the glass hangs, or adheres, to the lower section, the bottom piece may be removed, and force a pressure applied from below, through the bore, to the central mass sufficient to start it with the articles attached, but this is rarely, if ever, found necessary.

Any number of articles, according to their size, and that of the block containing the forms, may be pressed at one time, from one central fountain, and by one plunger. The size, weight and thickness of the articles made at each successive use of the same mold, will be the same. The difference between the quantity of metal supplied at one time, and another, being left in the central mass, instead of being forced into the article formed.

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

The formation of the mold for pressing glass in such a manner, that the hollow form, or forms, into which the articles to be manufactured are pressed, shall communicate with a larger fountain filled with melted glass, so that the forms may be filled by pressure applied to the mass of melted glass in the fountain.

In testimony whereof I the said HIRAM DILLAWAY, hereto subscribe my name in the presence of the witnesses whose names are hereto subscribed, on the sixth day of August A. D. 1841.

HIRAM DILLAWAY.

Witnesses:
MANLIUS S. CLARKE,
GEO. W. PHILLIPS.

[FIRST PRINTED 1913.]