

W. C. KING.  
Glass-Presses.

No. 134,071.

Patented Dec. 17, 1872.

Fig. 2.

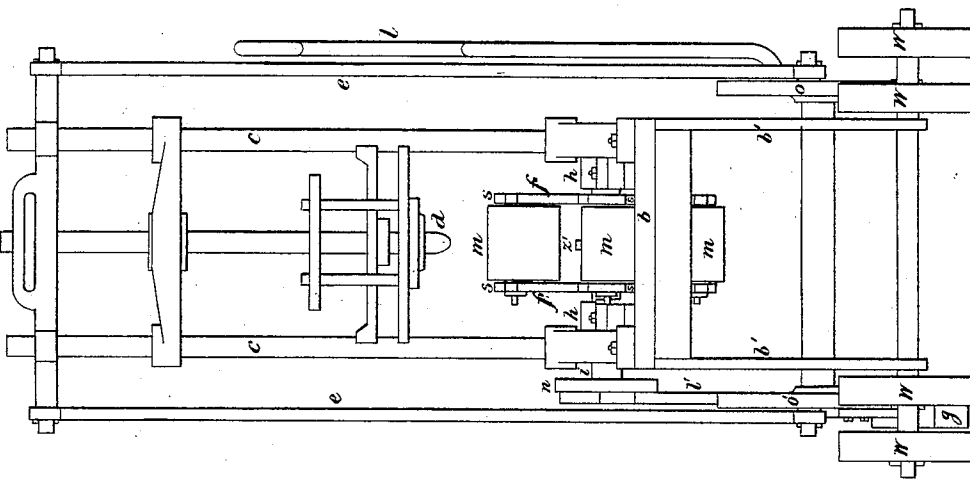
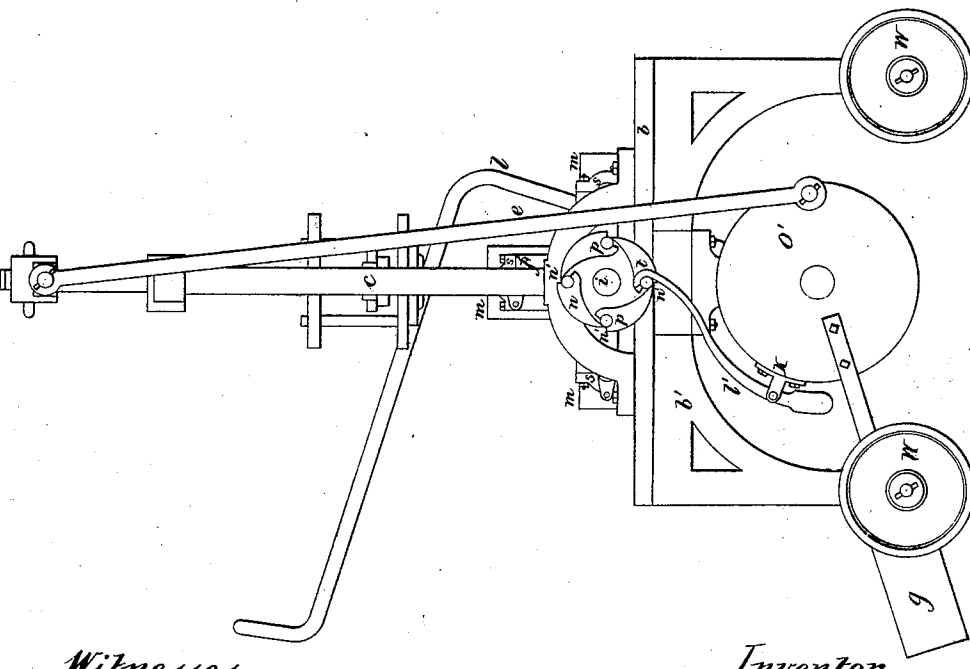


Fig. 1.



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Fig. 4.

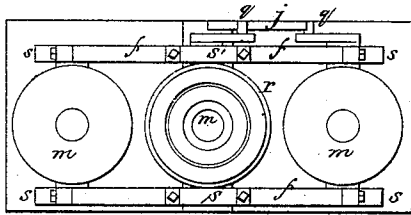


Fig. 3.

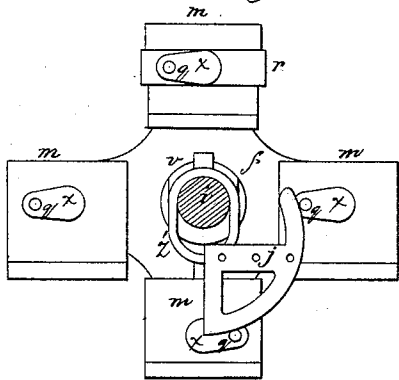


Fig. 5.

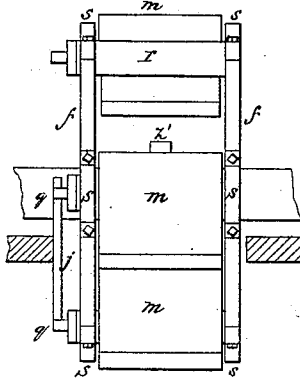
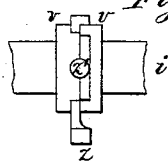


Fig. 6.



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# UNITED STATES PATENT OFFICE.

WILLIAM C. KING, OF PITTSBURG, PENNSYLVANIA.

## IMPROVEMENT IN GLASS-PRESSES.

Specification forming part of Letters Patent No. 134,071, dated December 17, 1872.

To all whom it may concern:

Be it known that I, Wm. C. KING, of Pittsburg, Pennsylvania, have invented a certain new and useful Improvement in Glass-Press, the same being an improvement upon the press for which Letters Patent were granted me May 9, 1871; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

Figure 1 is a side elevation of my improved press or machine for operating glass-molds. Fig. 2 is a front elevation of the same. Fig. 3 is a side view of the mold-shaft and molds, with one of the flanges *f* removed, and also one of the flanges *v*. Fig. 4 is a view of the mold-shaft and molds as seen from below the bed-plate. Fig. 5 is a front view of the same. Fig. 6 is an end view of the knocking-out apparatus.

Like letters of reference indicate like parts in each.

My invention consists in the construction of a revolving shaft having two flanges; in mounting between the same several glass-molds on trunnions or journals; and in certain devices for revolving the molds on the trunnions, so that in operating the shaft in connection with a plunger in pressing articles of glassware the molds shall continue mouth up during a portion of the revolution after leaving the plunger, be turned over to deliver the article of ware during another portion, and returned mouth up on completing the revolution.

I construct a press of the ordinary kind, having a bed-plate, *b*, and frame *b'* mounted upon wheels *W*, uprights *c c*, plunger *d*, connecting-rods *e e*, wheels *o o'*, counterpoise *g*, and lever *l*, as are made use of in such presses, but with an opening in the center of the bed-plate *b*, in which revolves, on journals in the plumb-blocks *h h*, a shaft or axle, *i*, having flanges *f f* forming part of it or firmly fastened to it. The molds *m* are hung by journals in bearings in the flanges *f f*, so that they may revolve on axes parallel with the axis of the shaft *i*, and continue mouth up during its revolution, if not interfered with. They are caused to retain this position by having the axes of the journals on which they turn placed above the center of gravity of the mold, so that the bottom

half, being the heavier, remains down and the mold up. They are also hung at equal distances from the center of the shaft and secured in their places by caps *S*; or the journals are formed on a ring, *r*, in which the molds rest on a shoulder formed on them and are secured by set-screws or other means so as to be easily placed in position or removed.

The revolving shaft *i*, with attached flanges *f f* and molds *m*, is operated as follows: One end of the shaft *i* is extended out beyond the bed-plate *b*, in order to carry the wheel *n*, in the circumference of which are ratchet-teeth *n'*, and projecting from its outer face are several pins, *p*, equally distant from the center and at equal distances from each other. Turning on a pin in the lug *K*, on the circumference of the wheel *O'*, is a lever, *l*, weighted at its lower end, and having a hook, *t*, on its upper end. This hook *t* is so placed in reference to the pins *p* on the wheel *n* that when the lever *l* is drawn down to operate the plunger *d* the forward motion of the wheel *O'* carries the hook forward beyond the wheel *n*. When the lever *l* is thrown back, and the motion of the wheel *O'* reversed, the weighted end of the lever *l* causes the hook *t* to catch or hook onto one of the pins, *p*, and, being carried back by the revolution of the wheel *O'*, it causes the wheel *n* to make a partial revolution. The wheel *n*, being rigidly attached to the shaft *i*, by its revolution carries the shaft *i* and attached flanges and mold *m* around with it. To stop each mold at its exact position beneath the plunger I lock the shaft *i* by means (not shown in the drawing) of a forked lever pivoted to the side of the frame. One end of this lever engages with the ratchet-teeth *n'* on the rim of the wheel *n*, and the other is controlled by a cam-groove on the back of the wheel *O'*. This cam-groove throws up the end of the forked lever so as to engage with one of the ratchet-teeth *n'* near the end of the back-stroke of the lever *l* and stops the revolution at the exact point. It also releases the wheel *n* again during the forward motion of the lever *l*, all as described and claimed in Letters Patent granted me May 9, 1871, No. 114,569, reissued September 26, 1871.

The tipping of the molds is accomplished as follows: One of each of the mold-journals is extended out beyond the flange *f* and has fastened securely to it a short crank-arm, *x*, from

the face of which projects a pin or friction-roller, *q*. When the shaft *i* and accompanying molds are revolved the pins *q* travel or slip on the edge of the eccentric plate *j* fastened to the bed-plate *b*. The edge of the plate *j* is a portion of a spiral in shape, and so proportioned as to cause a semi-revolution of the mold on its journals during the back-stroke of the lever *l* by its action on the crank-pins *q*, thereby turning the mold bottom up.

The operation of my machine is as follows: The molds *m* being heated to the proper temperature, and secured in their places between the flanges *f f*, the molten glass is dropped into the upper mold, cut off, and the plunger caused to descend therein by drawing down the lever *l*, and the glass thereby pressed into the shape of a piece of ware. The lever *l* is then thrown back, which causes the plunger to rise and the shaft *i* to rotate one quarter way around by means of the hook *t* and wheel *n*. This brings the next mold into position. The first one is now hanging mouth up, and the pin *q* on its crank-arm *x* has just come in contact with the periphery of the plate *j*. The lever is now drawn down again and the second piece of ware formed. On throwing back the lever the second time the shaft *i* makes another quarter revolution, the first mold traveling to the lowest point in its revolution being turned mouth down by the action of the pin *q* on the plate *j*. The article of ware then drops out and is caught and removed by suitable devices. When the shaft *i* makes its third quarter revolution the pin *q* is released from the plate *j*, and the mold, being free to move on its journals, turns mouth up by its center of gravity seeking the lowest point. The operation thus becomes continuous, and the molds follow each other in succession, going through the same motions as the lever *l* is elevated and depressed.

In case the article of ware should stick to the mold, I fasten to the shaft *i*, between the flanges *f f*, two other flanges or plates, *v v*, having guides on their inner faces, thereby compelling the two links *z'* to move between them at right angles to each other, in a vertical plane. The links *z'*, being free to move by their own weight, their action is each to alternately fall and strike the bottom of the lowest mold.

I do not limit myself to the number of molds shown, but make use of any practicable number; nor do I confine myself to tipping the mold by the devices shown through the second quadrant, but will employ them in the third, if found more desirable.

The above-described machine or improved press is more especially designed for heavy-bottomed tumblers and heavy ware in general, as such ware is liable to run out of shape when the mold is turned on its side, the body of glass not having time to become sufficiently stiff, but it may be used in pressing light ware.

Having thus described the nature, construction, and operation of my improvement, what I claim is—

1. A series of pivoted molds held suspended between two flanges arranged on a shaft which is rotated to successively bring the molds beneath a plunger, in the manner substantially as described, and for the purpose set forth.

2. The tipping or tilting mechanism hereinbefore described, for manipulating a mold or molds, substantially as and for the purpose set forth.

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Witnesses:

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