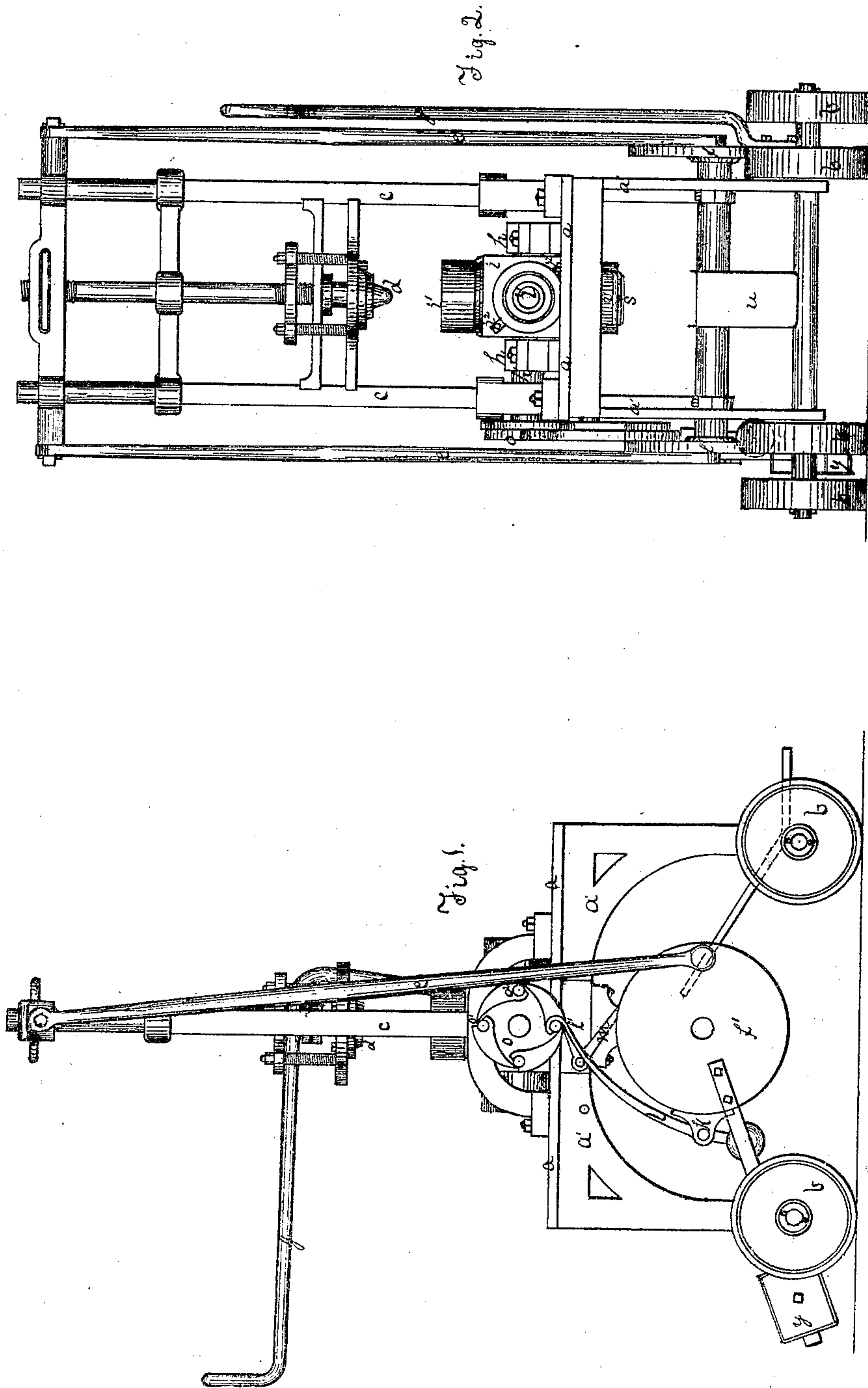


WILLIAM C. KING.

Improvement in Machines for Operating Glass-Molds.

No. 114,569.

Patented May 9, 1871.



Inventor { William C. King  
by his attorneys  
Bodewell Huntly & Co.

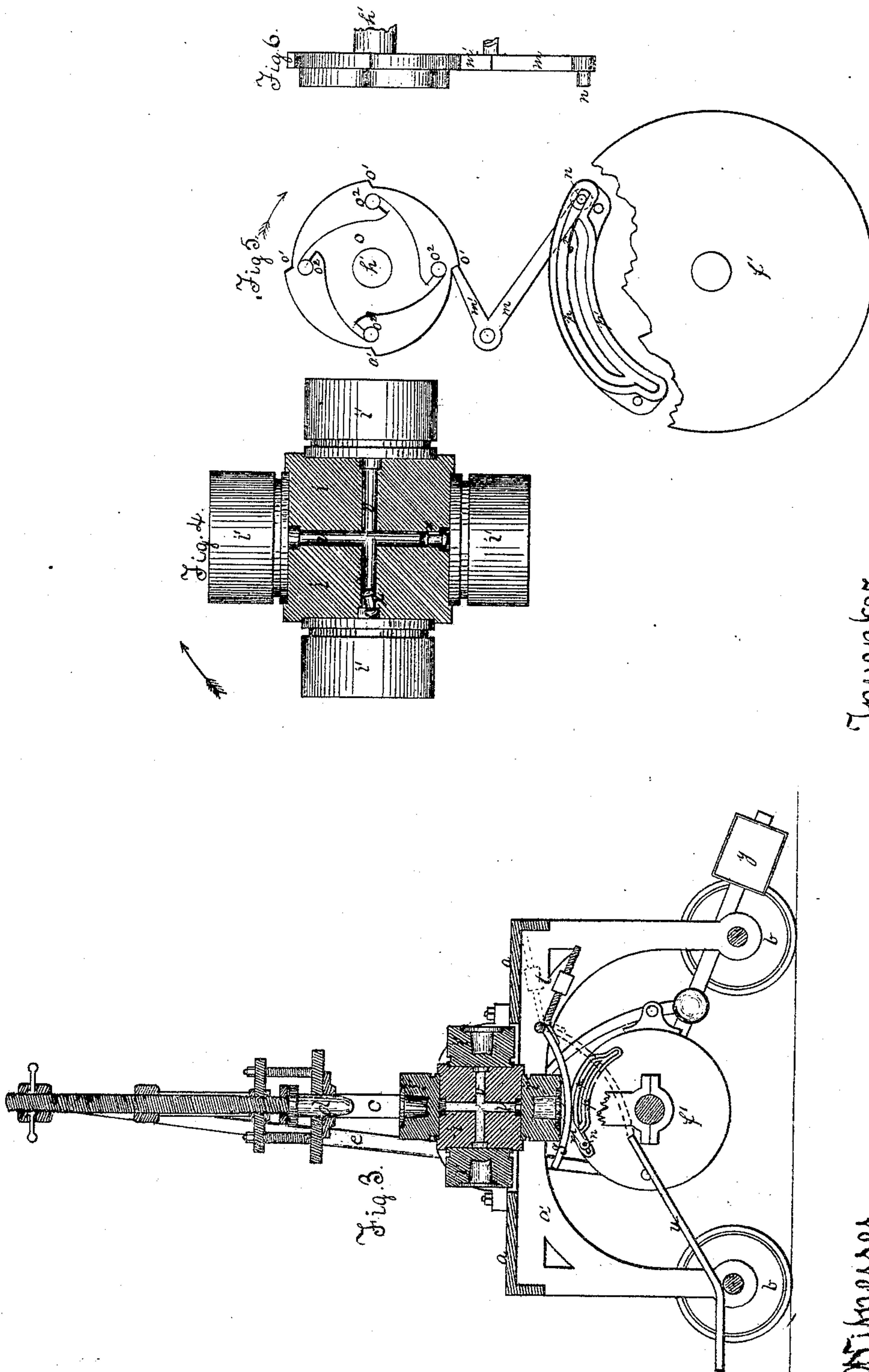
Witnesses { R. C. Munroe  
James O. May.

WILLIAM C. KING.

Improvement in Machines for Operating Glass-Molds.

No. 114,569.

Patented May 9, 1871.



Inventor  
 William C. King  
 by his Attorneys, Barwell, Christy, & Herr

Witnesses  
 James S. Hay,  
 R. C. Wrenshaw



# United States Patent Office.

WILLIAM C. KING, OF PITTSBURG, PENNSYLVANIA.

Letters Patent No. 114,569, dated May 9, 1871.

## IMPROVEMENT IN MACHINES FOR OPERATING GLASS-MOLDS.

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, WILLIAM C. KING, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Machine for Operating Glass-Molds; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing forming a part of this specification, in which—

Figure 1 is a side elevation of my improved machine for operating molds for pressing glass-ware;

Figure 2 is a front elevation of the same;

Figure 3 is a vertical longitudinal section thereof;

Figure 4 is a side view of the molds partly in section;

Figure 5 is a detached view of the devices for holding the mold in position for the descent of the plunger; and

Figure 6 is an edge view thereof.

Like letters of reference indicate like parts in each.

My invention consists in the construction of a revolving block, carrying a number of glass-molds, and certain devices for revolving such a block so as to bring and hold the molds consecutively in such position that a plunger, operating in connection with such devices, shall descend therein and form an article of glass-ware, and of certain devices for delivering the article after it is formed.

To enable others skilled in the art to make and use my invention, I will describe its construction and mode of operation.

I make a press of the ordinary construction, having a bed-plate, *a*, and frame *a'*, mounted upon wheels *b*; uprights *c c*, plunger *d*, connecting-rods *e e*, wheels *f f'*, and counterpoise lever *g*, as are common in such presses, but with an opening in the center of the bed-plate *a*, in which is hung by journals in the bearings *h h* a revolving rectangular mold-block, *i*, carrying a glass-mold, *i'*, of the ordinary construction upon each of its four outer faces.

The molds *i'* are attached to the block *i* by the bolts *i''*, and are easily removable.

The devices for operating the revolving mold-block *i*, in connection with the plunger *d*, are as follows:

One end of the axle *h* is extended out beyond the bed-plate on one side, so as to support and carry the wheel *o*, around the circumference of which are ratchet-teeth *o'*, and projecting from the outer side or face of which near the edge are several pins, *o o*, at regular distances apart.

Loosely riveted to the lug *k*, on the circumference of the wheel *f'*, is a lever, *l*, weighted at its lower end, and having a hook, *l'*, on its upper end. This hook *l'* is so placed, in reference to the pins *o* on the wheel *o*, that when the lever *g* is drawn down to operate the

plunger *d* the forward motion of the wheel *f'* carries the hook forward beyond the wheel *o*; when the lever *g* is thrown back and the motion of the wheel *f'* reversed, the weighted end of the lever *l* causes the hook *l'* to catch or hook onto one of the pins *o*, and, being carried back by the revolution of the wheel *f'*, it causes the wheel *o* to make a partial revolution.

The wheel *o*, being rigidly attached to the axle *h* by its revolution, causes the revolution of the mold-block *i*.

The downward stroke of the lever *g* causes the plunger *d* to descend in a mold, *i*, and throws the hook *l'* forward, as described, while the upward or backward throw raises or withdraws the plunger, and causes the hook *l'* to catch on the pin *o* and turn the mold-block just the distance necessary to bring the next mold into position.

To prevent the mold from turning past its position I lock it at that point by means of the bent lever *m*, which is pivoted to the side of the table in such position that when the short arm is thrown up it comes against the teeth *o'* of the wheel *o*, and prevents its turning.

The end of the long arm has a pin, *n*, which works in a groove on the inner face of the wheel *f'*.

This groove is of two parts, an outer one, *p*, which runs along near the end of the wheel, and at its back end runs down into an inner groove, *p'*, which runs forward along the inside of the other, and at its forward end runs up into it, making a continuous but irregular circuit.

When the lever *g* is making its downward stroke, the pin *n* slides along back in the groove *p*. This holds the end of the short arm *m'* against the teeth *o'* and prevents the wheel from turning. Near the end of the stroke the pin *n* runs down into the lower groove *p'*, and releases the wheel *o*. During the backward throw of the lever *g*, and while the wheel *o* is being turned a quarter way around, the pin *m* slides forward along its groove *p'*, and near the end slips up into the upper groove, once more locking the wheel *o*, which operation is repeated every time the lever is operated.

The pin is prevented from falling into the lower groove at the forward end by the drop *r*, which, after the pin *n* has passed up, covers the opening so that on the return stroke the pin passes over it.

The operation of my machine is as follows:

The molds *i'* are heated to the proper degree and secured to the block *i*. The molten glass is dropped into the upper mold, cut off, and the plunger made to descend therein by drawing down the lever *g*, and the glass thereby pressed into shape and the piece of ware formed.

The lever is then thrown back, which motion causes



the plunger to rise and the mold-board *i* to be rotated one-quarter way around by means of the hook *l* and wheel *o*. This brings the next mold into position, and the operation is repeated. When the mold carrying an article of glass-ware reaches the lowest point its position is reversed, and the article drops out into a pan, *s*, which is balanced by an adjustable weight, *t*. The weight of the article tips or depresses the pan, as shown by dotted lines, fig. 3, so that the article slides off onto and down the incline *u*, from whence it is taken to the leer or annealing-oven.

For fear the article pressed should stick in the mold, I have made two small chambers, *v*, running through the block to the bottoms of the opposite molds, and with enlarged ends, in each of which I have placed a drop-weight, *x*, having a small shoulder around each end.

The weight being at the lower end of the chamber *v*, when an article is being pressed is carried around to the other or upper end when the article reaches the discharging point. From this point, being no longer supported by its shoulder, it falls to the lower end, strikes against the bottom of the mold, and by a jar loosens the article therefrom, if it has not already dropped out.

I do not limit myself to the number of molds shown, but use any practicable number in connection with the revolving block.

By the method at present in general use in which one mold (or two molds, each alternately) is slipped by hand beneath the plunger on a solid bed-plate, and drawn forward and tipped over by means of a handle fastened to the mold, a considerable portion of the time and labor required to press an article is taken up

in handling the mold, in allowing the article to become stiff or firm enough to be emptied, and in giving the mold time to cool sufficiently to work well.

By the arrangement above described, the time occupied or necessary for the above purpose is afforded without delaying the operation of pressing, so that the presser can accomplish much more than by the old method.

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

1. The revolving block *i*, carrying two or more removable molds, *j*, operating in connection with the plunger *d*, substantially as and for the purpose set forth.

2. The hinged and counterbalanced drop-pan *s*, made substantially as and for the purposes described.

3. In connection with a series of revolving molds, a hooked lever, *l*, wheel *o*, with pins *o'*, or their equivalents, arranged substantially as and for the purposes described.

4. In connection with a series of revolving molds, a bent lever, *m*, pin *n*, grooves *p p'*, and wheels *o*, having ratchet-teeth *o'*, or their equivalents, arranged substantially as and for the purposes described.

5. The block *i*, perforated or chambered out in the direction of the axial line of the molds attached thereto, and provided with drop-weights *x*, substantially as described.

In testimony whereof I, the said WILLIAM C. KING, have hereunto set my hand.

WM. C. KING.

Witnesses:

JOHN GLENN,  
THOS. B. KERR.