W. M. KIRCHNER.

Glass-Molds and Press.

No. 129,036.

Patented July 16, 1872.

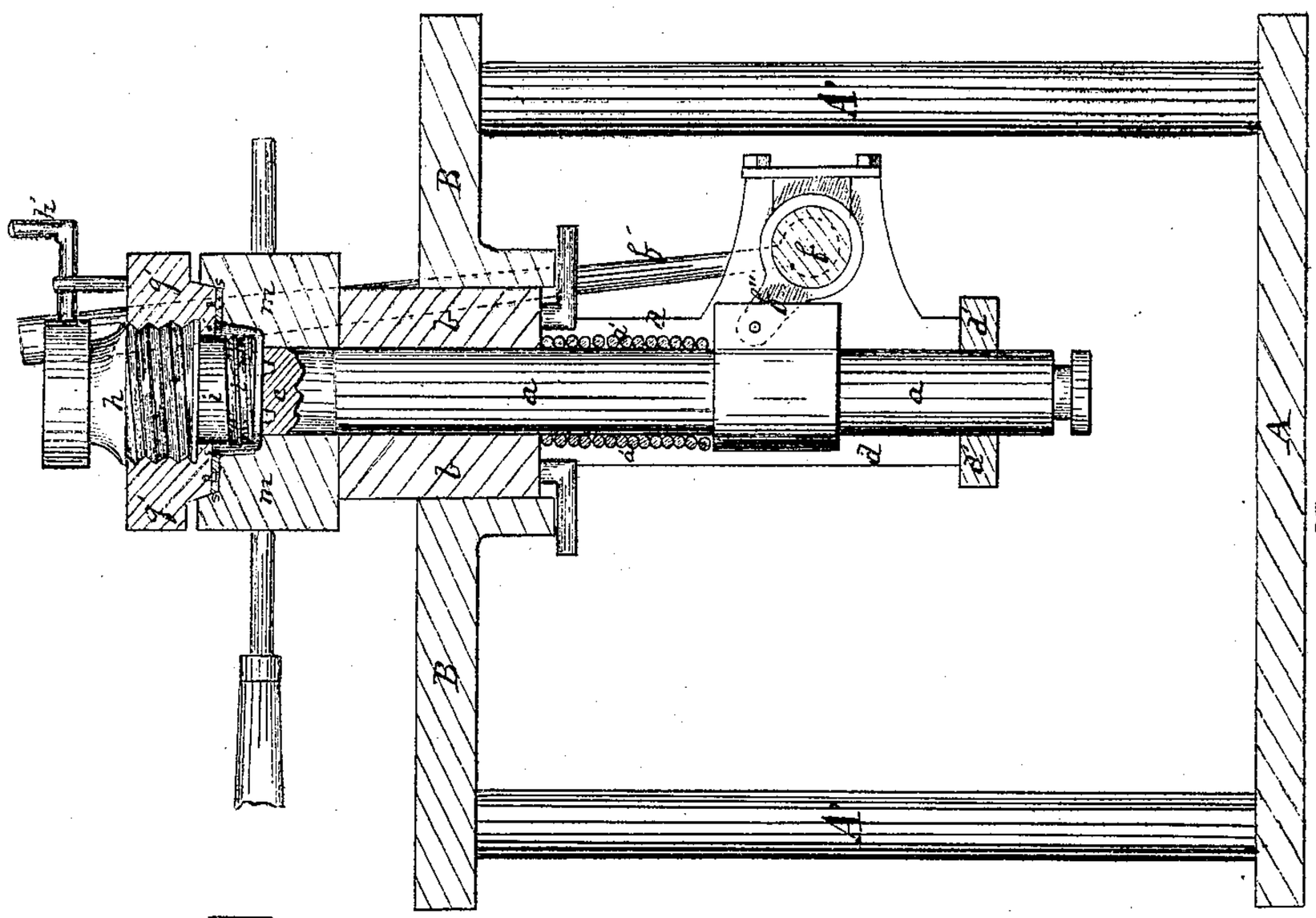

Fig. 2.

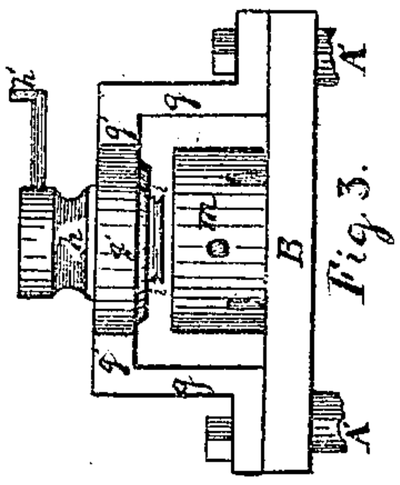

Fig. 3.

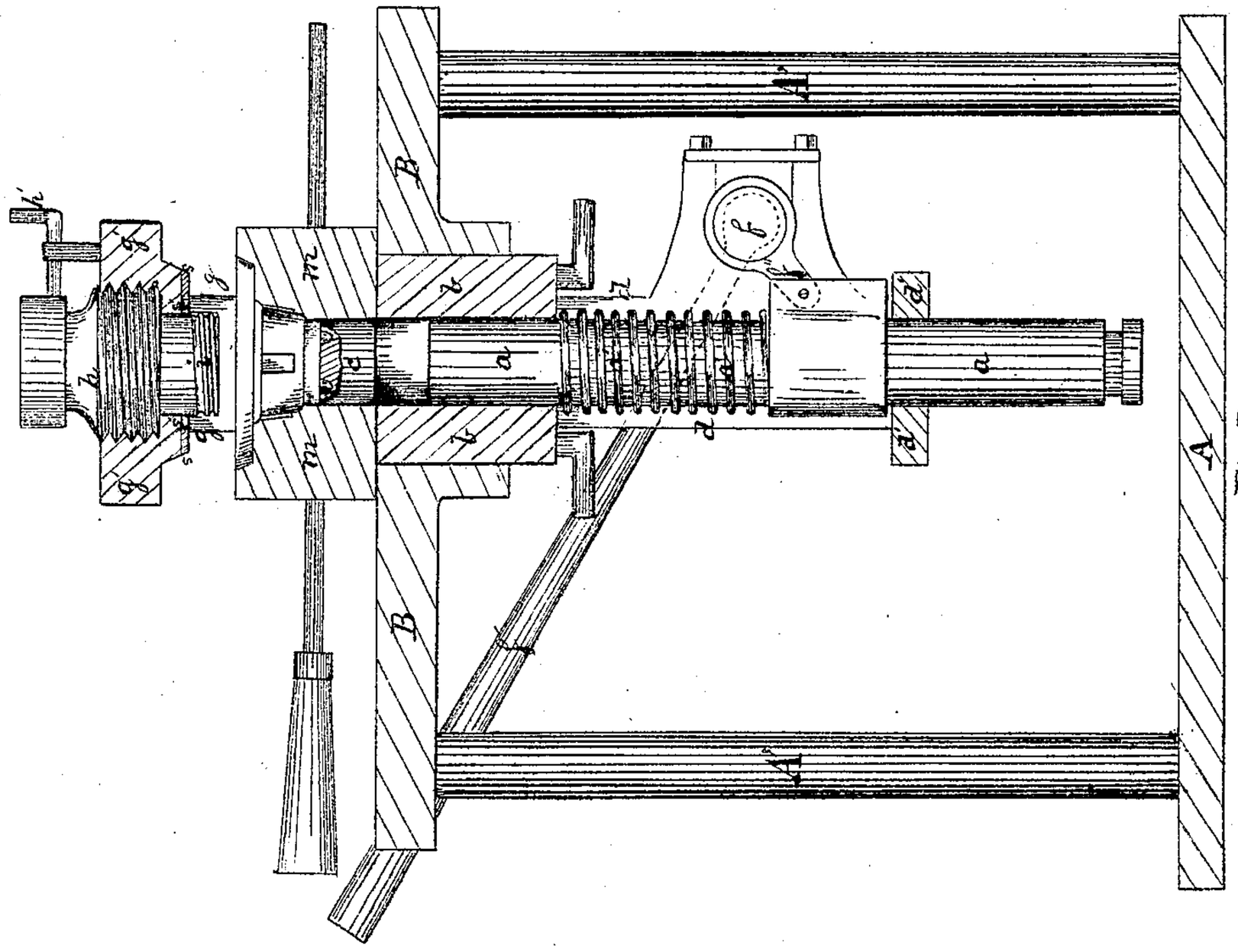

Fig. 1.

Witnesses:

Inventor:
William M. Kirchner
by Bakewell, Church & Kay, his Attys.

UNITED STATES PATENT OFFICE.

WILLIAM M. KIRCHNER, OF BIRMINGHAM, PENNSYLVANIA.

IMPROVEMENT IN GLASS MOLDS AND PRESSES.

Specification forming part of Letters Patent No. 129,036, dated July 16, 1872.

SPECIFICATION.

To all whom it may concern:

Be it known that I, WILLIAM M. KIRCHNER, of Birmingham, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Glass Mold and Press; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a vertical sectional view of my improved mold and press with the devices in the position they occupy when the pressing is ready to be commenced. Fig. 2 is a like view of the same, showing the relative position of the devices when the pressing is done; and Fig. 3 is a detached front view of the upper part of the press and mold.

Like letters of reference indicate like parts in each.

My invention relates to the construction of a machine for making internally-threaded articles of pressed glassware, such as fruit-jar caps, jelly-cups, fruit-bowls, &c.; and consists in the construction and mode of operation substantially as hereinafter set forth and claimed.

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

On any suitable foundation, A, stand the posts A′, which at their upper ends support the bed-plate B. A hole is made in this bed-plate in the axial line of the pressing devices, in which is fitted an annular ring-plate, *b*, the ring-plate fitting neatly but loosely onto the upper end of a vertically-moving plunger, *a*, and being supported by a spiral spring, *a′*, so that when at rest, as in Fig. 1, its upper face, and the upper face of the plunger *a* and of the bed-plate B, shall be about even with each other, or with the plunger a little the lower. On each side of the plunger *a* a hanger, *d*, depends from the bed-plate B, the two being connected below by a cross-head, *d′*. In suitable bearings in or on these hangers I arrange a rock-shaft, *f*, and operate it by a lever, *f′*. An arm, *f″*, from it is hinged or pivoted to the plunger *a* in such way that an oscillating movement imparted to the rock-shaft *f* by its lever *f′* will cause the plunger *a* to move up or down, as may be desired. The lower end of the plunger *a* plays through a hole in the cross-head *d*, so that the latter acts as a guide to the former. Rigidly affixed on and above the bed-plate B, one on each side of the ring-plate *b*, are the upright posts *g*, connected together at their upper ends by the cross-head *g′*. This cross-head is bored out in the axial line of the plunger *a*, and tapped so that the threaded screw-stem *h* may, by a crank, *h′*, be turned up and down therein. The lower end *i* of this screw-stem constitutes, mechanically, a die for shaping the inside of the article to be made; and from the lower end of die-part *i* up, as far as may be desired, it is threaded, as shown, so that by the glass being pressed up around and against such thread an internal seamless thread may be made in the article to be manufactured. The devices, as shown, are particularly designed for the manufacture of downwardly-flanged internally-threaded fruit-jar caps, in which the thread of the cap shall be free from fin or seam. In connection with these devices I use a jointless mold, *m*, of the form shown. It is made with a cavity in its upper face of suitable form for shaping the outside of the article to be made. Through its bottom, and in the axial line of its cavity, is a hole, in which is fitted a movable bottom block, *c*, which is somewhat less in length than the vertical depth of the hole in which it plays, and it is so arranged that its upward movement will bring it about even with the lower face of the mold cavity proper, and will also force the molten glass, which may be dropped into the cavity when it is down, as in Fig. 1, up around the threaded stem-die *i*, and press the glass to the desired shape, as shown in Fig. 2. This operation is effected by raising the plunger *a* in the manner described. The glass being dropped into the mold cavity, as already described, the mold is placed directly over the ring-plate *b*. An upward stroke of the plunger *a* then carries the ring-plate, mold and all, upward until the upper face of the latter comes against the ring-collar *s*, which is properly attached to the cross-head *g′*, so as to leave the usual groove *s′* between it and the stem-die *i*. The upward motion of the mold then ceases, but the plunger *a* continues to go up, forces up the movable bottom block *c*, and presses the molten glass around and into the threads of the stem-die *i*. As soon as the glass is set, the stem-die *i* is

turned out, the mold dropped down and removed, and the operation is repeated.

The improvement described I claim in its application to the manufacture of other articles of pressed glassware besides fruit-jar caps, such as jelly-glasses, fruit-bowls, &c. In such uses, of course, the size of the parts described, and, in some cases, the form, should be changed; but no changes will be required other than those which can be readily made by a mechanic skilled in the art. Nor do I limit myself to the use of a threaded screw-stem, since, in making plain or threadless articles of glassware, the stem-die *i* may be plain instead of threaded.

Instead of the stem-die described, other suitable form of upper or counter-die may be employed, such as, when the molten glass is pressed up against it, will give the desired form to the corresponding part of the article to be pressed.

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

1. In a glass-press, a plunger, arranged vertically below the bed-plate, and having a pressing motion into or through the bottom of the mold, in combination with a suitable counter-die for giving the desired shape to the upper part of the article to be made, substantially as described.

2. A glass-mold having a movable bottom-block, *c*, in combination with a plunger operating against such bottom-block so as to force the molten glass up against and around the stem-die which shapes the upper and inner face of the article to be made, when the same is arranged to press the molten glass against a suitable counter-die, substantially as set forth.

3. The mode of manufacturing pressed articles of glassware by means of pressure applied through the bottom of the mold, substantially in the manner set forth.

4. The plunger *a* passing through the ring-plate *b* and connected therewith by a spring, in combination with a mold, *m*, having an open bottom or movable bottom-block, substantially as described.

In testimony whereof I, the said WILLIAM M. KIRCHNER, have hereunto set my hand.

WILLIAM M. KIRCHNER.

Witnesses:

W. N. HOWARD,
G. H. CHRISTY.