

J. BONSHIRE.
BRICK-MACHINE.

No. 177,615.

Patented May 23, 1876.

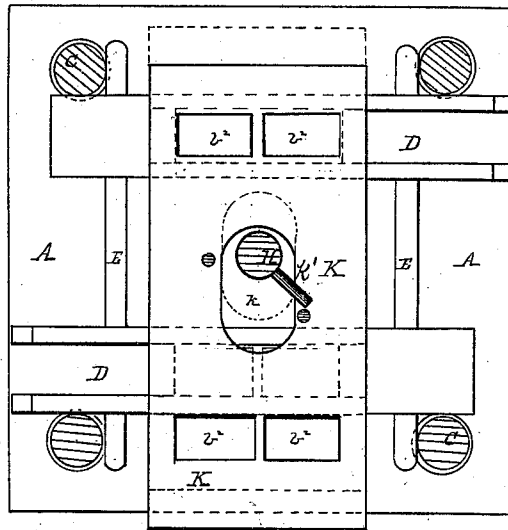
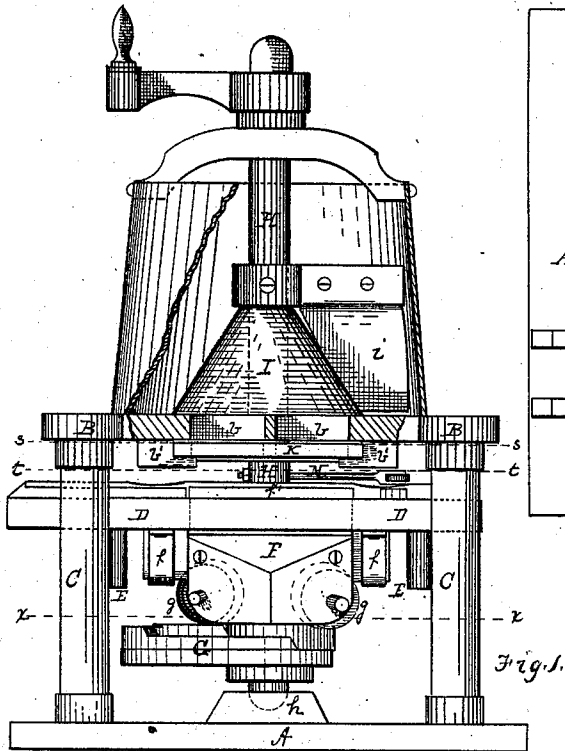


Fig. 2.

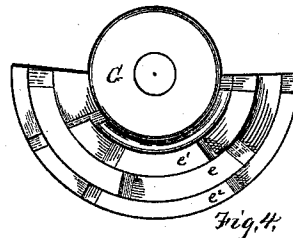


Fig. 4.

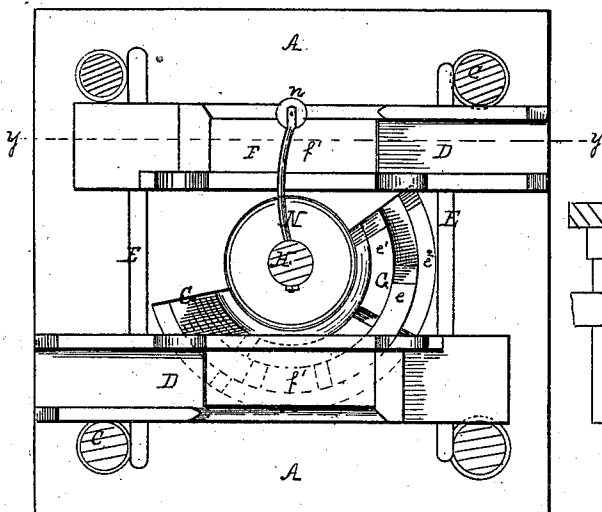


Fig. 3.

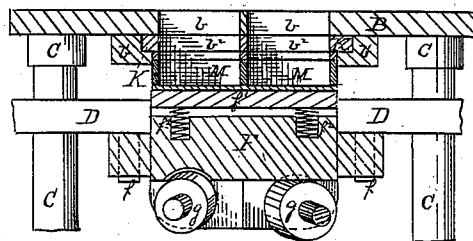


Fig. 5.

Witnesses.

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UNITED STATES PATENT OFFICE.

JACOB BONSHIRE, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO HIMSELF
AND JAMES DALZELL, OF SAME PLACE.

IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. **177,615**, dated May 23, 1876; application filed
April 15, 1876.

To all whom it may concern:

Be it known that I, JACOB BONSHIRE, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Brick-Machines; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is an elevation of a machine embodying my improvement, the hopper being broken away to show the ports in the bottom thereof. Fig. 2 is a horizontal section on the line *s s*, showing the top of the cut-off and the cam for operating the same. Fig. 3 is a horizontal section on the line *t t*, showing the moldways, the cam-arm for discharging the molds, and portions of the cam for operating the mold-follower. Fig. 4 is a horizontal section on the line *x x*, showing the cam for operating the cam-follower. Fig. 5 is a vertical section on the line *y y*, showing the mold and spring-top of mold-follower.

Like letters refer to like parts wherever they occur.

My invention relates to the construction of brick-machines of that class in which the mold is filled from a hopper, and a cut-off is employed to sever the clay between the mold and hopper.

Heretofore, in this class of brick-machines, the mold has been held up rigidly at the time of the operation of the cut-off, and as a result the cut face of the brick was irregular and the brick often defective, owing to the dragging of the cut-off and the lifting or forcing of the clay from the mold.

The object of my invention is to so support the mold that it shall not impede the operation of the cut-off, but yield sufficiently to permit the passage of the cutter, while preserving the relations of mold and bottom plate necessary for working the machine to the greatest advantage.

I will now proceed to describe my invention, so that others skilled in the art to which it appertains may make and use the same.

A indicates the bed of a brick-machine, and B the bottom plate of the hopper, supported

upon posts C. *b b* are ports in the bottom plate of the hopper, corresponding to the molds, and beveled, as shown, to facilitate the feeding and compacting of the clay. D are the moldways, supported on suitable cross-pieces E, which may be fastened to the post C of the bottom plate. These moldways are slotted at points directly under the ports *b b* of the bottom plate for the reception of mold-followers F, which may be loosely suspended by yokes *f*, or in other suitable manner, and are provided with two rollers, *g g*, that track with the cam-face of the half-circle cam-plate G. H is a shaft, stepped at *h*, passing centrally of the hopper, and provided with a series of arms of the usual form, (not shown,) for working the clay within the hopper, and with a sweep, *i*, for forcing the plastic clay through the ports *b*. Within the hopper, and surrounding the shaft, is a conical casing, I, which serves to direct the clay into ports *b*, and into the path of sweep *i*, and also prevents the clay from impeding the revolution of shaft H. Working close against the under side of bottom plate B, in suitable guides *b'*, and between the bottom plate and the molds, is a slide or cut-off, K, having a central slot, *k*, for the passage of the shaft H, and two slots, *b² b²*, corresponding in form and size to the ports *b b* of the bottom plate B. This cut-off K is reciprocated by a cam, *k'*, secured to shaft H, and the slots *b² b²* of the slide are at such distance apart as to alternately open and close the ports *b b*, so that one port is always closed as the other is opened. G is a cam-plate secured to shaft H, and provided with the cam-surfaces *e* and *e¹ e²*, which engage with rollers *g g* of the mold-follower F. This cam and the rollers of the follower F must be relatively arranged to lift the follower and mold evenly; which being attended to, it is immaterial whether the single or double flanged roller be in the lead, the only difference from the construction shown being that when the double-flanged roller is in the lead the cam-surfaces *e¹ e²* will be in the lead on the cam-plate G, instead of as shown in the drawing. F is the mold-follower suspended in the ways, as before specified. In order that the mold may be held firmly to the bottom plate of the hopper or

against the cut-off during the time the clay is being forced into the mold, and with a yielding pressure at the time the cut-off is operating, I make a false top or platen, f^1 , to the follower, and provide springs f^2 , which are compressed, so as to allow the platen to rest upon the mold-follower F, while the cams are forcing up the follower and the mold is being filled, but react when the cams cease to sustain the follower, so as to hold the mold up with a yielding pressure, and preserve the relation of the mold to the bottom plate without impeding the action of the cut-off. M represents molds of the usual pattern, and provided with the usual bottom board. N is a sweep or cam-arm secured to the shaft H, and preferably provided with an anti-friction roller, n . This arm forces the mold from beneath the ports when the cut-off has finished its operation.

The operation of these devices is as follows: The hopper having been supplied with suitably moistened clay, the mass is worked and forced down by the ordinary inclined arms or blade until it comes within the path of the sweep, which forces a portion of the plastic clay through the ports, the bottom of the hopper thus filling the mold. The cam which actuates the mold-follower is so connected to the shaft that it presses up the follower and holds the mold up rigidly during the time the sweep is thus filling the mold. At the instant the cams e e^1 e^2 release the mold-follower, the cut-off is actuated by its cam-arm and severs the clay between the mold and bottom plate, the mold being still held up by the spring-platen. As soon as the operation of

the cut-off is completed, the follower-cam passes from beneath the follower, permitting the mold to recede slightly from the bottom plate, so as to be out of contact therewith, when the end of sweep or cam-arm N strikes the mold and forces it along the moldways, making room for the next mold, which may then be introduced either by hand or machinery, as preferred.

In the drawing and description the mold-followers, ports, &c., are shown and described in duplicate; but it is evident that three, four, or more, may be arranged around the shaft without further direction.

The spring or relief platen is equally applicable to all brick or similar machinery wherein a cut-off works between a mold and hopper or bottom plate, and I do not wish to be understood as limiting it to combination with the exact devices shown.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a brick or similar machine, the combination of the cut-off, mold, and yielding mold-follower, substantially as specified.

2. The combination of the cut-off, mold, spring-top mold-follower, and the cam for actuating the mold-follower, substantially as specified.

In testimony whereof I, the said JACOB BONSHIRE, have hereunto set my hand.

JACOB BONSHIRE.

Witnesses:

JAS. DALZELL,
JAMES I. KAY.