

J. B. COLLEN.

Brick Machine.

No. 18,629.

Patented Nov. 17, 1857.

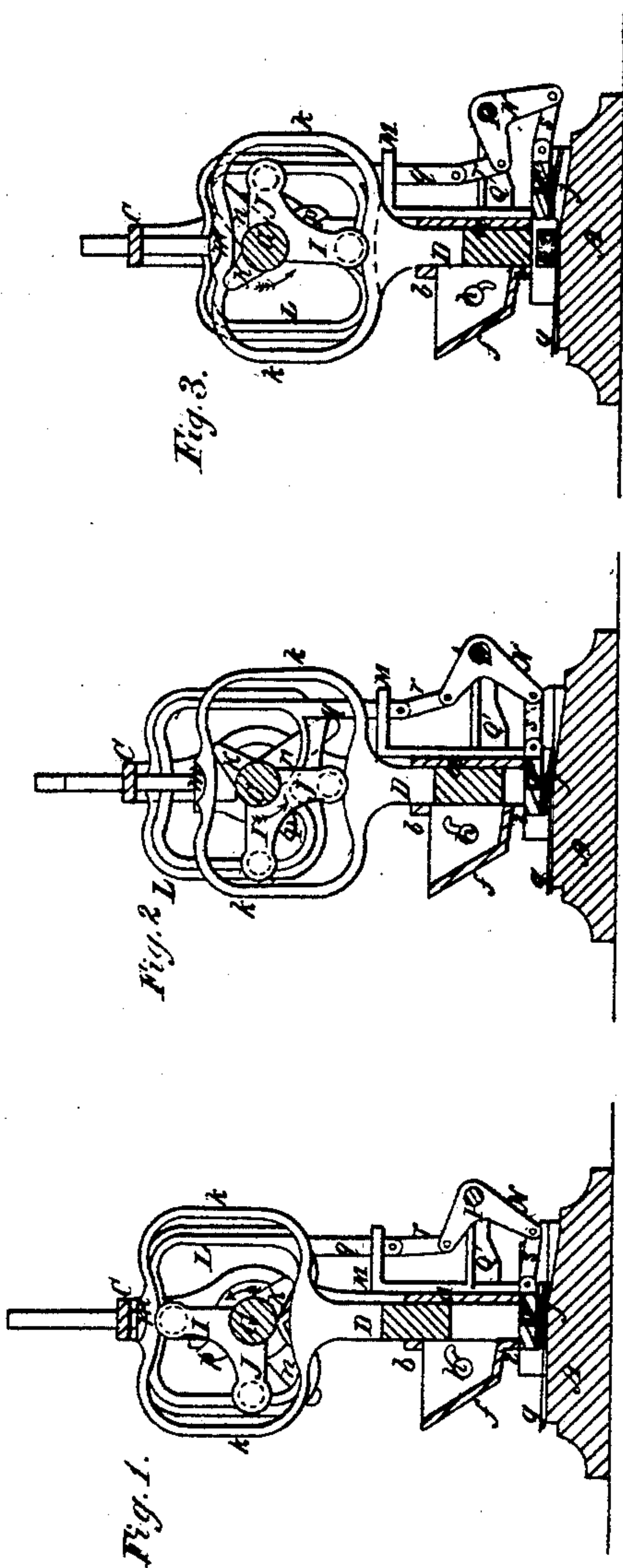


Fig. 4.

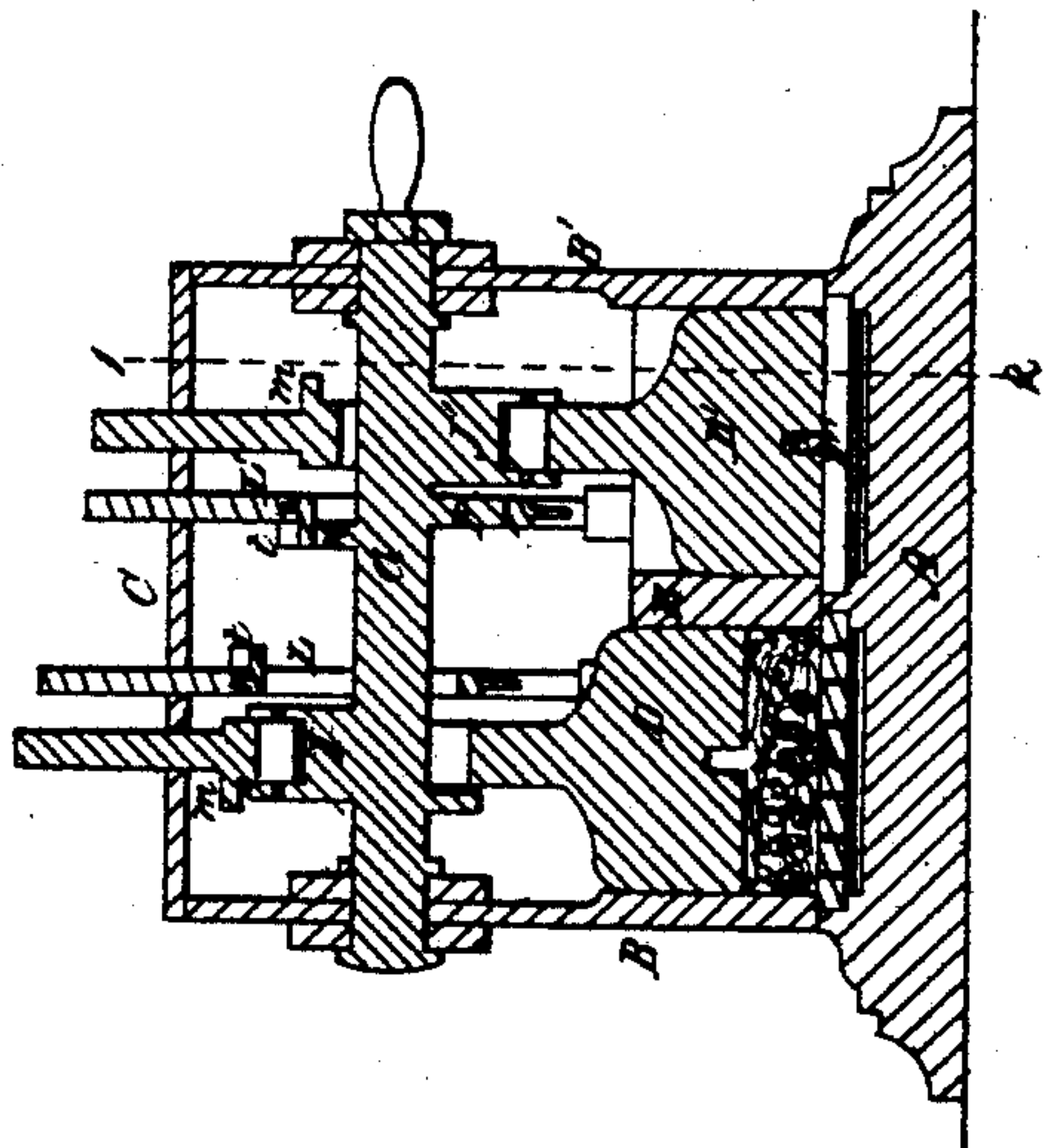
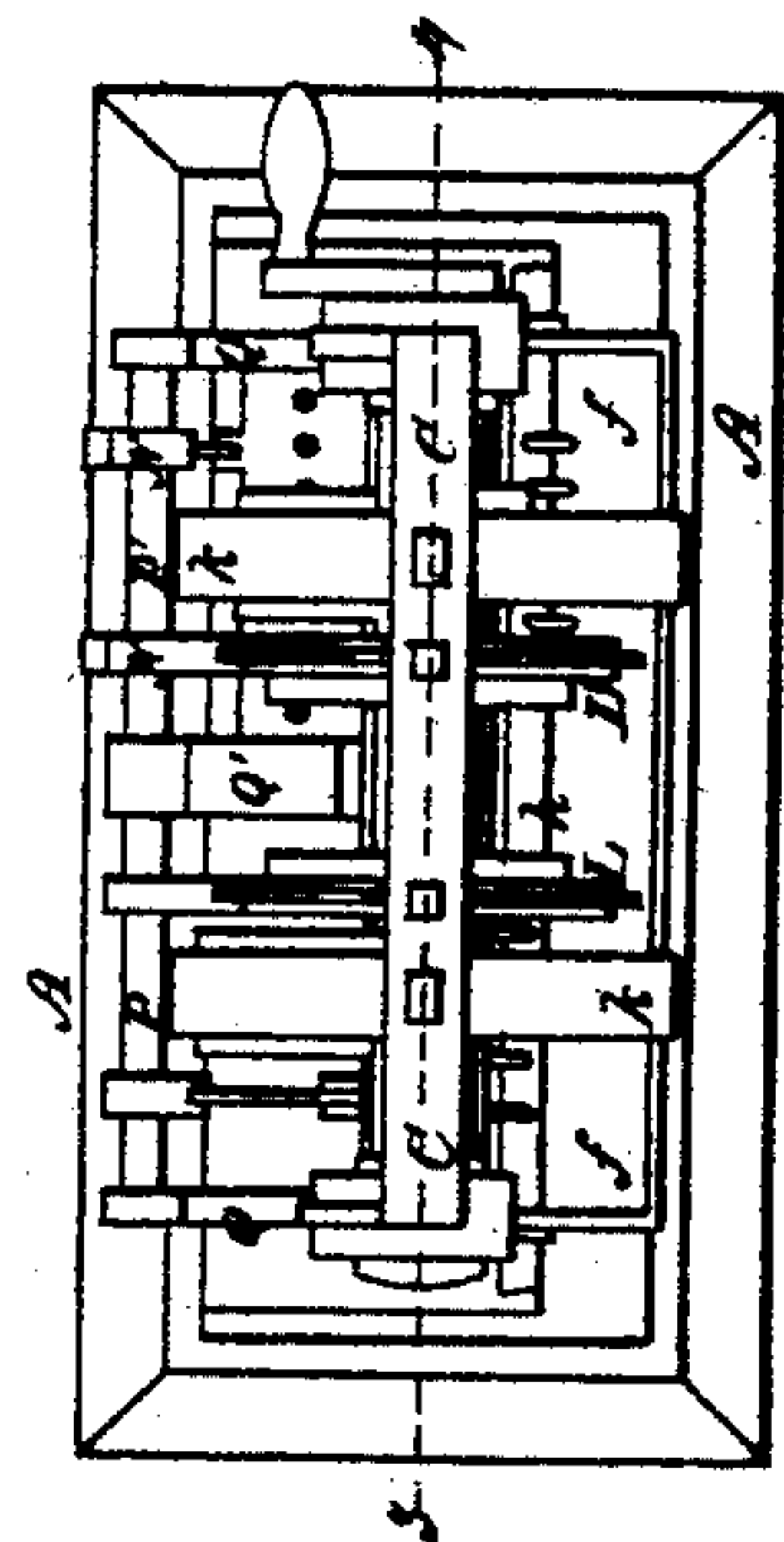


Fig. 5.





# UNITED STATES PATENT OFFICE.

JOHN B. COLLEN, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVED BRICK-MACHINE.

Specification forming part of Letters Patent No. 18,629, dated November 17, 1857.

*To all whom it may concern:*

Be it known that I, JOHN B. COLLEN, of the city of Philadelphia 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 of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention or improvement consists in the employment of perforated plates, so arranged and operating as to serve the double purpose of forming the bottom of the molds and forcing the brick free from the same, in combination with another set of plates, so arranged in respect to the first that the superfluous clay which passes through the perforations as each brick is being formed may be discharged at the rear of the machine and free from the molds.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the drawings which form a part of this specification, Figs. 1, 2, and 3 are sectional views of my improved brick-making machine on the line 1 2, Fig. 4, and showing the working parts in different positions; Fig. 4, a sectional elevation on the line 3 4, Fig. 5; Fig. 5, a ground plan.

Similar letters refer to similar parts throughout the several views.

A is the base of the machine, to which are secured the two standards B and B', connected together at the top by the bar C.

D and D' are two plungers, guided at the top by passing through the bar c and at the bottom by a plate, a, secured to the back of the standards, and a bar, b, attached to the front of the same. The bottoms of the plungers are guided at the sides by the standards B and B' and by the central piece, E. In front of the machine is secured a trough, f, for receiving the clay. In this trough and turning in the ends of the same is a shaft, h, furnished with projections at suitable distances apart, and caused to revolve by means of gearing connected with the main shaft G of the machine.

F and F' are perforated plates which slide in recesses in the base below the standards B and B' and central piece, E. These plates form the bottom of the molds, and have a reciprocating motion imparted to them in the man-

ner hereinafter set forth. Underneath the trough is a bar, i, extending across the machine, and between the inside of this bar and the inside of the plate a the distance is exactly equal to the width of a brick. Across the space between the bar i and plate a are secured the two transverse strips e e, which divide the space into four distinct molds, a recess being cut into the under side of the plungers in order to pass over the strips when completing their full descent. Underneath and to the lower side of the perforated plates are secured inclined plates j, the front edges of both coinciding and the base A being inclined to accommodate this plate. In the stem of each plunger is formed a yoke, k, through which passes the main shaft G of the machine, immediately above and below which the yoke projects inward with a regular curve, as seen in Figs. 1, 2, and 3.

On the main shaft G are secured the arms I and J—one set of arms for each plunger—the arm I being as much longer than the arm J as the brick to be manufactured is thick. Both arms are furnished at their ends with rollers, in order that when striking the curved portion of the yoke on the top and bottom the movements of the plungers may be more easy. On the shaft G are likewise two other arms, K—one for each plunger—each arm revolving with the shaft clear of the yoke, and arranged to strike with its point against the curved notch m, which projects from the side (at the top) of the yoke. L and L' are two yokes guided at the top in the cross-bar C and at the bottom by brackets M, secured to the back plate, a, of the machine, projections q from one end of the yokes passing through orifices in said brackets. Each yoke is connected by a rod, r, to one arm of a bell-crank lever, N, which is secured to a shaft, P and P', one shaft being allowed to turn independent of the other in the end brackets, Q Q, and central bracket, Q', the other arm of the bell-crank lever being connected by the links s to the perforated plate F. The downward movement of the machine is effected by the arm p and the upward movement by the arm n, the former striking a suitably-formed projection on the bottom of the yoke and the latter striking a curved projection, t, which stands out from the side of the yoke. The main shaft G being caused to revolve in the direction of the arrow



by any suitable driving machinery, a differential reciprocating movement is imparted to the plungers by the arms I, J, and K, and an intermittent reciprocating motion is imparted to the yokes L and L', and consequently to the perforated plates F and F', by means of the arms *n* and *p*. When the arm I is in the position shown in Fig. 1—that is, with its roller coinciding with the rounded projection under the top of the yoke—the plunger is in its most elevated position. At this point the arm *n*, having acted upon the projection on the side of the yoke L, has elevated the latter, and consequently acted upon the bell-crank lever N in such a manner as to force the perforated plate forward, the plate thus forming the bottom of the molds, and in this position it remains during the pressing of the bricks by the plunger. A body of clay is forced into the molds by the projections on the shaft *h*, which revolves within the trough *f*. The plunger now, by the action of the roller on the end of the shorter arm, J, striking the bottom of the yoke, descends until it arrives at the position shown in Fig. 2, when the clay has been compressed into the molds and the brick formed, the superfluous clay, together with the water, having, during the descent of the plunger, been forced through the perforations of the plates F, and thence onto the inclined plate *j*. As the shaft G continues to revolve, the arm K strikes the projection *m* on the side of the yoke and elevates it about half an inch, by which means the bottom of the plunger is relieved from the brick and the latter from the perforated plate, thereby allowing the same to be moved outward more easily. Immediately after this slight elevation of the plunger the arm *p*, by striking the projection on the bot-

tom of the yoke L', depresses the latter, and, acting on the bell-crank lever N, withdraws the perforated plate F' from underneath the molds. The roller at the end of the long arm I now strikes the bottom of the yoke *k* and causes the plunger to descend until the brick is forced clear of the mold onto the base A or onto a plate, *g*, above the same, as seen in Fig. 3. The brick being thus formed, the arm *n* elevates the yoke L' and restores the perforated plate to its original position underneath the molds, by which movement of the perforated plate the pressed brick is forced along the plate *g* clear of the molds. By the continued movement of the arms J and I the plunger becomes elevated to the position shown in Fig. 1, when a repetition of the above-described movements takes place.

It will be seen that by attaching the inclined plate *j* to the under side of the perforated plate all the superfluous clay which has passed through the perforations is carried off clear of the molds and deposited at the back of the machine.

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

The perforated plates F', operating as above described, in combination with the inclined plate or apron *j*, the whole operating substantially in the manner and for the purposes herein set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

JOHN B. COLLEN.

Witnesses:

HENRY HOWSON,  
WILLIAM E. WALTON.