

J. S. ELLIOTT.
BRICK MACHINE,

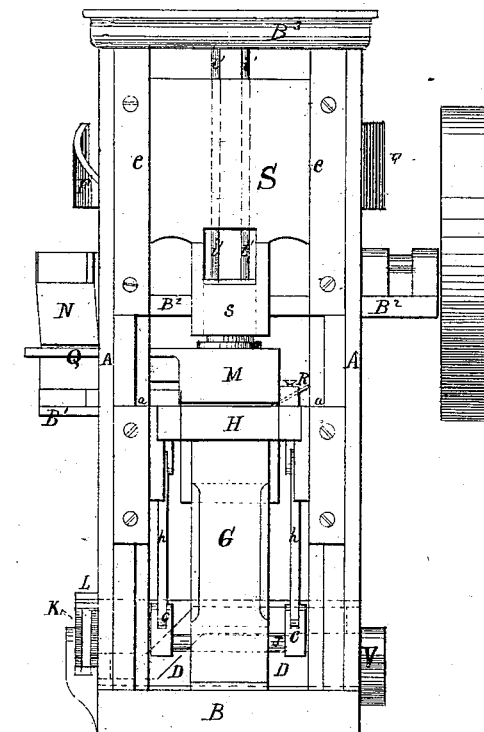


Fig. 1.

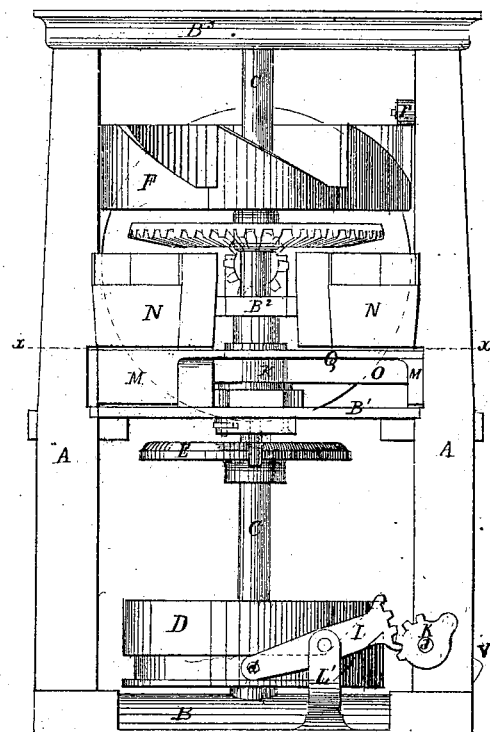


Fig. 2.

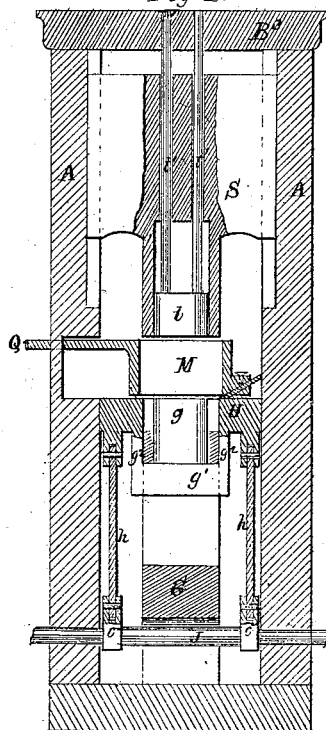


Fig. 3.

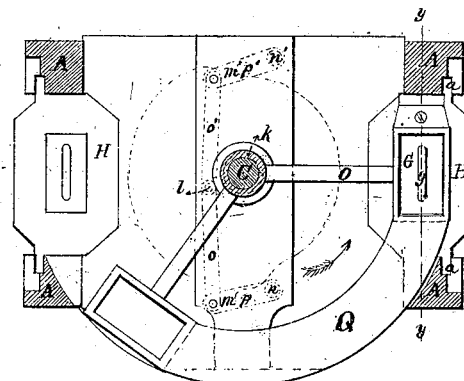


Fig. 4.

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JOSIAH S. ELLIOTT, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO UNION STONE COMPANY.

Letters Patent No. 107,017, dated September 6, 1870.

IMPROVED BRICK-MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

I, JOSIAH S. ELLIOTT, of Boston, in the State of Massachusetts, have invented certain Improvements in Brick-Machines, of which the following is a specification.

Letters Patent have already been granted to me for a brick-press and improvements therein, dated February 14, 1860, and June 26, 1866.

The present invention consists in a further improvement, whereby the bricks made in the machine shall be of uniform size.

It consists, further, in a new device for operating the carrier; and, further, in certain details of construction, hereinafter particularly set forth.

In the drawing—

Figure 1 is a front elevation of the machine.

Figure 2 is a side elevation of the same.

Figure 3 is a vertical section.

Figure 4 is a plan, showing parts below the line *xx* of fig. 2.

A is the frame, and

B, B', B², and B' are, respectively, the bed, two platforms, and the top of the machine.

C is an upright shaft, operated by a large cog-wheel rigidly attached to it, the teeth of which mesh with those of a small cog-wheel on the shaft of the driving-wheel. This latter shaft has its bearings in posts upon the platform B², as shown.

Upon the shaft C are three cams, D, E, and F, all revolving with it.

At the front of the machine is an upright post, G, the top of which forms the bottom of the mold in which the brick is pressed.

H is a movable platform, sliding up and down in ways, *a a*, in the frame. In the center it has a hole, corresponding in shape and size to a horizontal section of the post G. This hole forms four sides of the mold.

The platform H is moved up and down as follows:

Two bars, *h h*, are pivoted to its under side, the lower ends of these bars being pivoted to the outer ends of arms *c c*, on a shaft, J, which presses loosely and transversely through the lower part of the post G, and has its bearings in the frame.

The shaft J extends through the frame, and to one end, outside of the frame, is secured a toothed segment, K, into which a segment on the end of a lever, L, gears.

Upon the other end is a balance-weight, V, as shown.

The lever L is pivoted, at the middle, to a post, L'.

At the end opposite its segment it has a loose roller, *d*, which travels in a cam-groove cut in the revolving cylinder D. This cylinder, with its groove, has been previously designated as the cam D. It will be readily seen that the position of the roller *d* determines the position of the platform H. The groove is so cut

that the roller *d* is near the lower edge of the cylinder for most of its revolution, and the platform H is raised to its utmost limit. For a short distance, the roller works along the upper edge of the cylinder, and the platform is then down. It will be shown hereafter that the platform is up while the blows are given to press the brick.

The upper part of the post G is hollow, to allow *g*, the core of the mold, to slide up and down, it being designed to form a hollow brick.

The top of the core is always on a level with the top of the movable platform H, it being connected, at the lower end, to a bar, *g'*, passing through the post G, and secured, at either end, to the vertical bars *g'' g''*, attached to the movable platform, as shown. A slot is cut in the post G, to allow *g'* and *g* to move up and down.

When the platform H is raised to its fullest extent, its upper surface, and, consequently, the top of the mold, is on a level with the platform B'.

Working back and forth on the platform B' and the platform H, when raised, is a carrier, M. The limit of the movement of the carrier is forty-five degrees, between the mold and a hopper, secured to the platform B², as shown. The carrier has no bottom, the platforms B' and H serving as a bottom when it is not over the mold.

The carrier receives its motion as follows:

It is secured to the outer end of an arm, O, the inner end of which is attached to a sleeve, *k*, fitting loosely upon the shaft C. The sleeve *k* has a shoulder, as shown, to give it bearings upon the platform B'.

Below the platform B' the sleeve *k* has a projection, *l*, which is pivoted to two rods, *o* and *o'*, connecting, in turn, with the levers *m m'*, as shown in fig. 4 in dotted lines.

Each of these levers, *m* and *m'*, is pivoted to the platform B' by a pin, *n* and *n'*, as shown; and each has, upon its lower side, a pin and roller, *p* and *p'*, against which the cam E operates. The cam is shaped as shown in fig. 4, so as to press upon but one of the rollers at the same time, thereby imparting to the sieve *k* and the carrier a reciprocating motion.

It may be here observed, once for all, that, though duplicate parts are not generally shown in the drawing, the machine is double, in so far that the process of brick-making is carried on at the two ends alternately. There are, of course, two rams and two molds, the cams D and F doing double duty. There are, also, two carriers and two hoppers, the latter being both upon the same side of the machine, each forty-five degrees from its mold. Both carriers are operated by the cam E, and, while one is over the mold, the other is under its hopper.

Connecting the two carriers on a level with their tops is a platform, Q, which moves with them, and

which forms a bottom for the hoppers in the absence of the carriers.

R is a knife, secured to a projection from the carrier by a set-screw, as shown, to shave the brick after it is pressed, so that the top of the brick will be even with the top of the mold, thereby causing the bricks to be of uniform size.

S is a ram, working up and down in guides, *c c*, in the upper part of the framing.

The lower part or plunger *s* corresponds in size to the mold, and passes freely through the carrier.

The plunger is hollow, to receive within it the material left upon the core *g* of the mold.

A stationary block, *t*, attached to two bars, *t' t'*, passing through holes in the ram, as shown, fits the opening in the plunger, and prevents the latter from becoming clogged.

The ram *S* is operated by the cam *F*, through a pin and roller, *r*, attached to the ram, and resting upon the cam, as shown.

The operation of the machine is as follows:

The hopper being filled with suitable material, the shaft *O* is revolved in the direction of the arrow. This revolves the cams *D*, *E*, and *F*. The cam *D* acts immediately to raise the platform *H*, thereby forming a mold upon the top of the post *G*. As soon as the mold is formed, the cam *E*, acting upon the roller *p*, brings the carrier over the mold, when the cam *F* causes three blows, in quick succession, to be given to the material by the ram, ending by lifting the ram out of the way. The cam *E*, then acting upon the other

roller *p'*, returns the carrier to its place under the hopper, the knife *R*, in its passage back, shaving the brick so that it is even with the top of the mold. The cam *D* then causes the platform *H* to fall, and the pressed brick is removed from the top of the post *G* by the workman.

By pivoting the lever *L* at one side of the machine, a considerable advantage in power is obtained over the former machine, and the operating-parts, for raising the platform *H*, are less liable to be stopped by sand and gravel falling from above.

I claim—

1. The knife *R*, attached to the carrier, to shave the brick after the final blow has been given by the ram, that the bricks may be of uniform size.

2. The block *t*, substantially as described, to prevent the hollow plunger from clogging.

3. The device, constructed and operating as described, to give a reciprocating movement to the carrier and knife, consisting of the sleeve *k*, the connecting-rods *o o*, the levers *m' m'*, and cam *E*, acting as described.

4. The device for raising the platform *H*, consisting of the rods *h h*, the arms *c c*, the shaft *J*, lever *L*, pivoted as shown, and cam *D*, all acting as described.

The above specification of my said invention signed and witnessed at Boston this 2d day of June, A. D. 1870.

JOSIAH S. ELLIOTT.

Witnesses:

WILLIAM W. SWAN,
JNO. F. WOOD.