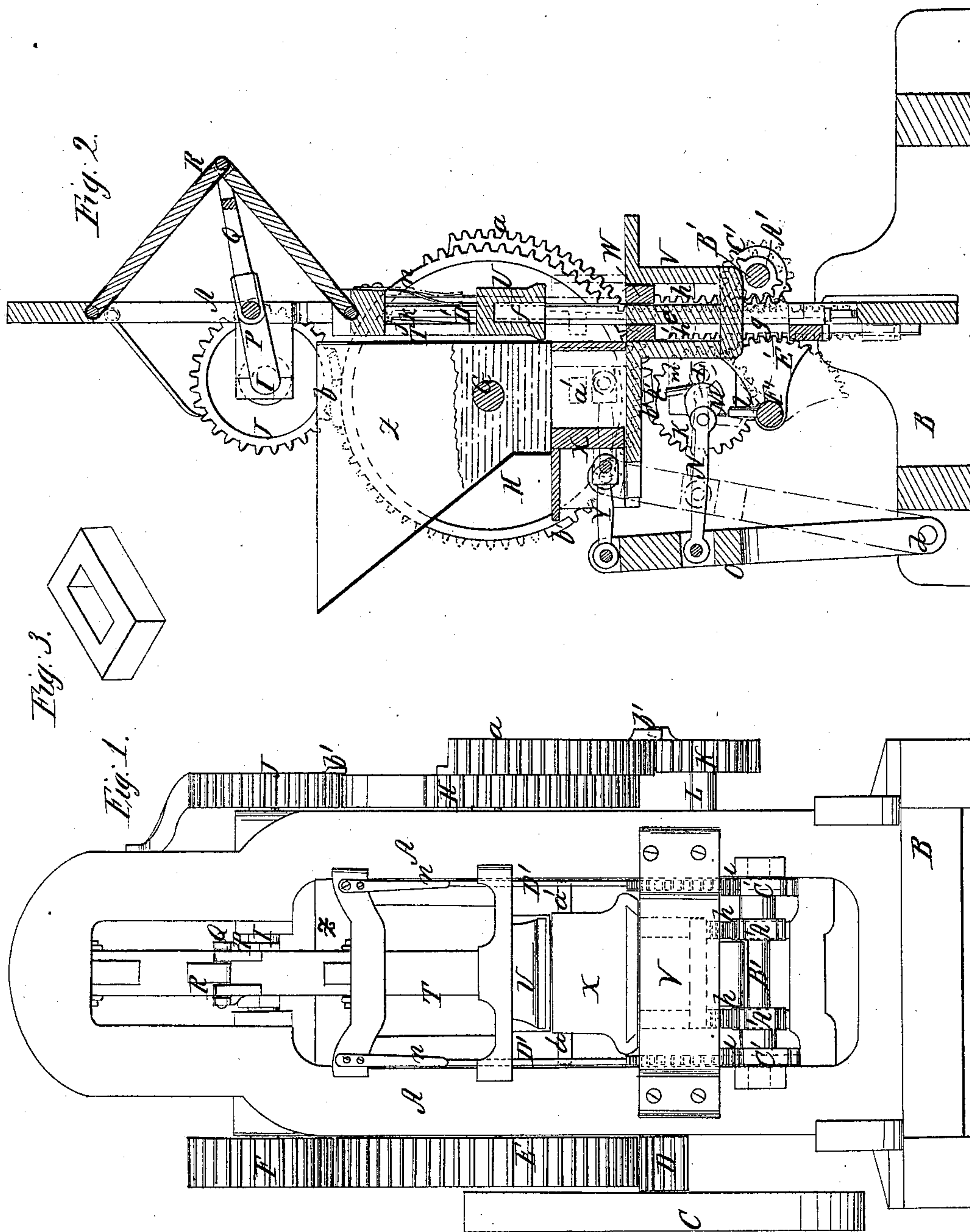


M. & J. H. Buck & F. A. Cushman,
Brick Machine,
No. 14,947, Patented May 27, 1856.



UNITED STATES PATENT OFFICE.

MARTIN BUCK, JAS. H. BUCK, AND FRAS. A. CUSHMAN, OF LEBANON, NEW HAMPSHIRE.

BRICK-MACHINE.

Specification of Letters Patent No. 14,947, dated May 27, 1856.

To all whom it may concern:

Be it known that we, MARTIN BUCK, JAMES H. BUCK, and FRANCIS A. CUSHMAN, of Lebanon, in the county of Grafton and State of New Hampshire, have invented a new and Improved Machine for Molding and Pressing Hollow Brick; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a front view of our improvement. Fig. 2, is a transverse vertical section of the same, the plane of section being through the center. Fig. 3, is a perspective view of a hollow brick.

Similar letters of reference indicate corresponding parts in the several figures.

Our invention consists in a peculiar manner of operating the plunger, and mold clearer, whereby the machine operates automatically, the several parts working successively and at the proper time by simply rotating the driving wheel or pulley as will be hereinafter fully shown and described.

To enable others skilled in the art to make and use our invention, we will proceed to describe its construction and operation.

A, A, represent two upright posts, which are secured to a base B.

C, represents the driving pulley of the machine. This driving pulley has a pinion D, on its axis, said pinion gearing into a toothed wheel E, over which a pinion F, is placed, the pinion F, having a smooth space or surface on a portion of its periphery. The wheel E, is attached to one end of a shaft G, which has its bearings on the posts A, A. The opposite end of the shaft G, has a wheel H, upon it, which wheel is toothed on a portion of its periphery, and this wheel has also a toothed flanch (a) attached, which flanch also extends around a portion of its periphery. The pinion F, is attached to one end of a shaft I, which has its bearings on the posts A, A, and the opposite end of this shaft has a pinion J, upon it, having a smooth surface (b) on its periphery as shown in Fig. 2. The pinion J, is directly over the wheel H.

K, is a pinion attached to the outer end of a shaft L, which has its bearings at the lower end of one of the posts A. The pinion K, has also a smooth portion (c) on its

periphery, as shown in Fig. 2. On the inner end of the shaft L, there is placed a crank M, to which a pitman N, is connected. This pitman is attached to a lever frame O, the lower end of which works on centers (d) in the base B.

The shaft I, has a crank P, at its center, and a pitman Q, is attached to this crank, the outer end of said pitman being connected to a toggle R, the outer end of the upper arm of which is connected to a cross piece at the upper ends of the two posts. The lower end of the lower arm of the toggle is connected to the upper end of a frame T, which is fitted and works between the two posts A, A. To the center of the lower part of the frame T, a plunger U, is attached.

V, represents the mold which is secured between the two posts A, A, underneath the plunger U. The mold is perfectly stationary, and has an upright core or projection (e) within it, as shown in Fig. 2, and has a block or mold clearer W, within it, the block or clearer fitting around the core or projection (e). The plunger U, has a recess (f) within it, in which the core (e) passes, when the plunger is depressed.

X, is a sand or clay box which works on a proper guide or way directly over the mold. The sand or clay box is connected by a pitman Y, to the upper end of the lever frame O, see Fig. 2.

Z, represents a hopper placed back of the two posts A, A. The lower end of this hopper extends down as far as the upper end of the sand or clay box X.

To the under side of the block or mold clearer W, there are attached two vertical arms (g) (g) having racks (h) (h') on their front and back sides. The front racks (h) gear into part pinions A', A', which are placed on a shaft B', at the lower parts of the posts A, A. This shaft B', also has a part pinion C', at each end, which pinions gear into racks (i) (i) on the lower parts of rods D', the upper ends of which have hooks (j) upon them, which hooks catch over projections (k) on the frame T, when said frame is depressed and the plunger U, within the mold V. The racks (h') on the back sides of the arms (g) (g) gear into segments E', E', which are placed on a shaft F', at the back of the posts A, A. This shaft has a pin (l) attached to it against which pin a pin (m) on the inner end of the shaft L, acts intermittently as will be presently

described. To the upper cross head of the frame T, there are attached springs (n) (n), the lower ends of which bear against the rods D'.

5 Operation: Suppose the several parts of the machine to be in the position shown in black Fig. 2, the sand or clay box X, being underneath the hopper Z, the plunger U, being raised, and the block or mold clearer W, at the upper end of the mold. The sand or clay is placed in the hopper Z, and the sand or clay will fall into the box X, as shown in Fig. 2. Motion being given the pulley C, the toothed flanch (a) will strike the toothed portion of the periphery of the wheel K, and the shaft L, will of course be rotated, the crank M, and pitman N, drawing inward the upper end of the lever frame O. As the upper part of the lever frame is drawn inward the pitman Y, pushes the sand or clay box X, from underneath the hopper Z, and over the mold V, and when the said clay box is over the mold projections (a') on the sides of the sand or clay box strike against the rods D', and throw the upper ends of said rods free from the projections (k) on the frame T. When the parts are in this position the pin (m) on the shaft L, strikes the pin (l) on the shaft F', and said shaft with the segments E', E', and part pinions C', C', will be turned, and as the segments E', gear into the racks (h') and the part pinions C', gear into the racks (i) the block or mold clearer W, and the rods D', will descend, the block or clearer resting upon the bottom of the mold V. The crank M, and pitman N, then throws the upper part of the lever frame O, outward and the pitman Y, throws back the sand or clay box X, underneath the hopper Z. The toothed portion of the periphery of the wheel H, then gears into the toothed portion of the periphery of the pinion J, and the shaft I, is turned by the wheel E, which now gears into the pinion F, the crank P, and pitman Q, drawing inward the toggle R, and forcing the plunger U, within the mold V, said plunger compressing the sand or clay which fell from the box X, into said mold when the box X was over it. When the toggle R is straight, or when its two arms are in line the plunger is depressed to its fullest extent, and the crank P, and pitman Q, now raise the frame T, and

plunger U, and the springs (n) (n) when the frame T, was depressed forced the hooks (j) on the rods D', over the projections (k) on said frame, and as the racks (i) on said frame gear into the part pinions C', it follows that as the frame T, and plunger U, rise the shaft B', will be turned and the block or mold clearer W, will also be raised in consequence of the part pinions A', gearing into the racks (h) (h), and the part pinions A', C', are so proportioned that the block or mold clearer will rise slower than the plunger, so as to allow said plunger to be sufficiently raised and be beyond the reach of the pressed brick, which is forced up out of the mold by the block or clearer W.

It will be seen that the plunger U, is raised or commences to be raised when the arms of the toggle are straight, so that considerable power is obtained when power is required. The brick is pressed in hollow form, as shown in Fig. 3, in consequence of the core or projection (e) in the mold, and the recess (f) in the plunger.

The above machine in consequence of its parts being operated as shown, is rendered perfectly automatic, and the toothed portions of the wheel H, and pinions J, K, are made to fall in gear perfectly at the proper time by having lugs (b') attached to them which come in contact just before the teeth and serve as guides.

We do not claim the mold V, plunger U, and sliding sand or clay box X, for they have been previously used for molding and pressing hollow brick, although operated separately, and quite differently arranged from the plan herein described.

What we claim therefore as new and desire to secure by Letters Patent, is,

Connecting the plunger U, with the block or mold clearer W, by means of the rods D', having the racks (i) on their lower parts, which racks gear into the part pinions C', C', on the shaft B', whereby the plunger is allowed to rise more rapidly than the mold clearer as herein described.

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Witnesses:

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TIMOTHY KENRICK.