

G. C. BOVEY.
Brick-Machines.

No. 138,731.

Patented May 13, 1873.

Fig. 5.

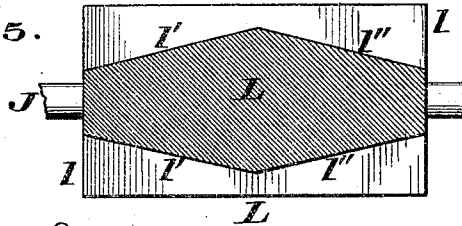


Fig. 1.

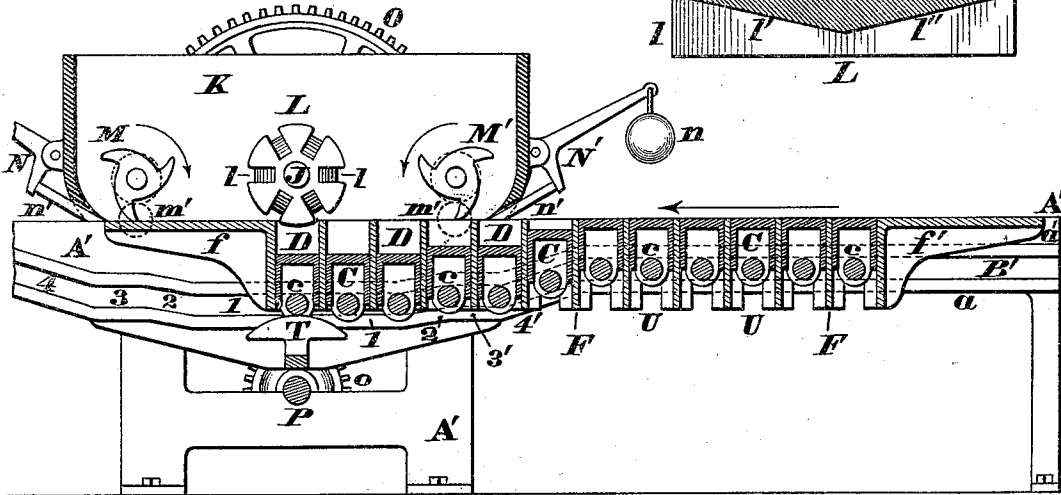


Fig. 2.

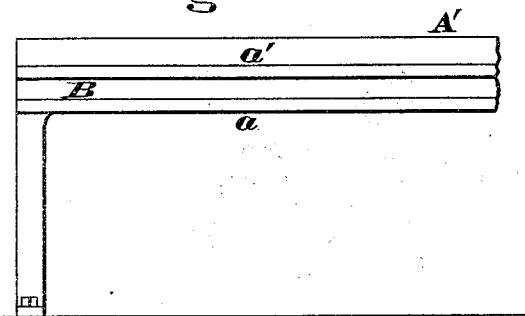


Fig. 3.

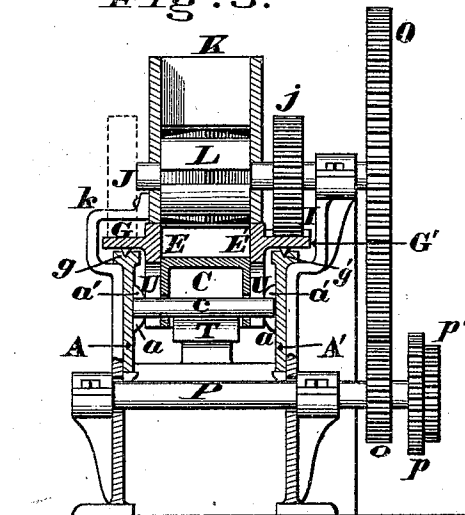
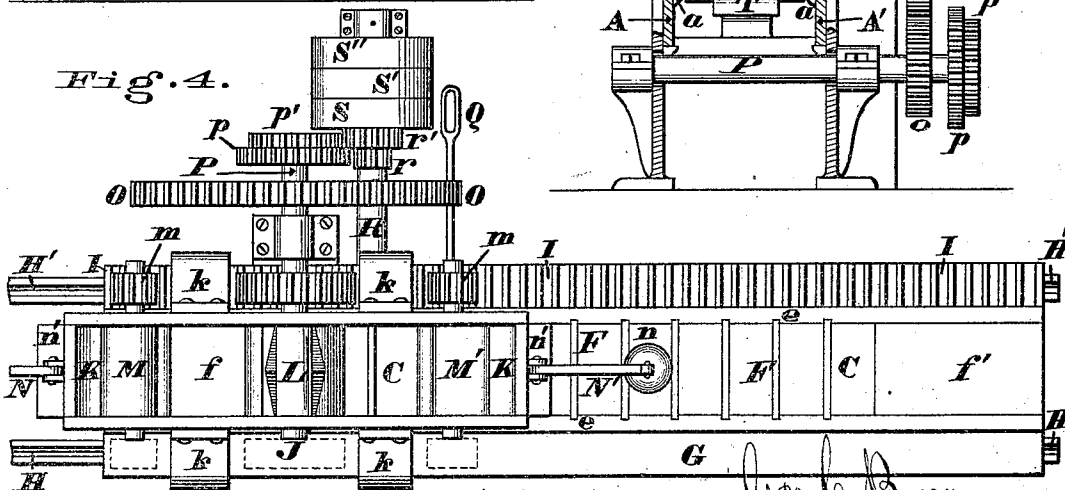


Fig. 4.



Attest.

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UNITED STATES PATENT OFFICE.

GEORGE C. BOVEY, OF CHILlicothe, OHIO.

IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. **138,731**, dated May 13, 1873; application filed January 9, 1873.

To all whom it may concern:

Be it known that I, GEORGE C. BOVEY, of Chillicothe, Ross county, Ohio, have invented certain new and useful Improvements in Brick-Machines, of which the following is a specification:

Nature and Objects of the Invention.

My machine consists essentially of a stout frame whose inner sides are provided with longitudinal grooves or channels that serve as guides for the protruding ends of the plunger-shafts, which latter are disposed horizontally and transversely of the main frame of the machine. These shafts, by engaging with the aforesaid grooves or channels, act to elevate and depress the plungers or pistons at the proper moment. Said plungers are arranged so as to have a vertical movement within the molds, which molds are located in a carriage that has a reciprocating action longitudinally of the main frame. As this carriage reciprocates along the aforesaid frame the molds are successively brought within a hopper, where they are filled with the clay, which is packed into the molds by the rotation of a pressure-roller and suitable wallowers. After the carriage has progressed a sufficient distance to carry the molds beyond the hopper said molds are delivered of the compressed clay by the ascent within them of the plungers. The pressure-roller, which serves to pack the molds, is so constructed as not to become choked up with clay; and this result is effected by providing said roller with channels having two inclined faces that serve to conduct the earth to the ends of said roller, where it is free to be discharged into the hopper and again used.

Description of the Accompanying Drawing.

Figure 1 is a vertical longitudinal section of my brick-machine, the left end of the frame being broken away. Fig. 2 represents that portion of the frame which has been removed from the preceding illustration. Fig. 3 is a transverse section of the machine in the plane of the pressure-roller, or, in other words, at the midlength of the main frame. Fig. 4 is a plan of the machine, and Fig. 5 is a longi-

tudinal section through the pressure-roller on a somewhat enlarged scale.

General Description.

A A' represent heavy iron castings, which constitute the main frame of the machine, and said castings have projecting from their inner sides two parallel ribs or flanges, *a a'* which inclose channels or grooves B B', the latter being adapted to receive the protruding ends of the plunger-shafts *c*. These shafts are journaled longitudinally within the hollow plungers C, which are adapted to have a vertical movement in the molds D. These molds are rectangular chambers formed within a reciprocating carriage that is constructed as follows: E E' represent two vertical and parallel plates having gains or grooves *e* in them, within which are secured the webs F that constitute the partitions between the different molds D. The ends of this carriage are composed of plates *f f'*, which prevent the clay escaping from the hopper whenever said carriage is fully retracted, as shown in Fig. 1. The side-plates of the carriage are provided with horizontal flanges G G', having on their under sides angular ribs *g g'*, which are adapted to traverse the V-shaped grooves H H'. These grooves are formed in the upper edges of the main frame A A'. The flange G is smooth on its upper surface, while the other one, G', has a rack, I, formed upon it; but for large machines it may be found desirable to provide two racks similar to the one I, as indicated by dotted lines in Figs. 3 and 4. Engaging with this rack is a pinion, *j*, which is secured to a counter-shaft, J, the latter being journaled transversely of the hopper K, which hopper is supported upon the main frame of the machine by brackets *k*, or otherwise. Located within this hopper, and secured to the counter-shaft J, is a pressure-roller, L, provided with a series of longitudinal channels, *l*, which are so disposed as to receive the upper ends of the partitions F whenever the machine is in operation. In order to prevent these webs from packing the clay tightly into the channels *l*, the bottoms thereof, instead of being parallel with the axis of the roller, slope from the mid-

length of the same to both of its ends, as shown at $V V'$, Fig. 5. By this arrangement the clay, as rapidly as it enters these channels, is deflected toward the ends of the roller, and thence it is ejected into the hopper. $M M'$ are wallowers that assist in filling the molds with clay, and the shafts of these wallowers are furnished with pinions m , that are driven from the rack I through the instrumentality of intermediate wheels m' , as indicated by dotted lines in Fig. 1. Pivoted to the ends of the hopper are bell-cranks $N N'$ that are loaded at n , so as to maintain the knives n' in contact with the face of the molds. These knives serve to remove all superfluous clay from the top of the molds, and they are placed in such an angular position as to be self-sharpening. Keyed to one end of shaft J is a spur-wheel, O, which gears with a pinion, o, the latter being secured to the driving-shaft P of the machine. This driving-shaft has two pinions, $p p'$, upon it, which mesh with the forward and backward gears $r r'$ that are mounted upon the stud-shaft R. This shaft also carries three pulleys, $S S' S''$, for the reception of the driving-belt, the latter being automatically changed from one pulley to another by the belt-shifter Q.

As the above-recited reversing devices Q R $r r' S S' S''$ are precisely like those in common use in ordinary planing-machines, no further description of them is necessary in this specification.

Placed in the line with the counter-shaft J is a crowning-plate, T, which serves to support the plunger-shafts c when they are subjected to the strain brought to bear upon them by the pressure-roller L. U are slots in the side-plates of the carriage to permit the ascent and descent at the proper moment of the plunger-shafts c .

Operation.

The operation of my machine is as follows: While the carriage is moving in the direction indicated by the arrow, the clay in the hopper is being conducted into the molds D by the action of the wallower M' , which is then rotating in the manner represented by the curved arrow. The progress of the carriage within the hopper K causes all the molds to be filled full of clay, and as rapidly as they reach the middle of the said hopper K, the clay within them is then acted upon by the pressure-roller L. This roller is so constructed, that its solid or segmental portions are somewhat less, both in length and width than the molds are, and consequently any excess of clay within said

molds is forced out around said segmental portions, and there is therefore no danger of injuring the machine by overstraining it, and the device also allows air to escape. While the clay within the mold is being subjected to the pressure of the roller L, the shaft c of the plunger C is resting upon the crowning-plate T. By this arrangement, neither said shaft nor the flanges $a a'$ are subjected to any strain whatever. During the time the clay is being pressed into the molds, the shafts c are traversing the central or horizontal portion 1, that connects the two grooves B and B'. As the carriage moves toward the left, the shafts c ascend the incline 2, and in so doing, the plungers are elevated a sufficient distance to bring the concave surface of the clay on a level with the top of said carriage. The shafts then traverse the short horizontal groove 3, and during such traversal the knife n' shaves off the top of the clay and leaves it in a perfectly smooth and level condition. From this horizontal groove the shafts then enter the inclined one 4, which communicates with the main groove B. The ascent of the shafts within this last incline 4 lifts the plungers so far as to eject the pressed clay completely out of the molds, and the bricks are then removed from the machine by hand or otherwise. Having completed its movement to the left, the belt-shifter Q then reverses the motion of the carriage toward the right, when the previously described operation of filling and emptying the molds of clay is again repeated, it being understood that the arrangement of grooves 2, 3, and 4 are duplicated from the center toward the right end of the frame, as at 2' 3' 4'. Additional pressure-rollers similar to the one L may be substituted for the wallowers $M M'$.

Claims.

I claim as new and of my invention—

1. In a brick-machine having a reciprocating bed carrying a number of molds, the combination of the molds D, followers C provided with journals c , and guiding grooves B' of the longitudinal framings A'.

2. In combination with the molds, the cylindrical presser-roller L having radial channels l , and situated in the hopper, substantially as and for the purposes set forth.

In testimony of which invention I hereunto set my hand.

GEO. C. BOVEY.

Attest:

GEO. H. KNIGHT,
JAMES H. LAYMAN.