

J. Booth,

Brick Machine.

No. 5,640.

Patented June 20, 1848.

Fig. 3.

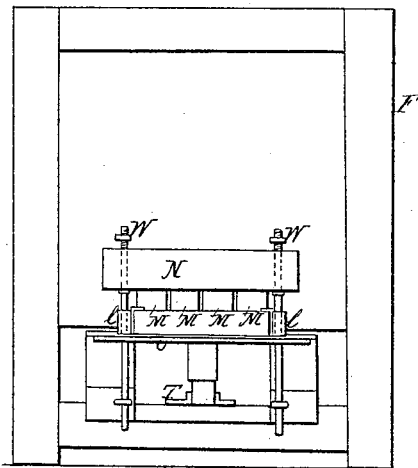


Fig. 1.

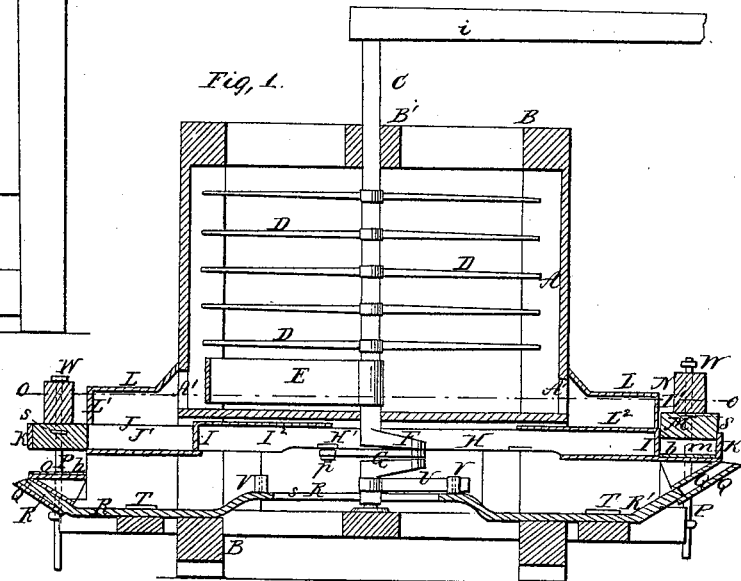
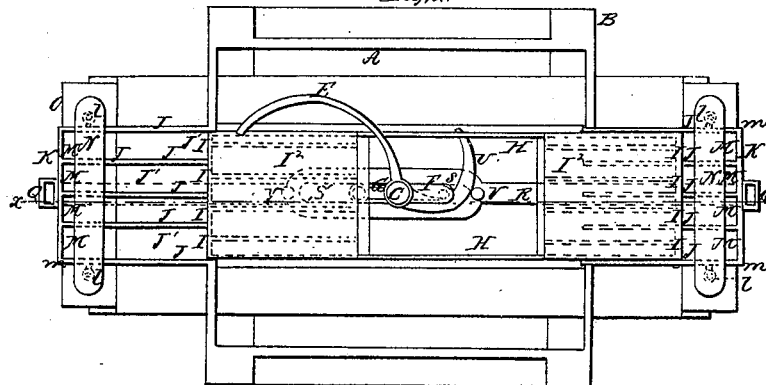


Fig. 2.

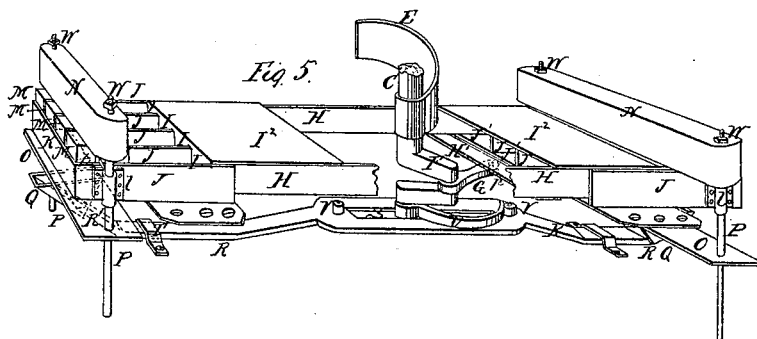
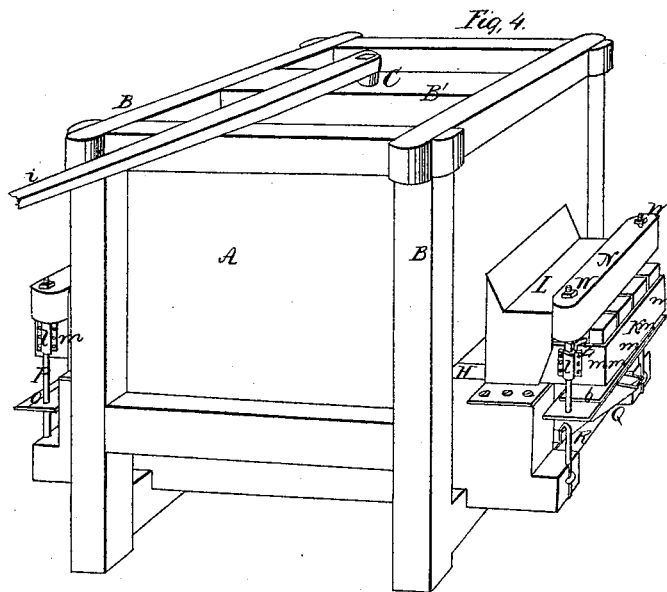


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UNITED STATES PATENT OFFICE.

JOHN BOOTH, OF MOBILE, ALABAMA.

BRICK-PRESS.

Specification of Letters Patent No. 5,640, dated June 20, 1848.

To all whom it may concern:

Be it known that I, JOHN BOOTH, of the city and county of Mobile and State of Alabama, have invented a new and useful Improvement in Machines for Molding and Pressing Bricks, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1, is a vertical longitudinal section through the line *xx* of Fig. 2. Fig. 2, is a horizontal section of the machine through the line *oo* of Fig. 1. Fig. 3, is an end elevation of the machine. Fig. 4 is a perspective view of the machine. Fig. 5 is a perspective view of the molding and pressing apparatus.

Similar letters in the figures refer to corresponding parts.

The nature of this invention consists in placing the clay or mortar to compose the bricks, in a square box or receiver, A, having a vertical shaft C, armed with swords D, for tempering the clay or mortar, turning in the center, and forcing said clay or mortar into flumes J' at either end of the machine, by a curved bar or plate E secured on said shaft C; from which flumes it is forced, alternately, into molds, corresponding in shape with the intended brick, by platens I, secured on the ends of horizontal bars H, arranged below said box, and attached to the end of a pitman rod G secured at its opposite end to a crank F on the main shaft C which causes said platens I to move outward, alternately, and to force the clay into the molds *m*, as before stated, and to form the bricks;—and also in discharging the bricks from the molds, by means of a combination of plungers, M, vertical sliding rods, P, cams, &c., to be hereafter described.

The box A, for the reception of the clay, is formed within a rectangular frame B of sufficient size and strength to contain and support the several parts of the machine.

Inside this box is arranged a vertical shaft C, resting in a step at the lower part of the frame, and supported at its upper end by a box in a cross timber B' of the upper part of the frame. This shaft is provided with a series of swords D, for tempering the clay, and a curved bar or feeding plate E, inside the box, and a crank F near its lower end below the box; to which crank F is attached a rod G; it is also attached at

its opposite end to a pin *p*, projecting downward from a cross bar H', secured to the longitudinal bars H, to which the platens I are secured, and by which they are connected together.

The platens I, are guided in their backward and forward movements by parallel metallic plates J, arranged longitudinally on their edges, entering grooves in the same. These plates J are arranged at each end of the machine, and are secured thereto, and together, at their outer extremities by cross plates K, the required distance apart, to correspond with the width of the required bricks, and in such manner as to form, with the platens I the sides and ends of the molds. These plates J, also form the sides of the flumes J' for the reception of the mortar, after it is forced from the box A by the curved bar E, on the vertical shaft, being covered about two thirds their length, by a metallic hood or inverted trough L, the upper covering of which is arranged a short distance above their upper edges, and extended upward near their inner part, at an angle of about 45 degrees to communicate with openings A' in the box. Plungers or pistons M, are arranged between these plates, J, being grooved in a similar manner to the platens I mentioned above, to receive them, and are secured on the under surface of transverse timbers N, and form the tops of the molds, and receiving alternately an up and down movement to force the bricks from the molds on boards *b* that set on the metallic cross plates O, arranged below, and said boards *b*, forming the bottoms of the molds, when the plates O are raised, and receivers for the bricks, after they are discharged. They then are borne off on the said boards *b* and stacked away for drying.

The metallic plates O just mentioned are secured at or near their extremities to two parallel upright rods P, passing loosely through grooves, or mortises, in the frame or eye bolts inserted into the frame and attached at their upper ends to the extremities of the cross timbers N, to which the pistons M, are secured and sliding up and down through openings in said timbers N. Inclined mortises or troughs Q are formed in projections on the lower sides of said plates O; which openings incline downward, and inward, from the outer edges of the plates at an angle of about 45 degrees to re-

ceive the bent ends R' of a horizontal rod, or plate R, bent upward at the same angle. This rod or plate R has an oblong slot S, formed in its center, through which the vertical shaft C passes, serving, with mortises formed by straps of iron T, near each end, through which it passes, to guide it in the backward and forward movement, which it receives from a cam or curved bar U, on the vertical shaft, striking against small friction wheels V on its upper surface—causing its inclined ends to move through the inclined openings Q, in the projections on the under surfaces of the cross plates O, and to alternately raise and lower said plates O, and with them the upright rods P, cross timbers N, and pistons M attached to them on their under surfaces.

The vertical rods P pass through openings in the cross timbers N, loosely, and have nuts W, screwed on their upper ends a short distance above the upper surfaces of the said cross timbers, N, and shoulders s on them below the under surfaces of the same, so as to allow the plates O to descend some distance and relieve the lower surfaces of the bricks, before the pistons commence to force the bricks out from the molds; and also to allow sufficient space between them and the plates O when down, to remove the bricks from the plates O, as they lie on the boards b.

Z are rods, or stops, inserted in corresponding sockets secured to the sides of the molds, m, and bent at their upper ends so as to project beyond the sides of the outside molds, and entering cavities in the sides of the outside plungers M', in such a manner as to stop the plungers in their ascent, to gage the thickness of the bricks.

The operation of the machine is as follows: Motion being communicated to the vertical shaft C, by steam, horse, or any convenient power, the clay is placed in the box in the state of mortar, or otherwise and tempered to the proper degree of consistency by the knives or swords D; a sufficient quantity of the mortar is alternately forced into the flumes J', by the curved bar or plate E, revolving with the shaft C, and is forced thence into the molds m formed by the longitudinal plates J and transverse plates K, and by the off bearing board b, and pistons M, and formed into bricks by the platens I, operated by the crank F, and rod G. At the moment one set of molds are thus filled, the curved bar or cam U on the lower part of the vertical shaft, strikes the friction roller V, on the slotted bar R nearest the set filled, and forces the inclined ends of said bar through the inclined openings Q on the under sides of the transverse plates O causing said plates and the rods and pistons attached to them to move, the one upward, to form the molds (the pistons

being gaged by the stops Z on the sides of the molds) for a fresh supply, and the other downward to discharge the bricks already molded—the plate descending, moving before the pistons M, above it, in order to take the pressure from the bottoms of the bricks, and to leave sufficient space between them and the pistons, to allow the removal of the bricks, as before stated.

This machine by taking off the hoods becomes a complete compressing machine; and thereby placing bricks of a proper size partially dried, in the flumes or chambers before the platens they are carried by said platens directly into the molds and when plunged out by the pistons M will be completely pressed.

I² are horizontal plates attached to the platens to prevent the descent of the clay from the hoods L during the operation of pressing the clay into the molds.

i is the sweep, or lever, to which the animals are attached that propel the machine.

In describing the operation of the machine it should have been stated that the pistons M will be raised to the required height to form the tops of the molds by the shoulders s on the rods P, the board b forming the bottom of the mold as aforesaid, and that the weight of the pistons M and of the beams N to which they are fastened will be sufficient, independent of the friction of the plates K and L' against the sides of the pistons, to prevent the pistons from rising during the operation of pressing the clay into the molds to form the bricks and hence the space between the beams N and nuts W will remain the same during the operation of pressing the bricks; and when the bricks are about to be discharged from the molds the rods P, with the plates O attached to them and the boards b resting on said plates O will be caused to descend by the action of the sliding bar R, until the nuts W strike upon the beam N, when this will also be caused to descend with the pistons M attached to them and will push the bricks down from the molds upon the board b by which they are borne off to the drying ground; or wherever desired. In pressing partially dried brick the operation of the rods P and plates O will be the same.

The foregoing arrangement and operation admits of the boards b with the bricks thereon being raised slightly by the off bearer and removed from the plate without touching the bottoms of the molds.

The flumes may be dispensed with by arranging the molds and plungers or pistons close to the sides of the mixing tub—the contiguous portions of the machine being modified in their arrangement to correspond with such change of position of the molds and pistons.

In the foregoing specification having

fully described the construction of my machine and the manner of operating the same, I do hereby state that I do not claim the mixing tub A, nor the manner of preparing the clay; but

What I do claim as my invention and desire to secure by Letters Patent, is—

1. The method of discharging the bricks from one set of molds while the others are being filled—by the combination, arrangement, and operation of the reciprocating sliding bar R made with two inclined ends R' and the plate O having two inclined grooves Q formed on the under sides thereof in which, said inclined ends of the bar R slide back and forth reciprocally—said plates O being attached to the vertical parallel sliding rods P to which the pistons M are secured as aforesaid.

2. I also claim the mode of relieving the lower sides of the bricks before the pistons

M commence discharging the same by causing the plate O and board b to descend a limited distance and making the spaces between the upper surfaces of said plates, and the under edges of the molds, after the discharge of the brick from the same greater than the thickness of the bricks, to allow them to be removed without touching the molds by raising the nuts W on the ends of the rods P (passing loosely through the transverse timbers N) and forming shoulders s on the rods P a short distance below the under sides of said timbers N as described.

In testimony whereof I have hereunto signed my name before two subscribing witnesses this seventh day of March, 1848.

JOHN BOOTH.

Witnesses:

F. G. KIMBALL,
JNO. W. OVERALL.