Booth & Stevenson,

Brick Machine.

No. 3,399. Patented Jan. 6, 1844.

Fig. 1.

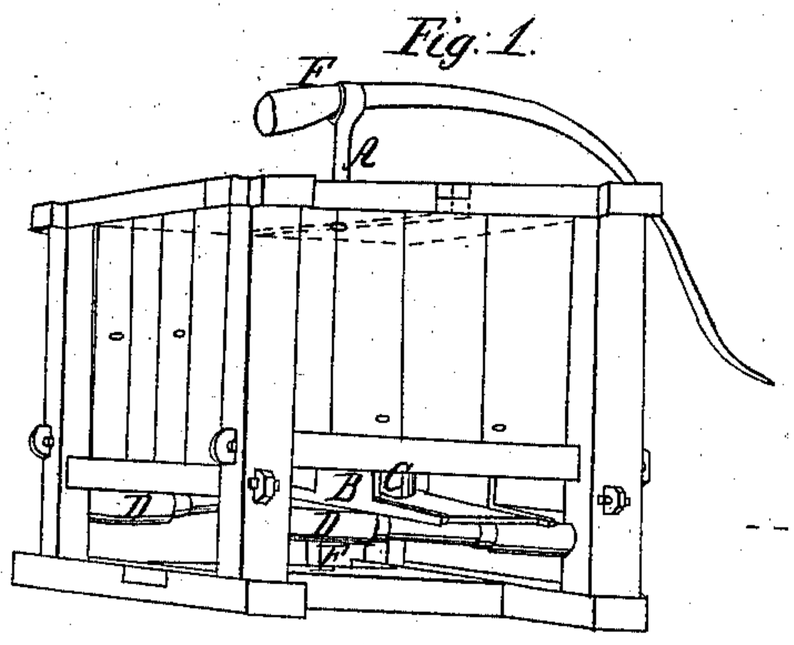
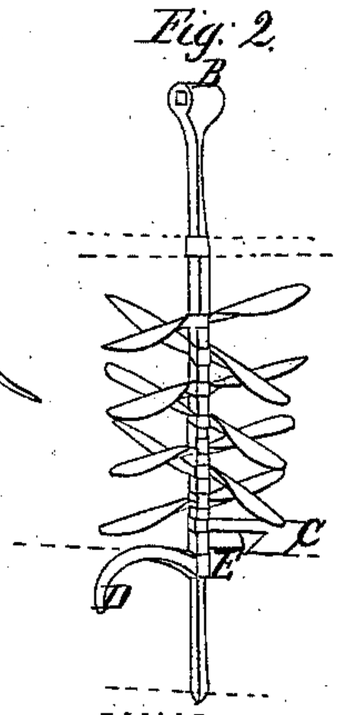
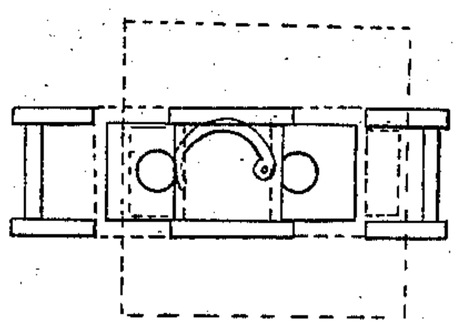


Fig. 2.





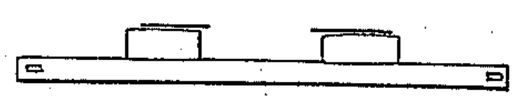


Fig. 3.

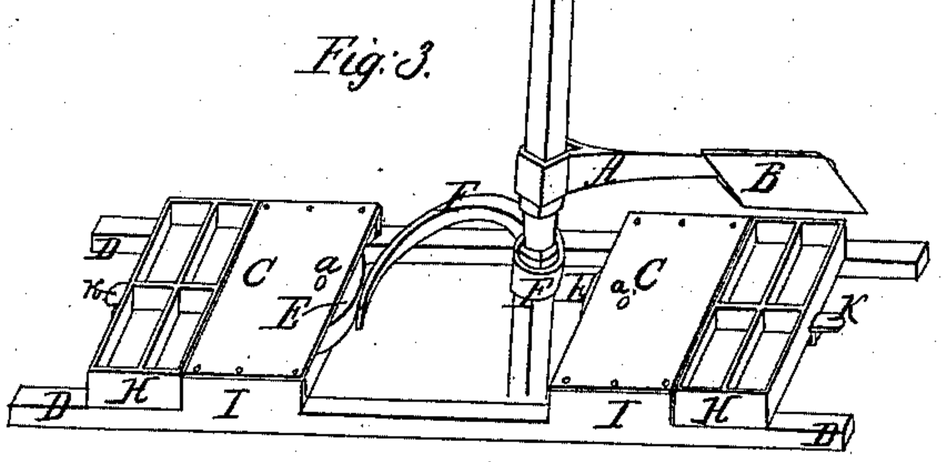


Fig. 4.

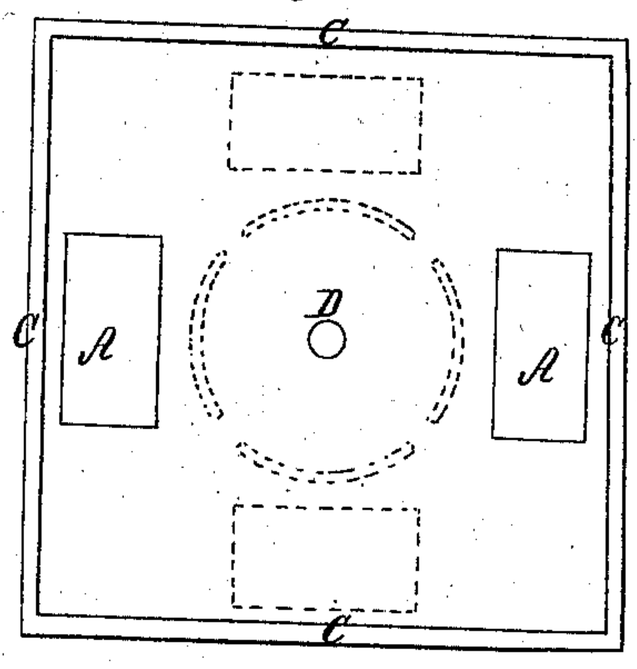


Fig. 5.

UNITED STATES PATENT OFFICE.

JNO. BOOTH AND WM. H. STEVENSON, OF COLUMBUS, MISSISSIPPI.

BRICK-MOLDING MACHINE.

Specification of Letters Patent No. 3,399, dated January 6, 1844.

To all whom it may concern:

Be it known that we, JOHN BOOTH and WILLIAM H. STEVENSON, both of Columbus, in the county of Lowndes and State of Mississippi, have jointly invented a new and useful Machine for Molding Brick; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification.

Figure 1 is a perspective view of the machine (as used with one carriage) consisting of a cistern in which the mortar is tempered, four feet square in the clear, made of wood except the bottom or floor, which is made of cast iron (but may be made of wood) with an upright shaft of cast or wrought iron (see A, Fig. 1 and B Fig. 2) passing through the center of the cistern downward through the floor, and resting or revolving in an ink in a cross sill at the bottom or lower part of the frame (see E, Fig. 1). At the top of the shaft is a sweep (F, Fig. 1) to which the power is applied; if horse power (though steam, or other power may be used). To the shaft are attached knives or breakers for tempering the mortar, which are made of cast iron, placed horizontally crosswise, the shaft running through their center (see Fig. 2). Immediately below the knives or breakers, and attached to the shaft is a follower or filler (C, Fig. 2 and A, B, Fig. 3) the blade of which, is an inclined plane of cast or wrought iron fixed to the handle at an angle of about 30 degrees to the plane of the floor of the cistern. The office of this follower or filler, is to fill the molds which it does, by the lower edge of the blade or inclined plane passing (as the shaft revolves) close to the upper surface of the floor, over the top or mouth of the molds and forcing the mortar through the openings in the floor or bottom of the cistern into every part of each mold alternately. Attached to the handle or shaft end of the filler on the underside, and moving with it as it revolves, is a plain cast iron arm or moving partition, the office of which is to aid in keeping the mortar under the filler (another, and perhaps better plan for this purpose is to have raised semicircular partitions attached to, and cast with the floor on its upper surface and elevated 4 or 5 inches or nearly up to the handle of the filler) see plan of floor (Fig. 4 dotted lines). The bottom or floor of the cistern is of cast iron, plane and level on both sides about half an inch thick, with raised edges about 3 inches high and $1\frac{1}{2}$ inches thick for the plank sides of the cistern to rest upon (and may be cast in one or two pieces) it has two openings or apertures at two opposite sides, sufficiently large for the mortar to pass through to fill the molds (A, A, Fig. 4) only one of which apertures (when the machine is in operation) is open at the same time, the other being closed by the opposite valve on the carriage as it passes alternately. Below the floor (at a proper distance to allow the free passage of the carriage) are 2 rollers (D, D, Fig. 1) one at each of two opposite sides of the cistern, made of wood or iron (or of wood shod with iron) on which the mold car or carriage is supported and travels; these rollers revolve with gudgeons in inks in the corner posts of the frame. The mold car or carriage, is a frame made of wood or iron, or of wood bound with iron, (see B, Fig. 1 also Fig. 3); on this carriage are two valves (C, C, Fig. 3) placed at suitable distances and elevated above the level of the frame to correspond with the height of the molds. These valves, have plane cast iron surfaces even with (and as the carriage moves) passing parallel with and close up to the under surface of the floor; their office, is to close the openings in the floor of the cistern when the molds are filled, alternately as the carriage traverses backward and forward. Under each of these valves, and attached to the car, by means of a fixed axis fastened into the valve above, and the cross piece of the frame below, is a friction roller (see C Fig. 1 and E E Fig. 3). Level with these friction rollers and attached to the shaft is an eccentric semicircle or curved lever (F, F, Fig. 3) which, revolving with the shaft plays against said friction rollers and moves the mold car or carriage horizontally backward and forward alternately passing the molds and valves under the openings in the floor of the cistern (other contrivances, attached to the shaft, may be used to give the motion to the car, for instance a cam, or a straight lever with a friction roller in the end, but we deem the curved lever decidedly the best, as giving a more equable, steady, and regular motion to the carriage).

Fig. 3 is a perspective view of the mold car or carriage, the curved lever which

moves it, and the filler which fills the molds, drawn on a scale of an inch to the foot with sufficient accuracy to give an idea of the dimensions as adapted to a cistern of the size above described, and the proportion as adapted to a square cistern of other dimensions; D, D, D, D, sides or frame of the mold carriage; C, C, plane surfaces of valves; I, I, ends or elevation of valves; *a*, *a* fixed axis of the friction rollers; E, E, the friction rollers, against which the curved lever plays alternately to move the carriage backward and forward; H, H, the molds placed upon the carriage; K, K, springs to keep the molds in their place. (These springs are simply straps of steel fastened at one end to the cross pieces of the frame of the carriage and supported about midway of their length, by a cross strap of iron or steel). F, F, is the curved lever or eccentric semicircle, which revolving with the shaft and playing against the friction rollers E, E, moves the carriage backward and forward horizontally beneath and parallel with the bottom or floor of the cistern. G is the shaft which should be in size about $3\frac{1}{2}$ inches square. Fig. 3 also shows with sufficient accuracy the relative positions of the filler and curved lever upon the shaft. As the shaft revolves, the curved lever playing against one of the friction rollers moves one end of the carriage out to deliver the mold, and places the valve under the opening at that end in its stead, and as the curved lever leaves this roller, the filler commences passing over the mold under the opposite opening to fill it, and by the time the filler has accomplished this, the curved lever has reached the other friction roller to move that end out for the delivery of its mold and vice versa. The filler is represented in Fig. 3 by A the handle and B, the blade or inclined plane; (to give an idea of its dimensions we will state the size of the one from which this is drawn), length of shank or handle 2 feet from center of shaft extending across the back near the middle, to the outer edge of the blade; blade 11 in. by 17 in., rounding on the outer edge reducing the ends to 10 in. in width; it may however be made of other dimensions suited to the size of the cistern and of the openings in the bottom.

Fig. 4, is a plan of the floor of the cistern; A, A, the two openings or apertures through which the mortar passes; C, C, C, C, the raised edges of the floor on which the plank of the cistern rest. The dotted lines represent the additional openings and the partitions (if fixed partitions be used) when two mold cars are used. D the shaft or hole where the shaft passes through.

The foregoing is a full description of the machine as used with one mold car or carriage; it may also be worked with two carriages or mold cars in the manner described as follows:

Fig. 5 represents in perspective the second carriage (drawn also on a scale of an inch to the foot, with sufficient accuracy to give an idea of its proportions,) with the first carriage as it runs across it, showing the relative positions of the two carriages at the moment when, as the shaft revolves, the curved lever (which moves both carriages F, F, Fig. 3) has passed by the roller under the upper valve of the upper or first carriage and thrown or moved that end out far enough to deliver its mold, and is just commencing on the next, being the right hand end of the second or lower carriage to move its mold out and so on of the rest, one after the other; A A A A the first carriage with its valves and friction rollers (as represented in Fig. 3); B, B, B, B, the frame of the second carriage running under that of the first; C, C supports or elevation of valves; D, D, surfaces or valves extending over their supports and elevated higher than the valves of the first carriage; under the valves are friction rollers (represented by dotted circles) as in the other; the space between the supports of the valves (at the sides) of the second carriage; is greater than that of the first (see Fig. 5). This second carriage is supported and moves like the first on 2 rollers placed on the other two opposite sides of the cistern or frame, and runs across beneath the first carriage except its valves which rise above the valves of the first carriage and close up to the under surface of the floor of the cistern. Both carriages are alike in principle and nearly alike in construction except the differences above pointed out. The second carriage has the same alternate horizontal motion as the first and is moved by the same curved lever playing against its friction rollers (so placed as to be even or level with the friction rollers on the other carriage). When two carriages are used, the floor of the cistern must, of course, have four orifices or apertures for the mortar to pass through, one at each of its four sides; two of these openings, those under which the first carriage runs, must have necks or raised edges on the under surface, so as to meet the valves on the first carriage, which first carriage, when two are used, runs lower (under the floor) than when used alone, (say $\frac{3}{4}$ to an in.) to allow the corners of the valves on the under or second carriage to pass over the corners of those of the first and to prevent the valves on the two carriages from hitching or coming in contact with each other; (these necks may also be used with advantage when there is but one carriage). The sides of the frame of the second carriage are deeper from the valves outward than the first, (as the drawing will show) so as to

raise the molds even with its valves. The molds on both carriages are filled by the same filler (described in Fig. 3).

What we claim as our invention and desire to secure by Letters Patent, is—

1. The method of filling and returning the molds as hereinabove described; that is to say, by means of the follower or filler and the curved lever, combined, operating and arranged substantially as above set forth.

2. And we also claim the manner in which we have combined with the cistern and its revolving shaft for tempering the mortar, the mold carriages constructed and operating substantially as above set forth.

JOHN BOOTH.
WM. H. STEVENSON.

Witnesses:
C. G. DOUNS,
ANDREW H. JORDAN.