W. Sanford,

Brick Machine,

No. 4,183. Patented Sept. 9, 1845.

Fig. 5.

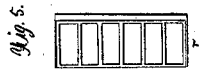


Fig. 4.

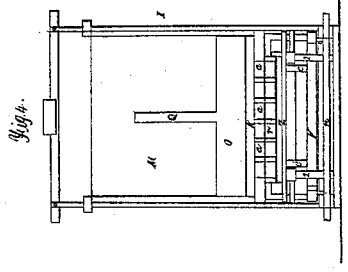


Fig. 3.

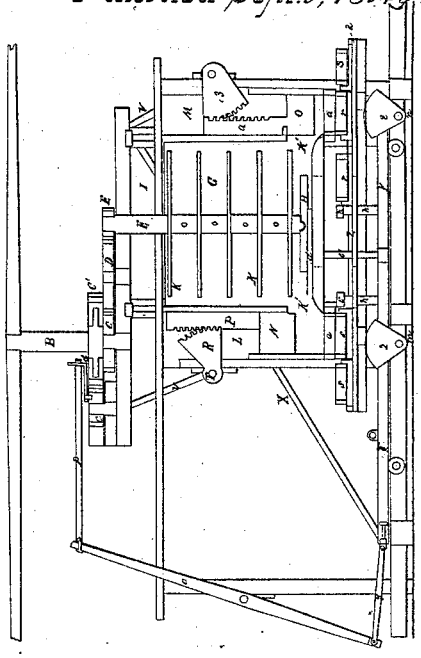


Fig. 1.

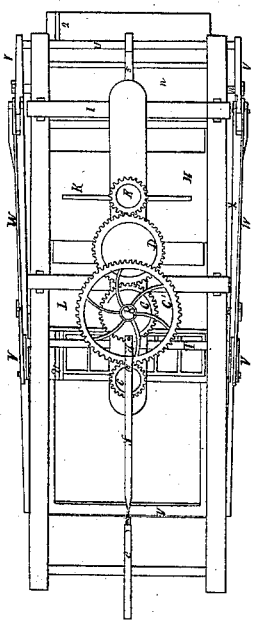
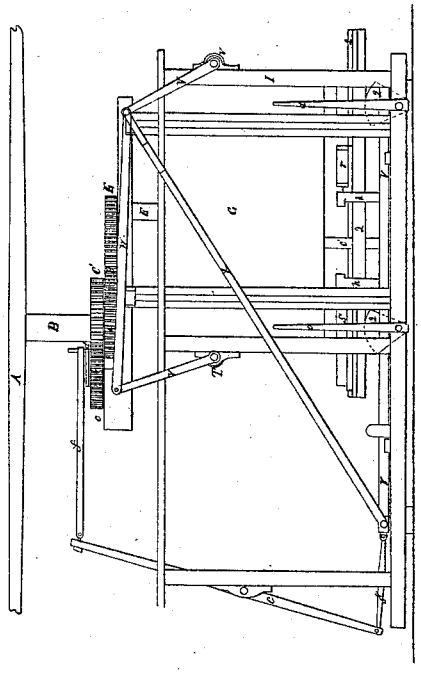


Fig. 2.



UNITED STATES PATENT OFFICE.

WILLIAM SANFORD, OF CAMBRIDGE, MASSACHUSETTS.

BRICK-PRESS.

Specification of Letters Patent No. 4,183, dated September 9, 1845.

To all whom it may concern:

Be it known that I, WILLIAM SANFORD, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Machinery for Molding Bricks; and I do hereby declare that the nature of my invention and the manner in which the same operates are fully set forth in the following description and accompanying drawings, letters, figures, and references thereof.

Figure 1, of the aforementioned drawings, represents a top view of my improved machine. Fig. 2, is a front elevation of it. Fig. 3, is a central, vertical and longitudinal section of it.

In the said drawings, A denotes a brake, applied horizontally, upon a vertical driving shaft B, which (shaft) is to be revolved, by horse or other suitable power, applied to the brake or to the shaft, in any convenient and proper manner. On the lower end of the shaft (B), a pinion or gear wheel C is fixed, whose teeth engage with those of another gear wheel D, arranged as seen in the drawings, and so as to engage with, and turn around a geared pinion E, placed on the top of a vertical shaft F, disposed within a cistern or hopper G, the lower end or pivot of the shaft, being supported upon a suitable bearing or step, applied upon the upper side of a bar or beam of wood H, which extends transversely across the hopper G, at a short distance above the bottom of it as seen in Figs. 1 and 3. The said vertical shaft, hopper, and various other parts to be hereinafter described, are secured to, and supported in their respective and proper positions, by a strong frame of wood, or other suitable material I, and the said shaft is to have a series of any desirable number of arms K, K, &c., extending at right angles from it, and within the hopper or reservoir, so that when the clay, to be converted into bricks, is put in the hopper or reservoir, the revolution of the shaft and arms, will break up and stir the same, or reduce it to what is termed "mortar", by brick makers.

At each end of the hopper, there is a small rectangular chamber L or M, whose bottom is perforated with a series of orifices or vent passages *a*, *a*, &c., as seen in Fig. 4, which represents a vertical section of one of the chambers L or M, and the parts beneath it, taken as if the operator was looking toward the reservoir or hopper. Each of the said chambers, freely communicates with, or opens into the hopper, by a long opening K′, cut or formed through the end of the hopper, as seen in Fig. 4, and each of the said chambers, has a piston N or O, arranged and adapted, so as to play vertically within it, the said piston being attached to one of two vertical toothed rack bars P or Q. The said rack bars, (and the pistons of course) are alternately elevated and depressed, by toothed sectors R, S, respectively, attached to the central parts of horizontal shafts T, U, arranged as seen in the drawings. At each extremity of each shaft, one of four arms V, V, &c., is fixed, and rises upward, and is jointed at its upper end to one of two connecting rods W, W. The said system of arms and connecting rods, are moved by, and jointed to two inclined rods or bars X, X, which extend downward on the outside of the hopper, and are respectively jointed, at their lower ends to one end of a movable frame or carriage Y, which is arranged and supported upon rails, rollers, or other suitable well known, and proper contrivances, that will admit of its being moved, alternately to and fro, in a longitudinal direction. The said carriage is disposed at some distance beneath the bottom of the hopper, and is intended to give motion to the molds or molding frames T, S, placed upon a platform, disposed over the carriage. It (the carriage) is regularly moved backward and forward, by means of the crown wheel C′, acting upon it, through a geared pinion *c*, a crank *d* thereof, an upright lever *e*, and two connecting bars *f* and *g*, the one (viz, *f*) being jointed to the crank and top of the lever, and the other to the carriage and lower end of the lever, and the whole being arranged as seen in the drawings.

Directly between the transverse bar, which supports the vertical shaft within the hopper, and resting upon the bottom of the hopper, is a slide or board *d*′. It is to be of a width, from side to side, of the hopper, equal, or about equal, to the width of the interior of the hopper, and of a length sufficient when it is moved, as will be hereinafter described, to bring the vertical ends of it, which are parallel to the ends of the hopper, to, or nearly to the orifices *a*, *a*, &c., of each chamber L or M. The said slide *d*′, is supported upon two posts or uprights *e*′, *e*′, which project upward from the carriage or movable frame Y, and pass, and move longi-

tudinally, through the platform *z*, so that when the carriage is moved to and fro, it will carry or move the slide *d'* with it. There are four other posts *h*, *h*, &c., projecting upward from the carriage; there being two of them on each side of it, and outside of the platform *z*, and arranged in the positions as seen in the drawings. Each one of the said posts, on one side of the carriage, is connected with that immediately opposite to it, on the other side of the carriage, by one of two transverse bars *i*, *k*, which extend over the top of, and across the platform *z*. The said platform, is supported in position, upon four or more cams or sectors *l*, *l*, *l*, *l*, arranged underneath the same, and upon two transverse shafts, *m*, *n*, whose journals rest and move in proper boxes, secured to the main framework. Each of the said shafts, has one of two levers (*o*, *p*) applied or secured upon one end of it, by which the shafts and sectors may be turned, so as to lower down the platform *z*, whenever necessary, by reason of a stone getting into any of the molds, or from any other cause.

In the operation of the machine, the molds *r*, *s*, (one of which is exhibited in top view in Fig. 5) are placed upon the platform *z*, each, as it is introduced or laid thereupon, being arranged between one of each of the series of discharging vents *a*, *a*, and the cross bar *i* or *k*, immediately adjacent to it, and so as to abut at one end, against a vertical ledge *q*, erected upon the rear side or edge of the platform *z*. When the carriage is moved, so as to cause either of the cross bars *i* or *k*, to approach its series of discharging vents or false molds, it will slide the mold *r* or *s*, upon the platform *z*, and beneath the series of discharging vents or false molds, and, as the mold attains its position, underneath the same, the mortar from the hopper will flow into it, through the vents or false molds. This being accomplished, the piston over the said vents descends, and compresses, and forces the mortar into the molds. The carriage is then or in the meantime, moved in an opposite direction, in order to receive another mold, which being placed upon it, is driven forward at the return of the carriage, and against the mold last filled and forces it out from underneath the vents, and takes its place. As fast as the molds are crowded out, from underneath the vents, they are to be removed from the platform.

From the above, it will be seen, that the manner of forming the upper surface of each brick, is different from that usually adopted, which consists in effecting the same, by a compressing piston; whereas, in my machine, it is accomplished by sliding the mold, or top surface thereof, against the under surfaces of the vent passages or parts by which they are formed.

Having thus described my invention, I shall claim—

The combination with the clay or mortar hopper or reservoir, and one or both of its end chambers, discharging vents or false molds and pistons, of the reciprocating slide, arranged within the hopper, and upon its bottom, and operating, to supply the end chambers and vents with mortar or clay, substantially as above described.

In testimony whereof, I have hereto set my signature, this seventh day of June A. D. 1845.

WILLIAM SANFORD.

Witnesses:
R. H. Eddy,
Geo. H. Bailey.