

*Patented Sept. 3, 1842.*





# UNITED STATES PATENT OFFICE.

ALFRED HALL, OF CLEVELAND, OHIO.

## CONSTRUCTION OF BRICK-PRESSES.

Specification of Letters Patent No. 2,768, dated September 3, 1842.

*To all whom it may concern:*

Be it known that I, ALFRED HALL, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Machines for Molding Bricks; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is an isometrical projection; Fig. 2, a longitudinal vertical section.

The nature of my invention consists in constructing a molding machine to be attached to a common tempering tub with revolving knives of the usual construction from which the mortar is conducted directly into the molds, into which it is forced by the press; to this machine an apparatus is affixed for removing the molds and when obstructed by stones, &c., to relieve them therefrom.

The frame of the machine consists of four upright posts A, framed into two sills (*a*) and cap pieces (*a'*) which are connected by cross ties (*a<sup>2</sup>*) forming a stout frame of proper proportions for containing the machinery. To each of the caps (*a'*) are attached metallic plates B, on the inside near the center of the frame; from the lower part of these plates flanges project which embrace the cap and serve to steady them, these plates have shoulders at (*b*) turning inward from which to the top they are vertical; they are wide enough to form the sides of the hopper, and contain the pressing apparatus hereafter described. A grating B', which forms the bottom of the hopper is attached to the plates B at the shoulder (*b*) just high enough to clear the molds, the bars of this grating correspond with the partitions in the molds and must be varied for every different kind of brick; they are chamfered off on their upper edges and serve to direct the clay into the mold, the back piece of this grating rises at (*b'*) (see Fig. 2) to the press platen to prevent the escape of the mortar; there is also a similar projection (*b<sup>2</sup>*) at the front of the grate having on its upper edge an apron (*b<sup>3</sup>*) which rests on the spout of the tempering machine (shown in dotted lines) and directs the mortar into the machine.

The platen C, is the segment of a cylinder, its lower surface being fitted to the grate and projection (*b'*) it does not extend quite

out to the plates B, but has a projecting flange (*c*) at each end around the periphery and down the under side made of metal which shuts out the mortar from the end of the cylinder-segment; on each end of this platen an iron cross brace is let in (lettered *c<sup>2</sup>*), its inner end has a hole through it on which the platen turns on its shaft or fulcrum (*c<sup>3</sup>*) from these braces near the periphery of the platen studs (*c<sup>4</sup>*) project, which extend out through the plates B slots (*b<sup>4</sup>*) being cut in them for the studs to play in, these slots are covered when the platen is thrown back by brass segment slides (*c<sup>5</sup>*) which are pushed forward from the platen by means of springs (*c<sup>6</sup>*) which bear against studs projecting from the side of the slides let into its ends; when the platen is forced down these segments strike the grate and are stopped, the spring yielding for that purpose. The platen thus constructed turns on its shaft (*c<sup>3</sup>*) which has its bearings in the plates B, by means of a segment rack (*c<sup>7</sup>*) out side the plates on each side with which it is connected by the shaft and studs above named. The teeth on these racks mesh into pinions (*d*) on a shaft (*d'*) which has its bearings in the plates, over the platen. On one end of the shaft (*d'*) there is a large hand wheel D, by which the platen is put in motion.

Between the caps (*a'*) of the frame above mentioned a carriage E is placed, it is formed of two side frames of a T shape firmly braced the horizontal part extending out about the length of the caps and the vertical nearly down to the bottom of the frame, these T frames are connected by a brace (not shown in the drawing) running from one to the other. Just under the grating three horizontal rollers (*e*) are placed having their journals turn in bearings on the upper side of the T frames of the carriage, to these frames on each side of the rollers slats (*e'*) are affixed on the upper side, on these the molds slide. This carriage is sustained in the frame at the rear end on a cross piece (*a<sup>3</sup>*) which is suspended to the end of the cap (*a*) that projects over the post A, by a rod (*a<sup>4</sup>*) at each end, which can be drawn up by a screw below the cross piece; the carriage is steadied by a pivot (*e<sup>2</sup>*) projecting from each side near the end, that turn in the posts of the frame and at the other end by studs (*e<sup>3</sup>*) these are necessary as the carriage is made smaller than the space between the



sides of the frame so as to give a free passage to any dirt that may collect on the machine which would tend to clog its operation (see section 1).

5 At the front end of the carriage are jointed stout connecting rods ( $e^4$ ) which extend down to a revolving shaft ( $e^5$ ) which turns in bearings ( $e^6$ ) attached to the front posts of the frame and which are also connected to  
10 the cap by rods ( $e^7$ ) running from the cap to the bearings ( $e^6$ ) on the upper side of this shaft are short projections to which the connecting rods are coupled and by which this end of the carriage is supported; on the end  
15 of the shaft ( $e^5$ ) a lever ( $e^8$ ) is put which extends up and rests against a pin in the frame near the hand wheel. It will readily be seen that by bringing the lever forward the end of the carriage resting on the shaft  
20 will be lowered down. On each side of the carriage an iron rail ( $e^9$ ) is affixed extending from the rear end to the rollers; this rail rises a little above the side pins which are cut out on their upper edge away from it except at the points of attachment, so as to  
25 allow any dirt that may get upon the rail to fall through without clogging the machine. A wheel ( $f$ ) runs on each of these rails which are connected by an axle or movable carriage F, formed of a square straight  
30 piece of wood. A piston ( $f'$ ) is attached to the back of this carriage which curves down and runs forward horizontally under the center of the machine just below the cross  
35 piece connecting the sides of the carriage against which or a friction roller which may be attached thereto it bears when in motion. On the under side of this piston a rack is formed which meshes into a segment rack  
40 ( $f^2$ ) on a shaft ( $f^3$ ) which has its bearings in the lower end of the vertical pieces of the carriage above named. To the end of the shaft ( $f^3$ ) a lever ( $f^4$ ) is affixed which rises up beside the shaft ( $d'$ ) so as to be convenient to work by the operator.  
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The molds G, which are like those now in use in other machines are put into the machine opposite that on which the wheel D, is; they are prevented from being pushed  
50 too far through by a spring ( $g$ ) which guides them in entering the machine, they are forced under the grating by the movable carriage F, acted on by the lever ( $f^4$ ). When this machine is attached to a "tempering machine" it receives the mortar directly

from it into the grating and into the molds underneath it; the hand wheel is then turned which brings down the platen and forces the mortar into the molds the lever ( $f^4$ ) is then brought forward and the empty mold  
60 which is placed on the grating between the full mold and the movable carriage and forced under the grating the full mold being driven out on the opposite side, the weight of the mortar in the tempering machine at  
65 the same time raises the platen by its pressure upon it till the segments ( $e^7$ ) strike against the springs ( $b^5$ ) which prevent the platen from receding too far. If when the full mold is being forced out a stone or other  
70 obstruction stops its motion the lever ( $f^4$ ) is drawn forward and the carriage on which the mold rests is lowered till the difficulty is overcome when it is again raised to its place.

Over the platen and between it and the  
75 shaft ( $d'$ ) a brace ( $h$ ) runs across from one side plate to the other on the under side of which a scraper ( $h^2$ ) is affixed that fits close to the circular side of the platen and serves to free it from the mortar that adheres to it  
80 when run down; just over the scraper a board ( $h'$ ) is placed the lower edge of which rests on the scraper its upper edge projecting up toward the "tempering machine" at  
85 an angle of about  $45^\circ$ , this forms the upper part of the hopper and confines the mortar while the press acts.

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

1. The segment slides ( $e^5$ ) acted on by  
90 springs, in combination with the platen and hopper constructed and arranged as herein set forth.

2. I further claim the combination of the carriage E suspended at its rear end, with  
95 the connecting rods ( $e^4$ ) and shaft ( $e^5$ ) for freeing the machine from obstructions substantially as before specified.

3. Lastly I claim the construction of the carriage E so as to free itself from dirt,  
100 that is to say, the pivots and studs for steadying the carriage, the slatted top and railway set off from the carriage and in combination therewith the movable carriage F constructed and operated as herein described.  
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ALFRED HALL.

Witnesses:

J. J. GREENOUGH,  
GEORGE R. WEST.