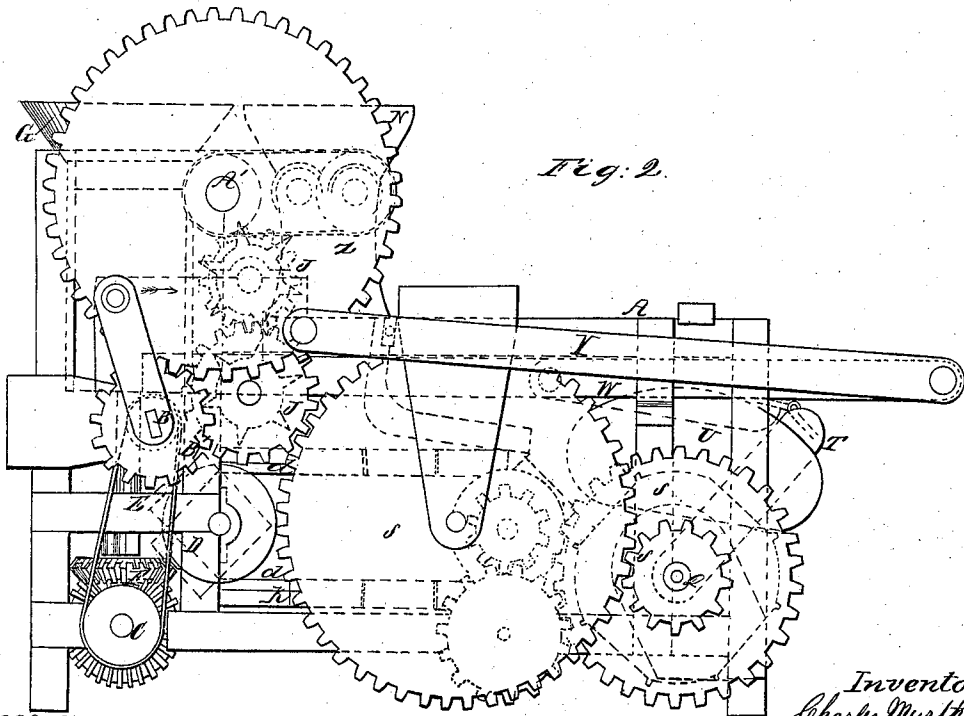
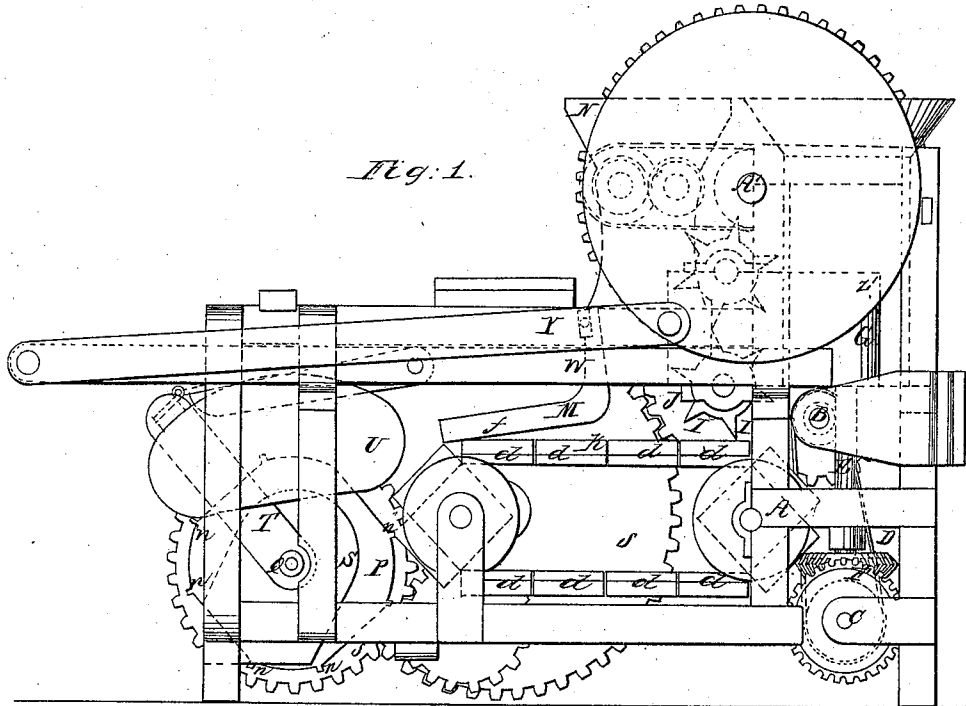


C. Murtha, Brick Machine.

No 55,148.

Patented May 29, 1866.



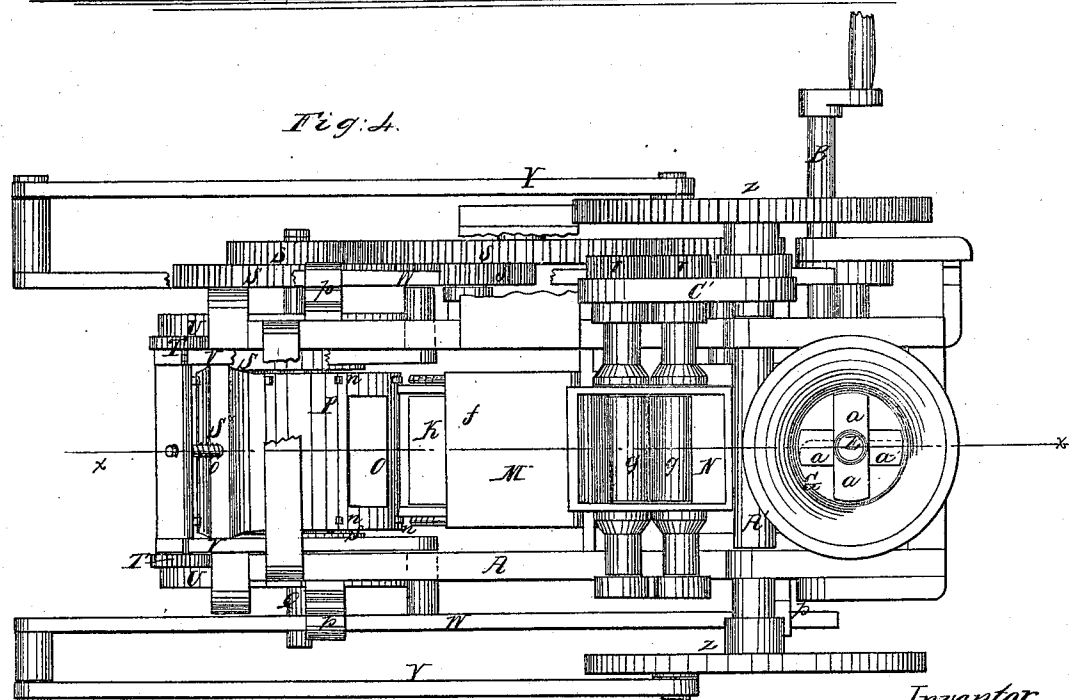
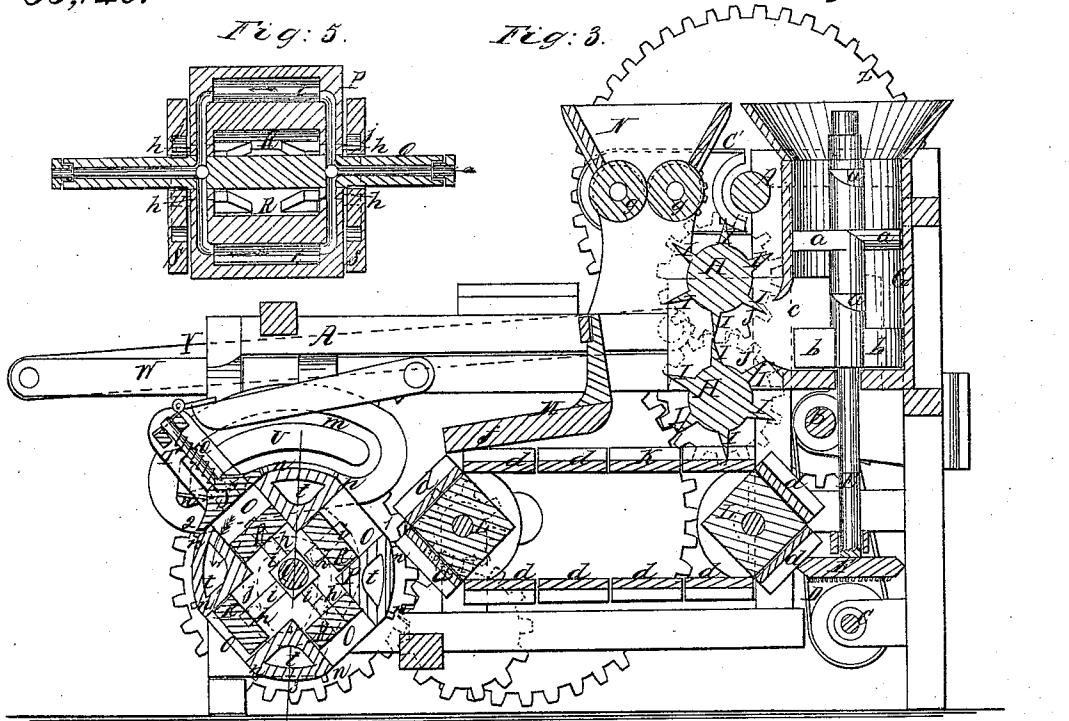
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UNITED STATES PATENT OFFICE.

CHAS. MURTHA, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVED BRICK-MACHINE.

Specification forming part of Letters Patent No. 55,148, dated May 29, 1866.

To all whom it may concern:

Be it known that I, CHARLES MURTHA, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and Improved Machine for Manufacturing Brick; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, Sheet No. 1, is a side elevation of my invention. Fig. 2 is also a side elevation, the side opposite to that shown in Fig. 1; Fig. 3, Sheet No. 2, a side sectional view of the same, taken in the line *x x*, Fig. 4; Fig. 4, a plan or top view of the same; and Fig. 5, a detached sectional view of a portion of the same, taken in the line *y y*, Fig. 3.

Similar letters of reference indicate corresponding parts.

The object of this invention is to obtain a machine whereby bricks may be molded and pressed so as to have a finished appearance, such as are commonly termed "pressed brick," and used principally for the fronts of buildings.

The invention consists in a new and improved mode of feeding the clay from the mud-mill to the molds, whereby the latter are supplied with the precise quantity required, and the bricks, or rather the clay for the bricks, all compressed alike, so as to be of uniform density.

The invention also consists in a novel means employed for sanding the clay prior to its discharge into the molds, and also in a novel pressing mechanism, and in a means employed for heating the molds to keep the same dry and free from superfluous clay which would adhere to them.

A represents a framing, which may be constructed in any proper manner to support the working parts; and B is a driving-shaft, from which a shaft, C, in the lower part of the framing, is driven by a belt, D. The shaft C communicates motion to an upright shaft, E, by means of bevel-gears F, said shaft E extending up through the mud-mill G, and having lateral arms or cutters *a* attached for the purpose of beating and tempering the clay, which is thrown into the mud-mill in a properly-moistened state. To the shaft E there are also attached arms *b*, which serve as scrapers or

dischargers to force the tempered clay from the lower part of the mud-mill through an opening, *c*, therein.

H H are two cylinders placed in the framing A, one over the other in the same axial plane, and directly in front of the opening *c* in the mud-mill. These cylinders H H are provided with radial blades or knives I, which, as the cylinders rotate, just come in contact at their edges. These cylinders H H have their shafts connected by gears J, so as to insure a simultaneous rotation, and they receive the clay from the mud-mill and discharge it therefrom in certain equal masses or quantities, the blades or knives I, as their edges come in contact, cutting off the clay from the mud-mill.

K is an endless carrier composed of plates *d*, connected by flexible joints, or said plates may be attached to straps or belts, which will form a flexible connection. This endless carrier works over polygonal pulleys L L, (shown clearly in Fig. 3,) and directly over this carrier there is suspended, by journals or pivots *e*, a plate, M, of right-angular form, which is equal in width to the carrier, the lower part, *f*, of plate M having a tendency by gravity only to keep in contact with the carrier.

N is a hopper, which rests upon two rollers, *g g*, on the upper part of the framing A. This hopper N contains sand, which is distributed by the rollers *g g* upon the clay as the latter is discharged upon the carrier K from the cylinders H H. The clay becomes entirely covered by the sand in consequence of the former being rotated under the movement of the carrier and the slight pressure of the lower part of the plate M on the upper part of the clay. This is the object of the plate M, and the function is an important one, as the masses of clay, as they are fed to the molds, are thoroughly covered with sand, some of which is taken up by the clay from the surface of the carrier K, as more or less sand will drop upon the latter.

There is nothing specially novel in the construction and operation of the mud-mill, and therefore it does not require a minute description.

The conveying of the tempered clay from the mud-mill is novel and important. The cylinders H H, provided with blades or knives I, measure the clay and discharge it upon the endless carrier in masses of equal quantity and sufficient for the molds, and this is an important feature, as it insures the clay being

subjected to a uniform pressure in the molds and properly compressed, every brick being perfect, and the clay also properly sanded.

O represents the molds, which have a radial position in an intermittingly-rotating block, P, secured upon a shaft, Q, in the framing A. Each mold O has a plunger, R, fitted within it and allowed to work freely, said plungers having an arm, *h*, extending from each end, which arms pass through slots *i* in the sides of the block P and into eccentric grooves *j* in stationary plates S, attached to the framing A, one at each side of the block P.

The shape of the grooves *j* is shown clearly by the dotted lines in Fig. 3; and it will be seen, by referring to this figure, that when the block P is turned in the direction indicated by arrow 1 the plungers R will, in consequence of the arms *h* fitting in the grooves *j*, be shoved outward in the molds a certain distance as the latter pass from the point 1 to the point 2, and the plungers will be moved out more rapidly in moving from the point 2 to point 3, where the molded clay is discharged, and as the mold passes from the point 3 to 1 the plungers are drawn inward.

The molds receive the clay from the carrier as the former reach the point 1, and the clay is compressed in the molds under the action of the plungers as the molds pass from the point 1 to the point 2. The molds while passing from the point 1 to the point 2 are covered by a cap, S^x, the ends of which are provided with tenons which pass through slots in arms T T, the lower ends of the latter being fitted loosely on the shaft Q. The tenons also fit in slots *m* in stationary plates U U, attached to the framing A, the slots *m* being composed of two concentric curves connected at their ends, and said curves being slightly inclined downward from their inner to their outer ends, or placed slightly concentric with the shaft Q of the block P, so that the cap S^x will be pressed firmly down on the mold it covers and be able to resist the pressure of the plungers. This cap S^x, besides performing the above function, also moves the block P as it, when down upon the head and over a mold, fits between pins *n*. The tenons of cap S^x fit in the lower curve of the slots *m* when the cap is upon a mold, and when the cap reaches the termination of its outward movement and the mold reaches the point 2 the tenons are forced up into the upper curve of the slots *m* by springs *n*^x, and the cap moves back, leaving the block P at rest until the tenons reach the rear end of the upper curves of the slots *m*, when a spring, *o*, which bears against the cap, forces the tenons down into the lower curve, and the cap is adjusted over another mold, which was filled during the movement of the previous mold from the point 1 to the point 2, the molded clay being discharged when the molds reach the point 3, as previously alluded to.

The cap S^x receives its movement as fol-

lows: The outer ends of the arms T T are connected by bars or pitmen V V to bars W W, which work in guides *p* at each side of the framing A, and the outer ends of the bars W W are connected, by pitmen Y Y, to wheels Z Z', placed on the ends of a shaft, A', the wheel Z being toothed and gearing into a pinion, B', on the driving-shaft B. (See more particularly Fig. 2.)

The sand-rollers *g g* receive their motion by a belt, C', from the shaft A', the rollers *g* being connected by gears *r*, and the cylinders H H and endless carrier K receive their motion by gears *s* from the shaft Q of the block P. The carrier K, therefore, and cylinders H H operate during the movement of the block P, the carrier delivering the clay into a mold each time a mold reaches the point 1, the cylinders H H turning and delivering a mass of clay upon the carrier each time the latter moves and delivers a mass of clay to a mold.

The molds are kept in a warm state by means of steam passing through the block P, the shaft Q being tubular and connecting with chambers *t* in the head between the molds, as shown clearly in Fig. 5, the steam entering at one end of shaft Q and being discharged at the opposite end, as indicated by the arrows in Fig. 5. By this means the molds are kept in a heated state and the clay prevented from adhering to them—a contingency which would otherwise occur.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The intermittingly-rotating cylinders H H, provided with blades or knives I, in connection with the endless carrier K, said parts being arranged in relation with a mud-mill substantially as and for the purpose set forth.

2. The plate M, suspended on pivots above the endless carrier K, to operate in connection therewith, and the sanding device, substantially as and for the purpose specified.

3. The intermittingly-rotating block P, provided with a series of radial molds having plungers R fitted within them, and arranged in relation with the endless carrier K substantially as and for the purpose set forth.

4. The cap S^x, operated in the manner shown, or in an equivalent way, and arranged in relation with the block P so as to impart an intermittingly-rotating movement to the block and at the same time serve to confine the clay in the molds while the clay is under pressure therein, substantially as set forth.

5. The heating of the molds by steam, substantially in the manner and for the purpose as set forth.

The above specification of my invention signed by me this 22d day of February, 1866.

CHARLES MURTHA.

Witnesses:

M. M. LIVINGSTON,
ALEX. F. ROBERTS.