(No Model.)

S. COLLINGE & A. SERFASS.

BRICK MACHINE.

No. 266,100. Patented Oct. 17, 1882.

Fig. 1.

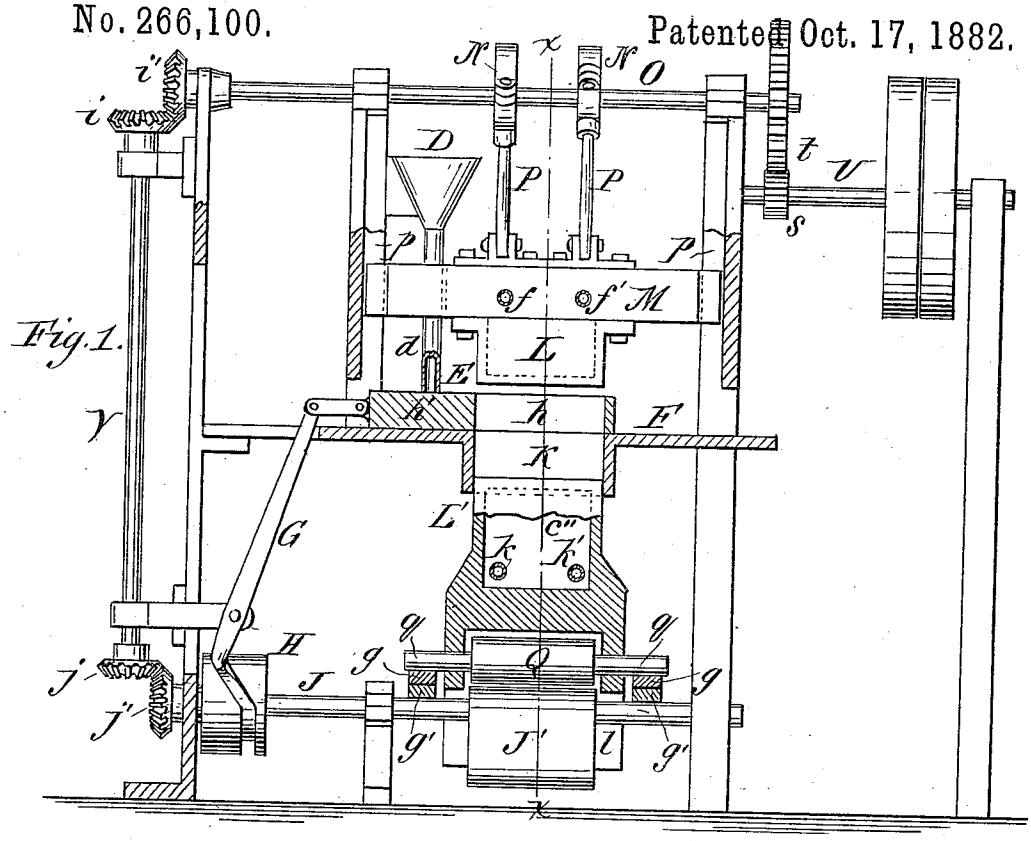


Fig. 3.

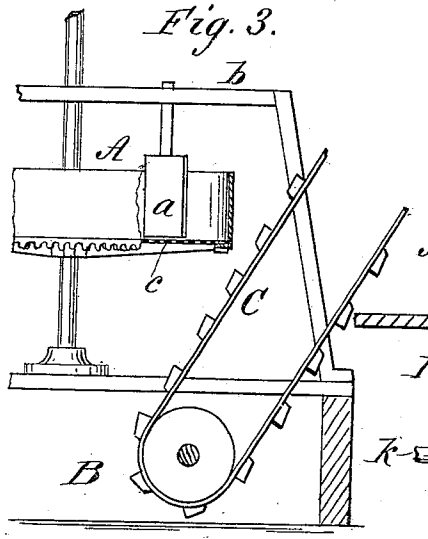
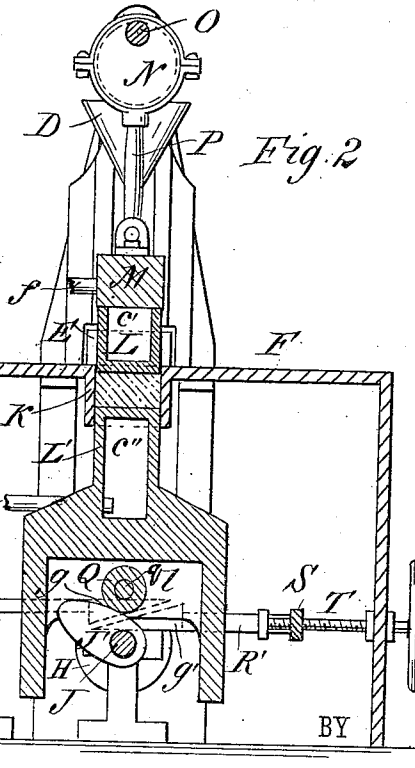


Fig. 2



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SAMUEL COLLINGE AND AARON SERFASS, OF EASTON, PENNSYLVANIA.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 266,100, dated October 17, 1882.

Application filed July 21, 1882. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL COLLINGE and AARON SERFASS, of Easton, in the county of Northampton and State of Pennsylvania, have invented a new and Improved Brick-Machine, of which the following is a full, clear, and exact description.

Our invention relates to improvements in brick-machines; and it consists in the peculiar construction and arrangement of parts, as hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a front sectional elevation of our new and improved brick-machine. Fig. 2 is a transverse sectional elevation taken on the line *x x* of Fig. 1, and Fig. 3 is a broken detailed view of the revolving screen, cellar, and elevator.

A is the revolving screen, which may be of any suitable size and revolved by any suitable mechanism. It is provided with one or more blades, *a*, attached to the bar *b* of the frame of the screen. These blades are adapted to be set in a diagonal position, so as to shift the material in the screen and cause it to pass through the perforated bottom *c* thereof as the screen revolves.

Below the screen A is formed the bin or cellar B, into which the material from the screen drops. The material is carried from the cellar B by the elevator C to an elevated receptacle, (not shown,) or directly to the hopper D of the brick-forming machine, the spout *d* of which hopper stands near to and immediately over the feed-box E. This feed-box is adapted to be reciprocated upon the table F by means of the lever G and cam H, fixed upon the shaft J, and is composed of the box part *h*, which holds sufficient quantity of material for a brick, and the solid part *h'*, which latter part closes the spout *d* and stops the flow of material from the hopper when the box is moved forward to the position shown in Fig. 1, to fill the cell K, in which the material is pressed.

L is the upper plunger, which presses the clay in the cell K from above, and L' is the lower plunger, which presses it from below. These plungers are chambered out, as shown at *c' c''*, for the purpose hereinafter mentioned. The upper plunger is secured by bolts or other means to the under side of the cross-piece M, which is reciprocated vertically by the cams N N on the shaft O, the cams being connected with the cross-piece by the connecting-rods P P. The ends of the cross-piece M run upon the ways *p p*, formed on the frame of the machine, as shown clearly in Fig. 1.

f is a steam-pipe through which steam enters the chamber *c'* of the said upper plunger for keeping it hot, and *f'* is the escape-pipe for the steam.

The lower plunger, L', is made in saddle form—that is, it is chambered out in its lower side, as shown at *l*, so as to straddle the shaft J and cam J', which reciprocates it, as shown in Figs. 1 and 2. The upper face of this plunger always reaches up into the cell K, as shown in the drawings, and it is kept heated by steam, which enters the chamber *c''* thereof through the pipe *k*.

k' is the escape-pipe for the steam from the chamber *c''*.

Within the chamber *l* is placed the roller Q, which furnishes a friction-roller for the action of the cam in raising the plunger. The shaft *q* of the roller Q projects past the sides of the plunger, and the ends thereof rest upon the upper side of the wedge-shaped or inclined heads *g g*, formed upon the inner ends of the weighted arms R R.

Immediately under the wedge-shaped or inclined heads *g g* are placed the wedge-shaped or inclined heads *g' g'*, which rest upon the shaft J. The inclined faces of these heads *g* and *g'* rest upon each other, as shown in Fig. 2. The inclined heads *g' g'* are formed upon the inner ends of the arms R' R', which are tied together at their outer ends by the bar S, through the center of which the screw-rod T passes. This screw-rod is provided upon its outer end with the hand-wheel T', and is for the purpose of withdrawing or forcing inward the inclined heads *g' g'*, for raising or lowering the plunger-box L', for setting the same according to the quality of the clay being worked, or for varying the size of the brick. It will be understood that when the heads *g' g'* are forced inward the cell K will not receive so much ma-

terial, since the distance of downward movement of the plunger will be diminished, and that when withdrawn the cell will take more material, since the distance of downward movement will be increased.

The shaft O derives its motion from the main power-shaft U through the cog-wheels *s* and *t*, and communicates motion to the shaft J through the vertical shaft V and beveled cog-wheels *i i'* and *j j'*, as will be understood from Fig. 1.

The cam J' is adapted to move the plunger L' a distance about equal to the depth of the cell K, and is so formed as to give the plunger an accelerated movement, and is so secured to the shaft J that the plunger will begin its upward movement a little before the upper plunger, L, reaches the limit of its downward movement. In this manner the brick is pressed both from above and below simultaneously. As the plunger L is withdrawn from the cell K the plunger L' follows it up and elevates the brick just made to a level with the table F. The feed-box is now brought forward, which shoves the brick off from the upper face of the lower plunger upon the table F, and at the same time cuts off the clay supply from the hopper D. The lower plunger now drops rapidly to its lowest point, and thus permits the feed-box to empty its contents into the cell. The feed-box is now drawn back and the plungers again approach each other and form the brick, as before.

This machine is especially adapted for short-grained clay and shale, and is adapted to work it in a damp or moist state, as it is usually found when newly dug up, the machine being adapted to exert such a pressure that the clay will be formed into a truly-shaped brick at one operation. The plungers being kept hot by the steam entering them prevents the clay from clogging the machine or from adhering to the plungers, so as to break or injure the form of the brick.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. The plunger L', made in saddle form to straddle the shaft J, and having the shaft *q* projecting from its sides, in combination with the wedge-shaped or inclined heads *g g'* for adjusting the plunger, substantially as described.

2. The plunger made to straddle the shaft J, and provided with the roller Q, the shaft of which extends past the sides of the plunger, in combination with the said shaft J, cam J', inclined heads *g g*, and adjustable heads *g' g'*, placed between the ends of the shaft of the roller Q and the shaft J, substantially as and for the purpose set forth.

3. The combination, with the plunger L', the shaft *q*, journaled in the lower end of and having its ends projecting beyond the sides of the plunger, and the shaft J, of the weighted arms R R, provided with the wedge-shaped heads *g g*, the arms R' R', provided with the wedge-shaped heads *g' g'* and connected together by the bars S, and the screw-rod T, provided with the hand-wheel T', substantially as and for the purpose set forth.

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