

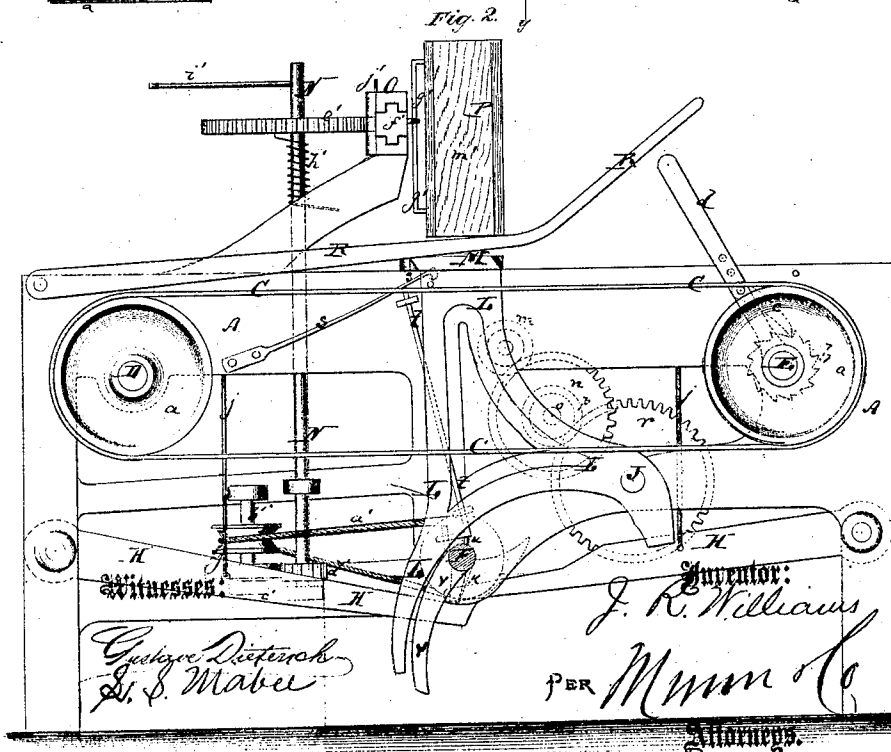
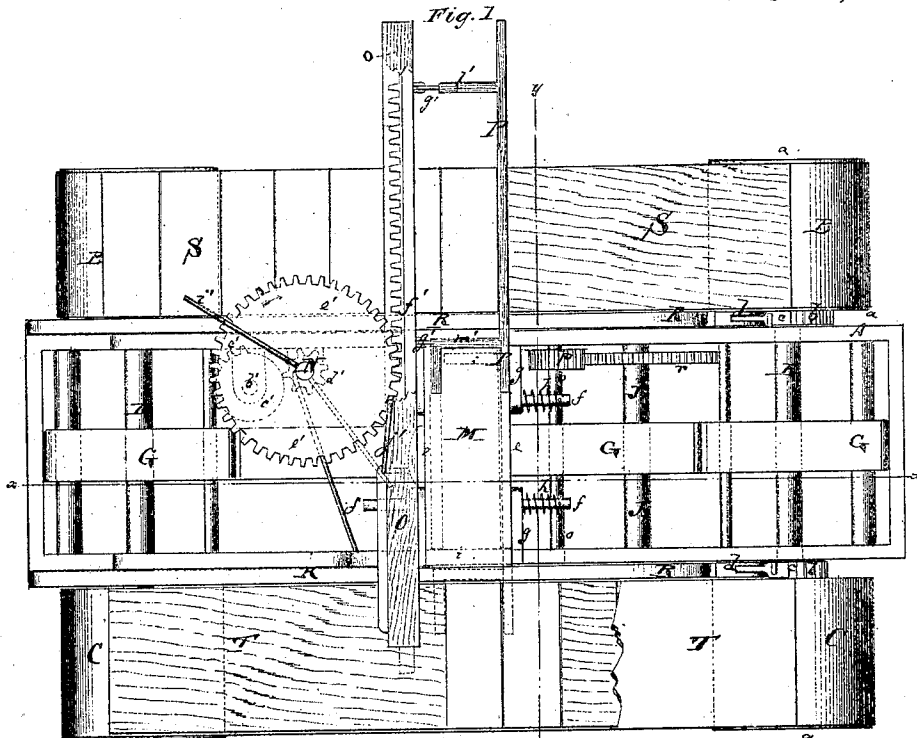
J. R. Williams,

2. Sheets. Sheet 1.

Brick Machine.

No. 109,089.

Patented Nov. 8, 1870.



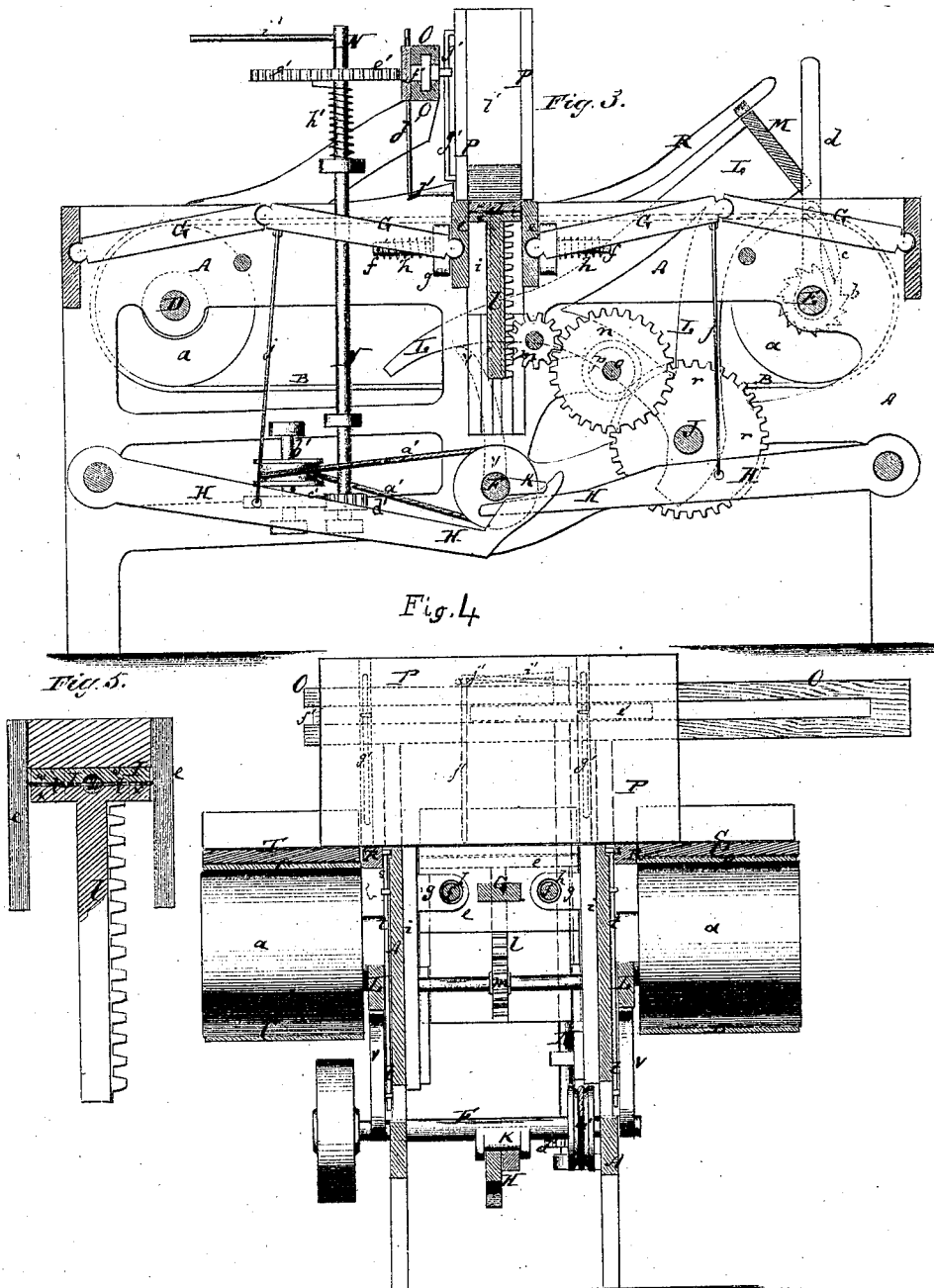
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Witnesses:
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JOHN R. WILLIAMS, OF TAUNTON, MASSACHUSETTS.

Letters Patent No. 109,089, dated November 8, 1870.

IMPROVEMENT IN BRICK-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN R. WILLIAMS, of Taunton, in the county of Bristol and State of Massachusetts, have invented a new and improved Brick-Press; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a plan or top view of my improved machine for pressing brick.

Figure 2 is a side elevation of the same.

Figure 3 is a vertical longitudinal section of the same, taken on the plane of the line *x x*, fig. 1.

Figure 4 is a vertical transverse section of the same, taken on the plane of the line *y y*, fig. 1.

Figure 5 is a detail vertical section on an enlarged scale of the press and plunger.

Similar letters of reference indicate corresponding parts.

My invention relates to brick-presses, and consists in certain features of improvement, which will first be described in connection with all that is necessary to a full understanding thereof, and then clearly specified in the summary or claim.

A in the drawing represents the frame of my improved pressing-machine. The frame is made of wood or other suitable material, and of such size and shape as to be best adapted for the support of the machinery connected with my press.

The sides of the frame are straight or nearly so, to be near to the straight edges of the endless belts B and C that are fitted over drums near the two sides.

In the frame A are the bearings of two horizontal transverse shafts, D E, one being near each end of the frame.

The ends of these shafts carry drums *a a*, which serve to hold the broad belts B C, as shown.

The shaft E carries one or more ratchet-wheels, *b*, so that it will receive intermittent rotary motion from a pawl or pawls, *c*, pivoted to swinging levers *d*.

In the middle of the frame A is hung the horizontal transverse driving-shaft F, which receives rotary motion from suitable machinery to transmit the same to the pressing and feeding apparatus.

The press proper is composed of sliding side boards *e e*, which are provided with projecting pins *f*, that fit through inwardly-projecting ears *g* of the frame A.

Springs *h* on the pins *f* tend to draw the sides apart.

The ends *i* of the press are rigid.

The sliding side pieces *e* are connected with toggle-levers G, which are at their joints provided with rods *j*, that unite them with pivoted levers H H.

The free ends of the levers H H are under the shaft F and under a cam, *k*, that is mounted upon said shaft.

Whenever the cam *k* strikes and depresses the levers H it will thereby extend the toggle-levers and move the side pieces together. As soon as the cam *k* leaves the levers H the sides *e* will again be moved apart by the springs *h*.

I is the vertically-adjustable plunger of the press. Its shank *l* is toothed and meshes into the teeth of a pinion, *m*, which receives rotary motion from a toothed wheel, *n*.

The wheel *n* is mounted upon a shaft, *o*, which carries also a pinion, *p*, shown in fig. 1, and by dotted lines in figs. 2 and 3.

The pinion *p* receives rotary motion from a toothed wheel, *r*, on a shaft, J.

The shaft J serves as a pivot of a swinging frame, L, which frame embraces the sides of the frame A, and carries at its upper end a transverse plate, M. This plate M is the presser or top piece of the press. It can, with the frame L, be swung back away from the press, as in fig. 3, or it may, as in fig. 2, be swung over to cover the press.

In the latter position it is locked by a spring catch, *s*, which is secured to the side of the frame A. This spring catch is provided with a downward-projecting rod or arm, *t*, which, when raised by a pin or cam, *u*, of the driving-shaft F, will release the plate M and frame L from the catch.

Another cam, V, on the shaft F, serves to swing the frame L, on its pivot J, into the both aforesaid positions.

The cams *u* and *v* may be double on the shaft F, that is to say, one on each side of the frame A, as indicated in fig. 4.

The plate M, when it swings away from the press, strikes the lever or levers *d*, and imparts thereby intermittent rotary motion to the shafts D E and belts B C.

The swinging motion of the frame L serves, by the gear-wheels *m*, *n*, *p*, and *r*, to impart vertical reciprocation to the plunger I, in such manner that the said plunger is moved down whenever the plate M is carried over the press, and up when said plate is carried away from the press.

The plunger proper is made of two plates, *w* and *x*, between which an oil-chamber, *y*, is formed.

Between the plates *w x* is clamped a sheet, *z*, of paper or other fabric, that projects slightly beyond the edges of the plunger, as indicated in fig. 5. The fabric will be soaked with the oil from the chamber *y*, and will, during the vertical adjustment of the plunger, wipe and smoothen the sides and ends of the press. This lubricating quality of the plunger is of great importance, not only for facilitating the movements of the same, but also for preventing the clay from adhering to the sides of the press.

By means of a belt, *a'*, or otherwise, the shaft *F* imparts rotary motion to a vertical arbor, *b'*, hung in the frame *A*.

The arbor *b'* carries a toothed segment, *c'*, which, meshing into a pinion, *d'*, serves to partly move the same.

The pinion *d'* is mounted upon the lower part of a vertical shaft, *N*. The upper part of this shaft carries a toothed wheel, *e'*, which meshes into the teeth of a sliding rack, *f'*.

The rack *f'* is arranged to slide in a horizontal grooved frame, *O*, which is supported transversely above the frame *A* and press, extending over the belt *B*, as shown.

The rack *f'* carries a vertically-adjustable frame, *P*, which is provided with or suspended from slotted arms *g'*, and by which it is made vertically adjustable.

A spring, *h'*, acting on the shaft *N*, serves to turn the same so that the wheel *e'* will throw the rack *f'* and frame *P* over the belt *B*, as in fig. 1.

The segment *c'*, when it meshes into the pinion *d'*, turns the shaft *N* so as to carry the frame *P* toward the belt *C*, into the position indicated by dotted lines in fig. 1. In this latter position the shaft *N* and frame *P* will be automatically locked by means of a pin, *i'*, which projects from the shaft *N*, and catches behind a spring catch, *j'*, on the frame *O*.

The plate *M*, when swung forward over the press, strikes the catch *j'*, and releases the pin *i'*, so that the spring *h'* may carry the shaft *N* around to move the frame *P* back over the belt *B*.

Whenever the plate *M* swings forward over the press it swings up two bars or levers, *R*, which are pivoted to the sides of the frame *A*. These bars or levers *R*, when swung up, elevate the frame *P*, preparatory to the release of the pin *i'* from the spring catch *j'*.

The frame *P* has two projecting ears or ribs, *l'* and *m'*, of which one serves to feed the brick to the press, while the other moves them away to the belt *C*.

The operation of the machine is as follows:

The brick to be pressed are placed in a single row upon a board, *S*, that is placed upon the apron *B*. A similar board, *T*, is placed upon the apron *C*. The rib *l'* of the frame *P* will, when the shaft *N* is turned by the segment *c'*, carry the first brick from the board *S* upon the plunger of the press, which is then flush with the top of the sides and ends. When the brick has been fairly carried upon the plunger the frame *L* swings forward to carry the plate *M* over the press and to elevate, by means of the bars *R*, the frame *P*. At the same time the plunger is moved down sufficiently to admit the brick within the press, and the sides of the latter are contracted to fairly compress the brick. When the brick has been pressed the frame *L* swings open again, the frame *P* is, by the spring *h'*, moved over the board *R*, and the plunger

is raised to elevate the finished brick. The opening frame *L* swings the levers *d'*, and causes thereby the aprons *B* and *C*, with their boards, to be fed forward the width of one brick. Then the frame *O* is no longer held by the bars *R*, and drops down so that its rib *l'* will be behind the next brick on the board *S*, while the other rib *m'* is behind the brick on the plunger. The next motion of the frame *P*, produced by the segment *c'*, serves to carry another brick to the press and to remove the one previously made from the plunger to the board *T*.

The spring catch *j'* serves to lock the frame *P* after the same has brought a new brick to the press, and prevents thereby the rib *m'* from throwing such brick back again.

When the board *S* has thus been emptied the board *T* will be full, and both are removed to make room for others, with which the operation can again be started.

By this means very rapid and entirely reliable operation can be obtained.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The press-box herein shown, provided with removable sides *e*, plunger *I*, and top *M*, when said parts are constructed, arranged, and operated as and for the purpose set forth.

2. The combination, with the movable sides *e* of a press-box, of toggle-levers *G* and springs *h*, when arranged as and for the purpose described.

3. The arrangement, in a brick-press and with respect to toggles *G*, of levers *H*, cam *k*, and rods *j*, as and for the purpose described.

4. The arrangement, in a brick-press, of the vertically-reciprocating and adjustable frame *P*, to feed the brick in the manner described.

5. The arrangement, with respect to the frame *P*, of shaft *N*, toothed segment *c'*, and spring *h'*, as and for the purpose specified.

6. The spring catch *s*, arranged to lock the presser *M*, and provided with the arm *t*, to be released by the cam *u*, as specified.

7. The swinging frame *L*, combined with the levers *d* and pawls *e*, for the purpose of imparting intermittent rotary motion to the belts *B* and *C*, as set forth.

8. The bars *R* and frame *L*, combined with the frame *P*, for elevating the said frame, substantially in the manner and for the purpose herein shown and described.

9. The frame *P*, secured to the rack *f'*, which is arranged to reciprocate in the frame *O*, as specified.

10. The spring catch *j'* and pin *i'*, combined with the shaft *N*, slide *P*, and presser *M*, substantially as and for the purpose herein shown and described.

Witnesses: JOHN R. WILLIAMS.

JOSEPH E. WILBAR,
JOSEPH WILBAR.