(No Model.) 2 Sheets—Sheet 1.

J. CREAGER.

BRICK MACHINE CUT-OFF.

No. 492,390. Patented Feb. 28, 1893.

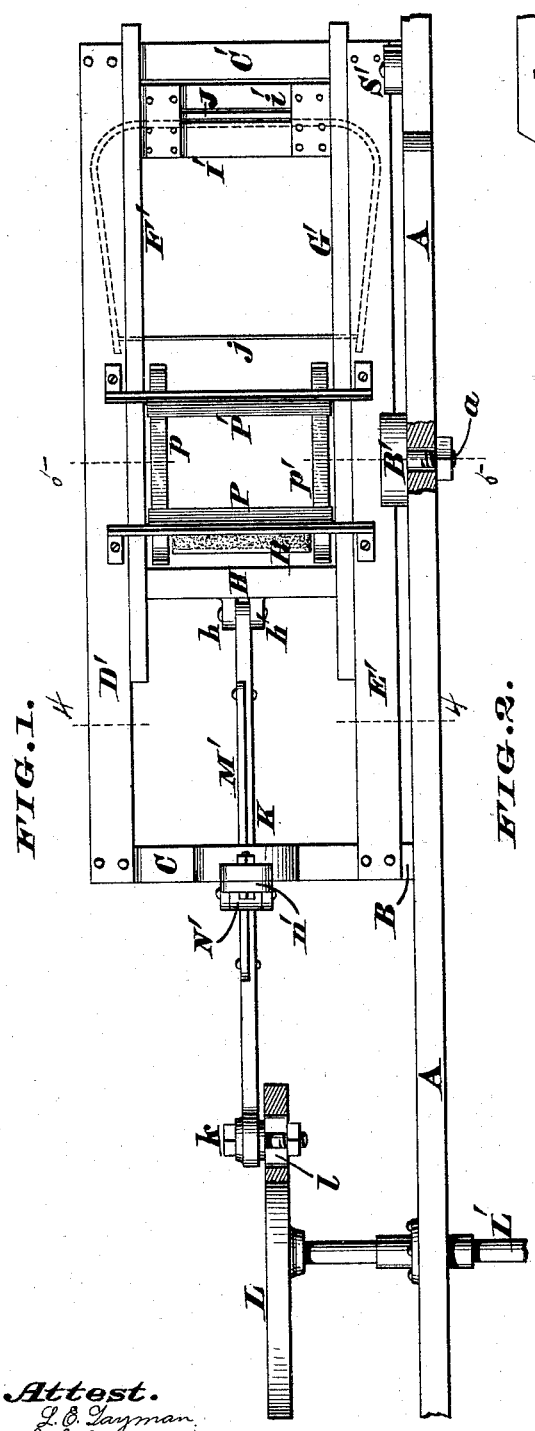

FIG. 1.

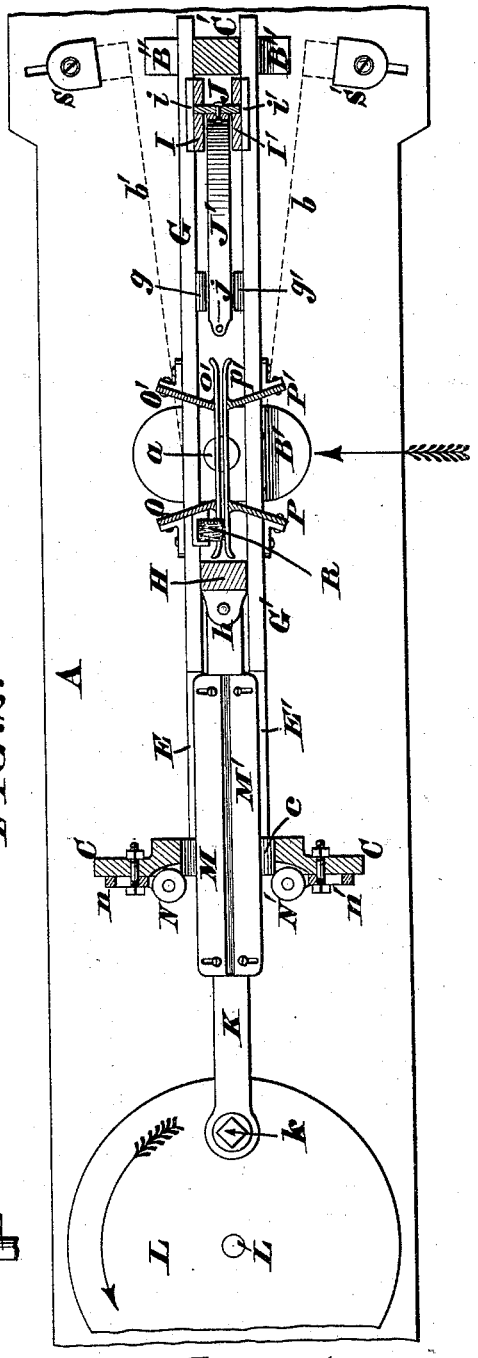

FIG. 2.

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(No Model.) 2 Sheets—Sheet 2.

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FIG. 3.

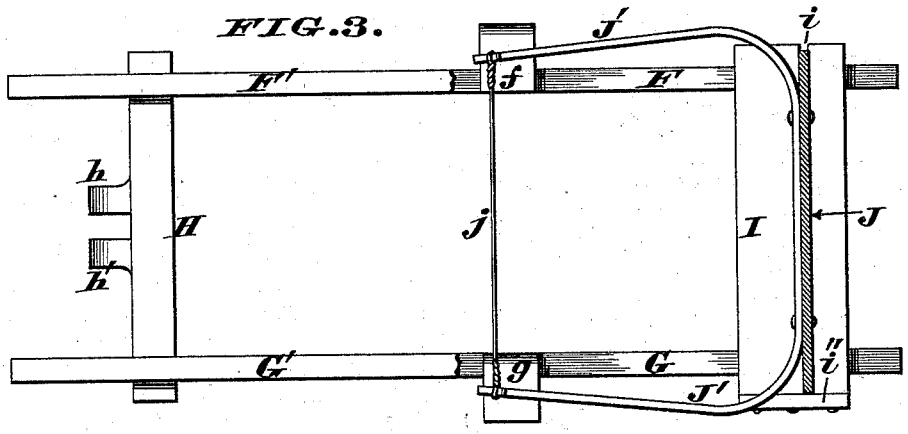


FIG. 4.

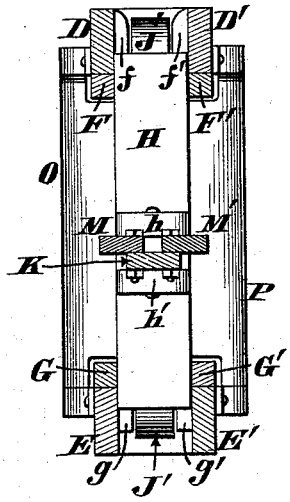


FIG. 5.

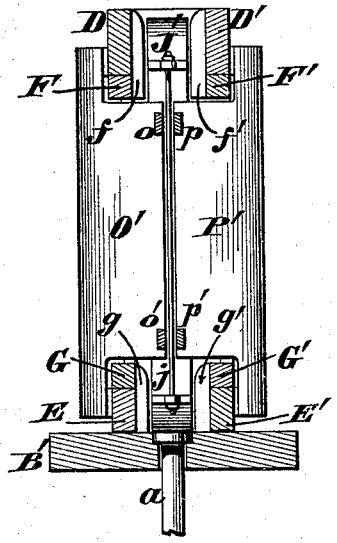


FIG. 6.

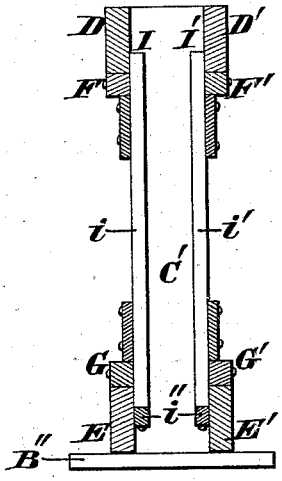


FIG. 8.

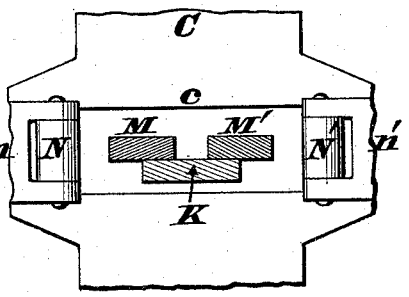
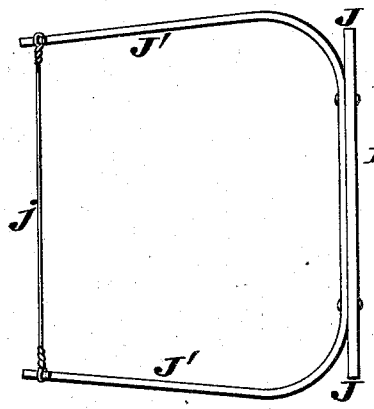


FIG. 7.



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UNITED STATES PATENT OFFICE.

JONATHAN CREAGER, OF CINCINNATI, OHIO.

BRICK-MACHINE CUT-OFF.

SPECIFICATION forming part of Letters Patent No. 492,390, dated February 28, 1893.

Application filed June 4, 1892. Serial No. 435,476. (No model.)

To all whom it may concern:

Be it known that I, JONATHAN CREAGER, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Brick-Machine Cut-Offs; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the annexed drawings, which form part of this specification.

My invention comprises a novel construction of cut-off to be applied to those brick machines in which a slab of clay is forced horizontally out of a pug-mill, and then divided into sections of the proper length to form bricks. This cut off consists, essentially, of a pivoted frame that is vibrated laterally by a pitman, one end of which is coupled to a crank or driving-wheel, while its other end is jointed to a reciprocating carrier that travels within said frame and is provided with a wire or other cutter that severs the clay slab at proper intervals. Usually the wire cutter is attached to a straining bow capable of being readily fitted within the aforesaid reciprocating-carrier, and when the machine is in motion this wire acts both on the forward and backward stroke of said carrier, as hereinafter more fully described.

My invention further comprises certain improvements in the minor-features of the cut-off, the details of the same being hereinafter more fully described.

In the annexed drawings,—Figure 1 is a side elevation of my improved cut-off, the reciprocating carrier being completely retracted, a portion of the driving wheel sectioned, and the position of the bow indicated by dotted lines. Fig. 2 is a horizontal section of the machine taken in the plane of its pitman. Fig. 3 is an enlarged side elevation of the reciprocating-carrier detached from the vibrating frame, the rear portion of said carrier being broken away to expose the straining bow and its attached wire-cutter. Fig. 4 is a transverse section of the machine taken at the line 4—4 of Fig. 1. Fig. 5 is a similar section taken at the line 5—5. Fig. 6 is another transverse section taken in the plane of the vertical grooves *i*, *i'*, of the carrier. Fig. 7 is an elevation of the straining bow detached from the carrier. Fig. 8 is an enlarged elevation of a portion of the front end of the vibrating frame, the pitman being sectioned.

A represents a horizontal table or bed-plate, which is pierced to admit a pivot *a*, that traverses the central one B', of three bearings B, B', B'', the latter serving to support the vibrating frame, previously alluded to. This frame is composed of a pair of vertical end pieces C, C', united at top by two parallel, horizontal bars D, D', and at bottom by a similar pair of bars E, E', said members B, B', B'', C, C', D, D', E, E', being firmly secured together, so as to constitute a rigid structure incapable of springing in any direction. The bars D, D', and E, E', serve as tracks for two pairs of long slides F, F', G, G', which slides are united in front by an upright H, whose ends fit snugly between said bars, as more clearly seen in Fig. 4.

I, I', are uprights that unite the rear ends of slides F, F', G, G', said uprights being divided to afford vertical grooves *i*, *i'*, open at top, but closed at bottom by strips *i''*, seen in Figs. 3 and 6. These members F, F', G, G', H and I, I', are firmly united together and form the reciprocating carrier, the vertical grooves of which *i*, *i'*, admit the backing piece J of a straining bow J', to whose upper and lower ends the wire cutter *j* is secured, as represented in Fig. 7, these ends of said bow being steadied by lugs *f*, *f'*, *g*, *g'*, secured to the inner sides of the slides. These lugs serve, also, as guides for the carrier, the front upright of which, H, has a pair of ears *h*, *h'*, to which one end of the pitman K is coupled, the other end of the same being connected to a wrist pin *k*, capable of adjustment within a slot *l*, of a crank or driving wheel L, the latter being preferred, for obvious reasons. This driving device is carried by a vertical shaft L', which is so geared to the brick machine as to operate the cut off at the proper speed with reference to the rate of delivery of the clay slab. Pitman K has secured to it a pair of laterally-shiftable bars M, M', capable of being separated a greater or less distance, as occasion requires, the outer edges of said bars being adapted to bear against anti-friction rollers N, N', journaled in adjustable bearings *n*, *n'*, secured to the front of the end piece C, of the vibrating frame. These rollers are situated at the opposite ends

of a horizontal slot *c* of said end piece, as more clearly represented in Fig. 8.

Attached to the bars D, E, are vertical plates O, O′, which incline inwardly and carry an upper guide *o* and lower guide *o′*, similar plates P, P′, being secured to the other bars D′, E′, and being furnished with guides *p*, *p′*. These guides are longitudinal strips separated by a very narrow interval for the passage of the wire cutter *j*, each stroke of which brings it in contact with a wiper R made of felt or other suitable material, the object of said wiper being to clean the wire of any clay that may adhere thereto. Furthermore, by greasing said wiper at suitable intervals, the easy running of the machine will be facilitated. S, S′, are adjustable stops applied to the table A, and adapted to arrest the vibrating frame, as it swings from side to side.

My improved cut-off operates, as follows.—The table, or other support A, is arranged at a right angle with reference to the path of the clay slab, and at any suitable distance from the die through which said slab is forced, and the shaft L′, is geared to run the driver L at the proper speed. It is immaterial which side of the table is presented toward the advancing slab, although it is very important which way the driver is turned with reference to said slab,—as for example, in Fig. 2, the clay is supposed to be moving in the direction of the straight arrow, so as to enter between the plates P, P′. In this case, the driver must turn in the direction of the curved arrow, but if the slab should enter between the plates O, O′, said driver would then be revolved in an opposite direction. It is evident that a sufficient turning of the driver will bring the plate M in contact with roller N, and thus cause the vibrating frame to swing on its pivot *a*, until it reaches the position indicated by the dotted line *b* in Fig. 2, at which moment one end of the bearing B″, will abut against the stop S′. Consequently, said frame is now held perfectly rigid, and any lateral vibration thereof is guarded against. This turning of the driver causes the reciprocating carrier to advance and take the bow J′ along with it, but the wire *j*, of said bow does not reach the plates O′, P′, until the wrist pin *k* of said driver has described one fourth of a circle,—or in other words, when the pin has about reached one of the "dead points." While the pin is passing this "dead point," the vibrating frame is, of course, stationary, although the carrier is now traveling at its highest speed, and the wire *j* is cutting obliquely through the clay slab. This oblique cut, however, is made in the direction the slab is moving, not in opposition to it, and the result is a clean, square, transverse severing of the clay into the proper length to form a brick. The continued turning of the driver swings the vibrating frame to the position indicated by the dotted line *b′*, by which act the opposite end of bearing B″, is brought in contact with the other stop S, and then the above described operations are repeated, the wire cutting through the slab when the wrist pin is passing the next "dead point" of the circle.

From the above description it is apparent that by having the axis of vibration *a*, exactly in line with the center of travel of the clay slab, the severing of the latter will be uniform both when the carrier is advanced and retracted, the plates P, P′, serving to prevent any side shifting of said slab, and insuring clean, sharp edges.

By simply adjusting the plates M, M′, rollers N, N′, and stops S, S′, the distance to which the vibrating frame swings will be regulated to agree exactly with the speed of the clay slab. A very little practice will soon determine the proper angling position of the frame with reference to the delivery from the pug mill.

The straining bow J, J′, can be readily lifted out of the grooves *i*, *i′*, either for inspection or renewing the cutting wire. Finally, an eccentric, or other mechanical equivalent, can be used in place of the driving wheel to vibrate the frame and reciprocate its carrier, to which latter the cutting wire may be directly attached, if desired. Or, the frame and carrier may be operated by independent means, as it is not essential that a single pitman should perform each of these duties.

I claim as my invention—

1. The combination in a brick-machine cut-off, of a laterally vibrating frame a reciprocating carrier applied thereto, which carrier is provided with a cutter, and a clay entrance at the center of vibration of said frame, substantially as herein described.

2. The combination in a brick-machine cut-off, of a laterally vibrating frame, a reciprocating carrier applied thereto provided with a cutter, and a device that operates both the frame and carrier, and a clay entrance at the center of vibration of said frame, substantially as herein described.

3. The combination, in a brick-machine cut-off, of a laterally vibrating frame, a reciprocating carrier applied thereto and provided with a cutter, a revolving driver and a pitman connection that operates said frame and carrier, and a clay entrance at the center of vibration of said frame, substantially as herein described.

4. The combination, in a brick-machine cut-off, of a laterally vibrating frame, a reciprocating carrier applied thereto and provided with a cutter, a revolving driver and a pitman connection that operates said frame and carrier, said pitman being furnished with laterally-shiftable devices that regulate the swing of said frame, which frame has a clay entrance at its center of vibration, substantially as herein described.

5. The combination in a brick-machine

cut-off, of a laterally vibrating frame, a reciprocating carrier fitted therein and provided with a detachable bow to which the cutter is secured, and a clay entrance at the center of vibration of said frame, substantially as herein described.

6. The combination in a brick-machine cut-off, of a laterally vibrating frame, a reciprocating carrier fitted therein and provided with a detachable bow to which the cutter is secured, a pair of upper and lower guides between which said cutter travels, and a clay entrance at the center of vibration of said frame, substantially as herein described.

7. The combination, in a brick-machine cut-off, of the laterally vibrating frame C C′ D D′ E E′, provided with two pairs of guides *o*, *o′*, *p*, *p′*, the reciprocating carrier F F′, G G′ H I I′, fitted within said frame, a bow J′, applied to said carrier and furnished with a cutter *j*, a pitman K, coupled to said carrier, and a revolving driver L, that operates said pitman, as herein described.

8. The combination in a brick-machine cut-off, of a laterally vibrating frame provided with two pairs of plates O O′, and P, P′, to which the guides *o*, *o′*, and *p*, *p′*, are applied, for the purpose described.

9. The combination, in a brick-machine cut-off, of a reciprocating carrier provided with vertical grooves *i i′*, and a bow J′, having a cutter *j*, and a backing plate J, which latter fits within said grooves, for the purpose described.

10. The combination, in a brick-machine cut-off, of a laterally vibrating frame, a carrier reciprocating therein, a pitman that operates said frame and carrier, and a pair of rollers against which said pitman acts, in the manner described, and for the purpose stated.

11. The combination, in a brick-machine cut-off, of a laterally-vibrating frame, a cutter reciprocating therein, and a clay entrance at the center of vibration of said frame, substantially as herein described.

In testimony whereof I affix my signature in presence of two witnesses.

JONATHAN CREAGER.

Witnesses:
JAMES H. LAYMAN,
ALFRED M. DAVIES.