

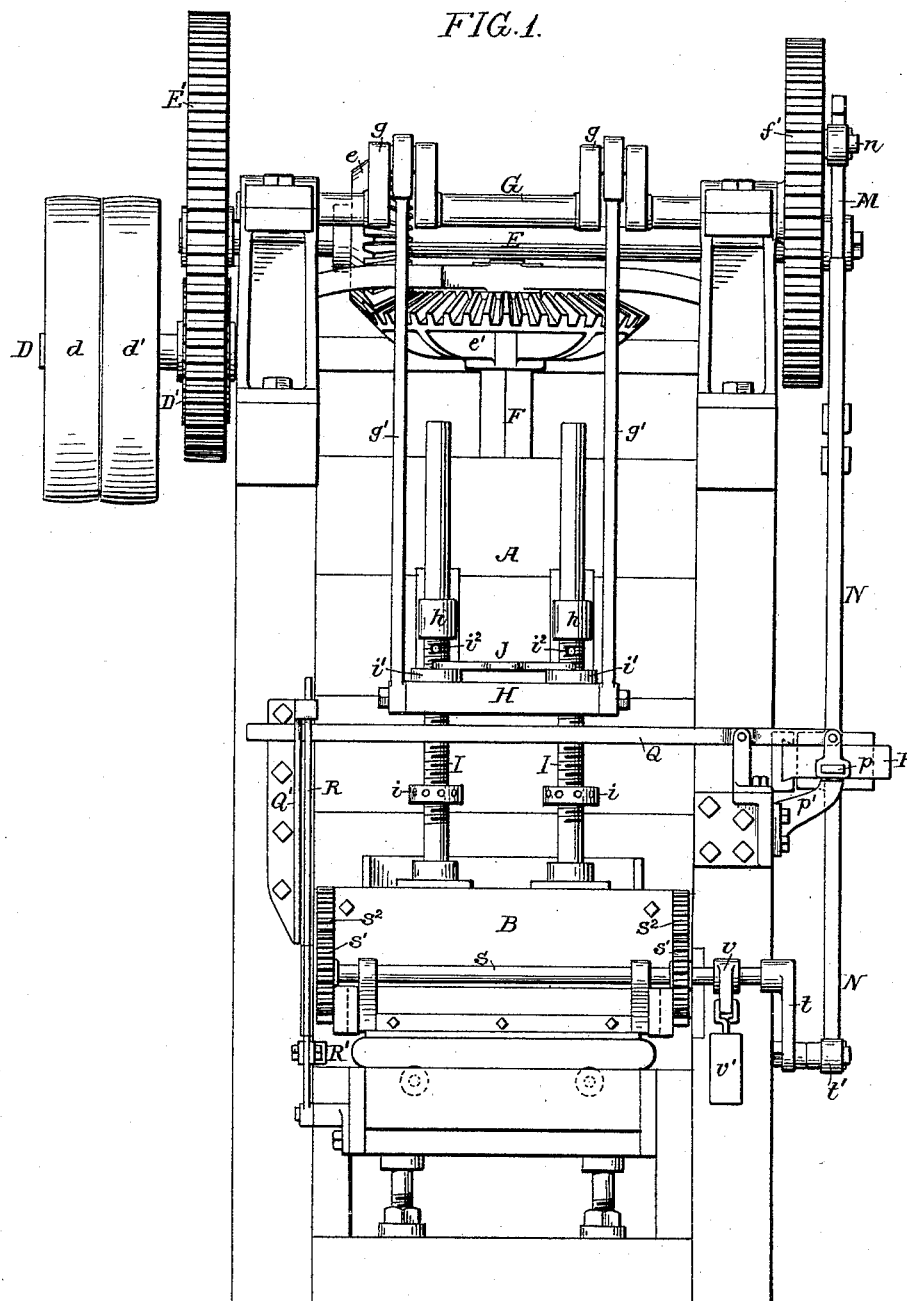
(No Model.)

3 Sheets—Sheet 1.

G. CARNELL.
BRICK MACHINE.

No. 419,922.

Patented Jan. 21, 1890.



Witnesses:
William D. Corner,
John Wilson

Inventor
George Carnell
by his Attorneys
Hosmer & Hosmer

(No Model.)

3 Sheets—Sheet 2.

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FIG. 2

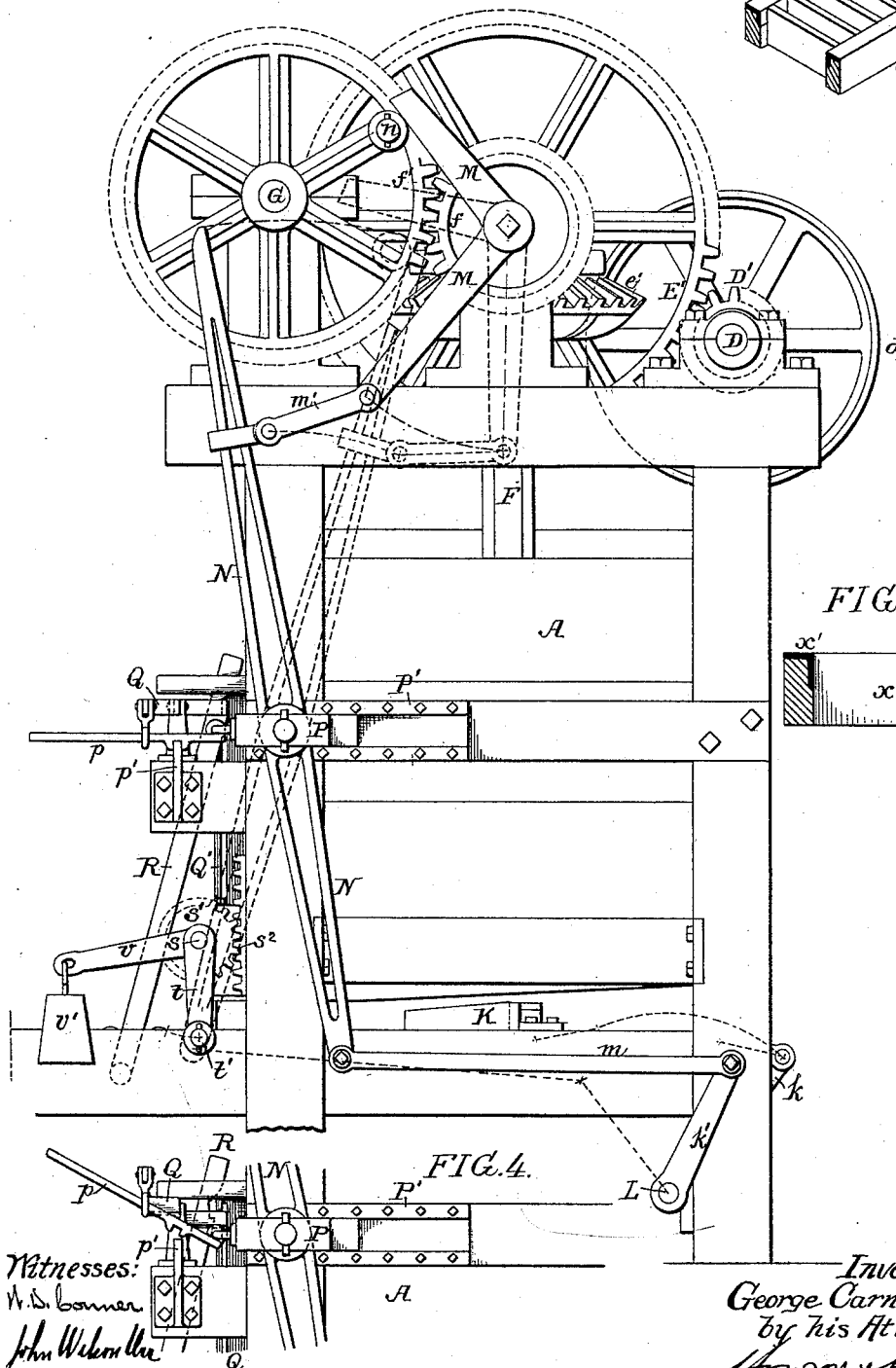


FIG. 5.

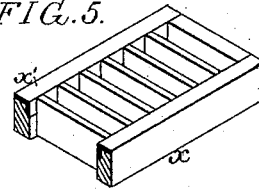
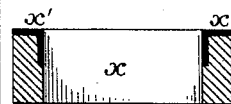


FIG. 6.



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(No Model.)

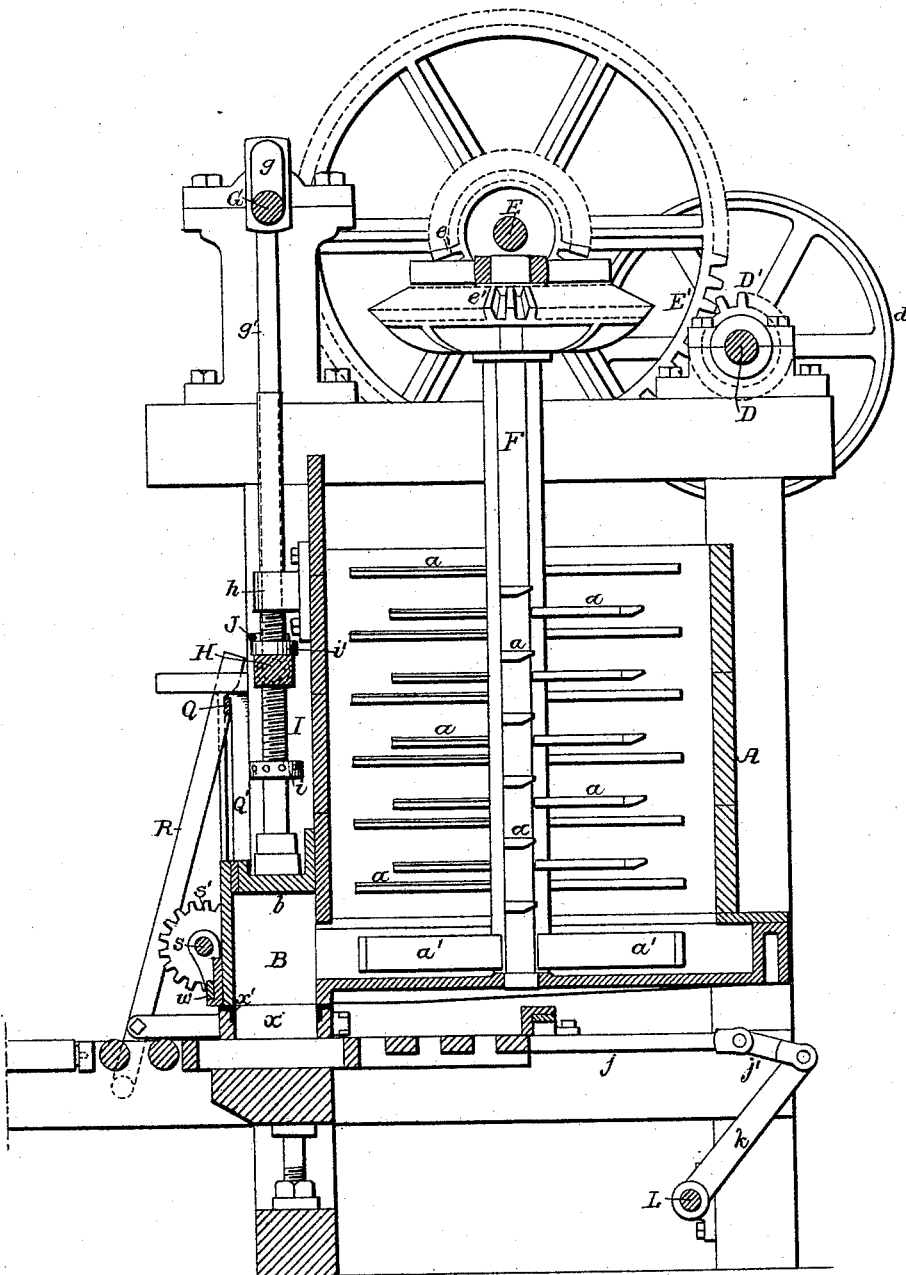
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FIG. 3.



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UNITED STATES PATENT OFFICE.

GEORGE CARNELL, OF PHILADELPHIA, PENNSYLVANIA.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 419,922, dated January 21, 1890.

Application filed February 5, 1889. Serial No. 298,773. (No model.)

To all whom it may concern:

Be it known that I, GEORGE CARNELL, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Brick-Machines, of which the following is a specification.

My invention consists of certain improvements in the brick-machine for which I obtained Letters Patent on the 28th day of June, 1881, No. 243,505, the objects of my invention being to simplify the construction of the machine and to effect certain desirable results in the operation of said machine. These objects I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a front view of the improved machine. Fig. 2 is a side view of the same. Fig. 3 is a longitudinal section. Fig. 4 is a detached view of part of the machine, showing some of the devices in a different position from that shown in Fig. 2; and Figs. 5 and 6 are detached views of part of the mold-box.

The present machine is similar to the other in its general construction and has a clay-box A, in which are arranged rotating tempering-blades *a* and cams *a'*, the latter serving to eject the clay from the lower portion of the box into a filter-box B at the front of the same, this filter-box having a reciprocating plunger *b*, which drives the clay into a series of molds formed in a mold-box *x*, introduced beneath the filter-box.

The power to drive the machine is in the present instance imparted to a shaft D, which has belt-pulleys *d d'* and a spur-pinion D', which gears into a spur-wheel E' on a shaft E, extending transversely across the machine and having a bevel-pinion *e*, which gears into a bevel-pinion *e'* on the shaft F, which carries the tempering-arms and filler-cams. On said shaft E is also a spur-pinion *f*, which gears into a spur-wheel *f'* on a shaft G, the latter having cranks *g*, which are connected by rods *g'* to a cross-head H, through openings in which pass the screw-stems I, which carry the plunger *b* of the filling-box machine, these screws being guided in suitable bearings *h* above the cross-head, so that the screw-stems and plungers are at all times properly guided in their vertical reciprocation. The plunger may have but one stem, if desired, although two or more are preferred.

The screw-stems have collars *i* below the cross-head and other collars *i'* above the same, the lower collars being threaded and adapted to the threaded stems, so that they can be adjusted vertically thereon to regulate the extent of downward movement of the screw-stem and plungers, it being understood that the cross-head always has a positive movement to a certain point, so that by raising the collars *i* on the screw-stems the extent of downward movement imparted to the latter will be increased, while by lowering the collars on the stems the downward movement will be diminished. The upper collars are loose on the stems, but are prevented from rising thereon by a locking-bar J, the ends of which are adapted to openings *I'* in the screw-stems, two or more sets of these openings being provided, so that the lost motion of the collars *i'* on the stems will be greater or less, depending upon the amount of lift to be imparted to said stems and to the plungers carried thereby. The operation of the screw-stems and plungers may also be arrested, if desired, without stopping the movement of the rest of the machine by simply withdrawing the locking-bar J, and thus permitting the collars *i'* to rise and fall freely on the stems.

Beneath the clay-box A is the pusher K, whereby the mold-box is placed beneath the filler-box for the reception of the clay, this pusher having opposite stems *j*, each of which is connected by a link *j'* to an arm *k* on a rock-shaft L, adapted to suitable bearings on the frame of the machine, said rock-shaft having another arm *k'*, connected by a link *m* to a lever N, hung to a slide on the frame-work of the machine, as explained hereinafter, and connected by a link *m'* to a bell-crank lever M, hung to and free to turn on the transverse shaft F, this bell-crank lever being acted upon by an anti-friction roller carried by a crank-pin *n* on the spur-wheel *f*, and said roller being also adapted to act alternately upon the upper end of the lever N and upon the lever M. By this means when the roller acts upon the lever M it imparts such movement thereto and to the lever N as to effect the retraction of the pusher K, as shown in Fig. 2, and after an empty mold-box has been inserted transversely onto the lower table or platform of the machine in front of the pusher the latter, by the action of the roller

directly on the lever N, will be projected to move the set of molds beneath the filler-box, while at the same time the lever M will be moved, as shown by dotted lines in Fig. 2, so as to be again struck by the roller in order to again retract the pusher, preparatory to the insertion of a fresh mold-box in advance of the same.

At the front of the filler-box is a scraper-plate *w*, which, as the filled molds are pushed from under the filler-box, scrapes the clay from the tops of the molds and imparts a smooth finish to the bricks formed therein. It is advisable, however, to slightly raise this scraper-plate when the front edge of a fresh mold-box is being inserted beneath the same; hence I mount the plate upon a shaft *s*, which is adapted to suitable bearings on the filler-box, so that it is free to slide vertically therein, said shaft having pinions *s'* gearing into fixed vertical racks *s²* at the sides of the filler-box, and at the outer end of the shaft is an arm *t*, carrying an anti-friction roller *t'*, and another arm *v*, provided with a weight *v'*, the tendency of which is to cause the shaft to turn so that the pinions *s'* occupy their lowest position on the racks. When in this position, the scraper-plate *w* rests upon the top of the mold-box. As the lower arm of the lever N moves forward, however, to push the fresh mold-box into place beneath the filler-box, it strikes the roller *t'* of the arm *t* and causes a partial rotation of the shaft *s* and its pinions *s'*, the latter consequently rising on the vertical racks *s²*, so as to lift the scraper-plate slightly above the top of the mold-box, the plate being allowed to drop into position as soon as there is any retraction of the lever N on the backward movement of the pusher-slide.

The mold-boxes which I employ are the usual wooden boxes, consisting of an outer rectangular frame with transverse partitions dividing it into a series of molds, and in order to prevent injury to the upper edges of the front and back bars of the mold-box as the latter is pushed under the slide after being filled the tops of said front and back bars are armored by means of angle-irons *x'*, as shown in Figs. 5 and 6, one flange of the iron covering and being secured to the top of the bar and the other flange extending down inside the box, the bars and partitions being recessed or rabbeted to receive it. The angle-irons, being extremely rigid and having such an extended hold on the sides of the box, cannot be torn from their places, as sometimes happens when simple flat plates are secured to the tops of the front and rear bars of the box.

In order to prevent forward movement of the mold-box unless it has been moved into proper position laterally for insertion beneath the filler-box, the lever N is hung to a slide P, which is adapted to suitable guides P' on the side of the clay-box A, and is normally

locked in operative position by means of a latch *p*, which engages with a keeper *p'* on a bracket at the front of the machine.

With the latch *p* is connected one arm of a trip-lever Q, which is hung to a suitable stud, the other arm of the lever being guided by a slotted plate Q', and being normally held in position to close the latch *p* by reason of engagement with a notch in a catch-arm R, which has a bar R' extending backward to a point in the rear of the filler-box. When, therefore, a mold-box has not been inserted to the proper extent laterally, and is hence not in position for being pushed beneath the filler-box, it will on the forward movement of the pusher strike the bar R', thus moving the catch-arm R, so as to release the trip-lever Q, thereby unlocking the latch *p*, as shown in Fig. 4, and permitting the slide P to move with the lever N instead of imparting any further movement to the pusher.

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

1. The combination of the filler-box plunger, a stem thereon, a reciprocated cross-head, and collars on the stem, between which the cross-head vibrates, the lower collar being adapted to a thread on the stem, so as to be adjustable vertically thereon to regulate the downward movement of the plunger, and the upper collar bearing against a detachable locking-bolt adapted to an opening in the stem, substantially as specified.

2. The combination of the mold-box pusher, a main operating-lever, and means for connecting the latter to the pusher, a supplementary lever connected to said main lever, and a crank-pin acting successively on said main lever and supplementary lever, whereby movement in opposite directions is imparted to the main lever, substantially as specified.

3. The within-described mold-box, consisting of an outer rectangular frame of wood, with transverse partitions forming the molds, the front and rear bars of the outer frame being armored at the top by means of angle-irons, one flange of each angle-iron covering the top of the bar and being immovably secured thereto and the other flange extending down on the inner side of the bar, substantially as specified.

4. The combination of the mold-box pusher, the operating-lever therefor, a slide carrying the fulcrum of said lever, a latch for said slide, a trip-lever for the latch, and a retainer for said lever, having a bar for being struck by the mold-box when the latter is not in proper position, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE CARNELL.

Witnesses:

WILLIAM D. CONNER,
HARRY SMITH.