(No Model.)

5 Sheets—Sheet 1.

C. V. HEMENWAY.

BRICK MACHINE.

No. 446,064. Patented Feb. 10, 1891.

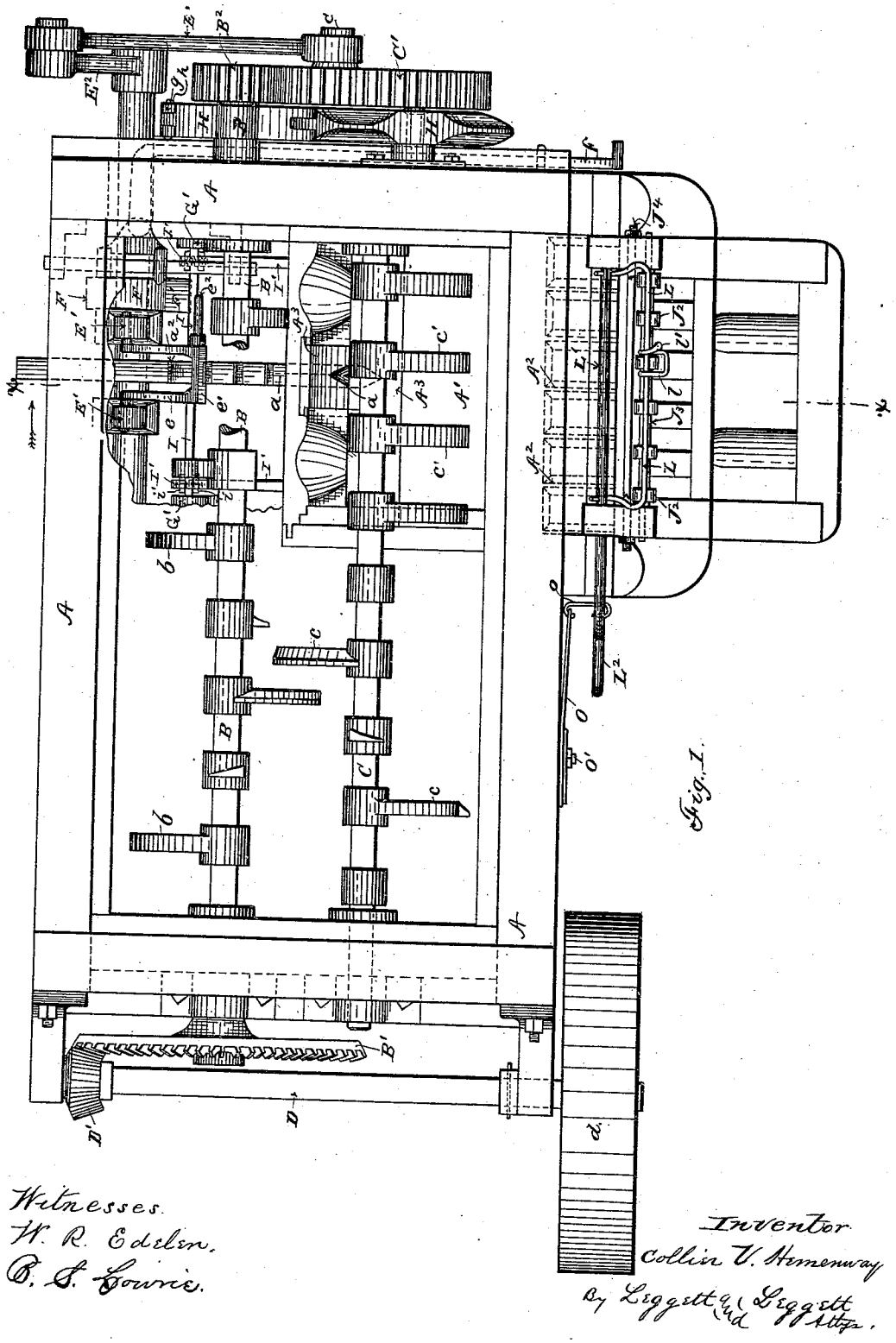


Fig. 1.

Witnesses.
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B. S. Lowrie.

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(No Model.) 5 Sheets—Sheet 2.

C. V. HEMENWAY.

BRICK MACHINE.

No. 446,064. Patented Feb. 10, 1891.

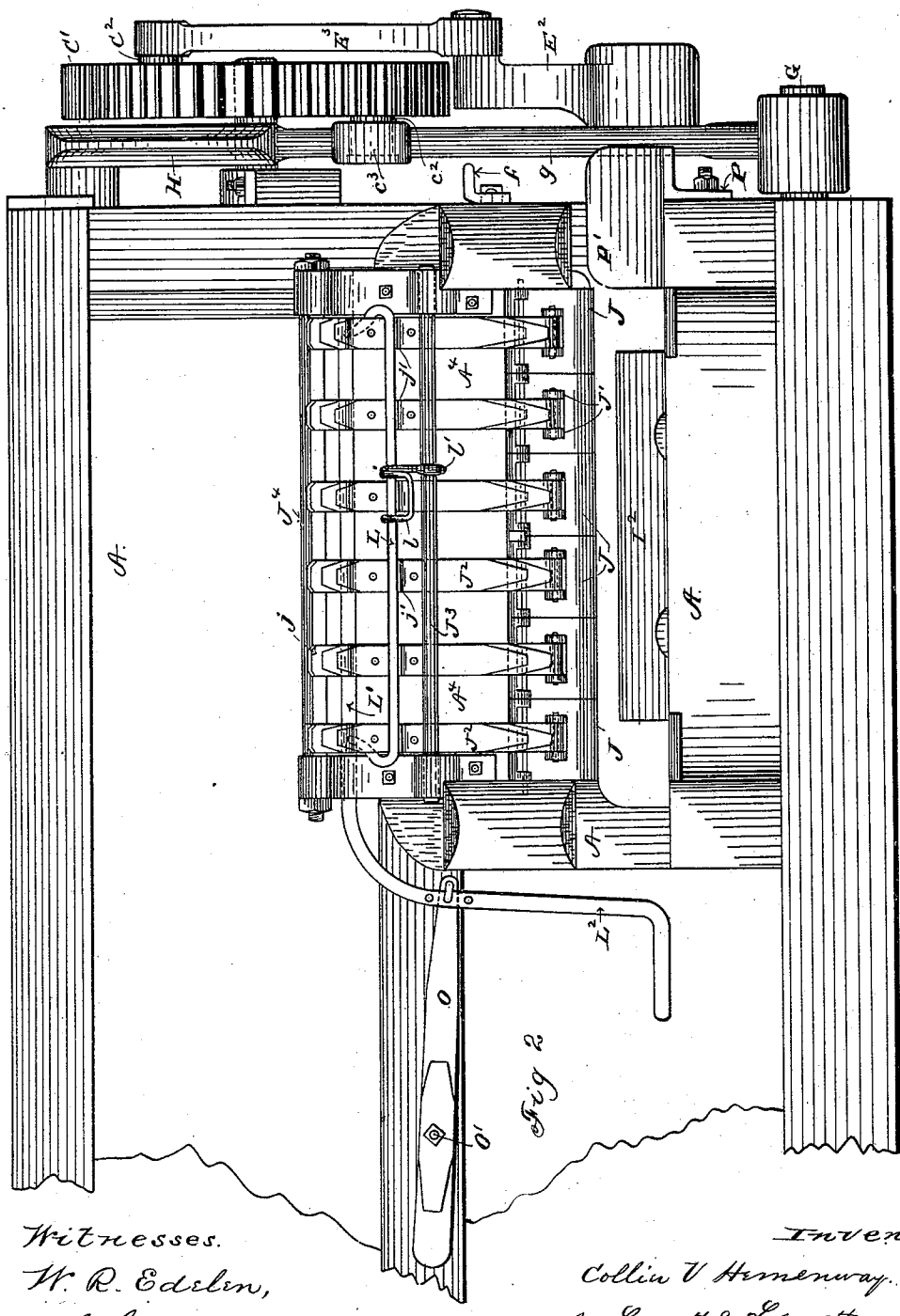


Fig 2

Witnesses.
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

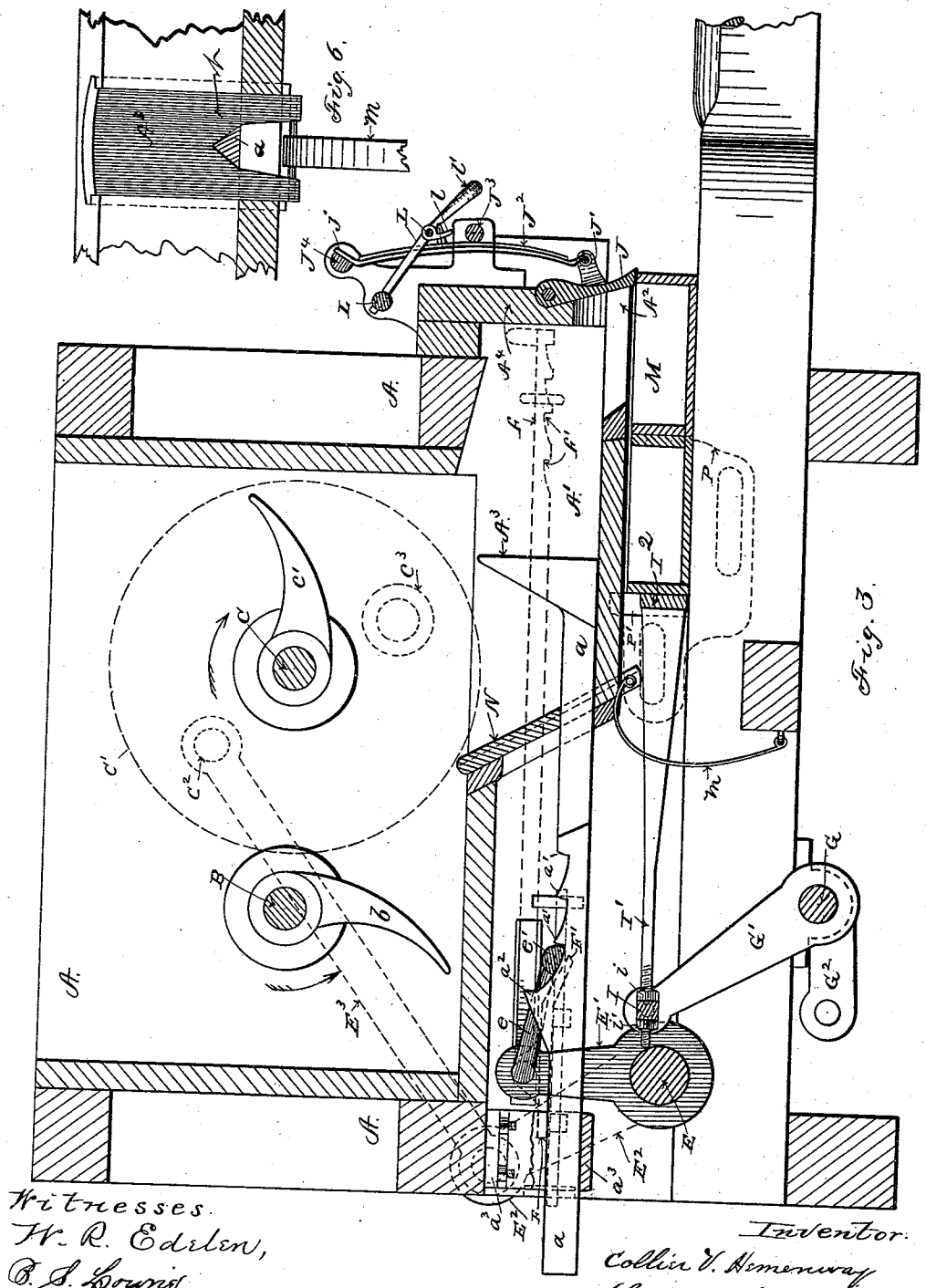
(No Model.)

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C. V. HEMENWAY.

BRICK MACHINE.

No. 446,064. Patented Feb. 10, 1891.



Witnesses.
W. R. Edrlen,
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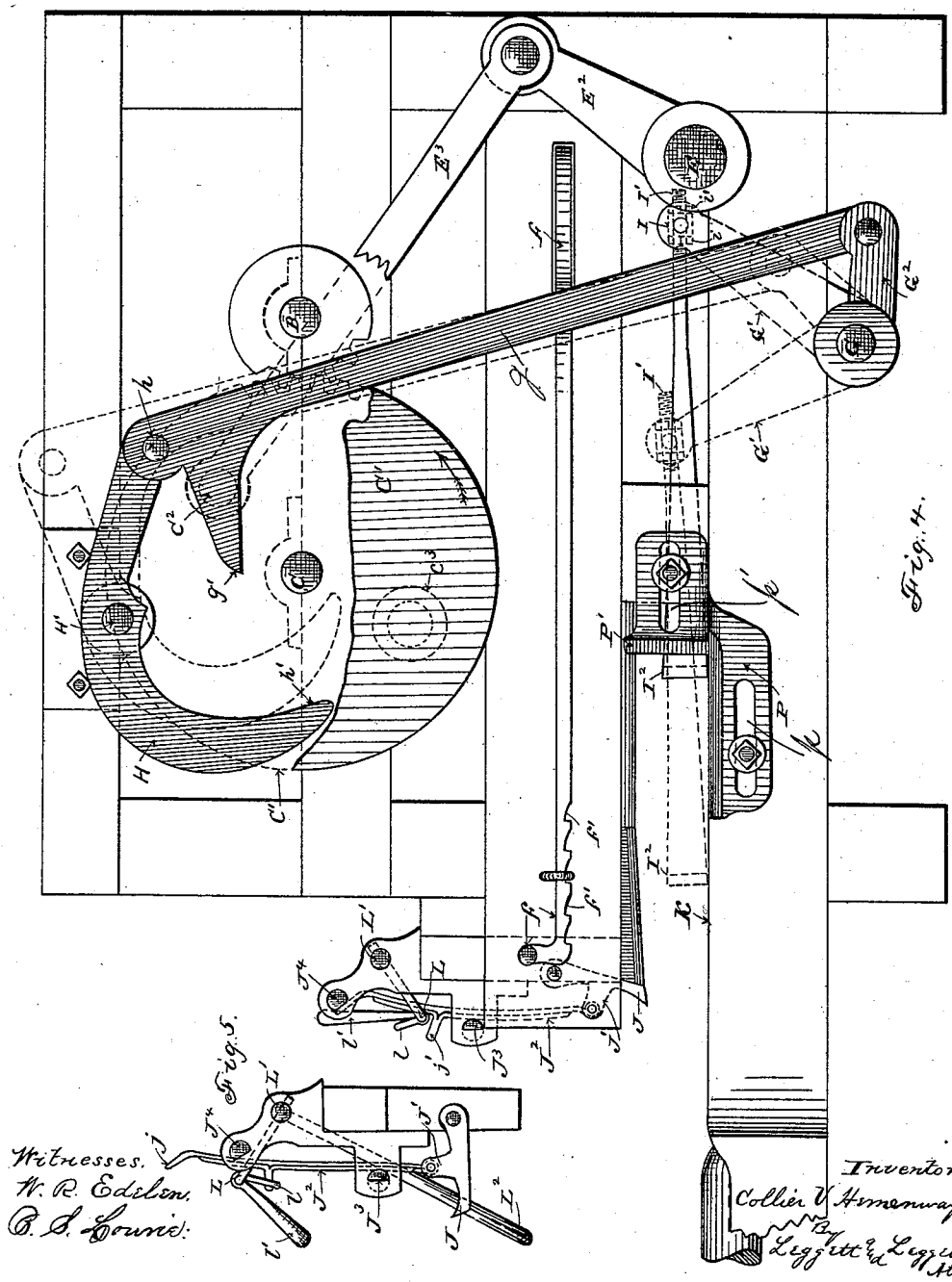
THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 5 Sheets—Sheet 4.

C. V. HEMENWAY.

BRICK MACHINE.

No. 446,064. Patented Feb. 10, 1891.



Witnesses.
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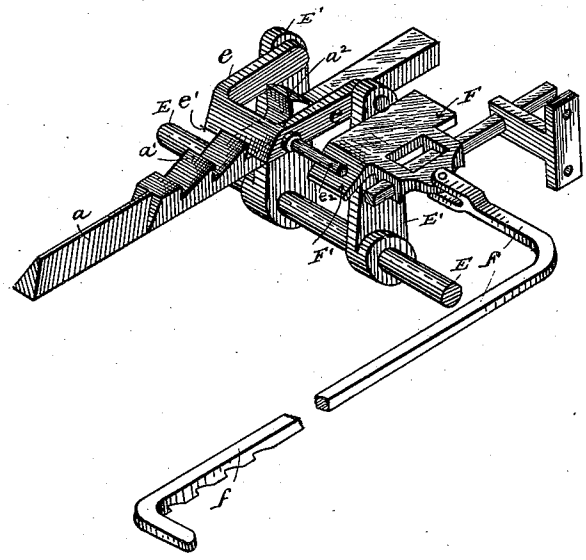
(No Model.) 5 Sheets—Sheet 5.

C. V. HEMENWAY.

BRICK MACHINE.

No. 446,064. Patented Feb. 10, 1891.

Fig. 7.



Witnesses.
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UNITED STATES PATENT OFFICE.

COLLIER V. HEMENWAY, OF WELLINGTON, OHIO.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 446,064, dated February 10, 1891.

Application filed April 21, 1890. Serial No. 348,835. (No model.)

To all whom it may concern:

Be it known that I, COLLIER V. HEMENWAY, of Wellington, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Brick-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in brick-machines; and it consists in certain features of construction and in combination of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan with portions of the floor of the pugging-box broken away to show the construction below. Fig. 2 is a front elevation. Fig. 3 is an elevation in transverse section on line x x, Fig. 1. Fig. 4 is a right-hand end elevation. Fig. 5 is an elevation in detail, showing reverse positions of the strike-off doors and attachments. Fig. 6 is an elevation in detail of slide N, and Fig. 7 is a detail.

A represents the pugging-box supported at the desired elevation by means of suitable frame-work, and in this pugging-box operate the two pugging-shafts B and C. Shaft B at the rear end of the machine is provided with a beveled gear B′, engaging beveled pinion D′, the latter being mounted on the driving-shaft D, together with a driving-pulley d. The other end of shaft B is provided with a pinion B^2, engaging gear C′ of shaft C, by means of which intergearing shaft B rotates much faster than shaft C. Shaft B is provided with a series of pugging-blades b, and shaft C is provided with similar pugging-blades c, except that the forward section of shaft C is provided with wipers c'. The latter have broad faces adapted to force the material into the compression-box A′, located below, while the forward faces of the pugging-blades are inclined in the direction to force the material toward the forward end of the machine. One advantage of the two pugging-shafts is that the material cannot revolve in the pugging-box, as it is likely to do in case but one pugging-shaft is employed; also, the two pugging-shafts, revolving with unequal speed and with the depending arms thereof moving toward each other, are found to be very effective in tempering the material. The compression-box at the forward end thereof is provided with dies, or more commonly called "grates" A^2, through which the material is forced down into the mold M, that is in position under the grates.

In the compression-chamber A′ operates a press bar or head A^3, this bar and the mechanism for intermittently reciprocating the same being known as a "mud-press." Connecting with bar A^3 is a rearwardly-projecting arm a, that extends through a hole in the rear wall of the compression-box, this section of the bar being V-shaped, and is embraced by a packing plate or slide N, this plate lying flatwise against the inner face of the rear wall of the compression-box, the lower end of this plate extending through a slit in the bottom wall of the compression-box. This plate is slotted from the lower end thereof upward, the upward end of the slot being V-shaped to correspond with the engaging V-shaped section of arm a aforesaid. (See Fig. 6.) A spring m is connected with the lower end of plate N for holding the plate with a gentle pressure upon bar a to insure a tight joint. Arm a, rearward of the compression-box and of the V-shaped section thereof, has ratchet-teeth a', and rearward of these ratchet-teeth is provided with an upwardly-projecting lug a^2. The rearward end of bar a is supported by and slides in a suitable box a^3.

E is a rock-shaft, on which are mounted a pair of rock-arms E′ E′, and on the outer or overhanging end of the shaft is mounted rocking arms E^2, the latter being connected by means of pitman E^3 with wrist C^2 of gear C′. To the upper end of the rock-arms E′ E′ is pivoted a bail e, that serves as a dog, the forward face of the central member e' of the bail being adapted to engage ratchet-teeth a' for advancing the presser-bar A^3, and the rearward face of the member e' being adapted to engage lug a^2 for reversing bar A^3.

F is a horizontal plate adapted to be moved forward and rearward, the forward end of the plate terminating in a downwardly-inclined member F′, and dog e has a laterally-projecting pin e^2, that is adapted to engage and mount the incline F′ with the reverse movement of the dog. The dog, when thus elevated, is out of the reach of teeth a', but is

still within the reach of lug a^2. Plate F connects with a hand-rod f, the latter extending along the outside of the machine to where it is convenient of access, this rod having notches f' for engaging a catch to hold the parts in adjustment. While plate F is in its rearward position incline F′ does not engage pin e^2, and consequently the dog engages the rearward notch a' and bar A^3 is actuated its full throw forward. If it is found that too much mud is being forced into the molds, the operator draws rod f forward one or more notches, whereupon pin e^2 engages incline F′ and by such engagement causes the dog to ride over the corresponding number of rearward teeth a', thereby shortening the forward throw of bar A^3. This mechanism, therefore, and without stopping the machine, may be readily adjusted to give the desired supply of material to the mold.

The so-called "mold-press mechanism" for shifting the mold is as follows:

G is a rock-shaft provided with a pair of rock-arms G′ G′, and on the outer end of this shaft is mounted a rock-arm G^2, the latter connecting with pitman g. This pitman is pivoted at h to the tilting cam-lever H, the latter being pivoted at H′. Lever H and pitman g operate in a vertical plane just rearward or inside of the plane of gear C, and the latter has the wrist c^2 projecting from the inner face of the gear, and on this wrist is mounted a roller c^3, this roller operating in the same plane as lever H and pitman g. The pitman is provided with a toe g', that is engaged and elevated by the roller in the upward movement of the latter, and the cam-shaped end h' of lever H is engaged by this roller in its downward movement, whereby the lever is reversed. It will be seen by referring to Fig. 4 that the up-and-down movement of pitman g will occur while wheel C′ is making something less than a half-revolution, and consequently arms G′ must remain for a time at rest in their rearward position.

I is a flat bar of metal having trunnions at the ends thereof that are journaled in lateral holes made near the upper end of each arm G′. Bar I stands edgewise and has holes for receiving the screw-rod I′, these rods at the forward end thereof connecting with push-bar I^2 for pushing the molds forward. Screw-rods I′ are provided with jam-nuts $i\,i'$ that embrace bar I. By adjusting these jam-nuts bar I^2 may be adjusted forward or rearward, according to the size of the mold. By reason of the pivotal bearings of bar I nuts $i\,i'$ may be screwed tight against this bar, so that there is no danger of their working loose and so that bar I^2 is held rigidly to its work. The latter rests and slides on table K, on which the molds rest. The forward movement of bar I^2 pushes the empty molds under the grate, and in so doing pushes out the mold that has been filled.

P is a mold rest or guide, and comprises a metal plate of the angular variety, (shown more clearly in Fig. 4,) this plate being attached to the side of the machine where the molds are fed in by hand. The horizontal or main portion P of this plate is supposed to be flush with the top of table K, and the forward face of the upright member P′ is supposed to be about flush with the forward face of push-bar I^2, when the latter is in its rearward position. This plate is provided with longitudinal slots $p\,p'$, in which operate the securing-bolts, and by loosening these bolts the plates may be adjusted forward or rearward, according to the size of the mold. The push-bar I^2 cannot be seen by the operator without stooping; but by placing the mold on plate P and pressing the mold into the angle of this plate the mold is guided onto the table in front of the push-bar and rearward of the mold being filled without colliding with either. The front end wall A^4 of the compression-box does not extend down to the line of the grates, and to the front side of the lower edge of this wall is hinged a series of doors J, arranged side by side, so as to close the entire space in front of the grate-bars, the lower edges of these doors being about flush with the lower face of the grate, and hence these doors are in position to strike off the mold that is being forced from under the grate. Each door is provided with a pair of forwardly-projecting ears J′, to and between which are pivoted, respectively, springs J^2 for holding the respective doors closed. These springs midway thereof pass behind and bear against bar J^3, and the upper ends of these springs bear against the forward face of bar J^4, and by engaging these bars the springs are given sufficient tension to hold the doors closed under ordinary circumstances. If, however, a stone or other hard substance has been forced partly into the mold and projects above the mold so as to engage a door J, such door may swing forward, so as to allow the obstruction to pass without injuring the mold. In swinging the door outward and upward its attached spring is not only strained, but is moved endwise, and the upper section j of each spring, where it engages J^4, is inclined forward, and in opening the door the incline offers considerable resistance over and above the tension of the spring. The different springs J^2 between the line of bars J^3 and J^4 are provided with forwardly-projecting toes j', located in the same horizontal plane, the upper faces of these toes being engaged in common by bail L. This bail connects with and projects forward from rock-shaft L′, the one end of this rock-shaft outside the bearing thereof being bent down, as shown at L^2, to serve as a lever for actuating the bail.

O represents a flat spring secured to the sides of the machine by a single bolt O′, the free ends of this spring connecting with a link o, that extends forward and hooks over lever L^2, the action of this spring tending to hold lever L^2 normally rearward, whereby

bail L rests upon toes j', with doors J in position closed. In case a door J is opened more or less the consequent upward movement of its spring J^2 elevates bail L and moves lever L^2 forward against the action of spring O, and the recoil of the latter spring will close the door whenever the obstruction has passed. Spring O may be turned on its securing-bolt, so that link o may engage lever L^2 at different elevations, so as to give more or less leverage to increase or decrease the effectiveness of spring O. A bail l is mounted loosely on bail L, so that the former may slide and turn on the latter, bail l having a handle l' for operating the latter. Bail l is adapted to hook under an opposing toe j', whereupon by drawing lever L^2 forward bail l lifts the opposing spring J^2 and opens the attached door, and the door may be held open for cleaning the grate opposite such door, if need be. In such case link o may be disconnected from lever L^2 during the time that the door is held open. Bail l may be tilted forward, so as to clear toes j', after which it may be slid along bail L in position to engage any desired toe j'.

Heretofore springs have been employed for closing the "strike-off" doors; but the arrangement was such usually that the doors having been opened wide had to be closed by hand. With my improved device the doors close automatically, as aforesaid.

What I claim is—

1. In a brick-machine, the combination, with a movable head adapted to operate in a compression-box, of an actuating-arm connected with such head and having a V-shaped section, a spring-actuated packing-plate having a slot the end wall whereof is V-shaped and adapted to engage such V-shaped arm, substantially as set forth.

2. The combination, with rock-arms having attached a bail-shaped dog, such dog having a lateral pin or projecting member, a sliding plate, and incline adapted to engage and lift the dog, of a ratchet-bar having teeth for engaging the point of the dog and having a lug for engaging the rear of the dog, and the sliding plate having means for adjusting it endwise to lift the dog at different points of its throw, substantially as set forth.

3. The combination, with crank-wrist bearing a roller, of an oscillating lever and pitman connected therewith and operating in the same plane with the roller, such lever having a cam-shaped end and the pitman having a toe adapted alternately to engage such roller, whereby reverse movements are imparted to the lever and pitman, substantially as set forth.

4. The combination, with a series of strike-off doors, of a series of springs pivotally secured to the doors, bars bearing against the front and rear of the spring to give tension thereto, the springs being adapted to slide endwise on such tension-bars in opening and closing the respective doors, substantially as set forth.

5. The combination, with a series of strike-off doors and connected springs, substantially as indicated, each spring bearing a toe or projecting member, of a spring-actuated bail adapted to engage in common such toes, the bail acting in the direction to depress the toes and connected springs, and thereby close the doors, substantially as set forth.

6. The combination, with strike-off doors and connected springs bearing toes, substantially as indicated, of a bail adapted to engage in common such toes, such bail being provided with a handle for operating the same, and a spring detachably connected with such handle, such spring acting in the direction to close and open strike-off doors, substantially as set forth.

7. The combination, with strike-off doors and connected springs provided with toes, substantially as indicated, of a primary bail adapted to bear upon such toes, and a secondary bail mounted and adapted to slide endwise on the primary bail, such secondary bail being adapted to hook under an opposing toe for opening a door by operating the primary bail, substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 11th day of March, 1890.

COLLIER V. HEMENWAY.

Witnesses:

CHAS. H. DORER,

WILL B. SAGE.