

C. E. GREGORY.  
Brick-Machine.

No. 219,638.

Patented Sept. 16, 1879.

Fig. 1.

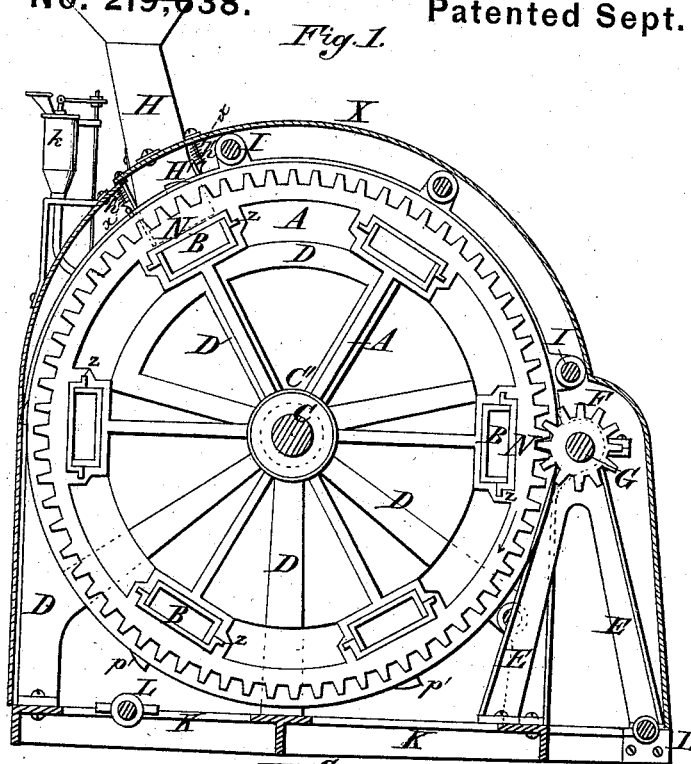
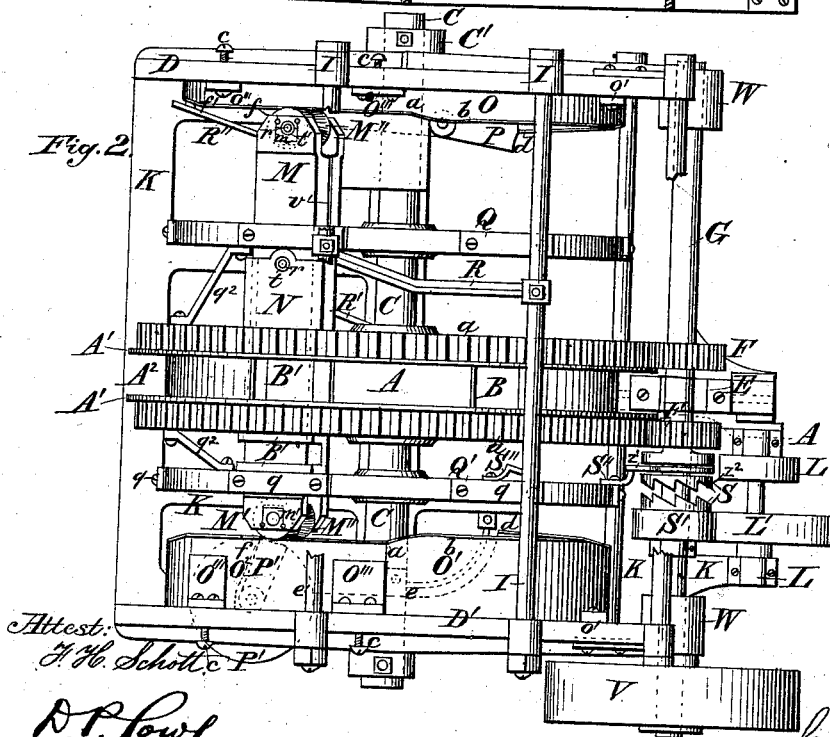


Fig. 2.



Attest:

H. H. Schott & P.

D. P. Cowl

Inventor.

Charles E. Gregory  
J. C. Fashen & Co.  
attys

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Fig. 4.

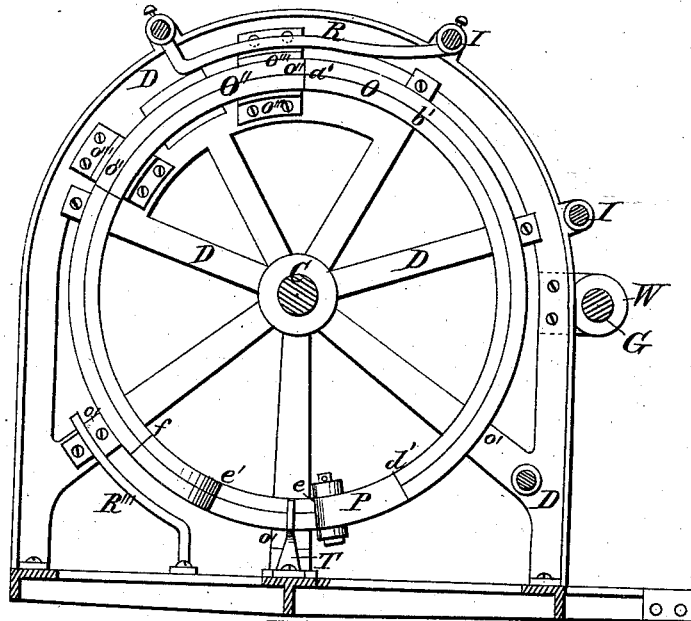
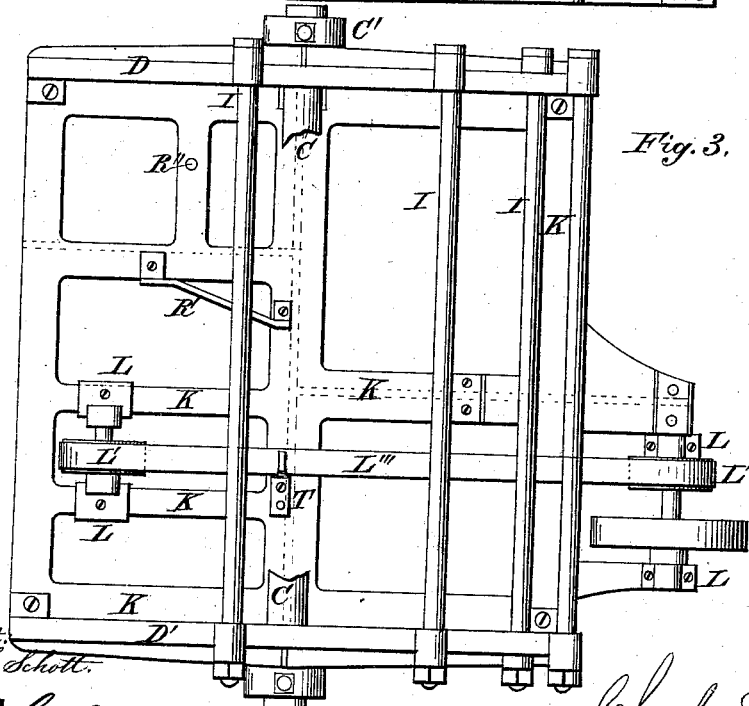


Fig. 3.



Attest:  
H. H. Schott.  
D. P. Cowl

Inventor:  
Charles E. Gregory  
Geo. H. Eastman  
attys

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Fig. 5.

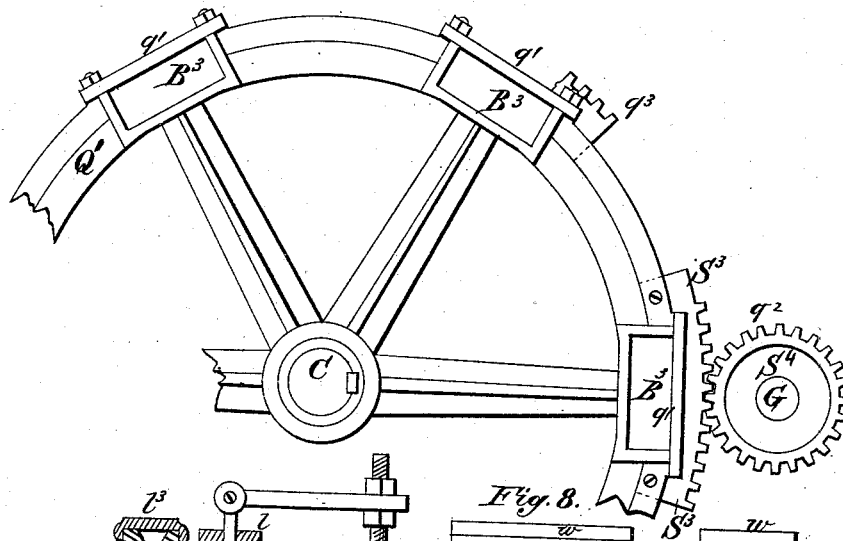


Fig. 6.

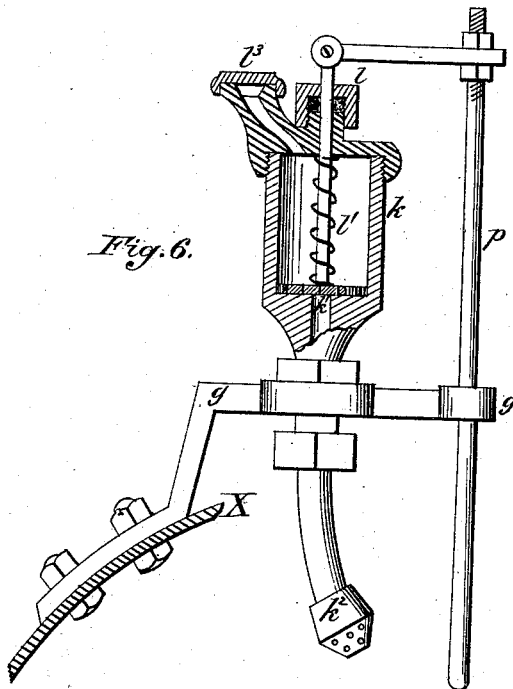
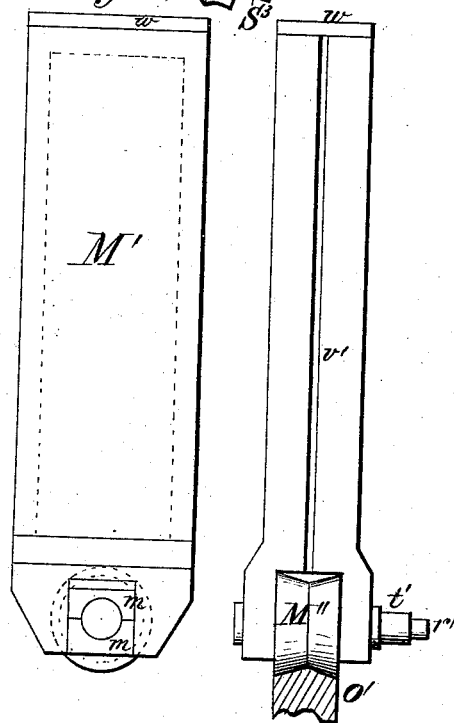


Fig. 8.



Attest:

H. H. Schott.

D. P. Cowl

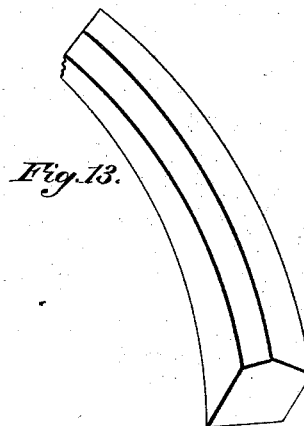
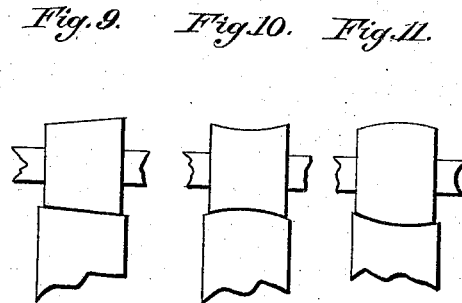
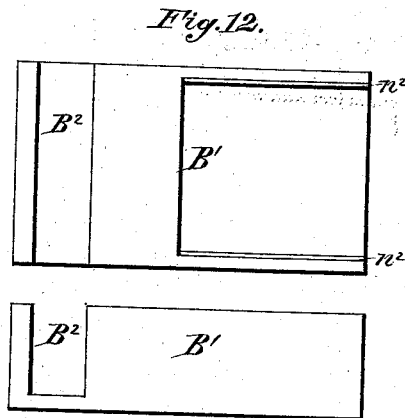
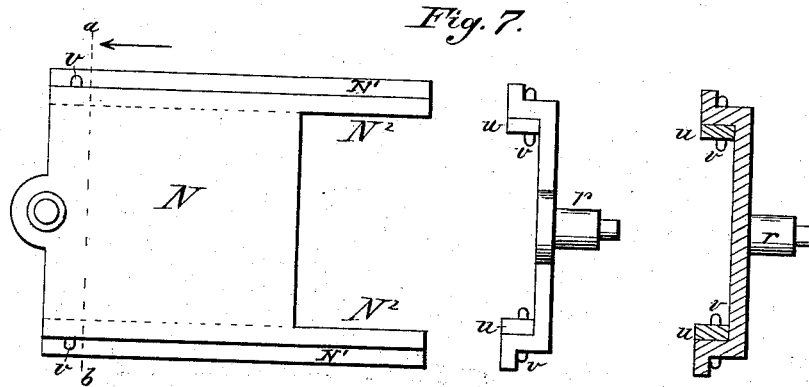
Inventor:

Charles E. Gregory  
Jas. H. Casper  
attys

C. E. GREGORY.  
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Attest:  
H. W. Schott.  
N. P. Coul

Inventor:  
Charles E. Gregory,  
per J. H. Parker  
attys

# UNITED STATES PATENT OFFICE.

CHARLES E. GREGORY, OF NASHVILLE, TENNESSEE.

## IMPROVEMENT IN BRICK-MACHINES.

Specification forming part of Letters Patent No. **219,638**, dated September 16, 1879; application filed May 14, 1879.

*To all whom it may concern:*

Be it known that I, CHARLES E. GREGORY, of Nashville, in the county of Davidson, State of Tennessee, have invented a new and useful Improvement in Brick-Machines; and I do hereby declare that the following is a full and clear description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The invention relates to that class of machinery used for making, molding, and pressing brick.

The object of my invention is to provide the arrangement and construction of a brick-machine by which brick may be easily, thoroughly, and expeditiously made, molded, and pressed from clay or any other substance used in the manufacture of brick, my machine being more especially adapted for making press-brick from dry clay, but so constructed as to make brick from damp clay or such other substances used in their manufacture.

In the accompanying drawings, in which similar letters indicate like parts, Figure 1 is a side view of the mold-wheel, showing a portion of the frame, also feeding-hopper H, mold-box lubricator, and cover. Fig. 2 is a top view of my invention. Fig. 3 is a top view of the frame and its connections, with a view of the brick-delivery belt or apron. Fig. 4 is a side view of frame, showing one of the adjustable compression-rings. Fig. 5 is a side view of a section of one of the plunger guide-wheels, in connection with the mechanism for moving the brick-delivery belt. Fig. 6 is a sectional view of the mold-box lubricator. Fig. 7 is a top and side view and section of the mold-box cap or cover. Fig. 8 is a side and front view of the plunger, showing a section of the compression-ring and shape of the plunger-roller. Figs. 9, 10, and 11 are sectional views, showing the several shapes of the face of the compression-ring and the shape of the plunger-rollers. Fig. 12 is a top and side view of the mold-box. Fig. 13 is a perspective view of the section *a b d* of the compression-rings.

K D is a cast-iron frame incasing, or in which is mounted, the vertical mold-wheel and

the several parts of mechanism in connection therewith. This frame is made as shown in the drawings, Fig. 3, or any suitable shape to answer the purpose.

I represents the iron bolts for the purpose of supporting and connecting the sides D of the frame-work K D.

C is a shaft revolving in the frame D and D', to which shaft are fastened, and revolve therewith, the vertical mold-wheel and vertical plunger guide-wheels Q and Q', as shown in Fig. 2. The mold-wheel A is made of cast iron, cast in the shape as shown by A in Fig. 1, it being cast with two rims provided with teeth *a a* and flanges A' A', as shown in Fig. 2, so as to form a groove between the flanges, which flanges serve as a guide for the foot of the hopper H.

G is an iron shaft running from one side of the frame D to the other side, D', and provided with metal pinions F F, which work in the teeth *a a* of the mold-wheel A. Said shaft G revolves in the boxes W W, which are attached by bolts to the frame D and D', as shown in Fig. 2, and supported between the pinions F F by the standard brace E, the power to revolve said shaft G being applied at V by pulley, gearing, or any suitable way. When the shaft G revolves in the direction as shown, the pinions F F work in the teeth *a a* of the mold-wheel, and thereby operate the machine.

H is a hopper, made of metal, wood, or any suitable substance, and is made in an elongated shape, with its upper end or mouth in the shape of a square funnel. From the funnel or mouth-piece the sides and ends of said elongated hopper taper or spread outward and downward to its lower extremity. The lower end, at which the clay or material is delivered into the mold-box, fits freely into the groove A<sup>2</sup>, and between the flanges A' A', and is provided with sliding scrapers H' on both front and rear ends, said scrapers being held in position by means of bands, flanges, or their equivalents, and guided in any suitable manner, and operated or moved by springs *x*, resting upon the shoulders *h'*, as shown in Fig. 1, or by levers, or any other appropriate way, and also arranged and constructed to operate so as to confine the clay or brick material within

the hopper, and at the same time leveling the clay within the mold-box to a proper level and sufficiently to remove all clay or dirt from in front of the level or path of the under side of the cap N. This arrangement effectually prevents the waste of brick-clay and the falling of the same into the machinery and obstructing the movements of the same—an objection which is made to many brick-machines now in use.

The hopper H is held in position by being attached to the casing or frame of the machine in any appropriate way, so as to allow it to operate in the manner shown and described. This hopper is placed in such a position that the mold-boxes will receive the clay or brick material just previous to reaching its highest point in its revolution, so as to allow sufficient distance for the travel of the caps to cover the mold-boxes before commencing their descent in the revolution of the mold-wheel.

The mold-wheel A is cast with six or more openings, B, at equal distances apart, near the outer edge or rim, for the reception of the mold-box B<sup>1</sup>, as shown in Fig. 2.

B<sup>1</sup> represents the mold-boxes, as shown in Fig. 12, which fit the openings B in the mold-wheel A, and are attached and held secure in their position by means of countersunk bolts, or their equivalents. This mold-box projects beyond the side of the mold-wheel, which projection serves as a guide for the short plungers. The projections of the mold-box B<sup>1</sup> are provided each with an opening, B<sup>2</sup>, as shown in Fig. 12, through which an arm or guard, T, passes to displace or remove the pressed brick from between the heads of the two plungers and out of the mold-boxes upon the delivery-belt; and there is a right-angled slit or groove, Z, across the rim of the mold-wheel on each side of the mold-box for the reception and working of the sides, lips, or flanges of the caps or covers N, as hereinafter explained.

The mold-boxes are provided with a lining, n<sup>2</sup>, as shown in Fig. 12, made of sheet-iron, steel, or any suitable substance, and so arranged as to be replaced by new linings whenever the same may be necessary by reason of the wear and friction.

N is a cap or cover of the mold-box B<sup>1</sup>, and is made of steel or any hard metal, and of shape as shown in Fig. 7.

The sides N<sup>1</sup> of the caps or covers N are extended beyond the body of the cap or cover a sufficient distance so that when the cap or cover is withdrawn from over the mold-boxes the slits or grooves Z are kept closed by these projections N<sup>2</sup>, so that the slits or grooves cannot be filled with the brick clay or dirt. The sides N<sup>1</sup> and the lips or flanges of the cap or cover N work and slide in the corresponding right-angled slits or grooves Z, as shown in Fig. 1. The groove Z, by retaining the lips or sides N<sup>1</sup>, which move freely therein, hold and keep the caps firm and in their proper position while the brick are being pressed.

The caps or covers N move or slide under-

neath the flanges A<sup>1</sup>, so that when the mold-boxes are covered or closed the caps or covers N are underneath both of the flanges A<sup>1</sup>, whereby they are further secured and held in position while the brick are being pressed. At the end of the caps or covers N nearest the guide-wheel Q, on the side where the long plunger is situated, there is a wrist-pin, r, which, in connection with guides R and R', operate and move the cap N from and over the mold-boxes. The said pins r are provided with sleeves or rollers t to lessen the friction.

R is a guard or guide made of iron or steel, and secured firmly to the two upper bolts, I, on the side of the machine in which the long plungers are situated. This guard or guide is made in such a shape and adjusted so that the cap or cover N is operated to cover the mold-boxes immediately after they pass from under the hopper H and before the plungers commence operating against the brick-clay, said caps or covers being thus operated by the action of the wrist-pins r or rollers t against said guard or guide R.

On the same side with R, and in the lower part of the machine, is another guard or guide, R', made of iron or steel, and secured firmly to K, and adjacent to the side of the mold-wheel. This guard or guide is made in such a shape and adjusted so that by the action of the wrist-pin rollers against it the caps or covers N are removed from over the mold-boxes immediately after the delivery of the brick.

On one side of the mold-wheel is situated the vertical guide-wheel Q, and on the other side the vertical guide-wheel Q', as shown in Fig. 2. Q and Q' are mounted upon the shaft C, and revolve vertically with it in company with the mold-wheel A. They are made of cast-iron, and cast with openings B<sup>3</sup> in their rims for the retention of and adjustment of the plungers, the number of such openings corresponding to the number of plungers. These openings are provided with adjustable caps q<sup>1</sup>, and the openings may be provided with linings of any material and shape, and if desired may be provided with rollers operating against the plungers, as may be most suitable and durable. These guide-wheels Q and Q' are cast in the shape and form as shown in Fig. 5. These guide-wheels Q and Q' may be strengthened by braces q<sup>2</sup>, as shown in Fig. 2.

My machine is provided with a series of plungers on both sides of the mold-wheel, the number on each side corresponding to the number of mold-boxes. The plungers on one side are lettered M and on the other M<sup>1</sup>, and are similar in all respects, with the exception that M is longer than M<sup>1</sup>, and also provided with two slots or grooves, v'. The plungers M and M<sup>1</sup> are made of cast-iron, cast in the shape as shown in Fig. 8, and are provided with removable metal plates w on their heads, these plates being firmly secured to the heads of the plungers by means of countersunk bolts or any other suitable manner. The object of these removable plates w is to regulate the length

of the plungers and at the same time regulate the thickness of the brick. These regulations or adjustments of the lengths of the plungers are accomplished by inserting or laying sheets of metal or other substances between the plates *v* and the heads of the plungers, or between the roller-boxes *m* and the plunger-frame, which backing is of sufficient thickness necessary to make the plungers of the length and the brick of the thickness desired.

The long plungers *M* have grooves *v'* on each side, as shown in Figs. 2 and 8, in which grooves slide the set-screws or pins *v* of the caps or covers *N*, as shown in Fig. 7, thereby guiding the caps or covers and holding them in proper position, the caps or covers being also provided with lugs or projections *u*, as shown in Fig. 7, which slide on the surface of the plungers, and serve to guide the caps or covers and hold them in position.

The plungers *M* and *M'* are provided with rollers *M''*, of double cone-faced shape, as shown in Figs. 8 and 2, or they may be made of a single cone-faced shape, if desired. These rollers *M''* are attached to the plungers by means of metal boxes *m m*, fitted into openings in the ends of the plungers, as shown in Figs. 8 and 2. The plungers *M* and *M'* are also provided with journal or other wrist-pins *r'*, as shown in Fig. 8. The journal wrist-pins are provided with small sleeves or rollers *t'*, which operate against the guards or guides *R''* and *R'''*.

*R''* is for the purpose of moving back the plunger *M* to its proper position in the mold-box, so as the mold-box may receive the charge of brick-clay.

*R'''* is for the purpose of drawing the plunger *M'* to its proper position, so as to allow the guard or guide *T* to pass through the opening *B<sup>2</sup>* in the mold-box, which guard or guide *T* is for the purpose of displacing the finished brick from the mold-boxes, which drops upon the belt or apron *L'''*.

*R''* and *R'''* are made of iron or other metal and attached and adjusted in the manner as shown in the drawings, Fig. 2 and 4.

My machine is so constructed that, instead of the guards *R''* and *R'''* and the journal wrist-pins *r'*, to move the plungers, guards or guides may be substituted or attached to the side of the plungers to operate against stationary wrist-pins placed in proper position.

*M* and *M'* I call a pair of "plungers," and as many pairs may be used as desired. They act together so as to press the brick-clay alike on both sides, being operated as before described, and in connection with their action upon the adjustable compression-rings.

*O* and *O'* are what I term "adjustable compression rings or cams," one on each side of the machine, as shown in Figs. 2, 4, 8, 9, 10, and 11, and operating in connection with the plungers to give the pressure required.

For accuracy I will describe them separately: *O* is situated on the side with the long plungers, and is made of cast-iron with chilled

face or cast-iron with steel face, and is secured or fastened to its position on the sides of the frame *D* by bolts or equivalents, as shown in Fig. 4, and made in sections or segments, which can be adjusted or removed when necessary. The sections or segments combined with the levers or rollers *P* form the complete adjustable compression-ring *O*, which is the track upon which the plunger *M* travels in its revolution with the mold-wheel. The surface of the compression-ring is spherical, rising from each edge of the ring to its center, so as to correspond and fit the rollers in the ends of the plungers, as shown in Fig. 10, or the rollers in the plungers may be made spherical on their face, and the surface of the compression rings or track made concave from edge to edge to correspond and fit the rollers, as shown in Fig. 11. By either construction the center of the rollers will be kept in the center of the track or ring.

Instead of the surface of the track or rings being made as in Figs. 10 and 11, it may be made or constructed either with a straight face, one edge or rim of the ring being lower than the other, as shown in Fig. 9, or the surface of the track or ring may be made of double-cone shape, as shown in Fig. 8. In both cases the faces of the rollers in the ends of the plungers are made to fit the track as constructed.

*a' b' d'* in Fig. 4 represent a section of the compression ring or track *O*. It is constructed from *a'* to *d'* with an elongated compression, as shown in Fig. 13, to regulate the pressure of the plungers upon the brick-clay. That portion of the section *a' b' d'* from *a'* to *b'* is constructed so that the velocity of the movement of the plungers in the direction of the brick-clay is rapid, while the brick-clay is loose and of but little resistance.

That portion of the section from *b'* to *d'* is constructed so as to equalize the pressure or power required, making the pressure or power the same at all points between *b'* and *d'*. The velocity or movement of the plungers in the direction of the brick-clay increases from *a'* to *b'* in proportion to the distance from *a'* to *b'*, and decreases from *b'* to *d'* in proportion to the distance from *b'* to *d'*. This section of the compression-ring from *a'* to *d'* may be constructed of a series of sections or segments of circles to produce similar results, as described.

From *d'* to *e* in the track or ring *O* is situated a lever or roller, *P*, so arranged that when the long plunger passes or travels on the lever or roller *P* the long plunger *M* is thrust forward sufficiently to place the pressed or finished brick in the opening *B<sup>2</sup>*, Fig. 12, in a position to be discharged or delivered upon the delivery-belt *L'''*. If a lever is used it is provided with a spring and attached as shown in Fig. 4; if a roller is used, it is attached as shown in Fig. 2.

The track or ring from *e* to *e'* serves as a rest for the plunger during the time of discharging the brick, the plunger being stationary as to its movement through the guide-wheel and

mold-box, but continuing on the track or ring in its revolution.

From  $e'$  to  $f$  is that portion of the track or ring O on which the plunger travels while it is being moved to its proper position in the mold-box for the reception of the charge of the brick-clay. From  $f$  to  $a'$  is that portion of the track or ring O on which the plunger travels in its revolution, in a stationary position while the mold-box is receiving the brick-clay and the cap is covering the same. The pressure which forms, shapes, and presses the brick occurs and is applied while the plunger travels from  $a'$  to  $d'$ .

The compression-ring O', like O, is divided into segments or sections. Its surface from edge to edge or rim to rim is the same over the entire track or path of the plunger, as in O. Section  $a' b' d'$  in O' is the same in all respects as  $a' b' d'$  in O.  $d'$  to  $e$  in the track or ring O' is a guide or track for the travel of the short plunger M' while it is being moved by its action against the guard or guide R''' to such a position in the mold-box as to allow the discharge of the finished brick. The section  $e$  to  $e'$  in O' is the same in all respects as  $e$  to  $e'$  in O.

In the track or ring O', from  $e'$  to  $f$ , is situated a lever or roller, P', attached and arranged so that when the short plunger travels on the lever or roller P' it causes the plunger to move into its proper position in the mold-box for the reception of the brick-clay. P' is in all respects the same as P, with the exception of being in a different sectional position to accomplish the purpose, as described. Section  $f$  to  $a'$  in O' is the same in all respects as  $f$  to  $a'$  in O.

Those parts of the compression rings or tracks in O and O' from  $f$  to  $a'$  are so arranged that they may be moved forward and backward by means of set-screws  $c$  or their equivalents, whereby the distance between the heads of the plungers in the mold-boxes can be increased or decreased according to the quantity of brick-clay desired to be received into the mold-boxes.

The parts of the track or compression-rings O and O', from  $a'$  to  $d'$ , are so arranged and attached that they may be moved forward in the direction of each other by means of liners of any thickness desired, by which arrangement the thickness of the brick may be regulated.

On the shaft G is loosely journaled the half clutch or jaw S of the clutch, having the pulley S' cast with it or attached thereto. (See Fig. 2.) A belt passes around the pulley S', and thence around the pulley L of the delivery-belt L''', passing around the rollers L' L'. (See Fig. 3.) The other jaw,  $z^2$ , of the clutch is journaled on the shaft G, and attached to a spring-arm,  $z^1$ . (See Fig. 2.)

Pivoted to the base of the frame S'' is a projecting arm, attached to the wheel Q' near its circumference, which, in the revolution of the latter, at intervals forces the arm  $z^1$  back, and with it the jaw  $z^2$  of the clutch, out of gear

with the other jaw, S, of the clutch by the arm S'' riding over a cam-face on the inner face of the pivoted spring-arm  $z^1$ , when the jaws of the clutch would be out of gear, and the delivery-belt L''' would be at rest for the discharge of the brick on it, and the delivery-belt would remain at rest until the projection S'' had passed over the cam, when the spring would throw the arm  $z^1$  forward and the jaws of the clutch again into gear, and a motion would be given the delivery-belt.

By this construction the delivery-belt is intermittently rotated, remaining stationary to receive the brick.

The same result may be obtained by the following construction, viz:

On the shaft G, on that side of the machine with the short plungers, is situated a pinion, S<sup>4</sup>, (see Fig. 5,) provided with teeth, which work into the teeth of the gearing-segments S<sup>3</sup> on the guide or guard wheel Q', the gearing-segments S<sup>3</sup> being attached to Q' by bolts, as shown in Fig. 5, the number of gearing-segments corresponding to the number of mold-boxes.

The pinion S<sup>4</sup> is cast solid with or attached to a pulley, around which pulley passes a belt, which operates the pulley L' and the delivery-belt L'''.

The gearing segments or sections S<sup>3</sup>, which are attached to the rim of the guide or guard wheel Q', are arranged so as to form a connection, at intervals, with the pinion S<sup>4</sup> between  $q^2$  and  $q^3$ . At the intervals the pinion S<sup>4</sup>, in connection with the delivery-belt L''', remains in a stationary position for the purpose of receiving the finished brick from the mold-box opening B<sup>2</sup> at T, Figs. 3 and 4. By the connections formed between the segments S<sup>3</sup> and S<sup>4</sup> the delivery-belt is caused to move or travel the proper distance to receive the following brick, which is being discharged from the mold-box.

$k$  in Fig. 6 is what I term a "mold-box lubricator," which is attached to the frame D D, or bolts I, or case  $x$  of the machine, by means of arm  $g$ , as shown in Figs. 1 and 6. This lubricator is provided with an adjustable lever,  $p$ , connected with a stem,  $l$ , to which is attached a plunger,  $k^1$ , which is held in proper position by a spring,  $l^1$ . The plunger  $k^1$  is provided with small openings or perforations, through which the lubricating matter passes previous to its discharge.

On the rim of the mold-wheel nearest the long plungers are situated small projections  $p'$ , in such a position (as shown in Fig. 1) as to operate the lever of the lubricator, by which operation the mold-boxes are lubricated by the discharge of the lubricating matter through the nozzle  $k^2$ .

$l^3$  in Fig. 6 is an opening provided with a cap through which the lubricator is supplied.

The manner and process of operation of my machine and making the brick are as follows: The power being applied at V, the shaft is turned and the several parts of the machine



set in motion. The clay or brick material is placed in the hopper H, and descends into the mold-box brought under it in the revolution of the mold-wheel, the brick-clay in the mold-box being leveled by the scrapers, the mold-box continuing to revolve, and upon leaving the hopper the cap is moved into position over the said mold-boxes, covering the same. During this time the plungers are revolving with the mold-wheel, but stationary as to their movement in the mold-box. The mold-boxes are completely covered by the caps by the time the plungers M and M' have arrived at the points *a'* and *a'* on the compression-ring O and O'. When the plungers M and M' reach the points *a'* and *a'* on O and O' they commence moving horizontally toward each other, and the pressure on the brick-clay begins and continues until the plungers in their travel on the compression-rings O and O' have arrived at the points *d'* *d'*, whereby the brick-clay is pressed and the brick made. Upon the plunger M in its travel leaving *d'* it is, by its action or travel on the lever or roller P, thrust forward horizontally into the mold-box, forcing the pressed brick to its position, so that it is discharged by T. While the plunger M moves forward; so as to place the brick for its discharge, the short plunger M' is drawn backward by its action against the guard or guide R''' sufficiently to allow the finished brick to be discharged. T forces the finished brick upon the delivery-belt L''', which is stationary at this time, but is set into motion immediately upon its receipt of the brick by the action of the pinion S<sup>4</sup> and segments S<sup>3</sup>, or the clutch movement, so that the brick is carried forward, and with successive movements continues to be carried forward to the point of delivery. The mold-wheel continues to move during all this time, carrying with it the several parts. When the brick is discharged the mold-box in its revolution begins to ascend, while at the same time the plungers are moved forward into their proper position in the mold-boxes for the reception of the brick-clay. The mold-box, ascending in its approach to the hopper, passes the lubricator and is lubricated, immediately after which it arrives at the hopper, and the same process is repeated, as described.

What I claim as new and of my invention, and desire to secure by Letters Patent, is—

1. In a brick-machine, a mold-wheel, in combination with a hopper having an adjustable scraper, adjustable plungers, adjustable compression rings or cams, and adjustable rollers journaled in the ends of said plungers, substantially as described, and for the purpose set forth.

2. The vertical mold-wheel A, having the flanges A<sup>1</sup> A<sup>1</sup>, groove A<sup>2</sup>, mold-boxes B<sup>1</sup>, and gear *a*, in combination with the gear-wheels F F, pistons M M', and adjustable compression-rings O O', substantially as described, and for the purpose set forth.

3. The vertical mold-wheel A, having the

flanges A<sup>1</sup> A<sup>1</sup>, groove A<sup>2</sup>, mold-boxes B<sup>1</sup>, and gear *a*, in combination with the gear-wheels F F, pistons M M', adjustable compression-rings O O', and pivoted cam-rolls P P', substantially as described, and for the purpose set forth.

4. The combination of the mold-wheel A with the elongated hopper H, provided with sliding scrapers H' on its front and rear ends, shoulders *h'*, and springs *x*, substantially as described, and for the purpose set forth.

5. The combination of the mold-wheel A, plungers M M', and adjustable compression-rings O O' with the hopper H, sliding scrapers H', shoulders *h'*, and springs *x*, substantially as described, and for the purpose set forth.

6. The vertical mold-wheel A, provided with the circumferential projections *p'*, in combination with rod *p*, stem *l*, perforated plunger *k'*, spring *l'*, and perforated nozzle *k''*, substantially as described, and for the purpose set forth.

7. The combination of the mold-box B<sup>1</sup> with the sliding pistons M M' and cover N, sliding on the upper face of one of said pistons, substantially as described, and for the purpose set forth.

8. The combination of the mold-box B<sup>1</sup> with the sliding pistons M M', cover N, sliding on the upper face of one of said pistons, wrist-pin *r*, and cam-rods R R', substantially as described, and for the purpose set forth.

9. The guide-wheels Q Q', provided with openings B<sup>3</sup>, and situated or journaled on the same shaft with the mold-wheels, in combination with the mold-wheel A and plungers M M', substantially as described, and for the purpose set forth.

10. The combination of the plungers M M', provided with adjustable heads, with the mold-wheel A and adjustable compression rings or cams O O', substantially as described, and for the purpose set forth.

11. The combination, with the mold-wheel A, of the plungers M M', provided at their inner ends with adjustable heads and at their outer ends with adjustable rollers, guide-wheels Q Q', having openings B<sup>3</sup> B<sup>3</sup>, and adjustable compression-rings O O', substantially as described, and for the purpose set forth.

12. In a brick-machine, the ends D of the frame, provided with slots forming arcs of a circle, in combination with plates transverse to the slots, set-screws *c*, compression-rings O O', plungers M M', and mold-wheel A, substantially as described, and for the purpose set forth.

13. In a brick-machine, the ends D of the frame, provided with partly circular and rectangular slots, in combination with plates transverse to the partly-circular slots, set-screws *c*, compression-rings O O', and rollers P P', pivoted in the rectangular slots of the frame, and forming a continuation of the rings, substantially as described, and for the purpose set forth.

14. The combination, with the mold-box B<sup>1</sup>,

having an opening, B<sup>2</sup>, of the discharging-arm T and the intermittently-moving belt L''', substantially as described, and for the purpose set forth.

15. The mold-box B<sup>1</sup>, with projections and openings B<sup>2</sup>, in combination with the pressing devices of a brick-machine, substantially as described.

16. The combination, in a brick-machine, of a mold-box provided with projections and openings, whereby the brick is delivered, substantially as is described and shown.

17. The combination of the cap or cover N, provided with lips or flanges N<sup>1</sup>, and having a forward-and-backward movement, and a wrist-pin, r, with the compression devices of a brick-machine, substantially as described.

18. The cap or cover N, provided with projections N<sup>2</sup>, in combination with right-angled grooves Z, substantially as shown and described.

19. The combination, in a brick-machine, of the cap N with the flanges A<sup>1</sup> A<sup>1</sup> in the mold-wheel A, substantially as described, whereby the cap is secured, as set forth.

20. The slides S'', in connection with the guide-wheels Q', and in combination with the clutch S z<sup>2</sup> in a brick-machine, substantially as described, and for the purpose set forth.

21. The grooves v' in the plunger M, in combination with the mechanism of a brick-machine, substantially as shown and described.

22. The levers or rollers P and P' in the compression-rings O and O', in combination with the molding and pressing devices of a brick-machine, for the purposes set forth, and substantially as described.

23. The combination, in a brick-machine, of the clutch S z<sup>2</sup>, pulley S', shaft G, and guides or slides S'', substantially as described, whereby an alternating movement at rest and in motion of the belt L''', for the reception and delivery of the brick, is secured, as set forth.

24. The lubricator k, provided with lever p, stem l, spring l', and plunger k', in combination with and operated by projections p' in a brick-machine, substantially as described, whereby the lubricating of the mold-boxes is secured, as set forth.

25. The combination, in a brick-machine, of the mold-wheel A, guide-wheels Q and Q', plungers M and M<sup>1</sup>, caps or covers N, mold-boxes B<sup>1</sup>, compression-rings O and O', guides or guards R, R', R'', and R''', the guard or arm T, the alternating delivery-belt L''', clutch S z<sup>2</sup>, pulley S', shaft G, hopper H, lubricator k, frame K D, bolts I, and pinions F F, substantially as described and shown.

CHARLES E. GREGORY.

Witnesses:

J. G. HOEPEY,

HARRY HARRISON.