No. 678,635. Patented July 16, 1901.

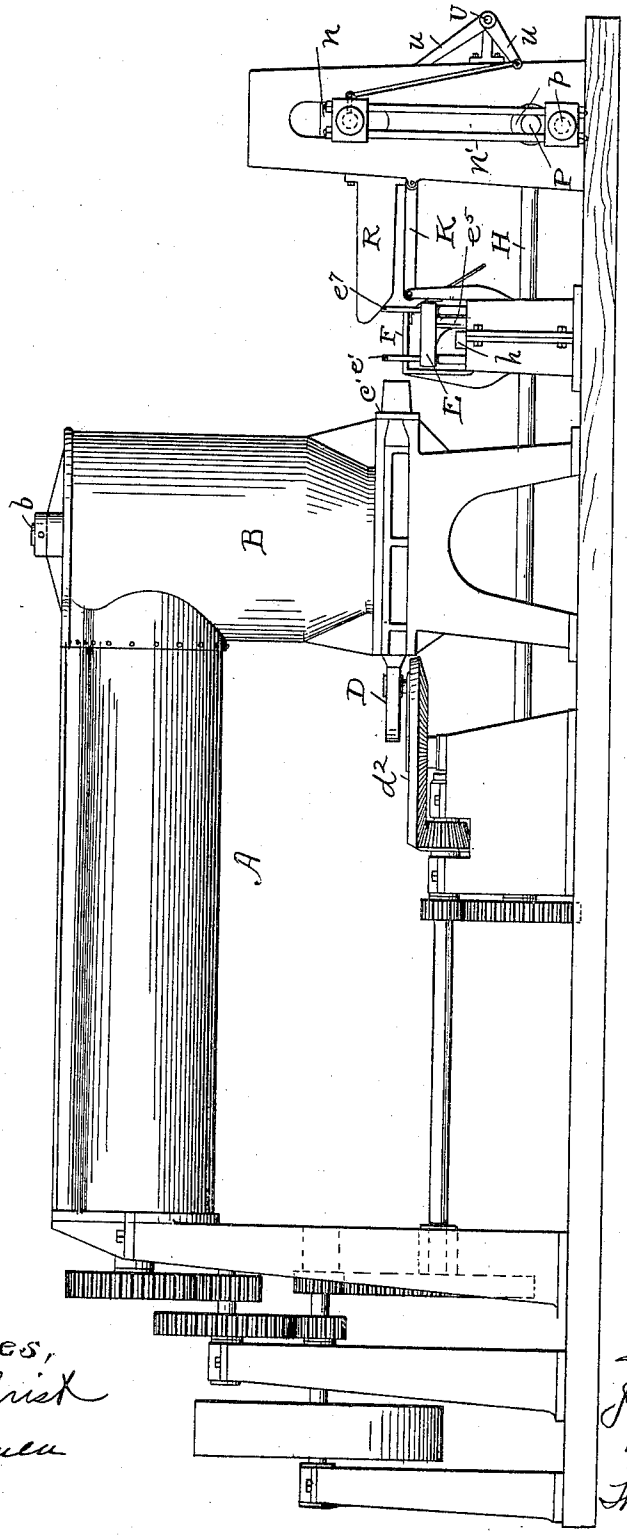
J. N. BATTENFELD.

APPARATUS FOR MAKING RE-PRESSED BRICKS.

(No Model.) (Application filed Nov. 1, 1900.)

4 Sheets—Sheet 1.

Fig. 1.



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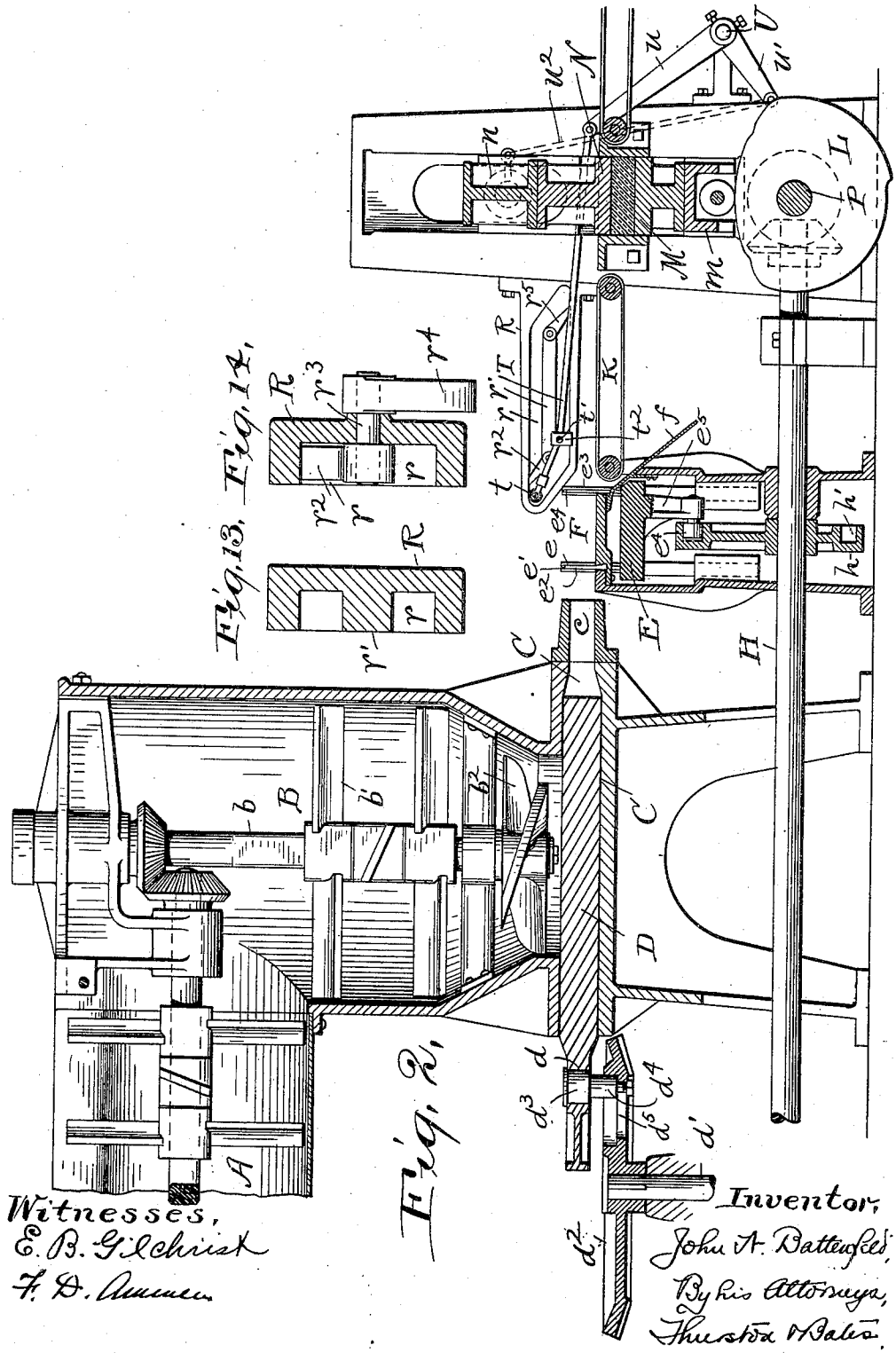
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Fig. 3.

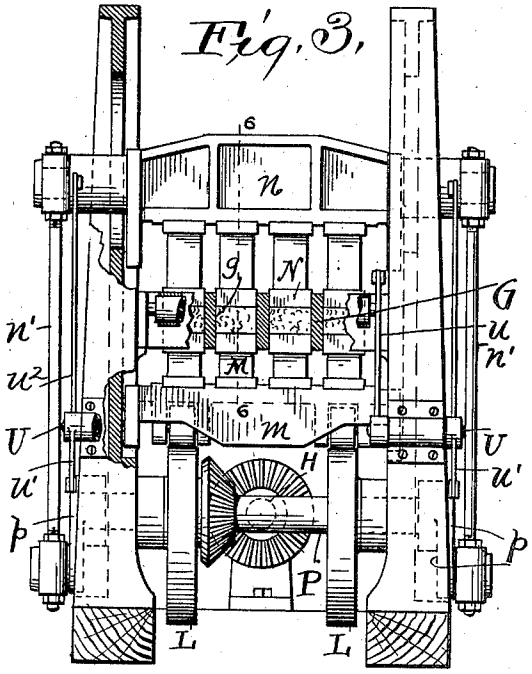


Fig. 4.

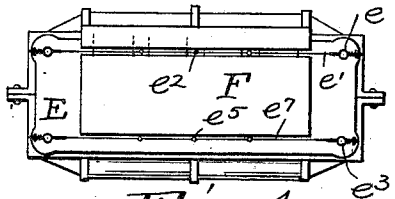


Fig. 5.

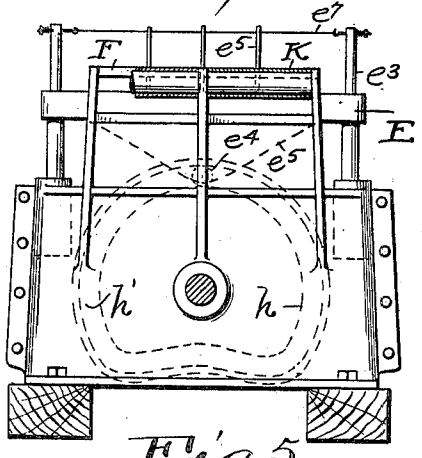


Fig. 6.

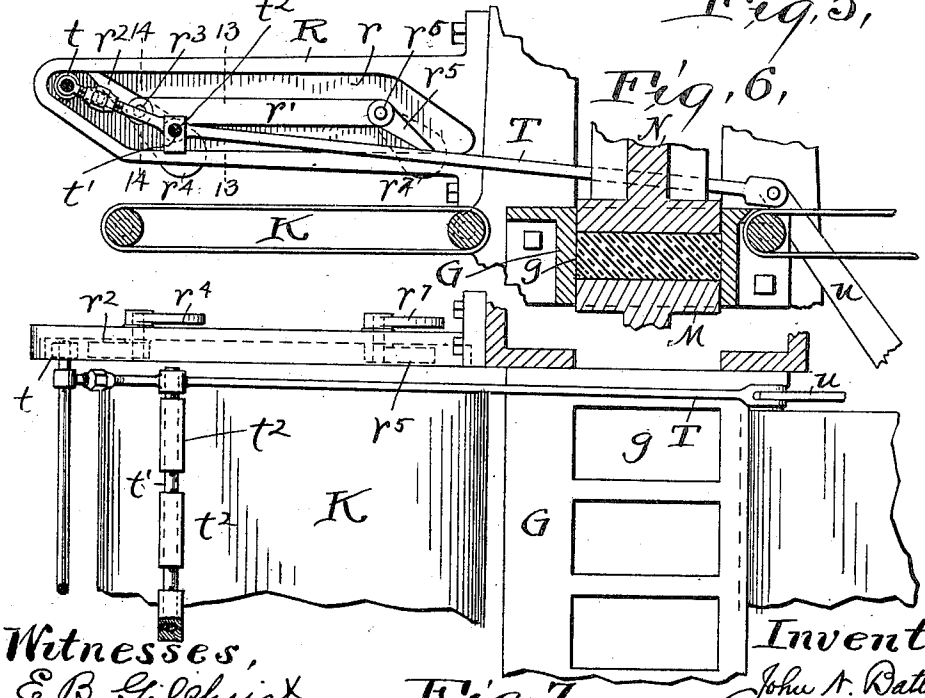


Fig. 7.

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APPARATUS FOR MAKING RE-PRESSED BRICKS.

(No Model.) (Application filed Nov. 1, 1900.) 4 Sheets—Sheet 4.

Fig. 8.

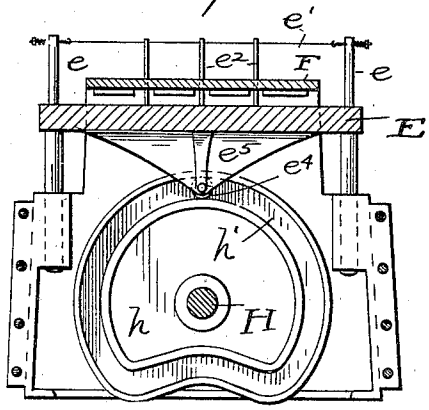


Fig. 9.

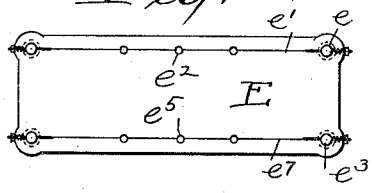
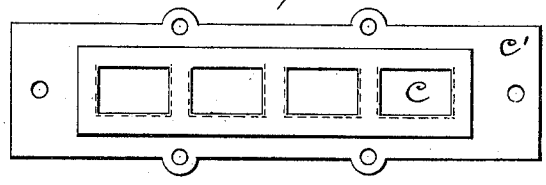


Fig. 10.



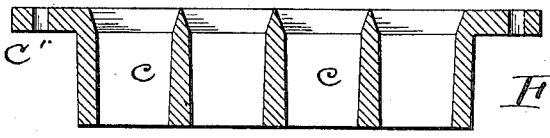
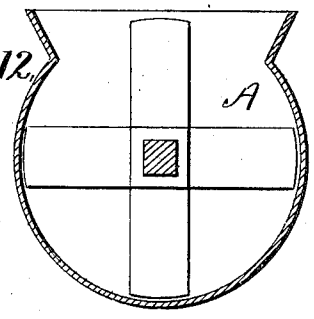


Fig. 11.

Fig. 12.



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UNITED STATES PATENT OFFICE.

JOHN N. BATTENFELD, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO HARRISON J. UHL, OF SAME PLACE.

APPARATUS FOR MAKING RE-PRESSED BRICKS.

SPECIFICATION forming part of Letters Patent No. 678,635, dated July 16, 1901.

Application filed November 1, 1900. Serial No. 35,125. (No model.)

To all whom it may concern:

Be it known that I, JOHN N. BATTENFELD, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Apparatus for Making Re-Pressed Bricks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The object of the invention is to provide a machine capable of making good re-pressed bricks rapidly at a minimum cost.

The invention consists in the construction and combination of parts hereinafter described, and pointed out definitely in the claims.

The apparatus embodying the invention includes a pug-mill of any suitable construction, a brick-press of the well-known sort, which forces the clay in continuous columns through dies, mechanism for cutting the bricks from the columns, a re-press, and mechanism for automatically delivering the bricks thus formed into the re-press.

The invention resides in the mechanism for delivering the bricks to the re-press, to its combination with other parts of the apparatus, and to certain improvements in the re-press whereby it is capable of receiving and operating upon the bricks delivered to it, all of which I will now proceed to describe, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the machine embodying my invention. Fig. 2 is a central sectional side elevation of the same. Fig. 3 is an end view, partly in section, of the re-press. Fig. 4 is a plan view of the cut-off table and mechanism associated therewith. Fig. 5 is an end view, partly in section, of said table. Fig. 6 is a sectional view on line 6 6 of Fig. 3 looking to the left. Fig. 7 is a plan view of the table of the re-press and of the mechanism for conveying the bricks to the same and from the same. Fig. 8 is a vertical sectional view showing the cut-off mechanism. Fig. 9 is a plan view of the vertically-movable plate which carries the cutting-off wires. Fig. 10 is a right-side view of the nozzles of the brick-press. Fig. 11 is a horizontal sectional view of the same. Fig. 12 is a transverse sectional view of the tempering-tube, and Figs. 13 and 14 are respectively sections on the lines 13 13 and 14 14 of Fig. 6.

Referring to the parts by letters, A represents a pug-mill of well-known construction, into which the clay is thrown. This clay properly tempered is discharged regularly into a vertical hopper B of the brick-machine. In this hopper is a vertical shaft b, having secured to it a plurality of inclined radial blades b', by means of which the clay is distributed in the hopper and at the same time forced downward toward the contracted discharge-neck thereof. At the lower end of this shaft is a forcing-screw b^3, which substantially fills the discharge-neck of this hopper, by means of which the clay is forced down into a clay-chamber C directly below the hopper. In this clay-chamber is a reciprocating plunger D, by means of which the clay is compressed and then forced out through the dies c. There are preferably a plurality of these dies formed on a plate c', which closes the right-hand end of the clay-chamber. The plunger projects from the left end of the clay-chamber, and in this projecting part there is a transverse vertical slot d. A crank-pin d^4, which is adjustably secured to a rotating wheel d^2, has on its upper end a friction-roller d^3, which enters said slot d. The rotation of this wheel therefore causes the backward-and-forward movement of the plunger. It is not claimed that there is anything novel in the mechanism thus far described, and any suitable mechanism may be employed in this part of the apparatus.

The four columns of clay which are forced out of the four dies c are delivered on a cutting-off table F. Below this table is a vertically-movable frame E, which is moved up and down by means of a crank-pin e^4, projecting horizontally from an arm e^5 on the under side of this frame E, which crank-pin enters a cam-groove h' in a wheel h, which is attached to a rotating shaft H. At the left-hand side of this frame E are two vertical posts e, between which a horizontal cutting-wire e' is stretched, and other posts e^2, also secured to said frame in line with the posts e, which project up through holes in the cutting-off table, also engage with said wire and hold it straight.

Two other posts e^3 are secured to the right-hand end of this frame E, and a trimming-wire e^7 is stretched between them, which wire is also reinforced by the vertical posts e^5. Just to the right of this cutting-off table is an endless-belt conveyer K, which is in constant motion, and just beyond this conveyer is the re-press table G. In the operation of the brick-machine the plunger D in its forward stroke forces the columns out of the die a distance substantially equal to the desired length of the bricks. The frame E and the wires e' and e^7 are drawn downward, thereby cutting off from the several columns bricks of the proper length and trimming their front ends. The next stroke of the piston forces the clay columns out and pushes these cut-off bricks onto the conveyer K, by which they are carried along toward the table of the re-press. In this table are vertical dies g, in which the bricks will be re-pressed. Below the table are as many vertical plungers M as there are dies, the several plungers being attached to a vertically-movable cross-bar m, the upper ends of the plungers being always in the dies in which they fit. There are a like number of upper plungers N also, attached to a vertically-movable cross-head n. The lower cross-head is moved up by a cam L, attached to a shaft P, which engages with a friction-roller mounted on said cross-head m. The upper cross-head n is moved down and up by means of connecting-rods n', pivoted to its ends, which connecting-rods at their lower ends are pivotally connected with cranks p on the shaft P. The conveyer-belt K carries the bricks forward toward the re-press table; but it is not capable of moving the bricks far enough onto the table to enable them to register with the dies therein. To effect this result, what may be called a "feed-frame" is provided. It consists of two side bars T T, whose front ends are pivoted to the upper ends of two lever-arms u u, which lever-arms are made fast to a rock-shaft U. This rock-shaft has also another arm u', which is connected by a link u^2 with the upper-plunger-carrying cross-head n, whereby as the said cross-head is moved up and down this rock-shaft is rocked, and as a result the feed-frame is caused to move backward and forward. The rear end of each side bar T T has a laterally-projecting stud on which a friction-roller t is mounted.

Secured to the frame of the re-press are two bracket-plates R R, each having a recess r in its inner face which is divided into an endless channel by the longitudinal rib r'. The friction-rollers enter those channels. At each end of the rib r' is a switch. The switch r^2 at one end is made fast to a rock-shaft r^3, which projects through the bracket-plate R and has on its outer end a weighted arm r^4, which normally holds the switch down, as shown. The switch r^5 is likewise made fast to a rock-shaft r^6, which has on its outer end a weighted arm r^7, which normally holds said switch up, as also shown in Fig. 2. These two side bars of the feed-frame are connected by a rod or bar t', to which are fastened as many feed-blocks t^2 as there are clay columns—in the present case four. Now when this feed-frame is being moved to the left, as shown in Fig. 2, its rear end is lifted, because said friction-rollers t ride up on the switch r^5 and along the rib r'. At this time the feed-blocks t^2 are above the bricks upon the conveyer. These feed-rollers push the switch r^2 down and pass it. Then when the feed-frame is moved to the right the feed-rollers t engage with the lower side of the switch r^2, whereby the frame is moved downward and said blocks t^2 are carried behind the several bricks. The further movement of said feed-frame to the right carries the bricks along the re-press table until they are over the dies in the re-press table. When the bricks are being moved to this position, the upper surfaces of the lower plungers are flush with the top face of the re-press table; but just before the front ends of the bricks come to the right-hand edges of the dies these plungers drop a short distance—say one-sixteenth of an inch—wherefore the right-hand edge of the dies serves as stops which check the movement of the bricks at precisely the proper point. Then the upper plungers begin to move downward, and just as they are on the point of touching the bricks which then rest upon the lower plungers the latter move downward, the upper plungers following. When the bricks are wholly within the dies, the upper plunger overtakes the bricks and the re-pressing of the brick begins. The lower plungers are moved upward slightly, so that the bricks are re-pressed by the movement toward one another of both the upper and lower plungers. Then both plungers begin to move upward. Just before the lower edges of the upper plungers reach the level of the top of the re-press table their speed is augmented and they leave the brick, which is thereafter forced upward to the level of the re-press table by the lower plungers. Other bricks are now moved by the feed-frame into position, and they push the bricks just finished off of the lower plungers and then onto an endless conveyer-belt, by which they are conveyed to some suitable point.

Having described my invention, I claim—

1. In an apparatus for making re-pressed brick, the combination of a brick-machine capable of delivering the clay in a continuous column, mechanism for cutting said clay column into bricks, a re-press having a horizontal table in which a vertical die is formed, a conveyer-belt interposed between the cutting-off mechanism and the re-press table, a reciprocating feeding device for moving said bricks onto the re-press table and into the die therein, and guides for said feeding device which guide the same above the bricks when it is moving backward and down behind the bricks when it is moving forward, substantially as specified.

2. In an apparatus for making re-pressed

bricks, the combination of a brick-machine capable of delivering the clay in a continuous column, mechanism for cutting the clay column into bricks, a re-press having a horizontal table in which a vertical die is formed, a conveyer-belt interposed between the cutting-off mechanism and the re-press table, a reciprocating feed-frame having two side bars, a cross-bar and a feed-block secured to said cross-bar, two fixed bracket-plates having recesses in their inner faces, horizontal ribs dividing each of said recesses into two horizontal channels, automatic switches at the ends of said ribs, and projections on the sides of the feed-frame entering said channels, substantially as specified.

3. In an apparatus for making re-pressed bricks, the combination of a brick-machine capable of delivering the clay in a continuous column, mechanism for cutting the clay column into bricks, a re-press having a horizontal table in which a vertical die is formed, a lower plunger movable vertically in said die, an upper plunger movable vertically into and out of said die, mechanism for moving said plungers, a conveyer-belt interposed between the cutting-off mechanism and the re-press table, a feeding device for pushing the bricks onto said re-press table and into the die therein, and connections between said feeding device and plunger-operating mechanism whereby the feeding device is reciprocated, and means whereby said feeding device is guided above the bricks when it is moving backward and down behind the bricks when it is moving forward, substantially as specified.

4. In an apparatus for making re-pressed bricks, the combination of a brick-machine capable of delivering the clay in a continuous column, mechanism for cutting the clay column into bricks, a re-press having a horizontal table in which a vertical die is formed, a vertically-movable lower plunger in said die, mechanism for moving said plunger up until its top surface is flush with the surface of the table, a feeding device for pushing the bricks onto the re-press table and into said die, and mechanism for lowering said lower plunger just before the brick is vertically over the same, and a vertically-movable upper plunger, substantially as specified.

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

JOHN N. BATTENFELD.

Witnesses:

E. L. THURSTON,

E. B. GILCHRIST.