

No. 771,090.

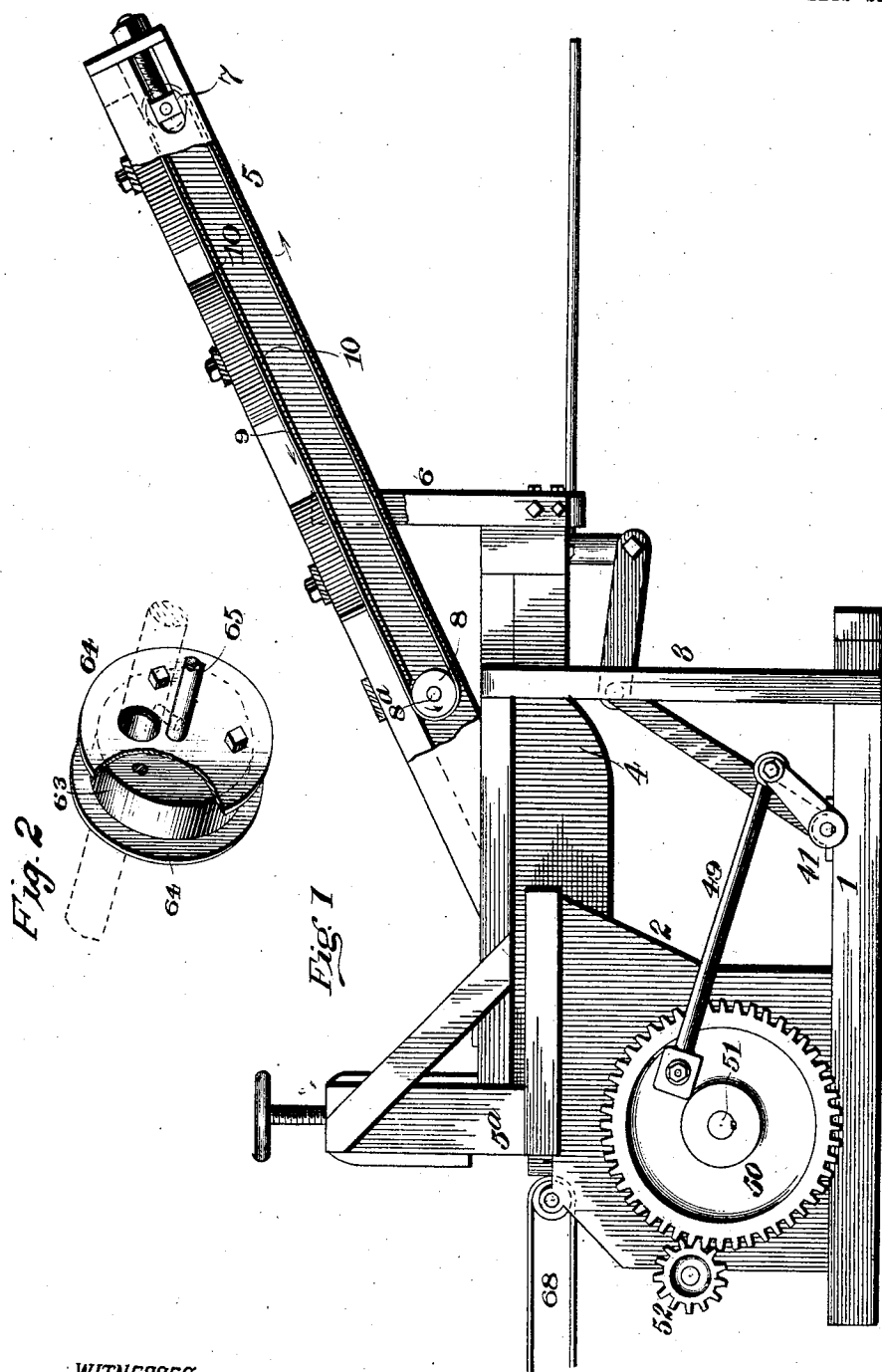
PATENTED SEPT. 27, 1904.

C. W. PUGH.
BRICK RE-PRESSING MACHINE.

APPLICATION FILED MAY 20, 1904.

NO MODEL.

4 SHEETS—SHEET 1.



WITNESSES:
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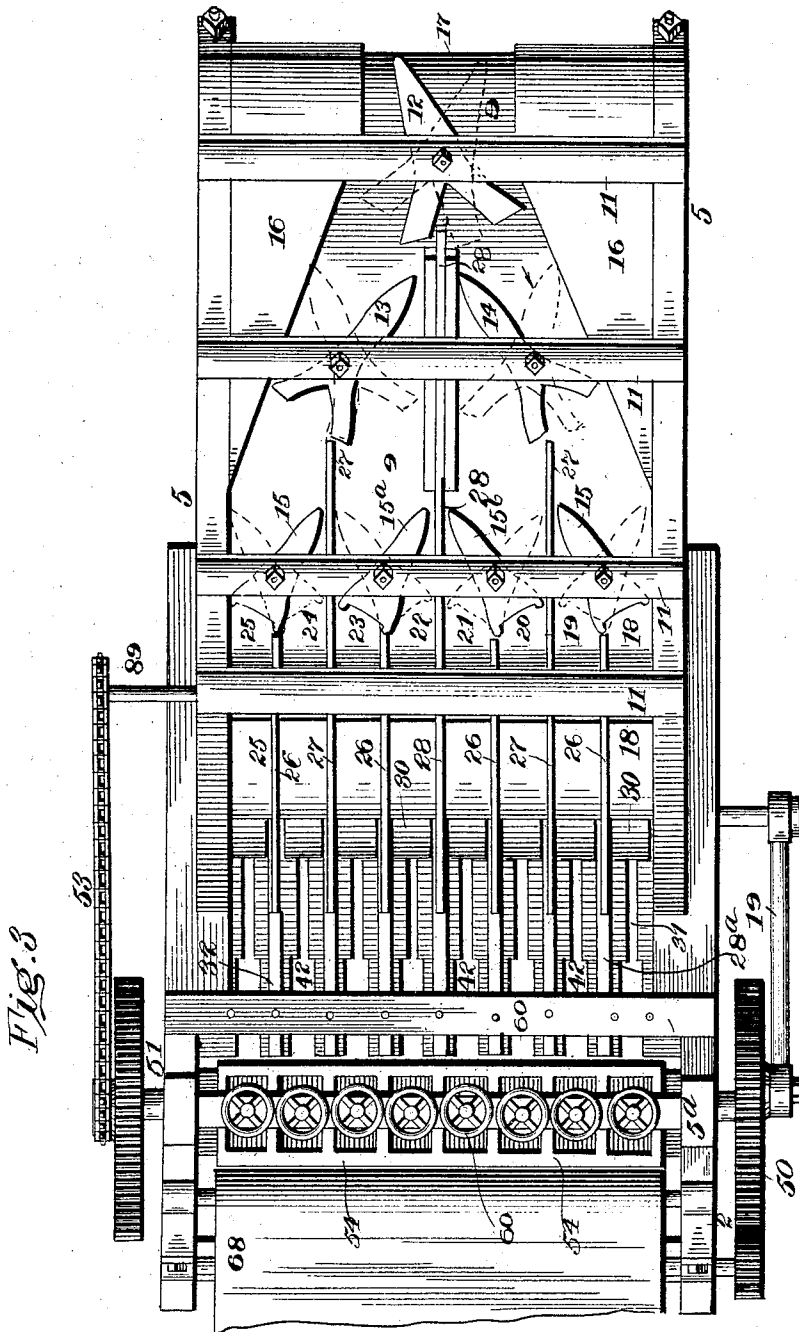
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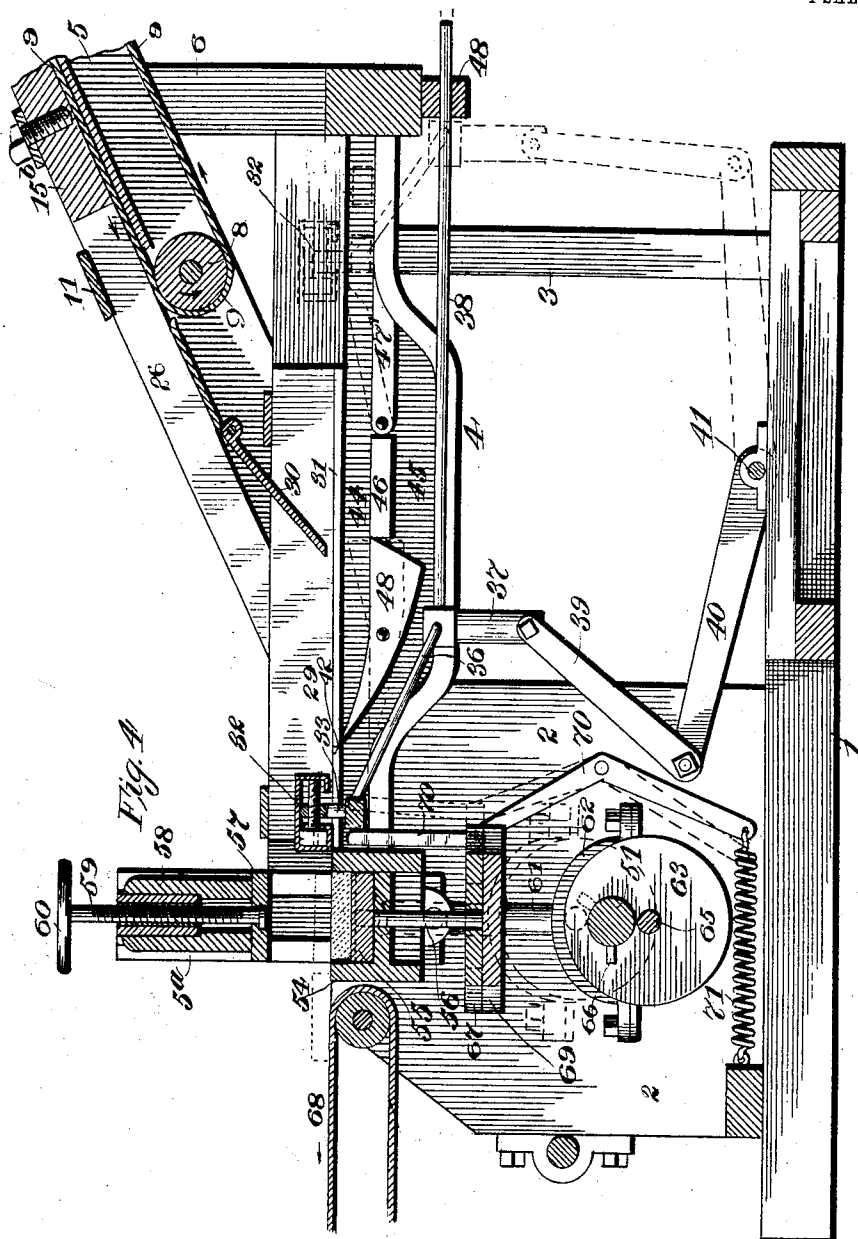
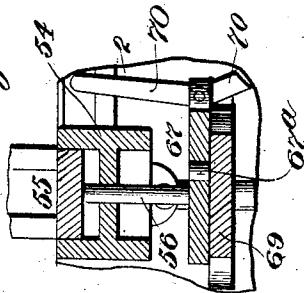


Fig. 4

Fig. 5



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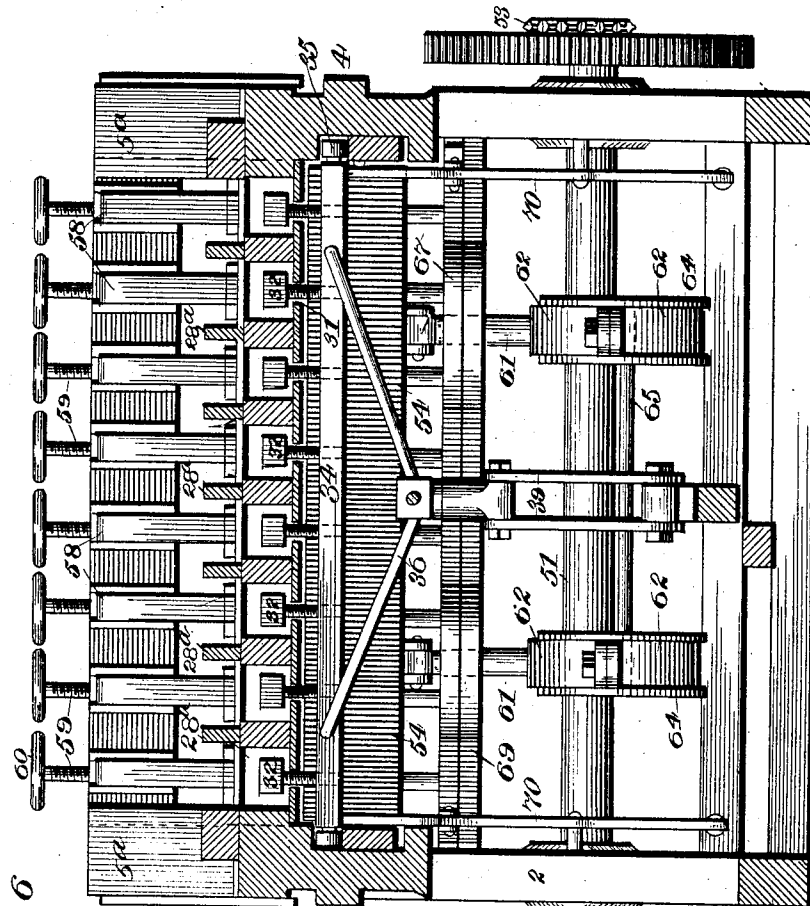


Fig. 6

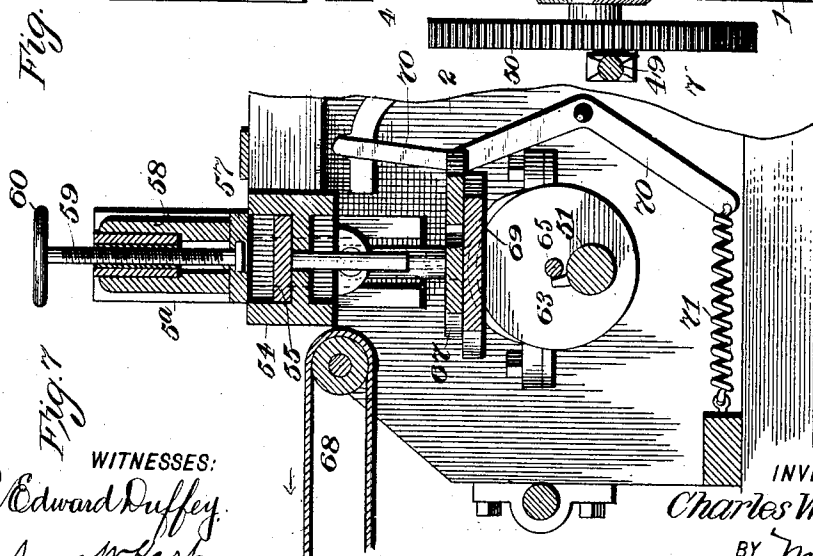


Fig. 7

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UNITED STATES PATENT OFFICE.

CHARLES WILLFORD PUGH, OF VEEDERSBURG, INDIANA.

BRICK RE-PRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 771,090, dated September 27, 1904.

Application filed May 20, 1904. Serial No. 208,832. (No model.)

To all whom it may concern:

Be it known that I, CHARLES WILLFORD PUGH, a citizen of the United States, residing at Veedersburg, in the county of Fountain and State of Indiana, have made a new Brick Re-Pressing Machine, of which the following is a specification.

It is the object of my invention to provide a machine which is adapted for automatically re-pressing bricks with great rapidity and economy of time and labor. The bricks are received upon a traveling feed-belt and carried forward to dies by which they are repressed and then automatically discharged and deposited upon a conveyer by which they are removed from the re-pressing machine.

A leading feature of the invention is a series of pivoted switches or switch-points arranged over the feed-belt, the same serving to automatically guide the bricks to different channels, by which they are in turn guided to different dies.

The invention also includes special features of construction and arrangement in relation to the dies themselves and the means for operating them, and it further includes a special means for forcing the unpressed brick forward to the re-pressing dies.

The details of construction, arrangement, and operation of parts are as hereinafter described, reference being had to the accompanying drawings, in which—

Figure 1 is mainly a side view of my improved machine, a portion being broken away to show interior construction. Fig. 2 is a perspective view illustrating the arrangement of eccentrics upon the main shaft. Fig. 3 is a plan view of the machine. Fig. 4 is a central vertical longitudinal section of a portion of the machine. Fig. 5 is a detail section illustrating the operation of the dies and connected parts. Fig. 6 is a transverse vertical section of the machine. Fig. 7 is a longitudinal vertical section of a portion of the machine, illustrating the position of the dies or re-pressing devices proper when a brick is being repressed.

As shown in Figs. 1 and 4, the main frame of the machine has a horizontal base portion

1 and vertical posts or supports 2 3, also a horizontal portion 4 and an inclined portion 5. The latter extends from the horizontal plane 4 at an angle of about forty degrees or forty-five degrees and is supported by a vertical post 6, arranged at the rear end of the horizontal frame 4. At the upper and lower ends of the inclined frame 5 are arranged two rollers 7 and 8, (see Fig. 1,) upon which an endless belt 9 is adapted to travel, the upper bight moving downward and the lower one upward. The upper bight is supported upon and travels over a flat surface 10, which practically constitutes a feed-table. The inclined frame 5 is provided (see Fig. 3) with cross-bars 11, which are arranged parallel, as shown. Between the upper three cross-bars and the feed-belt 9 I arrange switches or switch-points 12 13 14 15 15^a 15^b, the same being pivoted to the bars, and thus supported and adapted to oscillate, as indicated by full and dotted lines in Fig. 3. The upper and larger switch or switch-point 12 is pivoted to the center of the upper bar and arranged equidistantly between converging side guides 16. In other words, the guides 16 narrow the entrance or space into which the bricks are delivered from a brick-machine. As the bricks pass inward they come in contact with the switches 12 13 14 15 and are guided into guideways or channels by which they are conducted to different dies, as will be presently further explained. It will be seen that all the switch-points are practically dovetail shape, their lower ends being broadened and their sides inclined, so that in passing them the bricks serve to turn or rotate the points to an opposite position. Thus a brick entering the mouth of the guideway at 17 (see Fig. 3) is carried downward and forward by the endless traveling feed-belt 9, and thus works in contact with the right-hand side of the switch-point 12 and with the adjacent edge of the fixed guide 16. As the brick moves downward it will come in contact with the laterally-inclined lower end of the point 12, and thus cause the latter to shift over to the position indicated by dotted lines. The same thing will occur with reference to the succeeding switch-points 14 and 15, and thus the brick

will be guided into the first or right-hand channel or guideway (indicated at 18.) It will now be apparent that the switch-point 12 having been shifted over to the right, as indicated by dotted lines, the next brick entering at 17 will be carried down in contact with the left-hand side of the point 12, which rotates back to the position indicated by full lines, and passing on the same brick will work in the same manner with the left-hand side of the succeeding lower switch-points 13 and 15, and thus finally enter the left-hand guideway 25. In this operation the switch-points 13 and 15 are of course thrown to the left or into the position indicated by dotted lines in Fig. 3. Suppose now that the upper switch-point 12 is in the position indicated by full lines and the switch-points 14 and 15 are in the position indicated by dotted lines. If then a third brick enters at 17, it will pass by the point 12 and throw it in the position indicated by dotted lines, then down on the left-hand side of the switch-point 14, and enter the guideway 20, passing in this case by the switch-point 15^b and throwing it to the right or to the position indicated by dotted lines. Again, a brick entering at 17 when the switch-point 12 is thrown to the right, as indicated by dotted lines, will pass down and strike the right-hand side of the switch-point 13, which is in the position indicated by dotted lines, and then down into contact with the left-hand side of the switch-point 15^a, which is in the position indicated by full lines, and thus pass into the guideway 23. Thus the bricks are guided successively into different guideways or channels 18 to 25 by the automatic action of the pivoted switch-points.

The construction of the guideways 18 to 25 will be understood by the following description and by special reference to Figs. 3, 4, 6. As shown in Fig. 3, metal strips 26 27 28 are arranged beneath the lower two cross-bars 11, and thus extend up a considerable distance over the feed-plate 10 and feed-belt 9. The shorter plates 26 extend to the switch-points 15 15^a 15^b, while the plates 27 extend to the switch-points 13 and 14, while the central plate 28 extends to the upper switch-point 12. These plates are all arranged equidistantly and parallel to the sides of the frame 5 and at a distance apart which adapts them for easy passage of bricks. As the bricks pass downward between the upper portions of these plates they are guided into horizontal channel-ways 29, (see Fig. 4,) it being preferred for this purpose that a hinged plate 30 shall be arranged in each guideway. In other words, a series of hinged plates (see Fig. 3) constitute the means for delivering the bricks from the feed-belt 9 into the channel-ways 29 and upon the horizontal supports 31, provided therein, and whereon the bricks are carried forward to the re-pressing dies. As indicated

in Figs. 3 and 6, the horizontal supports 31 are divided or slotted longitudinally in order to allow the traverse of pushers 32 or devices by which the bricks are forced forward in succession. As indicated in Figs. 3 and 6, the guide-plates 26 28 coincide with and meet other guides 28^a, which form the sides of the channels 29, having the bottom plates 31. These pushers 32 may consist practically of blocks affixed to stems 33, which are preferably screw-threaded, as indicated in Fig. 6, and set in a horizontal bar 34. The ends of this bar enter guideways formed in the sides of the frame portion 4 and are preferably provided with antifriction-rollers 35. Two rods 36 connect this bar 34 with a block or post 37, (see Fig. 4,) which is provided with a horizontal guide-rod 38 and is connected by a link 39 with the rigid arm 40 of a rock-shaft 41, the latter being arranged horizontally in suitable bearings upon the base-frame 1. As shown in Fig. 4, the pushers 32 have reached the limit of their movement to the left. It is necessary preliminary to their beginning the backward movement that they should drop down below the level of the bottom of the channels 29, so as to pass up behind the bricks which shall be next deposited in the channels 29. For this purpose the forward ends of the latter are enlarged, as indicated at 42 in Fig. 3, or, in other words, the width of the slot between the bottom plates 31 of the channels 29 is widened sufficiently to allow the heads or pushers 32 to pass down. To permit this movement, the bar 34 must drop correspondingly, and, as indicated in Fig. 4, there are two guideways for such bar, an upper one, 44, and a lower one, 45. Thus when the pushers 32 are moving forward to carry bricks to the re-pressing dies the bar 34 travels in the upper channel 44, and in the lateral movement of the pushers 32 the bar 34 travels in the lower guideway 45. The division or partition between these two channels 44 and 45 is formed (see Fig. 4) by a fixed piece 46 and pivoted pieces 47 and 48. The piece 48 is wedge shape and pivoted, and its tapered end being overbalanced presses normally upward, so as to normally automatically close the upper passage 44 after the bar 34 has passed over it. Thus the guides 48 are always in position to direct the bar 34 downward into the lower channel 45, and it is apparent that the pieces or switches 47 being pivoted at their inner ends will rise at their free ends to allow the bar 34 to pass upward into the passage 44. Thus the pushers 32 successively rise into the guideways 29, as indicated at the right by dotted lines, Fig. 4, and again descend below said channels at the left-hand ends of the same, describing thus a practically elliptical course. The guide-rod 38, before referred to, is fixed in the head or post 37, with which the push-bar 34 is con-

5 nected by bars 36, and the said rod 38 slides in a fixed guideway 48. (See Fig. 4.) By this means the head or post 37 is always maintained in a vertical position, it being understood that the rods 36 have a pivotal connection therewith. As shown in Fig. 1, the rock-shaft 41, by which the pushers are operated, as described, is connected by a pitman or rod 49 with a large spur-gear 50, mounted upon a transverse shaft 51 and driven by a pinion 52, mounted upon a driving-shaft. It will be understood, however, that any suitable gearing may be employed for imparting the required movement to the shafts 51 and 41. On the opposite side of the machine, as indicated in Fig. 3, the shaft 51 is rotatably connected by chain and sprockets 53 with the shaft 8^a, upon which the lower feed-belt roller 8 is mounted. I propose, however, to employ any suitable mechanism for connecting the rotatable parts in the required manner.

I will now describe the re-pressing dies and their connected parts.

As indicated in Figs. 1, 4, 7, vertical guides 5^a, constituting an attachment of the main frame, are provided with internal grooves serving as guideways for a reciprocating die-box 54. This box extends the whole interior width of the frame, and it is divided into a series of chambers or compartments each adapted to receive a brick. Within each such chamber or compartment is arranged a movable guide-plate or plunger 55, the same having a stem 56, which passes down through a hole in the bottom of the chamber. When this plate 55 is down in the position shown in Fig. 4, there is left above it in the die-box 54 a space just sufficient to receive a brick which is to be re-pressed. Such brick is indicated by dotted lines in Fig. 4. When the box 54 rises, the brick is brought in contact with the adjustable presser 57, the same consisting of a die-plate having vertical guides 58, working in suitable guideways formed in the frame 5^a. A screw-shaft 59, having a hand-wheel 60, works in a nut arranged in the frame and serves to adjust the die-plate 57 higher or lower, as may be required. The means for imparting the up-and-down movement to the die-box 54 are as follows: As shown best in Fig. 6, stout rods 61 are pivoted to the under side of the die-box 54 and connected with straps 62, within which eccentrics 63 are adapted to work. The said eccentrics are shown in Fig. 4 and also in Fig. 2 in relation to certain parts which are rigidly connected therewith—that is to say, there are two eccentrics and two rods 61 connecting them with the die-box 54. Each eccentric rotates freely around the driving-shaft 51, and disks 64 are arranged on opposite sides of each eccentric and also made fast therewith. These disks serve as guides for the straps 62 of the respective eccentrics. The

eccentrics and the disks are rigidly connected 65 by means of a cross shaft or rod 65. The shaft 51 is constantly rotated at a uniform speed; but the eccentrics are rotated intermittently, as required to reciprocate the die-box 54 and allow it periods of rest, during which an unpressed brick is to be adjusted in a die-box and a re-pressed brick is to be ejected or removed therefrom. The rotatable shaft 51 is provided with wipers 66, (see Fig. 4,) which in the course of rotation of the shaft come in contact with the shaft 65, which connects the eccentrics, and thus the eccentrics are rotated around the shaft 51 as a center. When the shaft 65 has been carried up to the uppermost point (indicated by dotted lines, Fig. 4) just above the shaft 51, it is apparent that the die-box 54 will be at the highest point, which is indicated at Fig. 7, and that the bricks will be re-pressed at that time by coaction between the die-box and the die-plate 57. The instant that the shaft 65 passes a little beyond the shaft 51 the weight of the die-box and connected parts will cause the eccentrics to rotate suddenly to the lowermost position, and thus the die-box comes to the position indicated both in Figs. 4 and 5. As shown in Fig. 5, the stem 56 of the movable die-plates 55 strikes upon a plate 67, whose thickness is the same as the bricks. The result is that the die-plate 55 is raised to the top of the die-box 54, so that the brick which has just been re-pressed will then be flush with the top of the die-box and may be forced off from the same. This is done by the pusher, which advances in the alined channel at this moment. In other words, the pusher moving in such channel is forcing an unpressed brick before it and such brick coming in contact with the one that has just been re-pressed and is supported upon the die-box and die-plate 55 will force it off the same and upon an endless conveyer 68, which is represented in Figs. 1 and 4. While the die-box 54 is at this time in its lowermost position, the die-plate 55 is not, and before the unpressed brick which now rests upon the die-plate can be lowered into the box as required for repressing the die-plate must descend to the position indicated by full lines in Fig. 4. For this purpose it is necessary that the plate 67 before referred to shall be adjusted to allow the stem 56 of the die-plate to enter the hole 67^a in said plate. The latter rests upon a fixed plate 69, forming a rigid transverse connection of the two vertical posts or abutments 2. For the purpose of moving the plate 67 in the required manner I provide the following means: Elbow-levers 70 are pivoted to the side posts or abutments 2 at the apex of their angle and a spiral spring 71 is connected with their lower ends. Their upper ends project upward into the pathway of the bar 34, which supports and carries all the pushers 32, and they are connected pivotally

at an intermediate point with the plate 67. The normal position of the lever 70 is indicated by dotted lines in Fig. 4 and full lines, Fig. 5—that is to say, the lower end being
 5 drawn to the left and the upper end projecting slightly to the right. In this position the plate 67 is so adjusted that as the die-box descends the stems 56 of the die-plates 55 will strike upon the imperforate portion of the
 10 plate 67; but when the pushers 32 advance their supporting-bar 34 striking the heads of the levers 70 will rotate the latter upon their pivots and carry them to the position indicated by full lines, Fig. 4, and thus the plate
 15 67 will be pushed along under the stems of the die-plates, so that the said stems will enter the holes 67^a. This allows the die-plates 55 to drop to the position required. In other words, since an unpressed brick rests at this
 20 time upon each die-plate 55 it will descend along with the latter into the die-box, as indicated by dotted lines in Fig. 4. Thus the eccentrics being rotated as before in consequence of engagement between the shafts 51
 25 and 65, the die-box will be forced upward again into the position indicated in Fig. 6 and the re-pressing operation again effected. Thus the operation of automatic delivery of bricks to the pushers and then to the dies and the re-
 30 pressing of same and their automatic discharge is effected automatically, accurately, and with great despatch.

Having thus described my invention, what I claim as new, and desire to secure by Letters
 35 Patent, is—

1. In a brick re-pressing machine, means for delivering bricks to repressing-dies, which consist of a traveling carrier, pivoted switch-points for guiding the bricks into different
 40 channels, and a series of channels or passage-ways through which the bricks pass to the respective dies, substantially as described.

2. In a brick re-pressing machine, the combination, with a traveling carrier, of a pivoted switch-point, a guideway in which said
 45 point is arranged, and channels communicating with and leading from the aforesaid guideway, into which channels the bricks are automatically and successively guided by the
 50 said switch-point, substantially as described.

3. The combination with a suitable frame, and an endless traveling belt, of a series of switch-points which are pivoted above said belt and adapted to be acted upon by the bricks
 55 for shifting their position at each passage of the latter and a series of channels arranged below the switch-points and into which the bricks are delivered alternately, substantially as described.

60 4. The combination with a suitable frame, and an endless traveling belt, a series of guides arranged parallel and serving to form guideways for the bricks, of a series of switch-points pivoted above said guides and having

their lower or inner ends enlarged laterally 65 and tapered toward their upper ends, whereby bricks coming in contact with the same serve to turn them automatically to the opposite position so that bricks are successively guided into different channels or passage-ways, sub- 70 stantially as described.

5. The combination, with a suitable frame having a guideway in its outer portion, an endless conveyer, fixed plates arranged a suitable distance apart to form guideways for 75 bricks and extending different lengths over the conveyer, of a series of switch-points pivoted to said frame and arranged above the said plates and directly over the conveyer and arranged to coact with the different guide-plates 80 whereby the passage of bricks automatically shifts the switch-points laterally so that the succeeding bricks are carried into other channels than the first, substantially as described.

6. The combination, with a frame having 85 a series of guideways, and a conveyer, of a tapered switch-point which is pivoted, its lower end being enlarged laterally, whereby it is adapted to guide bricks and to be shifted laterally by the same, so that succeeding 90 bricks are guided into different channels or passage-ways, substantially as described.

7. The combination, with a suitable frame which is inclined at an upward inclination, of a fixed plate 10 arranged therein and forming 95 the bottom of said frame, an endless feed-belt whose upper bight travels over said plate, a series of cross-bars extending over the belt, and a series of switch-points which are pivoted on said cross-bars and enlarged laterally at their 100 lower ends, whereby they are adapted to shift laterally on their pivots by contact with passing bricks, and a series of plates spaced apart and arranged parallel in vertical planes so as to form a series of guide-channels, substan- 105 tially as described.

8. The combination, with a suitable frame which is inclined upwardly, of a support arranged in said frame parallel to its plane, and a series of switch-points arranged over such 110 support, the same being pivoted and enlarged laterally at their lower ends, whereby they are adapted to be shifted on their pivots by contact with passing bricks, and a series of channels arranged below the said switch-points 115 and into which the points guide the bricks, substantially as described.

9. The combination, with a horizontal guide-channel, and an inclined guide-channel, of pivot-plates 30 arranged for delivering 120 bricks from one to the other, substantially as described.

10. The combination, with dies and horizontal channels arranged in alinement therewith 125 and having bottoms which are slotted longitudinally, of pushers which are adapted to travel in said channels and provided with portions projecting through the slot, and means con-

nected with the lower portions for reciprocating the pushers, substantially as described.

11. The combination, with dies and channels in which bricks are guided to the dies, said channels having a slotted bottom, of pushers arranged to work above said bottom when moving toward the dies, and to descend below the bottom when moving in the opposite direction, and means for effecting this movement, substantially as described.

12. The combination, with dies and channels communicating therewith and provided adjacent to the dies with openings as described, of pushers adapted to move in said channels and to pass down through the said openings, and means for reciprocating all pushers, substantially as described.

13. The combination, with dies and guideways communicating therewith and having slotted bottoms, of pushers adapted to work in said guideways and having portions projecting below the same, a device which supports the pushers and travels in horizontal guideways, one arranged above the other, and pivoted switches which allow the said device to pass from one guideway into the other.

14. The combination, with dies and channels communicating therewith and provided with a longitudinal slot which is enlarged laterally at a point adjacent to the dies, of pushers adapted to travel in such channels and having a portion that projects through the slot, a cross-bar which connects all the supports of the pushers, guideways provided in the frame the same having pivoted switches at opposite ends, and means for reciprocating the pushers, substantially as described.

15. The combination, with a die and a channel leading thereto and provided with a longitudinal slot in its bottom, which slot is enlarged at a point adjacent to the die, of a pusher adapted to travel in the channel and to descend through the enlarged opening in the bottom of the same, a device connected with the pusher and serving to support and carry it, means connected therewith for reciprocating the pusher, and guideways arranged one above another and having pivoted switch-points at opposite ends, substantially as described.

16. The combination, with dies and channels connecting therewith and provided with bottom slots, of pushers adapted to travel in the channels, a cross-bar with which the several pushers are connected, lateral channels provided in the frame for reception of the ends of said bar, and switch-points arranged in the ends of said channel for guiding the bar from one end to the other, and means for reciprocating the bar and the pushers connected therewith, the same comprising a rock-shaft having a rigid frame, link connections between such frame and the aforesaid bar, and a horizontal guide-rod which is adapted to reciprocate in a fixed guide, substantially as described.

17. A brick-pressing apparatus comprising a vertically-movable box having a compartment provided with a movable die-plate, a stem projecting downward from such die-plate, means for reciprocating the box, and a fixed object with which the stem of the die-plate comes in contact when the die-box descends, means for reciprocating the die-box, and a fixed presser arranged above the latter, substantially as described.

18. The combination, with a frame and a vertically-reciprocating die-box and means for imparting movement thereto, of a die-plate arranged in the said box and provided with a pendent stem, a fixed portion of the frame with which such stem comes in contact when the box is lowered, a plate resting upon said support and having an opening adapted to receive said stem, and means for reciprocating the said plate, whereby the latter is adjusted to bring an imperforate or perforate portion beneath such die-plate stem when the die-box is in its lowest position, as and for the purpose specified.

19. The combination, with the die-box having a movable die-plate provided with a pendent stem, of a fixed support upon which the said stem may strike, an apertured plate adapted to slide upon such support, means for reciprocating the die-box vertically, a pusher by which bricks are forced upon the die-box, means for reciprocating the apertured plate consisting of a lever pivoted to the frame and connected with the apertured plate and projecting into the path of the pusher, and a spring connected with the lower arm of the lever, substantially as described.

20. The combination, with a die-box and a die-plate fixed above the same, of a movable die-plate arranged in the die-box and having a pendent stem, a transverse plate or support upon which said stem is adapted to strike when the box descends, and means for reciprocating the die-box and allowing it to descend by gravity, which consist of a transverse rotatable shaft and means connecting it with the die-box, eccentrics mounted loosely upon said shaft and adapted to be rotated around it as a center, means for rigidly connecting such eccentrics, and wipers on the said rotatable shaft which are adapted to carry the eccentrics around during half of a revolution, substantially as described.

21. The combination, with a die-box, adapted to reciprocate vertically, and a fixed die-plate arranged above the same, of a movable die-plate arranged in the die-box and having a pendent stem, a support upon which such stem is adapted to strike when the box descends, so that the movable die-plate is forced upward to eject the repressed brick, and means

for imparting a vertical movement to the die-
box, which comprise a rotatable shaft having
a wiper, and devices connecting it with the
die-box comprising an eccentric and rod, the
5 said eccentric rotating loosely upon the shaft
and provided with a projection adapted for
contact with a portion of the eccentric, where-
by it is carried around during a part of a revo-

lution and then allowed to fall to its lowest
position so that the die-box suddenly descends 10
while the movable die-plate therein is forced
upward, substantially as described.

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Witnesses:

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