To all whom it may concern:

Be it known that I, John Thomson, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Brick-Laying Machines, of which the following is a specification.

My invention relates to brick-laying machines, and viewed in its general aspect, the object of the invention is to produce a new and improved organized mechanism for automatically laying bricks in a wall. A number of constituent mechanisms enter into the make-up of the machine, and contributory objects may be said to be to provide simple and efficient means, first, for advancing the machine as a whole along the wall; second, to support and release the bricks which are to enter into the wall; third, to set or position the bricks horizontally; fourth, to set or position the bricks vertically; fifth, to feed the mortar in the amounts required; sixth, to temporarily support the brick prior to its final setting; seventh, to support the machine as a whole from the lower finished portion of the wall; eighth, to smooth the mortar at the surface of the wall and retain it while being spread.

Other contributory objects will become apparent as the description proceeds.

I accomplish my objects by the mechanism illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of the assembled machine as it appears in the act of laying bricks.

Fig. 2 is a plan view of the parts shown in Fig. 1.

Fig. 3 is a sectional elevation, chiefly on the line 3—3, Fig. 2.

Fig. 4 is a cross sectional elevation on the line 4—4, Fig. 3.

Fig. 5 is a sectional view on the line 5—5, Fig. 6, showing part of the depressing or top setting mechanism for forcing the brick to settle down to proper level after it has been otherwise positioned.

Fig. 6 is a plan view of the parts shown in Fig. 5.

Fig. 7 is a sectional view on the line 7—7, Fig. 1 showing the preferred form of wall bracket and associated parts of the scaffold.

Fig. 8 is a plan view of the bracket shown in Fig. 7.

Fig. 9 is a vertical section on the line 9—9, Fig. 10 showing the tripping mechanism for releasing the bricks.

Fig. 10 is a sectional elevation on the line 10—10, Fig. 9.

Fig. 11 is a detail of portion of the depressing or top setting mechanism shown in Figs. 5 and 6.

Fig. 12 is a side elevation of the mechanism for temporarily supporting the brick just prior to the time when it is finally positioned in the wall.

Fig. 13 is a plan view of the parts shown in Fig. 12.

Fig. 14 is an elevation, chiefly in cross section, showing the carriages which help support the traveling scaffold upon the wall.

Fig. 15 is a sectional elevation on the line 15—15, Fig. 14.

Fig. 16 is a fragmentary detail of the pin which cooperates with the brick releasing mechanism.

Fig. 17 is a detail showing the manner in which the main body of the machine is suspended from the turntable.

Similar numerals refer to similar parts throughout the several views.

The scaffold.—In the form of machine selected to illustrate the invention, the parts more intimately associated with the placing of the bricks and mortar are supported as a traveling unit upon a framework which is itself carried upon the wall. This framework may, for convenience, be termed a "scaffold". It consists of two overhead tracks or ways 1 supported upon posts 2. Said posts are in part supported upon horizontal beams 3 with respect to which they are vertically adjustable. Beams 3 travel upon rollers 4, as shown in detail in Figs. 7 and 8. Said rollers are carried by wall brackets 5 which have fingers 6 which enter between the courses of the bricks in the wall, and thereby carry the weight of the brackets and parts supported thereby. I have provided supplemental means for supporting the scaffold. The means in question are carriages shown in Fig. 1 and in detail in Figs. 14 and 15. In the form illustrated, the carriages consist of bolsters 8 supported on rollers 9. Rising from the bolsters are heli-
cal compression springs 10 which support cap-like brackets 11 fastened to the inside of the posts 2. Said posts have vertical slots 12 which accommodate and guide studs 13 projecting from the bolster. The springs help to distribute the weight so that the scaffold is carried partly by the brackets 5 and partly by the carriages or trucks just described.

10 The machine proper.—The general framework or body of the machine may be considerably varied in detail, but in the form selected for illustration, there are two side plates 16, 16, which are suspended upon rods 17, 17. Said rods have casters 18 at their upper ends, which roll upon the inside of the box-like beams of the “turn table” 19. These parts are shown in detail in Fig. 17. In the present form the turn table has both longitudinal and cross ways, as best shown in Fig. 2, and, in addition, a circular track 20, which permits turning the machine clockwise or to reverse it. The turn table is suspended from rollers 31 which travel upon the tracks 1.

Located between and supported upon the side plates 16, above mentioned, are three chutes 23, 24 and 25. Chute 23 is for the storage of the longitudinal bricks or “stretchers.” Chute 24 is for the storage of “headers,” while chute 25 is for the storage of mortar. The mechanism for automatically releasing the bricks at the proper moment upon chute 25 is best shown in Figs. 1, 3, 9 and 10. The chute is provided at the bottom with two fingers 27 and 28. These are mounted on the stationary pivots 29 and 30, respectively. They are joined by a connecting rod 31, which causes them to operate in unison, although they rotate in opposite directions. They are normally held in actuating position by a spring 32, which presses against a cap 33 formed on the upper end of finger 28. Finger 27 has an arm projecting from it for retracting it at the proper moment. This arm is shown in detail in Fig. 10. It has a part 35 which is rigidly fastened to finger 27. Hinged to arm 35 is a trigger 36 which is yieldingly held in normal position by a spring 37. It will be sufficient for the present to say that trigger 36 is operated by one or the other of two tappets 39, 40, shown in Figs. 9 and 10. These tappets are mounted (in a manner presently to be described) upon a rack bar 41, which travels relatively to the chute. When tappet 39 is moving, for example, toward the right, Fig. 10, it will pass trigger 36 and the spring 37 will permit the trigger to yield and swing upon its hinge. But when the parts move in the opposite direction and tappet 39 engages trigger 36, the trigger will not yield but will swing arm 35 toward the left and rotate finger 27 in a clockwise direction about its pivot 29. This causes the fingers 27 and 28 to be retracted from the bottom of the lowest brick and permit the brick to fall into its preliminary position upon the wall.

At the upper end, finger 27 has a shoulder 43, see Fig. 3, which, when the finger 27 is retracted, passes under the corner of the next brick above and prevents it from dropping down until the fingers have been restored to normal position. This restoration is accomplished by the spring 32 which, acting upon the spring 33, rotates the finger 28 in a clockwise direction. The finger 27 and shoulder 43 and their cooperating parts thus virtually form an “escapement” to ensure that the bricks will be released one at a time.

The releasing and escapement mechanism for chute 24 is similar to the one for chute 23, and need not be described in detail. It is sufficient to say that the mechanism is operated by a rotatable arm 45. This is slotted at its upper end to receive a pin 46 located on an arm 47 rigidly connected to the finger 27. Bricks laid as headers are an exception rather than a rule in a wall and consequently, the arm 43 is normally left undisturbed. When, however, headers are to be laid, arm 45 is actuated by a tappet 48 which is pivoted to rack bar 41, as shown in Fig. 3. This is spring-pressed to rotate in a clockwise direction against the stationary pin 49, mounted on said rack bar. When standing upright, as indicated by dotted line in Fig. 3, this tappet will yield when traveling toward the right but when traveling toward the left, will engage the lower end of arm 43 and actuate the releasing mechanism of chute 24. Tappet 48 is normally held in a non-acting position by a peg 50 inserted into a suitable aperture in the side of the rack bar.

It will be evident that when headers are to be laid, the releasing mechanism for the stretchers must omit to operate. In other words, in laying certain kinds of walls, the action of the releasing mechanism of the stretchers must be intermittent. I have provided means for taking care of this situation and I will now describe them.

During a certain portion of every cycle of operation of the machine, the rack bar 41, hereinabove mentioned, moves forward relatively to the side plates 16. Subsequently during the same cycle it returns. The forward motion is toward the right and the return motion toward the left. Figs. 1, 2, 3 and 10. The tappets 39 and 40, previously mentioned, are fastened to a plate 53 which rotates upon the stud 54 projecting outward from the rack bar. This is in the form of a Geneva gear wheel. It is provided on its inner side with a ratchet wheel 55,
which coöperates with the pawl 96 mounted upon the rack bar. If it is desired to lay a stretcher for every cycle of operation of the machine, the tappet 39 will be rigidly held upright so as to actuate the trigger 36 every time the rack bar moves toward the left, Fig. 10. The tappet is held in this position by inserting a peg 57 into a suitable aperture in the side of the rack bar, the Shank of the peg passing through one of the notches in the Geneva gear wheel and thereby locking it against rotation in either direction. But by removing peg 57, the Geneva gear wheel and parts mounted thereon become capable of rotating in an anticlockwise direction, but prevented from rotating in a clockwise direction by pawl 95.

Let it be assumed that it is desired to lay a stretcher every alternate cycle of operation.

In such a case, a jointed peg 60 is inserted through a suitable aperture in adjacent side plate 15, as shown in detail in Fig. 2. This peg, which is shown in detail in Fig. 16, has an inner end 81 joined to it by hinge pin 92.

The parts are so arranged that the inner end will yield when pressure is exerted in one direction, but will stand rigid when pressure is exerted in the opposite direction. The parts are normally held in alignment by a spring 63. The elements are assembled in such manner that when this jointed peg is in place and the Geneva gear 53 moves toward the right, the peg, upon engaging it, will rotate the gear wheel ninety degrees, thus bringing tappet 39 down to horizontal position, where it will fail to reach the trigger 36. Consequently, during the next cycle, there will be nothing to operate said trigger and no stretcher will be released from the chute.

On the next cycle, however, the Geneva gear wheel will be rotated by peg 60 another quarter turn, thus bringing the tappet 40 to upright position, where it will actuate the trigger and cause a stretcher to be released.

Thus, it will be evident that by employing tappets 39 and 40 at diametrically opposite points on the Geneva gear wheel and so designing said wheel that it will be rotated one-quarter turn during each cycle, a stretcher will be released at each alternate cycle. By providing a wheel having but one tappet, a stretcher will be released once in every four cycles. Consequently, the number of stretchers laid during any given number of cycles may be varied by varying the number of tappets in the Geneva gear wheel.

Next will be described the means for positioning the brick and for causing the machine to advance along the wall.

The main drive shaft 65 is journaled in the side plates 10, as best shown in Fig. 4. This shaft may be rotated manually or by any suitable form of power. Near its ends it has fastened to it pinions 66 which mesh with racks 67 formed at the lower edge of the rack bars 41. When the shaft and pinions are rotated in a clockwise direction, the rack bars, which are longitudinally slideable with respect to the side plates 16 and the wheel chutes 23, 24 and 25, move forward (toward the right, Figs. 1 and 3). After the bars have moved forward about 24 inches from the normal position, shown in Figs. 1 and 3, they engage and rotate idler pinions 69 which are rigidly fastened to an idler shaft 70 journaled in the side plate 16. These idler pinions are in mesh with racks 71 which are connected to and operate a bar 72.

This may be termed the "setting" bar as it is designed to engage the end of the brick and move it longitudinally to final position in the wall. The setting bar normally occupies a position about half an inch from the brick lying in the position it assumes after being released from the chute 23. The pinions 66 on each side of the machine are in line with the pinions 69 and racks 71, although normally out of engagement with said racks, as will be seen by reference to Figs. 1 and 3. But after the racks 67 have reached the pinions 69 and rotated them a slight distance, the driving pinions 66 engage and operate the racks 71 and this action continues until the brick is moved from preliminary position up against the end of the previously laid brick. About the time this happens, the driving pinions 66 reach the rear end of the racks 67 and hence cease advancing said racks. They remain in mesh with the racks 71, however, and as they continue to rotate, and as the brick has moved rearward as far as it can go, the result is that the machine as a whole moves forward on the tracks 1 of the scaffold. This advances the machine to a new setting position.

When the machine has arrived at the new setting position, the operator causes the driving shaft 65 to rotate in the return direction, the racks 67 will immediately mesh with the driving pinions 66 and travel backward to normal position. At the same time, the racks 71 will move forward, toward the right, and will continue to do so until they have passed out of mesh with the driving pinions 66. When this happens, said racks 71 and the setting bar 72 will have reached normal position.

It will thus be seen that the operator rotates the driving shaft until the rack bars 41 have moved forward as far as they will go and have left the driving pinions, and until the racks 71 have moved backward un-
til they have not only positioned the brick but have advanced the machine to a fresh setting position. Thereupon, the operator causes the driving pinions to operate in a reverse direction and return the rack bars and setting bar to normal position.

The mortar delivering mechanism will next be explained: The mortar chute 25, previously mentioned, is preferably constructed with hollow walls to enable it to be warmed by steam, or otherwise, during cold weather. The chutes have a spout 78, having inside of it a helical conveyer 79, the shaft 80 whereof is driven by a gear wheel 81 meshing with a worm as best shown in Fig. 3. Said worm is fastened to a shaft 83 provided with a sprocket 84 driven by a chain 85 from a sprocket 86.

Said sprocket is centered upon and driven in one direction from a shaft 87 to which is keyed a shrouded gear wheel 88 which meshes with the rack 89, which forms an extension of the rack 71. The parts are so constructed that while the rack 89 reciprocates back and forth and consequently rotates the gear wheel 88 and shaft 87 back and forth, the helical conveyer 79 rotates only in the direction to cause the mortar to descend. This result is obtained by providing an overrunning clutch between shaft 87 and sprocket 86. As this type of clutch is well known, being in fact, illustrated at the left end of Fig. 5, the present drawings, in description is necessary, it being sufficient to state that in the present machine the parts are so designed that when the body of the machine travels forward, the mortar will be delivered, but when the operating parts of the machine are being returned to normal position, the conveyer 79 will remain still. The rack 89 forming a part of the same member which forms the rack 71 and setting bar 72, has the same movement as the setting bar. It will be recalled, however, that the setting bar moves rearward an inch and one-half or so to engage and set the brick before the body of the machine commences to travel forward. In my machine, during this preliminary backward movement of the setting bar, no rotating effect is produced in the shrouded gear wheel 88. This result is obtained by omitting a number of teeth from the rack 89 so that the rack teeth actually remaining will not commence to engage wheel 88 until the setting bar has completed the positioning of the brick and has commenced to move the body of the machine forward along the wall.

During the act of setting, the brick is temporarily supported upon a withdrawable platform which will now be described.

When a stretcher is released from the chute 28 it falls not upon the wall itself, but upon a platform which is shown in detail in Figs. 12 and 13. This platform is preferably made of longitudinally extending rods 92, connected at the front end by a cross-bar 93.

Partitions 94 separate each brick from its neighbor and by preference, there are two of the rods between each pair of partitions or separation. The outermost partitions also serve to prevent the mortar from escaping at the sides of the wall. The spout 78 delivers to the rear of the cross-bar 93 and the nose of the spout rests upon the top of the rods 94. Consequently, the rods act as a gage to determine the thickness of the mortar on the top of the wall. If a thicker bed is wanted, rods of greater diameter are employed.

The outermost partitions 94 are connected by links 95 to an 96 which are pivoted upon stationary studs 97. These arms are swung back and forth at proper times by links 98, which carry studs 99 at their upper ends which travel in slots 100 in arms 90. Links 98 are actuated by the idler shaft 70, previously mentioned. The shaft passes through the links 98 and, in traveling forward and backward, moves said links, and through them the arms 90 and the brick-supporting platform. The timing of the parts is such that the platform will receive the brick when the latter is released from the chute and will remain stationary while the brick is being slid backward to final position in the wall. It will thereby be retracted with a comparatively rapid movement, leaving the brick in place. By employing rods to support the brick, there is plenty of space left for mortar and, furthermore, friction is reduced to a minimum. In case the bricks are being discharged from the header chute 24, they are delivered to the platform by an inclined plane 102, which is located underneath the header chute, as best shown in Fig. 3.

The means for depressing the brick into place and for positioning it likewise is illustrated in detail in Figs. 5 and 6. The bricks are depressed by cams 105, mounted on shafts 106. These shafts are journaled in brackets 41 and are rotated by means of pinions 108 and 109 which are rotated respectively by stationary racks 110 and 111. These are staggered for non-interference and in moving forward, the pinion 108 engages its rack 110 at the same time that the pinion 109 engages its rack 111. The racks are fastened on the inside of the side plates 16. The operation is such that the cams and pinions travel forward as the machine travels forward, but do not rotate until they overlie the new set brick, whereupon the pinions come into mesh with the racks and thereby rotate the cams which force the bricks down to the proper level in
the mortar. The cams do not rotate on the reverse motion because the pinions are connected to the shafts by over-running clutches consisting of notched disks 113 containing clutch balls 114, as shown at the left end of Fig. 5. The cams just described constitute depressing or "top setting" members. I will now describe the "side setting" members and their operating parts.

The bricks are positioned sidewise by plates 117 which are normally urged inward toward the side of the wall by helical compression springs 118 which are interposed between said plate and the brackets 41, as best shown in Fig. 6. Plates 117 are normally held away from the wall by end cams 119 which normally occupy a central position where they will engage fingers 120 formed in the side plates, as best shown in Fig. 11. The side plates have apertures 121 in them to accommodate the hubs of the cams 105, and the fingers 120 project radially inward from the margin of the aperture. When the cams 119 are in engagement with the fingers, the side plates will be held in non-setting position, but as soon as the cams begin to rotate, they leave the fingers and permit the plates 118 to force the plates 117 toward the side of the wall.

The operation of the machine as a whole will now be readily understood. After the scaffolding has been positioned and the operating parts of the machine placed, all that the operator has to do is to rotate the drive shaft 65. Assuming the parts to be in normal or initial position, shown in Figs. 1 and 3, the operator will first rotate shaft 65 in a clockwise direction. This will first move the racks 67 forward until they engage the idler pinions 69 whereupon, the latter will move the racks 71 backward and cause the setting bar 72 to push the brick back into its final position in the wall. The operator continues to rotate the shaft in the same direction, and as the setting bar is firmly held against movement by the brick, the body of the machine will be moved forward and cause the cams 105 to depress the brick and also permit the side setting plates 117 to position the brick laterally. At the same time, the racks 89 come into mesh with the gear wheels 88 and cause mortar to be delivered onto the top of the wall. During this part of the program, also, the rods 93 and partitions 94 move forward out from under the bricks. During this part of the movement also, the tappets 93 engage the triggers 36 and release a fresh brick. Thereupon, the operator rotates the driving shaft in the opposite direction until the parts have again assumed the position shown in Figs. 1 and 3. It will thus be seen that the action is entirely automatic, the whole operation being accomplished by properly manipulating the shaft 65. It will also be noted that the machine produces what is known as a "shove joint," which is recognized as being advantageous for it forces the brick firmly to a bed and at the same time piles up mortar on the inner side and this binds the brick in the wall. Thus, the machine produces an action simulating the action when bricks are hand laid.

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

1. A brick laying machine having parts for manipulating the bricks and mortar, and a support for said parts sustained entirely by the wall being laid, said support having engaging elements cooperating with the wall below the top and further having carriages running upon the top of the wall whereby one portion of the entire weight of the parts is transferred to the top of the wall and the remaining portion of the entire weight to the wall below the top.

2. A brick laying machine having parts for manipulating the bricks and mortar, a support for said parts sustained entirely by the wall being laid and having carriages traveling upon the top of the wall, springs for placing one portion of the entire weight of the parts upon the carriages, and means on the support engaging the side of the wall below the top for carrying the remainder of the entire weight of the parts.

3. In a brick laying machine, a setting bar for shoving the brick backward into final position in the wall, a driving shaft, means adapted to be actuated by said shaft for actuating said setting bar, said means being normally nonoperative, whereby the action of the setting bar is delayed until after the shaft has rotated an appreciable amount from normal position, and other means actuated by said shaft for bringing said shaft into cooperative relation with the first mentioned means.

4. In a brick laying machine, a setting bar for positioning the brick longitudinally in the wall, a reciprocating rack for actuating said bar, the movement of said rack being confined to a straight line at all times, a pinion normally out of engagement with said rack but in line therewith, a power device for driving said pinion, and means actuated by said power device for moving said rack longitudinally into engagement with said pinion.

5. In a brick laying machine, a power device, a setting bar for positioning the brick longitudinally in the wall, a rack for opera-
erating said bar, a driving pinion operated by said power device for actuating said rack, said rack and pinion being normally out of mesh, an idler pinion for moving said rack into mesh with the driving pinion, and a second rack operated by said power device for actuating the idler pinion and thereby moving the first-mentioned rack into mesh with the driving pinion.

6. In a brick laying machine, a setting bar, a rack for actuating it, an idler pinion normally in mesh with said rack, a power pinion normally out of mesh with said rack, and a second rack operated by said power pinion for operating said idler pinion to move the first-mentioned rack into mesh with the power pinion.

7. A brick laying machine movable as a whole along the wall, said machine having a setting bar for moving the brick to final position in the wall and subsequently causing the machine to advance along the wall, a rack for operating said bar, a driving shaft journaling in said machine and capable of advancing it when said shaft is moved forward, and a pinion operated by said shaft, said pinion being adapted to mesh with said rack to first push back the setting bar and then cause the machine to advance.

8. A brick laying machine having a main frame, means for delivering brick from said frame onto the wall, an eccentric for pushing the brick down to a level in the mortar, said eccentric being capable of both a rotary and a translatory movement relatively to the main frame and its acting surface having approximately constant eccentricity throughout a portion of its circumference whereby the depression of the brick is gradual, and means for causing said eccentric to roll along upon the upper surface of the brick, the eccentric consequently making rolling contact with the brick and depressing the brick as the eccentric rolls forward.

9. A brick laying machine having a main frame, showing means for pushing the brick horizontally to final position, an eccentric for depressing the brick in the mortar, means for causing the eccentric to make rolling contact with the top of the brick, and correlating means for timing the action of the eccentric to commence after the showing means has completed its action.

10. In a brick laying machine, a traveling frame carrying the bricks and mortar, a setting bar longitudinally movable with respect to the main frame for sliding the brick home longitudinally, means cooperating with said setting bar for causing the main frame to travel forward upon the completion of the setting action of the setting bar, eccentrics for forcing the brick downward, said eccentrics being rotatable and bodily movable relatively to the main frame, eccentrics rotatable and movable with said eccentrics for rotating them, and racks upon the main frame for rotating said pins after said pins have traveled forward in the main frame.

11. In a brick laying machine, a traveling frame carrying the bricks and mortar, a setting bar longitudinally movable with respect to the main frame for sliding the brick home longitudinally, means cooperating with said setting bar for causing the main frame to travel forward upon the completion of the setting action of the setting bar, eccentrics for forcing the brick downward, said eccentrics being rotatable and bodily movable relatively to the main frame, eccentrics rotatable and movable with said eccentrics for rotating them, and racks upon the main frame for rotating said pins after said pins have traveled forward in the main frame.

12. In a brick laying machine, a traveling frame wherein the bricks are stored, a power shaft journaling in said frame and traveling with it, bars movable longitudinally relatively to said main frame, depressing cams journaling in said bars, pinsions traveling with said cams for rotating them, racks mounted rigidly in the main frame in line to be engaged by said pinsions when said bars are moved forward in the main frame, and means actuated by said drive shaft for moving said bars forward in the main frame.

13. A brick laying machine, having a main frame movable along the wall, step by step, once for every complete cycle of operation of the machine, bars longitudinally movable relatively to said main frame, side setting plates for positioning the bricks laterally in the wall, springs for urging said setting plates toward the wall, and a cam device operated by said longitudinally movable bars for alternately withholding and releasing said setting plates.

14. A brick laying machine having an intermittently moving main frame advancing along the wall, bars longitudinally movable relatively to said frame, side setting plates, springs for forcing said setting plates toward the wall, a rotatable cam carried by said bars for alternately with said cam, and then releasing said plate, and gearing brought into co-action by the forward movement of said bars for rotating said cam.

15. A brick laying machine having a platform for temporarily supporting a brick upon the mortar-spread wall, a main frame to which said platform is connected, and means for moving said platform relatively to the main frame for withdrawing the platform from beneath the brick to thereby permit the brick to settle onto the mortar.
16. A brick laying machine having a main frame traveling along the wall, a magazine for bricks in said main frame, a platform adjacent to the top of the wall for receiving the bricks from the magazine, and automatic means for subsequently withdrawing the platform from under the brick.

17. A brick laying machine having a platform adapted to lie adjacent to the top of the wall, means in advance of said platform for spreading mortar on the top of the wall, a main frame movable along the wall for supporting said mortar-spread means, and means carried by said main frame for withdrawing the platform from beneath the brick.

18. A brick laying machine having a main frame traveling along the wall, a brick-supporting platform on the top of the wall, and means on said main frame for withdrawing the platform from under the brick, said platform having parallel rods arranged longitudinally for supporting the brick.

19. A brick laying machine having means for spreading mortar on the top of the wall, a withdrawable platform for temporarily supporting the brick above and adjacent to the mortar on the top of the wall, and a setting bar for holding the brick while the platform is being withdrawn.

20. A brick laying machine having means for spreading mortar on the top of the wall, a withdrawable platform for temporarily supporting the brick above and adjacent to the mortar on the top of the wall, and a setting bar for holding the brick while the platform is being withdrawn, said platform consisting of longitudinal rods supported at the forward end, said rods being separated whereby the brick may rest partially upon the mortar when in position upon the platform.

21. A brick laying machine having a main frame traveling along the wall, means on said frame for spreading mortar upon the top of the wall, a withdrawable platform for temporarily supporting the brick above and adjacent to the mortar on the top of the wall, a setting bar for holding the brick while the platform is being withdrawn, and correlating devices for causing the parts to operate in timed relation.

22. A brick laying machine having a main frame traveling along the wall, a setting bar for positioning the brick longitudinally, a withdrawable platform for supporting the brick prior to its final positioning, and means operated by said setting bar for withdrawing said platform.

23. A brick laying machine, having a main frame traveling along the wall, a setting bar for positioning the brick longitudinally, a rack connected to said setting bar for operating it, a pinion for operating said rack, a withdrawable platform for temporarily supporting the brick upon the wall, and a link work operated by said rack for operating said platform.

24. A brick laying machine having a main frame traveling along the wall, a setting bar for positioning the brick longitudinally, a rack connected to said setting bar for operating it, a pinion for operating said rack, a withdrawable platform for temporarily supporting the brick upon the wall, a link work operated by said rack for operating said platform, said pinion being normally out of mesh with said rack, and means operated by said pinion for bringing said rack into mesh with said pinion.

25. A brick laying machine having a main frame traveling along the wall, means on said main frame for spreading mortar on the top of the wall, plates adjacent to the sides of the wall for retaining the mortar, and means on said main frame for intermittently advancing said side plates relatively to the main frame.

26. A brick laying machine having mortar delivering means, brick setting means for positioning the brick longitudinally on the wall, a rack connected to said brick setting means and moving in synchronism therewith, and a gear wheel connected to said mortar delivering means for operating it.

27. A brick laying machine having mortar delivering means, brick setting means for positioning the brick longitudinally on the wall, a rack connected to said brick setting means and moving in synchronism therewith, and a gear wheel connected to said mortar delivering means for operating it, said rack and gear wheel being normally out of mesh, and the rack coming into mesh only after it has completed a part of the movement which it makes in synchronism with the movement of the brick setting means.

28. A brick laying machine having mortar delivering means, brick setting means for having a reciprocating movement relatively to said mortar delivering means, a rack moving in synchronism with said brick setting means, and a gear wheel connecting with said rack to operate said mortar delivering means, said gear wheel having an overrunning clutch whereby the reciprocatory movement of the rack produces a unidirectional action of the mortar delivering means.

29. A brick laying machine having a main frame, a magazine therein for the storage of bricks, and a chute therefor for the storage of bricks and escapement mechanism for releasing the bricks one at a time, said
escapement mechanism having two pivoted members at opposite sides of the chute, said pivoted members having fingers for engaging the lowermost brick, one of said pivoted members having a shoulder which passes to the bottom of the next brick above when the pivoted member is rotated in a position to have its finger withdrawn from the lowermost brick.

30. A brick laying machine having a main frame, a chute therein for the storage of bricks, and escapement mechanism for releasing the bricks one at a time, said escapement mechanism having two pivoted members rotating about fixed pivots at opposite sides of the chute, said pivoted members having fingers for engaging the lowermost brick and being connected together whereby they operate in unison, one of said pivoted members having a shoulder which passes beneath the bottom of the next brick above when the pivoted member is rotated in a direction to withdraw its finger from the lowermost brick, the pivots of one of the pivoted members being located between the planes of the top and bottom of the lowermost brick.

31. A brick laying machine having a main frame, and a chute therein for the storage of brick and escapement mechanism for releasing the bricks, one at a time, said escapement mechanism having two shafts on opposite sides of the chute, the axes of the shafts being fixed relatively to the chute, pivoted members mounted upon said shaft as pivots, said pivoted members having linked connections whereby they are compelled to rotate in unison, said pivoted members having fingers for engaging the bottom of the lowermost brick in the chute, one of said pivoted members being adapted to swing clear of the lowermost brick and the other pivoted member being located adjacent to the lowermost brick and having a shoulder adapted to shove the lowermost brick transversely to the chute when the pivoted member of which it is a part is rotated in a direction to withdraw its finger from the lowermost brick, said shoulder simultaneously swinging into the chute at a point beneath the second brick for supporting the latter after the lowermost brick has been released.

32. A brick laying machine having a chute for the bricks, escapement mechanism for releasing the bricks one at a time, a trigger for operating said escapement mechanism, said trigger being yieldable in one direction and non-yieldable in the other, and means reciprocating relatively to said escapement mechanism for operating said trigger.

33. A brick laying machine having a chute for the bricks, escapement mechanism for releasing the bricks one at a time, a reciprocating tappet for actuating said escapement mechanism, and means with respect to which the tappet is movable for automatically bringing said tappet into non-acting position.

34. A brick laying machine, having rods extending longitudinally to form a temporary support for the brick, a cross bar to which the forward end of said rods is fastened, and a mortar spout delivering onto the wall behind said cross bar, the mouth of the spout being level with the top of the rods, whereby the rods serve to gauge the thickness of the mortar bed upon the top of the wall.

In witness whereof, I have hereunto subscribed my name.

JOHN THOMSON.