

(No Model.)

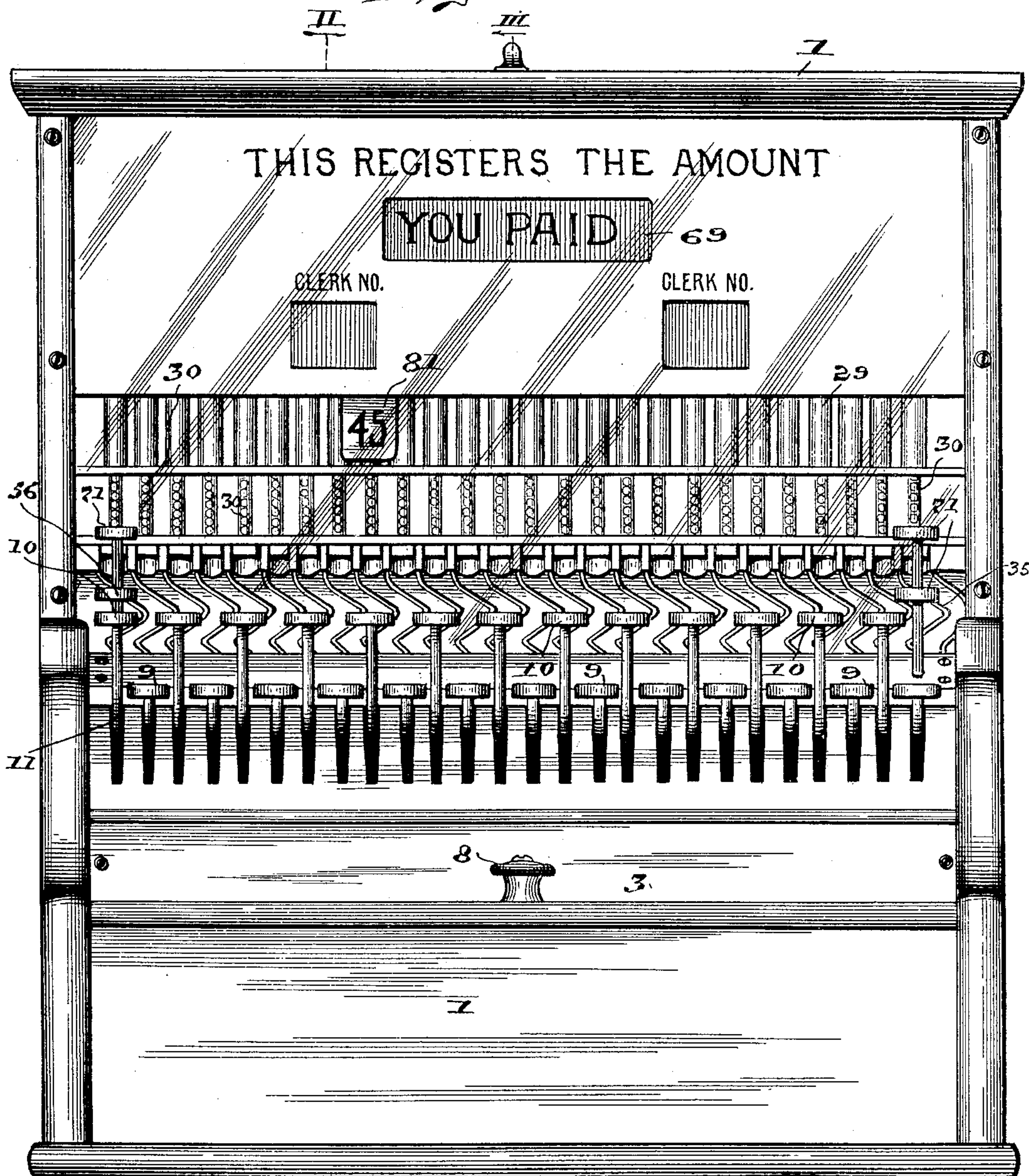
5 Sheets—Sheet 1.

D. A. GREEN.
CASH REGISTER.

No. 597,973.

Patented Jan. 25, 1898.

Fig. 1.



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5 Sheets—Sheet 2.

No. 597,973.

Patented Jan. 25, 1898.

Fig. II.

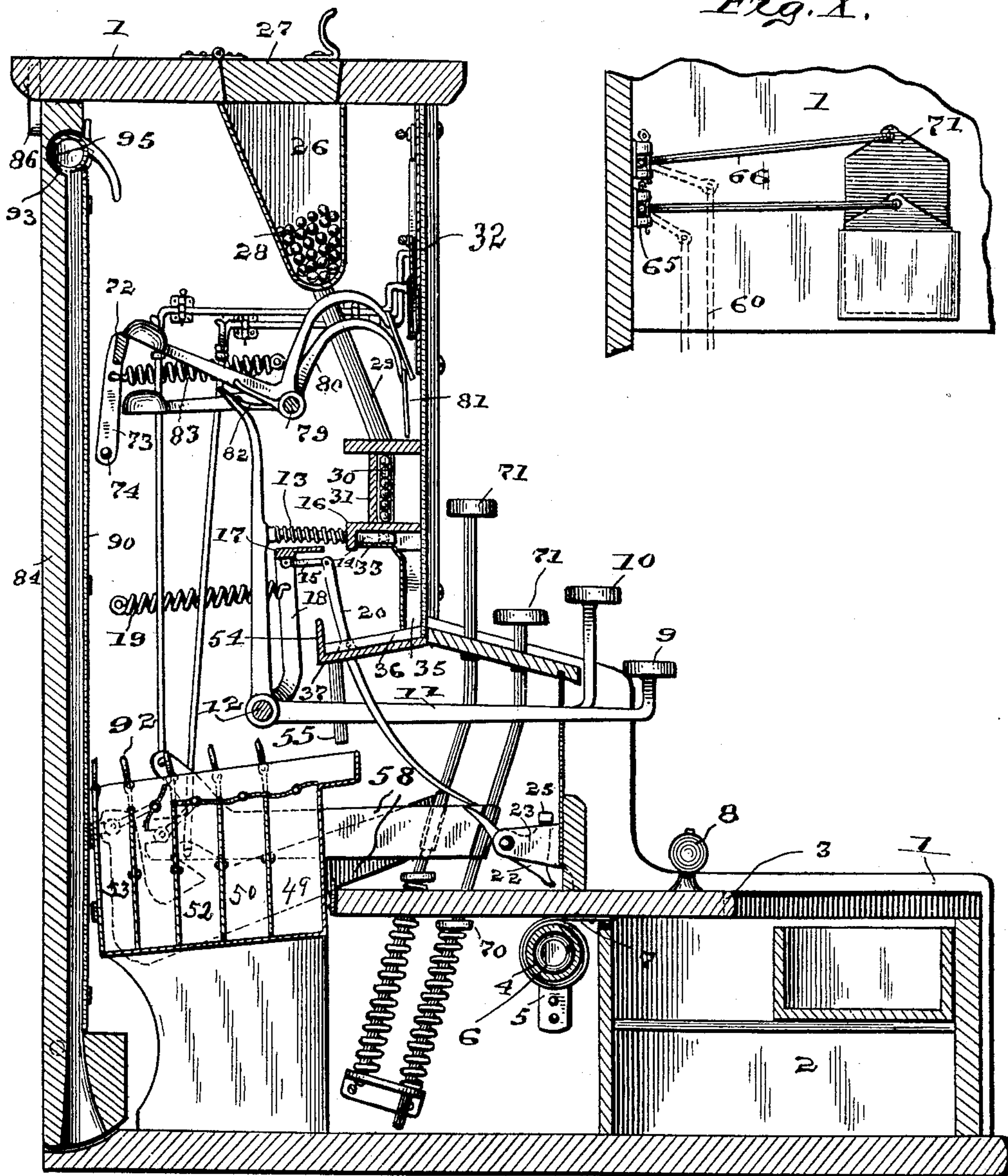


Fig. X.

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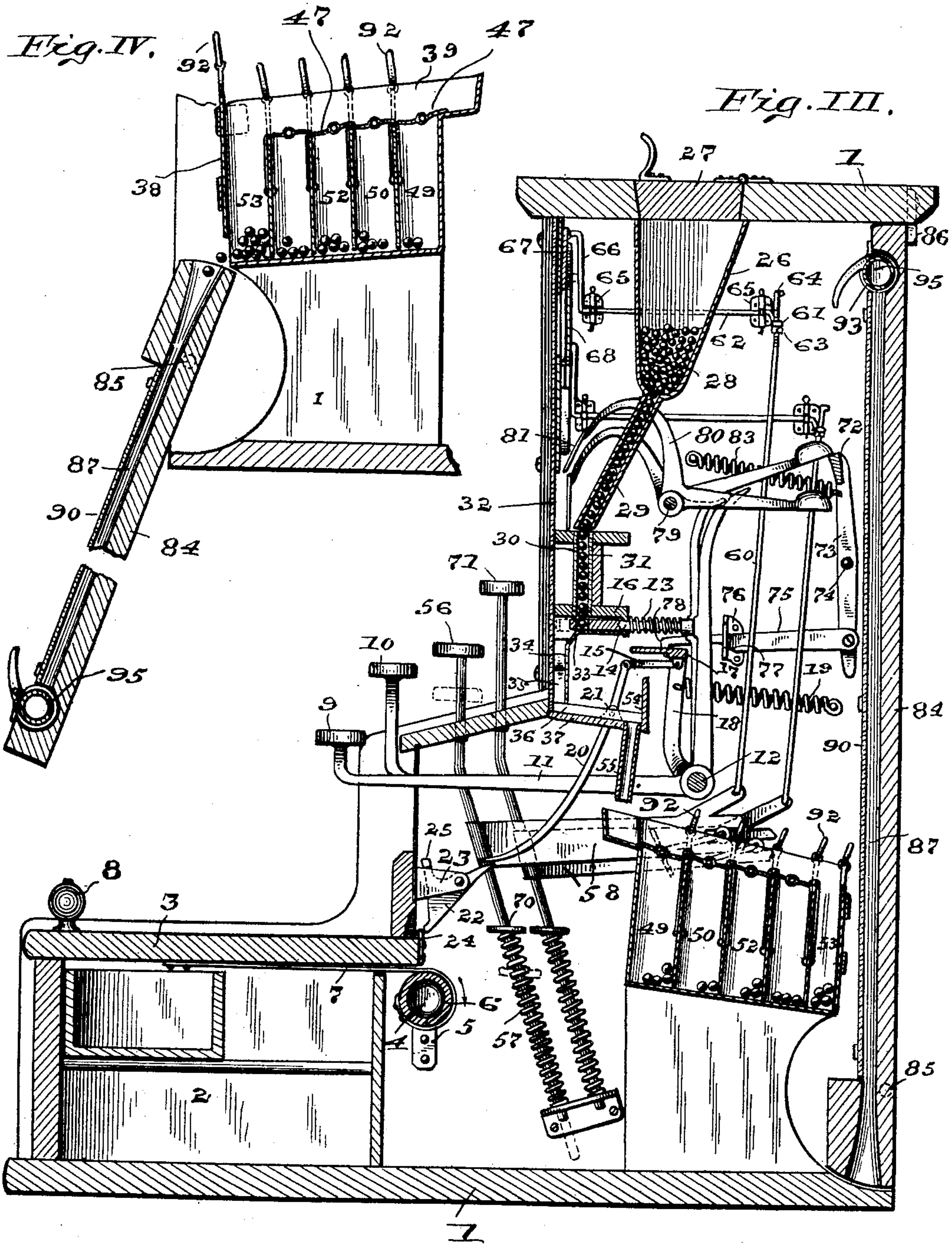
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D. A. GREEN
CASH REGISTER.

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No. 597,973.

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CASH REGISTER.

No. 597,973.

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Fig. V.

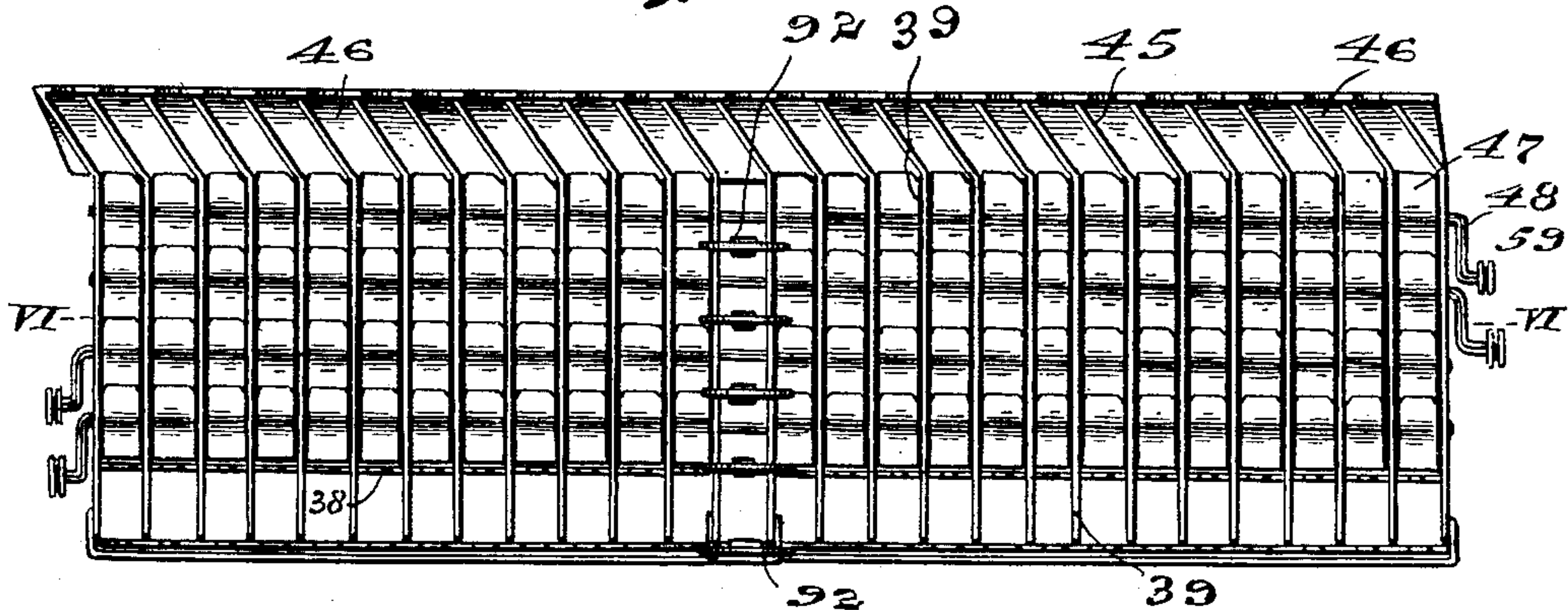


Fig. VI.

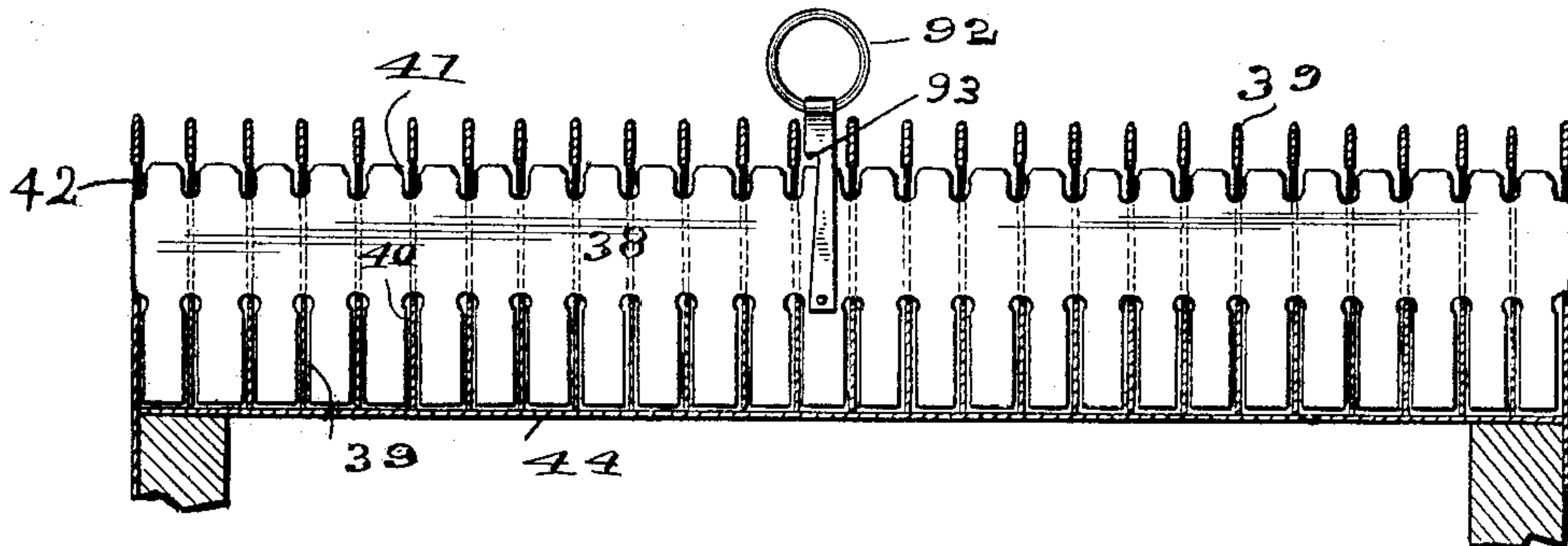
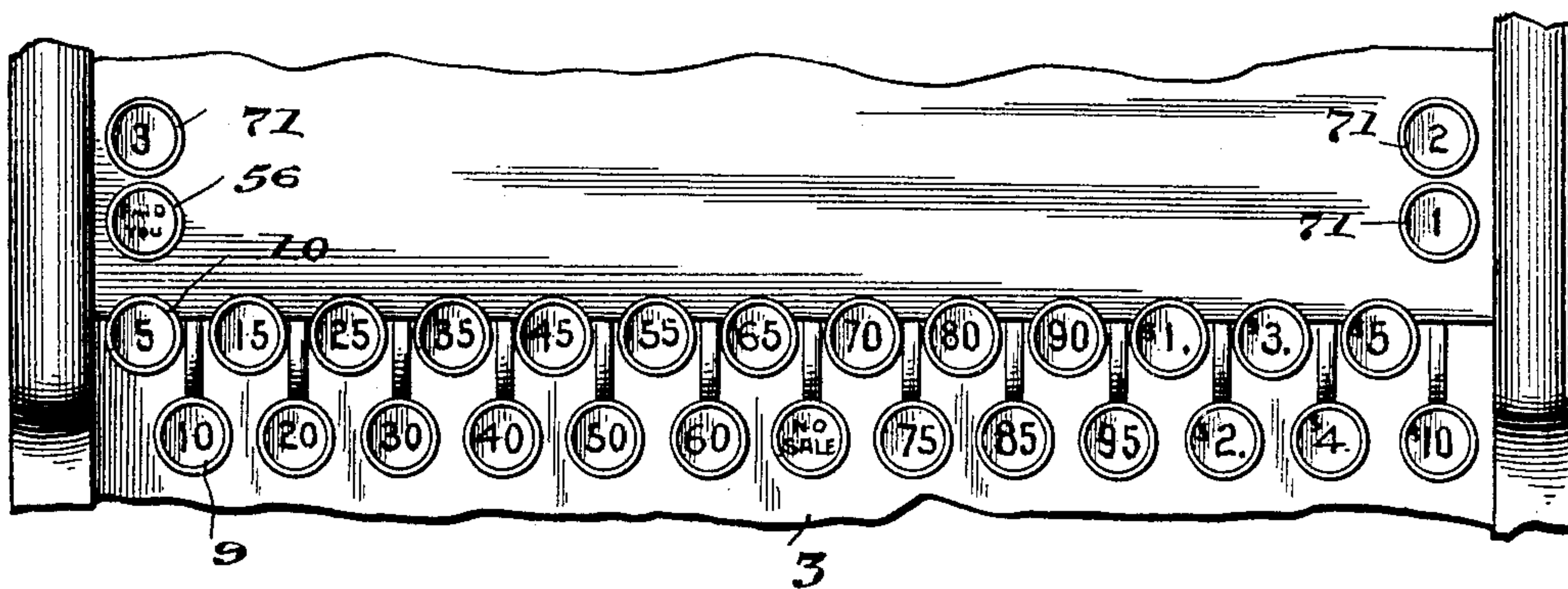


Fig. VII.



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(No Model.)

5 Sheets—Sheet 5.

D. A. GREEN.
CASH REGISTER.

No. 597,973.

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Fig. VIII.

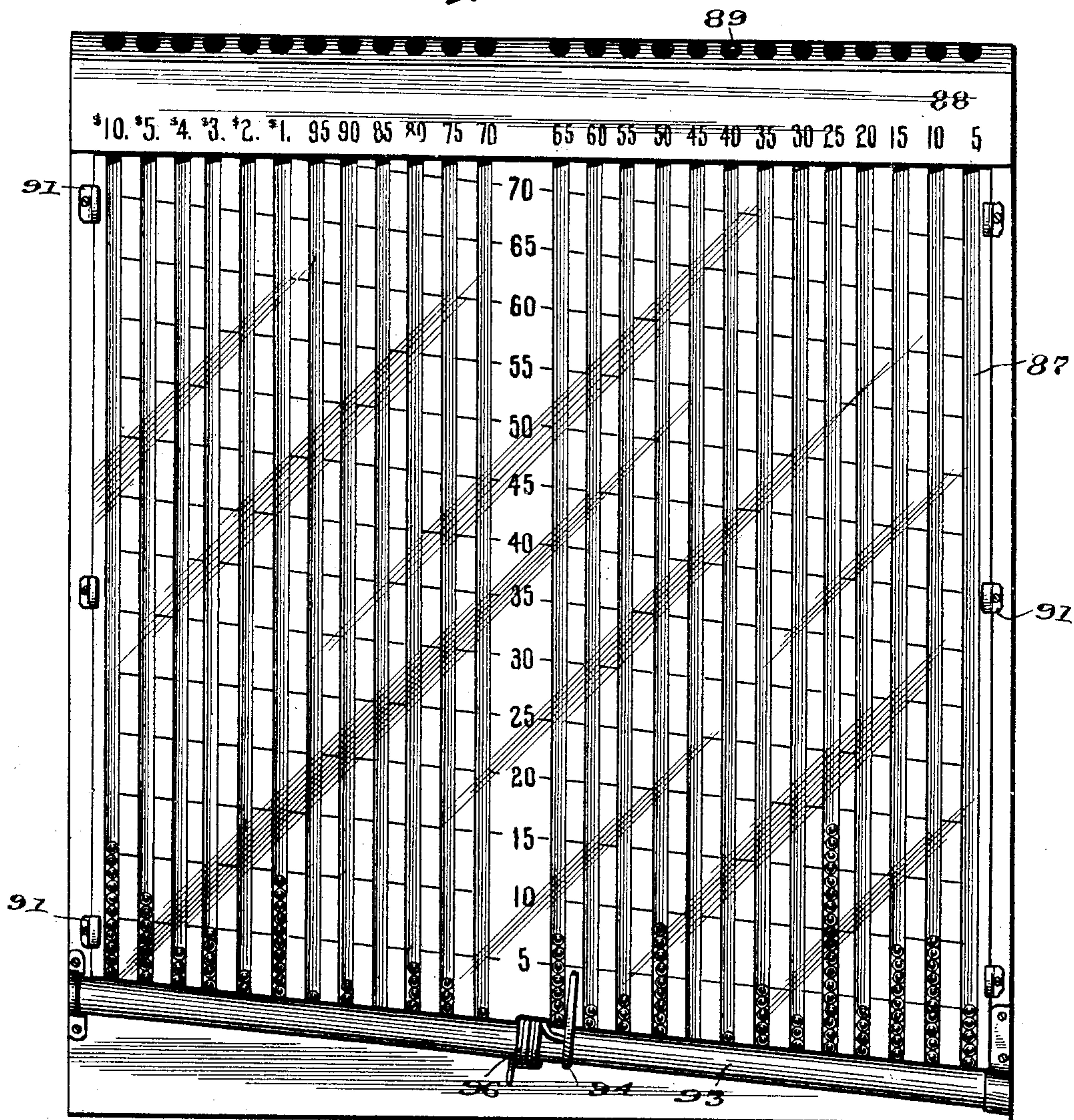
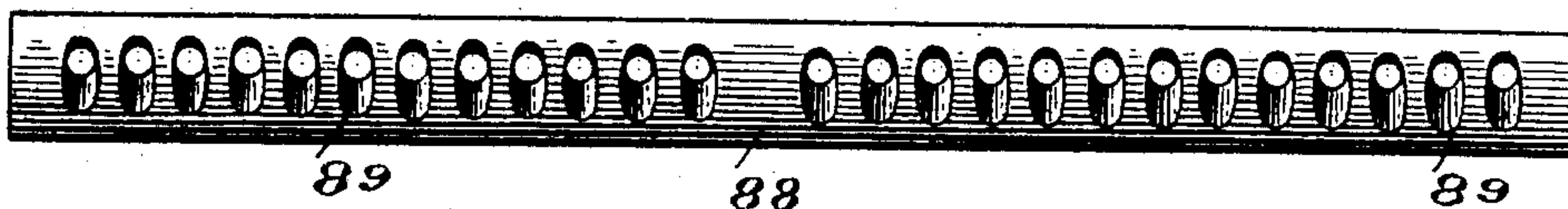


Fig. IX.



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UNITED STATES PATENT OFFICE.

DAVID A. GREEN, OF EMPORIA, KANSAS, ASSIGNOR OF ONE-THIRD TO
WALDO WORSTER, OF SAME PLACE.

CASH-REGISTER.

SPECIFICATION forming part of Letters Patent No. 597,973, dated January 25, 1898.

Application filed April 1, 1897. Serial No. 630,226. (No model.)

To all whom it may concern:

Be it known that I, DAVID A. GREEN, of Emporia, county of Lyon, and State of Kansas, have invented a certain new and useful Cash-Register; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like figures refer to like parts.

10 The object of this invention is to provide a cash-register that will do all the work done or desired to be done by cash-registers and yet be simple in construction and cost so little as to be within the reach of the small dealer
15 as well as the large.

The various functions of this cash-register, such as affording access to the cash-box, indicating the amounts paid in and the amounts paid out, the business done by each separate clerk, and furnishing means for readily determining the totals of all these, are each accomplished by the novel means and modes of operation which will be fully understood from the accompanying drawings and the description and claims following.

25 In the drawings, Figure I is a front elevation of the machine. Fig. II is a vertical cross-section of the machine on the line II II of Fig. I, looking to the right. Fig. III is a cross-section on the line III III of Fig. I, looking to the left. Fig. IV is a vertical cross-section of the ball-receiver and the counter, the latter turned down and centrally broken away. Fig. V is a plan view of the ball-receiver. Fig. VI is a longitudinal vertical section on the line VI VI of Fig. V. Fig. VII is a plan of the keyboard, the remaining parts being broken away. Fig. VIII is an elevation of the counter when it is turned down.
30 Fig. IX is a plan view of the counter when in the position shown in Fig. VIII. Fig. X is a rear elevation of a section of the upper front portion of the machine, showing a pair of clerk-indicating tablets.

45 In detail the machine is inclosed in a suitable case 1. The front part of the lower portion of this case contains a stationary cash-box 2, provided with suitable compartments for the reception of various kinds of money.
50 Access to the cash-box is obtained by the rearward removal of the sliding lid 3, to be

seen in Figs. II and III. In Fig. II the lid of the cash-box is open, while in Fig. III it is closed. The sliding lid 3 is opened by the roller 4, with bearings in brackets 5, secured to each side of the case. It is rotated by a spring 6 in the direction indicated by the arrow, and the tape 7, secured at one end to the lid 3 and at the other end to said roller 4, withdraws the former, when it is released, from the position shown in Fig. III to that shown in Fig. II. The lid is closed or returned by hand to the position shown in Fig. III by means of the knob 8.

Turning now to the keys there is a lower bank 9 and an upper bank 10, which are operated to register sums paid in or sums paid out. In such keys there are numerals, as seen in Fig. VII, indicating the proper key to operate when desired to register a sum paid in or paid out. In the lower bank of keys there is a centrally-located "No-sale" key, which is operated when it is desired to merely open the cash-box without making any registration. These keys are on the outer ends of the bell-crank levers 11, pivoted on the shaft 12. The other arm of said bell-crank levers 11 extends upward, as seen in Figs. II and III, and is held in a rearward position by a rearward extension from the sliding plate 14, which is pushed rearward by the spiral spring 13, surrounding it. When a key is operated, the upper arm of the bell-crank lever 11 pushes the sliding plate 14 forward toward the front portion of the machine. The plate 14, to be seen in Figs. II and III, moves in a suitable frame or guide 16.

The lid 3 to the cash-box is released when a key is operated by the following means: A rocking frame is provided, comprising a horizontal plate 17, that extends from one side of the machine to the other, which is integral with the arms 18. I have three arms 18, one at each end and one in the middle, which are pivoted to the shaft 12. The rocking frame permits the plate 17 to be moved forward and rearward. It is held in a rearward position normally by the springs 19, secured to the sides of the case. It is moved forward whenever a key is operated by the upper arm of the bell-crank lever 11. In the center of the machine I pivot a lever 20 between its ends

at 21. The upper end of this lever 20 is pivotally secured to the middle arm 18 by the link 15. When said plate 17 is moved forward by the operation of a key by reason of the connection mentioned, the lower end of the lever 20 is moved rearward, and by curving it, as seen in Fig. III, in its rearward movement it presses down on the trip 22, pivoted in the bracket 23, that is secured to the case, as shown. The lower end of said trip engages the rearward face of the lug or latch 24, secured to the rear end of the sliding lid 3 when said sliding lid is closed, as seen in Fig. III. The trip 22 is held in engagement with the lug 24 by reason of the head 25 on the arm of the trip engaging the upper surface of the bracket 23. When a key is operated, as has been explained, the lower end of the lever 20 presses downward on the trip 22, thus lifting the lower point out of engagement with the lug 24 on the lid of the cash-box and releasing the lid, which is drawn rearward by the spring 4, as has been described.

Instead of having registering-wheels and similar complicated and expensive mechanism I employ balls or similar counters in this machine. In the upper portion of the cash-register, as seen in Figs. II and III, a hopper or receptacle 26 is placed, extending trough-like from one side of the machine to the other and at its lower end tapering, substantially as shown. A hinged lid 27 is provided in the top of the casing for the insertion of the balls 28. The receptacle 26 is provided with a series of tubes 29, extending downward from its lower portion for the purpose of conducting balls from said receptacle. There is one of these tubes for each key. They lead to a series of visible tubes 30 in the frame 31. The tubes 30 are of substantially the same diameter as the balls or counters and are provided with a slotted opening in the front through which the balls cannot escape from the tubes, but through which the balls can be seen. This is for the purpose of showing that there is a supply of balls, so that one will be ready to be deposited upon the operation of a key. The front of the upper portion of the casing is provided with a glass covering 32, through which these tubes 30 and the balls therein are clearly visible. The tubes 30 register with the aperture in the sliding plate 14, said aperture being substantially a continuation of the tubes 30 while said plate 14 is in its rearward position. The balls are prevented from escaping through said aperture while the plate 14 is in the rearward position by means of a horizontal flange, lip, or plate 33 on the upper rear portion of the plate 34, on whose front face a series of parallel zigzag ribs 35 is located, as seen in Fig. I. Between these zigzag ribs, the plate 34 behind, and the glass covering 32 in front there is a passage-way or chute that corresponds with each key of the machine, and through which a ball is removed from the aperture in the plate 14 and the tube 30 above

when a key is actuated. The purpose of the zigzag passage-way is to direct the attention of the purchaser as the ball rattles down upon the operation of the key. The plate 14 is substantially the same thickness as one of the balls, so that whenever said plate is moved forward by the operation of a key and a bell-crank 11 pushing forward on the plate 14 one ball only will be discharged into the corresponding zigzag passage-way. From the zigzag passage-way the balls enter passage-ways formed by the ribs 36 on the plate 37, as seen in Fig. III. These passage-ways are inclined somewhat downward to the rear. At the rear of said passage-ways a guard-plate 54 extends from one side of the machine to the other to prevent the escape of the balls to the rear and to cause the balls to enter one of the tubes 55.

In the back and lower portion of the machine I have secured a ball-receiver consisting of a series of longitudinal partitions 38 and a series of partitions 39, running the other way, whereby the ball-receiver is divided into a large number of small rectangular compartments. The partitions 39, extending from front to rear, are stationary, while the partitions 38 are vertically slidable somewhat, as seen in Fig. IV. There it is observed that the partitions 38 have on both sides a series of slots 40 below and 41 above, through which the partitions 39 extend. On the other hand the partitions 39 are provided with a series of slots 42 longer than the unslotted portions of the partition 38, so that such unslotted portion of the partition 38 can be elevated by means of the ring 92 far enough at least to permit the escape of balls under the partitions 38 and will be held elevated by the hook 93 being caught over a partition 39. The bottom 44 of the ball-receiver is inclined downwardly and rearwardly, so that a ball will roll rearward out of said receptacle unless prevented by the downwardly-extending webs between the slots 40 in the partition 38. Likewise the upper surface, as seen in Fig. IV, of said ball-receiver is inclined downward and rearward, as seen in Fig. V. A ball that has entered one of the tubes 55 will pass therefrom into one of the passage-ways immediately below, formed by the ribs 45 on the plate 46, that is secured to the upper front portion of the ball-receptacle, as seen in Figs. III and V.

The various compartments in the ball-receiver are covered by a series of valves or lids 47, secured on a rod 48, that extends from one side of the machine to the other through and with bearings in the partitions 39, somewhat below the upper edge of such partitions. All the valves or lids 47 on one rod are rigidly secured in line with each other, so that a partial rotation of the rod 48 will open every compartment in one of the rows extending from one side of the machine to the other, as seen in Figs. II and III. In the machine here shown I exhibit four rows of these valves to

close four rows of compartments. Each series of valves is formed in the same manner as seen in Fig. V, and when they are turned down, as there seen, a ball can roll down over the valves through the passage-ways formed by the ribs 45 upon the plate 46 and enter one of the last or rear series of compartments, which are not provided with lids or valves, as seen in Fig. V.

The passage-way for the balls from the receptacle in the upper part of the machine to the receiver in the lower part is readily seen and traced in Figs. II and III. When, however, one of the valves or lids is open, as seen in Figs. II and III, it is clear that a ball will be stopped by such valve and caused to enter the compartment under it. The series of compartments are in cross-rows. There is a series or row of compartments extending from the front to the back of the machine registering with the passage-way formed by the ribs 45 on the plate 46. There is one of these series of compartments for each key as well as for each passage-way for balls through the machine. Therefore every ball dropped by one key will be deposited in one of the compartments arranged in the series or row extending from the front toward the rear of the machine. For example, the one-dollar key at each operation will deposit one ball, and every ball it deposits will be deposited in one cross-series of compartments extending from front to rear. Looking, however, at the series of compartments in the ball-receptacle extending from one side of the machine to the other, the longer series, each of such series is adapted to receive only balls representing a certain class of transactions or representing the transactions of a certain clerk. For example, the series marked in Figs. II, III, and IV, as 49 will receive balls representing sums of money paid out. The second row, the series marked 50, will receive balls representing cash paid in to a certain clerk, say clerk No. 1. The series marked 52 will receive balls representing cash paid in to clerk No. 2, and so on. The final series 53, with no valve or lid over them, are adapted to receive balls representing miscellaneous transactions not otherwise provided for by the machine.

The operation of a series of valves or lids covering the series of compartments marked 49 for receiving balls representing sums paid out is by the following mechanism. On the left-hand side of the machine shown there is a special "Paid-out" key 56, to be seen in Fig. II, actuated by the spring 57. On the shank of said key 56 I secure a rigid arm 58, extending rearward between the ball-receiver and the left-hand side of the case. The rear end of the arm 58 is provided with a horizontal slot in which a crank 59 is secured to or integral with the end of the row 48, to which the first series of valves is secured, as seen in Fig. V. When the valves are closed, said crank 59 extends rearward in a horizontal position, so that when the "Paid-out" key is

pushed down or operated the arm 58 will likewise be depressed, and thereby the crank 59 will be turned from a horizontal position down to a vertical position, the extent of the movement being a quadrant. This movement will open the valves, as seen in Fig. III. To the rear end of the arm 58 a vertical link or rod 60 extends up along the side of the case, its upper end extending through the eye of the crank 61 on the rod 62. Below the eye of the crank 61 the stop or nut 63 is secured on the rod or link 60, and above the eye of the crank 61 the end of the rod 60 is bent to make a stop 64. The stops 63 and 64 enable the rod 60 to actuate the crank 61 in both directions. The rod 62 is pivotally mounted in the brackets 65, secured to the side of the case. The front end 66 of said rod is bent so that it extends from the side of the machine to the middle thereof almost horizontally, and at its end it is secured to the indicating plate or card 67, on which the words "Paid you" may be printed. This card or plate operates in the guide or bracket 68, so that when the plate is depressed it will register with the opening 69, to be seen in Fig. I, and which there contains the words "You paid." The words "You paid" are printed on the front face of the guide or bracket 68 directly behind the opening 69. It is clear that when the card or plate 67 containing the words "Paid you" is moved downward to a position of exposure it will be in front of the words "You paid," that are to be seen in Fig. I, and will obscure the latter from view and will reveal the words "Paid you."

When a clerk desires to take money out of the cash-register, he in the first place operates or depresses the key 56, it assuming the position shown in dotted lines in Fig. III. Through the arm 58 the front set of valves is opened, as seen in Fig. III, and through the mechanism above described the "Paid-out" card or plate is moved downward behind the opening 69, so as to be in view. When the key 56 is depressed, a lug 70, secured to the shank of the key, is depressed from the position shown in full lines in Fig. III to that shown in dotted lines. Then the clerk operates the key representing the amount he wishes to take from the cash-register, and such operation of the key opens the lid to the money-box, whereby he can procure the amount he desires. When the lid to the cash-box is thus opened and moved rearward, its edge lies above the lug 70 on the shank of the key 56, so that the lid holds the key 56 down, as well as the set of valves for the "Paid-out" compartments open and the "Paid-out" card in view in the upper part of the machine. When the key representing the amount to be taken out is operated, a ball is removed from one of the sliding plates 14 and by gravity passes down the passage-way provided for the balls, and because the valves for the "Paid-out" compartments are open such ball will enter the proper one of such compart-

ments—that is, the one corresponding to the key operated. After the money has been removed the clerk closes the lid to the cash-box, thus causing it to disengage the lug 70 on the shank of the “Paid-out” key 56, and the spring 57 is enabled to return said key to its original position. The upward movement of the “Paid-out” key will cause the arm 58 to return the crank 59 on the valve-rod 48 to its original horizontal position, as seen in Fig. V, thus closing the said valves. The return of the key 56 will also, by means of the mechanism heretofore described, cause the return of the “Paid-out” card or plate 67 to its original position out of view. By exactly the same kind of mechanism the compartments for the various clerks are opened and the number of the clerk revealed at the front of the machine. For example, the keys 71 in Figs. II and III in the machine, as shown, represent certain clerks. They are used only when sums received or paid to said clerks are being registered. In such case the clerk presses down his key, and by means of mechanism similar to what has been described with reference to the “Paid-out” key the proper set of valves over the proper series of compartments are operated and opened, also a card or plate 73, as seen in Figs. I and X, will disclose the number of the clerk. After the clerk has depressed his key he operates a money-key representing the amount which he desires to register, and when he does so the lid 3 will be withdrawn and by its engagement with the lug 70 on the shank of the key 71 that has been operated will hold the proper valve open and disclose the proper number of the clerk. At the same time a ball will be deposited in the passage-way registering with the money-key operated, and, passing through such passage-way it will enter a compartment in the series of compartments devoted to the reception of balls representing the sums paid in to that particular clerk. If any sum is to be registered by other persons than clerks who are provided with keys or relating to a transaction not otherwise classed or provided for by the machine, no side key is operated, but only the appropriate money-key. In such case the valves are all left closed, and the ball deposited in the proper passage-way will pass through it and over all the valves into the rearmost series 53 of compartments in the ball-receiver. When, however, it is desired to enter the cash-box with reference to some transaction that does not relate to money paid out or money paid in—such as, for example, furnishing change—the lid 3 is opened by the “No-sale” key, to be seen in Fig. VII. The construction of the lever mechanism to which said key is secured does not differ from the rest excepting that the plate 14 is not provided with an opening to receive a ball, so that when said key is operated no ball is deposited.

The following mechanism is used to indicate to the public the amount registered as

paid in or paid out: At the rear of the machine a cross-bar 72 extends from one side of the machine to the other and is provided at each end with a depending lever 73, pivoted to the sides of the casing at 74, as seen in Fig. III. A latch 75 is pivoted at one side of the machine to the lever 73 and moves to and fro loosely through an opening in the bracket 76, secured to the side of the case. The under surface of such latch 75 is provided with an incline at 77, whereby when said latch 75 is moved forward it is elevated, and vice versa. The forward end of such latch 75 is provided with a hook 78, that catches over the plate 17. Above, a rod 79 extends horizontally from one side of the machine to the other, and on it there is a series of levers 80, pivoted centrally, with the rear arm heavier than the front one, there being one of such levers for each money-key in the machine. On the front end of such levers 80 I secure tablets 81, indicating the sum represented by the money-key with which it registers. When the front end of said levers 80 are depressed, said indicating-tablets are moved down into the position shown in Figs. I and III, the former showing the registry of forty-five cents. Said levers 80 are operated by the upper ends of the bell-crank levers 11. The upper ends of the latter are curved or bent backward, as seen in Figs. II and III, and engage, when elevated, the extension 82 on the side of the rear arm of the lever 80. From this it is seen that when a money-key is depressed the rear arm of the appropriate lever 80 will be elevated, thus moving the proper indicating-card down into view. As a money-key is operated the upper arm of the bell-crank lever 11 is moved forward and it engages and forces forward the plate 17. Said plate by engaging the hook 78 on the latch 75 will draw said latch forward, thus through the lever 75 moving the cross-bar 72 rearward sufficiently far to cause it to disengage the rear arm of the lever 80 which was actuated when the last preceding amount was registered. The lever 80 thus disengaged returns to its normal position, because the rear arm thereof is heavier than the front arm, and when it returns to its normal position it moves the indicating-tablets on it out of sight. However, as the key-lever 11 continues to move the plate 17 forward and the latch 75 moves farther to the front by reason of the inclined surface 77 causing the front end of said latch to be elevated the hook 78 disengages the plate 17. This does not occur until after the lever 80 which was operated by the preceding registry has been disengaged by the cross-bar 72 and not until after the operation of the key then in process has sufficiently actuated the lever 80 that registers therewith so that its rear arm has been moved above the cross-bar 72. As soon as such hook disengages the bar 17 the latch 75, lever 73, and bar 72 return to their normal position by reason of the spring 83, fastened to the side of the casing, which draws

the said cross-bar 72 forward. When said cross-bar 72 thus is moved forward, it supports the rear end of the lever 80 that has just been elevated, thus holding the indicating-card in view after the money-key has been released and until the next one is operated.

Turning now to the counting mechanism—the means for determining the amounts of the various sales registered—it will be observed that the back 84 of the case is pivoted at 85 a slight distance from the bottom and the upper end is held in place by a lock 86. After the day's transactions the lock 86 is opened and the back turned backward and downward into the position shown in Fig. IV. When the back is turned downward, as therein shown, what was previously its lower end becomes its upper end and comes into close engagement with the rear lower portion of the ball-receiver. The inside of the back is provided with a number of grooves 87, as seen in Fig. VIII, there being one groove for each passage-way in the ball-receptacle from the front to the rear, and therefore one groove for each money-key in the machine. A bar 88 across the lower end of the back, or upper end when thrown backward, as seen in Fig. VIII, forms a part of the back. On this bar there are numerals for each ball passage-way corresponding with the numerals on the money-keys. The mouths or entrances of said passage-ways are enlarged or funnel-shaped, as seen at 89 in Fig. IX, and since the funnel-shaped mouths of the passage-ways are turned up toward the outlet from the ball-receptacle, as is shown in Fig. IV, when the vertically-sliding partitions 38 in said receiver are elevated the balls will roll down into the passage-ways 87 in the back. The balls issuing from a certain compartment or passage-way in said ball-receiver always go into the corresponding passage-way in the back and roll down to the bottom, as seen in Fig. VIII. The passage-ways in the back are covered by a glass 90, held in place by the clasps 91, so that the balls will be held in their passage-ways and yet be visible. The diameter of the passage-ways is substantially that of the balls, so that they will always lie one upon the other. The back is then graduated, as shown in Fig. VIII, so that one can readily determine the number of balls in any passage-way. For example, in the "\$10" column it is clearly seen that there are eleven balls, showing a registry of one hundred and ten dollars. This amount in the counting is noted on a piece of paper. Then it is observed that in the "\$5" column there are seven balls, making a registry of thirty-five dollars. This likewise is noted. This process is repeated until all the columns are counted, and when the amounts of the different columns are added they furnish the total.

The totals of the various classes of transactions or the various clerks are determined in the following manner: After the back has been turned down in the position shown in

Fig. IV the rear sliding partition 38 is elevated by means of the ring 92, whereby all the balls which have been accumulated in the rear series of compartments 53 in Fig. IV are permitted to roll down and enter the counter. These balls represent miscellaneous transactions, as has been heretofore explained. The total of them is determined as has been described above. Then the balls are removed from the counter. This is done by slightly rotating the tube 93 by means of the finger-piece 94 until the openings 95 in said tube (seen in Fig. IV) register with the ball passage-ways in the counter or back. Then all the balls therein roll down into the tube, and since the tube is placed in an inclined position they roll out of the lower end into one's hand or other receptacle. They are then returned to the ball-receptacle 26 and the spring 96 returns the tube to its normal position, so that the openings 95 do not register with the passage-ways 87 in the counting device and the balls are prevented from entering said tube until the operation above described has been repeated. After the balls representing the miscellaneous transactions have been determined the next sliding partition is elevated, from which come all the balls representing sums paid to, say, clerk No. 3. The total of his sales is determined in the manner above described and the balls are removed. This process is continued until all the balls have been removed from the ball-receiver, the last set of balls in the machine here shown indicating the sums paid out.

From the foregoing description of the mechanism and operation of the machine it is seen that balls are deposited in certain predetermined compartments, whereby the value of the balls when it comes to counting is determined. This can be accomplished in the manner I have indicated of providing a separate key for each passage-way and the ball finally entering its proper compartment in the stationary ball-receptacle. Another way to accomplish the same result is to have, say, one key and passage-way to be operated in all cases regardless of the amount and to have a rotary ball-receiver containing the appropriate compartments to receive the balls, whereby their value is determined. In such modified form the ball-receptacle is rotated until the compartment intended to receive the balls for a certain amount or a certain purpose registers with the one single passage-way. Then the key of the machine is operated, the lid of the cash-box opens, and a ball is deposited. A scale can be placed on the base of the machine around the rotary cash-receiver or otherwise, containing the various amounts such as are here shown on the keys, to indicate to what place the ball-receptacle should be rotated in order that the ball shall enter the proper compartment. In such case the ball-receptacle is made round instead of square and the counting mechanism is made to suit.

It is also observed that the nature of the construction of this machine is such that its cost will be very slight as compared with other kinds of constructions to accomplish the same purposes. Furthermore, it is so constructed and operates in such manner that it will accomplish effectually all the purposes intended and cannot be "beaten." For example, no key can be operated without dislodging a ball and revealing the corresponding indicating-card, whereby the purchaser or bystander could see the amount registered. It would be impossible to reveal an indicating-card for a certain amount by operating a key for a less amount. It is also impossible to open the lid to the cash-box without operating a key and depositing a ball, excepting when the "No-sale" key is operated, and when it is operated the indicating-card should show "No sale." Each clerk would be careful to operate his key, because he would not want to deposit balls to the credit of another clerk and to the detriment of himself. The balls and ball-receiver would be entirely inaccessible to a clerk if the cash-register were locked. In counting there is no opportunity for error, as each ball is as easily counted and is as distinct as the piece of money that it would represent.

Another feature of this machine is that two keys can be simultaneously actuated and the indicating-card for each will remain in view. For example, when it is desired to register one dollar and fifty cents the clerk can operate the key for one dollar and the key for fifty cents simultaneously. Then the whole operation of the two keys will be throughout simultaneous, and the two indicating-cards will be revealed and kept in a revealed position, one showing a dollar and the other fifty cents, the total being the true amount of the sale.

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

1. The combination in a cash-register, of a suitable receptacle for balls or counters, a compartment for each amount of money or kind of transaction to be registered, a passage-way leading from said receptacle to such compartments of sufficient dimensions to permit the passage by gravity of one ball or counter and consisting of an upper and lower portion, the latter being visible, a sliding plate or valve between the upper and lower portions of said passage-way having an aperture in it that normally registers with the upper portion of the passage-way and of such dimensions as to receive one ball or counter, a spring that normally holds said plate or valve so that the aperture therein registers with the upper part of the passage-way, a plate at the upper end of the lower portion of the passage-way to form a bottom for the aperture in said sliding plate or valve while in its normal position, and a key-lever pivoted in the machine with an upwardly-extending arm that when actuated moves the sliding plate or valve so that it will discharge the ball or

counter it contains into the lower portion of said passage-way, substantially as set forth.

2. The combination in a cash-register provided with a receptacle for balls or counters, of compartments to receive the balls or counters, and passage-ways from the receptacle to such compartments a portion of which are formed by a rear vertical plate having substantially vertically-extending parallel zigzag ribs or partitions and a glass cover against or in front of said ribs or partitions, substantially as set forth.

3. In a cash-register, a series of compartments arranged in cross-rows with passage-ways across the same from front to rear, each registering with a certain key, and valves or lids for said compartments, whereby a ball may be deposited or caused to pass over any one of them as desired.

4. In a cash-register, a series of compartments arranged in cross-rows with passage-ways across the same from front to rear, each of which registers with a certain key, and valves or lids for said compartments, whereby a ball may be deposited in any one of them as desired, and suitable keys and connections for opening said valves.

5. In a cash-register, suitable keys, suitable ball passage-ways, one for each key, a series of compartments arranged in cross-rows, the rows from front to rear provided with a passage-way above to receive the balls or counters deposited by a certain key, valves for all in a row from one side to the other of the machine being mounted on and operated in unison by a suitable rod, and keys for operating each series of said valves or lids, whereby the balls or counters may be classified not only according to the amount but also according to the nature of the transaction or the person connected therewith.

6. In a cash-register, a series of compartments to receive balls or counters, valves or lids for such series of compartments secured to a single rod having at one end a crank, and a spring-supported key provided with an arm having in it an aperture to receive said crank, whereby when said key is operated the series of valves or lids will be opened.

7. In a cash-register, an inward-sliding lid for the cash-box, a series of compartments for receiving balls or counters, valves or lids for said compartments mounted on a single rod, a spring-supported key mounted beside said cash-box lid for opening said series of valves, and a lug so located on said key that, when said key is depressed and the cash-box lid is opened, the lug will engage the under side of the lid, whereby the series of valves will be held open until the cash-box is closed.

8. In a cash-register, a series of compartments to receive balls or counters representing some class of transactions or some person, a series of valves to admit or exclude balls or counters from said compartments, a key for operating said valves in unison, an opening in the front of the casing, a card in-

dicating the person or class of transactions to which such series of compartments is devoted, and a suitable connection between such indicating-card and said key, whereby said indicating-card will be moved into view when the key is operated and said valves opened.

9. In a cash-register, a series of compartments to receive balls and counters, said compartments being arranged in cross-rows with the top and bottom thereof inclined downward toward the rear of the machine, valves or lids for said compartments, and means for operating the same.

10. In a cash-register, a receiver for balls or counters, after they have been deposited by the machine, with a bottom inclined toward the rear of the machine, and a vertical sliding plate or partition forming the rear wall of such receiver, whereby when said partition is elevated the balls will escape.

11. In a cash-register, a ball or counter receiver whose bottom is inclined downward toward the rear of the machine and divided into compartments by partitions extending from the front to the rear, vertically-movable partitions extending from one side of the machine to the other, whereby said receiver is divided into series of compartments in cross-rows and by elevating the movable partitions the balls and counters can escape from said receiver.

12. In a cash-register, employing balls or other similar counters, a receiver for such balls or counters after they have been deposited by the machine divided into compartments corresponding with the keys of the machine, and a counting mechanism comprising a series of passage-ways, whose diameter is substantially that of a ball or counter and registering with the compartments in said receiver, to receive the balls for counting.

13. In a cash-register which deposits a ball or counter when an amount is to be registered, a counting device comprising a series of tubes or passage-ways for the various distinct

amounts that may be registered, said passage-ways disclosing said balls or counters and being of substantially the same diameter as a ball or counter, and a scale for indicating the number of balls or counters in said passage-ways.

14. In a cash-register adapted to deposit a ball or counter for each amount to be registered, a series of compartments to receive the balls and counters, each compartment adapted to receive a ball or counter when a certain amount is registered, and a counting device comprising a board with a series of slots or passage-ways therein, said passage-ways registering with the separate compartments so that the balls or counters will enter said passage-ways from said compartments and said passage-ways or grooves having a diameter substantially that of a ball or counter, a glass covering for such grooves or passage-ways, and a graduated scale marked out upon said board to determine the number of balls in each of said passage-ways.

15. In a cash-register wherein a ball or counter is deposited when an amount is to be registered, a counting mechanism consisting of a series of vertical tubes or passage-ways to receive said balls or counters, and a rotatable tube mounted in an inclined position immediately under said passage-ways and having openings therein that register with such passage-ways, whereby when the tube is rotated so the openings will register with the passage-ways of the counter, the balls and counters therein will enter said tube and be removed, and when said tube is rotated so the openings therein will not register with said passage-ways, it will close them at the bottom.

In witness whereof I have hereunto set my hand this 22d day of March, 1897.

DAVID A. GREEN.

Witnesses:

W. A. LAWLER,
C. E. HASTINGS.