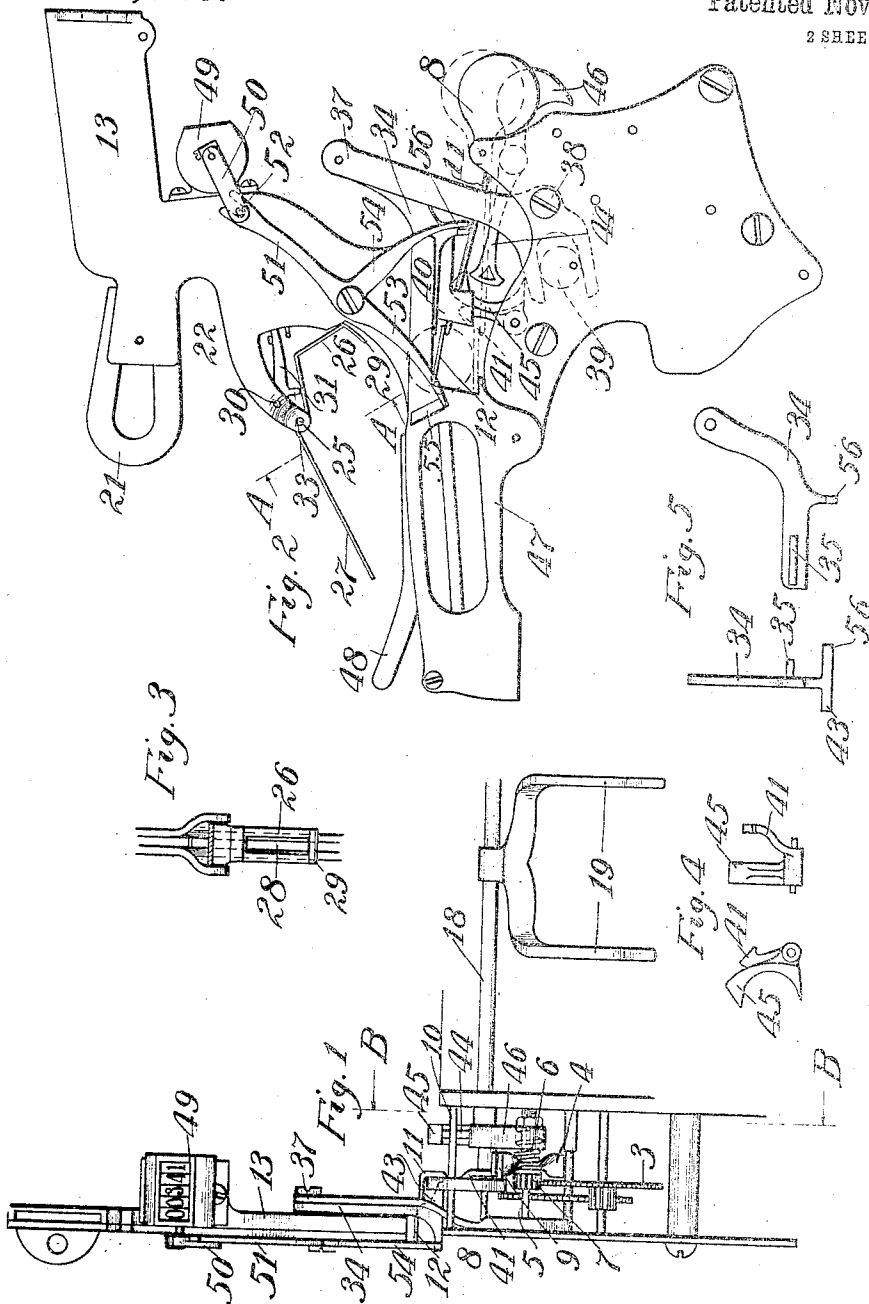


F. C. KAINER.
CHECK CONTROLLED MECHANISM.
APPLICATION FILED MAR. 17, 1909.

941,716.

Patented Nov. 30, 1909.

2 SHEETS—SHEET 1.



Witnesses.

Edwin Phelps
Mary M. Dillman

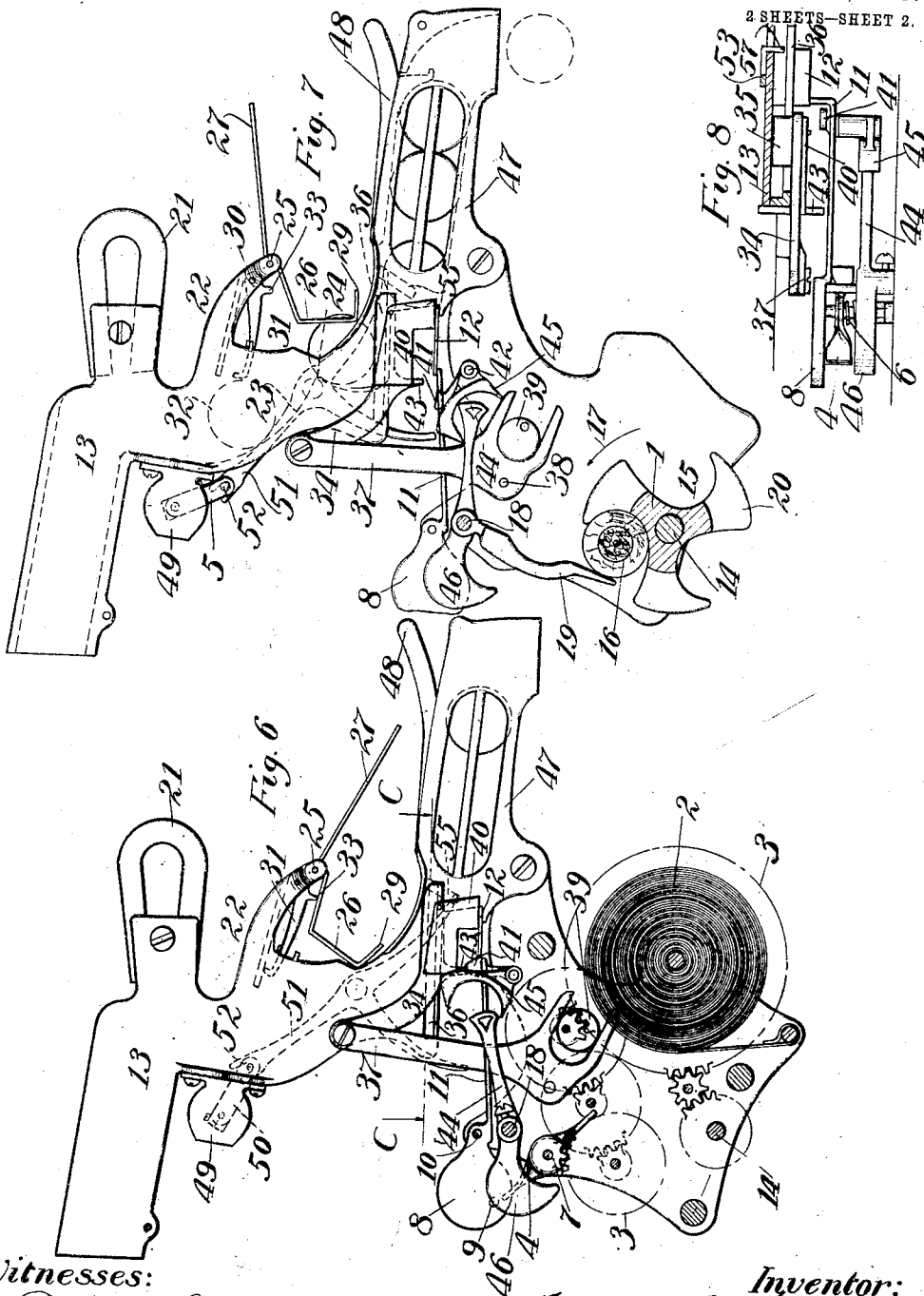
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Witnesses:

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UNITED STATES PATENT OFFICE.

FREDERICK C. KAINER, OF SOUTH HAVEN, MICHIGAN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO POPE AUTOMATIC MERCHANDIZING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

CHECK-CONTROLLED MECHANISM.

941,716.

Specification of Letters Patent.

Patented Nov. 30, 1909.

Application filed March 17, 1909. Serial No. 483,901.

To all whom it may concern:

Be it known that I, FREDERICK C. KAINER, a citizen of the United States of America, and a resident of South Haven, Van Buren county, Michigan, have invented certain new and useful Improvements in Check-Controlled Mechanisms, of which the following is a specification.

The main objects of this invention are to provide certain improvements in check controlled mechanisms; to provide improved means for insuring the positive discharge of coins or checks after their presence in the check controlled mechanism has caused the operation of a machine; to provide improved means for registering the number of coins which have caused the operation of the machine; to provide improved coin-detecting devices for discriminating between coins having different characteristics; to provide in a device of this kind, wherein the mechanism is actuated by the weight of a coin, improved means for insuring the continued operation of the machine after the discharge of the coin; and to provide improved means for positively stopping the machine without shock to the driving mechanism after the machine has performed a certain function.

A specific embodiment of this invention is illustrated in the accompanying drawings, in which:

Figure 1 is a front elevation of a check-actuated apparatus constructed according to this invention and of a design suitable for controlling the spring motor of a cigar vending machine. Fig. 2 is a side elevation of the same. Fig. 3 is a section taken on the line A—A of Fig. 2 and illustrating the arrangement of the aperture in the coin selecting lever. Fig. 4 shows two views of the latch which holds the controlling element in position for permitting the motor to run. Fig. 5 shows two views of the part which discharges the coin from engagement with the controlling element. Fig. 6 is a section taken on the line B—B of Fig. 1. Fig. 7 is a similar view, but showing the parts in the relative positions which they occupy just before the machine is stopped by the delivery of a cigar, the trip fingers which engage the cigar and the cigar delivering drum being indicated in the foreground, the latter

being in section. Fig. 8 is a sectional detail on the line C—C of Fig. 6, showing the relation of the controlling element, the catch for securing it, and the lever which releases said catch.

In the construction shown in the drawings, the various parts are arranged so as to be suitable for the controlling of a cigar vending machine, such as is made the subject matter of my copending application Serial Number 483,900 filed of even date herewith, the vending mechanism being illustrated merely by the spring motor which operates it and by the delivery member or drum 1 (Fig. 7). The motor is represented in Fig. 6 by the spring 2 and the dotted pitch lines of its gear train, and a few of the gears are also shown in other views in connection with some of the parts with which they have cooperative relation, the gears being designated 3. The speed of the motor is controlled by means of a governing fan 4 which is loosely mounted upon the shaft 5 of one of the pinions of the gear train, said pinion being normally prevented from rotating independently of the fan by the friction caused by the spring 6 which forces the fan 4 into tight engagement with a washer interposed between the pinion 7 and fan 4. The starting and stopping of the motor is controlled by the controlling element 8 which is provided with a detent 9 movable into and out of the path of the vanes of the fan 4, the element 8 being pivotally mounted at 10 and counterweighted so as to normally urge the detent 9 into position for stopping the fan. The friction between the fan and the pinion due to the pressure of the spring 6 is sufficient to positively prevent the operation of the motor, but said friction connection permits the fan to yield sufficiently, on being suddenly stopped by the detent 9, to absorb the shock and thereby prevent injury to any of the parts of the motor by sudden stoppage. The controller element 8 is provided with a wire arm 11 which is bent at right angles near its free end where it carries a pan 12, which pan extends across the coin chute 13 in such manner as to be engaged by coins which have successfully passed the selecting devices.

The delivery drum 1 is fixed on the hori-

zontal shaft 14 which is connected with one of the gears of the train 3, and said drum is provided with pockets 15 which carry the articles, in this case cigars, and deliver the same singly and in succession from a suitable magazine, not shown. One of the cigars is indicated at 16 in Fig. 7. The articles are delivered from the machine by rotation of the drum 1 in the direction of the arrow 17. Journalled above the drum, in parallel relation to the axis thereof, is a shaft 18 which has fixed thereon a pair of fingers 19 which extend into the path of the cigars 16 which are carried by the drum 1. The walls of the drum which lie between the pockets 15 are slotted at 20 so as to permit the fingers 19 to extend into the pockets 15 without being affected by the rotation of the drum when no cigars are present in the pockets 15. These fingers serve to cause the stopping of the motor after the delivery of each cigar, as will hereinafter appear.

The coin chute is horizontally disposed at its upper part, being slightly inclined to insure that the coins roll freely along it so as to enter the vertically disposed part. At the entrance of the vertically disposed part of the chute there is a magnet 21 which deflects slugs of iron or steel so as to cause them to roll out of the branch passage 22 where they will fall clear of the operating mechanism. Below the branch passage 22 the front wall of the chute curves rearwardly, as indicated by dotted lines 23 in Fig. 7, and then bends downwardly at 24. Pivottally mounted at 25 is a coin selecting lever 26 which has a rearwardly extending arm 27 forming, when in its normal position, a continuation of the bottom of the branch passage 22, as shown in Fig. 6. The weight of the arm 27 normally holds the lever in this position. The arm 26 has an aperture 28 through it to permit the escape of coins which are of a smaller diameter than that of the coin of proper denomination for operating the machine, and such smaller coins therefore pass freely through the arm 26 and are prevented by the rearwardly extending part 29 of said arm from falling upon the pan 12. Coins of proper size lodge in the aperture 28 and cause the lever to swing back as in Fig. 7, whereupon the coin falls along the chute and is supported thereby above the pan 12, causing the controlling element 8 to swing on its pivot and release the motor. The dotted lines in Fig. 2 show the position to which the controlling element is moved by the weight of a coin resting upon the pan 12.

Pivoted at 30, above the selecting lever 26, is an arm 31 which is adapted to extend into the coin chute as indicated by dotted lines in Fig. 7, and prevent a coin from falling along the chute while a preceding coin is in contact with the selecting lever 26. The

purpose of the arm 31 is to prevent the operation of the machine by a coin of insufficient size by inserting such coin into the chute immediately behind the coin of proper size. In such case if the arm 31 were not present, the smaller coin might fall along the chute while the arm 26 is still deflected by the preceding coin, in which case the smaller coin would reach the pan 12 without being deflected through the aperture in the lever 26, and might therefore cause the operation of the machine. With the arm 31 present, such second coin is supported as at 32 in Fig. 7 until the lever 26 returns to its normal position. The lever 31 is provided with a shoulder 33 which when engaged by the lever 26 lifts the arm 31 to its retracted position and permits a coin to pass freely along the chute.

To discharge a coin from the pan 12 after it has swung the controlling element 8 to position for starting the motor, there is provided a discharging device comprising a part 34 which is mounted to slide back and forth above the pan 12. This part 34 has a lug 35 which extends through the horizontal slot 36 in one side of the coin chute so as to slide in said slot, and the front end of the part 34 is pivottally connected with a lever 37 pivoted at 38 and arranged to be oscillated by means of an eccentric or cam 39. The rotation of the cam 39 causes the member 34 to travel back and forth along the slot 36. From Fig. 8 it will be seen that the lug 35 extends into the coin chute in position for pushing a coin from the pan 12. Pivoted at one side of the member 34 is a dog 40 which is so shaped that it will bear upon the upper surface of the pan 12 and prevent the element 8 from swinging back to its initial position after the discharge of a coin from the pan until the member 34 has reached a position near the forward limit of its movement.

A catch or detent 41 is pivottally mounted on a horizontal axis 42 in such position that it may be swung into and out of engagement with the arm 11 of the controlling element 8. The member 34 is provided with a lug 43 which extends into position for pushing the catch 41 into engagement with the arm 11 when said member 34 travels toward the right of Figs. 6, 7, and 8. The lug 43 also serves as a stop for limiting the movement of the dog 40, as will be seen from Figs. 7 and 8. An arm 44 fixed on the shaft 18 engages a forked arm 45 which is rigidly connected with the detent 41 and is arranged with respect to the arm 44 so as to cause the detent 41 to be withdrawn from engagement with the arm 11 when the fingers 19 engage a cigar during the operation of the delivery mechanism, as illustrated in Fig. 7. The relative positions of the arm 44 and the fork 45 shown in Fig. 7 are due to the fact that

after the catch 41 is withdrawn from engagement with the arm 11, it falls by gravity slightly beyond the position to which it is pushed by the arm 44. The arm 44 is provided with a counterweight 46 which causes the arm 44 to normally assume the position in which it is shown in Fig. 6. Fig. 6 also shows the catch 41 in the position to which it is pushed by the shoulder 43 on the member 34.

A display rack 47 extends horizontally rearward from the coin chute at a position immediately above the pan 12 when in its lower position, so that coins which are pushed from the pan 12 will pass along said display rack. The rack is provided with openings in its sides, so that the coins within it are visible to an attendant. The coins are prevented from rolling out of the discharge end of the rack by means of a gravity latch 48 which is pivotally mounted at its forward end and adapted to yield to permit the discharge of coins from the rack through the shape of the latch 48 is shown partly by full lines and partly by dotted lines in Fig. 7.

The register indicated at 49 is of ordinary form and is operated by an oscillating lever 50 which is in turn operated by a bell crank lever 51 which has an upwardly extending arm forked to engage the pin 52 on the lever 50 and two depending arms 53 and 54. The arm 53 is bent at right angles at its end and extends into a slot 55 in the coin chute (see Fig. 2) in such position that when a coin is pushed off from the pan 12 into the display rack 47, it will operate the register. The other arm 54 extends into position for engaging a lug 56 on the member 34 so as to return the lever 51 to its initial position when the member 34 reaches the extreme forward limit of its movement.

The operation of the device shown is as follows:—When a check is inserted into the coin chute 13, it will be deflected out of the opening 22 by the magnet 21 if it is of iron or steel, but if not so deflected will pass along the chute. If it is smaller than the aperture 28 in the selecting lever 26, it will pass through said aperture and be guided by the extension 29 so as to fall clear of the pan 12. If the coin is of sufficient size to fail to pass through the aperture 28, it will cause the lever 26 to swing to the position in which it is shown in Fig. 7, thereby allowing the coin to fall upon the pan 12, where it will be supported by the chute and cause said pan to be depressed to the lower limit of its movement. This movement of the pan swings the controlling element so as to release the fan 4 from the pin 9 and allow the motor to operate. During the operation of the motor the member 34 traverses back and forth across the pan 12 through the action of the eccentric 39 and the connecting parts.

During the movement of the member 34 toward the right of Fig. 7, the coin is pushed by the shoulder 35 (Fig. 8) off from the pan 12 and into the display rack 47. The shoulder 43 at the same time pushes the catch 41 into engagement with the arm 11, as shown in Fig. 6, and said catch holds the pan 12 in its depressed position and insures the continuous operation of the motor. As the coin is pushed into the display rack, it engages the end 57 of the lever arm 53 and operates the register. During the return movement of the member 34 the register levers are returned to their initial position through engagement of the shoulders 56 with the arm 54 of the lever. The motor continues to operate until a cigar is carried by the delivery drum 1 into contact with the fingers 19, thereby swinging the arm 44 and releasing the arm 11 from the detent 41. The dog 40 on the member 34 prevents the controlling element 8 from falling into position for stopping the motor except when the member 34 is at the limit of its movement toward the left of Figs. 6 and 7. After the release of the catch 41 the counterpoise of the controlling element 8 will swing the pan 12 upward, as shown in Fig. 2, as soon as the pan is released by the dog 40, and will cause the motor to stop at the same time.

In case the pan 12 is depressed by a coin to a sufficient extent to start the motor, but to an extent insufficient to clear the lower part of the dog 40 on account of lightness of the coin or its friction with the sides of the chute, then the dog 40 will swing on its pivot and permit the member 34 to travel across the pan 12 without stopping the motor through interference with said pan. During the return stroke of the member 34 toward the front of the machine, the dog 40 will swing back into its normal position and hold the pan 12 fully depressed.

Although but one specific embodiment of this invention is herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention.

I claim:

1. In a check controlled mechanism, the combination of a machine, a motor for operating said machine, a controlling element normally urged into position for stopping said motor and adapted through the presence of a coin to be shifted into position for starting said motor, a coin chute for delivering coins to said element, and a coin selector comprising a counterbalanced lever having an arm extending across the path of coins delivered by said chute, said arm having therein an aperture adapted to permit the passage of coins of certain size and to intercept the passage of coins of larger size, and said lever being adapted to swing under

the weight of coins of such larger size and deliver such larger coins to said controlling element.

2. In a device of the class described, the combination of a motor, a controlling element arranged for starting and stopping said motor, being normally urged into position for stopping the motor and being adapted through the presence of a coin in a certain position to start said motor, means operated by said motor for discharging a coin from engagement with said controlling element, and a detent pivotally mounted adjacent to said element and having a part extending into the path of said coin discharging means and adapted to be pushed thereby into engagement with said element for holding the same in its operating position after the discharge of the check.

3. In a device of the class described, the combination of a motor, a controlling element arranged for starting and stopping said motor, being normally urged into position for stopping the motor and being adapted through the presence of a coin in a certain position to start said motor, means operated by said motor for discharging a coin from engagement with said controlling element, a detent pivotally mounted adjacent to said element and having a part extending into the path of said coin discharging means and adapted to be pushed thereby into engagement with said element for holding the same in its operating position after the discharge of the check, a machine operated by said motor, and means controlled by a certain operation of said machine for automatically releasing said element from said detent.

4. In a check controlled apparatus, the combination of a machine, a controlling element movable between positions for starting and stopping said machine, being normally urged into position for stopping the machine and adapted through engagement with a check to be urged into position for starting the machine, a check discharging device movable across said controlling element for discharging checks therefrom, and a dog pivotally mounted on said device and adapted to engage said controlling element and hold the same in its starting position after the discharge of a check therefrom and until said discharging device returns to a certain initial position, said dog being normally urged to a certain normal position and being adapted to swing on its pivot in case of interference with said controlling element.

5. In a device of the class described, the combination of a motor, a controlling element arranged for starting and stopping said motor, being normally urged into position for starting the motor and being adapted through the presence of a coin in a certain position to start said motor, means operated by said motor for discharging a coin

from engagement with said controlling element, a detent pivotally mounted adjacent to said element and having a part extending into the path of said coin discharging means and adapted to be pushed thereby into engagement with said element for holding the same in its operating position after the discharge of the check, and means comprised by said discharging device and adapted to prevent said controlling element from returning to position for stopping the motor until said device has been returned to a certain initial position.

6. In a check controlled apparatus, the combination of a motor, a controlling element movable between positions for starting and stopping said motor, being normally urged into position for stopping the motor and adapted through engagement with a check to be urged into position for starting the motor, a check discharging device operated by said motor and movable across said controlling element for discharging checks therefrom, mechanism for causing said discharging device to travel back and forth between certain positions, a lever pivotally mounted adjacent to said device and having thereon two shoulders, one extending across the path of checks discharged by said discharging device and the other extending into the path of said discharging device, whereby said lever will be moved in one direction by a check during its discharge and will be returned to a certain initial position through the return movement of said discharging device, and mechanism actuated by said lever.

7. The combination of a check controlled apparatus, a chute for delivering checks to said apparatus, a part comprised by said apparatus and adapted to discharge the checks delivered thereto, a downwardly inclined display rack arranged to receive checks discharged by said part and support them in the order in which they are received, said rack having a delivery outlet toward which the checks are forced by the accumulation of succeeding checks in the rack, and a detent adapted to prevent the checks from falling from said rack and adapted to yield when a check is forced through said opening through the accumulation of other checks behind it, said detent having a part extending outward from the rack into position to be manually retracted to cause the discharge by gravity of the coins from the rack.

8. In a device of the class described, the combination of a motor, a controlling element arranged for starting and stopping said motor, being normally urged into position for starting the motor and being adapted through the presence of a coin in a certain position to start said motor, means operated by said motor for discharging a coin

from engagement with said controlling element, a detent pivotally mounted adjacent to said element and having a part extending into the path of said coin discharging means and adapted to be pushed thereby into engagement with said element for holding the same in its operating position after the discharge of the check, means actuated by said machine for releasing said detent through a certain operation of the machine, and means comprised by said discharging device and adapted to prevent said controlling element from returning to position for stopping the motor until said device has been returned to a certain initial position.

9. In a check controlled apparatus, the combination of a coin chute, a selecting device extending across the path of checks delivered by said chute and having therein an aperture adapted to select certain sizes of checks, said selecting device being movable by checks which fail to pass through said aperture, a detent pivotally mounted near said selecting device and normally urged into position for intercepting checks approaching said selecting device, said detent

being adapted through engagement with said selecting device to be held out of position for intercepting checks in the chute when said selecting device is in its normal initial position.

10. In a device of the class described, the combination of a machine, a spring motor adapted to operate said machine, a rotary member driven by said motor, a controlling element movable into and out of engagement with said member, means normally urging said element into position for engaging said member, means adapted, through the presence of a coin, to release said element, a catch independent of such coin and adapted to hold said element out of position for engagement with said member, and means actuated through a certain operation of said machine and adapted to release said controlling element from said catch.

Signed at Chicago this 15th day of March 1909.

FREDERICK C. KAINER.

Witnesses:

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MARY M. DILLMAN.