Jan. 31, 1928. 1,657,901

G. S. RIDER

CHECK DISPENSING MACHINE

Filed Sept. 3, 1925 4 Sheets-Sheet 1

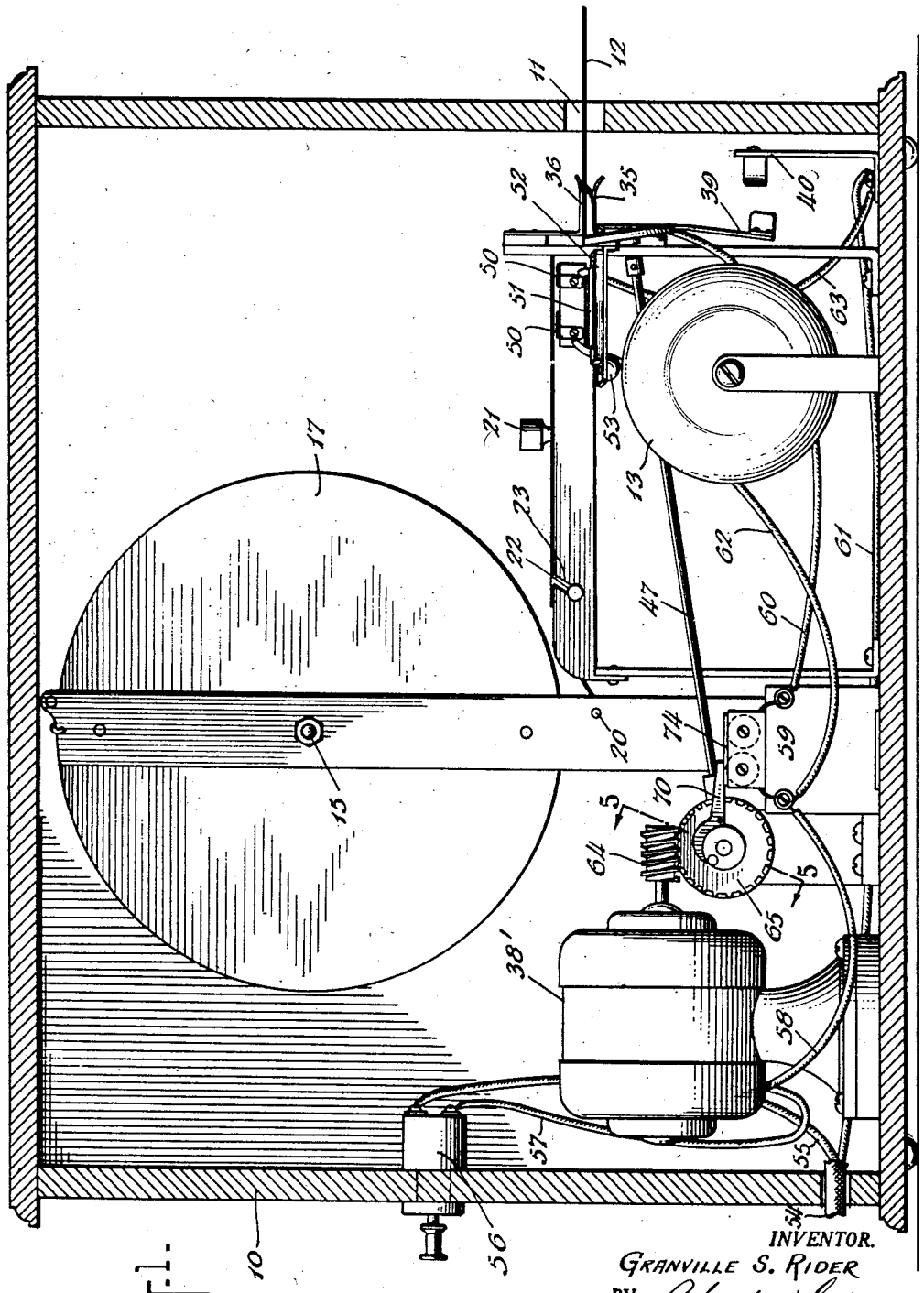


Fig. 1.

INVENTOR.
GRANVILLE S. RIDER
BY Richards & Geier
ATTORNEYS.

Jan. 31, 1928. 1,657,901

G. S. RIDER

CHECK DISPENSING MACHINE

Filed Sept. 3, 1925 4 Sheets-Sheet 2

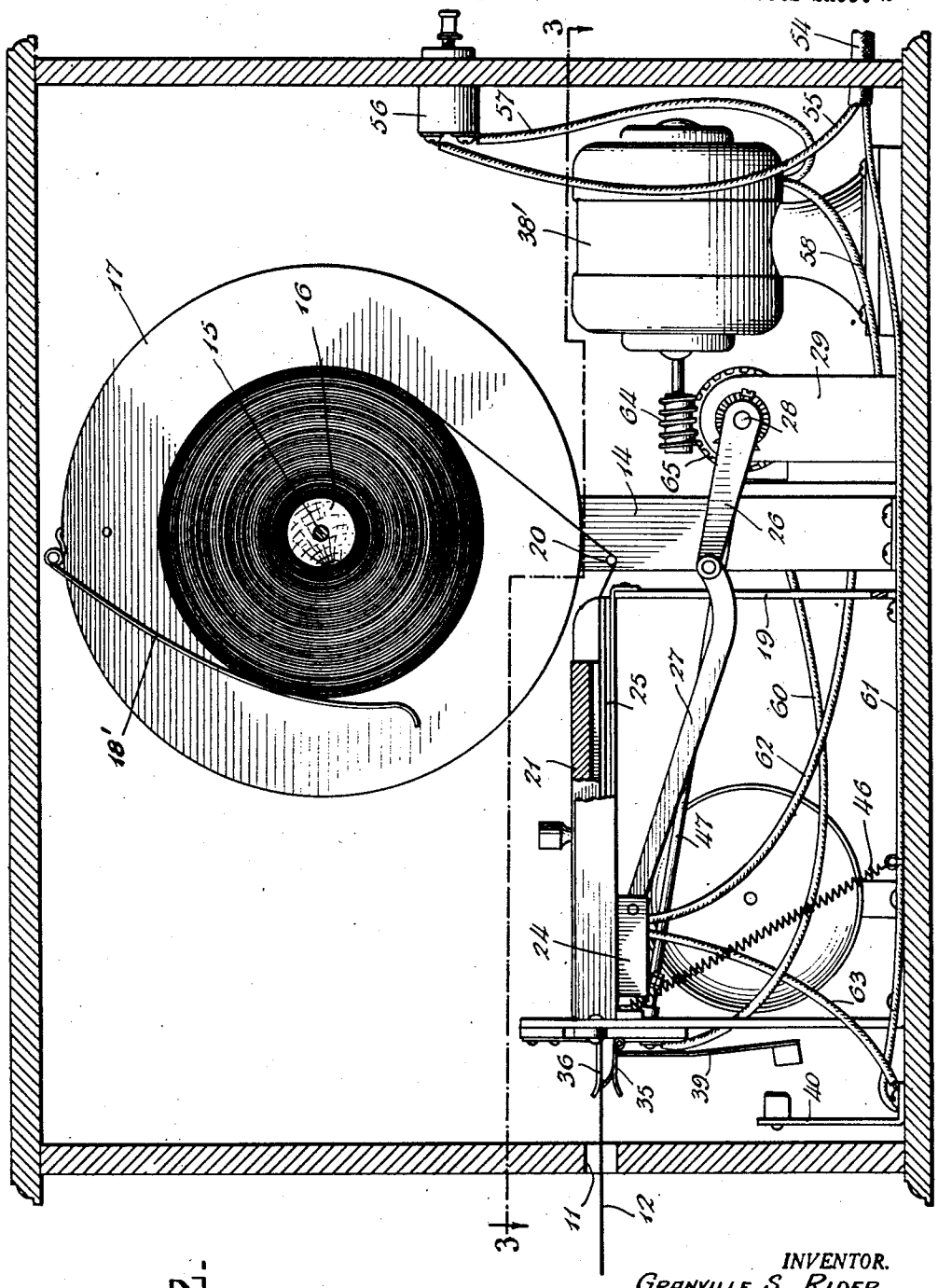


FIG. 2.

INVENTOR.
GRANVILLE S. RIDER
BY Richards & Geier
ATTORNEYS.

Jan. 31, 1928.

1,657,901

G. S. RIDER

CHECK DISPENSING MACHINE

Filed Sept. 3, 1925

4 Sheets-Sheet 3

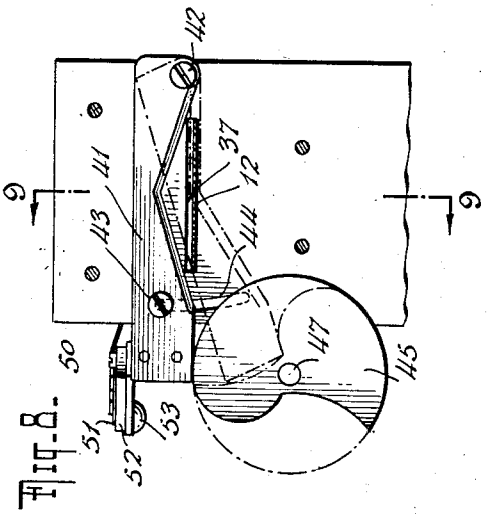


Fig. 8.

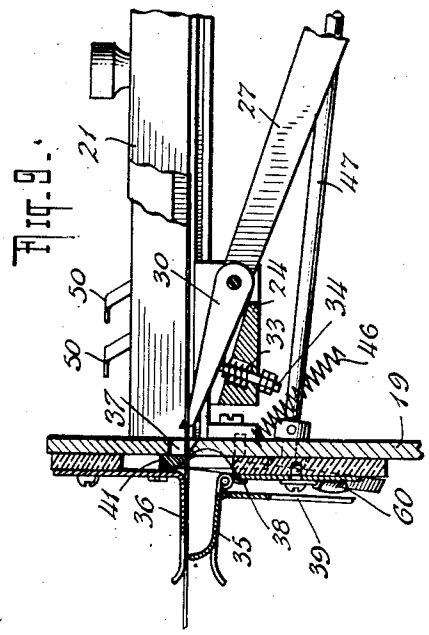


Fig. 9.

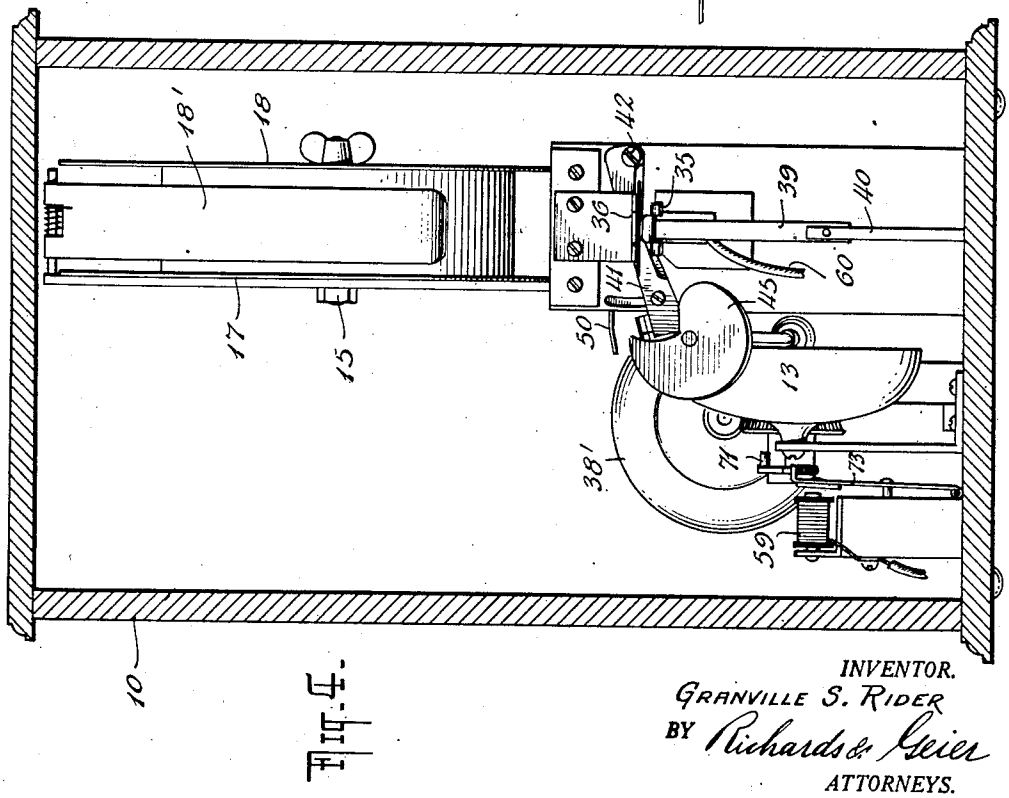


Fig. 4.

INVENTOR.
GRANVILLE S. RIDER
BY Richards & Geier
ATTORNEYS.

Jan. 31, 1928.

1,657,901

G. S. RIDER

CHECK DISPENSING MACHINE

Filed Sept. 3, 1925

4 Sheets-Sheet 4

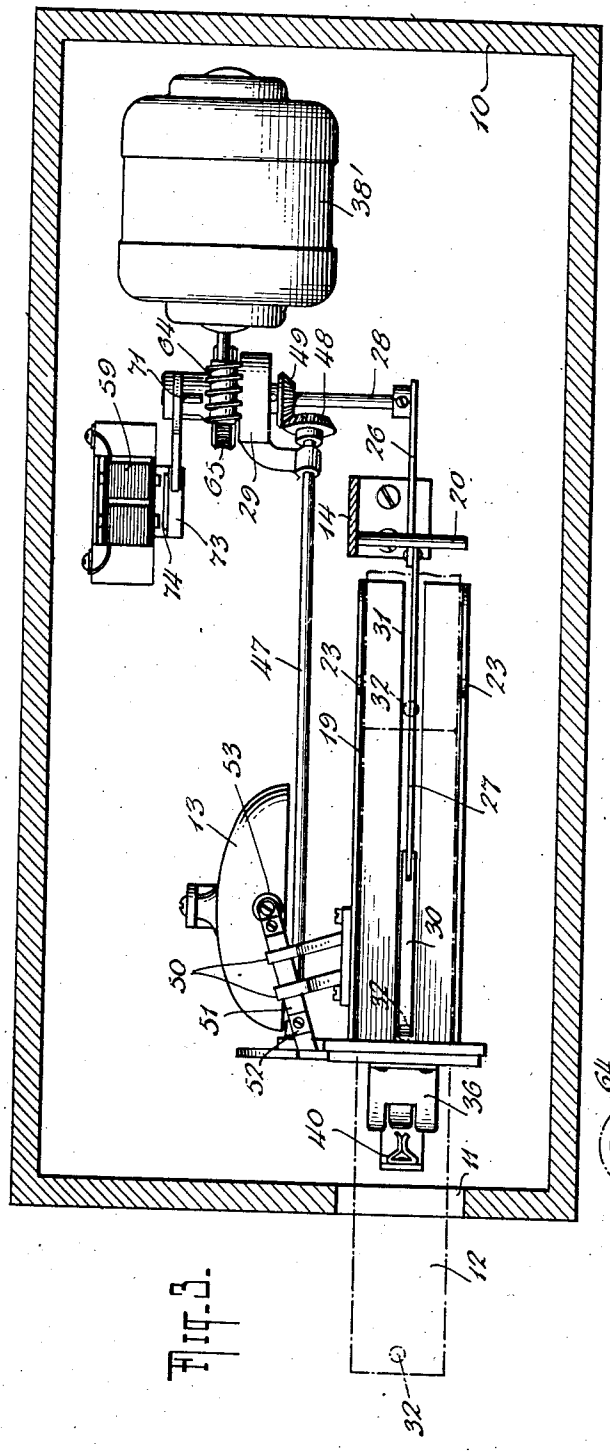


Fig. 3.

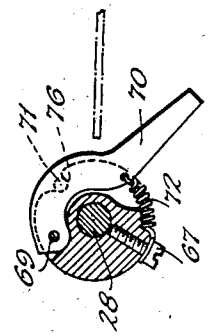


Fig. 7.

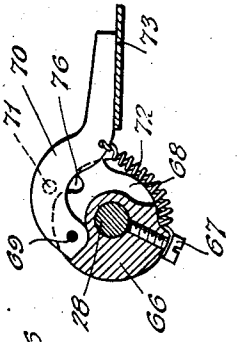


Fig. 6.

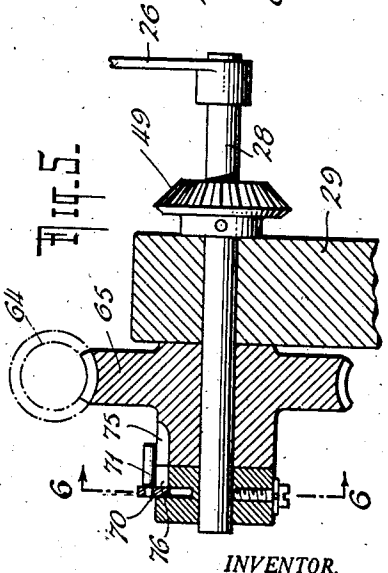


Fig. 5.

INVENTOR.
GRANVILLE S. RIDER
BY Richards & Geier
ATTORNEYS.

Patented Jan. 31, 1928. 1,657,901

UNITED STATES PATENT OFFICE.

GRANVILLE S. RIDER, OF LYNBROOK, NEW YORK, ASSIGNOR TO LOCK-STUB CHECK COMPANY, INC., OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

CHECK-DISPENSING MACHINE.

Application filed September 3, 1925. Serial No. 54,239.

This invention relates to improvements in check dispensing machines, and has particular reference to a machine of the general type disclosed in my co-pending application, Serial No. 24,905, filed April 21, 1925.

The machine of said application embodies a construction wherein checks are partially ejected, one at a time, from a magazine, the ejection of each check being controlled by the withdrawal of a preceding check from the machine. The checks are cut previous to their insertion into the magazine and are stacked therein in a single pile.

In accordance with the present invention the checks are in a continuous strip in the form of a roll and each check is automatically fed to a partially ejected position by the withdrawal of a preceding check from the machine, the latter check having been previously severed from the strip.

An object of the present invention is to provide an improved construction wherein a check attached to the strip is automatically fed to a partially ejected position by the withdrawal of a preceding check and severed from the strip so that it may be withdrawn from the machine.

Another object is to control the check ejecting and cutting mechanisms from a single source of power and to utilize the operation of said cutting mechanism to maintain said source energized during the ejection of a check.

The above and other objects will appear more clearly from the following detailed description, when taken in connection with the accompanying drawings, which illustrate a preferred emdodiment of the inventive idea.

In the drawings—

Figure 1 is a longitudinal section through the machine, the operating mechanisms being shown in side elevation;

Figure 2 is a similar view looking from an opposite direction with parts broken away and shown in section;

Figure 3 is a sectional view taken substantially on the line 3—3 of Figure 2;

Figure 4 is a sectional view through the cabinet of the machine showing the mechanisms in front elevation;

Figure 5 is a section on the line 5—5 of Figure 1;

Figure 6 is a section on the line 6—6 of Figure 5, showing the parts in inoperative position;

Figure 7 is a view similar to Figure 6 illustrating the position of the parts when in operation;

Figure 8 is a detail front elevational view of the cutting mechanism; and

Figure 9 is a view taken substantially on the line 9—9 of Figure 8.

The machine of the present invention is preferably enclosed within a cabinet 10 of any suitable construction and provided in its front wall with an opening 11 through which the partially ejected checks 12 protrude before withdrawal from the machine. One method of utilizing the machine is to place the same in a restaurant or cafeteria where each person, upon entering, may withdraw a check from the machine preparatory to eating a meal after which an attendant punches the check indicating the price of said meal. When a check is withdrawn from the machine the withdrawal thereof causes the automatic projection of another check to withdrawal position and a signal 13, preferably audible, is operated to indicate to an attendant that a check has been withdrawn. By this signal the attendant is informed as to whether any particular individual has withdrawn more than one check, thus avoiding the possibility of a person securing two checks for purposes of deception.

Secured to the bottom of the casing 10 adjacent the center thereof is a standard 14 carrying a laterally projecting pivot pin 15 intermediate its ends. Mounted for rotation on this pin is the hub 16 of the reel which further includes the side plates 17 and 18, the latter being removably mounted upon the pivot pin 15 to permit of a strip of checks being mounted on the hub 16 and the pin 15 in the form of a roll. A leaf spring 18′ is carried by the standard and engaged with the roll to maintain the strip under tension and prevent the same from unrolling. The reel just described forms a part of a magazine which further includes a platform 19 also secured to the base of the casing with its supporting surface arranged in horizontal alignment with the

opening 11. The upper portion of the platform, including the supporting surface, is in the form of a channel of sufficient width to accommodate the strip of checks which is laid into the rear end of the channel around a pin 20 carried by the standard 14, said pin being preferably located below the supporting surface for the strip so that as the latter enters the channel its engagement with the rear end thereof will have a tendency to flatten the strip out, it being understood that when the strip is in roll form it will curl slightly when unwound from the reel. In order to maintain the strip flattened as it passes through the channel a weight 21 is removably and pivotally mounted in the channel by means of pins 22 engaging in the slots 23 formed in the side walls of the channel.

The check ejecting mechanism, which is somewhat similar in construction to that disclosed in the above mentioned application, includes a reciprocatory member 24 slidably mounted in guide grooves 25 in the platform 19 and operated through the medium of a crank arm 26 and pitman 27 from a rotatable shaft 28 journaled in a suitable standard 29 secured to the base of the casing. Mounted for vertical movement about the pivotal connection between the slide 24 and the forward end of the pitman 27 is a check engaging arm 30, the free end of which extends upwardly through the longitudinal slot 31 in the supporting surface of the platform 19 and is capable of engaging in an opening 32 in each of the checks 12 of the strip so as to advance the check toward its partially ejected position upon the forward movement of the reciprocating slide 24. A constant yielding upward pressure is exerted upon the arm 30 by a spring 33 coiled about a rod 34 secured to the arm 30 and extending downwardly through the slide member. It is pointed out that during the movement of any particular check to its partially ejected position, as shown in Figures 1, 2 and 3, the arm 30 engages in the opening 32 of the next succeeding check in the strip, which latter check is partially ejected through the opening 11 upon the next operation of the ejecting mechanism.

When a check is partially ejected through the opening 11 the same passes between a set of contacts 35 and 36 secured to and insulated from the forward end of the platform 19 and in direct alignment with an opening 37 (Figure 9) in said platform through which the check is discharged from the magazine, said opening being formed with a knife edge 38. The contacts 35 and 36, the former of which is spring pressed, form a primary switch utilized to control the operation of the ejecting mechanism, through the medium of an electric motor 38', in a manner which will presently appear. The contact 35 is pivotally mounted and has a depending switch arm 39 movable into and out of contact with a similar arm 40 secured to the base of the casing for the purpose of closing and opening a circuit. When a check is partially ejected the same passes between the contacts 35 and 36 and consequently opens the circuit.

At the instant that the check has reached its partially ejected position the same is severed from the remainder of the strip by the operation of a cutting mechanism carried by the forward end of the platform 19 and including a knife 41 pivoted at 42 to the platform and guided in its vertical movements by a pin 43 engaged in an arcuate slot 44 in said platform. The knife cooperates with the cutting edge 38 to sever the check and its operation is controlled by a rotatable cam 45, shown in its normal position in dotted lines in Figure 8, which engages the under surface of the knife, the latter being yieldably held in contact with the cam and having a constant downward pull exerted thereupon by means of a coil spring 46, the upper end of which is connected to the knife and the lower end secured to the base of the casing. The cam 45 is carried upon the forward end of a shaft 47, the rear end of which has a bearing in the standard 29 and is provided with a bevel gear 48 meshing with a similar gear 49 on the shaft 28 so that as the latter shaft rotates a similar movement will be imparted to the cam.

When a severed and partially ejected check is withdrawn from the machine the contacts 35 and 36, and consequently the switch members 39 and 40, are permitted to engage each other to close the circuit above referred to. The closure of this circuit starts the operation of the ejecting mechanism, as will presently appear, the initial step in the operation being that of moving the slide 24 rearwardly to carry the check engaging arm 30 to its rearmost position where the free end of said arm engages in the opening 32 of the check succeeding that one which is about to be partially ejected. After so doing the crank arm and pitman connections between the shaft 28 and slide 24 will cause a forward movement of the slide along its trackway 25 to start the ejection of the foremost check of the strip. As this check moves forwardly the knife 41 is maintained in its normal elevated position by the cam 45 and consequently the check will be free to move through the opening 37 and between the contacts 35 and 36 which are then opened to break the circuit previously mentioned. At this time, the circular portion of the periphery of the cam 45, which revolves in a counterclockwise direction as viewed in Figure 8, is in engagement with the knife 41 to maintain the same elevated and this

position of the knife is utilized to effect the closure of an auxiliary switch employed to maintain the circuit of the motor 38′ closed after the contacts 35 and 36 have been opened. This auxiliary control switch includes a pair of contacts 50 carried by the platform and adapted to be bridged by another contact 51 secured to an arm 52 mounted upon the free end of the knife 41. This auxiliary circuit remains closed until the cut-out portion of the cam 45 reaches the dotted line position shown in Figure 8, at which time the knife 41 will move downwardly under the influence of the spring 46. The foremost check of the strip has now been partially ejected and the downward movement of the knife 41 will sever said check. This movement of the knife also causes the separation of the contacts 50 and 51 to break the circuit for the motor 38′. The downward movement of the arm 52 carried by the knife is also utilized to operate the signal or bell 13 to indicate to the attendant that a check has been withdrawn and for this purpose the free end of the arm is provided with a striker 53.

The circuit for the motor 38′ will now be described in detail. Current for the motor is supplied from a main conductor 54, one branch 55 of which is connected to a suitable switch 56, of any conventional type, mounted in the back of the casing and utilized to control the current of said motor. A conductor 57 connects the switch 56 with the motor and the latter is in turn connected by a conductor 58 to one terminal of an electro-magnetic device, conventionally shown and indicated by the numeral 59, the purpose of which will presently appear. The other terminal of the device 59 is connected by a conductor 60 to the contact 35 and consequently to the switch arm 39. The other branch 61 of the main conductor 54 is connected to the switch arm 40 to complete the primary circuit for the motor 38′. The secondary circuit which includes the auxiliary control switch consisting of the contacts 50 and 51 shunts the electro-magnetic device 59 and includes a conductor 62 connected to the terminal of the device 59 to which the conductor 58 is secured (Figure 1) and is also connected to one of the contacts 50. The other contact 50 is joined, by means of a conductor 63 to the switch 40 and consequently to the branch 61 of the main conductor. When the partially ejected check is withdrawn from the machine and the contacts 35 and 36 are closed the primary circuit of the motor 38′ is energized, but the secondary or shunt circuit is opened due to the fact that at this time the knife 41 is in the dotted line position shown in Figure 8 and consequently the contacts 50 and 51 of the auxiliary switch are opened. This will permit of the energization of the electro-magnet 59 for a purpose to presently appear and said magnet will not de-energize until the cam 45 has lifted the knife 41 to engage said contacts 50 and 51, this movement of the knife occurring during the rearward movement of the slide 24.

The shaft 28 is rotated through one complete revolution each time the motor 38′ is energized, through the medium of a worm gear 64 carried by the shaft of the motor and meshing with a similar gear 65 loosely mounted upon the shaft 28. In order that the rotation of the shaft of the motor, and consequently of the gear 65, may be imparted to the shaft 28 a clutch device is employed. This clutch device consists of a disk 66 secured to the shaft 28 by a set screw 67. The disk 66 is provided in its periphery with a recess 68 and is pivoted at 69. In one end of said recess is a coupling member 70 carrying intermediate its ends a laterally projecting pin 71. A coil spring 72 has one end connected to the member 70 and its other end to the set screw 67, said spring normally having a tendency to withdraw the curved portion of the member 70 into the recess 68, as shown in Figure 7. However, in its normal position the coupling 70 is maintained in the position shown in Figure 6 against the tension of the spring 72 by the lateral extension 73 of the armature 74 of the electro-magnetic device 59, said extension being disposed in the path of movement of the free end of the member 70. When the device 59 is energized by the closing of the primary circuit previously described, which energization occurs upon the withdrawal of a check from the machine and the consequent closure of the contacts 35, 36, and 39, 40, the armature 74 is attracted and the extension 73 thereof consequently moved out of the path of the free end of the member 70. The closure of the circuit starts the operation of the motor 38′ to rotate the gear 65 loosely mounted upon the shaft 28. This gear is provided in its hub portion with a recess 75 capable of registration or alignment with a similar recess 76 formed in the periphery of the disk 66. As the gear 65 is rotated the recess 75 therein will be brought into registration with the recess 76 and when this occurs the spring 72 will draw the member 70 inwardly to engage the pin 71 in the aligned recesses and thereby couple the gear 65 to the disk 66 and consequently to the shaft 28. The latter will now rotate and through its connections 26 and 27 with the slide 24 will cause a rearward movement of the arm 30 of the ejecting mechanism. Simultaneously with this rearward movement the arm 52 carried by the knife 41 is moved upwardly under the influence of the cam 45 and when the contacts 50 and 51 engage the auxiliary circuit

will be closed, thus shunting the electro-magnetic device 59 which thereupon de-energizes. The de-energization of the device 59 permits its armature to restore to normal and again position the extension 73 thereof in the path of movement of the coupling member 70. The operation of the motor is now under the control of the auxiliary circuit and the rotation of the coupling member 70 and consequently of the shaft 28 continues to impel the ejecting mechanism forwardly so that the check being ejected will continue to move outwardly. At the instant said check reaches its extreme outward position the cut-out portion of the cam 45 reaches its dotted line position shown in Figure 8 and the knife 41 is released for its downward movement whereupon the check is severed from the strip. At the beginning of the downward movement of the knife the auxiliary circuit for the motor is opened and at this time the free end of the coupling member 70 strikes the extension 73 to stop the rotation of said member. The disk 66 will continue to rotate a very slight distance and this slight movement of said disk is sufficient to effect the withdrawal of the coupling pin 71 from the recesses 75 and 76, thereby permitting the gear 65 to rotate independently of the clutch device, this latter rotation being due to the fact that the motor shaft continues to rotate for a short interval after the circuit for the motor is broken. At the termination of the uncoupling operation the ejecting mechanism has been again restored to the normal position shown in the drawings.

Briefly, the operation of the machine is as follows:

When a partially ejected and severed check 12 is withdrawn from between the contacts 35 and 36 the spring pressed switch arm 39 will engage the switch arm 40 to close the circuit through the conductor 55, switch 56, assuming this switch to be closed, the conductor 57, motor 38′, conductor 58, electro-magnetic device 59, conductor 60, contacts of the switch arm 39, 40, and the conductor 61 to the source of current supply. The armature of the electro-magnetic device is thereby energized to withdraw the extension 73 from the path of movement of the coupling member 70 and the motor starts to operate. The rotation of the worm gear 65 causes said gear to be coupled to the shaft 28 through the medium of the coupling device shown in Figures 5, 6 and 7, whereupon said shaft starts to rotate. The cam 45 is driven by the shaft 47 geared to the shaft 28 and said cam starts to elevate the knife 41. Simultaneously the slide 24 starts its rearward movement and this movement continues until the free end of the arm 30 engages in the opening 32 of the check succeeding the one about to be partially ejected. The forward movement of the slide and consequent movement of the strip of checks in a like direction now begins. In the meanwhile the knife 41 has been raised by the cam 45 so as to cause the closure of the contacts 50 and 51 to establish the shunt circuit extending from the conductor 55 through the switch 56, motor 38′, conductor 58, left-hand terminal of the device 59, as shown in Figure 1, conductor 62, contacts 50, 51, conductor 63, and conductor 61 to the source of current supply. The closure of this circuit causes the de-energization of the electro-magnetic device 59 to restore the extension 73 into the path of the coupling member 70 and also maintain the circuit closed for the motor 38′.

When the ejecting mechanism including the arm 30 has moved forwardly a distance equal to that between the forward end of the check about to be ejected and the point of engagement of the contacts 35 and 36, said check will separate said contacts to again open the primary circuit which included the electro-magnetic device. The forward movement of the check continues until the same has reached its partially ejected position at which time the cam 45 completes its revolution and permits the knife 41 to descend under the influence of the spring 46 and thus sever the partially ejected check from the rest of the strip. At the instant the knife starts its downward movement the shunt circuit, including the contacts 50, 51, is opened and at the same instant the coupling member 70 will again engage the extension 73 to cause the uncoupling of the gear 65 from the shaft 28. This uncoupling operation stops any further movement of the ejecting mechanism and cam 45 which have now reached their normal positions and the partially ejected and severed check is in position for its withdrawal from the machine.

When the knife 41 starts its downward movement at the beginning of the cutting operation the arm 52 is carried therewith and the striker 53 thereon will hit the bell 13 to sound the signal which indicates that a check has been withdrawn from the machine.

What is claimed is:

1. In a check dispensing machine, a magazine for containing a strip of checks, a platform along which said strip is movable, an ejecting mechanism including a reciprocatory element operable to partially eject a check of said strip from the machine, a slide movable along said platform and to which said reciprocatory element is connected for engagement with said strip, an oscillatory member thereupon operable by its oscillation to sever the ejected check from said strip, and means operated by the complete withdrawal of the severed check from the ma-

chine to effect a repetition of the operation of said ejecting mechanism and cutting member.

2. In a check dispensing machine, a magazine for containing a strip of checks, an ejecting mechanism operable to partially eject the end check of said strip from the machine, a cutting mechanism for severing said end check from the remainder of the strip, a motor for operating said mechanisms, a circuit for said motor, a switch normally kept open by a partially ejected check and operated by the withdrawal of said check to close said circuit, a second circuit for said motor, and a second switch in the latter circuit controlled by said cutting mechanism to maintain said motor in operation after the first named switch has been opened by a check being partially ejected.

3. In a check dispensing machine, a magazine for containing a strip of checks, an ejecting mechanism including a reciprocatory member operable to partially eject the end check of said strip from the machine, a pivoted cutting member for severing said end check from the remainder of the strip, a cam for controlling the operation of said cutting member, a motor for operating said ejecting mechanism and cam, a circuit for said motor, a switch normally kept open by a partially ejected check and operated by the withdrawal of said check to close said circuit, a second circuit for said motor, and a second switch included in said circuit and controlled by said cam to maintain said motor in operation after the first named switch has been opened by a check being partially ejected.

4. In a check dispensing machine, a magazine for containing a strip of checks, an ejecting mechanism operable to partially eject the end check of said strip from the machine, a cutting mechanism for severing said end check from the remainder of the strip, a motor for operating said mechanisms, means normally held inoperative by said severed check and controlled by the withdrawal thereof for causing the operation of said motor, and means controlled by said cutting mechanism to momentarily maintain said motor in operation after the last named means is rendered inoperative by another partially ejected check.

5. In a check dispensing machine, a magazine for containing a strip of checks, an ejecting mechanism including a reciprocatory member operable to partially eject the end check of said strip from the machine, a pivoted cutting member for severing said end check from the remainder of the strip, a cam for controlling the operation of said cutting member, a motor for operating said ejecting mechanism and cam, means normally held inoperative by said severed check and controlled by the withdrawal thereof for causing the operation of said motor and cam, and means under the control of said cutting member to momentarily maintain said motor in operation after the last named means is rendered inoperative by another partially ejected check.

6. In a check dispensing machine, an ejecting mechanism for a strip of checks operable to partially eject a check of said strip from the machine, a motor for operating said mechanism, primary and shunt circuits for said motor, contacts in said primary circuit closed upon the complete withdrawal of a check to energize said motor to operate said ejecting mechanism, said contacts being opened by the partial ejection of another check, a pivoted cutting element for severing a partially ejected check from the strip, means for moving said cutting element in one direction about its pivot while said ejecting mechanism is being operated, and other contacts in said shunt circuit closed by said movement of the cutting element to momentarily maintain said motor in operation after the first named contacts have been opened.

In testimony whereof I have affixed my signature.

GRANVILLE S. RIDER.