Aug. 2, 1927.

G. S. RIDER

1,637,710

CHECK DISPENSING MACHINE

Filed April 21, 1925

4 Sheets-Sheet 1

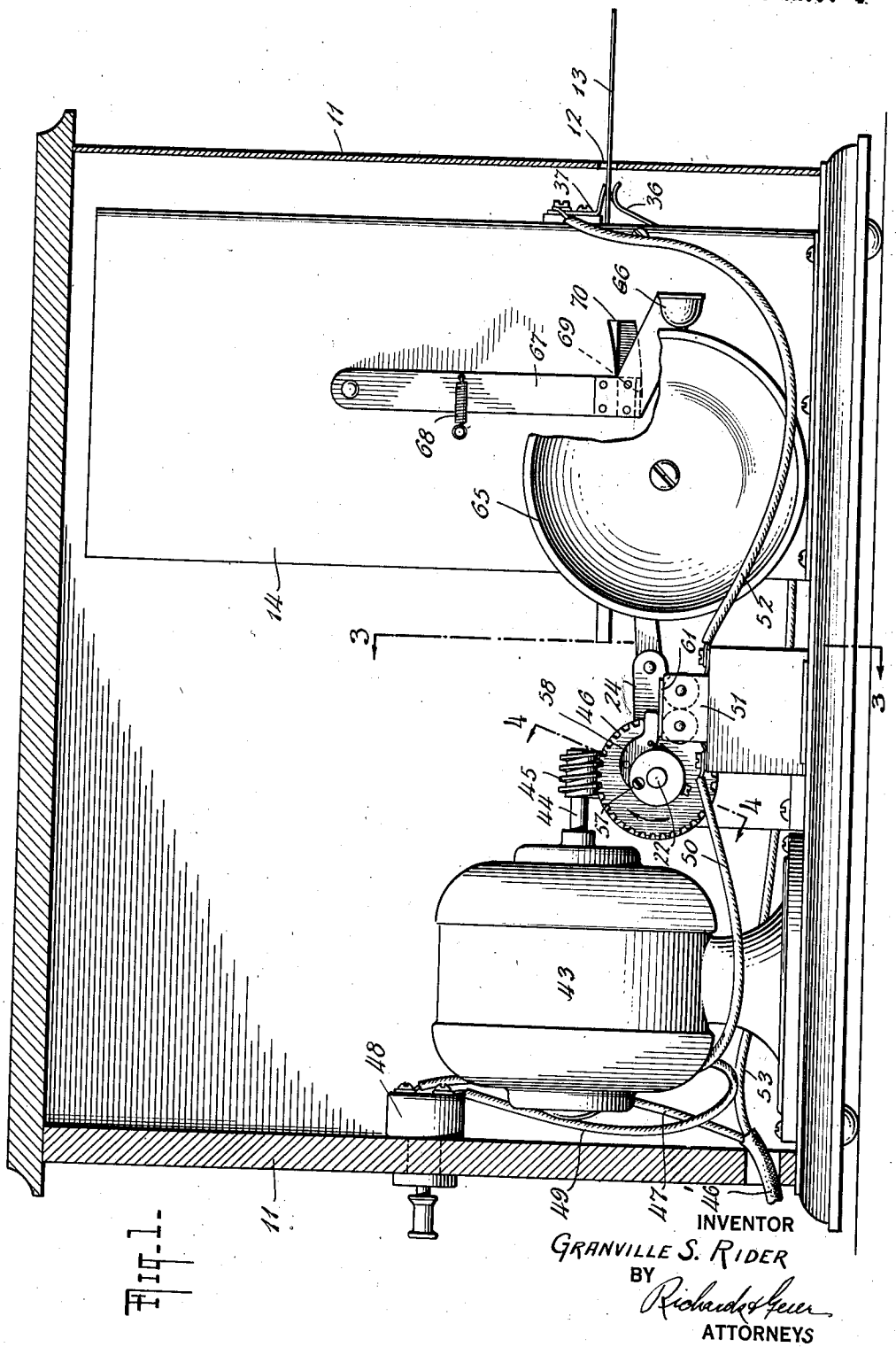


Fig. 1.

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4 Sheets-Sheet 2

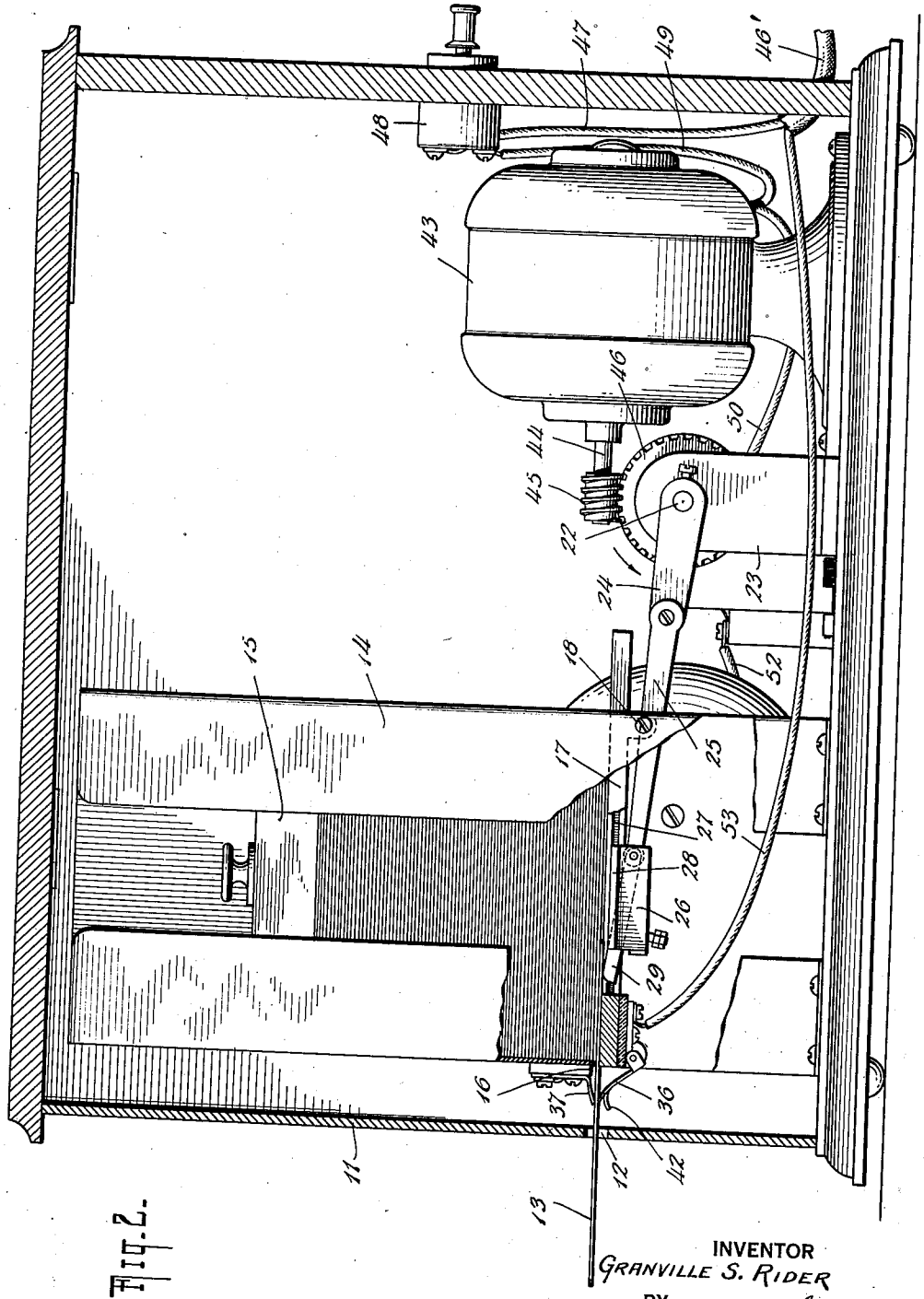


FIG. 2.

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CHECK DISPENSING MACHINE

Filed April 21, 1925 4 Sheets-Sheet 3

Fig. 4.

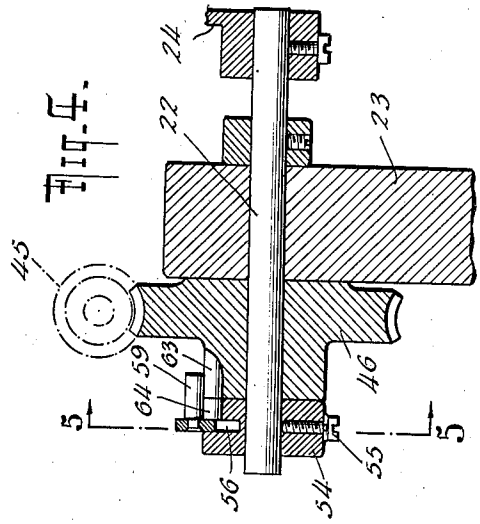


Fig. 6.

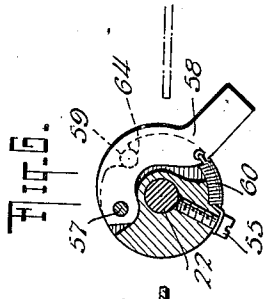


Fig. 5.

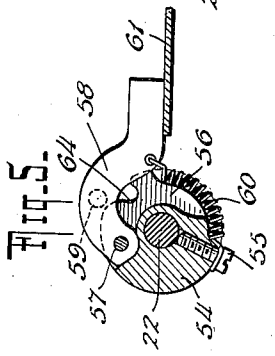


Fig. 3.

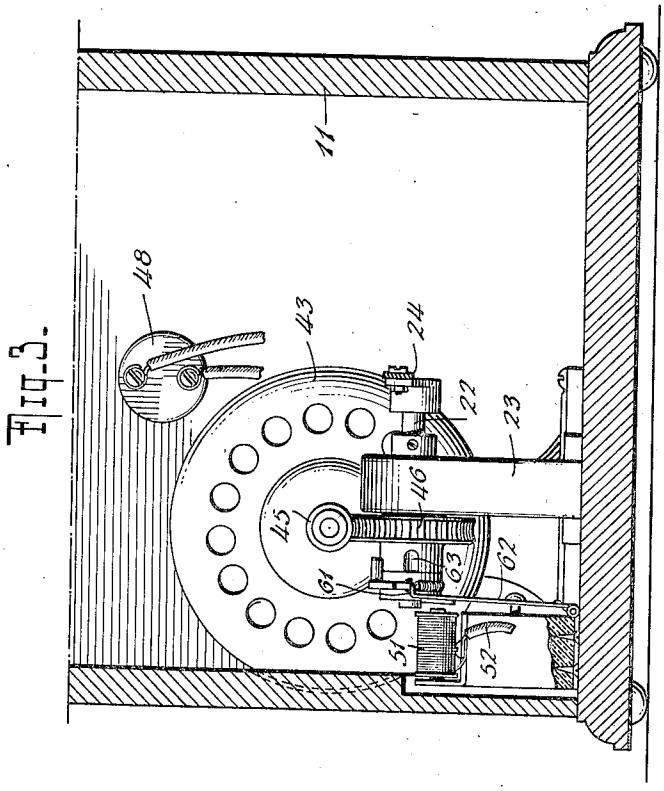
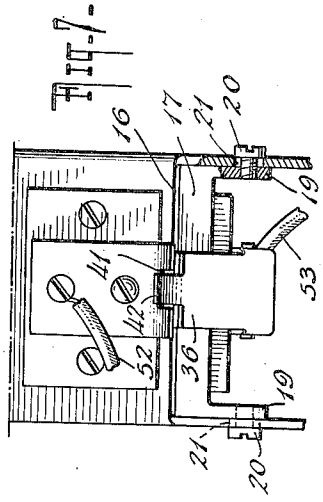


Fig. 7.



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CHECK DISPENSING MACHINE

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4 Sheets-Sheet 4

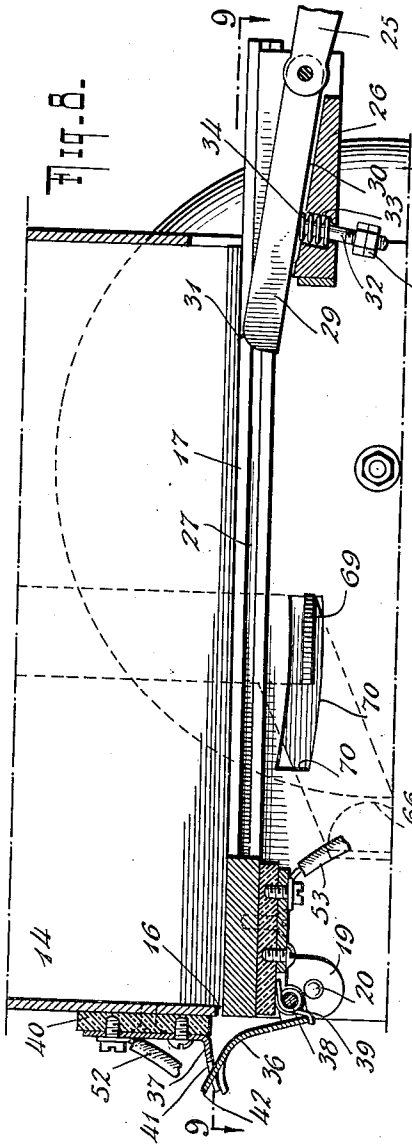


Fig. 8.

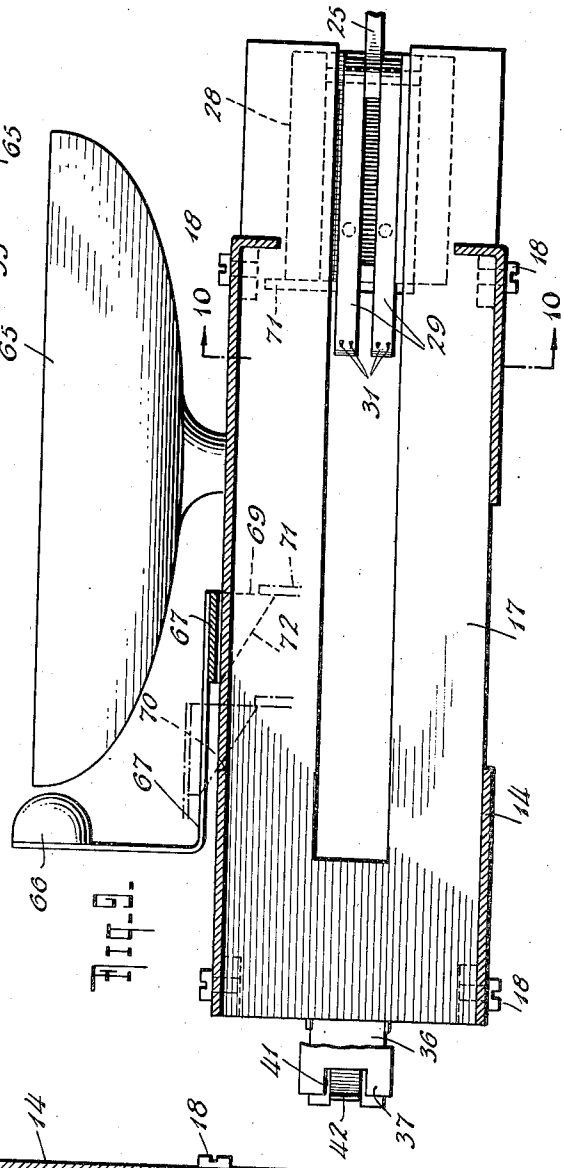


Fig. 9.

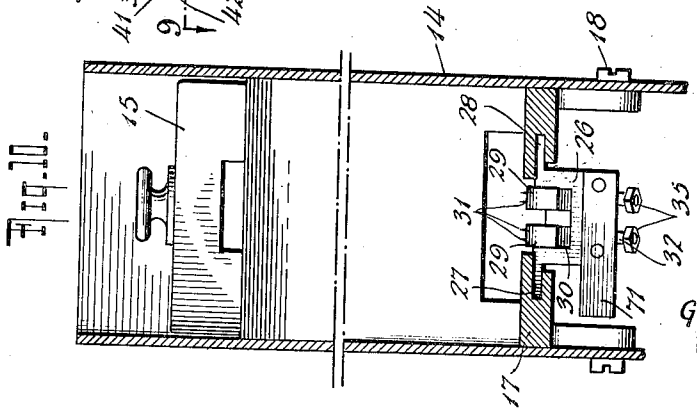


Fig. 10.

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Patented Aug. 2, 1927. 1,637,710

UNITED STATES PATENT OFFICE.

GRANVILLE S. RIDER, OF NEW YORK, N. Y., ASSIGNOR TO LOCK-STUB CHECK COMPANY, INCORPORATED, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

CHECK-DISPENSING MACHINE.

Application filed April 21, 1925. Serial No. 24,905.

This invention relates to improvements in check dispensing machines, and has particular reference to a machine for dispensing checks or tickets used in cafeterias, restaurants or the like, which checks are usually punched by an attendant to indicate the cost of a meal.

An object of the invention is to provide an improved machine wherein the checks are partially ejected therefrom, one at a time, and wherein the act of withdrawal of the ejected check from the machine is utilized to control the partial ejection of a succeeding check.

Another object is to feed the checks or tickets from a magazine by a mechanism which operates, each time a check is withdrawn, to engage and partially eject another check and, at the same time, control the operation of a signal for indicating the withdrawal of the first-named check.

A further object is to control the check ejecting mechanism by an improved clutch device which is so constructed that said mechanism will eject only one check each time that a preceding check is withdrawn from the machine.

A still further object is to utilize the withdrawal of a check to bring into operation a source of power and at the same time render operative a clutch device which thereupon couples said source with the check ejecting mechanism to effect one complete operation thereof.

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 embodiment of the inventive idea.

In the drawings—

Figure 1 is a sectional view through the casing of the machine showing the mechanism therein in side elevation;

Figure 2 is a similar view looking from the opposite side of the mechanism;

Figure 3 is a section on the line 3—3 of Figure 1;

Figure 4 is a section on the line 4—4 of Figure 1, illustrating the improved clutch device;

Figure 5 is a section on the line 5—5 of Figure 4 with the clutch device in its inoperative position;

Figure 6 is a view similar to Figure 5, illustrating the position of the clutch device in operation;

Figure 7 is a fragmentary front elevation, partly broken away and shown in section, of the switch device located at the discharge opening of the check magazine;

Figure 8 is a fragmentary vertical longitudinal section through the check magazine showing the switch device of Figure 7 and a portion of the check ejecting mechanism in the position it asumes at the beginning of its operation;

Figure 9 is a section on the line 9—9 of Figure 8; and

Figure 10 is a section on the line 10—10 of Figure 9.

The machine of the present invention is preferably enclosed within a cabinet or casing 11 of any suitable construction and provided in its front wall with an opening 12 through which the partially ejected checks or tickets 13 protrude before withdrawal from the machine. One method of utilizing the machine is to place the same in an establishment 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 at the same time a signal, preferably audible, is operable 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.

Mounted within the casing 11 adjacent the front wall thereof is a check containing magazine 14 in which a stack of checks 13 is disposed with a weight 15 at the top of the stack exerting a downward pressure thereon. The front wall of the magazine is provided with a discharge opening 16 through which the lowermost check 13 of the stack is partially ejected by a mechanism which will later be described. The size or height of the opening 16 may be regulated to accommodate checks of different thicknesses, and for this purpose the platform 17 upon which the stack of checks rests is pivoted at 18 adjacent its rear end to the side walls of the

magazine so as to permit of its forward end being raised and lowered to vary the size of the opening 16. At its forward end the platform 17 is provided with depending flanges 19 (Figure 7) carrying screws 20 movable in vertically arranged slots 21 in the side walls of the magazine, said screws being employed to secure the platform in various adjusted positions.

The check ejecting mechanism will now be described. This mechanism is supported by the platform 17 for reciprocating movement relative thereto and is operated from a shaft 22 journaled in a suitable standard 23 arranged rearwardly of the magazine 14. The shaft 22 carries a crank arm 24 to which is connected the rear end of a pitman 25, the forward end of which is pivoted to a reciprocatory member or slide 26 forming a part of the ejecting mechanism. This slide is disposed between the sides of the platform 17 which are grooved, as at 27, to receive the laterally projecting flanges 28 of said slide and thereby form a track therefor. Mounted for vertical movement upon the pivotal connection between the pitman 25 and the slide 26 are a pair of check engaging members 29. The members 29 are of the same construction and hence a description of one will suffice. Each member is disposed partially within a recess 30 formed in the slide 26 with the forward end of the member projecting beyond said slide and provided at its free extremity with forwardly inclined prongs or points 31 designed to penetrate the lowermost check 13 of the stack in the magazine upon the forward movement of the member 29 so as to impel said check forwardly toward the discharge opening 16. By inclining the prongs or points 31 forwardly it will be obvious that upon the return or rearward movement of the member 29 the prongs will not catch in the partially ejected check or in the next lowermost check in the stack. In actual practice, the prongs 31 are very small and their penetration of a check is barely visible being only sufficient to frictionally engage and impel said check forwardly. Intermediate the ends of the member 29 the same has depending therefrom a rod 32 extending through an opening 33 in the slide 26 and having a spring 34 coiled thereabout which exerts an upward pressure upon the member 29 to yieldably maintain said member in constant engagement with a check. The lower end of the rod 32 has a nut 35 threaded thereon which acts as a stop to limit the upward movement of the member 29.

When a check is partially ejected through the opening 16 in the magazine the same passes between the contacts 36 and 37 of a switch utilized to control the operation of the ejecting mechanism in a manner which will appear in the course of the description. The free ends of the contacts 36 and 37 are designed to engage each other to close a circuit when there is no check interposed therebetween and the contact 36 is mounted upon a pivot 38 and spring pressed by a spring 39 coiled about said pivot so as to insure engagement of said contact with the contact 37. The latter contact is mounted upon a block of insulation 40 secured to the front wall of the magazine 14. The free end of the contact 37 is bifurcated, as indicated at 41, to receive a tongue 42 stamped from the free end of the contact 36. This tongue is arranged at an angle to the remaining portion of the free extremity of the contact 36 and is so disposed with respect to the contact 37 that the forward end of a check being ejected will first engage the tongue before the extremities of the contacts begin to separate. This engagement will cause a quick separation of the extremities of the contacts and thereby reduce to a minium the possibility of sparking when the contacts are separated.

The withdrawal of a partially ejected check from the machine causes one complete operation of the ejecting mechanism previously described to propel the lowermost check in the stack in the magazine to the position shown in Figures 1 and 2. In order to accomplish this operation the shaft 22 is driven through one complete revolution. For this purpose a source of power such as an electric motor 43 of any suitable design is mounted in the cabinet 11 at the rear thereof and the shaft 44 of said motor is provided with a worm gear 45 which meshes with a similar gear 46 loosely mounted upon the shaft 22. Current for the motor 43 is supplied from a main conductor 46′, one branch 47 of which is connected to a suitable switch 48 of any conventional type mounted in the back of the cabinet and utilized to control the current to said motor. A conductor 49 connects the switch with the motor and the latter is in turn connected by a conductor 50 to an electro-magnetic device generally indicated by the numeral 51, the purpose of which will presently appear. This device 51 is in turn connected by a conductor 52 to the contact 37 of the switch device mounted upon the front of the magazine 14. To complete the circuit a branch conductor 53 of the main conductor 46′ is connected to the contact 36 of said switch device.

In order that the rotation of the shaft 44 of the motor and consequently of the gear 46 may be imparted to the shaft 22 a clutch device is employed. This clutch device consists of a disk 54 secured to the shaft 22 by a set screw 55. The disk 54 is provided in its periphery with a reces 56 and pivoted at 57 in one end of said recess is a coupling member 58 carrying intermediate its ends a laterally projecting pin 59. A coil spring 60

has one end connected to the member 58 and its other end to the set screw 55, said spring normally having a tendency to withdraw the curved portion of the member 58 into the recess 56, as shown in Figure 6. However, in its normal position the coupling 58 is maintained in the position shown in Figure 5 against the tension of the spring 60 by the lateral extension 61 of the armature 62 of the electro-magnetic device 51, said extension being disposed in the path of movement of the free end of the member 58. When the device 51 is energized by the closing of the circuit previously referred to, which energization occurs upon the withdrawal of a check from the machine and consequent momentary closure of the contacts 36 and 37, the armature 62 is attracted and the extension 61 thereof consequently moved out of the path of the free end of the member 58. The closure of said circuit also rotates the gear 46 loosely mounted upon the shaft 22. This gear is provided in its hub portion with a recess 63 capable of registration or alignment with a similar recess 64 formed in the periphery of the disk 54. As the gear 46 is rotated the recess 63 therein will be brought into registration or alignment with the recess 64 and when this occurs the spring 60 will draw the member 58 inwardly to engage the pin 59 in the aligned recesses and thereby couple the gear 46 to the disk 54 and consequently to the shaft 22. The latter will now rotate and through its connections 24 and 25 with the slide 26 will cause a forward movement of the ejecting mechanism which will then operate to eject the lowermost check in the stack outwardly into engagement with the contacts 36 and 37, thereby separating said contacts and opening the circuit for the motor 43 and the electro-magnetic device 51. The de-energization of the latter retracts its armature to again position the extension 61 thereof in the path of movement of the member 58. When the free end of said member strikes said extension the rotation thereof is stopped but the shaft 22 and disk 54 continue to rotate a slight distance under the impetus of the return movement of the ejecting mechanism until the parts again assume the position shown in Figure 5. This continued rotation of the disk 54, just referred to, effects the withdrawal of the coupling pin 59 from the recesses 63 and 64, thereby permitting the gear 46 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 Figure 8.

The forward movement or the ejecting mechanism is utilized to control the operation of a signal, preferably audible, which indicates the withdrawal of a check from the machine. As shown, this signal consists of a bell 65 operated by a striker 66, the arm 67 of which is pivoted to a side wall of the magazine 14 and yieldably held in its normal position by a spring 68. The striker arm 67 is formed with a lateral projection 69 extending through a slot 70 in the wall of the magazine below the platform 17. The projection 69 is disposed in the path of movement of an extension 71 on the slide 26 so that as said slide moves forwardly the same strikes the projection 69 and swings the striker 66 away from the bell against the tension of the spring 68. The arm 67 is supported on the magazine in such manner that the same will have a slight lateral movement with respect thereto so that when said arm approaches the extremity of its forward movement the pressure of the extension 71 against the projection 69 will cause an outward lateral movement of the arm 67, by reason of the engagement of the inclined surface 72 with the end of the slot 70, to permit said extension 71 to pass the projection 69. When the projection 69 is disengaged the arm 67 will be moved rearwardly under the influence of the spring 68 and cause the striker 66 to ring the bell 65. During the return movement of the ejecting mechanism the arm 67 will freely ride over the inclined surface 72 of the projection 69, again moving the arm 67 laterally so that the return of the slide 26 will be unhindered.

In operation, when a partially ejected check 13 is withdrawn from between the contacts 36 and 37, the latter are brought into engagement with each other to close the circuit through the conductors 47, 49, 50, 52 and 53 for the motor 43 and the electromagnetic device 51. The armature of said device is attracted and moved out of the path of the coupling member 58 and at the same time the rotation of the gear 46 begins. This gear rotates freely until its recess 63 comes into registration with the recess 64 whereupon the coupling pin 59 engages in said recesses to directly connect the motor to the shaft 22 which then starts to rotate. The slide 26 begins its forward movement with the prongs 31 of the members 29 in engagement with the lowermost check. This check is impelled forward through the opening 16 and into engagement with the tongue 42 of the contact 36 causing the separation of said contact from the contact 37 thereupon breaking the circuit previously closed. During this forward movement the striker arm 67 of the audible signal is operated. Upon reaching the extremity of its forward movement the ejected check is properly positioned for withdrawal from the machine and the slide 26 thereupon starts the return movement to normal posi-

tion. Due to the inclination of the prongs 31 the same become readily released from the ejected check and the return movement of the members 29 will in no way be retarded by the engagement of said prongs with the next lowermost check. During the operation of the ejecting mechanism the clutch device including the disk 54 and coupling member 58 are rotated and the electro-magnetic device now having been de-energized the armature 62 thereof is restored to normal position in the path of movement of the member 58. Therefore, the engagement of said member with the extension 61 withdraws the coupling pin from the recesses 63 and 64, whereupon the disk 54 comes to a stop with the spring 60 expanded and the parts in the position shown in Figure 5. The gear 46 then continues to rotate freely about the shaft 22 until the shaft 44 of the motor comes to a complete stop.

What is claimed is:

1. In a check dispensing machine, a magazine for containing a stack of checks, an ejecting mechanism including a reciprocatory element movable in one direction from a normal position to engage and partially eject from said magazine the lowermost check in said stack and thereupon movable back to its normal position, and means operated by the complete withdrawal of said check to cause said reciprocatory element to partially eject a succeeding check and then return to its normal position.

2. In a check dispensing machine, a magazine for containing a stack of checks, an ejecting mechanism including a reciprocatory element having means to penetrate the under surface of the lowermost check in said stack and movable in one direction from a normal position to partially eject the check from said magazine and thereupon movable back to its normal position, and means operated by the complete withdrawal of said check to cause said reciprocatory element to partially eject a succeeding check and then return to its normal position.

3. In a check dispensing machine, a magazine for containing a stack of checks, an ejecting mechanism including a reciprocatory element movable in one direction from a normal position to engage and partially eject from said magazine the lowermost check in said stack and thereupon movable back to its normal position, means for exerting a pressure upon said reciprocatory element to cause the same to yieldably engage said check while it is being partially ejected, and means operated by the complete withdrawal of said check to cause said reciprocatory element to partially eject a succeeding check and then return to its normal position.

4. In a check dispensing machine, a magazine for containing a stack of checks, an ejecting mechanism including a reciprocatory element having means to penetrate the under surface of the lowermost check in said stack and movable in one direction to partially eject the check from said magazine and thereupon movable back to its normal position, means for exerting a pressure upon said reciprocatory element to cause the same to yieldably engage said check while it is being ejected, and means operated by the complete withdrawal of said check to cause said reciprocatory element to partially eject a succeeding check and then return to its normal position.

5. In a check dispensing machine, a magazine for containing a stack of checks and having a delivery opening through which the checks are ejected, a check supporting platform pivoted at one end in said magazine and having its other end movable to regulate the size of said opening, means to secure said platform in adjusted positions, an ejecting mechanism operable to partially eject the lowermost check in said stack through said opening, and means operated by the complete withdrawal of said check to effect a repetition of the operation of said ejecting mechanism.

6. In a check dispensing machine, a magazine for containing a stack of checks and having a delivery opening through which the checks are ejected, a check supporting platform pivoted at one end in said magazine and having its other end movable to regulate the size of said opening, means to secure said platform in adjusted positions, an ejecting mechanism including a check engaging element slidably supported by said platform and operable to partially eject the lowermost check through said opening, and means operated by the complete withdrawal of said check to effect a repetition of the operation of said ejecting mechanism.

7. In a check dispensing machine, a magazine for containing a stack of checks and having a delivery opening through which the checks are ejected, a check supporting platform pivoted at one end in said magazine and having its other end movable to regulate the size of said opening, means to secure said platform in adjusted positions, an ejecting mechanism including a check engaging element slidably supported by said platform and operable to partially eject the lowermost check through said opening, means for exerting a pressure upon said check engaging element to cause the same to yieldably engage said check, and means operated by the complete withdrawal of said check to effect a repetition of the operation of said ejecting mechanism.

8. In a check dispensing machine, a magazine for containing a stack of checks and having a delivery opening through which the checks are ejected, a platform in said

magazine for supporting said stack with the lowermost check in juxtaposition to said opening, means for adjusting the height of said platform to regulate the size of said opening, an ejecting mechanism including a reciprocating element supported by said platform and having means to penetrate the under surface of said lowermost check when the same is being ejected, and means operated by the complete withdrawal of said check to effect a repetition of the operation of said ejecting mechanism.

9. In a check dispensing machine, a magazine for containing a stack of checks and having a delivery opening through which the checks are ejected, a platform in said magazine for supporting said stack with the lowermost check in juxtaposition to said opening, means for adjusting the height of said platform to regulate the size of said opening, an ejecting mechanism including a reciprocating element supported by said platform and having means to penetrate the under surface of said lowermost check when the same is being ejected, means for exerting a pressure upon said reciprocating element to cause the same to yieldably engage said check, and means operated by the complete withdrawal of said check to effect a repetition of the operation of said ejecting mechanism.

10. A switch device adapted for use in a check dispensing machine including a pair of contacts capable of receiving a check therebetween, one of said contacts being bifurcated and the other having a tongue projecting into said bifurcation and in the path of a check when said contacts are in engagement, said tongue being initially engaged by the check to separate the contacts.

11. In a check dispensing machine, a casing for containing a plurality of checks, an ejecting mechanism including a reciprocatory element operable to partially eject one of said checks from said casing, said reciprocatory element being engageable with only one of the checks during a single ejecting movement of said element, and means operated by the complete withdrawal of the check from the casing to effect a repetition of the operation of said ejecting mechanism.

12. In a check dispensing machine, a check-containing magazine, a platform at the lower end of said magazine upon which checks are supported, a reciprocatory ejecting element movable along and carried by said platform and operable to partially eject a check from said magazine, said reciprocatory element being engageable with only one of the checks during a single ejecting movement of said element, and means operated by the complete withdrawal of said check to effect a repetition of the operation of said ejecting element.

13. In a check dispensing machine, a check-containing magazine, a platform at the lower end of said magazine upon which checks are supported, a reciprocatory ejecting element operable to engage only one check at a time to partially eject the same from said magazine, said reciprocatory element being engageable with only one of the checks during a single ejecting movement of said element, and means operated by the complete withdrawal of said check to effect a repetition of the operation of said ejecting element.

14. In a check dispensing machine, a magazine for containing a stack of checks and having a delivery opening through which the checks are ejected, a platform in said magazine for supporting said stack with the lowermost check in juxtaposition to said opening, means for adjusting the height of said platform to regulate the size of said opening, an ejecting mechanism including a reciprocatory element operable to partially eject the lowermost check in said stack through said opening, and means operated by the complete withdrawal of said check to effect a repetition of the operation of said ejecting mechanism.

15. In a check dispensing machine, a casing having a delivery opening through which checks are ejected, a platform pivoted at one end in said casing for supporting said checks in juxtaposition to said opening, means for adjusting the other end of said platform to vary the height thereof in order to regulate the size of said opening, an ejecting mechanism including a check engaging element slidably supported by said platform and operable to partially eject one check through said opening, and means operated by the complete withdrawal of said check to effect a repetition of the operation of said ejecting mechanism.

16. In a check dispensing machine, a magazine for containing a stack of checks having a discharge opening through which said checks are ejected, an ejecting mechanism including a reciprocatory element operable upon each actuation thereof to partially eject a check through said opening, said reciprocatory element being engageable with only one of the checks during a single ejecting movement of said element, a motor for operating said reciprocatory element, a circuit for said motor, and a switch arranged adjacent said opening normally kept open by a partially ejected check and operable upon withdrawal of said check to close the circuit for said motor.

17. In a check dispensing machine, a magazine for containing a stack of checks having a discharge opening through which said checks are ejected, an ejecting mechanism including a reciprocatory element operable

upon each actuation thereof to partially eject a check through said opening, a motor for operating said reciprocatory element, a circuit for said motor, a switch arranged adjacent said opening normally kept open by a partially ejected check and operable upon withdrawal of said check to close the circuit for said motor, and a clutch device operable upon each closure of said circuit to couple and uncouple said motor to and from said ejecting mechanism.

18. In a check dispensing machine, a magazine for containing a stack of checks having a discharge opening through which said checks are ejected, a platform pivoted at one end in said magazine and upon which said stack of checks is supported, means for adjusting the other end of said platform to vary the height thereof in order to regulate the size of said opening, an ejecting mechanism operable upon each actuation thereof to partially eject a check through said opening, a motor for operating said mechanism, a circuit for said motor, and a switch device including a pair of contacts one of which is carried by said adjustable platform, said contacts being normally kept open by a partially ejected check and operable upon withdrawal of said check to close the circuit for said motor.

19. In a check dispensing machine, a magazine for containing a stack of checks having a discharge opening through which said checks are ejected, a platform pivoted at one end in said magazine and upon which said stack of checks is supported, means for adjusting the other end of said platform to vary the height thereof in order to regulate the size of said opening, an ejecting mechanism operable upon each actuation thereof to partially eject a check through said opening, a motor for operating said mechanism, a circuit for said motor, a switch device including a pair of contacts one of which is carried by said adjustable platform, said contacts being normally kept open by a partially ejected check and operable upon withdrawal of said check to close the circuit for said motor, and a clutch device operable upon each closure of said circuit to couple and uncouple said motor to and from said ejecting mechanism.

In testimony whereof I have affixed my signature.

GRANVILLE S. RIDER.