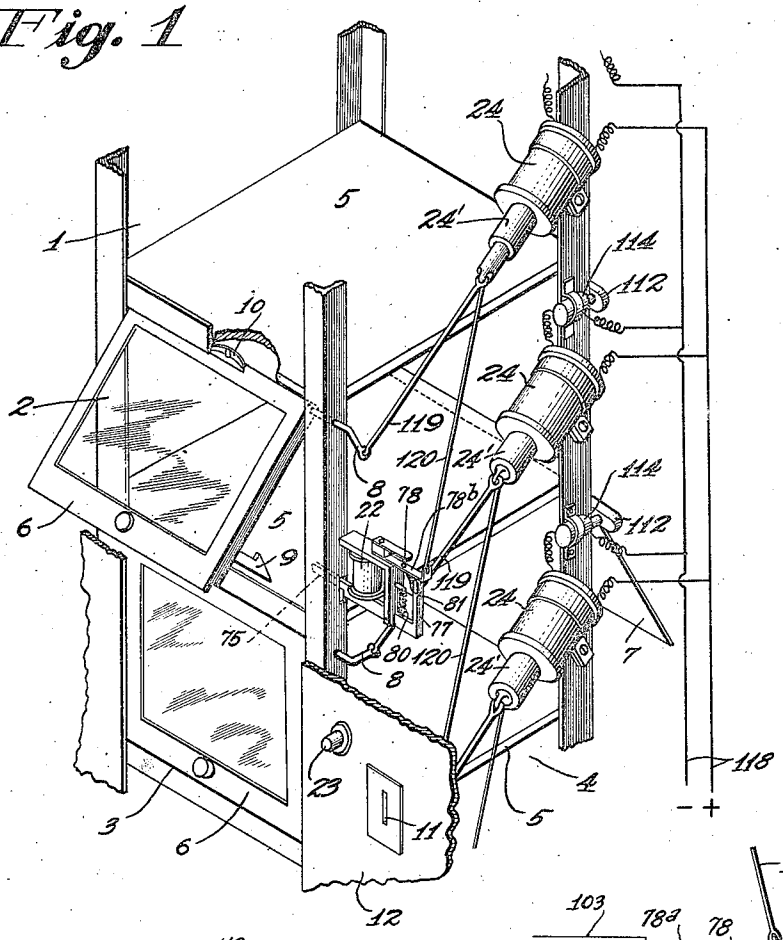
J. ZSOLDOS.

VENDING MACHINE.

APPLICATION FILED OCT. 12, 1921

1,435,441. Patented Nov. 14, 1922.

Fig. 1



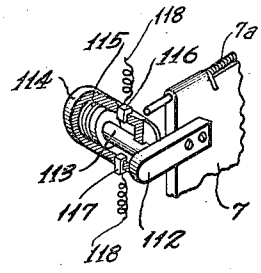


Fig. 2

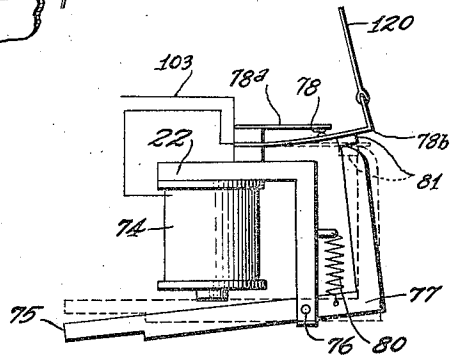


Fig. 3

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Patented Nov. 14, 1922. 1,435,441

UNITED STATES PATENT OFFICE.

JULIUS ZSOLDOS, OF BROOKLYN, NEW YORK, ASSIGNOR TO RESTAURANT MACHINERY COMPANY, OF NEW YORK, N. Y., A CORPORATION OF DELAWARE.

VENDING MACHINE.

Original application filed December 15, 1919, Serial No. 344,828. Divided and this application filed October 12, 1921. Serial No. 507,165.

To all whom it may concern:

Be it known that I, JULIUS ZSOLDOS, a citizen of Hungary, residing in the city of New York, borough of Brooklyn, county of Kings, and State of New York, have invented a certain new and useful Vending Machine, of which the following is a specification.

This invention is a vending machine and particularly adapted for employment in the vending of food in automatic restaurants, although its use is, manifestly, not restricted to this environment.

The vending machine of the present invention embodies one or more compartments adapted to contain the food to be vended, and each compartment is provided with a front closure which may be termed a discharging closure, and a rear closure which may be termed a charging closure. Food is adapted to be positioned within the chamber by opening the charging closure and is removed by the purchaser after opening the discharging closure. In practice, the opening of the front closure by the prospective purchaser is preferably made conditional upon the insertion of coins of a predetermined value, into the machine, but this forms no part of the present invention. Such coin actuated mechanism as well as other adjunctive devices and co-operating mechanism, are fully disclosed in my co-pending application Serial No. 344,828, filed December 15, 1919, of which this application is a division. The present invention is directed more especially, to novel and efficient means, by virtue of which the front closure of the food chamber may be automatically closed through electric mechanism, caused to function by the act of replenishing the food chamber through the rear closure.

The machine is preferably so constructed that after the contents of any one of the food chambers has been dispensed through the opening of the front closure, said front closure will remain open and in unlocked condition until attendant opens the rear closure, replenishes the food chamber and closes the rear closure, such replenishing operation serving to effect a closing and locking of the front closure.

In one of its preferred, practical embodiments the invention consists in a food chamber provided with a front closure and a rear closure. Means is provided to normally lock the front closure in closed position. Suitable means is further associated with the front closure whereby said closure may be unlocked by a prospective purchaser, and when so unlocked the means for locking the same is adapted to lock said closure in an unlocked condition so that it cannot be inadvertently locked again until the food to be vended is subsequently positioned within the food chamber. With the locking mechanism of the front closure, is associated electric means which are controlled by the operation of the rear closure so that when the rear closure is opened to introduce food into the chamber, said electric mechanism will be energized and operated to effect a closing and locking of the front closure.

I have found it practical to associate with the front closure an electrically controlled lock which may be energized by suitable coin-controlled mechanism to unlock the front closure, and may be further energized through the operation of the rear closure to relock the front closure when said front closure has been moved to closed position by further electrical means brought into operation by the movement of the rear closure. The present invention, however, is not restricted to these details but contemplates, particularly, the electrical control of the front closure by or from the rear closure. A mechanical control of a front closure by a rear closure has heretofore been suggested but has not been proven practical. Such mechanical controls necessitate the employment of cumbersome and unwieldly mechanism which passes through the food chamber and usually comprises pivoted links and levers. Such links and levers require lubrication to properly function, and the use of oil or other lubricants within the food chamber is not healthy nor desirable. Moreover, the links and levers, particularly when lubricated, rapidly collect dust and dirt, and render the construction unsanitary and unclean. By the employment of electric means, such as contemplated by the present invention, I am able to efficiently and readily control the front closure from the back closure, without passing any of the controlled means within the food chamber.

Other advantages adhering in the construction of this invention will be apparent

from the following detailed description, when read in conjunction with the accompanying drawings and in the appended claims.

In the accompanying drawings I have illustrated one practical embodiment of the invention, but the construction therein shown is to be understood as illustrative only and not as defining the limits of the invention.

Figure 1 is a fragmental perspective view of a portion of a vending machine embodying the present invention.

Figure 2 is a perspective detail of switch mechanism illustrated in Figure 1, and

Figure 3 is a side elevation of an electrically controlled lock employed in the construction of Figure 1.

A machine embodying the present invention may partake of various forms but, for the purpose of illustration, I have shown a machine of the character described and claimed in my co-pending application, filed December 15, 1919, Serial No. 344,828, of which this application is a division. In the illustration advanced, Figure 1 shows two substantially complete compartments, and the adjoining upper and lower compartments are illustrated fragmentarily. The upper fragmentary compartment is designated 1, the next lower compartment 2, the next lower 3, and the lowermost compartment 4. As shown, this bank or tier of compartments, which may be duplicated side by side, is constructed by associating spaced platforms 5 in an upright angle iron frame. Each compartment is provided at its front with a door 6, and at its back with a door 7. The doors 6 are each pivoted at their upper edges in the angle iron frame on suitable trunnions, one of which is continued to form a crank 8, the purpose of which will be hereinafter more fully set forth, while the back doors are pivoted at their upper edges in any suitable manner to allow of their being raised or lowered into open or closed position. Each of the front doors is provided with a keeper 9, by means of which it may be normally locked in closed position, and at the upper edge of each door is preferably provided a spring 10, the purpose of which is to move the door into slightly open position as soon as released or unlocked by mechanism hereinafter to be described. The front doors are preferably provided with glass or otherwise transparent panels, so that the contents of the compartments may be viewed by the prospective purchasers, but, in practice, the back doors are preferably made opaque so as to conceal the space back of the compartments. In the carrying out of its functions, the several compartments are charged by an attendant who introduces the food into the compartments through the rear door which is thereafter closed. At this time the front door is adapted to be locked and remains locked until the prospective purchaser has introduced a coin or coins into the machine, and through suitable mechanism the door is unlocked to allow of the removal of the food.

The construction described is well adapted for the carrying out of the present invention although it will be understood, that in practice, the invention may be utilized in conjunction with other constructions than that shown and the doors may be mounted in other ways, without departing from the spirit or scope of the invention. However, in associating the invention with a structure of the character disclosed, I associated with the frame of the machine, adjacent each compartment, an electrically controlled lock, so that each of the front doors 6 may be individually controlled. The lock may partake of various forms, but as shown embodies a latch 75, pivoted at 76 to an L-shaped frame 22, one arm of which carries the pivot 76, and the other arm of which carries the magnet 74, of which the latch 75 constitutes the armature. The latch 75 is provided at its rear end with an upwardly extending arm 77, which is adapted to control a switch 78. This switch 78 embodies a relatively fixed contact arm 78^a, and a spring contact arm 78^b, flexed in an upward direction, so that the contacts of the switch 78 are in engagement with one another and the circuit which said switch controls is completed. A spring 80 associated with the latch, serves to normally maintain the parts in this condition, which is the locked condition of the lock. When one of the compartment doors 6 is closed and the corresponding latch 75 depressed, as is shown in full lines in Figure 3, the free end of the latch engages with the keeper 9 of the door, and locks the door in closed position. This leaves the circuit 103, which the switch 78 controls, completed. If the magnet 74 is now energized it serves to lift the latch 75 against the tension of the spring 80 for the purpose of simultaneously unlocking the door and opening the switch 78 to deenergize the magnet 74. As soon as the latch 75 is raised to unlock the door, the arm 77 of the latch comes to a position back of the stop 81, so that the latch is locked by said stop in lifted position and the door is locked in an unlocked position.

As clearly and fully set forth in my co-pending application aforesaid, the means for unlocking the door through the completion of the circuit 103 and the consequent energizing of the magnet 74 is accomplished through coin-actuated mechanism and associated push-button mechanism. These mechanisms are, however, embraced in my prior application, and the present invention

is not particularly directed thereto, but rather and especially to the means for relocking the front door after it is opened and locked open. The present invention contemplates the relocking of the front door by movement of the back door.

To this end I associate with each door, a switch 114, which is shown as a piston switch provided with a stem 113 carrying a metallic piston, back of which is positioned a spring 115. Contacts 116 and 117 are set into the walls of the switch, so that when the spring 115 forces the piston forwardly, said piston serves to bridge the contacts 116 and 117, and complete a circuit 118. Each switch 114 is positioned directly adjacent one of the pivots of its associated back door 7, and on said back door is mounted a projection 112 which, when the door is closed, presses upon the stem 113 and forces the piston free from engagement with the contacts 116 and 117, after the manner clearly shown in Figure 2. However, when the door 7 is opened, the spring 115 automatically forces the piston forwardly, so that the circuit 118 is completed.

Also associated with each compartment, is a solenoid 24, the several solenoids being included in multiple in the circuit 118, and in series with the corresponding switch 114. Accordingly, when any one back door is opened to permit the replenishing of the compartment with food, the solenoid associated with that upper solenoid is energized, and in accordance with this invention said solenoid is so operatively connected with the corresponding front door and its associated electric lock, that when so energized such front door will be instantly and positively closed and locked.

In the preferred manner of carrying out the invention each solenoid 24 is provided with a movable core 24', which is connected by a link 119 of the crank 8, associated with the pivot of the corresponding front door, and also connected by a link 120 to the spring arm 78^b of the corresponding door lock. The links 119 and 120 may be either rigid or flexible, since they serve the purpose of tension members.

When the solenoids 24 are deenergized with the corresponding back doors closed, and with one or more front doors open, e. g., the front door 6 of the compartment 2, the parts will appear as shown in Figure 1 of the drawings. This is the condition of the parts after food has been dispensed from the compartment 2, the purchaser leaving the front door 6 open, and the same being locked in open position, and locked in such position by the stop 81. If the attendant now opens the rear door 7 of the compartment 2, such opening of the door 7 will permit the spring 115 of the switch 114 to cause the piston of said switch to complete the circuit 118 through the corresponding solenoid 24. Immediately upon the energizing of the solenoid 24, its core will be retracted, placing the links 119 and 120 under a tension, to the end that the link 119 will operate upon the crank 8 to pull the door 6 shut, and simultaneously, the link 120 will lift the contact arm 78^b, so that the stop 81, will carry the upper end of the arm 77 of latch 75. Since the stop 81 frees the latch, the spring 80 immediately depresses said latch and, as the door is at this time being held in closed position by the link 119, the latch will drop into engagement with the keeper 9, and the door 6 will be locked in closed position. After the attendant has opened the door and through the operation described, automatically and electrically effected the closing and locking of the front door, he proceeds to replenish the compartment with food and thereafter closes the rear door. The closing of the rear door merely serves to break the circuit 118 and deenergize the solenoid 24, leavnig the front door in a closed and locked condition. A spring 7^a is shown in Figure 2 as associated with the pivot of the back door to maintain the same in closed position, but in practice, the weight of the door is adequate to overcome the tension of the spring 115 of switch 114, and the spring 7^a is not essential.

In the foregoing detailed description the preferred form of the present invention has been set forth in detail, and I have shown and fully described the manner in which the operation of the front door of the food chamber, and more particularly the closing and locking of the same, may be fully and positively controlled through electrical means, by the operation of the back door of such compartment. In the drawings other details are shown which enter into the construction of the machine, such as the push-button 23, the coin slot 11, and the spring 10 for causing the front door to spring open immediately after it is unlocked. These adjunctive features, however, relate particularly to the dispensing operation and not to the relocking of the front door, and are not of particular interest in this application.

I am aware that the construction described in the foregoing specification, and illustrated in detail in the accompanying drawings, may be changed or modified, as by the substitution of equivalents by those skilled in the art, without departing from the spirit or scope of this invention, which is to be understood as broadly novel, as is commensurate with the appended claims.

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

1. A vending machine embodying a compartment provided with front and rear closures, a lock associated with the front clo-

sure, and electro-magnetic means controlled by the operations of the rear closure for closing and locking the front closure.

2. A vending machine embodying a vendable compartment provided with front and rear closures, a lock associated with the front closure, electro-magnetic means for closing and locking the front closure, and a switch operable by movement of the rear closure for controlling the operations of the electro-magnetic means.

3. A vending machine embodying front and rear closures, locking means associated with the front closure, means for normally locking the lock in unlocked position, tension means assocated with the front closure and with the means for locking the lock in unlocked condition, and means, controlled by the movement of the rear closure for electro-magnetically imposing a tension upon the tension means to simultaneously lock and close the front closure.

4. A vending machine embodying a compartment provided with a pivoted front closure having a crank formed on one of the pivots thereof, and a rear closure, a lock associated with the front closure, a solenoid, connections between the core of the solenoid and the crank of the front closure and also between the core of the solenoid and the means for locking the lock in unlocked position, and a switch operable by the rear closure for energizing the solenoid for the purpose of simultaneously closing and locking the front doors.

5. A vending machine embodying a compartment provided with front and rear closures, and means electrically controlled by movement of the rear closure to effect a closing and locking of the front closure.

6. A vending machine embodying a compartment provided with front and rear closures, electrically operated means for closing the front closure, electrically operated means for locking the front closure after it has been closed, and electrical means operated by the movement of the rear closure to control operations of the front closure, closing and locking means.

7. A vending machine embodying a compartment provided with front and rear closures, a lock associated with the front closure, power mechanism operatively associated with the front closure and with the lock to effect a closing of the front closure and the simultaneous locking of the same in in closed position, and electrical means controlled by the operations of the rear closure for controlling the operations of the power mechanism.

8. A vending machine embodying a compartment provided with a front closure and a rear closure, a lock associated with the front closure, means associated with the lock for maintaining the lock in unlocked condition, a solenoid provided with a movable core, operative connections between the front closure and the core and between the core and the means for locking the lock in unlocked condition, whereby movement of the solenoid core is adapted to close the front closure and simultaneously release the lock to permit of the locking of the front closure in closed position, and an electric circuit, including a switch operable by movement of the rear closure, so that the closing and locking of the front closure is made conditional upon movement of the rear closure.

9. A vending machine embodying a compartment provided with a pivoted front closure and a pivoted rear closure, a lock associated with the front closure, a solenoid, therein, with a movable core, operative connections between the core of the solenoid and the front closure, and also between the core of the solenoid and the lock, whereby the movement of a solenoid core is adapted to effect the closing of the front closure and the simultaneous locking of the same in closed position, and an electric circuit including a switch, positioned for operation through movement of the rear closure, so that the closing and locking of the front closure is made conditional upon the movement of the rear closure.

10. A vending machine embodying a compartment provided with a front closure, a lock associated with said closure, electrical means common to the lock and closure for closing said closure and simultaneously locking the same, said means provided with an electric circuit including a switch which, when actuated, causes the closing and locking of the front closure.

In testimony whereof I have signed the foregoing specification.

JULIUS ZSOLDOS.