Dec. 26, 1944. R. BAKER, SR 2,365,995

VENDING MACHINE

Filed Dec. 30, 1941 4 Sheets-Sheet 1

Fig. 1.

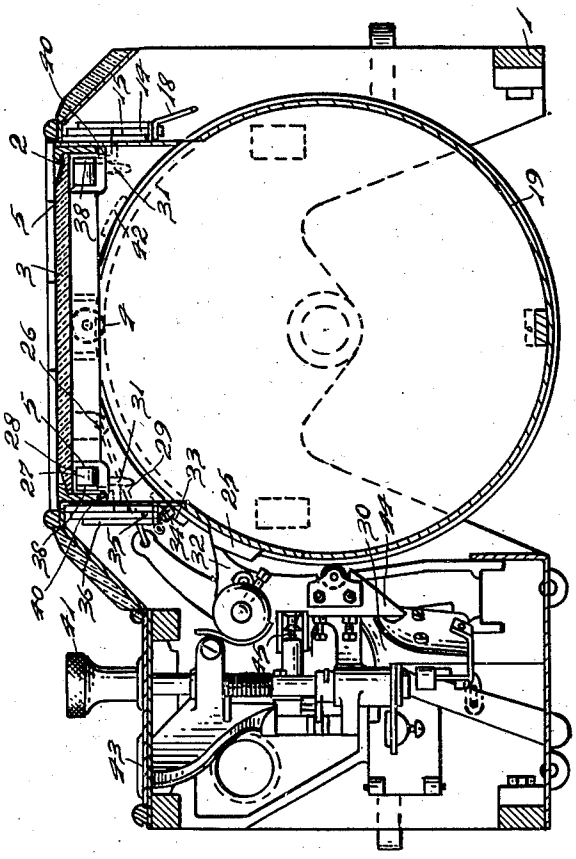
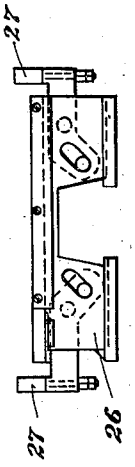


Fig. 10.



INVENTOR
Raymond Baker, Sr.
BY
Herbert L. Fairbanks
ATTORNEY

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VENDING MACHINE

Filed Dec. 30, 1941 4 Sheets-Sheet 2

Fig. 2.

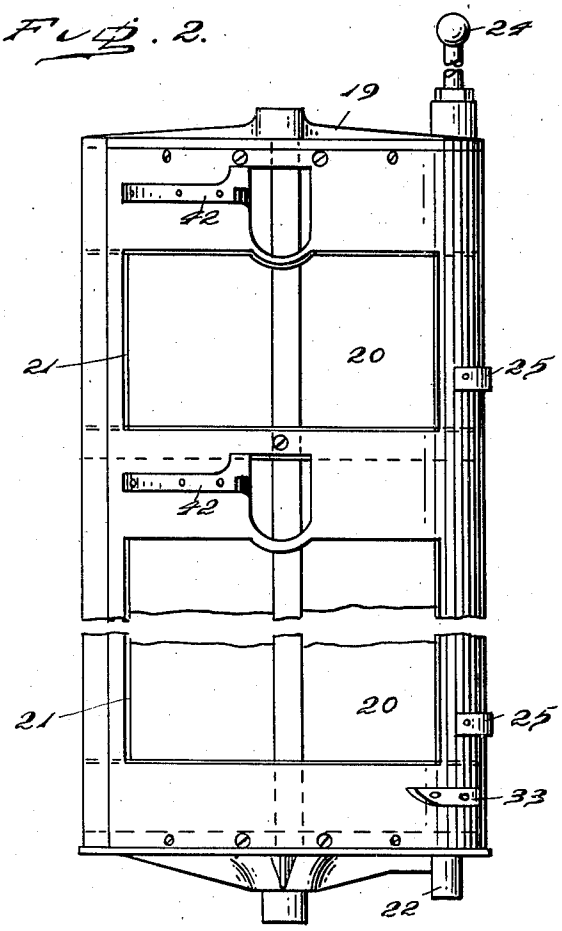
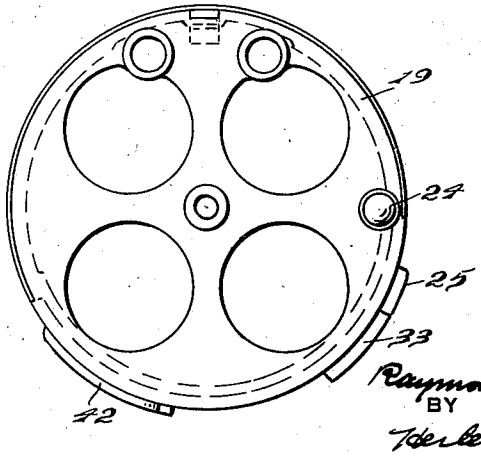


Fig. 3.



INVENTOR
Raymond Baker, Sr.
BY
Herbert S. Fairbanks
ATTORNEY

Dec. 26, 1944. R. BAKER, SR 2,365,995

VENDING MACHINE

Filed Dec. 30, 1941 4 Sheets-Sheet 3

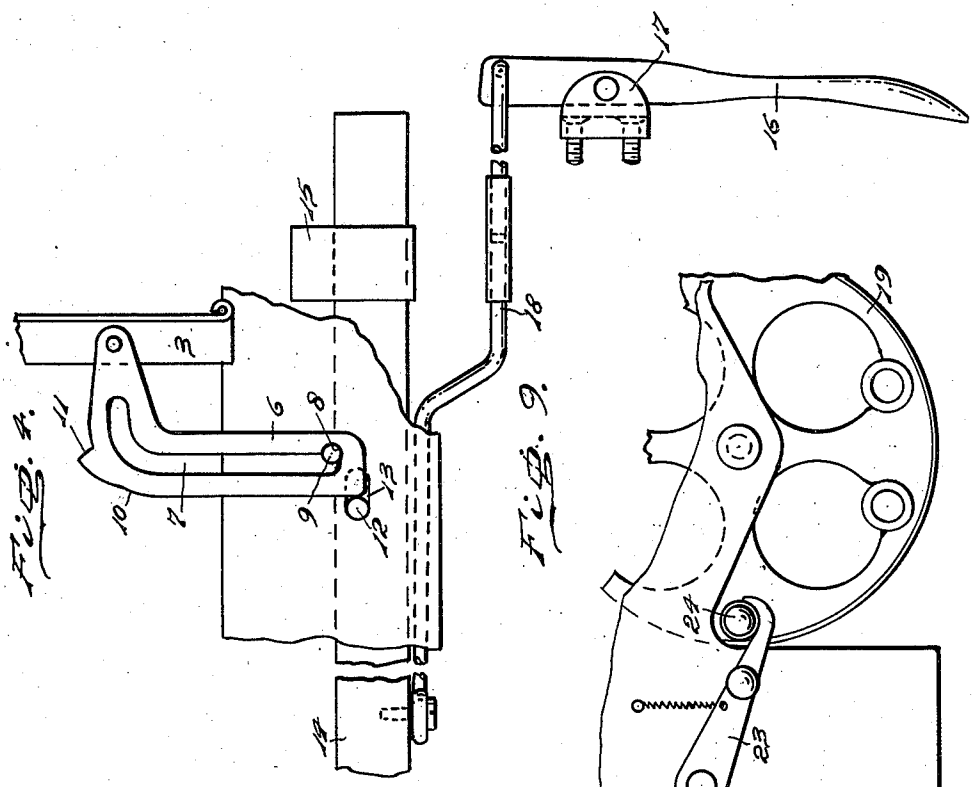


Fig. 4.

Fig. 9.

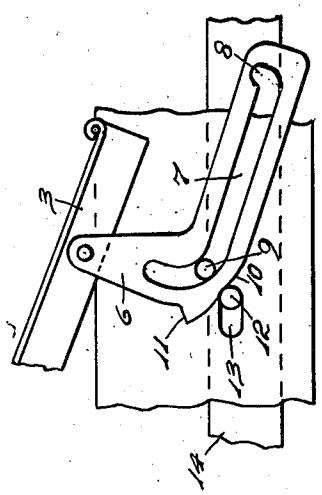


Fig. 5.

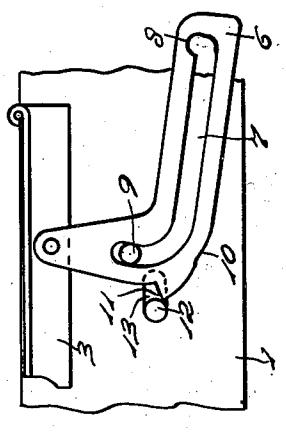


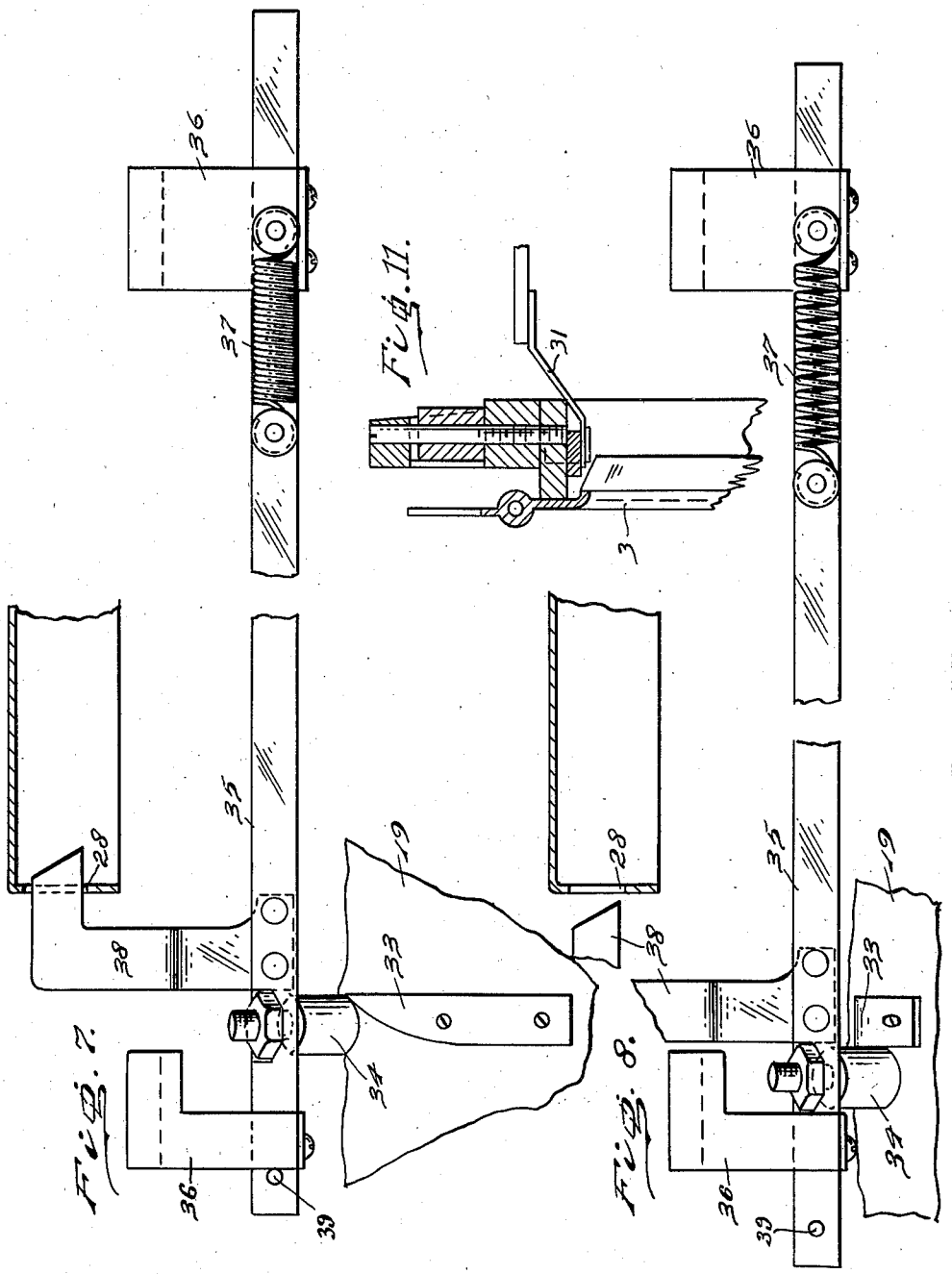
Fig. 6.

INVENTOR
Raymond Baker, Sr.
BY
Herbert L. Haibach
ATTORNEY

Dec. 26, 1944. R. BAKER, SR 2,365,995

VENDING MACHINE

Filed Dec. 30, 1941 4 Sheets-Sheet 4



INVENTOR
Raymond Baker, Sr.
BY
Herbert V. Fairbanks
ATTORNEY

Patented Dec. 26, 1944 2,365,995

UNITED STATES PATENT OFFICE

2,365,995

VENDING MACHINE

Raymond Baker, Sr., Upper Darby, Pa., assignor to Horn & Hardart Baking Co., Philadelphia, Pa., a corporation of New Jersey

Application December 30, 1941, Serial No. 424,881

4 Claims. (Cl. 312—97.1)

The object of this invention is to devise a novel vending machine, and more particularly novel door controlling and locking mechanism.

In one type of vending machines used in "Automats" for the vending of articles of food, a bank of vending machines is built up of units of construction arranged side by side to form a continuous wall, having vertically aligned, door controlled, delivery openings, and each door is provided with an individual locking mechanism. Each unit has an article carrier in the form of a rotatably mounted drum having superimposed article receiving compartments, each of which has a combined receiving and delivery opening to register when in vending position with the door controlled openings. Upon the insertion of a coin or coins of the proper value into the coin mechanism for a selected compartment and the turning of the handle for such locking mechanism, the locking mechanism is released and the door is permitted to swing open. Each door is provided with a latch so that when raised, it will be retained in its raised position. The drums are provided with cams, effective when the drum is rotated to reset the coin mechanism and to lock the doors in closed position.

My present invention relates more particularly to a machine of this type, and comprehends novel mechanism, controlled by an attendant in rear of the machine, to cause all of the doors of a unit to be moved into locking position without shock, and novel mechanism for locking all of the doors of such unit.

Other novel features of construction and advantage will hereinafter appear in the detailed description and the appended claims.

For the purpose of illustrating the invention, I have shown in the accompanying drawings a preferred embodiment thereof which I have found in practice to give satisfactory and reliable results. It is, however, to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized, and the invention is not limited to the exact arrangement and organization of these instrumentalities as herein shown.

Figure 1 is a sectional plan view of a vending machine, embodying my invention.

Figure 2 is a front elevation of the article carrier.

Figure 3 is a top plan view of the article carrier.

Figure 4 is a side elevation of a door and its latch in the position they assume when the door is in its wide-open position.

Figure 5 is a side elevation, showing the position the latch and door assume when the handle nontrolling them is pressed downwardly.

Figure 6 is a side elevation showing a door and its latch, with the door in its closed position.

Figure 7 is a side elevation of a slide bar and its adjuncts.

Figure 8 is a side elevation similar to Figure 7, but showing the slide bar and its adjuncts in a different position from that seen in Figure 7.

Figure 9 is a top plan view, showing more particularly means for securing the article carrier in vending position.

Figure 10 is a rear elevation of a portion of the door locking mechanism seen in Figure 1.

Figure 11 is a detail of the spring for a door.

Similar numerals of reference indicate corresponding parts.

Referring to the drawings:

1 designates the frame of a vending machine, embodying my invention. The frame is provided with a row of superimposed and vertically aligned article delivery openings 2, the row forming a unit of construction. Each opening is controlled by an individual door 3, pivotally carried by the frame, and arranged to move to its closed position by gravity. The doors have rollers 4, and have openings 5 in their bottoms to receive locking plungers in a manner which will be hereinafter described. Each door 3 has one end of a latch 6 pivotally connected with it. Each latch has an L shaped slot 7, provided with a notch or open recess near the free end of the latch, as at 8, to cooperate with a headed pin 9, fixed to a side wall of a door frame. The rear edge of the latch has an inclined edge portion 10 which merges into a stop shoulder 11. The latches are controlled in a novel manner by studs 12, extending through slots 13 in a door frame with proper clearance to provide for the raising and lowering of the studs. The studs 12 are fixed to a bar 14, slidable in guides 15, fixed to the frame. A handle 16 in the form of a lever is pivoted to a bracket 17 fixed to the frame and is connected by a link 18 with the slide bar 14.

An article carrier 19, in the form of a drum, having superimposed article receiving compartments 20, is rotatably mounted in the frame, so that combined receiving and delivery openings 21 in the drum will register with the door controlled delivery openings of the frame, when the drum is in its vending position. The drum has a stop member 22 cooperating in the con-

ventional manner with the frame to limit the rotation of the drum.

The drum is locked in its vending position by a spring catch 23, cooperating with a handle 24 carried by the drum to turn it. The drum has on its outer periphery cams 25, similar to those shown in the Cramer Patent No. 1,758,652, to cooperate with locking mechanism similar to that shown in said patent and in the Fritsche Patent No. 1,199,066 and Fritsche Patent No. 1,039,508 to which reference is directed for a detailed description of the construntion and operation of such mechanism. For the purpose of description, it is only necessary to state that the locking mechanism has, as shown in the Fritsche and Cramer patents, aforesaid, for each door a cam slide 26 which moves the locking ends of levers 27 into and out of openings 28 in the bottom of a door frame and the openings 5 in the bottom of a door. Each cam slide 26 is connected by a link 29 with its respective, tensioned coin mechanism 30, which when released swings laterally to move the cam slide in a direction to cause the unlocking of the door controlling the delivery opening. The opening movement of the door is facilitated by springs 31 having one end fixed to the door and their free ends bearing against the door frame. The cams 25 on the drum cooperate with levers 32 of the coin mechanism to reset the coin mechanism and effect the locking of the doors when the drum is turned.

I provide novel means for simultaneously locking all of the doors. The drum has a cam 33 which cooperates with a roller 34 on a locking bar 35, slidable in brackets 36, fixed to the machine frame. The locking bar is normally retained in its raised position by a spring 37, one end of which is fixed to the bar and the other end of which is fixed to a fixed point of the frame and as shown to a bracket 36. The locking bar has locking plungers 38 fixed to it and offset intermediate their ends, one for each door. The free ends of the locking keys are bevelled and are adapted to pass into the openings 28 in a door frame and the openings 5 in a door. The upward movement of the locking bar is limited by a stop 39 on the bar engaging a guide bracket 36 for the locking bar. The inward movements of the doors are limited by stops 40 carried by the door frames. Cams 42 have the same function as the door closing cams 18 in the Cramer Patent 1,905,083. The movement of a lever 44 of the coin mechanism controls a stop member 45 to control the passing of a coin through the coin chute into a coin receiver.

The operation will now be apparent to those skilled in this art and is as follows:

We will now assume that the compartments of the article carrier are filled with articles to be vended, that the article carrier is in vending position, and that the doors are locked.

The intending purchaser inserts a coin or coins of the proper denomination in the coin slot of a selected coin mechanism, and turns the handle 41. This releases the coin mechanism 30 as disclosed in the Cramer Patent No. 1,758,652. The rear portion of the pivoted coin mechanism swings towards the right as viewed from the rear in Figure 1, and the arm of the coin mechanism which is connected by the link 29 with the cam slide 26, moves to the left, thereby moving the locking portions of the locking levers 27 downwardly to release the door, which latter swings partially open due to the action of the springs 31.

The purchaser raises the door into substantially a horizontal position, the pin 9 being received in the notch 8 of the latch 6 to retain the door in its raised and open position. The purchaser removes the article purchased and ordinarily leaves the door in its raised position.

Since the openings to the compartments in the article carrier serve as combined receiving and delivery openings, and the compartments are refilled from the rear of the machine, the article carrier must be turned from its vending position. The doors must be released from their latches before they can be closed. The attendant in rear of the machine presses downwardly on the handle lever 16, thus moving the locking bar 14 upwardly and causing the studs 12 to move the free ends of the latches upwardly and releasing the notches 8 from the pins 9. In order to prevent the doors closing with a bang, the latches are provided with inclined edge portion 10 so that the doors are momentarily arrested in their downward swing when the walls 10 come into contact with the studs 12. The attendant now releases the handle 16, the bar 14 drops, and the doors complete their closing movements without shock, and the shoulders 11 of the latches engage the studs 12.

The doors are now in position to be fully closed by the turning of the article carrier from its vending position into its receiving position. During this turning movement, the cams 42 on the article carrier press against the rollers 4, positioned above the pivotal plane of the doors, and move the doors into locking position.

The cams 25 act on the levers 44, which have a lug and shoulder connection with their coin mechanisms (see parts 68—69, Figure 4, Cramer Patent No. 1,758,652), and the coin mechanisms swing to the left and are reset in their vending positions. The arm connected by link 29 with the cam slide 26 moves the cam slide to cause the locking plungers to move into the door openings 5. The locking bar 35 is in its raised position except when it is lowered by the cam 33 on the article carrier. When the article carrier is in vending position, the roller 34 is bearing on the under face of the cam 33, but, as soon as the article carrier is turned, the roller is disengaged from the cam and the locking bar 35 moves upwardly to lock all of the doors. This prevents a door being unlocked by its coin mechanism when the article carrier is being turned to or from its vending position.

When the article carrier is in vending position, the cams 25 engage the cam members 32 on the levers 44, so that the coin stop members 45 are moved outwardly from the coin chutes to permit the coins to pass freely through the coin chutes into the coin receivers of the coin mechanisms.

The stop 22 on the article carrier cooperates with fixed portions of the machine frame to stop the article carrier in its vending or in its filling position.

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

1. In a vending machine, a frame having superimposed article delivery openings, doors controlling said openings, an article carrier rotatably carried by said frame and having superimposed compartments with openings to register with said door controlled openings, locking mechanism ineffective to lock said doors when the article carrier is in vending position and effec-

tive to lock said doors when the article carrier is turned from its vending position, and means on said article carrier to render said locking mechanism ineffective.

2. In a vending machine, a frame having superimposed article delivery openings, doors controlling said openings, an article carrier rotatably mounted on said frame, and having superimposed compartments with openings to register with the door controlled openings when the article carrier is in vending position, a locking member having means to lock all of said doors, means tending to move said locking member into locking position, and means to move said locking member out of its locking position and retain it out of locking position when the article carrier is in vending position.

3. In a vending machine, a frame having delivery openings one above the other, doors for said openings, a drum rotatably mounted in said frame and having compartments with openings to register with the door openings, a locking bar slidably mounted, locking plungers on the bar engaging openings in the doors to simultaneously lock all of said doors, yielding means to move said bar into locking position, and a cam carried by said drum to move said bar into its unlocked position, and, when the drum is in vending position, to retain said bar in unlocked position.

4. In a vending machine, a frame having superimposed delivery openings, doors controlling said openings, an article carrier rotatably mounted in rear of said openings and having compartments with openings to register with the delivery openings, door locking mechanism set by rotation of said article carrier, and auxiliary locking mechanism to lock said doors when the article carrier is being turned from its vending position.

RAYMOND BAKER, SR.