Oct. 14, 1941. W. PATZER ET AL 2,258,917

LATCH CONTROL

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Fig. 1.

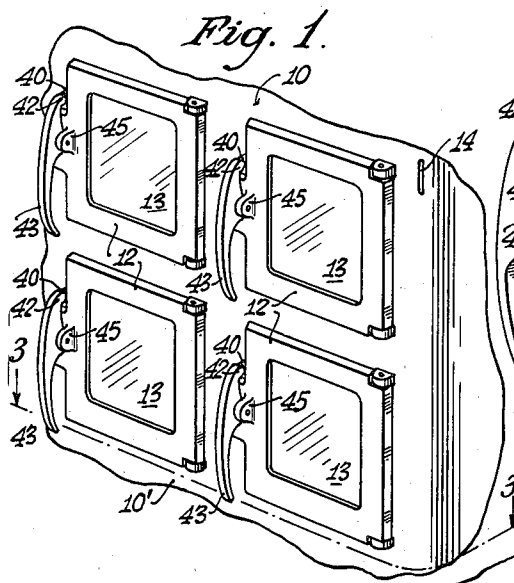

Fig. 2.

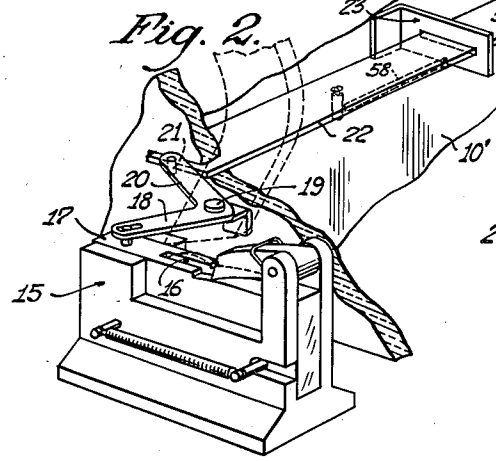

Fig. 4.

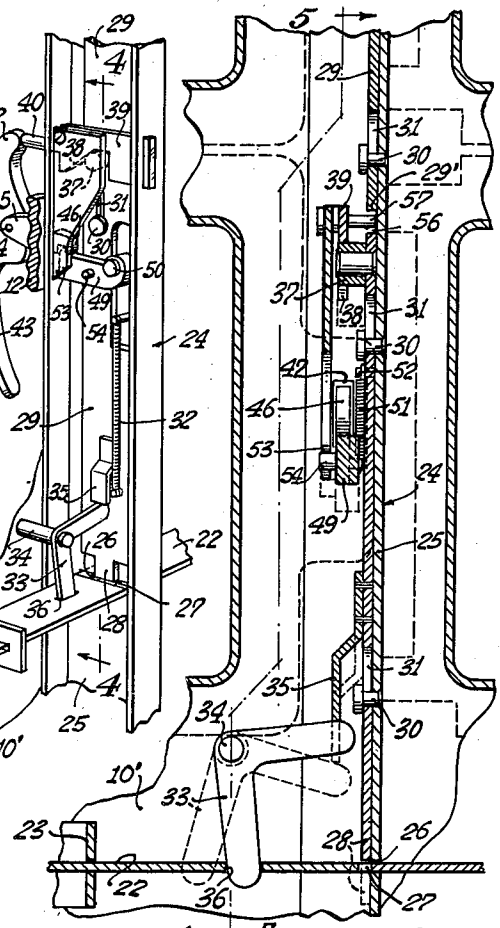

Fig. 3.

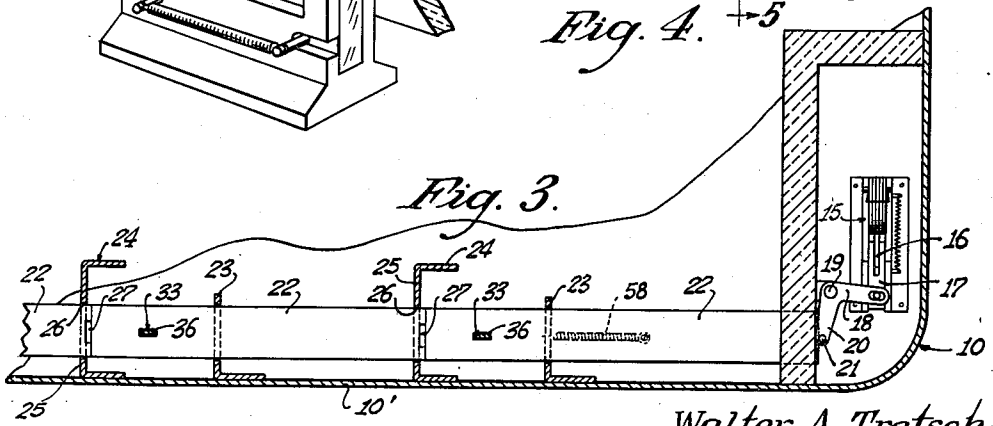

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Fig. 5.

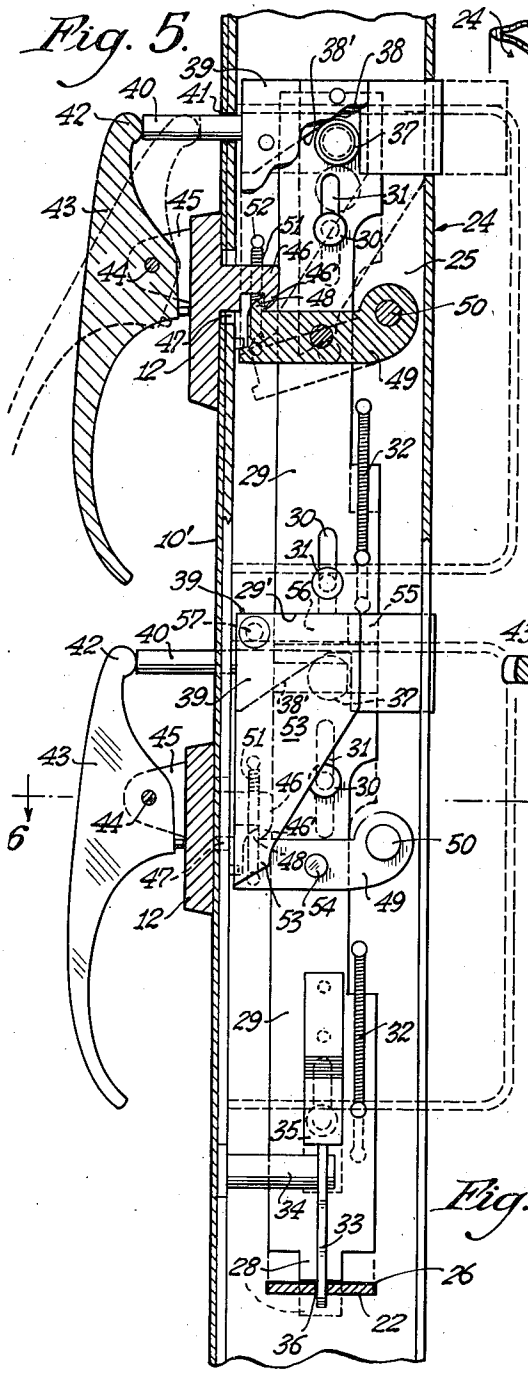

Fig. 7.

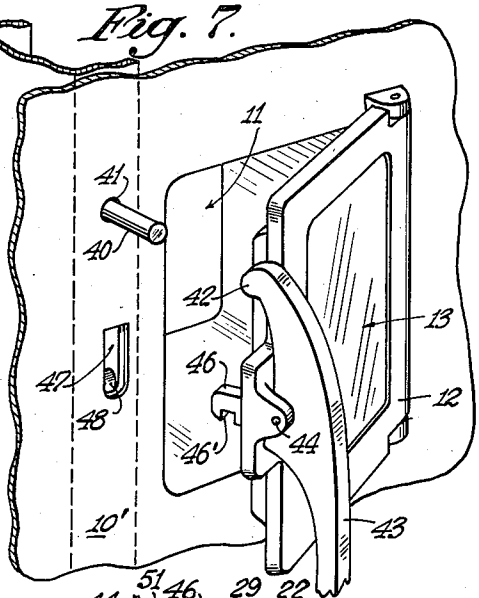

Fig. 6.

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LATCH CONTROL

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Application February 19, 1941, Serial No. 379,558

2 Claims. (Cl. 292—1)

This invention relates to coin-controlled vending machines and more particularly to coin-freed latch control for permitting the operation of only one of a plurality of preselected doors.

Another object of this invention is to provide in a self-help vending machine consisting of a plurality of normally closed doors, of coin-controlled latch means interlockingly arranged so that one only of the doors may be opened for access to a vended article upon the deposit of a single coin.

A further object of the present invention is to provide a novel latch control means operable by the swinging action of a handle lever when the latter is grasped and pulled in door-opening fashion, for releasing the latch mechanism upon the insertion of a coin in the coin chute associated therewith.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings showing the preferred form of construction, and in which:

Fig. 1 is a fragmentary perspective view of the front wall of a vending machine with which our new coin-controlled latch means may be associated;

Fig. 2 is a fragmentary perspective detail of a skeletonized illustration of our new coin-controlled latch mechanism;

Fig. 3 is a fragmentary horizontal detail partly in section as seen along line 3—3 of Fig. 1;

Fig. 4 is a vertical sectional detail view taken substantially along line 4—4 in Fig. 2 and is at a slightly larger scale with respect thereto;

Fig. 5 is a fragmentary vertical sectional detail taken substantially along line 5—5 in Fig. 4;

Fig. 6 is a horizontal sectional detail through one of the article storing compartments in the vending machine and is substantially as seen from line 6—6 in Fig. 5; and

Fig. 7 is a fragmentary perspective view of a portion of the front wall of the cabinet with the door to an article storing chamber in open condition.

As is illustrated in the drawings, our invention is preferably adapted for use with vending machines of the type having a housing or cabinet 10 providing a plurality of article storing chambers 11 each of which is provided with a hinged closure member 12 having a translucent wall 13 through which the articles stored in the chamber 11 may be viewed from the exterior of the cabinet.

The number of compartments provided in the cabinet is optional, it being one of the several objects of this invention to provide a single coin chute which is common to all such compartments. The front wall of the cabinet 10 has an aperture 14 formed therein through which coins may be deposited, such coins gravitating through any one of several well-known coin testing chutes (not shown), with the acceptance opening of such chute terminating in the region above a coin-freed mechanism 15, so that acceptable coins will be deposited in a slot 16 formed in a master slide 17. This master slide 17 is linked by a bell crank 18, pivoted on a wall of the cabinet 10 as at 19, with its opposite leg 20 carrying a depending pin 21 which abuts the free end of a horizontal slide bar 22 arranged for shifting movement in a guide bracket 23.

This invention contemplates a plurality of slide bars similar to the slide bar 22, there being one such slide bar for each vertical tier of article storing chambers 11. Each vertical tier of chambers 11 has associated therewith a vertically arranged channel member 24 having one flange element thereof against the inner face of the front wall 10' of the cabinet and the web portion 25 thereof arranged to support mechanism now to be described.

As seen in Fig. 3, each of the slide bars 22 is arranged in abutting relationship and is supported in the brackets 23 with one end portion thereof extending through a slot 26 formed in the web 25 of the channel 24. The leading edge of each of the abutting slide bars is provided with a notch formation 27 in alignment with the inside face of the web 25 so as to receive a tongue 28 formed on the lower end of a slide bar 29 having pin 30 and slot 31 arrangement on the inside face of the web 25 for vertical movement with respect thereto. Each of the vertically slidable bars 29 is urged by spring means 32 into a normal position with the tongue portion 28 thereof out of engagement with the notch 27 in the horizontally slidable bar 22. Each of the slide bars 29 is linked to its corresponding slide bar 22 associated with the tier in which they are arranged, by means of a dog leg or bell crank lever 33 pivotally arranged on a boss 34 carried on the inside face of the front wall 10' of the cabinet. The lever 33 has its horizontal leg disposed to engage a lateral projection 35 carried by the slide 29 and has its vertically disposed leg extending through a

slot 36 formed in the slide bar 22. The arrangement is such that when the slide bar 29 is depressed in a manner to be hereinafter described, the slide bar 22 associated therewith as well as all other slide bars between the one moved as now described and the master slide 17, will be shifted toward the master slide (to the right, Fig. 3), to rock the bell crank 18 counterclockwise and shift the master slide 17, the latter of which will be released for shifting movement when a proper coin is disposed in its slot 16.

The upper end of the slide bar 29 carries a roller member 37 which is normally urged into a notch formation 38 formed in a plunger member 39 arranged for horizontal shifting movement between the flanges of the channel 24. The plunger 39 has a laterally extending pin formation 40 disposed to be guided for sliding movement in an opening 41 formed in the front wall 10' of the cabinet. The free end of this pin 40 normally engages a cam formation 42 on a handle 43 pivotally arranged as at 44 in trunnions 45 formed as a part of the casting which comprises the door structure 12.

The door 12 has formed integrally therewith a keeper hook 46 (Figs. 5, 6 and 7). This keeper hook 46 is arranged such that when the door is closed the keeper 46 will extend through an opening 47 formed in the front wall of the cabinet, with a notch formation 46' latchingly engaged by the nose 48 of a latch dog 49 pivotally arranged on the web 25 of the channel 24 as at 50; there being a spring 51 anchored to the channel as at 52 and having its opposite end connected to the free end of the latch dog 49 to urge the latter in a clockwise direction (Fig. 5).

The plunger 39 has, as already pointed out, a notch formation 38 which normally acts as a stop for the roller member 37 of the slide bars 29. One edge 38' of this notch 38 is disposed at an angle with respect to the horizontal and bears against the roller 37 in a manner such that when the handle 43 is grasped and pulled in door-opening fashion to rock the latter into dotted line position (Fig. 5), the cam formation 42 will be urged in a clockwise direction, the door being latched against opening, to depress the pin 40 and slide the plunger 39 to the right whereby the edge 38' will in camlike action urge the roller member and the slide bar 29 which carries the same downwardly against the action of the spring means 32 to rock the bell crank 33 in the manner heretofore described and effect movement of the horizontal slide bars 22 in the direction of the master coin slide 17, as heretofore explained.

The plunger 39 likewise carries a second cam formation 53, the lower end of which is arranged to permit an initial movement of the plunger 39 whereby to shift the slide bars 29 and 22, and subsequent to such shifting movement this lower end of the cam formation 53 is adapted to engage a pin 54 extending laterally from the latch dog 49 so that in the last phase of the horizontal movement of the plunger 39 the latch dog 49 will be urged counterclockwise against the action of its spring 51 to dispose the nose 48 out of latching engagement with the keeper member 46 on the door, whereupon the particular door will be free to swing into open condition as seen in Fig. 7.

As seen in Fig. 5, in view of Fig. 1, there may be a plurality of article containing compartments 11 arranged in vertical alignment with respect to each other. For the purposes of explanation there have been but two such vertically arranged units shown, with the lowermost slide bar 29 providing a tongue formation 28 which will form an obstruction for all horizontal slide bars arranged on its side away from the master control slide 17. Each of the vertical slide bars 29 arranged above this lowermost one will have its lowermost edge 29' formed with a depending lug 55 abutting the topmost edge of the lower slide bar 29. Such abutting arrangement of two slide bars provides a slot or notch 56 into which there may be disposed a laterally extending pin 57 carried by the adjacent plunger member 39. According to such construction, if the uppermost slide bar were depressed by operation of the handle as heretofore described, the depending lug 55 of the slide bar 29 would depress the next succeeding slide bar 29 downward, thus moving the notch or slot 56 formed between the two abutting slide bars 29, out of alignment with the laterally extending pin 57 on the adjacent plunger 39; thus, it is seen that operation of the lowermost plunger 39 would be blocked by reason of the lateral extension 57 thereof bearing against the side edge of the now depressed slide bar 29. Likewise, if the lowermost slide bar 29 alone were depressed by reason of operation of its handle 43 to shift the plunger 39 associated therewith inwardly, the lateral extension 57 carried by such moving plunger 39 would pass into the slot formation 56 provided between the two abutting slide bars 29 and obstruct the uppermost slide bar 29 against movement in a downward direction, thereby latching all door mechanisms above the particular one opened against operation.

Once the door to a particular compartment has been opened, the latch keeper 46 will be removed from latching engagement with the latch dog 49 and by reason thereof the door handle and door will be swung away from the front face 10' of the cabinet, thereby freeing the plunger for movement into normal position as shown, by action of the spring members 32 as well as like spring members 58 arranged with respect to the horizontally disposed slide bars 22 to return the latter to a normal position. That being the case, even though a compartment is vacated and the door thereto is left in an open condition, the remaining compartments are still capable of being operated upon the deposit of a coin in the manner heretofore described.

It is therefore seen that we have provided a coin-controlled latch mechanism which is effective for preventing simultaneous operation of any two of a plurality of latched doors upon the deposit of but a single coin in the coin chute.

It is likewise pointed out that we have provided a means whereby when a particular tier is operated upon the deposit of a coin, all other tiers will be prevented from operation, and further that we have provided a latch mechanism whereby access to article compartments disposed one above another may be had only one compartment at a time for the deposit of each individual coin.

While we have illustrated and described the preferred form of construction for carrying our invention into effect, this is capable of variation from the spirit of the invention. We therefore do not wish to be limited to the precise details of construction set forth, but desire to avail ourselves of such variations and modifications as come within the scope of the appended claims.

Having thus described our invention, what we

claim as new and desire to protect by Letters Patent is:

1. In a coin-controlled latch means for a vending machine including a cabinet having a plurality of normally latched doors, in combination, a series of shiftable blocks, spring means normally urging said blocks into an initial position each block having abutting opposite end portions, bolt means slidably arranged in said cabinet for movement transversely of said shiftable blocks and having a plunger portion thereof extending exteriorly of said cabinet, handle means on each of said doors adapted to engage and depress said plunger when the handle is grasped and pulled to open said door, cam means on said bolt means adapted to disengage said door from normally latched condition, and roller means on each of said shiftable blocks and engageable by said cam means when the bolt means is shifted as aforesaid to effect shifting movement of said blocks against the action of said spring means, said last-named movement of an intermediate bolt means blocking like movement of any of the remaining shiftable blocks.

2. In a latch mechanism for coin-controlled vending machines, a plurality of horizontally arranged door members and latch means for locking the same, a shiftable series of contiguous blocks with one of said blocks associated with each of said door members, a vertically slidable member arranged to move into and out of engagement with the end portions of said blocks, a handle on said door, plunger means arranged for slidable movement transversely of said vertically slidable member and adapted to be moved inwardly by engaging action of said handle when the latter is pulled in door-opening fashion, cam means on said plunger adapted to engage said latch and release the latter from door-locking condition, roller means on said vertically shiftable member and engageable by said cam means when the plunger means is moved as aforesaid, and lever means linking said vertically shiftable member to the shiftable block, associated with the particular door member moved, to shift said shiftable blocks in a direction away from said vertically shiftable member permitting the latter to obstruct like movement of the abutting shiftable block, and coin release mechanism arranged normally to prevent movement of said blocks.

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