

July 11, 1939.

W. A. TRATSCH ET AL

2,165,590

COIN-FREED CONTROL

Filed March 20, 1937

Fig. 1.

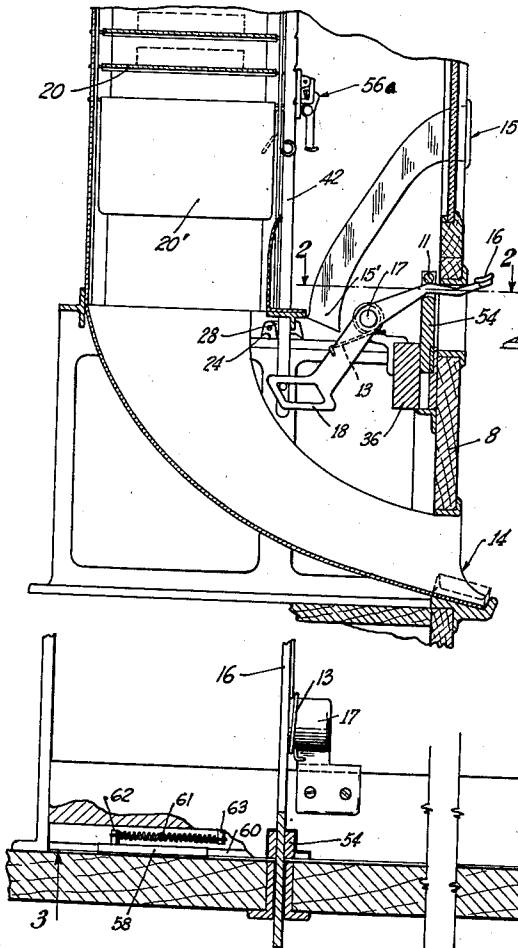


Fig. 4.

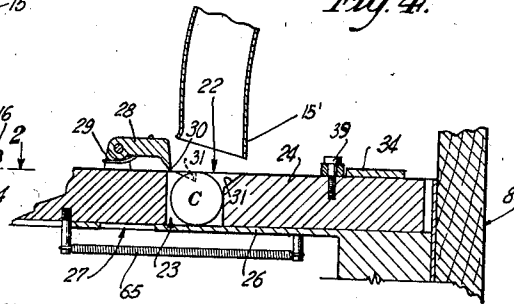


Fig. 2.

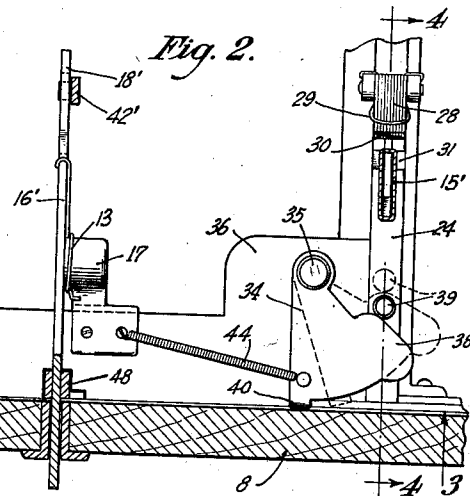


Fig. 3.

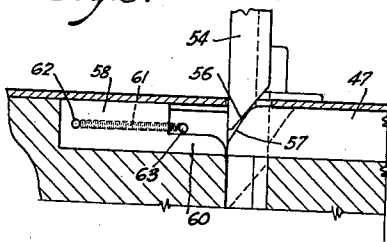
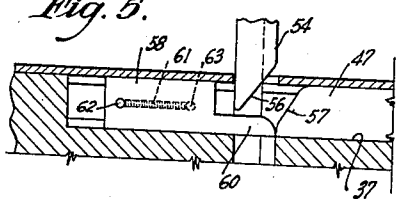


Fig. 5.



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2,165,590

COIN-FREED CONTROL

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Application March 20, 1937, Serial No. 132,070

2 Claims. (Cl. 194—93)

This invention relates to coin operated apparatus, and more particularly to a coin-freed fraud preventive device, for permitting the operation of one only of a plurality of selecting levers.

5 Among the important objects of the invention is the provision of manually operable dispensing mechanism including a plurality of levers selectively operable to free an article of merchandise, the said mechanism having a single coin depository and being operable to permit only a single
10 one of said levers to be operated.

Another object is the provision of coin-freed dispensing mechanism including a plurality of manually and selectively operable dispensing
15 levers or members, coin-freed mechanism for permitting one of said levers to be operated, a means for blocking the movement of other levers as soon as the operation of a selected one of the same is begun.

20 Still another object is the provision of mechanism of the character described, and which is operable to permit the selective operation of any one of the plurality of levers to the exclusion of the others, and further operable to prevent simultaneous operation of all of the levers.

The invention further contemplates a mechanism including a plurality of selectively operable dispensing levers each having a blocking arm to prevent its operative movement, a plurality of
30 slidable blocking plates arranged end to end, a movable master arm freed for movement by deposit of a coin out of blocking position respective to an endmost one of the series or group of blocking plates, to permit the shifting of the latter as
35 a group in the direction of their axis of alignment, or to permit the shifting of any number less than the entire group by operation of one of the selecting levers and its corresponding blocking arm, the particular blocking arm which is thus operated being movable in wedge-like fashion between
40 the endmost blocking plate or plates to be moved and the next adjoining one of said plates which is not moved.

Other novel aspects and objects of the invention will appear as the following detailed description proceeds in view of the annexed drawing in which:

Fig. 1 is a vertical section through a vending machine incorporating the means of the invention;
50

Fig. 2 is a fragmentary horizontal section along lines 2—2 of Fig. 1;

Fig. 3 is a vertical front view partly in section, looking in the direction of lines 3—3 of Fig. 2;

55 Fig. 4 is an enlarged vertical sectional detail of

the coin-freed master bar and taken along lines 4—4 of Fig. 2; while

Fig. 5 is a fragmentary sectional detail of the blocking arms and blocking plates of Fig. 3 in blocking position.

A preferred embodiment of the invention is illustrated herein in conjunction with a type of vending machine particularly described in our co-pending application Serial No. 132,069 filed March 20, 1937, such a device being shown partly in section in Fig. 1, and including a cabinet having a front wall 8, a merchandise chute 14 having a discharge opening in the wall 8, and a plurality of shelves 20 arranged one above another and pivoted along one edge for movement
15 from latched horizontal position into the depending or lowered position in which the shelf 20' is shown.

This dispensing mechanism further includes a traveling latch release 56a adapted to ride upwardly for latch-releasing engagement with the respective latch means of each of the shelves 20 to release the same and discharge merchandise therefrom into the chute 14. The latch-releasing movement of the rider or traveler 56a is accomplished in a step by step movement by reciprocation of a vertically extending ratchet rod 42 drivingly engageable therewith.

The vending machine of Fig. 1 is intended to include a plurality of tiers of shelves 20, each tier having its own latch-releasing rider 56a and its own operating lever 16, two such levers 16 and 16' being shown in Fig. 2 herein, and each of these levers having an enlarged innermost end portion 18 and 18' designed for driving engagement with corresponding ratchet rods 42 or 42' to effect the step by step movement of corresponding latch riders 56a.

The present invention is particularly concerned with the provision of coin-freed control mechanism of general application, and also especially suited for use with a type of dispensing mechanism described above set forth in detail in the co-pending application heretofore mentioned, and this mechanism is adapted to permit the operation of only one of the levers 16 or 16' by the deposit of a single coin in a coin receptacle common to both or all of the operating levers.

To this end the machine of Fig. 1 is provided with a gravity feeding coin chute 15 suitably mounted in the wall 8 of the cabinet, and having its lowermost discharge end 15' disposed above an open bottomed coin receptacle 22 in a reciprocally movable master arm 24 (Fig. 4) supported by suitable bracket means within the cabinet and

having therebelow a stationary plate portion 26 with a coin discharge opening 27 therein, the latter being spaced away from the receptacle 22 when the arm is in its normal position so as to retain a coin in the pocket or receptacle until the arm 24 is moved to bring the open bottom 23 of this receptacle into registration with the discharge opening 27 to effect the discharge of a coin into a suitable storage chamber.

Disposed above the master arm 24 and at one side of the receptacle 22 is a vertically movable dog 28 urged by means of a spring 29 in a direction downwardly so as to cause the nose portion 30 of the dog to move into the receptacle 22 as shown in dotted lines in Fig. 4, and block the full stroke movement of the arm 24 by engagement of the nose 30 in a lateral slot 31 (see also Fig. 2) on the right-hand side of the coin pocket 22, as seen in Fig. 4. However, should a coin C be resting in the pocket 22, the nose 30 of the dog 28 will be prevented from passing into the notch 31 and the arm 24 will be free for full stroke movement into a position in which the bottom 23 of pocket 22 will be in registration with the coin discharge opening 27.

The foregoing movement of the master blocking arm 24 is effected by manipulation of one of the control levers 16, by mechanism which includes a cam segment 34 (Fig. 2) pivoted as at 35 on the upper horizontal surface of a bracket plate 36 across the inner front wall 8 of the vending machine cabinet. The pivoted segment 34 has a cam edge 38 which is adapted to bear against a lateral pin 39 on the master arm 24 and shift the latter into coin-releasing registration as aforesaid when the cam segment 34 is pivoted.

The cam segment 34 has a vertically depending lug 40 which extends below the level of the bracket plate 36, and between the latter and a lower bracket surface 37 spaced from and parallel with the plate 36. A normal positioning spring 44 is attached at one of its ends to the segment 34 and at the other end to one of the pivot brackets 17 pivotally supporting the lever 16', this spring being effective to urge the cam 34 and the depending lug 40 thereof toward the left as seen in Figs. 2 and 3, to position the lug 40 at the end (right-hand, Fig. 3) of a first elongated blocking plate 46 slidably disposed between the bottom surface of the bracket plate 36 and the opposite surface of the bracket portion 37.

It will thus appear that when the blocking plate 46 is slid from left to right in Fig. 3, it will engage the lug 40 of the cam segment 34 and pivot the latter to effect a forward movement of the master arm 24 provided a coin is in the pocket or receptacle 22, and such movement of the block 46 is effected by the downward movement of a blocking arm 48 having at its lower end a cam edge 49 engageable with a cam edge 56 on the rear or left end of block 46, the downward movement of the blocking arm 48 in turn being effected by depressing the corresponding operating lever 16' of the vending machine, this latter movement, however, being possible only when a coin is in the pocket 22 as aforesaid. In this manner a single operating lever 16' is releasably controlled by the proper deposit of a coin in the chute 15, and where a plurality of operating levers 16 and 16' are to be controlled, a second blocking member 47 is disposed behind (that is to the left in Fig. 3) and in alignment with the first blocking member 46. This latter block 47, however, is provided with an inset ledge or flange 52 at its end adjacent the cam

edge 56 of the first block 46, this ledge being of a sufficient thickness to prevent the full stroke downward movement of the blocking arm 48 when the ledge portion 52 is positioned below the arm by a sliding movement of the block 47 toward the right.

It will be observed that when the block 47 is so moved its right-hand extremity will bear against the adjoining and left-hand extremity of the block 46, and the latter will be moved by the block 47 and caused to pivot the cam segment 34 in the manner previously described. On the other hand, the first blocking plate 46 may be shifted to pivot the cam independently of any movement of the blocking plate 47 by depressing the blocking arm 48.

In the present embodiment which employs only two control levers 16 and 16', the former of these levers is provided with its own blocking arm 54, which is identical with the arm 48 and has at its lowermost end a cam edge 56 engageable with a cam edge 57 at the rear or left-hand extremity of the blocking plate 47. In like manner, when the lever 16 is depressed, the corresponding blocking arm 54 is depressed and the cam portion 56 thereof engages the block 47 and shifts the latter toward the right, which motion is communicated immediately to the first block 46 which in turn pivots the cam segment 34.

If both of the operating levers 16 and 16' were depressed simultaneously after deposit of a proper coin, both of the blocks 47 and 46 would tend to shift to the right. However, as soon as the ledge portion 52 of block 47 were positioned below the lower end of the blocking arm 48, further movement of the latter would be stopped, as likewise would be stopped any further movement of the other blocking arm 54. However, in order to prevent any manipulation of the two levers 16 and 16' and positively prevent the operation of more than one selecting lever at a time, an end-most sliding block 58 is provided at the left of the block 47 and, like the latter, has a lowered flange or ledge 60 adjacent the rear or cam edge portion 57 of the second blocking plate 47. A spring 61 anchored at one end 63 relative to the block 58, has its opposite end portion attached to a side of the block 58, as at 62, and is effective constantly to urge the block 58 toward the block 47, so that when the latter moves or shifts to the right for any reason the ledge portion 60 tends to move under the blocking arm 54. However, when the latter arm is properly depressed, the lower nose portion thereof adjoining the cam edge 56 wedges between the ledge portion 60 of the end block 58 and the cam edge portion of the block 47 adjoining, so that a proper shifting of the latter block toward the right may be effected.

In the event that the last block 47 is legitimately shifted to the right and the corresponding control lever 16 is not released but is held firmly down at the conclusion of the dispensing stroke, the other lever 16' could be pushed down to cause its blocking arm 48 to bear against the ledge portion 52 of block 47 hard enough to prevent return of the block 47 to normal position, and in that state of things the operating lever 16 could thereafter be pumped repeatedly until its corresponding magazines were emptied.

However, such fraudulent manipulation is prevented by action of the spring 61 in urging the end block 58 (Fig. 5) and any intermediate block such as 47, toward the right to position the ledge portions 60 and 52 beneath the lower nose por-

tions of the blocking arms 54 and 48, and thus prevent any further manipulation of the operating levers until the blocking arms are completely raised to normal position, and the several blocking plates 46, 47 and 58 together with the cam segment 34, all return to normal position as seen in Fig. 3.

Operation

In summary, the proper operation of the device illustrated herein contemplates the deposit of a proper coin in the chute 15 (Fig. 1), such coin descending into the coin receptacle 22 in a master blocking arm 24. The operator then depresses a selected one of the levers 16 or 16', and this movement is communicated to a vertically movable blocking arm, for example arm 54 of Figs. 1, 2 and 3, and the lower cam edge 56 of this arm is thereby wedged in between the ledge portion 60 of the end block 58 and the adjoining cam edge 57 of the blocking plate 47, and the latter is shifted to the right (Fig. 3). This movement is communicated to the left-hand end portion of the first blocking plate 46, and the latter engages the depending lug 40 of the cam segment 34 and pivots the latter against the tension of its resetting spring 44 from left to right as seen in Fig. 2, so as to shift the master blocking arm 24 (through bearing engagement of the cam edge 38 with the lateral pin 39) in a direction toward the top edge of the drawing as seen in Fig. 2, and move the coin C in pocket 22 toward the stationary dog 28. If the coin C is of proper diameter, the nose portion 30 of dog 28 will be prevented from dropping into the lateral slot 31 in the master arm 24, so that the latter can complete the aforesaid movement to register the open bottom 23 of the pocket 22 with the coin discharge opening 27. Thus the operating lever 16 will have been completely depressed to shift the drive rod 42 (Fig. 1) upwardly and move the latch-releasing rider 56a the distance of one notch, to drop the lowermost one of the several shelves 20 and cause the merchandise to gravitate therefrom into the bin or chute 14.

The several operating levers 16 and 16' are provided with normal positioning springs 13 which raise these levers, as seen in Fig. 1, as soon as they are released, and the respective blocking arms 54 and 48 of these operating levers are desirably provided with lateral pins 11 (Fig. 1) engageable by their levers 16 to raise these arms upwardly and away from the blocking plates. Therefore, as soon as the particular lever 16 which has been depressed, is released, the cam segment 34 is returned by this spring 44 to the normal position seen in Fig. 2 and likewise the master bar 24 is returned to its normal position (Fig. 2) by a spring 65 (Fig. 4).

Various modifications may be made in the foregoing particularly described embodiment of the invention, and it is our intention to include all such modifications and all variations and combinations of the invention fairly 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 dispensing mechanism, a shiftable series of contiguous blocks and operating levers movable in between adjoining blocks to shift one or more of the same in a particular direction away from a normal position, spring means urging a first block toward the others to move the latter into said normal position, spring means urging the other end block toward the others for movement of the same toward said first block, the intervening blocks each having opposite ends one of which is provided with a horizontal ledge and the other of which is provided with a cam edge, the ledge of one block being contiguous to the cam of the next, said contiguous portions each underlying the corresponding operating lever, said cam edges being arranged to effect shifting movement of the corresponding block by the corresponding control lever a predetermined amount before said control lever can engage the adjoining ledge portion, and coin-operated means arranged normally to prevent movement of said blocks.

2. In a device of the class described, in combination, a series of contiguous blocking members and means urging the same to shift the series in a certain direction from a normal position, means blocking movement of the series from normal position in the opposite direction, means yieldingly opposing shifting movement of the first blocking member to prevent shifting of the series as aforesaid, said blocking members being adapted for cooperation in pairs with plungers each movable in between the contiguous ends of a corresponding pair of cooperating blocking members, plungers cooperating with the blocking members as aforesaid, one blocking member of each pair leading the other in the direction of shifting movement when the corresponding plunger is effectively operated, the ends of the leading blocking members which are contiguous to the cooperating ends of following blocking members all normally lying in a position to block effective movement of the corresponding plunger and having cam means thereon cooperable with said plunger so that any given leading blocking member may be cammed out of the way of the corresponding plunger to permit effective operation of the latter provided the blocking members which follow said given member are free to move, the cooperating contiguous end of each following blocking member being formed to provide a depressed ledge having a sloping or curved end portion for cooperation with a plunger, said ledge permitting the corresponding plunger to move into engagement with the cam part of the leading blocking member so as to shift the latter prior to engagement with any part of the following blocking member whereby the leading and following blocking members may move in unison a certain distance before the corresponding plunger is projected in between the contiguous end parts thereof to separate the same, movement of any blocking member being prevented when any plunger has been interposed between the ends of its pair of blocking members as aforesaid.

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