UNITED STATES PATENT OFFICE

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COIN-SELECTING DEVICE.

1,403,933.


To all whom it may concern:

Be it known that I, HARRY W. BARSON, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Coin-Selecting Devices, of which the following is a specification.

The invention relates to coin controlled apparatus which are adapted to be released for operation by coins of predetermined size, and the present improvement seeks to provide improved means for positively ejecting smaller coins from operative position in the apparatus so that they cannot be released thereby. The invention consists in the features of improvement hereinafter set forth, illustrated in the preferred form in the accompanying drawings and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a view in side elevation of a coin controlled apparatus to which the present improvement is applied, the inclosing casing being shown in section. Figure 2 is a view in front elevation of the parts shown in Fig. 1. Figure 3 is an enlarged detail view in elevation of the coin chute and parts associated therewith. Figure 4 is a similar view with the front portion of the coin chute removed. Figure 5 is a cross section of the coin chute on the lines 5-5 of Figs. 3 and 4.

The present improvement can be applied to a vending machine or other coin controlled apparatus. In the drawings, the actuating and coin controlled devices for such an apparatus only are shown. As shown, the coin controlled machine or apparatus is arranged within an inclosing casing and the actuating and coin controlling devices are mounted upon an upright bracket fixed within the forward portion of the casing. The main operating lever 3 is mounted on a pivot pin 4 on one side of the bracket and projects forwardly through a slot 5 in the casing, being provided on its forward end with an operating handle 6. The inner end of the lever is operatively connected by a link 7 to the vending or other means which are to be actuated. A spring 8 connected to the upper portion of the bracket 2 and to the actuating lever 3 holds the latter in normal position against a stop 9. A full-stroke ratchet 10 is formed upon the central portion of the lever and is arranged to cooperate with a pivoted, spring-held dog 11 on the bracket 2 to compel a complete shift of the lever before it can be returned to normal position.

A locking latch 12 for the actuating lever is mounted at its lower end upon a pivot 13 fixed to the lower front portion of the bracket. The latch extends upwardly on one side of the lever 3 and is provided at its inner edge with a curved or arc-shaped portion 14 which terminates at its upper end in a shoulder 15. Above the shoulder, the latch is provided with a rearwardly extending cam portion 16 which is arranged to engage a laterally projecting lug 17 formed upon the lever 3. A spring 18 is connected at one end to a hook 19 on the upper end of the locking latch 12 and at its opposite end to a pin on the upper rear portion of the bracket 2. This spring tends to swing the latch rearwardly and holds its rear edge in engagement with the lug 17 of the actuating lever. Normally, the cam lug 16 of the latch engages the lug 17 and the latch is then held in the position shown in Fig. 1.

The lever can be depressed to a slight extent without inserting a coin but, unless a coin is inserted, the spring 18 will move the latch rearwardly as the lever 3 is depressed and, after a slight initial movement of the lever, the lug 17 thereon will engage the shoulder 15 of the latch which will thereby arrest and lock the lever against further movement, as shown in dotted lines in Fig. 1. This slight initial movement of the actuating lever is not sufficient to bring the full-stroke dog 11 in engagement with the teeth of the ratchet 10.

The latch 12 is controlled by a trip arm or lever 20 which is mounted between its ends on a pivot 21 fixed to the upper front portion of the bracket 2 and the lower end of the trip is provided with a pin 22 which engages a vertical slot 23 formed in the upper end of the latch. The upper end of the trip arm or lever 20 is laterally offset over the upper portion of the bracket and carries a finger or plunger 24 which is justably fixed thereto by a set screw 25 and extends forwardly therefrom toward the coin chute of the apparatus. As the latch shifts from its normal to its locking position during the initial movement of the
actuating lever 3, the upper end of the trip arm 20 moves forwardly and the plunger 24 is forced through openings formed in the coin chute, to the position shown in dotted lines in Fig. 1. But if a coin of predetermined size is inserted in the coin chute, it will be engaged by the plunger so that the latter and the trip 20 will prevent the shift of the latch to its locking position and the operative movement of the actuating lever can be completed. The complete shift of the lever is arrested by the engagement of the lug 17 thereon with a stop shoulder 26 formed upon the forward edge of the bracket 2.

The coin chute comprises a back portion 27 in which the coin slot 28 is formed and a front cover plate 29 is fixed thereto by screws 30. The coin chute is fixed to the upper end of the bracket 2 by screws 31 and extends upwardly therefrom through the top of the casing 1. Preferably, its upper end is laterally offset and its front portion or cover plate 29 is provided with an opening 32 through which the coins are inserted.

The inserted coins will pass through the slot or guideway 28 and will be arrested in operative position in the coin chute by a stop pin 33 and by a yielding stop or dog 34, as indicated in dotted lines at a in Fig. 4. The pin is fixed to the back portion 27 of the coin chute and is arranged on one side of the slot 28 just below a shoulder 35 at the edge of the slot. The dog 34 which projects into the opposite edge of the slot is L-shaped as shown and is connected by a pivot pin 36 to a lug 37 on the side of the chute. A rearwardly projecting finger 38 on the lower end of the dog is connected to one end of a spring 39, the opposite end of which is connected to a pin 40 fixed to the chute and projecting rearwardly therefrom. The spring yieldingly holds the dog in normal position so that it will engage and arrest the inserted coin. When thus arrested in operative position, the left-hand portion of the inserted coin will lie in front of the forward end of the plunger 24 and, if of proper size, it will arrest the plunger and as described, prevent the movement of the latch 12 to its locking position so that the actuating lever 3 can be completely operated.

The forward end of the plunger normally extends within an opening 41 in the back portion 27 of the chute and closely adjacent the rear face of the coin slot. It is thus arranged to engage the left-hand portion of the coin which has been arrested in the operative position in the coin slot and will immediately so engage the coin as soon as the operating lever 3 and latch 12 are started from the normal position shown in full lines in Fig. 1. The front or cover plate 29 of the chute is provided with an enlarged, substantially circular opening 42 through which the plunger 24 moves in case its shift is not obstructed. This opening is so located relatively to the stop pin 33 and the dog 34, when the latter is in normal position, that the edges of the opening will overlap the edges of a coin of predetermined size, for example, a five cent piece. Such a coin of predetermined or proper size is indicated in operative position at a in Figs. 3 and 4. It is obvious that such a coin will be held against movement and will obstruct the shift of the plunger 24 when the actuating lever 3 is depressed and, as described, will prevent the movement of the latch 12 to its locking position and permit the complete operative movement of the actuating lever. But if a coin of smaller size is inserted, for example, a one cent piece, it will be arrested by the stop pin 33 and dog 34 in the position indicated in dotted lines at b in Fig. 3 and the left-hand edge portion of the opening 42 in the cover plate will not extend over the adjacent edge of this smaller coin. Then, when an attempt is made to depress the lever 3, the plunger or finger 24 will engage the coin and force it from operative position out through the opening 42 and the latch 12 will move to its operative position and lock the lever, after the slight initial movement thereof, as shown in dotted lines in Fig. 1.

Thus, the plunger and trip arm not only cooperate with a coin of proper determined size to permit the operation of the apparatus, but also serve to positively force smaller coins from operative position in the coin chute so that the operation of the apparatus cannot be effected thereby.

It should be noted that the stop pin 33 and the stop dog 34 at the opposite edge portions of the coin chute arrest inserted coins and accurately register the same relative to the enlarged substantial circular opening 42, so that the left hand edge of this opening need only overlap the edges of coins of predetermined size to a slight extent. Hence, all coins of less than predetermined size will invariably be forced by the plunger 24 from operative position in the coin chute.

It should be noted that the plunger 24 eccentrically engages the coins in operative position, and that the stops 33 and 34 arrest the coins in such position that the edges of the opening 42 in the coin chute overlap to a considerable extent the opposite side edges of coins of proper size, but the edge of a smaller coin adjacent the path of movement of the plunger 24 is left entirely free from top to bottom of the coin. With this arrangement the proper sized coins will invariably effect the operation of the apparatus, while smaller coins will invariably be ejected from operative position by the plunger.

The back portion 27 of the coin chute, as shown in Fig. 4, is provided with an arc-
shaped slot 43. The cover plate 29 thereof is provided with a similar slot 44 which merges with the opening 42 therein and is arranged in line with the slot 43. An arm 45 pivotally connected to a lug 46 on the cover plate carries a lug 47 which projects rearwardly through the slot 44 and into the slot 43. A link 48 connects the arm 45 to the operating lever 3 and holds the arm in normal position with its lug in the upper portions of the slots 43 and 44 and adjacent a shoulder 49 on one edge of the coin slot. This shoulder deflects the inserted coins so that they will pass around the lug 47 and between this lug and the opposite edge of the slot which, at this portion of the slot, is curved as shown in Fig. 4.

The initial movement of the operating lever 3 will not depress the arm sufficiently to bring the lug 47 in engagement with coins in operative position in the coin chute, but, when a coin of proper predetermined size is inserted, the complete shift of the lever will swing the arm 45 downwardly so that the lug 47 will engage the coin in operative position and force it downwardly past the stop pin 33 and dog 34. During this movement, the dog is forced outwardly against the tension of its spring 39 and the coin moves past the fixed stop pin 33 through a cutaway portion 50 in the opposite edge of the coin slot.

In the form shown, the lower portion of the chute is provided with means for arresting the coin when it is forced, as described, from operative position by the lug 47. For this purpose, a lever 51 is mounted on the rear face of the coin chute and is connected at its upper end to a pivot pin 52.

The lower end of the lever is provided with a forwardly projecting lug 55 which extends beneath the left-hand portion of the lower end of the coin slot. Another lug 54 on the lever extends through an opening 55 in the back portion 27 of the chute and into the left-hand portion of the coin slot. A spring 56 connects the lever to the pin 40 and holds it in normal position with the lug 54 engaging the inner edge of the opening 55. When a coin is forced downwardly, as described, from the operative position shown at a in Figs. 3 and 4, it will be arrested by the lug 54 and a cooperating shoulder 57 formed upon the opposite edge of the coin slot, as indicated at c in Figs. 3 and 4. The coin will be arrested as described, since the space between the shoulder 57 and the lug 54, when the latter is in normal position, shown in Fig. 4, is slightly less than the diameter of the coin. When another coin is similarly forced from operative position, it will engage the coin on the lug 54 and shoulder 57 and force it downwardly to the position indicated at d in Figs. 3 and 4 and it will be held in this position by the lug 53 and the shoulder 58 formed upon the opposite edge of the coin slot. Of course, when still another coin is forced from operative position, the lowermost coin in the coin chute will be forced therefrom. The coins 70 in the lower portion of the coin chute can be inspected through a glass covered opening 59 in the front of the casing and bogus coins thus detected.

Obviously, changes may be made in the details set forth without departure from the essentials of the invention as defined in the claims.

I claim as my invention:

1. In a coin-controlled apparatus, the combination of an actuating shifter, a locking latch therefor, a reciprocating plunger for controlling said latch, a stop for arresting inserted coins in operative position relative to said plunger, and means for retaining coins of predetermined size in such operative position to thereby render said latch inoperative, said coin retaining means being adapted to permit said plunger to force coins of less than predetermined size laterally from operative position on said stop, substantially as described.

2. In a coin-controlled apparatus, the combination of an actuating shifter, a locking latch therefor, a reciprocating plunger for controlling said latch, a yielding stop for arresting inserted coins in operative position relative to said plunger, means for retaining coins of predetermined size in such operative position to thereby render said latch inoperative, said coin retaining means being adapted to permit said plunger to force coins of less than predetermined size laterally from operative position on said stop, and means controlled by said shifter for forcing coins of predetermined size longitudinally past said yielding stop, substantially as described.

3. In a coin-controlled apparatus, the combination of a manually operable shifter, a locking latch for arresting said shifter after an initial movement thereof, a reciprocating plunger controlled by the initial movement of said shifter and arranged to co-operate with coins of predetermined size to render said latch inoperative, a stop for arresting inserted coins in operative position relative to said plunger, and means for retaining coins of predetermined size in such operative position, said coin retaining means being adapted to permit said plunger to force coins of less size from operative position on said stop, substantially as described.

4. In a coin-controlled apparatus, the combination of a manually operable shifter, a locking latch for arresting said shifter after an initial movement thereof, a reciprocating plunger controlled by the initial movement of said shifter and arranged to co-operate with coins of predetermined size.
to render said latch inoperative, a yielding stop for arresting inserted coins in operative position relative to said plunger, means for retaining coins of predetermined size in operative position on said stop, said means being adapted to permit said plunger to force coins of less size laterally from such operative position, and means controlled by the complete operation of said shifter for forcing coins of predetermined size longitudinally past said yielding stop, substantially as described.

5. In a coin-controlled apparatus, the combination of a manually operable shifter, a spring actuated latch normally held in inoperative position by said shifter and arranged to arrest the latter after an initial movement thereof, a plunger adapted to cooperate with coins of predetermined size to render said latch inoperative, a stop for arresting inserted coins in operative position relative to said plunger, and means associated with said stop for retaining coins of predetermined size in operative relation to said plunger but adapted to permit the latter to force coins of less than predetermined size from operative position on said stop, substantially as described.

6. In a coin-controlled apparatus, the combination of an actuating member, a reciprocating plunger adapted to cooperate with coins of predetermined size to render said actuating member operative, a coin chute having an opening in its wall, a yielding stop arranged to arrest inserted coins opposite said opening and in operative position relative to said plunger, the edges of said opening being adapted to retain coins of predetermined size in such operative position but permitting said plunger to force coins of less size laterally through said opening, and means controlled by the complete operation of said actuating member for forcing coins of predetermined size longitudinally past said yielding stop, substantially as described.

7. In a coin-controlled apparatus, the combination of an actuating member, a plunger adapted to be reciprocated by the initial movement of said member, means connected with said plunger for preventing the complete operation of said member, a coin chute having an opening in its wall and means for arresting inserted coins in operative position opposite said opening and in the path of movement of said plunger, the edges of said opening being arranged to retain coins of predetermined size in operative position to thereby arrest said plunger and render said actuating member completely operative but permitting said plunger to force coins of less than predetermined size laterally through said opening, substantially as described.

8. In a coin-controlled apparatus, a coin chute having a side opening therein, a stop at the lower portion of said opening arranged to arrest inserted coins in operative position and in register with said opening, and a reciprocating plunger adapted to eccentrically engage the coins in operative position in said chute, the edges of said opening being arranged to cooperate with the opposite side edges of said plunger to retain the same in operative position but leaving free one entire side edge of coins of less than predetermined size to permit said plunger to force such coins laterally through said opening.

9. Means for controlling the operation of a coin-released apparatus, comprising a coin chute having an opening therein, a stop at the lower portion of said opening arranged to arrest inserted coins in operative position and in register with said opening, and a reciprocating plunger adapted to cooperate with the coins in operative position in said chute, the edges of said opening being arranged to overlap the opposite side edges of coins of predetermined size to retain the same in operative position but leaving free one entire side edge of coins of less than predetermined size to permit said plunger to force such coins laterally through said opening.

10. In a coin-controlled apparatus, the combination of a coin chute provided with a discharge opening therein, means for arresting a coin in operative position in said chute with its bottom edge in the plane of the bottom edge of said opening, and a plunger adapted to cooperate with the coin in operative position in said chute, the side edges of said opening being adapted to retain coins of predetermined size in said position but permitting coins of less than predetermined size to be ejected through said opening by said plunger.

11. In a coin-controlled apparatus, the combination of a manually operable actuating member, a plunger adapted to be reciprocated by the initial movement of said member and controlling the complete operation thereof, a coin chute having an opening in its wall, and a stop for arresting inserted coins in operative position opposite said opening and in the path of movement of said plunger, said chute being arranged to retain coins of predetermined size in operative position to thereby arrest said plunger, and plunger and render said actuating member completely operative but permitting said plunger to force coins of less than predetermined size laterally through said opening, and means controlled by the complete operation of said member for effecting the movement of coins of predetermined size longitudinally past said stop.

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