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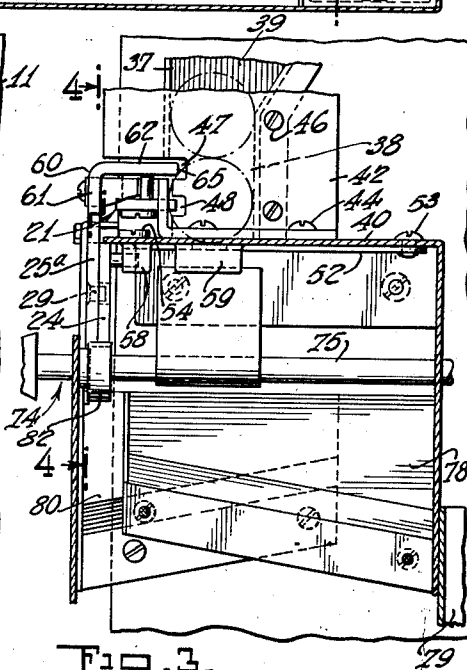
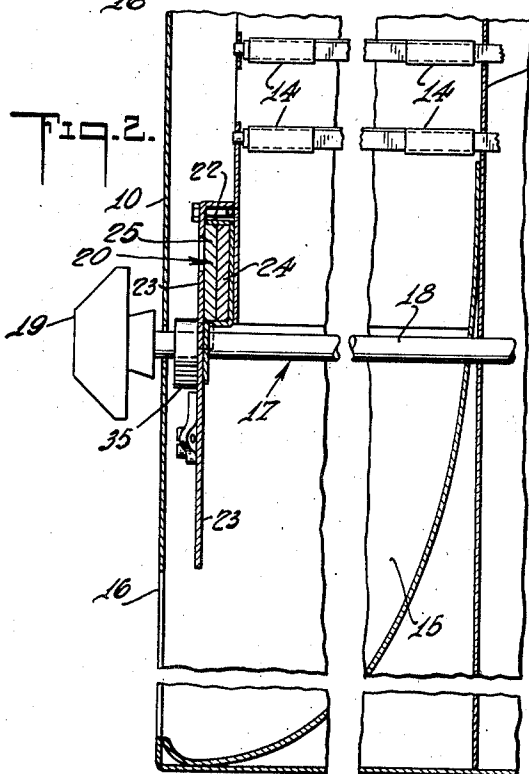
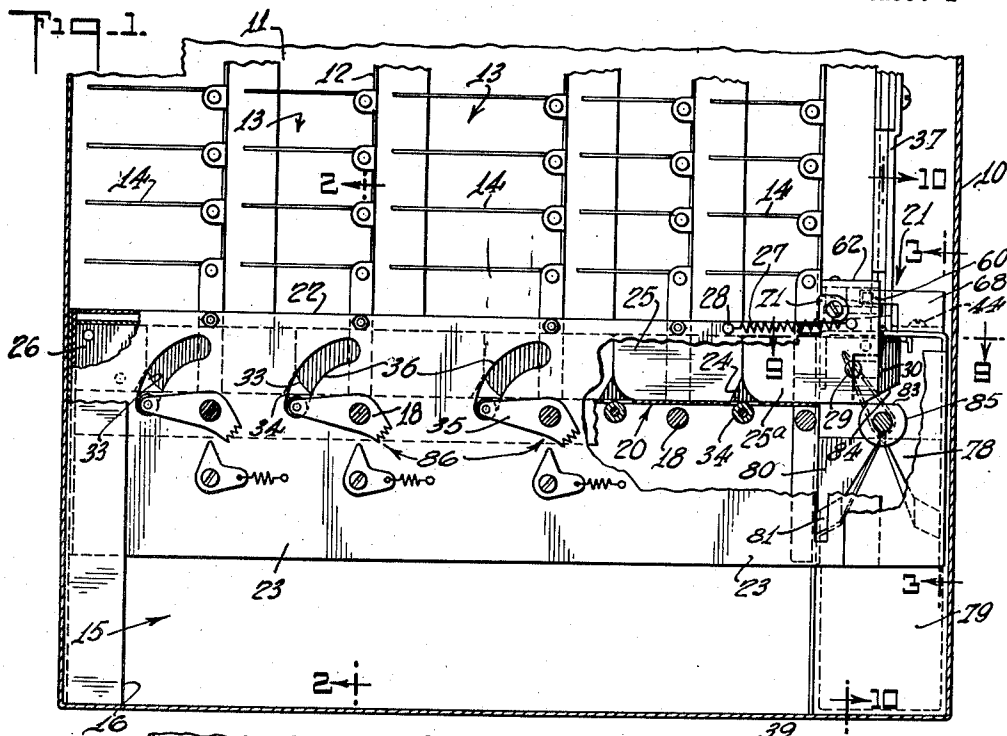
G. P. MERGENS

2,227,663

COIN CONTROLLED MECHANISM FOR VENDING MACHINES

Filed Feb. 26, 1938

3 Sheets-Sheet 1



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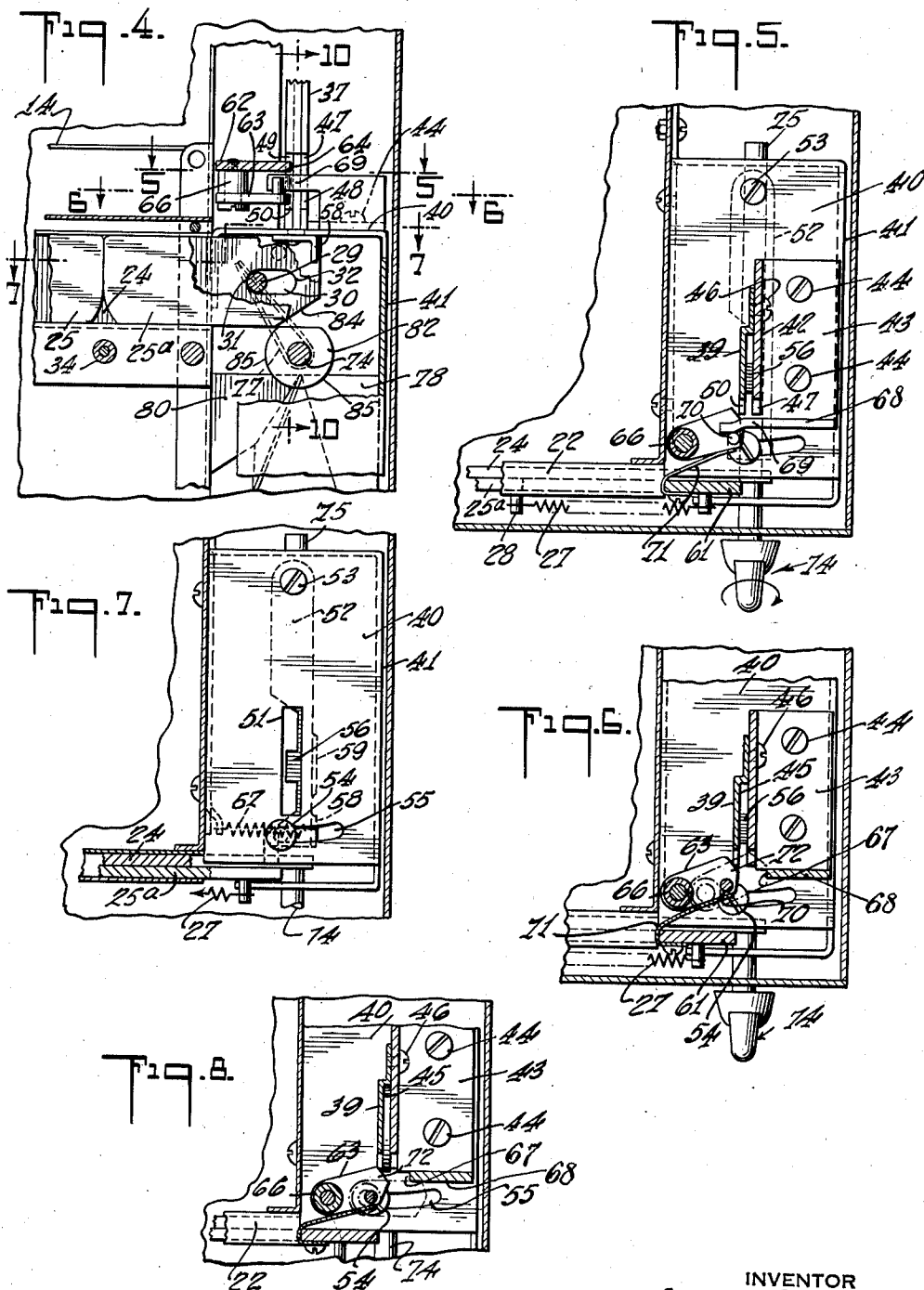
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COIN CONTROLLED MECHANISM FOR VENDING MACHINES

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3 Sheets-Sheet 2



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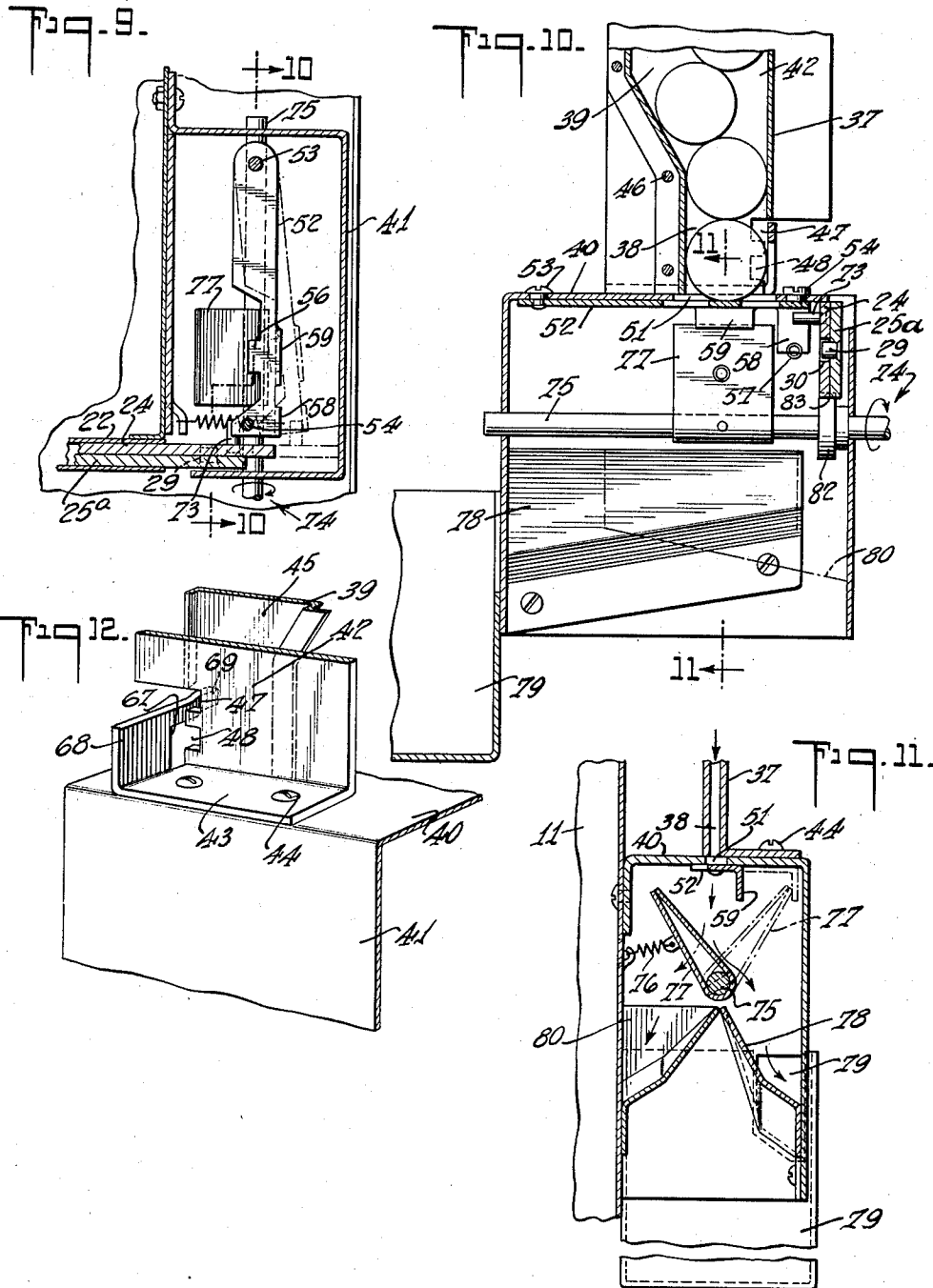
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COIN CONTROLLED MECHANISM FOR VENDING MACHINES

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3 Sheets-Sheet 3



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2,227,663

COIN CONTROLLED MECHANISM FOR
VENDING MACHINES

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New York

Application February 26, 1938, Serial No. 192,725

5 Claims. (Cl. 194—93)

My invention relates to means for releasing the selectively operable mechanisms of vending machines for operation in the presence of the proper coin or check, and the same has for its object to provide a simple, efficient and reliable apparatus in which the coin controlled mechanism thereof is operated to release a selected mechanism by a substantially straight line movement of a member operated by the selected mechanism upon the actuation thereof, and in which said coin controlled mechanism is operated with dispatch upon repeated operations of a selected mechanism.

Further, said invention has for its object to provide an apparatus of the character specified in which the means associated with the several selectively operable mechanisms for preventing operation of more than one thereof at a time serves as the actuator for the coin controlled mechanism to release for vending operation any selectively operable mechanism when the same is actuated in the presence of the proper coin.

Further, said invention has for its object to provide an apparatus of the character specified in which the means for preventing operation of more than one of the selectively operable mechanisms at a time is capable of being reciprocated by a selected mechanism to actuate the coin controlled mechanism while functioning to prevent operation of the remaining selectively operable mechanisms.

Further, said invention has for its object to provide an apparatus of the character specified in which locking means in said coin controlled mechanism is released by a camming action thereof against the coin upon actuation thereof by said reciprocating means.

Further, said invention has for its object to provide an apparatus of the character specified in which said coin controlled mechanism includes means for supporting the coin in latch actuating position and capable of being actuated by the reciprocating means after the unlocking operation is completed for discharging the coins into a proper receptacle.

Further, said invention has for its object to provide an apparatus of the character specified in which the coin controlled mechanism includes means for retaining superimposed coins in the chute leading to said mechanism from passing into operative position until the previous operation is substantially completed and the parts are returned to normal position.

Further, said invention has for its object to provide an apparatus of the character specified in

which means associated with the several selectively operable mechanisms are co-ordinated in operation with the coin controlled mechanism to require the completion of the stroke of the actuating means therefor after the unlocking is effected and before the return of said actuating means to normal position can be effected.

Further, said invention has for its object to provide an apparatus of the character specified in which said coin supporting member is capable of being actuated for returning a coin lodged in the mechanism to the person operating the machine, if so desired.

Other objects will in part be obvious and in part be pointed out hereinafter.

To the attainment of the aforesaid objects and ends, my invention consists in the novel features of construction, and in the combination, connection and arrangement of parts hereinafter more fully described and then pointed out in the claims.

In the accompanying drawings:

Figure 1 is a front elevation with parts broken away of one form of apparatus constructed according to and embodying my said invention;

Fig. 2 is a vertical section thereof taken on the line 2—2 of Fig. 1, looking in the direction of the arrows;

Fig. 3 is a vertical section thereof taken on the line 3—3 of Fig. 1, looking in the direction of the arrows;

Fig. 4 is a vertical section thereof taken on the line 4—4 of Fig. 3, looking in the direction of the arrows;

Fig. 5 is a horizontal section thereof taken on the line 5—5 of Fig. 4, looking in the direction of the arrows;

Fig. 6 is a similar section thereof taken on the line 6—6 of Fig. 4, looking in the direction of the arrows;

Fig. 7 is a similar section thereof taken on the line 7—7 of Fig. 4, looking in the direction of the arrows;

Fig. 8 is a section similar to Fig. 6 illustrating in broken lines the locking detent clearing the stop;

Fig. 9 is a horizontal section thereof taken on the line 9—9 of Fig. 1, looking in the direction of the arrows;

Fig. 10 is a vertical section thereof taken on the line 10—10 of Fig. 1, looking in the direction of the arrows;

Fig. 11 is a vertical section thereof taken on the line 11—11 of Fig. 10, looking in the direction of the arrows; and

Fig. 12 is a perspective of a detail of the coin controlled mechanism.

Referring to the drawings, my invention is shown incorporated in a vending machine having the usual casing 10 for enclosing any suitable type of apparatus or operating mechanism for dispensing the articles or objects to be vended. As one example merely, the apparatus illustrated is like that shown, described and claimed in my copending application, Serial No. 192,724, filed by me February 26, 1938. The apparatus or machine illustrated comprises a supporting structure 11 including spaced vertically extending partitions 12 forming therebetween a series of magazines or compartments 13. The articles or packages to be vended or dispensed are individually supported upon a series of pivoted shelves or supports 14 arranged within the magazine 13 one above the other in spaced relation and normally retained locked in horizontal or supporting position. The shelves 14, beginning with the lowermost, are adapted to be successively released by the usual travelling means for discharging the articles or packages through the chute 15 for delivery at the opening 16 in the front of the casing 10.

The dispensing means for the several compartments 13 are individually actuated by selectively operable mechanisms 17 each including a movable shaft 18, preferably rotatably mounted in bearings in the frame structure 11, and extending rearwardly and horizontally into position for actuating the dispensing means upon rotation of the shaft 18. The several dispensing or actuating means do not constitute a feature of the present invention and therefore illustration thereof is deemed unnecessary. The several actuating shafts 18 extend through the casing 10 at the front thereof, and are provided with the manual members or knobs 19 for effecting the rotation thereof.

In the present invention, I preferably provide means 20 associated with the several selectively operable mechanisms 17 for preventing actuation of more than one thereof at a time, and serving also as an actuator for the coin controlled locking mechanism 21. The means 20 includes a transverse guideway 22 on the lower portion of the front of the frame member 11 having a front panel 23 extending below and beyond the guideway 22. A member or slide 24 of a length substantially co-extensive with the width of the apparatus is slidably disposed in the guideway 22 at the back thereof, and the separate, aligned elements or blocks 25 and 25a are disposed in said guideway in front of said slide 24 for movement relative to each other and relative to and with the slide 24. The elements 25 and 25a are normally retained in engagement with each other at the contiguous ends thereof with the left hand one thereof, looking at Fig. 1, in engagement with a stop 26 fixed on the front of the slide 24 at the contiguous end thereof by a spring 27 secured at one end to the element 25a and at its opposite end to a pin 28 fixed to the panel 23 inwardly of the element 25a. The element 25a is provided with a pin 29 at the inner side thereof extending into and riding in a slot 30 formed in the contiguous end of the slide 24 and normally engaging the inner end 31 thereof when the elements 25, 25a and 26 are in engagement with each other at the contiguous ends, said slot 30 forming at the opposite end 32 a stop and being of a length allowing a predetermined limited movement of the elements 25, 25a

relative to each other and relative to the slide 24 as hereinafter more fully described. The juncture edges between the elements 25, 25a and between the stop 26 and the contiguous element 25 are beveled at the lower portions thereof to form recesses 33 adapted to receive the rollers 34 carried by the outer ends of the arms or fingers 35 secured to the selector shafts 18 in front of the panel 23, said rollers riding in arcuate slots 36 formed in the panel 23 and being normally aligned with said recesses 33 at the lower ends of said slots 36.

The coins for allowing operation of the vending machine are inserted, one or more at a time, into a coin chute 37 communicating with the coin controlled mechanism 21. The discharge end 38 of the chute has a width in the plane of the coin substantially equal to the diameter thereof and an upper portion 39 has a relatively enlarged width in the same plane so that the coins assume a zigzag formation therein to allow a greater number of coins at a time to occupy the space within a chute of given height.

The chute or coin passage 37 is supported at the lower end thereof upon the top 40 of an enclosure 41 secured to the contiguous side of the frame member 11 with said top lying substantially in the plane of the upper edges of said member 24 and said element 25a, the latter two extending into the enclosure 41 at the front thereof. The chute 37 includes a front face member 42 having a base flange 43 secured by screws or other devices 44 to the top 40, and a rear face member 45 secured to the front member 42 by suitable securing means 46. The face members 42 and 45 are provided with vertically spaced recesses 47 and 48, and 49 and 50 respectively in the lower portions of the forward vertical edges thereof, the recesses 47 and 49 and 48 and 50 respectively being aligned to provide clearances through the walls of the coin passage 37 for the passage of the transversely movable portions of the coin controlled mechanism 21 as hereinafter described. The chute or passage 37 at the lower end thereof registers with a slot 51 through the top 40 for the discharge of the coins. Passage of the coins through the slot 51 is normally prevented by a swinging member or gate 52 disposed below said top in alignment with the slot 51 and pivotally connected at its rear end to said top as indicated at 53. The opposite end of the coin supporting member or gate 52 is also supported from the top 40 for swinging movement relative thereto by a headed member 54 secured to the member 52 and riding in an arcuate slot 55 formed in said top 40. The member 52 is preferably provided with a coin supporting horizontal portion 56 of reduced area normally registering with the central portion of the slot 51, and retained in registering position by means of a spring 57 secured at the ends thereof to the pivoted member 52 and to a fixed part respectively. The engagement of the headed member 54 with the end of the slot 55 limits the movement of the pivoted member 52 under the action of the spring 57 to retain the gate 52 in slot closing position. The gate or support 52 at the side thereof opposite said portion 56 has downwardly directed portions or lugs 58 and 59 adapted to be engaged by suitable actuating means for moving the same against the tension of the spring 57 out of coin supporting position as hereinafter described so as to allow the discharge of the coin through the slot 51.

The movable part of the coin controlled, locking mechanism 21 is carried by the means 20 and is actuated by the movement thereof transversely of the machine upon actuation of any one of the selector shafts 18. Preferably the element or member 25a is provided with an angular supporting extension 60 including an upwardly extending vertical portion 61 and a rearwardly extending horizontal portion 62 serving as a support for the locking detent 63, and also serving when actuated as means adapted to enter the aligned clearance recesses 47 and 49 on a horizontal plane located between the lowermost coin and the next to the lowermost coin, for supporting the upper coins after the lowermost coin is discharged, until the mechanism has completed its operation, and the support 52 has returned to coin supporting position. As shown more clearly in Fig. 4, the advance edge 64 of the portion 62 is normally out of the passage of the chute 37, and, as shown in Fig. 3, the rear edge 65 thereof upon actuation of the member 25a will assume a position preventing the coins above the lowermost from dropping to the lowermost position, after the lowermost coin is discharged, until the member 62 withdraws from the chute passage 37 upon the return thereof.

The locking detent or member 63 is pivotally supported at one end, indicated at 66, from the portion 62 at the lower side thereof, and extends towards the coin chute 37 in position for engaging upon actuation of the mechanism, the contiguous edge 67 of the vertical member 68, forming a fixed stop at the opposite side of the coin passage 37 for preventing further movement of the selected actuating shaft 18 in the absence of the proper coin. The member 68 above the stop edge 67 extends inwardly past the coin passage 37 to provide a guiding and stop portion 69 adapted to be engaged by a pin 10 secured to the detent 63, said detent being held in proper position with the guide 69 and pin 10 in engagement by means of a spring 71 secured at one end to the vertical portion 61 and extending around the edge thereof and into engagement with the edge of said detent 63. When the detent 63 is positioned and directed as above described, upon actuation thereof in the absence of a proper coin to coact therewith, the tapered nose or end 72 moves through the aligned clearance recesses 50 and 48 until the detent strikes the stop 67, as indicated in broken lines, Fig. 6. When the proper coin is in place within the lower end of the chute passage 37, upon actuation of the detent 63, the tapered nose 72 thereof engages the relatively fixed coin to swing the detent against the tension of the spring 71 to the position shown in broken lines, Fig. 8, for clearing the stop 67. A pin 13 projects inwardly from the guide member 24 in position to engage the lug 58 depending from the coin supporting member 52 for causing the discharge of the coin after the unlocking operation is completed.

The control means 21 also includes a manually operable means 74 for actuating the gate 52 and effecting the return of the coins upon the discharge thereof through the slot 51 over a different path to the person operating the machine. The manual means 74 includes a rearwardly extending rotatable shaft 75 disposed within the enclosure 41 below the member 52, and below the members 24 and 25a near the ends thereof. The means 74 is retained in and returned to normal position by a spring 76. The

shaft 75 has secured thereto a gate or slide chute 77 disposed below the slot 51 normally in position for directing the coins therefrom into the chute 78 for delivery to the coin receptacle 79. Should the operator desire the return of a coin inserted into the chute 37, the manual means 74 is rotated in a clock-wise direction to swing the gate 77 to the position shown in broken lines, Fig. 11. The end of the member 77 during the swinging movement from normal position engages the depending lug 59 on the support 52 in the path thereof to actuate the support 52 and cause the discharge of the coin or coins through the slot 51 uncovered as a result of the actuation. The coins are now directed by the member 77 into the chute 30 for delivery to the operator through a slot 81 at the front of the machine.

In order to prevent operation of any selector mechanism while the coin returning means 74 is being actuated, or vice versa, the slide element 25a, or both said slide element 25a and slide 24 co-operate with means 82 upon the shaft 75 adapted to lock said shaft against rotation upon actuation of the element 25a and to prevent actuation of the element 25a when said manual return means is actuated. The means 82 preferably comprises a circular member secured to the shaft 75 below the actuating elements 24 and 25a substantially in the vertical plane thereof. The member 82 in the normal position thereof is provided with a flat portion 83 at the top thereof substantially in the line with the lower edges of the element 25a so that upon actuation of said element to unlock the apparatus the element overlies and substantially engages the flat 83 to prevent the rotation of the shaft 75 until the dispensing operation is completed. The contiguous ends of the members 24 and 25a are preferably beveled at 84. Should the coin returning shaft 75 be rotated with the actuating elements 24 and 25a in normal position, the circular portion 85 moves into the path of movement of said element 25a and serves as a stop to prevent the actuation thereof.

In operation, when a proper coin is lodged in the locking mechanism 21, the selected element 18 is rotated clockwise to cause the roller 34 to enter the corresponding recess 33 and move the elements 25 and 25a in advance thereof. The resulting movement of the member 25a causes the supporting member 62 to enter the coin passage 37 for the purpose above described and advances the locking detent 63 into engagement with the edge of the coin as above described. The detent 63 is then deflected by the coin so as to clear the stop 67 as the advancing movement of the mechanism is continued. In the meantime the element 25a moves relative to the slide member 24 until the pin 29 on the element 25a engages the end 30 of the slot in the slide 24. As such position is attained the several elements 25, 25a become wedged by the roller 34 to prevent relative movement between said parts, and hence preclude actuation of the remaining or other selector elements 18. As the rotation of the originally actuated selector element 18 is continued the slide 24 together with said element 25a move as a unit to complete the unlocking and dispensing operation. After the detent 63 engages the coin, the full stroke device 86 associated with the particular shaft 18 sought to be partially rotated in the purchase operation becomes effective to prevent return movement of that shaft before the full clockwise movement of the shaft is completed. When the detent 63

clears the stop 67, the detent bears against the forward side of the portion 68 and the coin has then performed its function. Thereupon the pin 73 moves into engagement with the lug 58 on the gate 52 to swing the same from coin supporting position below the slot 51 and release the coin which passes to the receptacle 79. The retaining portion 62 prevents the next coin from passing into the coin controlled mechanism. When the gate 52 is actuated the full stroke device 86 releases to allow the return of the parts to normal position, the return movement effecting the dispensing operation for delivering the article or goods to be vended. Any coin supported by the member 62 is then released and passes to operative position on the supporting portion 55 of the gate 52. Should any selector shaft 18 be rotated when no coin is supported in the control mechanism 21 limited movement of the detent 63 is permitted until the pin 29 on the member 25a strikes the end 30 of the slot to preclude further movement of said member relative to the slide 24. The detent 63 thereupon engages the stop 67 to prevent further movement, the stopping position being attained before the full stroke device 86 becomes operative to prevent return of the parts to normal position without operating the dispensing means.

In my invention, the means serving to prevent operation of more than one selectively operable mechanism at a time is utilized as an actuator for releasing the locking means in the presence of the coin to allow the dispensation of the article or object to be vended, and the release of the locking means and the discharge of the controlling coin into its proper receptacle is effected in proper order by a substantially straight line movement of said actuator.

I also include simple means for manually controlling the return of the coin or coins to the operator, if he so desires, said manual means and the unlocking mechanism being coordinated to prevent operation of one when the other is operated.

By my invention, the number of operating parts is reduced, the structure is simplified and rendered more compact, and efficiency in operation is attained, the control mechanism being particularly responsive to rapid successive actuations of the selector elements for dispensing the goods with dispatch.

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

1. Apparatus of the character described comprising a plurality of movable selector elements, means for preventing operation of more than one of said selector elements at a time including a reciprocating means, coin controlled, locking mechanism serving to normally limit the movement of said reciprocating means and actuated thereby in the presence of a coin to allow full movement of said reciprocating means, means for supporting the control coin in position in said mechanism, said supporting means being actuated by said reciprocating means to discharge the coin over one path into a space within the machine, means for manually actuating said coin supporting means including a member for directing the coin over another path to be returned, and means on said last named means adapted to be engaged by said reciprocating means to lock the manual means against movement, said last named means upon actuation of said return means serving as a stop to prevent movement of the reciprocating means.

2. In apparatus of the character described, a plurality of dispensing mechanisms, manually operable means associated with each of the dispensing mechanisms for actuating said mechanisms upon rotation through a predetermined distance, means for preventing the operation at one time of all but a selected one of said manually operable means including a chamber arranged adjacent said manually operable means, a bar slidably arranged within said chamber, a plurality of elements in end to end separable arrangement slidably carried within said chamber adjacent said bar, a wedge carried radially on each of said manually operable means, one of said wedges positioned adjacent contiguous ends of a pair of said separable elements, each wedge upon rotation of the selected manually-operable means a distance less than the hereinbefore mentioned predetermined distance adapted to engage one of said pair of separable members to separate said pair of separable elements, upon rotation of the selected manually operable means a distance less than the hereinbefore mentioned predetermined distance, to separate the two separable elements adjacent thereto, means cooperating with said bar for limiting to the width of one wedge the distance of separation of the therein separated elements, said limiting means engaged by one of said slidable elements upon the said separation of the pair of separated elements, said selected manually operable means upon further rotation thereof thereby adapted to move the wedge interposed between the separable elements, the separable elements and the bar as a unit.

3. In apparatus of the character described, a plurality of movable selector elements, said elements being adapted to be moved a predetermined distance, means for preventing the operation of all but a selected one of said selector elements at a time, including a guideway, a bar slidably arranged within the guideway, a plurality of separable elements arranged adjacent the bar, a wedging means carried on each selector element, one of said wedging means arranged adjacent one of said separable elements and adapted upon movement of a selected selector element a distance less than the predetermined distance to separate a pair of the separable elements, means cooperating with the bar for limiting the distance of separation of the separable elements to the thickness of one wedging means, said limiting means engaged by one of said separable elements upon the separation of a pair of these separable elements, the selected selector element upon further movement thereof thereby arranged to move the wedging means, the separable elements, and the bar as a unit.

4. In apparatus of the character described having a plurality of dispensing mechanisms, a chamber, a plurality of adjacent separable elements corresponding in number to the number of dispensing mechanisms and slidably carried within said chamber, means for sliding one of said elements within the chamber to separate said element from an adjacent element, movable means arranged within said chamber for limiting to a predetermined distance the separation of said separable elements, said limiting means, upon separation of said separable elements, arranged to be engaged by one of said separable elements and thereby adapted to be moved therewith as a unit.

5. In an apparatus of the character described, a plurality of movable selector elements, said elements being adapted to be moved a predeter-

mined distance, means for preventing the operation of all but a selected one of said selector elements at one time including a guideway, a bar slidably arranged within the guideway, a plurality of adjacent members arranged in the guideway and each slidable therewithin, a wedging means carried on each selector element, one of said wedging means arranged adjacent one of the members, each wedging means, upon movement of the selector element, on which it is carried, a distance less than the said predetermined

distance, adapted to engage the said member adjacent the said wedging means and slide said member engaged thereby within the guideway, means cooperating with the bar for limiting the distance which said member is slid in the guideway by said wedging means to the thickness of one wedging means, the selector element upon further movement thereof arranged to move the wedging means, the separable elements and the bar as a unit.

GEORGE P. MERGENS.

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