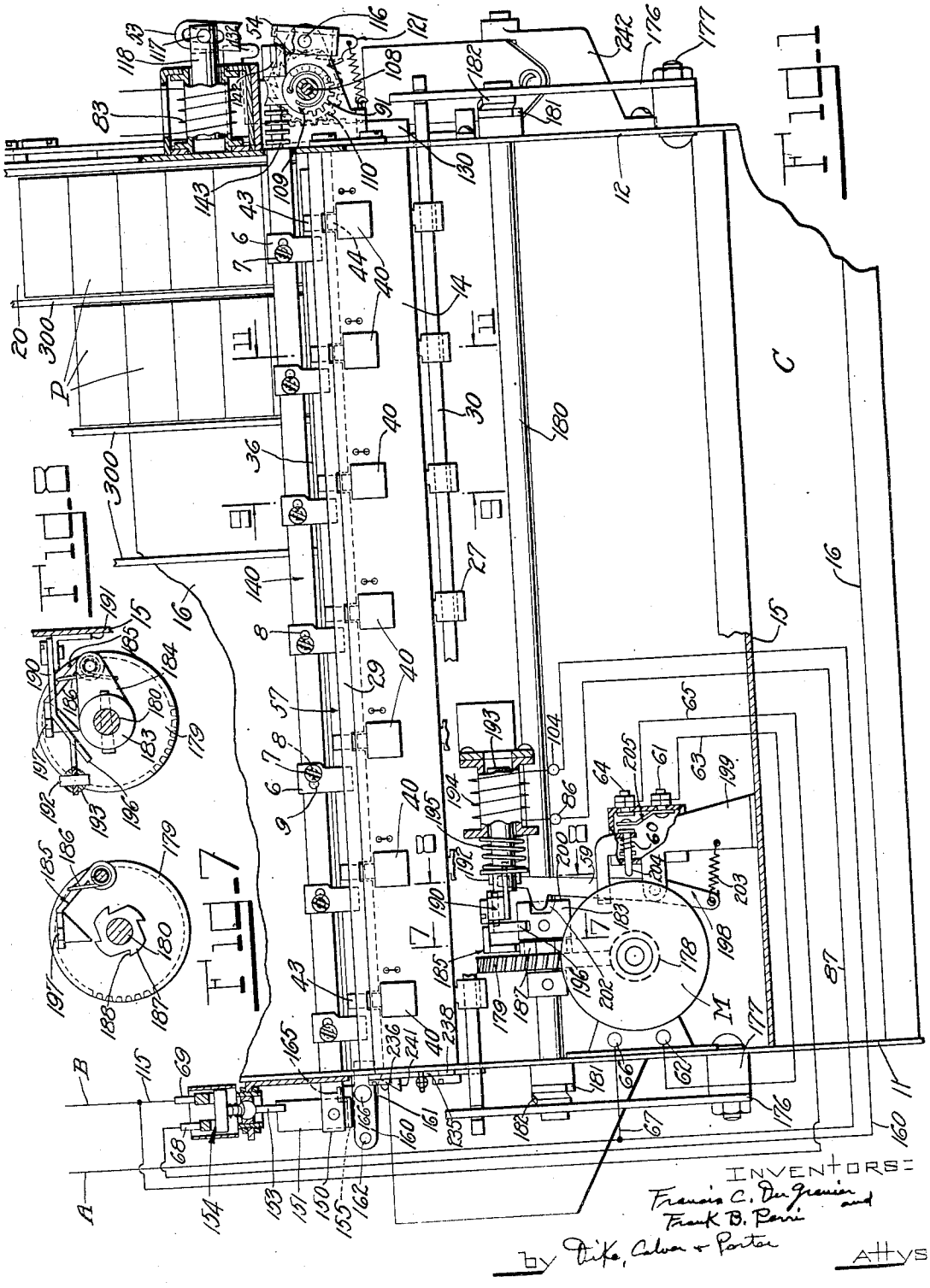
July 13, 1943. F. C. DU GRENIER ET AL 2,323,981

COIN-CONTROLLED VENDING MACHINE

Filed July 28, 1941 5 Sheets-Sheet 1



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COIN-CONTROLLED VENDING MACHINE

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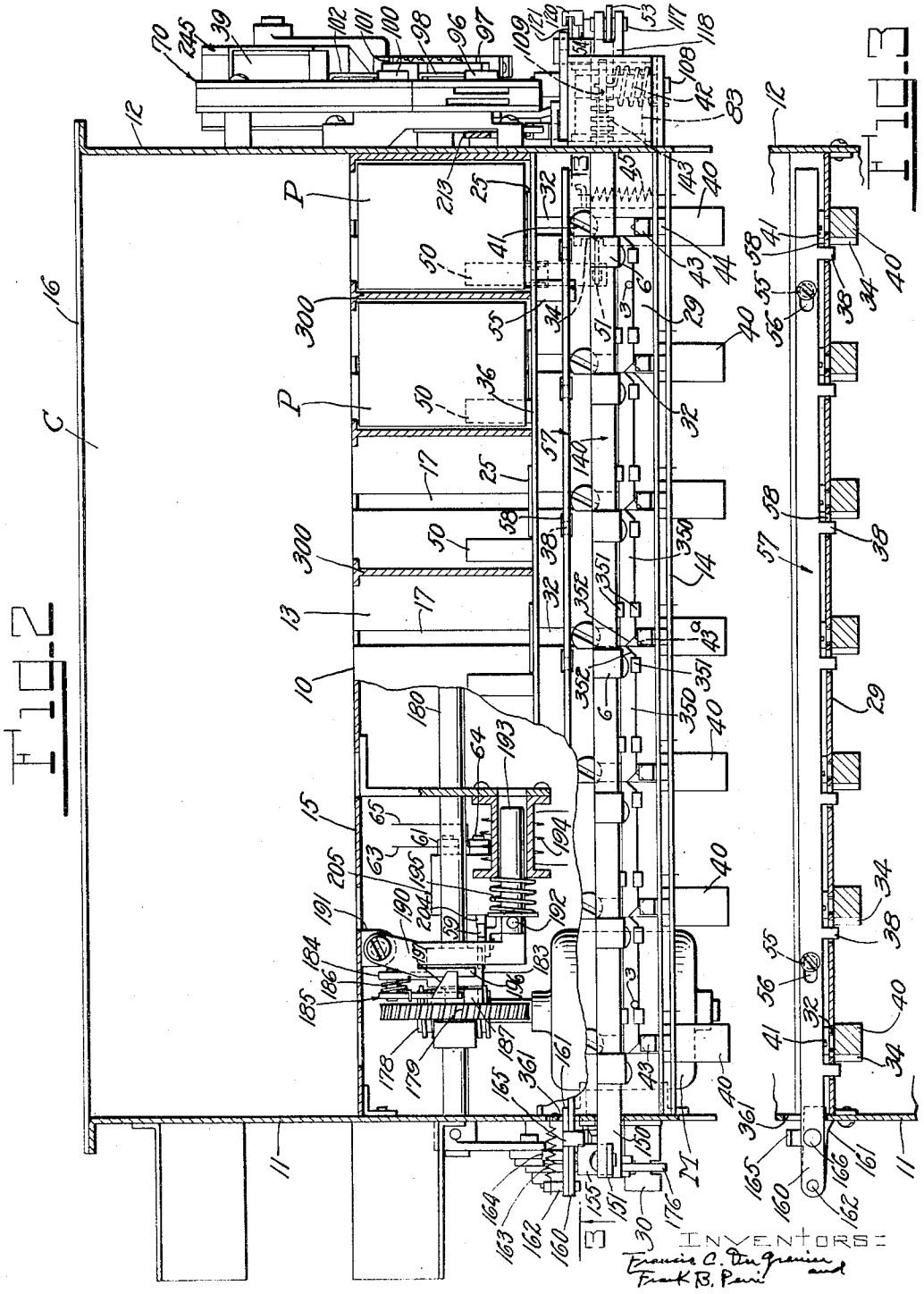


FIG. 2



FIG. 3

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COIN-CONTROLLED VENDING MACHINE

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Fig. 5

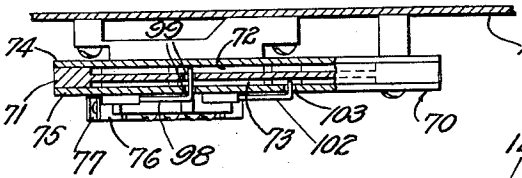



Fig. 4

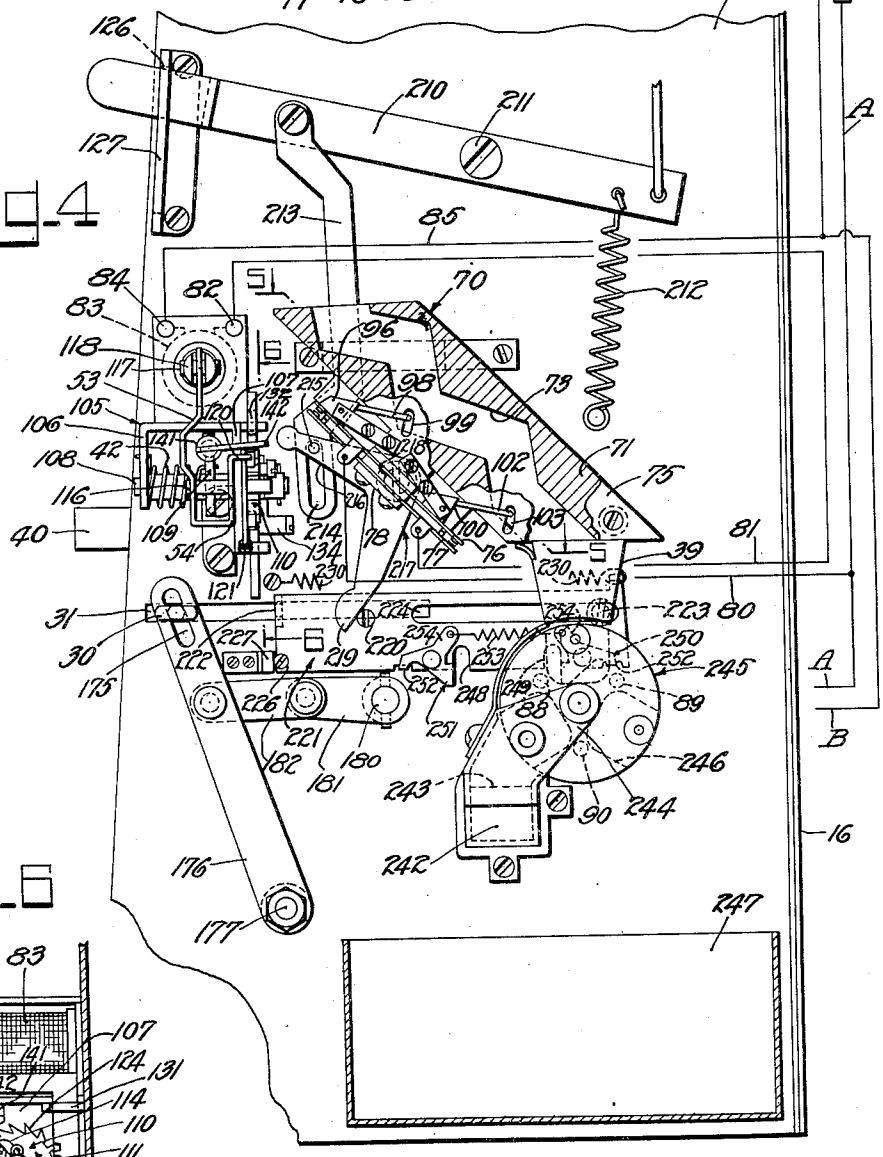
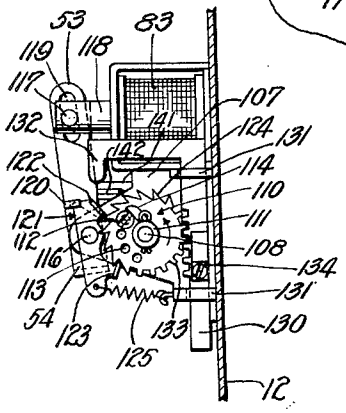



Fig. 6




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COIN-CONTROLLED VENDING MACHINE

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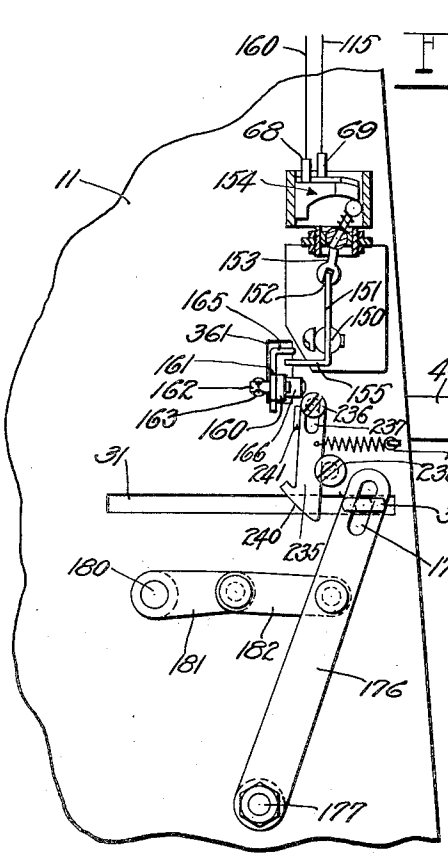



Fig. 12




Fig. 11

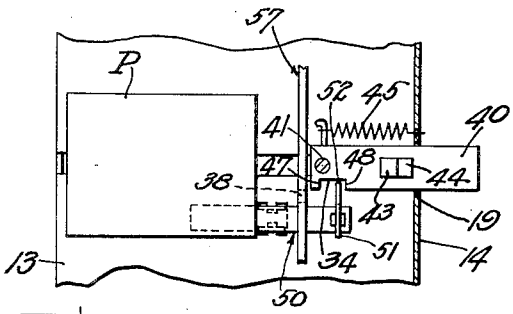



Fig. 10

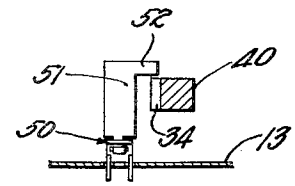



Fig. 13

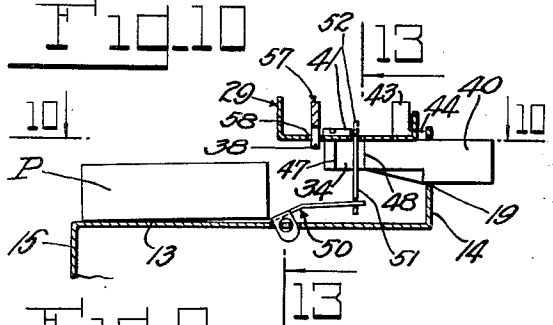



Fig. 9

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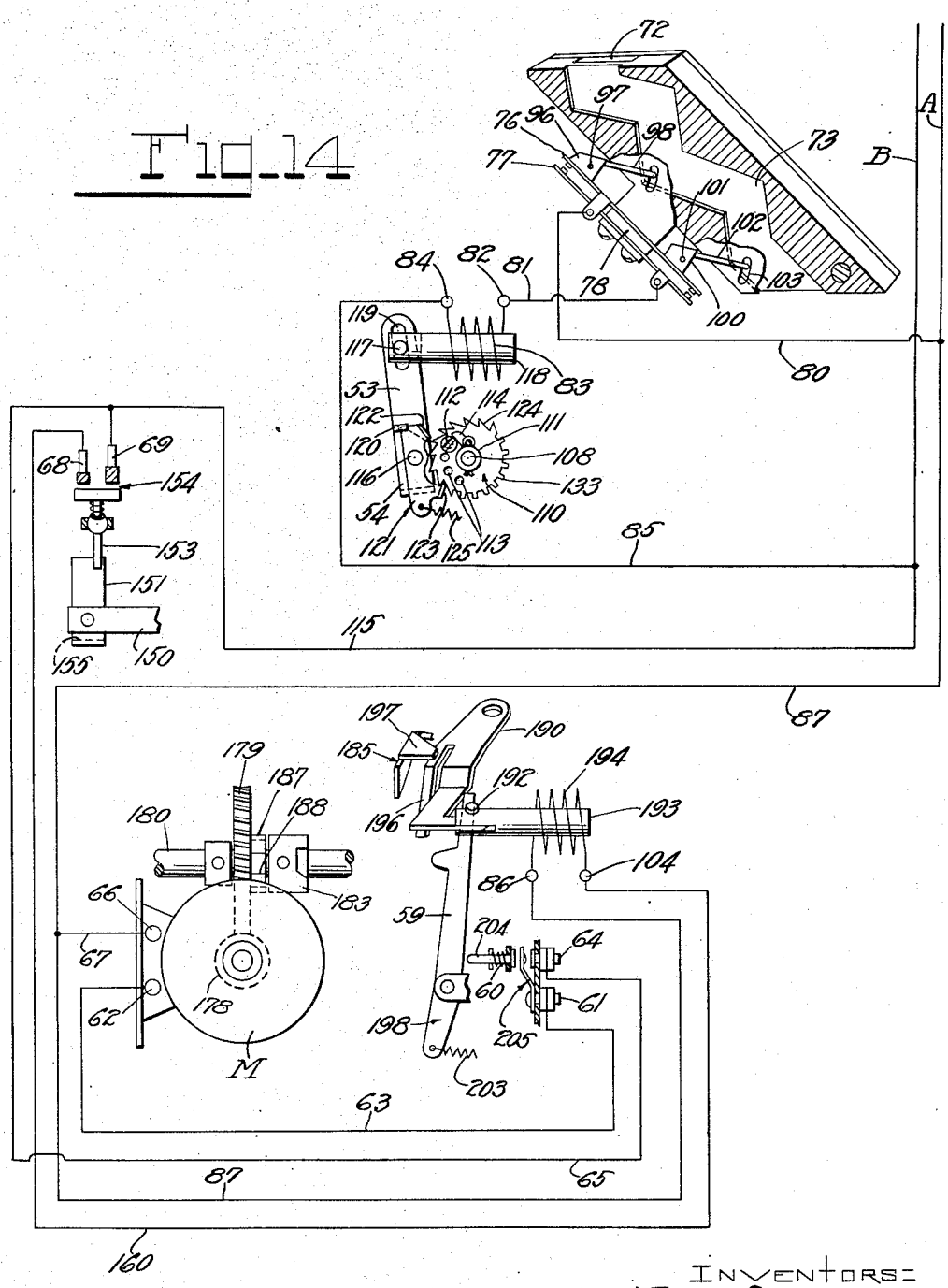
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COIN-CONTROLLED VENDING MACHINE

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Fig. 14




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Patented July 13, 1943

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# UNITED STATES PATENT OFFICE

2,323,981

## COIN-CONTROLLED VENDING MACHINE

Francis C. Du Grenier, Haverhill, and Frank B. Perri, Groveland, Mass.; said Perri assignor to Blanche E. Bouchard, Haverhill, Mass.

Application July 28, 1941, Serial No. 404,320

17 Claims. (Cl. 194—10)

This invention relates to apparatus for dispensing commodities, such as packages of cigarettes, chewing gum, razor blades, candy and the like.

In general, the apparatus of the invention comprises a plurality of compartments for holding merchandise to be vended. An article selector mechanism is associated with each compartment. A motor driven ejector mechanism is provided which operates through one complete cycle to eject an article and stop in its starting position. Control mechanism is arranged to be set to permit or prevent operation of the apparatus to deliver a selected article. The setting of the control mechanism is effected by a setting mechanism which may be actuated one step for each five cent unit of coins deposited in the apparatus. A resetting mechanism is associated with the setting and control mechanism to restore the parts to their starting positions.

In addition to the novel construction of the parts of the apparatus for arrangement for operative association, the control mechanism and the setting mechanism are constructed so that either or both may be adjusted so that the control mechanism may be set to permit operation of the apparatus to vend articles having a price value within a wide range. Thus, the control mechanism may be set by the deposit in the apparatus of coins having a total value of ten cents or thirty cents depending upon the adjustment of setting mechanism and control mechanism.

The invention will be more clearly understood from the following description in conjunction with the accompanying drawings in which:

Fig. 1 is a front elevational view of the lower portion of a vending machine embodying the invention, the enclosing cabinet being removed to show the mechanism;

Fig. 2 is a plan view of the same, partly broken away, certain of the parts being omitted;

Fig. 3 is a sectional elevational view taken substantially upon the line 3—3 of Fig. 2;

Fig. 4 is an elevational view, partly in section, as viewed from the right of Fig. 1;

Fig. 5 is a sectional view taken substantially upon the line 5—5 of Fig. 4;

Fig. 6 is a sectional view taken substantially upon line 6—6 of Fig. 4;

Figs. 7, 8 and 9 are sectional views taken substantially upon lines 7—7, 8—8, and 9—9, respectively, of Fig. 1;

Fig. 10 is a sectional view taken substantially upon the line 10—10 of Fig. 9;

Fig. 11 is a sectional view taken substantially upon the line 11—11 of Fig. 1;

Fig. 11*a* is a sectional view taken on the line 11*a*—11*a*, of Fig. 11;

Fig. 12 is a fragmentary elevational view, partly in section, as viewed from the left of Fig. 1;

Fig. 13 is a sectional view taken substantially upon the line 13—13 of Fig. 9; and

Fig. 14 is a diagram of the electrical system.

Referring to Figs. 1 and 2, the machine illustrated comprises spaced side frame members or plates 11 and 12 extending vertically, A sheet metal plate 10 extends between and is suitably secured to the frame members 11 and 12 to provide a horizontal platform 13. At the forward edge of the platform the plate 10 is turned upward to provide a panel 14. At the rear edge of the platform 13 the plate 10 is turned downward and then forward to provide a housing 15 for a motor M and associated mechanism. A sheet metal panel 16 extends between and is secured to the rear edges of the frame members 11 and 12 and extends downwardly and forwardly blow the housing 15 and provides a chute C for conveying merchandise to the purchaser. A plurality of vertical partitions 300 extend upwardly from the platform 13 and provide a plurality of vertical compartments 20 for packages P of merchandise to be vended.

*Ejector slide*

An ejector slide 25 is associated with each compartment 20 and is slidably mounted for movement forwardly and rearwardly upon platform 13. Each ejector slide 25 normally is positioned in front of its associated compartment 20 as shown in Fig. 11 and comprises a sheet metal inverted transversely extending channel having downwardly extending guide fingers 27 and 28 which slidably engage a slot 17 extending from near the front to the rear of the platform 13. The slot 17 connects at its front end with a short transverse slot 18. The front finger 27 depends downwardly past and in front of an ejector bar 30 which extends across the machine and through a slot 31 in each frame member 11 and 12. A pawl 33 positioned over the slot 17 is pivotally mounted on a boss extending forwardly from the rear finger 28 of the ejector slide 25 and normally is urged upward by spring 35 to the position shown in full lines in Fig. 11. The top edge of the pawl 33 is provided with a projection 37 normally projecting upward through a slot 26 in the top of the ejector slide. The pawl 33 is provided with a wing 92 projecting from the

lower edge of the projection 37 laterally over the slot 18 and beyond the edge of the slot 17.

*Selector mechanism*

A separate selector button 40 (Figs. 1, 2, 4 and 11) also is associated with each of the vertical columns or compartments 20 and extends forwardly through an opening 19 in the panel 14. A channel member 29 extends across the machine directly over the selector buttons 40 and is secured at its ends to the frame members 11 and 12. The member 29 is provided with a plurality of spaced slots 32 extending forward and rearward of the machine and each positioned directly over a selector button 40. A flat headed screw 41 passes through each slot 32 and engages a selector button 40 and serves to support and slidably guide the latter. A stop 43 extends upwardly from each selector button through the slot 32 and is provided with a forwardly extending projection 44 which normally is held in engagement with the panel 14 by a spring 45. Each selector button 40 is provided with a bottom cam surface 46 which is inclined upwardly and rearwardly to engage the projection 37 on the pawl 33. Each selector button 40 also is provided with a groove 34 in its left side face to provide stop shoulders 47 and 48 (Figs. 9 and 10).

A plurality of slide bars 350 (Fig. 2) are positioned end to end in alignment upon the channel member 29 and are guided for sliding movement in the direction of their alignment by guides 351. Movement of the slide bars is limited by engagement of pins 3 on the endmost slide bars with adjacent lugs. The adjacent ends of the slide bars 350 are located approximately in the path of movement of the posts 43 projecting upward from the selector buttons 40. The front edge of each slide bar 350 near each end thereof is provided with a cam surface 352 adapted to be engaged by the cam surfaces 43*a* projecting rearward from the posts 43. Consequently, when a selector button 40 is operated by moving it rearward, the cam surface 43*a* engages the cam surfaces 352 to separate the slide bars 350 adjacent thereto and permit the post on the selector button to be moved therebetween until the selector button is in its rearwardmost or depressed position. This brings the slide bars 350 to positions preventing the rearward movement of any other selector button 40.

A plurality of levers 50 (Figs. 9 and 10) are pivotally mounted upon the platform 13 so that one arm of each extends rearwardly into a compartment 20 under the column of merchandise. The other arm of each lever 50 extends forwardly and is pivotally connected to the lower end of a latch 51 which extends vertically opposite the groove 34 in a selector button 40 and is provided with an offset portion 52 which extends upwardly through a guide slot in the channel member 29. Normally, the latch 51 is inoperative but when there is no merchandise in its associated compartment 20, the latch 51 will drop downward to bring its offset portion 52 in back of the shoulder 48 on the selector button for the empty compartment and lock the selector button against rearward, that is, operating movement.

A plurality of guide pins 55 (Figs. 2 and 3) are fixed to the rear flange 36 of the channel member 29 and extend forwardly therefrom through elongated slots 56 in a lock slide 57 which extends across the machine parallel to the flange 19 and directly above the grooves 34 in the selector buttons. A plurality of spaced fingers 38 extend downwardly from the slide 57 through slots 58 in the channel member 29 and are adapted to engage the shoulders 47 on the selector buttons 40, when the lock slide 57 is moved to its extreme right hand position, to lock the selector buttons in their depressed positions.

The left hand end portion 160 of the slide 57, as viewed in Fig. 3, extends through an opening 361 in the frame member 11. A latch 161 (Figs. 1, 2, 3 and 12) is pivotally mounted upon a pin 162 fixed to the projection 160 so that its end is adapted to engage the outer surface of the frame member 11 to hold the lock slide 57 in its extreme left hand position as viewed in Figs. 2 and 3. A spring 163 is secured at one end to the pin 162 and at its other end to the frame member 11 and passes over a pin 164 projecting from the latch 161 intermediate its ends. The latch 161 is provided with a wing 165 projecting upwardly and forwardly therefrom.

*Coin counting mechanism*

A coin chute 70 (Figs. 4 and 5) is suitably mounted upon the outer face of the frame member 12 and comprises a central plate 71 having zig-zag grooves 72 and 73 in its inner and outer faces, respectively, which are covered by plates 74 and 75 to provide coin slots for a nickel and a dime, respectively. The chute 70 discharges coins into a hopper 39. A box-like trough 242 (Fig. 4) is secured upon the outer face of the frame member 12 opposite an opening 243 in the latter to provide communication between the trough 242 and the package chute C. The outer wall of the trough 242 is provided with a projection 244 providing a bearing for rotatably supporting a coin wheel 245 directly below the hopper 39. The wheel 245 is provided with a plurality of coin receiving compartments 246. A coin collecting box 247 is secured to the frame member 12 below the wheel 245. The arrangement is such that the wheel 245 may be rotated counterclockwise as viewed in Fig. 4 to deposit coins in the trough 242 or may be rotated clockwise to deposit coins in the box 247 by mechanism and for purposes described hereinafter.

A pair of resilient copper contacts 76 and 77 (Figs. 4 and 14) are secured in spaced relation intermediate their ends in a block of insulation 78 mounted upon the coin chute 70. Power is supplied to the machine from a suitable source through the electrical conductors A and B. The contact 76 is connected by a lead 80 to conductor A. The contact 77 is connected by a lead 81 to one terminal 82 of a solenoid 83. The other terminal 84 of the solenoid is connected by a lead 85 to conductor B. A cam 96 of insulating material engaging contact 76 near one end is rotatably mounted upon a pin 97 projecting from the coin chute 70. One end of an arm 98 is secured to the cam 96 and its other end is bent inwardly and passes through aligned slots 99 in the plates 71 and 75 so as to project into the coin passages 72 and 73 for nickels and dimes respectively. Another cam 100 of insulating material engaging contact 76 near its other end is mounted for rotation on a pin 101 projecting from the coin chute 70. One end of an arm 102 is secured to the cam 100 and its other end is bent inwardly so as to project through an arcuate slot 103 into the dime passage 73 only.

*Setting mechanism*

The solenoid 83 (Figs. 4 and 6) is mounted upon a bracket 105 secured to the outer wall of

a frame member 12. The bracket 105 is provided with spaced depending plates 106 and 107 which provide bearings for rotatably supporting a shaft 108 (Figs. 1, 4 and 6). A wheel 109 is fixed upon the shaft 108 and is provided with a predetermined limited number of teeth 91. A coil spring 42 surrounds the shaft 108 with one end secured in the plate 106 and its other end secured in the wheel 109 and normally urging the shaft and wheel in a counterclockwise direction as viewed in Fig. 6. An escapement wheel 110 is loosely mounted upon the shaft 108 between the plate 107 and a collar 111 which is fixed to the shaft. A pin 112 is fixed in any one of a plurality of threaded holes 113 circumferentially spaced in the wheel 110 and is adapted to be engaged by an arm 114 projecting laterally from the collar 111. A U-shaped lever, having arms 53 and 54, is pivotally mounted upon a shaft 116 fixed in the plate 107 and projecting from opposite faces thereof. A pin 117 carried by the armature 118 of the solenoid 83 projects into an elongated slot 119 formed in the arm 53 of the U-shaped lever. The other arm 54 of the U-shaped lever is provided with a projection 120 adapted to engage an escapement lever 121 which is pivotally mounted upon the shaft 116 and is provided with escapement teeth 122 and 123 adapted to engage alternately the teeth 124 on the wheel 110. The escapement lever 121 is maintained in engagement with the projection 120 by a spring 125.

A rack 130 is slidably mounted in spaced ears 131 projecting rearwardly from the plate 107 and is provided at its upper end with a projection 132. The teeth of the rack 130 mesh with teeth 133 on the wheel 110. A lug 134 is secured on the rack 130 and is adapted to engage the lower ear 131 to limit movement of the rack in one direction.

A price bar 140 extends between the frame members 11 and 12 and is mounted for rotation and axial movement in bearings formed therein. A plurality of spaced tabs 6, one for each compartment 20, depend from the price bar 140 and each is adjustably mounted thereon by a screw 7 passing through one or the other of the holes 8 or 9 in the tab. One end 141 of the price bar extends through the frame member 12 and is provided with a radial arm 142 which extends beneath and in the path of movement of the rack projection 132. The price bar projection 141 also is provided with a circular rack 143 adapted to be engaged by the teeth 91 of the rack pinion 109.

The other end of the price bar 140 is provided with a projection 150 which extends through the frame member 11 and is provided with an arm 151 which extends into a groove 152 in the pivotally mounted arm 153 of a switch 154 (Figs. 1, 12 and 14) which is mounted upon the outer face of the frame member 11. One terminal 68 of the switch 154 is connected by a lead 160 to one terminal 104 of a solenoid 194 and the other terminal 69 of the switch 154 is connected by a lead 115 to the conductor B. The other terminal 86 of the solenoid 194 is connected by a lead 87 to conductor A. The projection 150 also is provided with a rearwardly extending arm 155 which projects rearward under the wing 165 of the latch 161.

*Ejector mechanism*

The ends of the ejector bar 30 which project through the slots 31 in the frame members 11 and 12 are slidably received in an elongated slot 175 (Figs. 4 and 12) near the upper end of each of the arms 176 which are pivotally mounted at their other ends on posts 177 projecting from the outer face of each of the frame members 11 and 12. The ejector bar 30 is reciprocated by power supplied by a motor M (Figs. 1 and 2) which is mounted upon the frame member 11. The armature shaft of the motor is provided with a worm 178 engaging a worm wheel 179 which is freely rotatable upon a main drive shaft 180 extending between and through the frame members 11 and 12 and mounted for rotation in bearings therein. A crank 181 is fixed to each projecting end of the main drive shaft 180 and is pivotally connected to one end of a link 182 the other end of which is pivotally connected to the arm 176 intermediate the ends thereof.

A collar 183 (Figs. 1, 2, 7 and 8) is fixed to the drive shaft 180 and is provided with a projecting ear 184 to which a pawl 185 is pivotally mounted. The pawl 185 is urged by a spring 186 to engage the teeth 188 of a clutch element 187 surrounding the shaft 180 and fixed to the worm wheel 179. An arm 190 is pivotally connected at one end to a bracket 191 carried by the housing 15. The other end of the arm 190 is pivotally connected by a pin 192 to the plunger 193 of the solenoid 194. A spring 195 surrounds the plunger 193 and extends between the solenoid 194 and the pin 192 to urge the arm 190 toward the position shown in Figs. 1 and 2. The arm 190 is provided with a downwardly and forwardly extending cam finger 196 to a position between the collar 183 and the path of movement of a lateral projection 197 on the pawl 185.

A lever 198 (Figs. 1 and 2) is pivotally mounted upon a bracket 199 carried by the housing 15. One arm 59 of the lever 198 projects upwardly adjacent the face 200 of the collar 183 and past the arm 190. The arm 59 is provided with a lateral projection 201 adapted to engage the face 200 of the collar 183 and a recess 202 formed in the latter. The lever 198 is urged in counterclockwise direction as viewed in Fig. 1 by a spring 203. The lever 198 also is adapted to engage and depress a plunger 204 of a motor switch 205 (Figs. 1, 2 and 14) to close the latter, which normally is held open by a spring 66. One terminal 61 of the switch 205 is connected to one terminal 62 of the motor M by a lead 63. The other terminal 64 of the switch is connected by a lead 65 to conductor B. The other terminal 66 of the motor is connected by a lead 67 to conductor A.

*Reset mechanism*

A manually operable reset arm 210 (Fig. 4), which projects forward through a guide slot 126 in a plate 127, is pivotally mounted upon a pin 211 fixed to the outer surface of the frame member 12 and normally is urged by a spring 212 to a position engaging the top of slot 126 as shown in Fig. 4. The upper end of a link 213 is pivotally connected to the reset arm 210 and its other end is provided with an elongated slot 214 engaged by a pin 215 carried by one arm 216 of a bell crank lever 217 which is pivotally mounted on a post 218 projecting from the outer face of the frame member 12. The other arm 219 of the bell crank lever is adapted to engage a pin 220 carried by a slide 221. The slide 221 is provided with an inturned guide finger 222 projecting into the slot 31. A guide screw 223 passing through an elongated slot 224 in the slide

221 and engaging the frame member 12 serves to secure the slide upon the frame member. The forward movement of the slide 221 is limited to a pin 226 mounted upon the slide so as to engage a stop 227 fixed upon the frame member 12. The slide normally is urged to its forward position by a spring 230. The arrangement is such that as the bell crank lever 217 is rotated, the arm 216 thereof engages the lug 134 (Figs. 4 and 6) on the rack 130 to move the latter downwardly.

A plurality of pins 88, 89 and 90 (Fig. 4) project from the inner wall of the coin wheel 245 so that a pair thereof are normally positioned adjacent the lower edge of the slide 221. The lower edge of the slide 221 is provided with spaced notches 248 and 249. A pawl 250 is pivotally mounted upon the slide 221 so that its operative surface extends below the lower edge of the slide and in alignment with the rear edge of the notch 249. A similar pawl 251 is pivotally mounted upon the slide forward of the notch 248 so that its operative surface projects below the bottom edge of the slide and is normally aligned with the forward edge of the notch 248. Each of the pawls 250 and 251 are provided with an inwardly extending projection 252 normally held in engagement with the bottom edge of the slide 221 by a spring 253 which connects arms 254 projecting upwardly from the pawls 250 and 251.

A plate 235 (Fig. 12) is pivotally and slidably mounted upon the outer surface of the frame member 11 by a screw 236 passing through an elongated slot 237 in the plate 235 and engaging the frame member 11. The plate normally is urged against a guide pin 238 by a spring 239. The lower end portion of the plate 235 is positioned opposite the slot 31 and is provided with a rearwardly and upwardly extending cam surface 240. The plate 235 also is provided with an outwardly extending projection 241 having a downwardly and outwardly inclined cam surface adapted to engage a pin 166 projecting forward from the lock slide 57 to move the latter to the left as viewed in Fig. 3 to its inoperative position.

*Setting mechanism adjustment*

The machine as illustrated is constructed to dispense articles having a value in five cent units up to thirty cents and can be adjusted to dispense articles having any value between five and thirty cents. The tabs 6 depending from the price bar 140 are adjustable thereon to either of two positions. Thus, if a tab 6 is positioned in its extreme right hand position on the bar 140 as viewed in Figs. 1 and 2, articles of a given price value, such as fifteen cents, may be dispensed from its corresponding merchandise compartment, whereas, if the tab 6 is positioned at its extreme left hand position, articles having a value five cents higher must be dispensed from that compartment.

A further price value adjustment is provided on the wheel 110 by the position of the pin 112. When the pin 112 is positioned as illustrated in Fig. 6, the machine is adjusted for dispensing articles having a value of either twenty-five or thirty cents depending upon the adjustment of the tabs 6 on the price bar 140. If it is desired to adjust the machine to dispense articles having a value of twenty and twenty-five cents, the pin 112 is positioned in the next adjacent hole 113 on the wheel 110. If it is desired to dispense articles having a value of ten and fifteen cents, the pin 112 should be positioned in the lowermost hole 113.

The position of the pin 112 controls the initial relationship between the teeth 91 on the wheel 109 and the rack 143. Thus, with the machine adjusted as illustrated, the escapement mechanism is operated three steps during each of which the teeth on the wheel 109 are brought progressively nearer engagement with the rack 143. When the escapement mechanism is operated a fourth step, the teeth 91 of the wheel 109 engage the rack 143 and operate it to move the price bar axially to the right one step as viewed in Figs. 1 and 2. When the escapement mechanism is operated a fifth step, the price bar is again moved axially another step to bring a tab thereon, which has been adjusted to its extreme right hand position, into the path of movement of the lug 43 on a selector button 40. The machine is then set for operation.

*Operation*

With the parts in the positions illustrated in Fig. 1, all the tabs 6 are positioned out of the path of movement of the lugs 43 and, consequently, the machine must be set for operation by the deposit of nickels and/or dimes totalling the value of either twenty-five or thirty cents depending upon the position of the tab 6 corresponding to the compartment 20 from which merchandise is desired to be obtained. The purchaser having decided which article he desires to purchase deposits the required nickels or dimes in the coin chute 70 to set the machine for operation. Each nickel deposited depresses the arm 98 momentarily to close the circuit to the solenoid 83 to operate the counting and setting mechanism one step. Each dime deposited in the coin chute first depresses the arm 98 momentarily to operate the counting and setting mechanism one step and then travels downwardly in the passage 73 to depress the arm 102 to again operate the counting and setting mechanism one step. Thus, the counting and setting mechanism is operated one step for each five cent unit coin value deposited in the coin chute 70. If the purchaser desires to purchase a twenty-five cent article the counting and setting mechanism is operated by the deposited coins five steps to move the price bar 140 axially and bring the tab 6, corresponding to the compartment from which the article is to be dispensed, into the path of movement of the lug 43 on the selector button 40 for that compartment.

The purchaser then pushes in the selector button 40 of the selected compartment causing the lug 43 carried thereby to engage the corresponding tab 6 to rotate the price bar 140 counterclockwise as viewed in Fig. 11. This causes the arm 155 (Fig. 12) to lift and release the latch 161 and permit the spring 163 to move the lock slide 57 to the right, as viewed in Figs. 2 and 3, to bring one of the fingers 38 depending therefrom into the recess 34 formed in the face of the selector button to engage the shoulder 47 and thus lock the selector button in its depressed position. As the selector button is pushed in, the cam surface 46 thereon engages the projection 37 on the pawl 33 to move the latter down in back of the ejector bar 30 as indicated in dotted line in Fig. 11. This positions the wing 92 on the pawl below the platform 13.

The rotation of the price bar 140 also causes the arm 151 (Fig. 12) to pivot the switch arm

153 to close the switch 154 and, consequently, the circuit to the solenoid 194 (Figs. 1 and 2). Energization of the solenoid 194 causes its plunger 193 to be moved to the right as viewed in Figs. 1 and 2 thereby moving the lever 198 clockwise as viewed in Fig. 1 to close the motor switch 205 and start the motor M. This causes the worm wheel 179 (Fig. 7) and the clutch element 187 to rotate upon the main drive shaft 180. Also, as the solenoid plunger 193 is moved to the right, the arm 190 is moved counterclockwise as viewed in Fig. 2 to release the pawl 185 and permit the spring 186 to move the pawl into clutching engagement with the teeth 188 of the clutch element 187 thereby operatively connecting the motor M and the main drive shaft 180 to rotate the latter.

During the single revolution of the shaft 180, the arms 176 are oscillated through the cranks 181 and links 182 to slide the ejector bar 30 in the slots 31 from the position shown in Figs. 4, 11 and 12 first rearwardly and then forwardly back to its original position. As the ejector bar moves rearwardly it engages the pawl 33 on the ejector slide 26 to move the latter and cause it to push the lowermost package of merchandise out of the selected compartment 20 and into the delivery chute 16. As the pawl 33 moves out of engagement with the cam surface 46, the wing 92 engages the bottom surface of the platform 13 to maintain the pawl engaging the ejector bar 30. As the ejector bar 30 moves forwardly it engages the finger 27 and returns the ejector slide 26 to its original position shown in Fig. 11. As the ejector slide 26 approaches its original position, the wing 92 is moved by the spring 35 upwardly through the transverse slot 18 to return the pawl 33 to its inoperative position out of the path of movement of the ejector bar 30.

As the ejector bar 30 moves rearwardly it engages the slide 221 to move the latter rearwardly and thus bring the pawl 251 in engagement with the pin 88 to rotate the coin wheel 245 clockwise as viewed in Fig. 4, and cause the deposited coins to be discharged in the money box 247. Also, during the rearward movement of the ejector bar 30, the latter engages the arm 219 of the bell crank 217 to rotate the latter. This causes the bell crank arm 216 to engage the lug 134 on the rack 130 to move the latter downward until the lug 134 engages the lower ear 131. The downward movement of the rack 130 causes rotation of the shaft 108 and the wheel 109 which in turn moves the price bar 140 axially to the left as viewed in Figs. 1 and 2 to return the latter to its original axial position. As the rack 130 is thus moved downward the rack projection 132 engages the arm 142 on the price bar to rotate the latter clockwise as viewed in Fig. 4 to its original position. This causes the arm 151 (Fig. 12) to pivot the switch arm 153 to open the switch 154 and deenergize the solenoid 194.

As the main drive shaft 180 completes one revolution, the cam finger 196 (Figs. 1 and 2) depending from the arm 190 engages the projection 197 on the pawl 185 to cause the pawl to ride up out of engagement with the clutch element 187 thus disconnecting the motor M and shaft 180. Also as the main drive shaft 180 completes one revolution, the projection 201 on the lever 198 is forced by spring 203 into the recess 202 thereby permitting the spring 60 to move plunger 204 and open the switch 205 and the circuit to the motor M.

During the rearward movement of the ejector bar 30 the slide plate 235 is rotated counterclockwise as viewed in Fig. 12 until the ejector bar moves out of engagement therewith to permit the spring 239 to rotate the slide plate 235 in a counterclockwise direction into engagement with the guide stop 238. Then as the ejector bar moves forwardly it engages the cam surface 240 on the slide 235 to move the latter upward to cause the cam 241 to engage the pin 166 and move the lock slide 57 to the left as viewed in Figs. 2 and 3 to its original inoperative position at which time the spring 163 moves the latch 161 to its locking position to hold the lock slide 57 in its inoperative position. As the lock slide 57 is thus moved the selector button 40 is released and returned to its original position by the action of the spring 45.

If the purchaser, after depositing coins in the coin chute 70, should decided that he has made a mistake in his selection, he can obtain a refund of his money if he has not already depressed the selector button 40. To obtain a refund of the money deposited, the purchaser moves the reset lever 210 (Fig. 4) downward thus causing rotation of the bell crank 217 through the connecting link 213. This causes the arm 219 of the bell crank to engage the pin 220 on the slide 221 and move the latter rearward. As the slide is moved rearward the pawl 250 will ride over the pin 89 and thereafter be returned by the spring 253 to its operative position in back of the pin. At this point the lever 210 engages the bottom of the slot 126 to limit the rearward movement of the slide 221. The lever 210 then is released and the slide 221 is moved forward by the action of the spring 230. As the slide 221 moves forwardly the pawl 250 engages the pin 89 to rotate the coin wheel 245 in a counterclockwise direction as viewed in Fig. 4 to cause the coins to be discharged into the trough 242 and slide into the package delivery chute 16 where they are accessible to the purchaser. The rotation of the bell crank 217 causes the arm 216 thereof to engage the lug 134 and move the rack 130 downward as viewed in Figs. 4 and 6 to reset the price bar 140 as previously described.

We claim:

1. In a vending apparatus having a plurality of compartments for holding merchandise to be dispensed, a reciprocable ejector bar, electrical actuated means for reciprocating said bar, a movably mounted selector button associated with each compartment, the combination therewith of an ejector slide associated with each compartment and movable to eject an article therefrom, means carried by each ejector slide adapted to be moved into the path of movement of said bar by operation of its corresponding selector button, control mechanism adapted to be actuated by any one of said selector buttons to render said electrical means operative, said control mechanism having a member movable from a position preventing operation of said selector buttons to a position permitting operation of said selector buttons, setting mechanism operative for moving said member from its preventing to its permitting position, and means for actuating said setting mechanism.

2. In a vending apparatus having a plurality of compartments for holding merchandise to be dispensed, an ejector mechanism movable to eject an article, electrical means for actuating said mechanism, and a movably mounted selector button associated with each compartment, the combination therewith of control mechanism adapted

to be actuated by any one of said selector buttons to render said electrical means operative, said control mechanism having a member movable from a position preventing operation of said selector buttons to a position permitting operation of said selector buttons, setting mechanism operative for moving said member from its preventing to its permitting position, and means for actuating said setting mechanism.

3. In a vending apparatus, in combination, a plurality of compartments for holding merchandise to be dispensed, a movably mounted selector button associated with each compartment, an ejector slide associated with each compartment and movable to eject an article therefrom, the selector button and ejector slide associated with the same compartment being independently movable relative to one another, a reciprocable ejector bar adapted to be selectively associated with any one of said ejector slides, and means carried by each ejector slide adapted to be moved into the path of movement of said ejector bar by operating its corresponding selector button.

4. In a vending apparatus, in combination, a plurality of compartments for holding merchandise to be dispensed, a movably mounted selector button associated with each compartment, an ejector slide associated with each compartment and movable to eject an article therefrom, a reciprocable ejector bar adapted to be selectively associated with any one of said ejector slides, and means carried by each ejector slide adapted to be moved into the path of movement of said ejector bar by operating its corresponding selector button, control mechanism having a member movable from a position preventing operation of said selector buttons to a position permitting operation of said selector buttons, setting mechanism operative for moving said member from its preventing to its permitting position, and means for actuating said setting mechanism.

5. In a vending apparatus having a plurality of compartments for holding merchandise to be dispensed, an ejector mechanism movable through a single cycle to eject an article and return to its starting position, and electrical means for actuating said mechanism, the combination therewith of a movably mounted selector button associated with each compartment, control mechanism adapted to be set for actuation by a selected selector button to render said electrical means operative, setting mechanism operative for setting said control mechanism, and coin actuated means for operating said setting mechanism.

6. In a vending apparatus having a plurality of compartments for holding merchandise to be dispensed, an ejector mechanism movable through a single cycle to eject an article and return to its starting position, and electrical means for actuating said mechanism, the combination therewith of a movably mounted selector button associated with each compartment, a control member mounted for rotation and axial movement, coin actuated means for moving said member axially into and out of operative relation with a selected selector button whereby movement of the selected button in one direction causes rotation of said member, and means adapted to be actuated by said rotation of said member for rendering said electrical means operative.

7. In a vending apparatus having a plurality of compartments for holding merchandise to be dispensed, an ejector mechanism movable through a single cycle to eject an article and return to its starting position, and electrical means for actuating said mechanism, the combination therewith of a movably mounted selector button associated with each compartment, a control member mounted for rotation and axial movement, coin actuated means for moving said member axially into and out of operative relation with a selected selector button whereby movement of the selected button in one direction causes rotation of said member, and means adapted to be actuated by said rotation of said member for rendering said electrical means operative, and means adapted to be actuated by said ejector mechanism for moving said coin actuated means to restore said member to its original position.

8. In a vending apparatus having a plurality of compartments for holding merchandise to be dispensed, an ejector mechanism movable through a single cycle to eject an article and return to its inoperative position, and electrical means for actuating said mechanism, said mechanism and means including a main drive shaft and an electric motor, a motor driven clutch element rotatably mounted on said shaft, driving connections between said element and motor, a pawl carried by said shaft and mounted thereon for movement into and out of clutching relation with said clutch element, a collar fixed upon said shaft having a recess in its face, a pawl control member pivotally mounted for movement into and out of the path of movement of said pawl to control the movement of the latter into and out of clutching relation with said element, means for supplying power to said motor including a switch having a pivotally mounted switch arm with a projection adapted to engage the face of said collar in the path of movement of the recess therein, spring means urging said arm toward said face whereby the switch is opened when said projection moves into said recess, means for moving said arm in the opposite direction to close said switch, and means for connecting said member and switch arm to swing in unison.

9. In a vending apparatus having a plurality of compartments for holding merchandise to be dispensed, an ejector mechanism movable through a single cycle to eject an article and return to its inoperative position, and electrical means for actuating said mechanism, said mechanism and means including a main drive shaft and an electric motor, a motor driven clutch element rotatably mounted on said shaft, driving connections between said element and motor, a pawl carried by said shaft and mounted thereon for movement into and out of clutching relation with said clutch element, means for stopping said shaft after a predetermined movement thereof including a pawl control member pivotally mounted for movement into and out of the path of movement of said pawl to control the movement of the latter into and out of clutching relation with said element.

10. In a vending apparatus, in combination, control mechanism having a member movable from an operation preventing position to an operation permitting position, an actuator adapted to be moved to actuate said control mechanism when said member is in said operation permitting position, setting mechanism operative for moving said member from said preventing to said permitting position, coin actuated means for operating said setting mechanism step by step for each predetermined coin unit value of the coin or coins deposited, and means for adjust-

ing said setting mechanism so that it must be operated through a predetermined number of steps to move said member from its preventing to its permitting position.

11. In a vending apparatus, in combination, control mechanism having a member movable from an operation preventing position to an operation permitting position, an actuator adapted to be moved to actuate said control mechanism when said member is in said operation permitting position, setting mechanism operative for moving said member from said preventing to said permitting position, and coin actuated means for operating said setting mechanism step by step for each predetermined coin unit value of the coin or coins deposited, means for adjusting said setting mechanism so that it must be operated through a predetermined number of steps to move said member from its preventing to its permitting position, and means for adjusting said member to change the location of its preventing position.

12. In a vending apparatus, in combination, a plurality of compartments for holding merchandise to be dispensed, a slidably mounted selector button associated with each compartment, a price bar mounted for rotation and axial movement and having spaced arms adapted to be operatively associated with said selector buttons, coin actuated means for moving said bar axially to bring one of its arms opposite one selector button whereby said bar is rotated by slidably depressing said button, a lock slide movable into and out of a position to lock said buttons in their depressed position, a spring acting to move said slide to its locking position, a latch adapted to hold said slide in its inoperative position, means responsive to rotation of said bar in one direction for releasing said latch, a reciprocable ejector mechanism, a main drive shaft operatively connected with said mechanism, an electric motor, an electric circuit to said motor, a motor switch for opening and closing said circuit, a solenoid for moving said motor switch from open to closed position, an electric circuit for said solenoid including a switch, means rendered operative by rotation of said price bar for opening and closing said solenoid switch, means rendered operative by closing said motor switch for operatively connecting said motor and ejector mechanism and for disconnecting the same as said main shaft completes one revolution, means operative as said main shaft completes one revolution for opening said motor switch, means adapted to be actuated by said ejector mechanism for rotating said price far back to its original angular position and actuating said means for moving said price bar to move the latter axially to its original position, and means adapted to be actuated by said ejector mechanism for restoring said lock slide to its inoperative position.

13. In a vending apparatus having a plurality of compartments for receiving merchandise to be vended, and a selector plunger associated with each of said compartments, the combination therewith of a solenoid having a circuit, an article ejector, means for actuating said ejector including a motor having a circuit, means adapted to be conditioned for actuation by any one of said plungers to close said solenoid circuit, coin operated mechanism adapted to condition said last mentioned means selectively in response to coin value for actuation by a predetermined one of said plungers, and means adapted to be actuated by said solenoid to close said motor circuit.

14. In a vending apparatus, in combination, control mechanism having a member movable from an operation preventing to an operation permitting position, a rotatably mounted shaft, coin actuated means for rotating said shaft in one direction step by step for each predetermined coin unit value of the coin or coins deposited, means for providing a driving connection between said member and shaft during at least one of said step by step movements of said shaft to move said member from its preventing to its permitting position, adjustable means for fixing the initial angular position of said shaft, and means for rotating said shaft in the opposite direction back to its initial position.

15. In a vending apparatus, in combination, control mechanism having a member movable from an operation preventing to an operation permitting position, a rotatably mounted shaft, coin actuated means for rotating said shaft in one direction from a predetermined position step by step for each predetermined coin unit value of the coin or coins deposited, means for providing a driving connection between said member and shaft during at least one of said step by step movements of said shaft to move said member from said preventing to said permitting position, and means for rotating said shaft in the opposite direction back to its initial position.

16. In a vending apparatus, in combination, control mechanism having a member movable from an operation preventing to an operating permitting position, a rotatably mounted shaft, coin actuated means for rotating said shaft in one direction step by step for each predetermined coin unit value of the coin or coins deposited, means for providing a driving connection between said member and shaft during at least one of said step by step movements of said shaft to move said member from its preventing to its permitting position, adjustable means for fixing the initial angular position of said shaft, means for rotating said shaft in the opposite direction back to its initial position, and means for adjusting said member to change the location of its preventing position.

17. In a vending apparatus, in combination, control mechanism having a member movable from an operation preventing to an operation permitting position, a rotatably mounted shaft, coin actuated means for rotating said shaft in one direction from a predetermined position step by step for each predetermined coin unit value of the coin or coins deposited, means for providing a driving connection between said member and shaft during at least one of said step by step movements of said shaft to move said member from said preventing to said permitting position, means for rotating said shaft in the opposite position back to its initial position, and means for adjusting said member to change the location of its preventing position.

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