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3,312,321

SHOE DISPENSER

Filed May 11, 1965

3 Sheets-Sheet 1

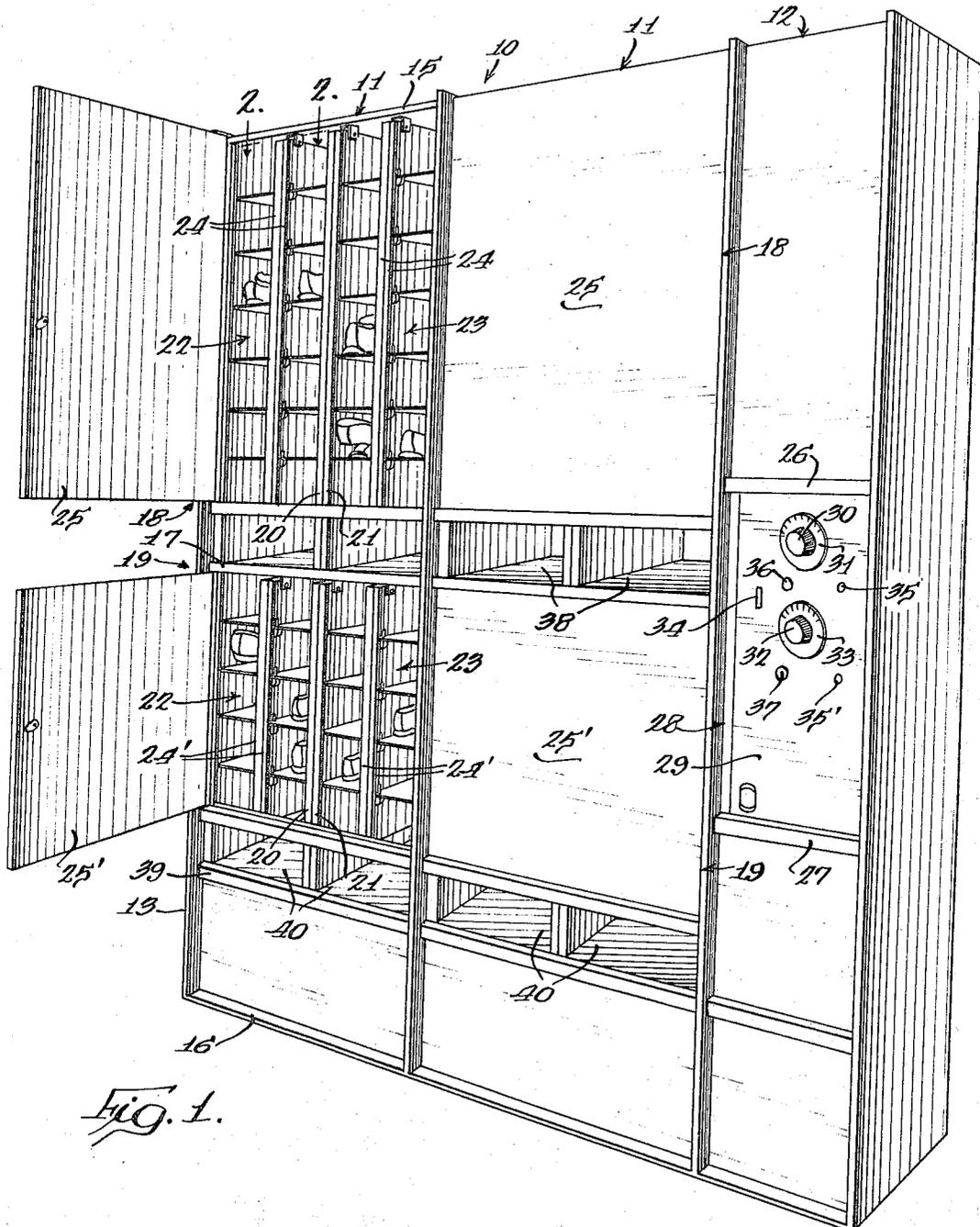


Fig. 1.

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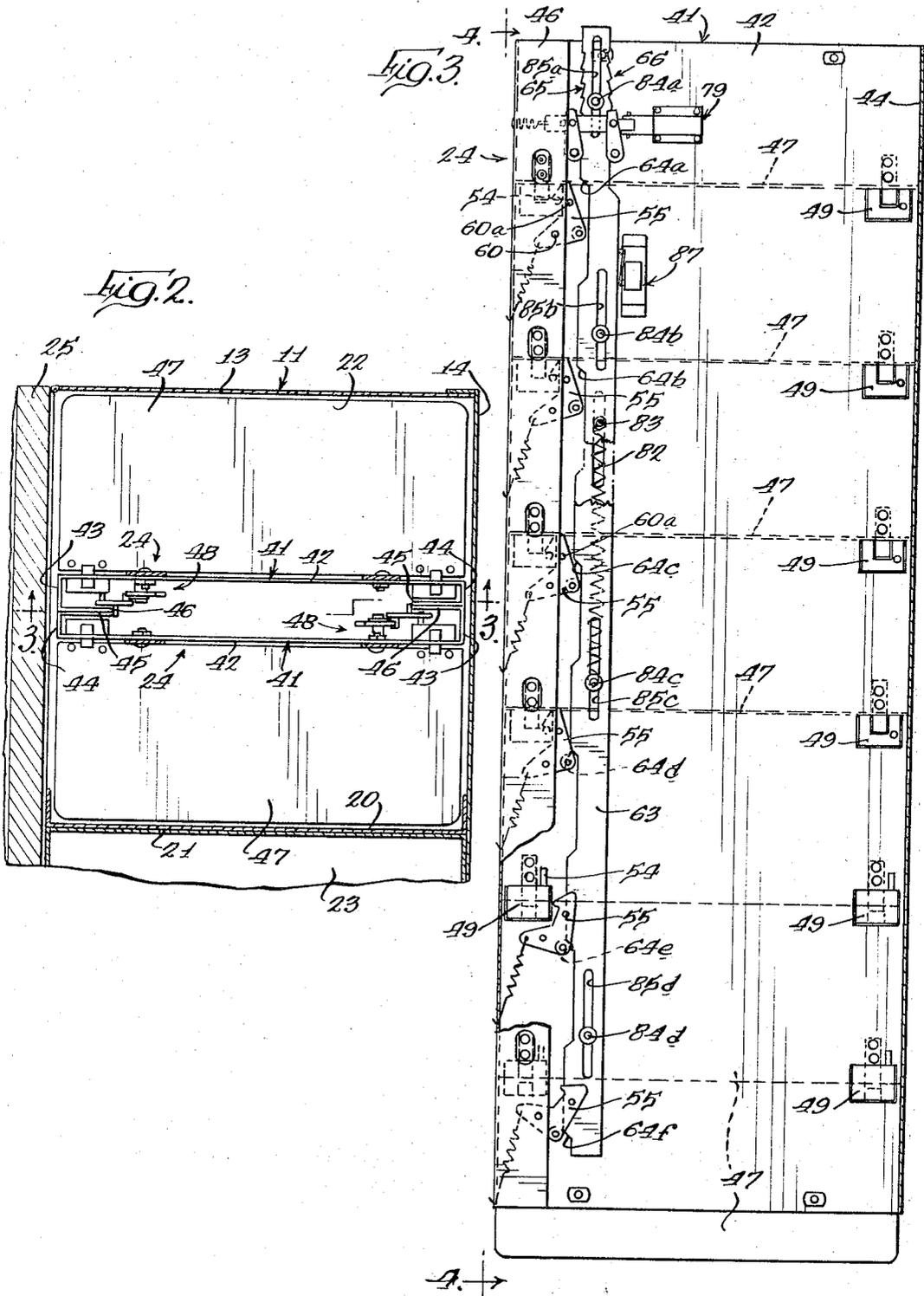
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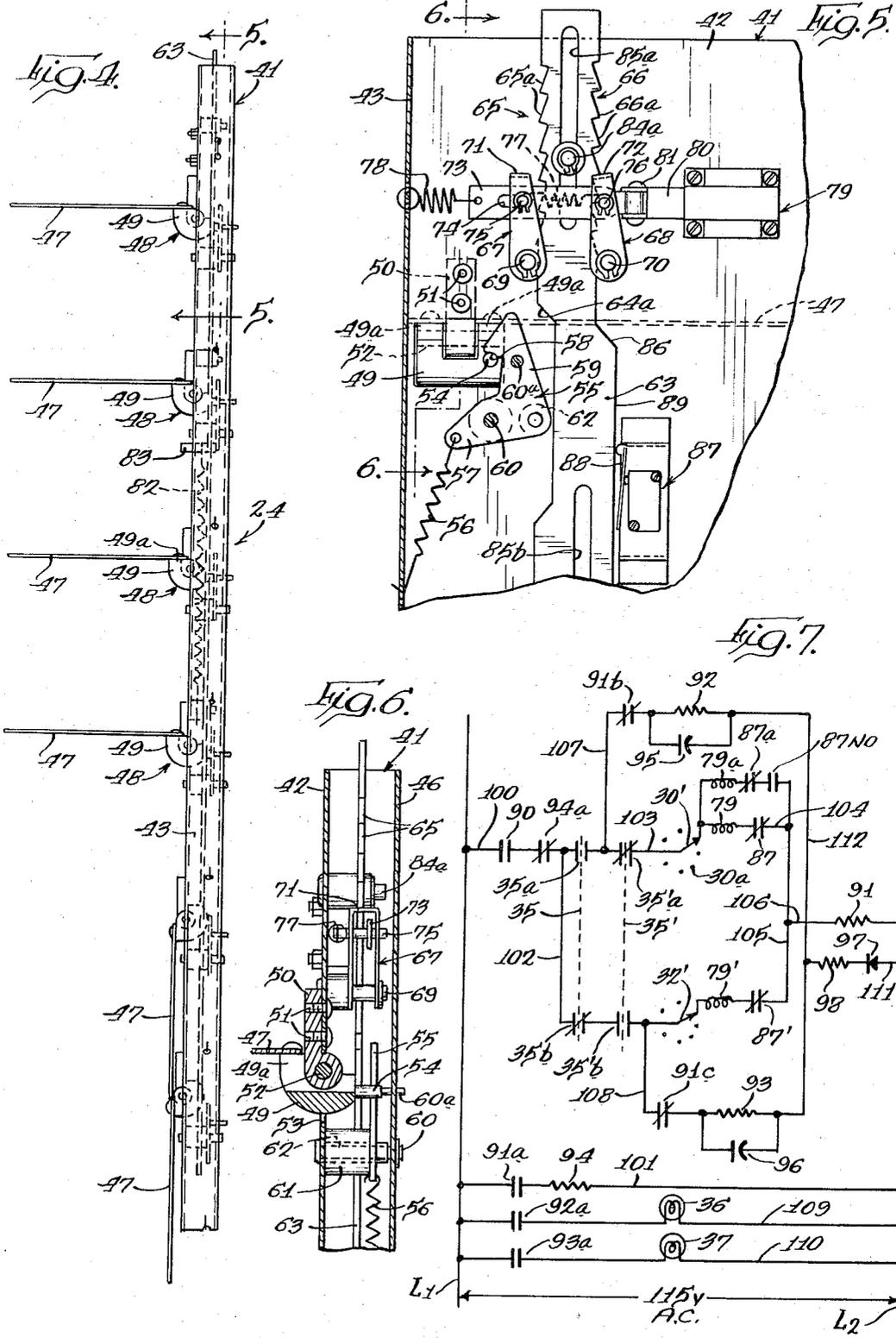
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3,312,321

SHOE DISPENSER

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 16 Claims. (Cl. 194-2)

This invention relates in general to article vending apparatus, and more particularly to vending apparatus for dispensing articles such as bowling shoes or the like.

In modern day bowling establishments, it is conventional for a bowling proprietor to maintain a relatively large supply of men's and women's bowling shoes in varying sizes, for rental to customers. These rental shoes have usually been stored in or around the bowling alley control desk, and have usually taken up a relatively large amount of storage space. The manual handling of the rental bowling shoes by the individual operating the control desk is often a bothersome and time consuming task, particularly in a large bowling establishment. In fact, the large number of duties to be performed by the individual operating the control desk, including the dispensing and collecting of rental shoes, has often necessitated the presence of more than one person behind the control desk. The desirability of having a vending machine for automatically dispensing rental bowling shoes has been recognized in the past by those familiar with the bowling industry, but heretofore a satisfactory machine has not been provided. One of the major drawbacks which has heretofore prevented the provision of a satisfactory rental bowling shoe vending machine, has been the inability to design a relatively inexpensive unit which would function without breakdown for a long period of time. Since bowling shoes are relatively heavy articles, as compared to the articles conventionally dispensed in vending machines, the structures usually employed in conventional vending machines have not been satisfactory in vending rental bowling shoes. Additionally, since bowling shoes are rather bulky items, it had heretofore been thought that rental bowling shoe dispensing machines would necessarily occupy an unduly large amount of space. Accordingly, the general purpose of the present invention is to provide a vending machine for dispensing rental bowling shoes which is relatively compact, extremely reliable in service, and relatively inexpensive to manufacture and maintain.

An object of the invention is to provide a vending machine for dispensing rental bowling shoes which is modular in design, so that the size of the vending machine can be readily changed to suit the needs of a particular bowling establishment.

Another object of the invention is to provide a vending machine for dispensing rental bowling shoes of widely varying sizes in both men's and women's shoes.

A further object of the invention is to provide a rental bowling shoe vending machine as described above with sturdy article supporting members that are securely held in an article supporting position by novel releasable latch means.

Still another object of the invention is to provide a rental bowling shoe dispensing machine as described above with novel means for releasing the support member latch means.

Still another object of the invention is to provide novel electrical control means for a rental shoe vending machine as described above.

These and other objects of the invention will hereinafter become more fully apparent from the following description taken in connection with the annexed drawings, wherein:

FIG. 1 is a front perspective view of a preferred embodiment of the rental bowling shoe vending machine;

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FIG. 2 is an enlarged view taken generally along line 2-2 of FIG. 1;

FIG. 3 is a sectional view taken generally along line 3-3 of FIG. 2;

FIG. 4 is a side elevational view taken generally along line 4-4 of FIG. 3, and showing one magazine of the vending machine;

FIG. 5 is an enlarged fragmentary sectional view taken generally along line 5-5 of FIG. 4;

FIG. 6 is a sectional view taken generally along line 6-6 of FIG. 5; and

FIG. 7 is a schematic electrical diagram of the control means for the vending machine.

While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail one specific embodiment with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the invention to the embodiment illustrated. The scope of the invention will be pointed out in the appended claims.

Referring now to FIG. 1, the illustrated embodiment of the rental bowling shoe vending machine is designated in its entirety by reference numeral 10, and is shown to include a pair of generally identical vending units 11, and a control unit 12. The vending machine 10 is modular in design, and any number of vending units 11 may be used in connection with control unit 12, depending upon the size of the bowling establishment, and the number of rental shoes desired. Each vending unit 11 includes vertical side walls 13, a vertical rear wall 14 secured thereto, a generally horizontal top wall 15, and a support base 16 at the lower end thereof. A generally horizontally extending panel 17 is provided in each vending unit 11 between the top and bottom thereof to divide the interior of the units into an upper enclosure 18 and a lower enclosure 19. Vertically disposed separators 20 and 21 are provided in each of enclosures 18 and 19 to divide the interior thereof into compartments 22 and 23. In the illustrated embodiment, a pair of generally identical article dispensing magazines 24 are provided in each of the compartments 22 and 23 in the upper enclosure 18. A pair of generally identical magazines 24' are provided in each compartment of the lower enclosure 19, and these magazines are substantially identical to the magazines 24, except that a lesser number of article supporting members are provided. It should be understood, of course, that the number of magazines 24 or 24' in the compartments 22 and 23, or in the enclosures 19 and 20, may be varied as desired to fit the needs of a particular bowling establishment. Doors 25 and 25' are hinged to the forward end of one side wall 13 of the vending units, and pivot from a position closing enclosures 18 and 19 respectively to an open position, such as that shown in FIG. 1, to expose the interior of the enclosures for loading shoes therein.

The control panel 12 includes a compartment 28 intermediate the ends thereof which is defined by the side walls of the control panel, and by a pair of spaced generally horizontally disposed members 26 and 27. A control panel 29 is mounted in compartment 28, and contains the manually operable controls for selecting a pair of rental shoes, as well as the electrical components for controlling the operation of the vending machine. The control panel 29 may be conveniently mounted upon wheels or rollers (not shown) so that the same may be rolled forwardly of the control unit 12 for maintenance purposes.

In a preferred form of the invention, the upper enclosures 18 of the vending units 11 may be used to dispense men's shoes, while the lower enclosures 19 may be used to dispense women's shoes. Each of the

magazines 24 or 24' preferably dispenses a single size of men's and women's shoes, respectively. Control panel 29 includes a first knob 30 which is rotatable around a dial 31 for selecting the desired men's shoe size from the upper enclosure 18. The control panel 29 further includes a second knob 32 rotatable around a dial 33 for selecting a desired women's shoe size from the lower enclosures 19. A coin slot 34 is provided in the control panel 29 for insertion of coins of appropriate denomination for the renting of a pair of shoes. A "men's" push button 35 and a "women's" push button 35' are provided on the control panel for actuation of the vending machine, and a "men's" light 36 and a "women's" light 37 are provided on the control panel to indicate that a particular shoe size has been depleted. Thus, if knob 30 or 32 has been dialed to select a particular size and the lamps 36 or 37 are not lighted, when the appropriate denomination coins are inserted in coin slot 34 and the push button 35 or 35' is depressed, a pair of shoes will be dispensed from one of magazines 24 or 24'. When the shoes are dispensed from enclosure 18, they will fall downwardly onto panel 17, where they are readily accessible through openings 38 in the front of the vending units. When the shoes have been dispensed from enclosure 19, they will fall downwardly to a generally horizontally disposed panel 39 below the enclosure 19, where they are readily accessible through openings 40.

Each of the magazines 24 and 24' is substantially identical, so that only a single magazine will be described in detail, with the same reference characters being utilized to designate corresponding parts of each magazine. Each magazine 24 includes a generally U-shaped vertically extending support bracket 41 having a central portion 42, a long leg 43 at one end of portion 42, and a short leg 44 at the opposite end of portion 42. In end of legs 44, and extend generally parallel to the central portions 42 of the brackets 41; and inwardly directed flanges 46 are provided at the outer ends of legs 43 and also extend generally parallel to the central portions 42 of brackets 41. As best seen in FIG. 2, adjacent brackets 41 are nested with the long legs 43 of one bracket adjacent the short legs 44 of the adjacent bracket, and with the flanges 46 on one bracket abutting against the flanges 46 on the adjacent bracket.

A plurality of article supporting members in the form of generally rectangular shelves or trays 47 are provided in each magazine, and are pivotally mounted on bracket 41 for movement between an article supporting position disposed at generally right angles with respect to bracket portion 42, and an article dispensing position generally parallel with bracket portion 42. In the illustrated embodiment, magazines 24 each have six trays 47, while the magazines 24' each have four trays 47. Latch means 48 are provided adjacent the long leg 43 of each bracket 41 for releasably retaining the article supporting members 47 in article supporting position.

A pair of support arms 49 are secured to each tray 47 at opposite ends thereof; and as seen in FIG. 5, each arm 49 is generally U-shaped, and includes spaced fingers 49a. Support members 50 are secured to bracket portion 42 adjacent opposite ends thereof, as by screws 51, and each support member 50 includes a transverse pin 52 adjacent the lower end thereof. The lower end of each member 50 extends between the fingers 49a and the arms 49, and the pins 52 impale suitable aligned openings in the fingers 49a to pivotally mount the arms 49 and the trays 47 on the bracket 41. Bracket portion 42 is provided with an opening 53 (FIG. 6) to accommodate pivotal movement of the arms 49 relative to the brackets 41.

A rearwardly extending pin 54 is provided on one side of each of the arm 49, and the pins 54 on the arms 49 adjacent the bracket flanges 46 are adapted to be engaged by latch members 55 to releasably retain the trays 47 in

the article supporting position. As best seen in FIG. 5, the latch members 55 are generally L-shaped, and a spring 56 is connected between one arm 57 of the latch member and the bracket portion 43 to urge a latching surface 58 on a second arm 59 of the latch member 55 into latching engagement with pin 54. Latch members 55 are mounted for pivotal movement about a pin 60, and a suitable spacer 61 surrounds each pin 60 between bracket portion 42 and latch member 55. A cam follower 62 is provided on latch member 55 adjacent the junction of arms 57 and 59, and is adapted to be engaged by cam means of a control bar 63 for pivoting the latch member 55 out of latching engagement with pin 54.

As can be seen in FIG. 3, control bar 63 extends substantially from end to end of the magazine 24, and a plurality of spaced cam surfaces 64a-64f are provided on the side of control member 63 facing the latch members 55. Each of cam surfaces 64a-64f is spaced from the adjacent cam surface by a distance that progressively increases by a slight amount from 64f to 64a, so that the trays 47 may be serially released starting with the lowermost tray first. A pair of racks 65 and 66 are provided on opposite sides of the control member 63 adjacent the upper end thereof, and the teeth 65a on rack 65 are spaced from the teeth 66a on rack 66 by an amount corresponding approximately to one half of the difference in spacing between the adjacent cam surfaces on the control member 63. Teeth 65a and 66a are spaced from the adjacent teeth on rack 65 and 66 respectively, by an amount generally equal to the difference in spacing between the adjacent cam surfaces on the control bar 63.

A pair of pawls 67 and 68 are pivotally mounted on bracket portion 41 at opposite sides of the control member 63 by suitable pivot pins 69 and 70, respectively. As best seen in FIG. 6, wherein pawl 67 is shown, the pawls 67 and 68 are generally U-shaped, and include respective transverse connecting portions 71 and 72 at the upper ends thereof. A link 73 extends between the sides of the pawls 67 and 68, and is slotted as at 74, to receive transverse pins 75 and 76 on pawls 67 and 68 respectively. A spring 77 extends between pins 75 and 76 to mount the pawls 67 and 68 for movement together in response to movement of link 73. Link 73 is normally urged to the left as view in FIG. 5 by a spring 78 connected between the link 73 and the bracket portion 43, and in this position the connecting portion 72 of pawl 68 is positioned in engagement with one of the teeth 66a on the control bar rack 66. A solenoid 79 is provided for moving link 73 to the right, as viewed in FIG. 5, and includes a movable plunger 80 connected to link 73 by a pin 81. A plurality of guide pins 84a-84d are secured to the bracket portion 42, and cooperate with respective longitudinal slots 85a-85d, respectively, in the control bar 63 to mount the same for vertical movement. A spring 82 is connected between the guide pin 84c and a pin 83 fixed on the bracket portion 42 to bias the control member 63 downwardly.

Thus, when solenoid 79 is energized by means to be hereafter described, the link 73 will be moved to the right, as viewed in FIG. 5, to pivot pawls 67 and 68 in a clockwise direction and shift the portion 72 of pawl 67 out of engagement with the tooth on rack 66, and the portion 71 of pawl 67 into engagement with a tooth on rack 65. When the portion 72 of pawl 67 moves out of engagement with the tooth on rack 66, the spring 82 will move the control bar 63 downwardly until the portion 71 of pawl 67 engages an opposing tooth on rack 65. Since the opposing rack teeth 65a and 66a are spaced a distance corresponding to one half the difference in spacing between the successive cam surfaces 64a-64f, the energization of the solenoid 79 will enable the corresponding cam surface on the control member 63 to move into engagement with the cam follower 62 on latch member 55. This will pivot the latch member against the

bias of spring 56 and free the released tray 47 for movement about pivots 52. As can be seen in FIG. 5, wherein the two lower shelves 47 are released, the arms 49 are free to pivot through bracket portion 42 so that the trays 47 are generally vertical in an article dispensing position. When the solenoid 79 is de-energized by means to be hereafter described, the spring 78 will shift link 73 to the left, as viewed in FIG. 5, and the pawls 67 and 68 will pivot in a counterclockwise direction to move the portion 71 of pawl 67 out of engagement with rack tooth 65a, and move the portion 72 of pawl 68 into engagement with an opposite tooth 66a on rack 66. Since the opposing rack teeth 65a and 66a are spaced from one another by a distance approximately equal to one half the difference in spacing between the adjacent cam surfaces on control bar 63, the movement of link 73 to the left as viewed in FIG. 5 will place the next cam surface on the control bar in position for releasing the adjacent latch member 55 when the solenoid 79 is again energized. This process is repeated until all the trays 47 have been tripped.

Means are provided for indicating to a customer that the supply of a particular size of shoe is exhausted, and includes a cam surface 86 on the control bar 63. A normally closed switch 87 is mounted on bracket portion 42 adjacent the right hand side of the control bar 63, as viewed in FIG. 5, and includes a movable switch actuating member 88 which normally engages the adjacent surface 89 on the control bar 63. Cam surface 86 is positioned such that after the cam surface 64a has released the uppermost tray 47, the switch actuator 88 will engage the cam surface 86 to open the switch 87.

The means for controlling the operation of the above-described vending machine are shown in FIG. 7. Leads L1 and L2 are connected to a suitable source of alternating current, and a line 100 extends from lead L1 with a normally open switch 90 being provided therein. Switch 90 is part of the coin mechanism, not shown, and is adapted to be closed when the proper number of coins have been inserted in coin slot 34.

A line 101 extends between leads L1 and L2 and a relay 94 is provided therein. Relay 94 is also part of the coin mechanism, and includes normally closed contact 94a in line 100. Push button 35 operates a two-position switch having normally open contacts 35a in line 100, and normally closed contacts 35b in a line 102 connected to line 100. Push button 35' also operates a two-position switch having normally closed contacts 35'a in a line 103 connected with line 100, and normally open contacts 35'b in line 102. Knob 30 operates a switch arm 30' connected in line 103, and is movable into engagement with a contact in a line 104 having the upper enclosure solenoid 79 and normally closed switch 87 therein. It will be understood, of course, that a separate solenoid 79 and switch 87 is provided for each of the shoe dispensing magazines. In a like manner, the knob 32 operates a switch 32' in line 102 that is movable into engagement with a contact in a line 105 having the lower enclosure solenoid 79' and switch 87' therein.

A relay 91 is provided in a line 106 that is connected between lines 104 and 105, and lead L2. Relay 91 has a normally open contact 91a in line 101, a normally closed contact 91b in a line 107 connected with line 103, and a normally closed contact 91c in a line 108 connected with line 102. A "men's" sold out relay 92 is provided in line 107, and a capacitor 95 is connected in parallel therewith. Relay 92 includes a normally open contact 92a in a line 109 connected between leads L1 and L2 and having "men's" sold out lamp 36 therein. A "women's" sold out relay 93 is provided in line 108, and a capacitor 96 is connected in parallel therewith. Relay 93 includes a normally open contact 93a in a line 110 extending between leads L1 and L2 and having the "women's" sold out lamp 37 therein. A diode 97 is provided in a line 111 connected between lead L2 and a line

112 connecting lines 107 and 108; and a suitable resistor 98 is connected in series with diode 97. Diode 97 functions to eliminate one phase of the alternating current, to provide a pulsating direct current in the line 112.

Thus, when the knob 30 or 32 is rotated to select a particular size of men's or women's shoes, and the proper denomination coins are deposited in coin slot 34, the switch 90 of the coin mechanism will close, and a circuit will be completed to either solenoid 79 or 79' and relay 91, when push button 35 or 35' is depressed. Since push button 35 has an open contact 35a in line 100 and push button 35' has an open contact 35'a in line 103, and since push button 35 has a closed contact 35b in line 102 while push button 35' also has an open contact 35'b in line 102; the depressing of push button 35 can only complete a circuit to the men's magazines, while the depressing of push button 35' can only complete a circuit to the women's magazines. When the solenoid 79 or 79' is energized, the pawls 67 and 68 are pivoted in a clockwise direction as viewed in FIG. 5 and spring 82 moves the control bar 63 downwardly to release one of the latch members 55. When relay 91 is energized, the normally open contact 91a will close, to energize the reset relay 94 which opens the contact 94a in line 100 to de-energize the solenoid 79 or 79'. Thus, the solenoids 79 or 79' are momentarily actuated, and when they are de-energized, the spring 78 will shift link 73 to the left as viewed in FIG. 5, to pivot the pawls 67 and 68 in a counterclockwise direction and place the control bar 63 in position for tripping the next upper latch 55, when the solenoid 79 is again energized.

Relay 92 or 93 will be normally de-energized when the relay 91 is energized, since the contacts 91b and 91c in lines 107 and 108, respectively, are opened. However, when switch 87 or 87' is opened by the cam surface 86 on the control bar 63, to indicate that the supply of a particular shoe size is exhausted, the circuit to relay 91 will be interrupted. Normally closed contact 91b or 91c will then open, to de-energize the respective sold out relay 92 or 93, which will close the normally open contact 92a or 93a in lines 109 and 110 respectively, to energize sold out lamp 36 or 37.

Capacitor 95 (or 96), or other suitable time delay means, such as a thermistor, provides for delay of energization of relay 92 (or 93) to allow previous energization of relay 91 if the shoe supply is not exhausted, on operation of the device by a customer.

While the wiring diagram of FIG. 7 is simplified to show only one coil 79 (or 79') in circuit with rotatable switch arm 30' (or 32') it will be understood that other coils may be associated with other stationary contacts as at 30a.

It should be understood that the present invention contemplates a high degree of flexibility in the number of shelves assigned to any particular shoe size, men's or women's. Specifically, any two magazines may be associated together to both contain one shoe size and when one magazine is empty, the other becomes available. For this purpose, a coil as at 79a may be wired in parallel with coil 79. In circuit with coil 79a are normally open switch contacts 87 NO which close when normally closed contacts 87 open. In order to indicate when the magazine associated with coil 79a is empty, a switch 87a is also in circuit with coil 79a.

I claim:

1. A vending machine comprising: at least one article dispensing magazine including a frame; a plurality of article supporting members mounted on said frame for movement between article supporting and article dispensing positions; a single latch member releasably retaining each of said article supporting members in article supporting position; and means for releasing said latch members including, a single control member movably mounted on said frame and having spaced actuating means each movable into engagement with one of said latch members

for serially releasing each of said article supporting members for movement to the article dispensing position, first spring means urging said control member in an actuating direction, detent means for preventing movement of said control member, solenoid operated means for releasing said detent means, and means for reengaging said detent means after one of said control member actuating means has released one of said latch members.

2. A vending machine comprising: a frame; a plurality of article supporting members; means pivotally mounting each of said article supporting members on said frame for movement between article supporting and article dispensing positions; abutment means on each of said member mounting means; a single latch for each member and having a latching surface for engaging the respective member abutment to retain the member in article supporting position; means pivotally mounting each latch on said frame to release each said article supporting member for movement from the article supporting position to the article dispensing position; spring means urging each latch toward engagement with the respective member abutment; and means for releasing each latch including, a single control member movably mounted on said frame and having spaced actuating means each movable into engagement with one of said latches for serially releasing each of said latches, detent means for preventing movement of said control member, means for releasing said detent means, and means for reengaging said detent means after one of said control member actuating means has released one of said latches.

3. A vending machine as defined in claim 2 wherein each of said latches has a cam follower therein, and said control member actuating means includes a cam surface for each latch and movable into engagement with the cam follower thereon.

4. A vending machine as defined in claim 2 wherein means are provided for sensing when each of said latches has been released.

5. A vending machine as defined in claim 2 wherein the means pivotally mounting the article supporting members on the frame includes a pair of arms at opposite ends of each member, and said abutments are defined by a pin extending outwardly from one arm of each member.

6. A vending machine comprising: a frame; a plurality of substantially equally spaced article supporting members mounted on said frame for movement between article supporting and article dispensing positions; means releasably retaining each of said members in article supporting position; and means for releasing said retaining means including, a control member movably mounted on said frame and having differently spaced actuating means each movable into engagement with one of said retaining means for serially releasing each of said retaining means, first and second racks on said control member, the teeth on said first rack being offset from the teeth on said second rack by a distance approximately one half the difference in the distance between adjacent control member actuating means, first spring means urging said control member in an actuating direction, a first and a second pawl engageable with the teeth on said first and second racks respectively, shiftable linkage means mounting said pawls for movement together, second spring means urging said linkage means into a first position wherein said first pawl engages a tooth on said first rack to hold said control member against the bias of said first spring means and said second pawl is spaced from a tooth on said second rack offset from said first mentioned tooth, and means for shifting said linkage means to move said first pawl out of engagement with the tooth on said first rack and said second pawl into engagement with the offset tooth on said second rack while said first spring means urges one actuating means on said control member into releasing engagement with one of said member retaining means.

7. A vending machine as defined in claim 6 in which the means for shifting said linkage means includes a solenoid, and wherein means responsive to the deposit of coins into said machine are provided for energizing said solenoid.

8. A vending machine for dispensing men's and women's bowling shoes comprising: a frame; a plurality of men's shoe magazines mounted on said frame, each men's shoe magazine containing one shoe size; a plurality of shoe supporting members mounted in each magazine for movement between shoe supporting and shoe dispensing positions; a plurality of women's shoe magazines mounted on said frame, each women's shoe magazine containing one shoe size; a plurality of shoe supporting members mounted in each women's shoe magazine for movement between shoe supporting and shoe dispensing positions; means releasably retaining each of said members in article supporting position; means for selecting a men's shoe size magazine; means for selecting a women's shoe size magazine; means associated respectively with each magazine for releasing one said retaining means to dispense a pair of shoes; and means for actuating a releasing means corresponding to the selected magazine designated by said selecting means, said actuating means including a men's switch and a women's switch, and electrical circuit means connecting said switches and said releasing means in a manner such that the actuation of said men's switch opens a circuit to said women's magazines releasing means, and the actuation of said women's switch opens a circuit to said men's magazines releasing means.

9. A vending machine as defined in claim 8 wherein said releasing means includes a solenoid for each men's magazine and connected in circuit with said men's switch and said men's shoe size selecting means, and further includes a solenoid for each women's magazine and connected in circuit with said women's switch and said women's shoe size selecting means.

10. A vending machine as defined in claim 8 wherein said men's shoe magazines are mounted together in one location on said frame, and said women's shoe magazines are mounted together at a different location on the frame.

11. A vending machine as defined in claim 10 wherein said men's shoe magazines are spaced vertically above said women's shoe magazines.

12. A vending machine as set forth in claim 8 wherein said men's and women's switches are depressible push button switches.

13. A vending machine comprising: a frame; an article dispensing station on said frame; a plurality of article dispensing magazines on said frame, at least two of said magazines being adapted to dispense similar articles therefrom; a plurality of article supporting members mounted at fixed locations respectively in each magazine for individual movement separately between article supporting and article dispensing positions; means releasably retaining each of said members in article supporting position; a longitudinally movable cam bar associated respectively with each magazine, said cam bars including a plurality of spaced cam surfaces, one for each article supporting member of the respective magazine, for sequentially disengaging each of the retaining means to serially dispense all of the articles in each magazine to the dispensing station; an escapement mechanism for each magazine for controlling movement of the cam bar thereof; a solenoid for controlling each escapement mechanism; and means responsive to the dispensing of all of the articles in one of said at least two magazines for completing a circuit to the solenoid of the other of said at least two magazines to condition said last named magazine for dispensing.

14. A vending machine as set forth in claim 13 wherein said article supporting members in article dispensing position release said articles for movement directly to said article dispensing station.

15. A vending machine as set forth in claim 13 in which said cam bars are movable vertically relative to

said frame, and wherein said solenoids are located at a position spaced a normally inaccessible distance above said dispensing station.

16. A vending machine as set forth in claim 1 including a plurality of article dispensing magazines, at least two of which are adapted to dispense similar articles therefrom, one of said at least two magazines having means for sensing when each of the articles therein has been dispensed therefrom; and wherein the solenoids of said at least two magazines are connected in parallel with one another, with the means for sensing the dispensing of all of the articles from said one magazine including switch means having contact means in circuit with the solenoid of said other magazine and completing a circuit

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thereto when all of the articles in said one magazine have been dispensed.

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