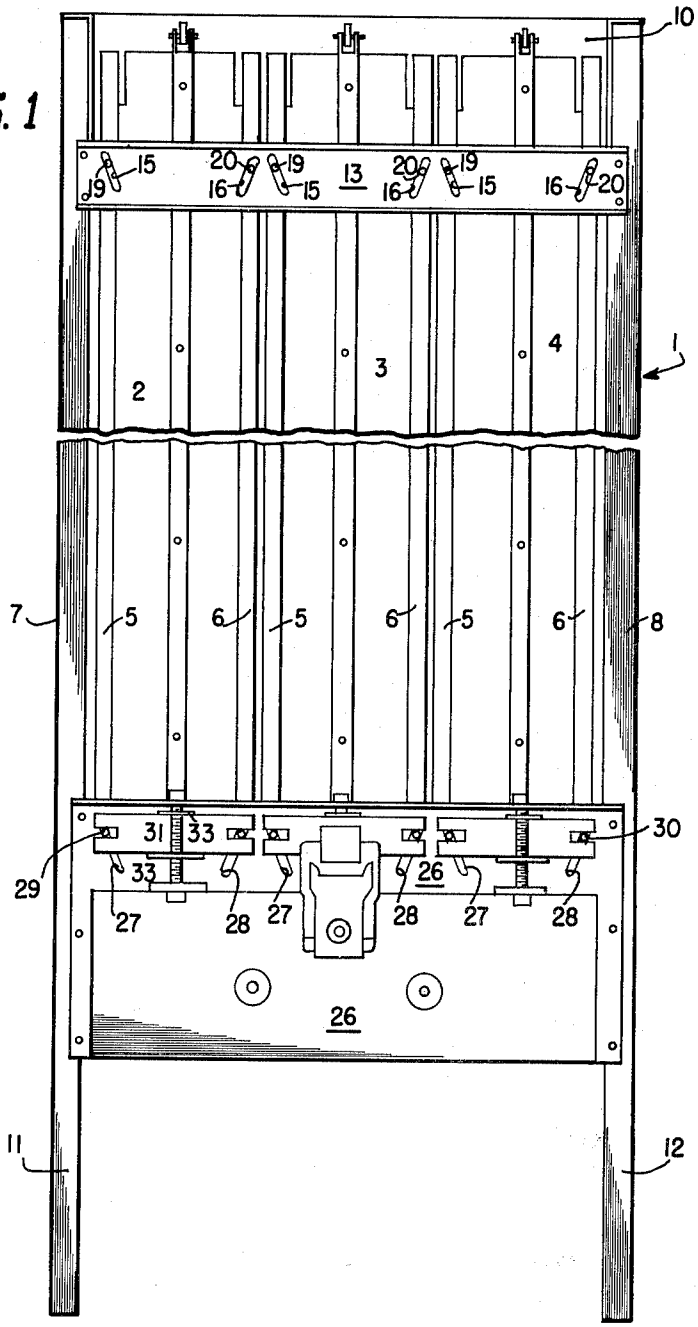
Aug. 18, 1964 W. O. O'NEAL 3,145,066

VENDING MACHINES

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FIG. 1



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VENDING MACHINES

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FIG. 2

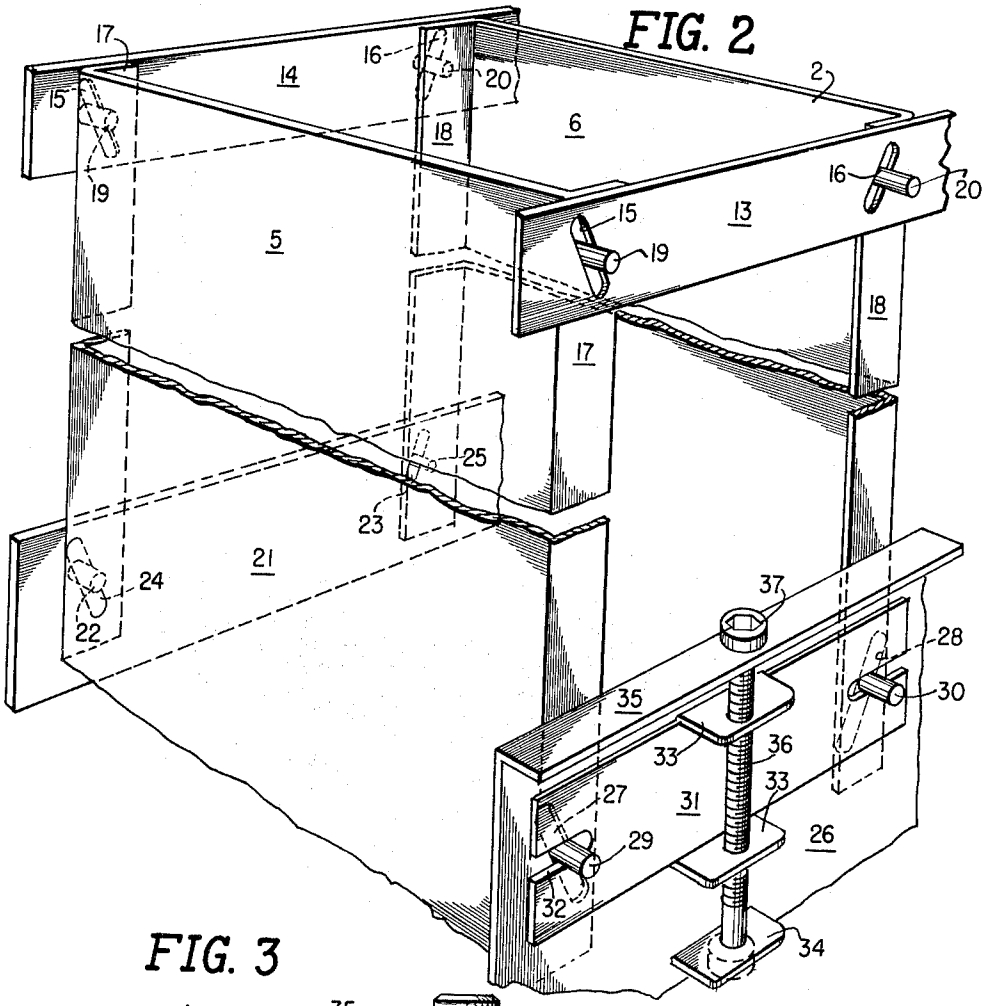
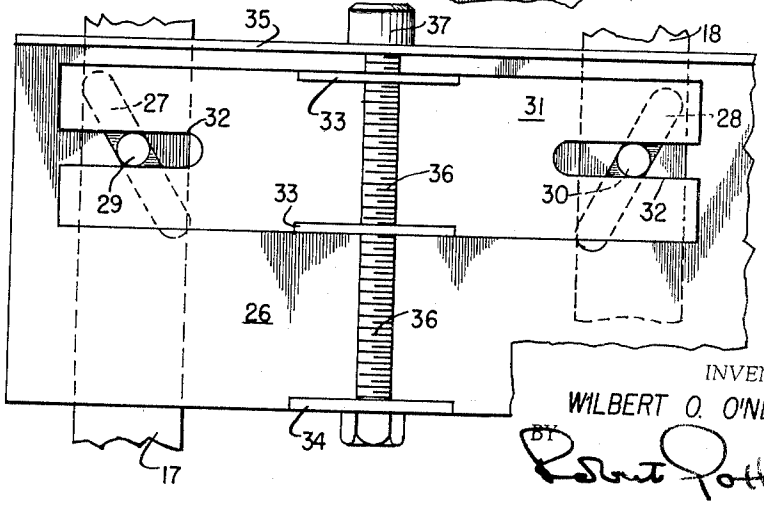


FIG. 3



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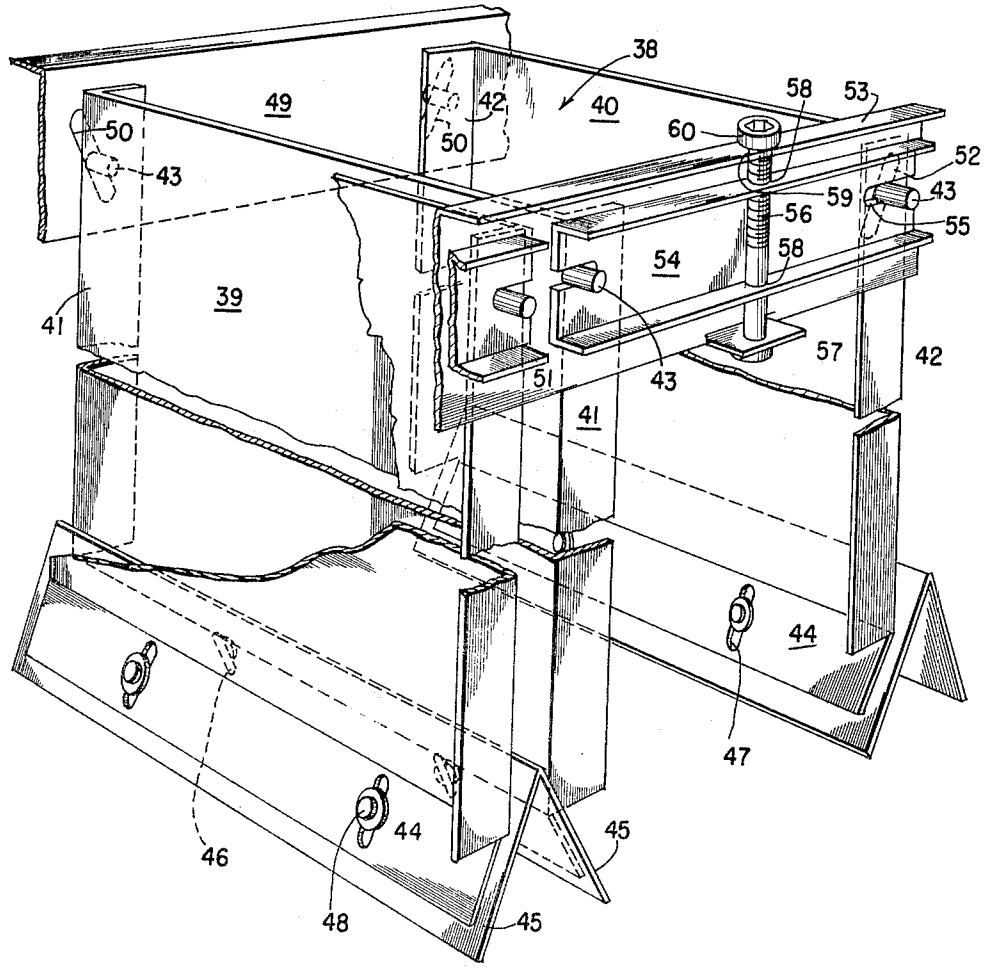
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VENDING MACHINES

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FIG. 4



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VENDING MACHINES

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FIG. 5

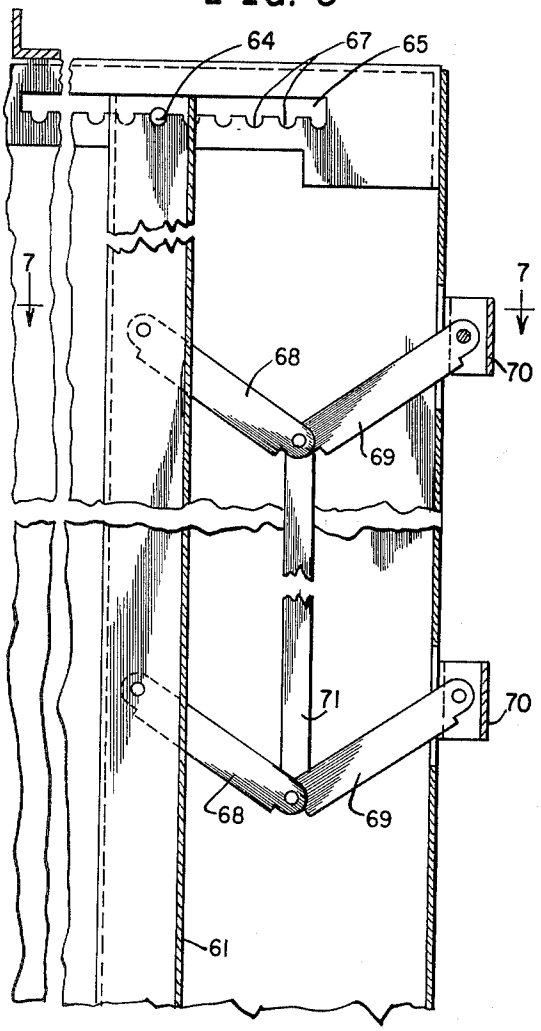


FIG. 6

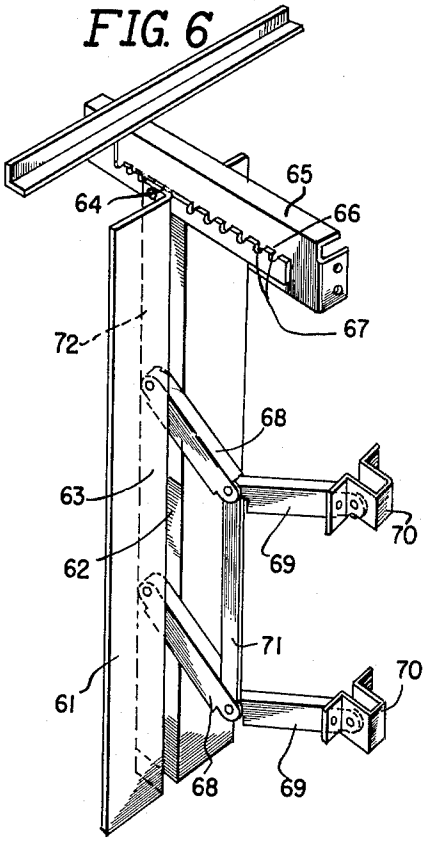
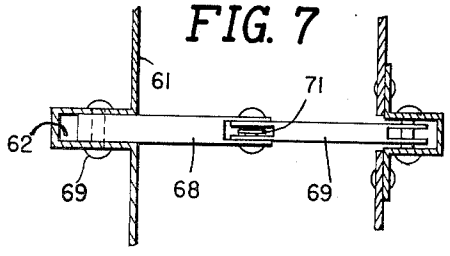


FIG. 7



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United States Patent Office 3,145,066 Patented Aug. 18, 1964

3,145,066

VENDING MACHINES

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Filed July 12, 1962, Ser. No. 209,421
4 Claims. (Cl. 312—45)

This invention relates generally to an improved vending machine and more particularly to a vending machine which is uniquely adapted to dispense articles of various sizes.

While the invention will be described in conjunction with a bottle dispenser, it is just as applicable to a package, can, or similar dispenser.

For many years, it was only necessary to design vending machines that could accommodate one particular size of article since most commodities were prepared in a single size of package. However, as consumer preference dictated, certain commodities came to be made available in various sizes. This being so, the vending industry was faced with the problem that in certain locations, the consumer desired the larger or smaller size articles, whereas in certain other locations, the consumer desired the standard size articles.

One means frequently resorted to in this situation was to design a series of vending machines, with a different vending machine being used for each different size package. However, this involved increased costs and seriously detracted from the versatility of the machines since they were limited to dispensing one and only one size of article.

In some cases where the difference between the article sizes was not appreciable, it was possible to utilize existing vending machines in that there was enough dimensional tolerance in the machine to accommodate the slightly differently sized articles. However, this procedure increased the likelihood of machine malfunction and increased service costs and as a result was not an entirely satisfactory solution to the problem.

In the area of bottle dispensing, the over-all problem was somewhat more acute since the diameter as well as the length of the bottles varied as between sizes and since the relative percent of size variation between the two extremes of bottle size was quite large. Rather than approach this problem from the point of view of designing different machines for different size bottles, I decided to investigate the possibilities of actually varying the machine itself so that with minor adjustment, a single machine could be made to accommodate any reasonable size of article. Due to space limitations, and due to the fact that any such adjustment must be relatively accurate as well as quickly and easily accomplished in the field with a minimum of auxiliary equipment, the problem presented was formidable.

The invention described herein is believed to solve the problem above mentioned and generally relates to mechanism which can be adjusted so as to modify a vending machine to accommodate classes of articles having a width or length or both which differ from that which is standard.

It is, therefore, an object of this invention to provide a vending machine which may, through simple adjustment, be modified to accommodate articles of different size.

Another object of this invention is to provide a vending machine having a plurality of article compartments and wherein the effective size of each compartment may be varied to accommodate a certain size of article.

A further object of this invention is to provide a vending machine of simple and economic construction which may, while on location, be modified to accommodate one or more groups of different size articles.

A still further object of this invention is to provide a

vending machine wherein the article containing portion thereof may be modified in an extremely accurate manner to accommodate articles of a different size.

These and other objects of this invention will hereinafter appear and for purpose of illustration, but not of limitation, embodiments of the invention are shown in the accompanying drawings in which:

FIG. 1 is a cutaway elevation of a vending machine incorporating one aspect of the invention;

FIG. 2 is a perspective view of a portion of FIG. 1 showing in enlarged form one aspect of the invention;

FIG. 3 is a frontal elevation of a portion of FIG. 2;

FIG. 4 is a perspective view of a somewhat modified form of one aspect of the invention;

FIG. 5 is a view in side elevation of another aspect of the invention;

FIG. 6 is a perspective view of a portion of the device shown in FIG. 5;

FIG. 7 is a view taken along lines 7—7 of FIG. 5.

Referring now to FIG. 1, a vending machine structure is indicated generally at 1. For purposes of illustration only, the vending machine 1 is shown as having three compartments 2, 3 and 4, although the invention hereinafter described may be utilized with a vending machine having more or less compartments. Each of the compartments is defined by a pair of substantially parallel movable wall portions 5 and 6 which are positioned in parallel relation to the vending machine sidewalls 7 and 8. A front wall (not shown) and a rear wall 10 are generally parallel to one another and extend between the sidewalls 7 and 8 so as to define the exterior of the machine and an enclosure within which are the previously mentioned compartments. Support members 11 and 12 project downwardly from the sidewalls 7 and 8 to support the vending machine structure. While these support members are shown as continuations of the sidewalls, they could be constructed in a variety of manners and the showing is to be considered only as illustrative.

Since one of the aspects of the device described is its ability to properly position different diameter bottles or other items, in properly staggered relation, for example, the features which make this possible will now be described.

Referring now to FIGS. 2 and 3, in addition to FIG. 1, 2 indicates one of the compartments. Adjacent the top and bottom of the compartment sidewalls 5 and 6 and extending across all of the compartments are a pair of front and back members 13 and 14 which may be fixedly attached to the sidewalls 7 and 8. Each of the members 13 and 14 has a series of pairs of elongate slots 15 and 16, the number of slots corresponding to the number of compartment sidewalls. The slots of each pair of slots are so positioned that they downwardly converge and the slots in the member 14 are located directly behind the corresponding slots in the member 13.

The compartment sidewalls 5 and 6 have inwardly extending flanges 17 and 18, respectively, which project from the front and back of the sidewalls. Near the upper extremities of the portions 17 and 18, pins 19 and 20 are affixed in such a manner that they project in a plane parallel to the general plane of the sidewalls so as to be accommodated respectively in the slots 15 and 16. The pins 19 and 20 are of a diameter which is slightly less than the width of the slots and are of a length which allows them to extend through the slots and substantially beyond the lateral plane of the members 13 and 14. The projecting ends of the pins may be fitted with a cotter pin or the like to insure that they always remain within the respective slots, but this is not shown in order to shorten the disclosure and to facilitate the understanding thereof.

Located directly below the member 14 is a similar member 21 which may also be affixed to the structure

sidewalls 7 and 8. The member 21 has a series of paired slots 22 and 23 therein which are similar to the slots in members 13 and 14 and these are adapted to receive pins 24 and 25, which project from rear flanges 17 and 18, in the same manner as the pins 19 and 20 are received by the slots 15 and 16.

Extending across the lower front portion of the structure is a plate-like member 26 which has an upper flange 35. The member 26 may be fixedly attached to the sidewalls 7 and 8 and has paired slots 27 and 28 thereon which are similar to the slots in the member 13 which is located thereabove. Pins 29 and 30 project frontwardly from the flanges 17 and 18, respectively, and are adapted to be received within the slots 27 and 28 in member 26. A member 31, having inwardly slotted opposed side portions 32 and top and bottom apertured ear portions 33, is positioned in front of each compartment (2, 3 and 4) so that the pins 29 and 30 projecting frontwardly from the flanges 17 and 18 are received in the slots 32. It can thusly be seen that the pins 29 and 30 project first through the skewed slots 27 and 28 in member 26 and thence through the slots 32 in member 31. If desired, the pins may be provided with cotter pins or other means so that they will be retained in engagement with their particular slots, but this is not absolutely necessary.

An apertured ear 34 extends frontwardly from plate-like member 26 and is located directly beneath the ears 33 on member 31 so that the three apertures are in a substantially vertical line. One or both of the apertures in the ears 33 may be threaded and a bolt 36 passed through the flange 35, ears 33 and ear 34. It can readily be seen that by rotating the bolt 36 that the plate 31 can be raised or lowered owing to the screw thread connection between the bolt and the ear on plate 31. In rotating the bolt in one direction, the plate 31 will be raised, thereby forcing the pins 29 and 30 upwardly and outwardly in the slots 27 and 28. Since the structure so far described permits only parallel motion, the sidewalls 5 and 6 in compartment 2 will be moved away from one another, thereby increasing the size of the compartment and allowing it to accept bottles, for example, of larger diameter. Conversely, when the bolt 36 is rotated in the opposite direction, the plate 31 will be lowered, thereby forcing the pins 29 and 30 downwardly and inwardly so as to decrease the effective compartment width.

Each of the compartments 2, 3 and 4 may be varied in the same manner through the adjustment of the bolt associated therewith. Once the sidewalls of the individual compartments have been adjusted to accommodate the desired size bottle, a retaining nut 37 is placed on the bolt 36 so as to lock the bolt in place.

From the foregoing description, it can be seen that I have provided a structure wherein one or all of the compartments may be individually adjusted so as to accommodate a relatively wide range of bottle widths. Furthermore, this adjustment may be made continuously rather than in increments, the latter system having inherent tolerance problems. While I have shown the adjustment mechanism as being associated with the lower portion of the compartments, it could equally well be associated with the member 13, for example, at the upper portion of the compartment. In so mounting the adjustment mechanism, the adjustment itself may be facilitated due to the ease of access to the mechanism.

In FIG. 4, there is shown a somewhat modified structure which may be utilized to accomplish the compartment width adjustment. A central compartment 38 is illustrated and is defined by sidewalls 39 and 40 which have inwardly extending pairs of flange portions 41 and 42, respectively. Each of the flange portions has a pin 43 projecting outwardly therefrom near the upper portion thereof. Each of the compartment sidewalls 39 and 40 has a bottom portion 44 which extends at an angle downwardly from the plane of the sidewall and inwardly toward the interior of the compartment. Each of the portions 44 is adapted to ride upon an inclined member 45. The member 45 has spaced apart apertures 46 therein and the portion 44 has spaced apart slots 47 therein which generally overlie the apertures. An alignment member 48 which may be, for example, a rivet assembly is fitted into the slots and apertures in such a manner that the portion 44 can ride up and down the inclined surface 45 in flush relationship thereto.

Near the upper rear portion of the compartment is a stationary member 49 which may extend across all of the compartments in the vending machine and which has inwardly inclined paired slots 50 which are so positioned as to receive the rearwardly extending pins on the compartment sidewall flanges. Near the upper front portion of the compartment is a stationary member 51 which may extend across all of the compartments and which has inwardly inclined paired slots 52 which are so positioned as to receive the frontwardly extending pins mounted on the compartment sidewall flanges. The member 51 has an upper flange 53 for reasons which will subsequently be explained.

A channel member 54 having elongate horizontal slots 55 in the web thereof is positioned in front of the member 51 so that the pins 43 engage the slots 55. A screw 56 is passed through an ear 57 on the lower portion of the member 51 and through aperture 58 in the legs of channel member 54 and thence through an aperture 59 in the flange 53 of member 51. One or both of the apertures 58 is threaded so that as the screw 56 is rotated, the member 54 moves vertically. This vertical movement will cause the pins to ride in the slots in the stationary members, thereby causing the sidewalls to move toward or away from one another to increase or decrease the compartment width.

Each of the sidewalls 39 and 40 is moved in a substantially single plane owing to the fact that the angle of the inclined member 45 is substantially the same as that of the inclined slots. The alignment member 48 insures that the angle flange 44 always rides in a substantially flush relation along the inclined member 45. Once the desired compartment width has been achieved, a lock or jam nut 60 is screwed onto the screw 56 until it tightly engages the flange 53. In this manner, the desired relation of the sidewalls can be effectively maintained until a change is desired. The embodiment of FIG. 4 is generally similar to the previously described device except that the lower pin and slot arrangements have been replaced by an inclined plane structure. The embodiment of FIG. 4 is somewhat more easy to adjust than the previously described embodiment due to the inclined surfaces and due to the fact that the adjusting mechanism per se is located in an easily accessible position.

In FIGS. 5–7, the second aspect of this invention is disclosed which enables the depth of each of the compartments to be varied according to the length of the bottles to be dispensed. A movable rear compartment wall 61 is positioned between the compartment sidewalls and movable along the depth thereof. The wall 61 has a recessed vertically extending central section 62 which is defined by walls 63 and web 72. The walls 63 intersect the wall portion 61 at substantailly right angles. Near the upper end of the recess 62 extending between the walls 63 is a rivet or similar member 64. A stationary support member 65 extends transversely to the wall 61 and is disposed generally centrally of the compartment sidewalls. The member 65 has an elongate central slot 66 therein which has along its base a plurality of notches 67. The rivet 64 is positioned within the elongate slot 66 and is movable along it by lifting the wall 61 slightly. It can thusly be seen that the upper end of the wall 61 may effectively be positioned at any point along the compartment depth by bottoming the rivet 64 in any of the notches 67.

A pair of spaced apart arms 68 are pivotally mounted at one end to the web 72 between the walls 63 and are

pivotally attached at their other ends to a second pair of arms 69. The ends of the second pair of arms are pivotally mounted on the rear frame 70 of the vending machine. A rigid member 71 is connected between the central pivot points of the upper and lower arm members and has for its purpose the tying together of the upper and lower arms so that the same motion will be transmitted to the wall 61.

When the depth of the compartment is to be increased, the wall 61 is raised so that the rivet 64 can travel along the slot 66 in the member 65. The wall is then moved and the arm members insure that the wall moves in substantially a single vertical plane. When the desired depth has been achieved, the wall is lowered so that the rivet 64 enters one of the locking slots 67. In this manner, the wall 61 is effectively positioned so as to achieve the required compartment depth.

From the foregoing, it can be seen that I have provided a structure which has the capability of vending various size articles due to the fact that the vending compartments are individually adjustable in two directions. Any single compartment may be varied so as to change either its width or depth or both. In this manner, one vending machine incorporating my invention may be utilized in conjunction with as many differently sized articles as there are compartments.

It is to be noted that the invention herein defined may be utilized with any number of different type dispensing mechanisms.

While two particular embodiments of the invention have been shown and described, it will be obvious to those skilled in the art that various changes and modifications can be made therefrom without departing from the invention and, therefore, it is intended for the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

I, therefore, claim:

1. A vending machine having at least one compartment therein adapted to contain mechandise, said compartment having spaced apart substantially parallel sidewalls which are capable of movement toward and away from one another, a plurality of slotted support members, projecting means on each of sidewalls adapted to fit into certain of the slots on said support members, the slots on said support means being arranged in such a manner that said sidewalls are capable only of parallel movement with respect to one another, movable means associated with at least one of said support members, said movable means having slots therein which are adapted to receive certain of the projecting means on each of said sidewalls, whereby movement of said movable means serves to move said projecting means in the slots in said support members and thereby move said sidewalls with respect to one another to vary a dimension of said compartment.

2. A vending machine having at least one compartment therein adapted to contain merchandise, said compartment having spaced apart substantially parallel sidewalls which are capable of movement toward and away from one another, a plurality of stationary support members extending transversely to said sidewalls, said support members having spaced apart elongate inclined slots therein, pin means on each of said sidewalls arranged to project through certain of said slots on said support members, vertically movable means engaging certain of said pin means, means for moving said vertically movable means, whereby movement of said vertically movable means causes said pin means to move in said slot means to thereby initiate parallel movement of said sidewalls.

3. A vending machine having at least one compartment therein adapted to contain merchandise, a pair of sidewalls, rear wall means extending transversely to said sidewalls, a horizontal supporting member extending along the upper end of said compartment parallel to said walls, means on said supporting member for selectively suspending said transverse rear wall means in any one of a plurality of positions therealong, and adjustable means fixed at one end and attached to said transverse rear wall means at the other end for maintaining said transverse rear wall means in a substantially vertical plane at all times.

4. A vending machine having a plurality of compartments therein adapted to contain merchandise, a pair of sidewalls defining each of said compartments, transverse rear wall means intermediate said sidewalls, a fixed positioning member extending in substantially parallel relation to said sidewalls in each compartment at the upper end thereof, said positioning member having a plurality of upwardly facing recesses thereon spaced along its length, means on said transverse rear wall means adapted to engage said recesses on said positioning member to support and position the upper end of said transverse rear wall means at a selected point along the depth of said sidewalls, and alignment means fixed at one end and attached to said transverse rear wall means at the other end, said alignment means being arranged to hold said transverse means in a substantially vertical position at all times.

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