

Nov. 22, 1966

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3,287,079

REFRIGERATED VENDING CABINET

Filed April 28, 1965

4 Sheets-Sheet 1

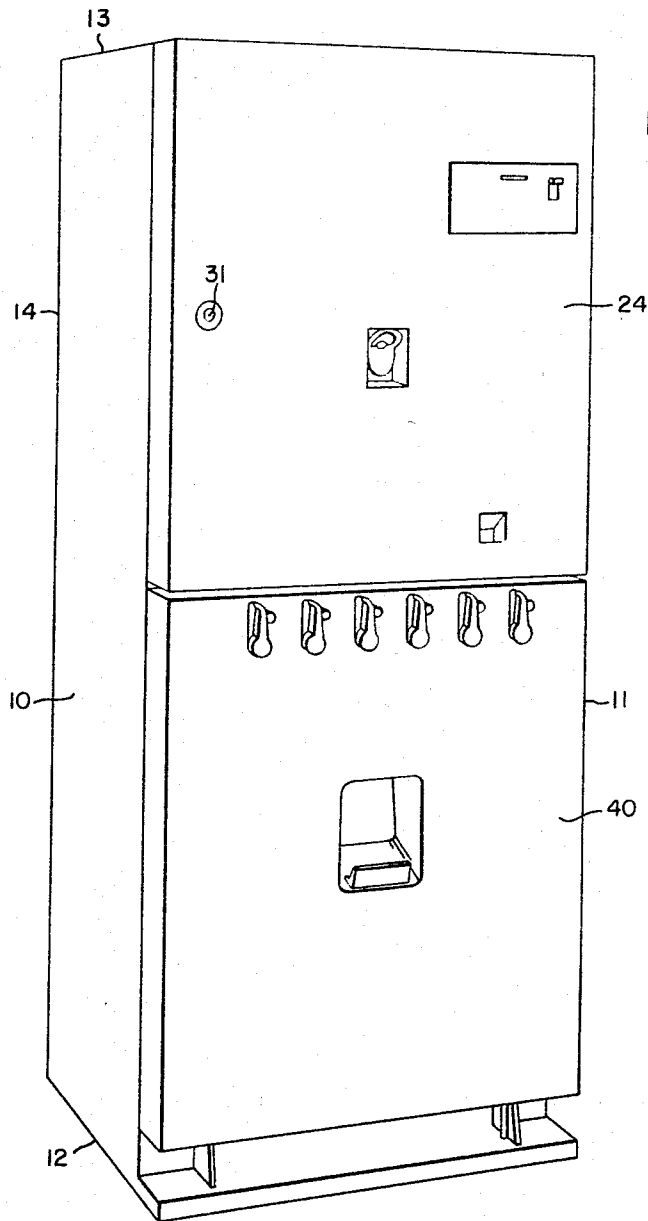


FIG. 1.

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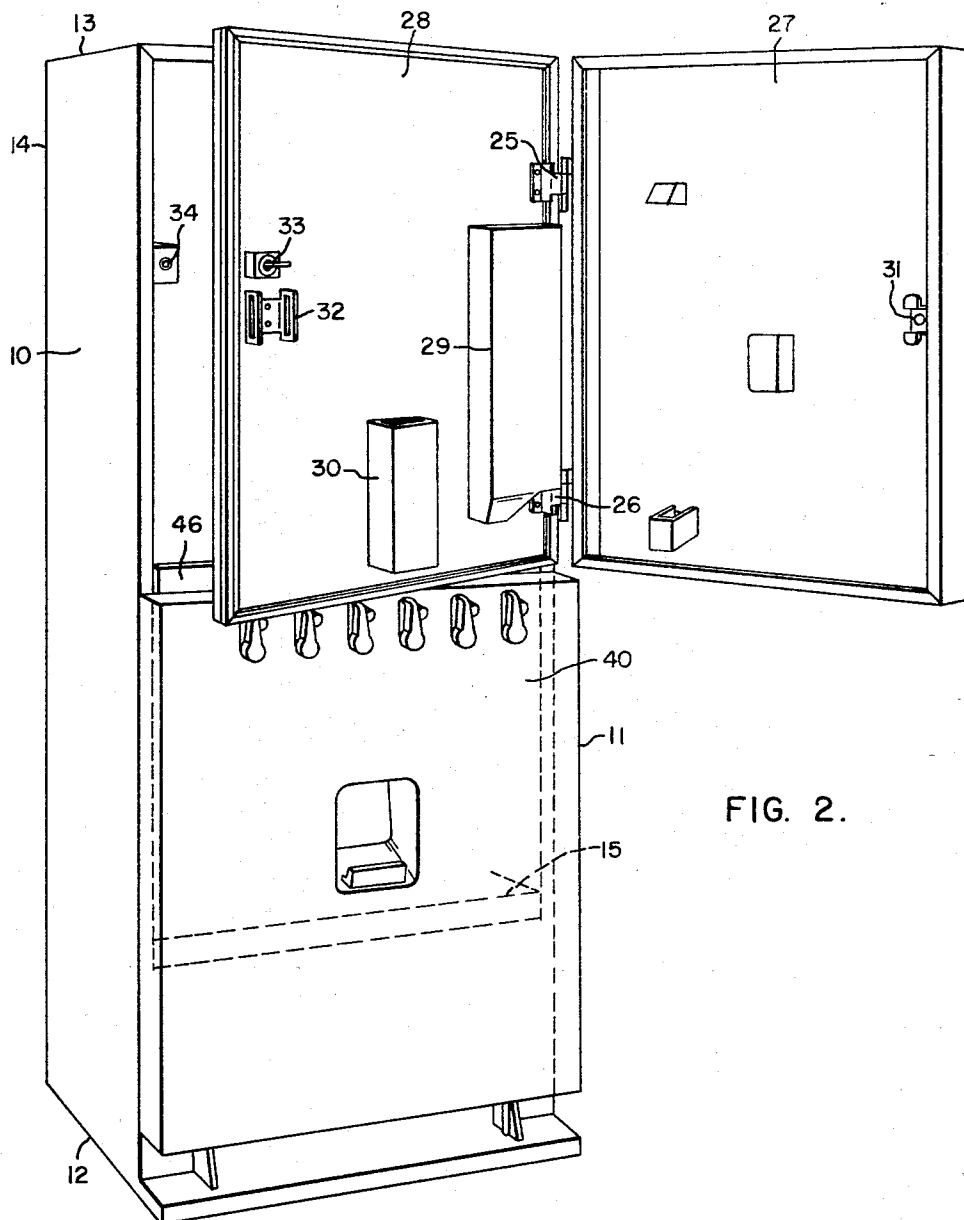
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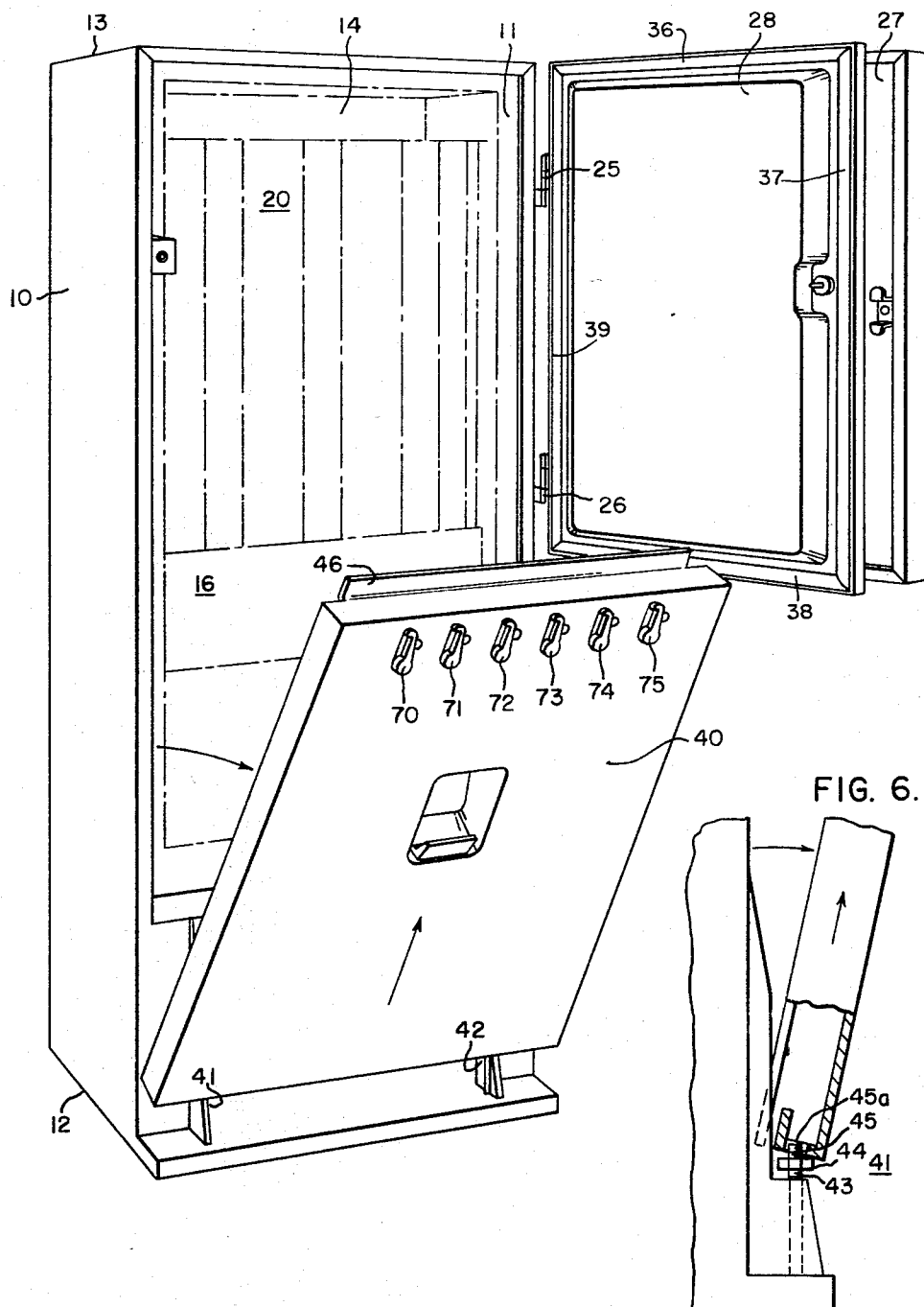
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FIG. 3.



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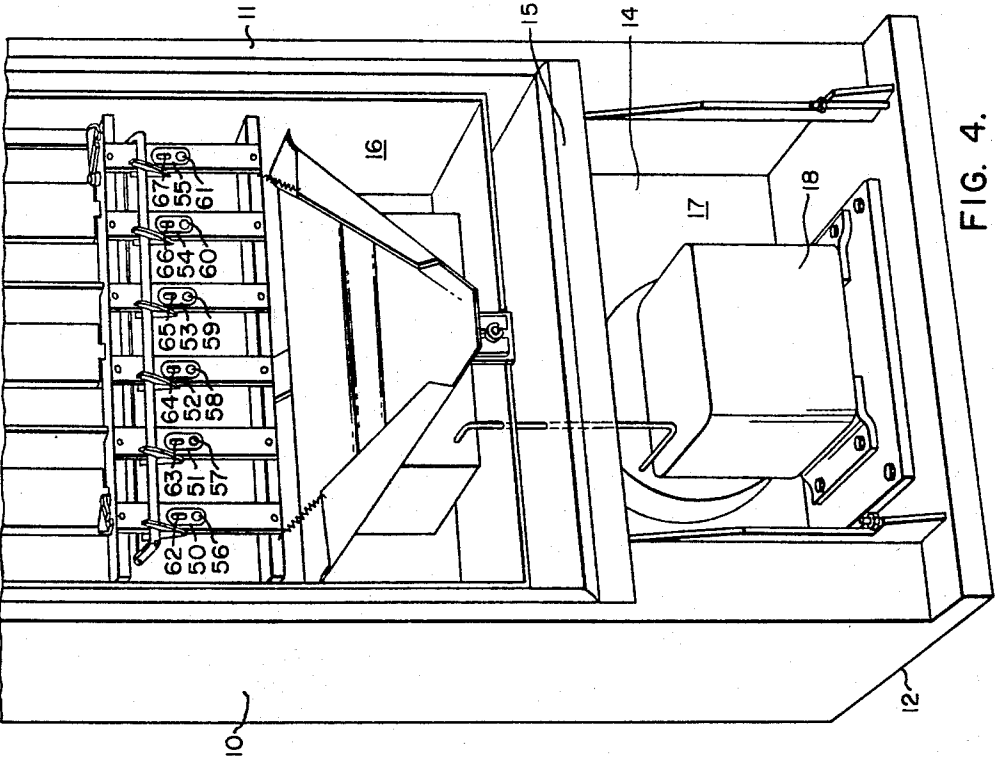


FIG. 4.

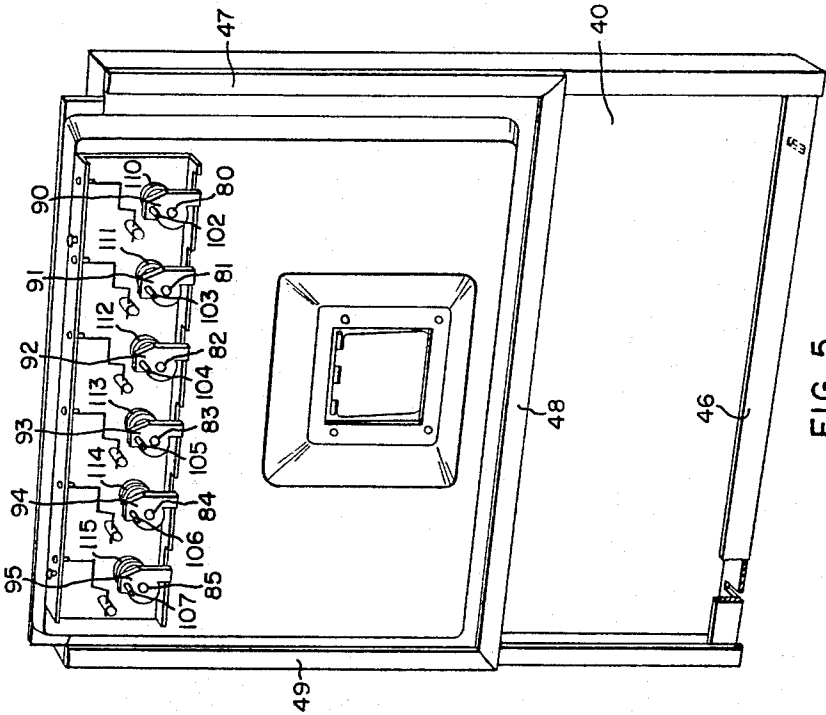


FIG. 5.

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REFRIGERATED VENDING CABINET

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Filed Apr. 28, 1965, Ser. No. 451,577

4 Claims. (Cl. 312—291)

This invention relates to a vending machine cabinet and more particularly to a refrigerated cabinet for a vending machine adapted to vend refrigerated articles such as bottled and canned cold drinks or the like.

The use of coined controlled refrigerated vending machines for dispensing bottled or canned cold drinks or other similar articles is now a very large business. The economics of such a business demand that the machines be constantly improved to decrease their overall cost of operation and such factors as size, capacity in relation to size, refrigeration load, ease of operation with minimum maintenance together with attractive appearance, all must be constantly considered and reviewed. Simply stated, it is desirable to provide a refrigerated vending machine cabinet having maximum storage capacity for minimum overall size and an arrangement whereby the refrigeration load during continued operation is as low as possible. Also such a machine should be easily accessible for service and loading with a minimum of drain on the refrigeration equipment while loading.

It is a principal object of the present invention to provide an improved refrigerated cabinet arrangement for a vending machine that will facilitate servicing and loading of the cabinet yet will minimize the drain on the refrigeration machinery while the cabinet is being loaded or serviced.

Yet another object of the invention is to provide an improved refrigerated vending machine cabinet in which access to either the storage compartment or the compressor and machinery compartment is facilitated.

A still further object of the present invention is to provide an improved refrigerated vending machine cabinet having a novel door arrangement that will enable access to the coin collect machinery without opening the refrigerated storage compartment.

The above objects and advantages are obtained in accordance with the invention by providing an upstanding refrigerated cabinet construction having closed bottom, top, side and rear walls, with the front wall entirely open from top to bottom. A partition is provided to divide the cabinet into an upper refrigerated compartment containing the storage magazine and article release mechanisms and a lower compartment which may contain the refrigeration machinery such as the compressor, electric motor, plumbing, and the like. A first door hinged to one side of the cabinet is adapted to enclose an upper portion of said cabinet and a second door hinged along a bottom wall of said cabinet is adapted to enclose the remaining lower portion of said cabinet. In the preferred arrangement, the first door is adapted to enclose an upper portion of said first or upper storage compartment while said second door is adapted to enclose the lower machinery compartment together with the remaining lower portion of said upper storage compartment. An interlock arrangement is provided along the upper edge of the second or lower door to be engaged by the first or upper door when closed to prevent the lower door from being opened except when the upper door is open. The upper or first door may have suitable locking latches therefor. Since the lower or second door need be opened relatively infrequently to service the refrigeration machinery and since the first or upper door provides access to the storage compartment for loading the articles to be vended, it should be apparent that the refrigeration demands during the

loading of the storage compartment will be minimized by keeping the lower or second door closed during the loading operation.

In the preferred embodiment of the invention, the second or lower door extends over the lower portion of the refrigeration storage compartment in which the vending release mechanisms are provided. Manually operable members are provided on the second or lower door with operating handles on the outside and shafts extending therefrom through the door to detachable links with the respective vending release mechanisms within the lower portion of the upper storage compartment. Thus, the lower or second door may be readily opened and removed if desired without disturbing the vending release mechanisms in the lower portion of the upper storage compartment.

At times it may be desirable to service the coin collect mechanism without disturbing the contents of the storage compartment and in accordance with this invention the first or upper side hinged door may comprise an outer panel and an inner panel separately hinged on the same hinge pintles and with the coin mechanism contained therebetween. With this arrangement, the outer panel is adapted to be latched to the inner panel and the inner panel is adapted to be latched to the cabinet in the closed positions. Thus, the outer panel may be opened to obtain access to the coin collect mechanism without opening the inner panel which may remain latched and sealed to the storage compartment thus keeping the storage compartment closed and keeping the load on the refrigeration machinery to a minimum while access to the coin collect apparatus is desired.

Further objects, features and the attendant advantages of the invention will be apparent with reference to the following specification and drawings in which:

FIGURE 1 is a front elevational view of the vending machine with all doors closed;

FIG. 2 is a view of the machine similar to FIGURE 1 but with the first or upper door open, the inner panel of the upper door being only partly open;

FIG. 3 is a view similar to FIGS. 1 and 2 except that both the inner and outer panels of the first or upper door are shown open and the lower door is shown partly open;

FIG. 4 is a perspective elevational view of the lower portion of the vending machine cabinet with all doors removed;

FIG. 5 is a perspective elevational view of the rear of the second or lower door as removed from the vending machine cabinet; and

FIG. 6 is a fragmentary detailed view to show the arrangement of hinging the lower door to the vending machine cabinet.

Referring now to the drawings, the vending machine refrigerated cabinet is an upstanding unit having closed side walls 10, 11, a closed bottom wall 12, a closed top wall 13 and a closed rear wall 14. As more clearly shown by FIGS. 2, 3 and 4 of the drawings the front wall of the cabinet is entirely open and is adapted to be enclosed by the door arrangement of the invention to be presently described. A partition 15 extends across the interior of the cabinet as shown to divide the cabinet into a relatively large upper storage refrigerated compartment 16 and a smaller lower machinery compartment 17. Refrigeration machinery generally shown at 18 together with the associated electric motor and plumbing is contained within the lower compartment 17 while the article storage racks and the vending release mechanisms generally shown at 20 are contained within the upper refrigerated compartment 16.

In accordance with the invention a first or upper door 24 is provided to be hinged at 25 and 26 to one side of the vending machine cabinet. In the preferred embodi-

ment of the invention the upper side hinged door 24 is comprised of an outer panel 27 and an inner panel 28 both hinged on common hinge pintles at the hinges 25 and 26. Coin collect apparatus generally shown at 29 and 30 may be mounted on the inner door panel 28. A latch 31 is provided to latch or lock the outer panel 27 at 32 to the inner panel 28. A second latch 33 is provided to lock the inner panel 28 at 34 to the vending machine cabinet in the closed position. Thus with the panel 28 closed and latched at 34 and the panel 27 closed and latched at 32 the upper door 24 is fully closed and the machine may be locked if the latch 31 is provided with suitable key locking apparatus as will be obvious to those skilled in the art. When access to the coin collect machinery 29 and 30 only is desired, the outer panel 27 of the upper door 24 is opened and the inner panel 28 remains closed to keep the refrigerated compartment closed and thereby reduce the load on the refrigeration machinery. When it is desired to load the storage compartment 16, both the outer panel 27 and the inner panel 28 of the upper door 24 are opened as shown by FIGURE 3 of the drawings to gain access to the article storage compartment racks 20 which can then be loaded.

A second or lower door 40 is adapted to be hinged to the vending machine cabinet along the lower edge thereof at the hinge points 41 and 42, a detail of which is shown by FIG. 6 of the drawing. One of the hinge points 41 is shown to comprise an upstanding bolt 43 having threaded on the upper end thereof a nut 44 to adjustably predetermine the height of the lower edge of the second or lower door panel above the base of the cabinet. The spade end 45 of the bolt is received in a suitable aperture 45a of the lower panel 40. It should be understood that the construction of the hinge point 42 is similar to the hinge point 41 described above in detail in connection with FIGS. 5 and 6 of the drawings.

As shown most clearly by FIGURES 2 and 3 of the drawings the upper edge of the second or lower door panel 40 is provided with an interlocking surface or flange 46 adapted to be engaged by the lower edge surfaces of the first or upper door 24 when the first or upper door 24 is closed. Thus, in such manner so long as the upper door 24 is closed and locked to the machine with the second or lower door 40 closed, the second or lower door 40 cannot be opened because of the cooperation of the inner locking flange 46 behind the surfaces of the closed upper or first door 24. It should be pointed out that the second or lower door 40 not only is adapted to enclose the lower compartment 17 but also extends upwardly to enclose a lower portion of the upper refrigerated compartment 16 and for this purpose is provided with sealing gasket surfaces 47, 48 and 49. Also it will be noted by FIG. 3 of the drawings that the inner panel 28 of the first or upper door 24 is provided with gasket seals 36-39 so that when both doors 28 and 40 are closed the entire upper refrigerated compartment is adequately sealed. Note also that the lower sealing gasket 38 of the upper door panel 28 engages the interlocking flange 46 of the lower door 40 in their closed positions. Any suitable latch means, not shown in detail, may be provided to secure the second or lower door 40 to the cabinet in the closed position.

It will also be noted that the lower portion of the upper refrigerated compartment 16 contains the vending release mechanisms for each column of articles to be vended contained in the storage rack or stack 20. The details of the vending release mechanism do not form a part of the present invention and need not be described in detail to understand the present invention. It will suffice to say that each vending release mechanism may include a reciprocal operating lever 50-50 keyed to a respective rotatable shaft 56-61. A respective slot 62-67 is provided as shown at the outer end of each of the release mechanism operating levers 50-55. Operating members or handles 70-75 are provided on the lower

door 40 for each respective one of the vending release mechanism levers 50-55. The handles or operating members 70-75 are all mounted in a row along the upper surface of the lower door panel 40 and are provided with shafts extending therethrough to the rear surface thereof as shown at 80-85 by FIG. 5 of the drawings. Suitable lever members 90-95 are keyed to the respective shafts 80-85 and are provided with respective pointed projections on their outer ends as shown at 102 through 107. Each of the pointed projections 102-107 is adapted to be detachably received in a respective slot 62-67 of the vending machine releasing mechanism levers 50-55 when the lower or second door 40 is closed. It should be understood that suitable spring arrangements, not shown, but obvious to any one skilled in the art, are provided to maintain the release mechanism levers 50-55 in their normal locking position as shown by FIG. 4 of the drawings. Also, respective helical springs 110-115 are provided as shown to be connected to the handle levers 90-95 to maintain the handles and associated levers in the normal or locking position as shown by the drawings. Thus, the second or lower door panel 40 may be pivoted to the open position as shown in the direction of the arrow of FIG. 3 and the connections between the operating handle members 70-75 on the door 40 and their associated vending release levers 50-55 on the stack 20 will be automatically disconnected. Conversely, upon closing the second or lower panel 40 the projections 102-107 will engage the respective slots 62-67 of the vending machine release levers 50-55 to automatically interconnect the vending handles 70-75 when the lower door 40 is closed.

Various modifications will occur to those skilled in the art within the spirit of the invention.

I claim as my invention:

1. A refrigerated vending machine comprising, an upstanding cabinet structure, means dividing said structure into an upper refrigerated compartment and a lower machinery compartment, said cabinet having closed back, side, top and bottom walls together with an open front wall extending from top to bottom, a first door hinged at the side of said cabinet for enclosing an upper portion of the upper compartment of said cabinet, a second door hinged at the bottom wall of said cabinet for enclosing a lower portion of the upper compartment together with the lower compartment of said cabinet, said second door having an interlocking surface along its upper edge adapted to engage a lower edge of said first door when said first door is closed to thereby prevent the second door from being opened while said first door is closed, a sealing gasket extending around the sides of the first door in a manner to seal the opening of the upper portion of the upper refrigerated compartment when said first door is closed, and a sealing gasket extending around the sides and across a lower intermediate portion of the second door in a manner to seal the lower portion of the upper refrigerated compartment when the lower door is closed, the sealing gasket portion extending around the lower side of the first door being adapted to engage the interlocking surface of said second door when said first and second doors are closed.

2. The invention of claim 1 in which said first door is comprised of an outer hinged door panel and an inner hinged door panel, means to latch said outer door panel to said inner panel, and means to latch said inner panel to said cabinet in the closed position.

3. The invention of claim 2 in which the second door is hinged at the bottom wall of said cabinet in the assembled relation at a plurality of hinged points, each hinge point including an upstanding bolt secured to the cabinet structure, each bolt having an adjustment nut threaded thereon, and said second door having a plurality of apertures along its lower side wall each adapted to receive therein a respective one of the upper ends of said upstanding bolts in the assembled relation with the door

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supported on the bearing surfaces provided by the adjustment nuts.

4. The invention of claim 1 in which the second door is hinged at the bottom wall of said cabinet in the assembled relation at a plurality of hinge points, each hinge point including an upstanding bolt secured to the cabinet structure, each bolt having an adjustment nut threaded thereon, and said second door having a plurality of apertures along its lower side wall each adapted to receive therein a respective one of the upper ends of said upstanding bolts in the assembled relation with the door supported on the bearing surfaces provided by the adjustment nuts.

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