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3,716,165

MERCHANDISING DISPENSING MODULE FOR VENDING MACHINES

Filed April 19, 1971

FIG1

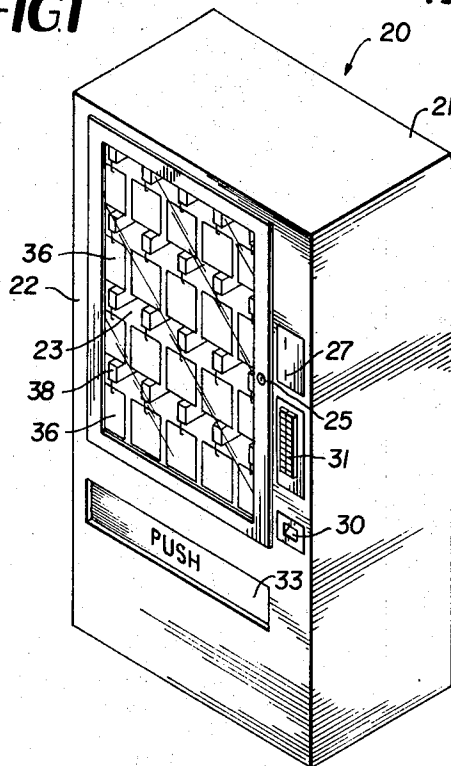


FIG2

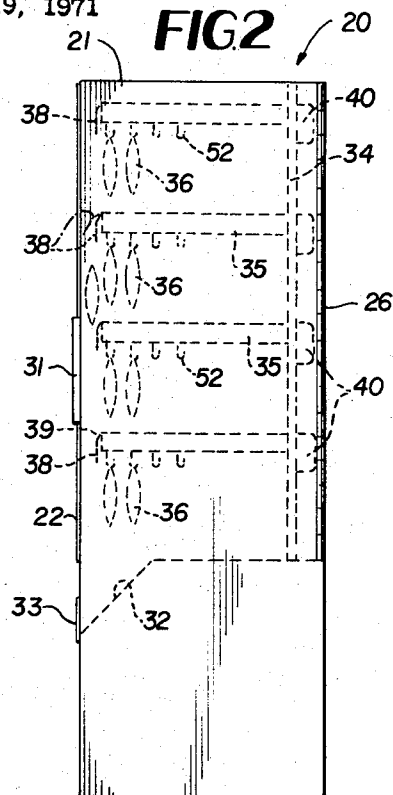


FIG4

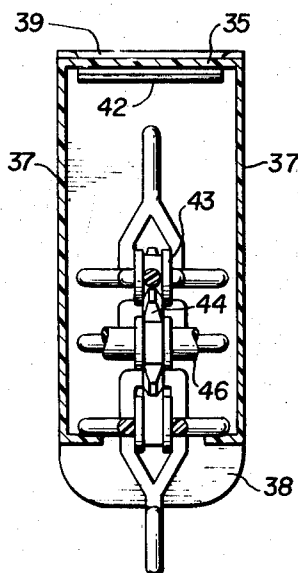
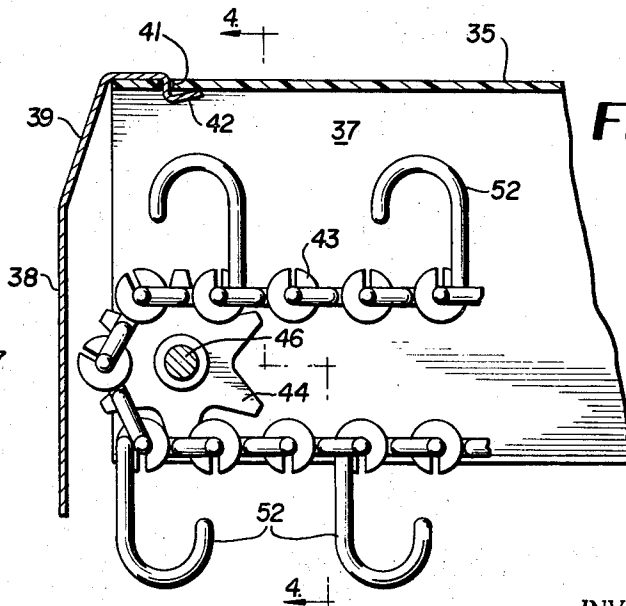


FIG3



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1

2

3,716,165 MERCHANDISING DISPENSING MODULE FOR VENDING MACHINES

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4 Claims

ABSTRACT OF THE DISCLOSURE

A replaceable, vending machine, merchandise dispensing module having endless conveyor merchandise supporting means wherein the module is provided with a pivoted identification tab corresponding to a merchandise selector button which enables the use of a shorter module and a smaller front-to-back machine dimension while permitting the free fall of merchandise between the front end of the module and the front of the machine.

This invention is an improvement on the replaceable dispensing modules disclosed in my copending application for Letters Patent, Ser. No. 47,257, filed June 19, 1970, entitled "Vending Machine."

While the disclosed modules have proven far superior to other known dispensing modules insofar as vending capacity and the prevention of theft of merchandise therefrom is concerned, it is desirable that the size of the module-containing vending machine be reduced so as to occupy less floor space where placed. Up until now, this could not readily be done because the front end of the upper modules had to overhang the front ends of lower modules in order for the merchandise to fall freely to the discharge bin. This was accomplished previously by inclining the module supporting panel forwardly as shown in my aforementioned copending application and accomplished the desired result but required a larger front-to-back machine cabinet dimension.

A corollary problem involves the front end closure of each module which bears a number corresponding to that of a merchandise selector button positioned on the front of the machine. The front end closure had to extend enough forwardly of the pulley or sprocket of the merchandise supporting conveyor so as not to interfere with the conveyor merchandise supporting means as they passed thereabout. This increased the front-to-back dimension of the vending machine cabinet. Furthermore, if a module had to be replaced due to breakdown, the service man had to use a replacement bearing the proper number which entailed having a large replacement stock as each cabinet contains twenty differently numbered modules.

Accordingly, the main object of the present invention is to provide an improved, replaceable, vending machine merchandise dispensing module of the type described and supporting panel therefor which will obviate the aforementioned difficulties and enable the use of a vending machine having a smaller front-to-back dimension while maintaining a maximum vending capacity and the free fall of merchandise between the front numbered end of the module and the front of the machine.

An important object of the present invention is to provide an improved dispensing module for vending machines which is of shorter length so as to enable a smaller front-to-back dimension while remaining at the same vending capacity.

Another important object of the present invention is to provide a vending module of the type described having a pivoted front end closure which enables the ready discharge of merchandise therefrom without interfering with

the discharge of merchandise from upper modules of the vending machine.

A further important object of the present invention is to provide a vending module of the type described having a detachably pivoted, front end closure which is numbered so that upon need for replacement of the module for repair, etc., the end closure tab may be detached and replaced on the replacement module to obviate the prior need for a large supply of differently numbered modules.

A still further important object of the present invention is to provide a pivoted, module-end closure tab which is closely spaced from the front wall of the vending machine cabinet and pivots outwardly theretoward to discharge merchandise while otherwise hanging vertically and away therefrom and which includes an inclined surface to act as a guiding chute for merchandise being discharged and falling from higher modules.

Other objects and advantages of the present invention will become apparent during the course of the following description.

In the drawings, I have shown one embodiment of the invention. In this showing:

FIG. 1 is a perspective view of the vending machine having the smaller front-to-back dimension enabled by the improved vending module of the present invention;

FIG. 2 is a side elevational view thereof showing the vertical position of the module supporting panel, the vertically aligned position of the front ends of the modules and their pivoted, closure tabs, and the spacing of the latter from the front wall of the vending machine to enable the free fall of merchandise to the dispensing bin;

FIG. 3 is a fragmentary, vertical longitudinal sectional view of the front end of a dispensing module to an enlarged scale showing the detachable, pivoted, front end closure tab; and

FIG. 4 is a transverse vertical sectional view thereof taken on the line 4-4 of FIG. 3.

Referring to the drawings, numeral 20 designates the coin-operated vending and dispensing machine as a whole which comprises a metal or a one-piece molded fiberglass outer cabinet 21 suitably supported on legs and/or rollers (not shown). The cabinet 21 is provided with a hinged front door 22 having a glass merchandise viewing panel 23 and a lock 25. The cabinet includes a rear door hinged as at 26 to provide access to the rear face of the support panel 34 to be described, and its front face includes a coin receiving slot 27, a coin return slot 30, a plurality of merchandise selector buttons 31, and a merchandise dispensing bin 32 to which access is had by a pivoted door 33. Each of the selector buttons 31 bears indicia corresponding to the indicia on one of the pivoted, module end closure tabs to be described.

The support panel 34 supports a plurality (twenty as shown) of dispensing modules 35 within the cabinet 21 and is parallel with the rear door and spaced therefrom just enough to permit the drive motors 40 of the modules to be mounted on the rear ends thereof. The support panel 34 is provided with four vertically spaced rows of five laterally spaced apertures through which the modules 35 extend (and are secured to the panel) and terminate adjacent the glass viewing panel 23 a distance only sufficient to accommodate the module end closure and indicia tab to be described and leave an area for a merchandise package to fall freely from the end of an upper module 35.

Each module 35 holds a series of merchandise packages 36 which have tabs with apertures and may contain food such as potato chips, peanuts, etc., or any desired items. The coin slot 27 leads to a conventional slug rejector or other coin crediting mechanism and thence to a coin box (not shown) or to the coin return slot 30. Obviously, the cabinet may be heated or refrigerated as desired.

3

The dispensing modules 35 are each of modular construction so that any one of them may be replaced individually if repair is needed and each has its own driving motor 40 so that they are self-contained and either the dispensing module, its motor, or both can be replaced by unplugging the module from the basic electric circuit (not shown) and removing the supporting bolts and nuts from the panel 34. Thus, the entire vending machine does not need to be taken out of operation. This is an important operating and repair feature since the modules can be replaced by an ordinary mechanic.

Each dispensing module 35 is an elongated rigid housing having an inverted U-shape in lateral cross-section and an open front end as shown. Each module has a merchandise supporting, endless carrier 43 which may be a belt and pulley but which is shown as a conventional roller chain and could be formed of plastic. The chain 43 is supported on a front idler sprocket 44 which is mounted on a shaft 46 suitably journaled in the sides 37 of the module housing 35 (and the sprocket projects forwardly thereof as shown) and on a drive sprocket (not shown) similarly mounted adjacent the motor 40 and axially aligned with the output shaft of the motor.

The chain 43 of each module 35 has merchandise package supporting means which may be of any desired type and are illustrated herein as hooks 52 fixed thereto at regularly spaced points (depending on the thickness of the packages 36) which hooks open toward the rear of the machine. The merchandise packages 36 are easily loaded onto the modules 35 and suspended from the hooks 52 by means of apertures in their tabs. It will be apparent that when a given hook reaches the idler sprocket 44 during operation of the vending machine and starts upwardly, the package will naturally slide off the hook 52 and drop into the discharge bin 32.

In order that each module be identified with one of the selector buttons 31, the open forward end of each module 35 is closed by an indicia tab 38 having an inclined portion 39 which is detachably and pivotally mounted in a slot 41 in the top of each module 35 by an angled end portion 42. Because of the forward projection of the sprocket 44 beyond the end of the modules sides 37 (FIG. 3) each hook will engage the indicia tab 38 as it moves around the sprocket during merchandise discharge and pivot it forwardly through the free fall area as shown in FIG. 2 (second highest module). Thus, normal discharge is not interfered with and the indicia tab returns to the vertical position of FIG. 3 after discharge of a merchandise package despite the closeness of the tab to the glass viewing panel 23. As the package drops from its hook 52, it drops freely to the discharge bin 32. However, if for reasons of bulk, etc., it should hit on indicia tab 38 in falling, the inclined portion 39 thereof will function as a guide chute and deflect it back into the free fall area and downwardly into the bin 32.

The indicia tabs 38 are numbered from one to twenty and when a given module is replaced for repair, the me-

4

chanic need only detach the indicia tab from the slot 41 of one module and insert it in the other thus materially reducing the amount of replacement parts which he previously was required to carry. It is believed to be apparent that if a buyer desires merchandise on the module bearing indicia tab 5, that he pushes selector button #5 of the group of buttons 31 on the face of the cabinet.

It is to be understood that the form of the invention herein shown and described is to be taken as a preferred example of the same and that various changes in the shape, size and arrangement of parts may be resorted to without departure from the spirit of the invention or the scope of the subjoined claims.

What is claimed is:

1. A vending machine, comprising, in combination, a cabinet having a transparent front viewing panel; a support panel vertically mounted adjacent the rear of said cabinet; a plurality of endless-conveyor merchandise-supporting and dispensing modules mounted in vertically spaced aligned positions on said support panel and extending forwardly to a point closely spaced from said viewing panel to define a free fall area for a merchandise package being dispensed; a plurality of indicia bearing merchandise selector buttons mounted on the front of said cabinet; and a detachable indicia tab pivotally mounted on the top of said module closing the front end of each of said modules and corresponding to the indicia of said merchandise selector buttons.

2. The combination recited in claim 1 wherein said indicia tabs include an inclined portion for deflecting merchandise falling from an upper module into said free fall area.

3. The combination recited in claim 1 wherein each said indicia tab is positioned closely to said conveyor to define a maximum free fall area and is engaged and pivoted by said conveyor during merchandise dispensing operation, and said tab is pivoted into said free fall area to permit said dispensing operation.

4. The combination recited in claim 2 wherein each said indicia tab is positioned closely to said conveyor to define a maximum free fall area and is engaged and pivoted by said conveyor during merchandise dispensing operation, and said tab is pivoted into said free fall area to permit said dispensing operation.

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