June 12, 1956 C. W. HUNTER 2,750,049

VENDING MACHINE SHELF HAVING BOTTLE FEEDING MECHANISM

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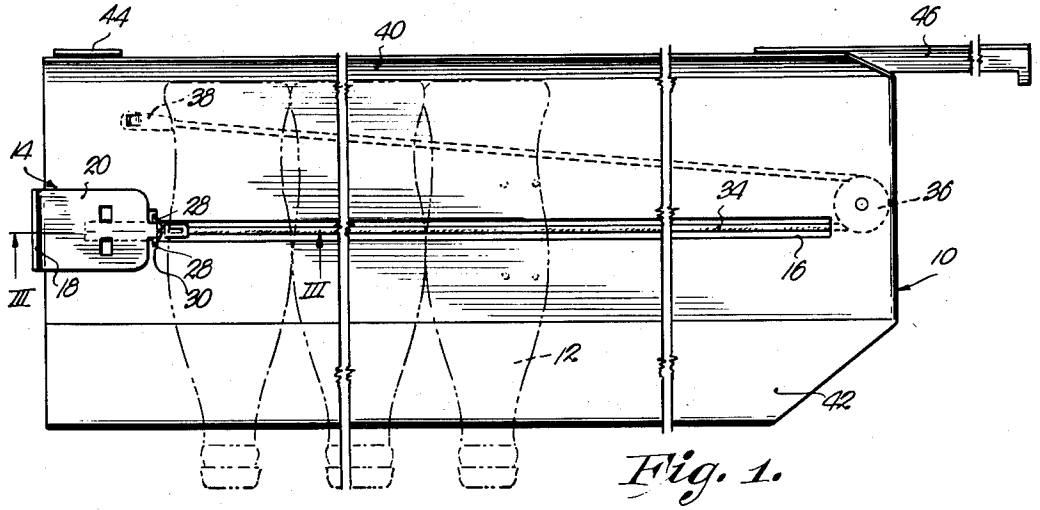

Fig. 1.

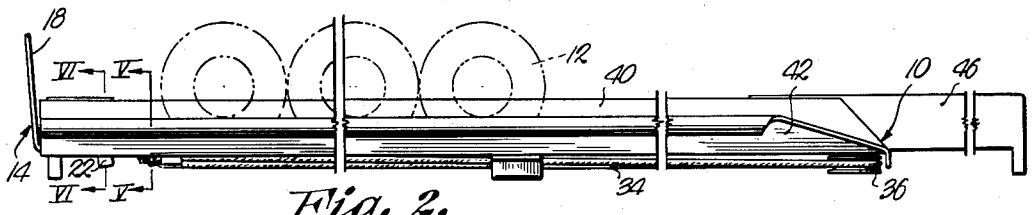

Fig. 2.

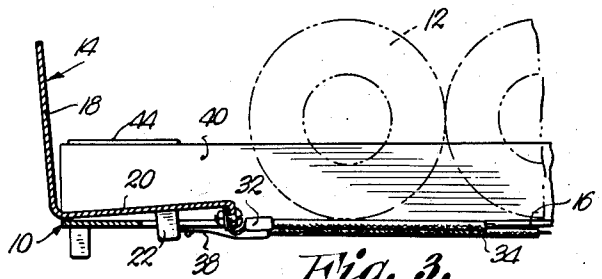

Fig. 3.

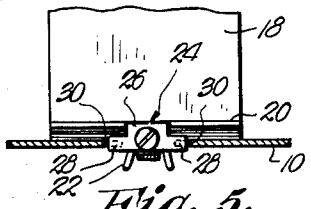

Fig. 5.

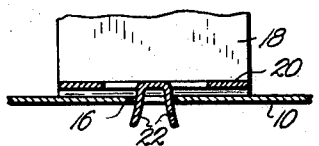

Fig. 6.

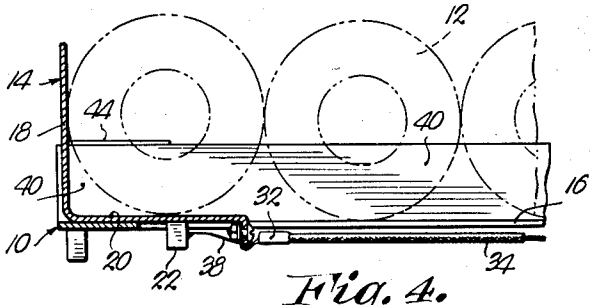

Fig. 4.

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VENDING MACHINE SHELF HAVING BOTTLE FEEDING MECHANISM

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4 Claims. (Cl. 211—49)

This invention relates to improvements in vending machines and particularly to the storage compartment thereof wherein is provided a plurality of superimposed shelves for receiving the vendible merchandise and from which the latter is discharged one by one to the customer.

It is the most important object of the instant invention to provide feeding mechanism for vending machines including a follower for advancing the mechandise along a support therefor, and provided with novel means for holding the follower at one end of its path of travel during loading of the machine with the merchandise.

Another important object of this invention is to provide in structure of the aforementioned character, means for automatically releasing the follower as the machine is being loaded by virtue of movement of the merchandise to a position in engagement with the follower.

A further object of this invention is to provide in combination with a merchandise-receiving shelf, a follower having latch means holding the follower in an inoperative position during loading of the shelf with bottles or other merchandise, the follower being disposed for receiving the proximal bottle to thereby release the latch automatically.

Other objects include important details of construction to be made clear as the following specification progresses, reference being had to the accompanying drawing, wherein:

Figure 1 is a top plan view of a shelf for vending machines or the like having bottle-feeding mechanism made pursuant to the instant invention.

Fig. 2 is an edge elevational view thereof.

Fig. 3 is an enlarged, fragmentary, cross-sectional view taken on line III—III of Fig. 1.

Fig. 4 is a view similar to Fig. 3 but showing the latch released by virtue of the proximal bottle being in engagement with the follower.

Fig. 5 is an enlarged, fragmentary, detailed, cross-sectional view taken on line V—V of Fig. 2; and

Fig. 6 is an enlarged, fragmentary, detailed, cross-sectional view taken on line VI—VI of Fig. 2.

While the improvements about to be described may be adapted for use with various types of vending machines, reference may be had to U. S. Letters Patent D. 155,709, issued October 25, 1949, to The Vendo Company, for an illustration of one type of machine particularly adapted for housing a plurality of superimposed, inclined shelves, one of which is shown in the drawing and designated broadly by the numeral 10.

It is to be noted in said patent that there is provided a hollow, upright case having a large access door, together with a relatively small vertical door provided with a transparent panel. When shelves 10 are used in a refrigerating case of that type they slope downwardly toward the said small door and the lowermost of bottles 12 on the shelves are not only accessible by opening the said smaller door, but can be seen through the transparent panel thereof.

While the bottles 12 normally gravitate to the lowermost end of the shelf 10, it is desirable to provide a follower broadly designated by the numeral 14 for feeding the said bottles to the point of vending from the machine cabinet or case.

Follower 14 is L-shaped and is reciprocable along a guide in the nature of an elongated slot 16 formed in the shelf 10. To this end, therefore, the follower 14 is provided with an upright pusher 18 and a substantially horizontal leg 20. Leg 20 has a pair of downturned fingers 22 stamped therefrom and extending through the slot 16, the fingers 22 being bent outwardly beneath the shelf 10 as best seen in Fig. 6 to retain the follower 14 for reciprocable movement along the slot 16.

Additionally, at the free end of the leg 20, there is provided a downturned T-shaped latch 24 integral with the leg 20 and having a stem 26 together with a pair of oppositely-extending ears 28. Opposed notches 30 in the shelf 10, communicating with the slot 16 at one end of the latter, are adapted to receive the ears 28.

A suitable fastener 32 is provided to couple one end of an elastic element 34 to the stem 26 of the latch 24. The elastic element 34 extends from the follower 14 beneath the shelf 10 and around a sheave 36 at that end of the shelf 10 opposite to notches 30. The sheave 36 is secured to the shelf 10 therebelow for free rotation on a substantially vertical axis. From the sheave 36, the elastic element 34 extends back to a point of connection with the shelf 10 as at 38 near the notches 30.

Shelf 10 has an upstanding, rearmost, longitudinal flange 40 that is engaged with the bottoms of the bottles 12 as the latter slide along the shelf 10 and an upwardly and forwardly inclined ramp portion 42 extending along its forwardmost longitudinal edge for slidably receiving the necks of the bottles 12. Suitable brackets 44 and 46 are provided for mounting the shelf 10 within a vending machine cabinet.

During loading of the machine, i. e., placement of the bottles 12 upon the shelf 10, the follower 14 is latched in the inoperative position shown in Figs. 1–3, 5 and 6. While the fingers 22 are bent as above mentioned to retain the follower 14 in the slot 16, there is sufficient looseness of fit to permit tipping of the follower 14 to a position where the leg 20 is inclined as shown in Fig. 3, thereby positioning the ears 28 in the notches 30 and preventing movement of the follower 14 toward the sheave 36 under the influence of elastic element 34.

When the follower 14 is thus held or latched to the shelf 10 as seen in Fig. 3, the operator may place the bottles 12 upon the shelf 10 from the lowermost end of shelf 10 adjacent the sheave 36. When the shelf 10 is filled with the bottles 12, as shown in Fig. 4, the first bottle 12, i. e., the one proximal to the follower 14, rolls upon the leg 10 and thereby tips the same downwardly solely by virtue of the weight of the bottle and moves the ears 28 from the notches 30 to a position beneath the shelf 10. As soon as the follower 14 is thus released, as shown in Fig. 4, the elastic element 34 moves the pusher 18 into engagement with the proximal bottle 12 and thereupon tends to feed the bottles toward the lowermost end of the shelf 10 adjacent the sheave 36.

Manifestly, as the bottles 12 are removed singly from the shelf 10, the follower 14 will continue to move the bottles until the shelf 10 is empty, whereupon reloading may take place as in the manner above described.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:

1. In combination with an elongated vending machine shelf having a pair of ends, said shelf being provided with a longitudinally extending, relatively narrow slot therein and a notch having a shoulder near one of said ends, said

notch extending laterally from the slot, said shelf being adapted to support a plurality of vendible articles thereon, the improvement which comprises a substantially L-shaped follower provided with an upright article pusher and an article-receiving leg slidably overlying the shelf; means on said leg extending through the slot and loosely engaging the shelf for restricting displacement of the leg relative to the shelf whereby the follower is reciprocable along said slot and limitedly tippable with respect to the shelf; means coupled with said leg for urging the follower toward the opposite end of the shelf; and latch means rigidly mounted on said leg, said latch means being engageable with said shoulder when the follower is near said one end and tipped with respect to the shelf to hold the follower in a locked position, whereby when an article is placed on the leg in said locked position the weight thereon tips the follower to release the latch means from engagement with said shoulder.

2. In combination with an elongated vending machine shelf having a pair of ends, said shelf being provided with a longitudinally extending relatively narrow slot therein and a notch having a shoulder near one of said ends, said notch extending laterally from the slot, said shelf being adapted to support a plurality of vendible articles thereon, the improvement which comprises a substantially L-shaped follower provided with an upright article pusher and an article-receiving leg slidably overlying the shelf; a pair of fingers depending from said legs, said fingers extending through the slot and loosely engaging the shelf for restricting displacement of the leg relative to the shelf whereby the follower is reciprocable along said slot and limitedly tippable with respect to the shelf; means coupled with said leg for urging the follower toward the opposite end of the shelf; and latch means rigidly mounted on said leg, said latch means being engageable with said shoulder when the follower is near said one end and tipped with respect to the shelf to hold the follower in a locked position, whereby when an article is placed on the leg in said locked position the weight thereon tips the follower to release the latch means from engagement with said shoulder.

3. In combination with an elongated vending machine shelf having a pair of ends, said shelf being provided with a longitudinally extending, relatively narrow slot therein and a notch having a shoulder near one of said ends, said notch extending laterally from the slot, said shelf being adapted to support a plurality of vendible articles thereon, the improvement which comprises a substantially L-shaped follower provided with an upright article pusher and an article-receiving leg slidably overlying the shelf; means on said leg extending through the slot and loosely engaging the shelf for restricting displacement of the leg relative to the shelf whereby the follower is reciprocable along the slot and limitedly tippable with respect to the shelf; means coupled with said free end for urging the follower toward the opposite end of the shelf; and latch means rigidly mounted on said leg and depending therefrom, said latch means normally being disposed below said shelf and being engageable with said shoulder when the follower is near said one end and tipped with respect to the shelf to hold the follower in a locked position, whereby when an article is placed on the leg in said locked position the weight thereon tips the follower to release the latch means from engagement with said shoulder.

4. In combination with an elongated vending machine shelf having a pair of ends, said shelf being provided with a longitudinally extending, relatively narrow slot therein and a pair of opposed notches near one of said ends, said notches extending laterally from the slot and each having a shoulder portion, said shelf being adapted to support a plurality of vendible articles thereon, the improvement which comprises a substantially L-shaped follower provided with an upright article pusher and an article-receiving leg having a free end, said leg slidably overlying the shelf; a pair of fingers depending from said leg and extending through the slot, each of said fingers having an outwardly bent end portion for loosely engaging the shelf to restrict displacement of the leg relative to the shelf whereby the follower is reciprocable along said slot and limitedly tippable with respect to the shelf; resilient means coupled with said free end for urging the follower toward the opposite end of the shelf; a T-shaped latch depending from said free end and normally being disposed below said shelf, said latch having a pair of oppositely-extending ears, each of said ears being engageable with a corresponding shoulder when the follower is near said one end and tipped with respect to the shelf to hold the follower in a locked position, whereby when an article is placed on the leg in said locked position the weight thereon tips the follower to release the ears from engagement with said shoulders.

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