United States Patent [19]

Flubacker

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[45] **June 4, 1974**

[54] **ACTUATOR FOR VENDING MACHINE**

[76] Inventor: **Charles H. Flubacker,** 524 Karvard Ave., Arlington Heights, Ill. 60005

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[21] Appl. No.: **298,667**

Related U.S. Application Data

[62] Division of Ser. No. 143,923, May 17, 1971, Pat. No. 3,727,869.

[52] **U.S. Cl.** **221/301,** 221/312

[51] **Int. Cl.** **B65g 59/08**

[58] **Field of Search** ..... 221/6, 299, 301, 312 R, 221/312 A

[56] **References Cited**

UNITED STATES PATENTS

2,322,381	6/1943	Mueller	221/301 X
3,219,234	11/1965	Mohman	221/6

Primary Examiner—Stanley H. Tollberg
Assistant Examiner—Larry Martin
Attorney, Agent, or Firm—Hill, Gross, Simpson, Van Santen, Steadman, Chiara & Simpson

[57] **ABSTRACT**

An improved merchandise supporting hook and release mechanism actuator for a vending machine for supporting merchandise in the vending machine and releasing it such that only a single article will be dispensed by the release mechanism during actuation.

3 Claims, 5 Drawing Figures

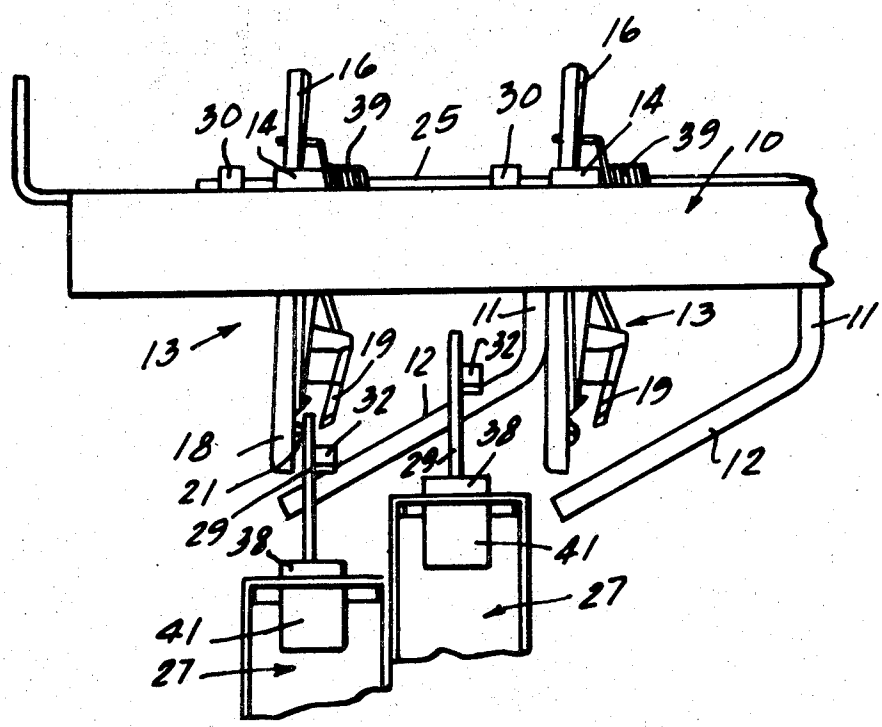


Fig. 1

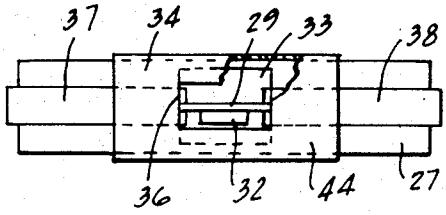


Fig. 2

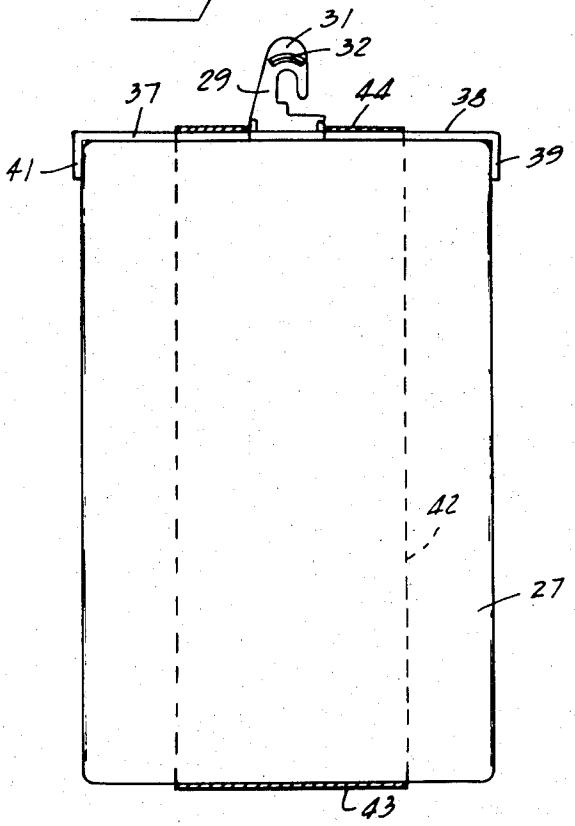


Fig. 3

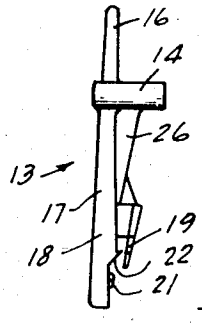


Fig. 4

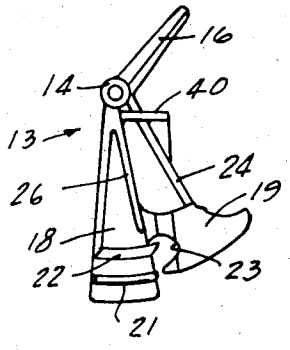
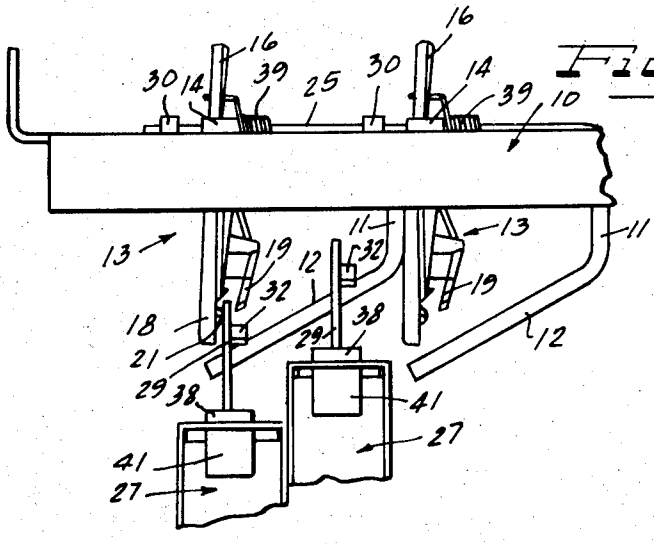


Fig. 5



ACTUATOR FOR VENDING MACHINE

CROSS-REFERENCES TO RELATED APPLICATIONS

This is a division of Ser. No. 143,923 filed May 17, 1971 now U.S. Pat. No. 3,727,869.

This application comprises an improvement on the release mechanism disclosed in U.S. Pat. No. 3,219,234 entitled AUTOMATIC VENDING MACHINE FOR GREETING CARDS AND THE LIKE, which issued on Nov. 23, 1965, and is related to the application for patent by CHARLES H. FLUBACKER entitled VENDING MACHINE, and identified as Attorneys' Case No. 70,120.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates in general to vending machines and in particular to improved supporting hook and dispenser.

2. Description of the Prior Art

U.S. Pat. No. 3,219,234 entitled AUTOMATIC VENDING MACHINE FOR GREETING CARDS AND THE LIKE, which issued on Nov. 23, 1965 to R. H. Wichman, discloses a vending machine for storing and dispensing articles. In that patent, operating elements are disclosed which are pivotally mounted on a rod connected to the top of a rack and which include an upwardly extending operating arm and a downwardly extending dispensing arm which is bifurcated to provide a pair of blades which are offset from each other such that when the operating element is pivoted by moving its operating arm, an article of merchandise will be dispensed from one of the blades of the downwardly extending portion while the second offset blade prevents additional merchandise stored on the rack from being dispensed. This patent also discloses merchandise supporting hooks which are supported from the dispensing tray and which contain spacer elements that extend transversely from the side of the hook to separate adjacent hooks.

SUMMARY OF THE INVENTION

The present invention comprises an improved merchandise supporting hook and arrangement wherein the hook is provided with improved spacing means and wherein the merchandise supporting portion of the hook extends substantially over the merchandise to be supported and holds it in alignment. A container made of pressed board, for example, is received over the merchandise and hook such that the merchandise is attached to the hook and supported so that the hook and merchandise will not be accidentally separated before being dispensed from the machine.

The invention also provides an improved dispensing operating element wherein one of the downwardly extending blades which engages the merchandise not in position for discharge is tilted so as to provide improved operation and assure that more than one article is not dispensed when the operating elements are energized.

Other objects, features and advantages of the invention will be readily apparent from the description of the preferred embodiments thereof taken in conjunction with the accompanying drawings, although variations and modifications may be effected without departing from the spirit and scope of the novel concept of the disclosure and in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top view of the improved hook and merchandise supporting means of the invention;

FIG. 2 is a plan view illustrating the improved merchandise supporting hook in use;

FIG. 3 is a side view of the improved dispensing mechanism of the invention;

FIG. 4 is a plan view of the improved dispensing mechanism of the invention; and

FIG. 5 illustrates the improved hook and dispenser of the invention mounted on a suitable dispensing tray of a vending machine.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIGS. 1 and 2 represent respectively top and side plan views of the article supporting hook of the invention. The hook **29** has an upper hook portion which is receivable over a supporting member of the dispensing tray and an arcuately shaped spacer **32** is attached to one face of the hook so as to aid in stabilizing it on its support when in use. The hook has a pair of extending end portions **37** and **38** which are formed with downwardly extending ends **41** and **39** which engage the opposite edges of the merchandise **27.** A pressed board holder which has sides **42,** a bottom **43** and a top **44,** is received over the merchandise **27** and the portions **37** and **38** of the hook **29** and is formed with an opening **36** in the top portion **44** through which the hook portion **31** extends. A reinforcing portion **33** is attached to the hook portion **31** under the opening **36** so as to hold the hook in alignment with the merchandise.

The hook **29** may be made of polyethylene or other suitable plastic and may be deformed to allow the ends **37, 38** to move upwardly so that the downwardly extending portions **39** and **41** clear the merchandise as the pressed board holder is placed over the merchandise. The portions **37, 38** may then be released to move to the positions illustrated in FIG. **2,** thus holding the merchandise firmly to the hook **29.**

The merchandise may have many shapes and sizes and a particular hook will be utilized which has the size appropriate for the particular merchandise. Examples of merchandise dispensed by vending machines are stockings, magnetic tape cartridges and cassettes, pantyhose and greeting cards. It is to be realized, of course, that the invention is not limited to any particular type of merchandise.

FIG. **5** illustrates a dispensing tray **10** from which the merchandise **27** and hooks **29** of the invention may be supported. The dispensing tray **10** includes a plurality of offset tilted supporting rods **12** upon which the hooks **29** are supported. Dispensing levers **13** are pivotally supported on the tray **10** by a shaft **25** which is supported in suitable bearings **30** mounted on the tray **10.** The dispensing members **13** are spring-biased by springs **39** so that in the unactuated position the members **13** are in the position shown in FIG. **4,** with the stop **40** of the actuator engaged by the tray **10.** The actuator **13** has an upwardly extending lever **16** which is attached to the hub **14** and when the dispensing mechanism **13** is pivoted by rotating the lever **16** clockwise relative to FIG. **4,** one of the hooks **29** will slide from

the supporting shaft 12 and be dispensed by the vending machine.

The dispensing mechanism 13 has a first downwardly extending blade portion 18 that is formed with spacing ridges 21 and 22 for engaging the sides of the hook 29 as shown in FIG. 5. A second downwardly extending blade portion 19 of the dispenser 13 is laterally offset from the portion 18 and is formed with an opening 23. The portion 19 is tilted relative to the vertical plane of the first portion 18 at an acute angle between 10° and 45° as shown in FIGS. 3 and 5 and serves the purpose of engaging the next article of merchandise on the shaft 12 behind the article of merchandise which will be dispensed when the actuator 13 is energized. In other words, the hook 29 of the merchandise to be dispensed will normally lie between the portions 18 and 19 and when the lever 16 is depressed to dispense an article of merchandise, the portion 18 which prevents the merchandise normally from being dispensed will move out of engagement with the hook 29 so that the merchandise may move down the shaft 12 and be dispensed by gravity from the machine. Simultaneously the portion 19 will engage the hook of a second article which is tilted in a parallel relationship with the portion 19 on the shaft 12 and prevent it from being discharged from the machine. When the actuating lever 16 is released, the portion 19 will move out of engagement with the hook 29, and it will move to the position illustrated in FIG. 5 for the first hook 29 on the left relative to the figure against the portion 18 and be ready for discharge on the next cycle. Thus, the tilted portion 19 engages the second article on the shaft 12 and holds it, thus preventing it from being dispensed during discharge of the first article. After the arm 16 is released and the actuator 13 returns to its normal position, the hook 29 of the merchandise disengages the portion 19 and moves between the portions 19 and 18 and is held by the portion 18 as shown in FIG. 5.

By tilting the portion 19, the second article will not be accidentally discharged or fall from the shaft 12. Thus, the improved dispensing mechanism 13 in combination with the improved hook of this invention provides improved operation and security.

Although minor modifications might be suggested by those versed in the art, it should be understood that I wish to embody within the scope of the patent warranted hereon all such modifications as reasonably and properly come within the scope of my contribution to the art.

I claim as my invention:

1. In an apparatus for dispensing an article from a plurality of articles which are thick enough to touch and are suspended by hooks on a tilted support means with the center of gravity of said article below said support point by said apparatus and comprising: a dispensing lever spring-biased in a first direction and pivotally attached to said apparatus on a substantially horizontal axis, an operating arm attached to said lever, a pair of downwardly extending blades offset from each other relative to the axis of pivot formed on said lever, and a first one of said blades lying substantially vertical in the plane of the main body portion of said dispensing lever, and the surface of said second blade lying in a plane which forms an acute angle relative to a vertical plane with said first blade and the vertical plane, the hook of each article to be held back, sliding toward the second blade in a parallel realtionship to the second blade.

2. In an apparatus for dispensing an article according to claim 1 wherein said dispensing lever is movable to a discharge position by said operating arm to discharge an article from between said blades because said one blade moves out of the path of a first article so that it drops from said tilted support means and said second blade rests flat against and holds other articles from dropping from said tilted support means.

3. In an apparatus according to claim 2 wherein said second blade lies in a plane which forms an angle between 10° and 45° with said first blade.

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