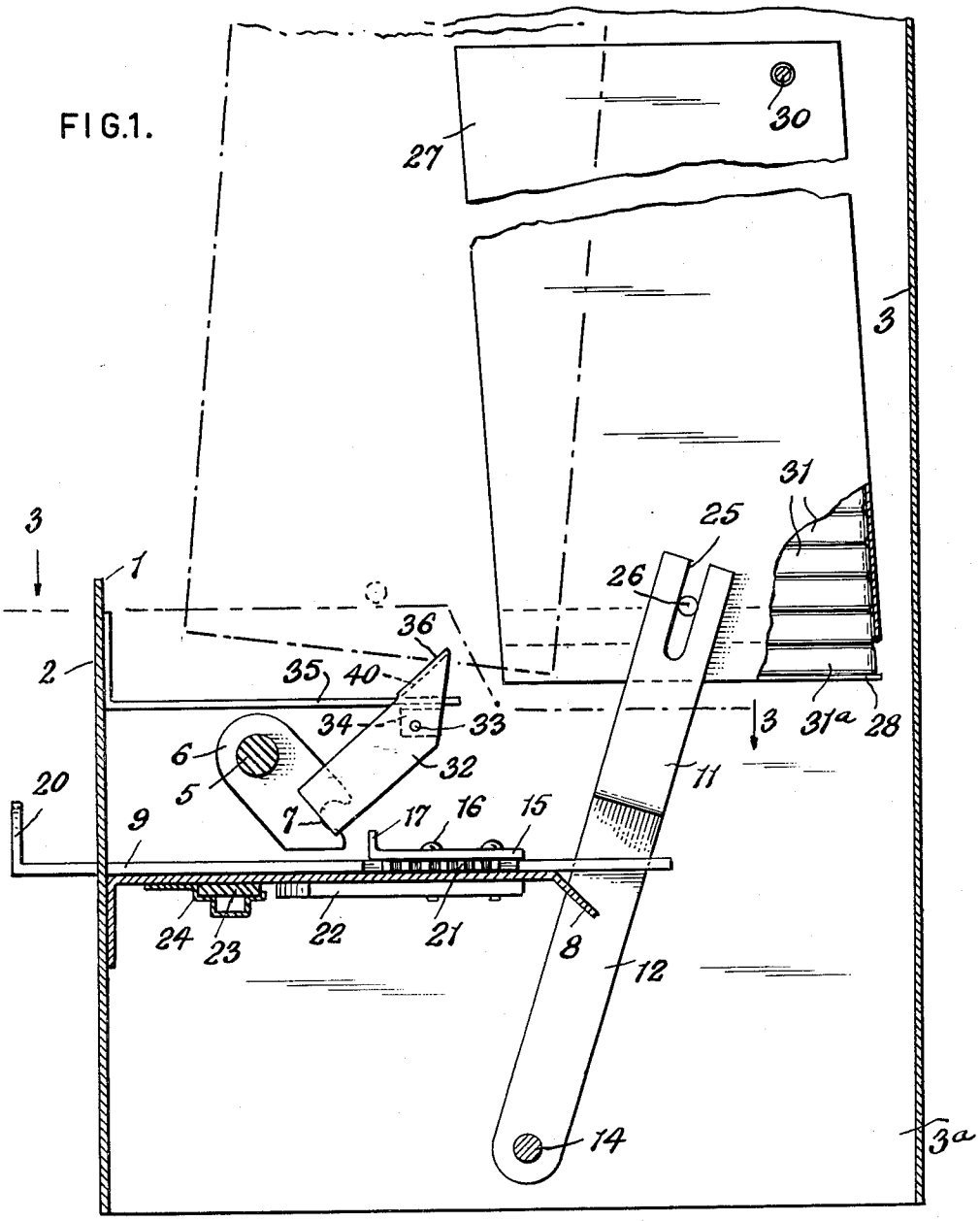
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VENDING MACHINES

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FIG.1.



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FIG. 2.

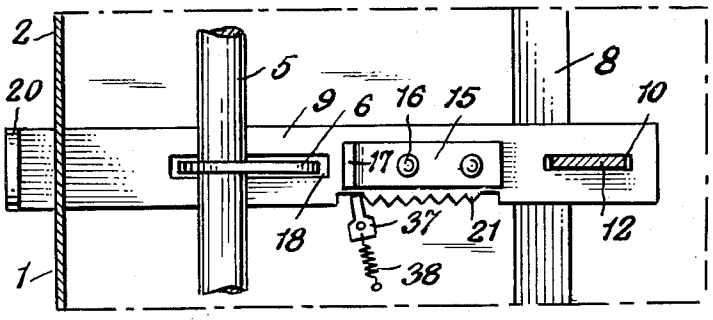


FIG. 3.

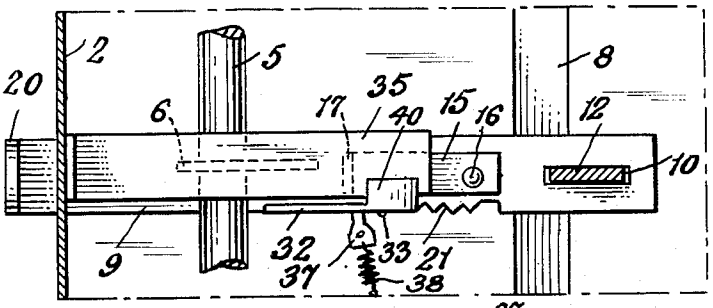
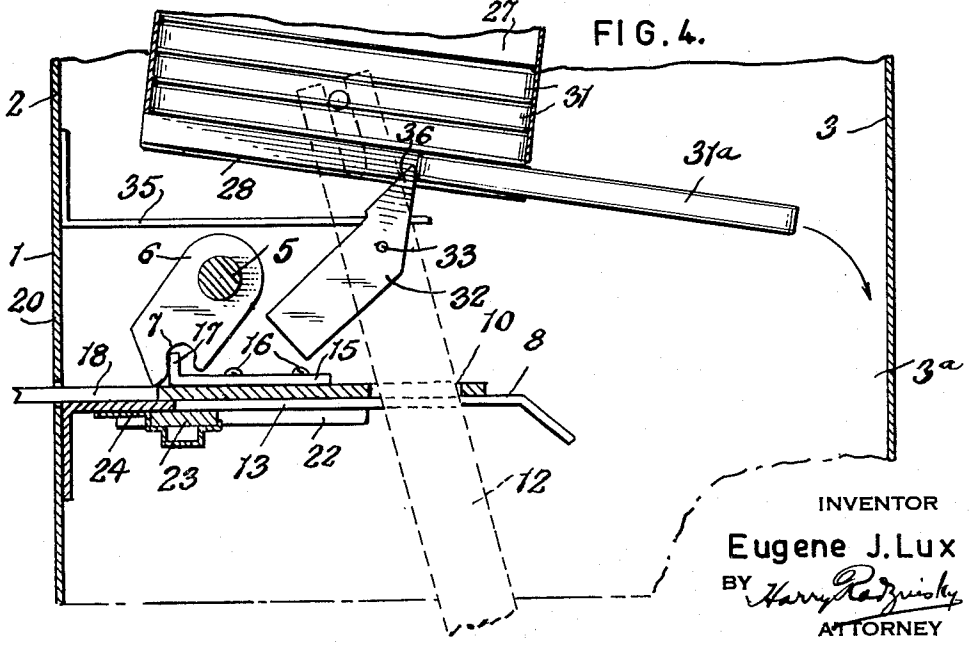


FIG. 4.



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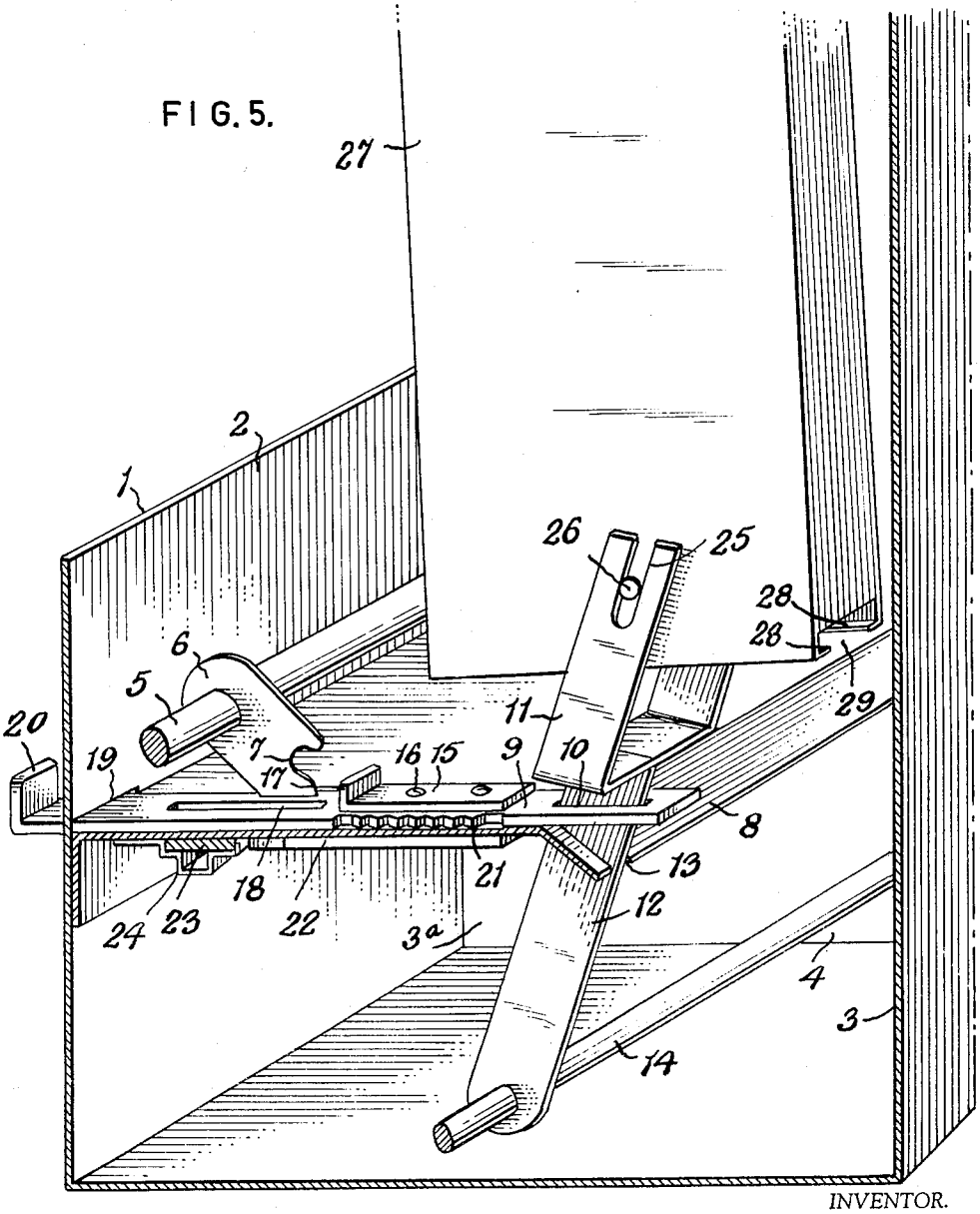
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FIG. 5.



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VENDING MACHINES

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2 Claims. (Cl. 221—188)

This invention relates to vending machines, and more particularly to a type in which articles are dispensed from a swingably mounted stack holder or container, with the articles so disposed, successively removed from the bottom of the stack.

It is an object of the invention to provide a machine of this character of relatively simple construction, and which can be composed of a single vending unit, or a plurality of such units arranged side-by-side within a cabinet and adapted for selective and independent operation.

It is an object of the invention to provide a vending machine which, by movement of a slide or plunger, will move the article stack holder into contact with an ejection finger to cause the finger to engage the lowermost article in the stack in the holder and slidably eject the same and enable it to be claimed by the purchaser.

It is an object of the invention to provide, in a machine of this character, locking means by which the machine cannot be operated without the first insertion of a coin, and to provide other safeguards by which positive and certain dispensing of the purchased articles is assured.

With these and other objects to be hereinafter set forth in view, I have devised the arrangement of parts to be described and more particularly pointed out in the claims appended hereto.

In the accompanying drawings, wherein an illustrative embodiment of the invention is disclosed,

FIG. 1 is a vertical sectional view through the machine;

FIG. 2 is a top plan view, with parts in section, of the slide or plunger and other parts associated with it;

FIG. 3 is a sectional view, taken substantially on the line 3—3 of FIG. 1, looking in the direction of the arrows;

FIG. 4 is a view somewhat similar to FIG. 1, but showing one of the articles in the act of being dispensed from the article stack, and

FIG. 5 is a perspective view, with parts in section, of portions of the machine.

In a machine of this character, a number of vending or dispensing units are usually arranged side-by-side in a cabinet so that the purchaser can select the desired article in the particular unit from which that article is sold, and upon a deposit of a coin and the manipulation of a slide or plunger, secure the purchased article. Since several units, when arranged as above described can be similar in construction, a description of one of them, as given below, will suffice for the others. It will, however, be understood that the apparatus can be composed of a single unit, as distinguished from a multi-unit apparatus as above described.

Referring to the drawings, **1** generally indicates a housing or supporting frame for the apparatus. The same includes a front wall **2**, a rear wall **3**, and end walls suitably spaced according to the number of vending units to be accommodated in the housing, one of such end walls being indicated at **3***a*. Rotatively mounted between the end walls of the housing is a shaft **5**, which is coin-controlled by suitable known mechanism for the purpose. Such mechanism is so operative that the shaft **5** will be normally locked or held against rotative movement until a coin is inserted, whereupon the shaft may be rotatively moved, thus freeing the locking means to be described.

Secured on an extending radially from the shaft **5** is a locking cam **6**. When a number of the vending units are arranged in side-by-side relationship in the housing, a plurality of these locking cams, in suitably spaced relation, are mounted on the shaft **5**. The cam is notched in its forward edge, as indicated at **7**.

At **8** is shown a plate or shelf, in the form of a horizontal partition, supported by the walls of the housing and on which a slide or plunger **9** is operative. The slide or plunger **9** has its forward end portion extending through a slot **19** in the front wall **2**, by which it is guided. Beyond the front of the wall **2** the slide terminates in an upturned finger-piece **20** by which it may be manually engaged and slid back and forth for the purpose of dispensing one of the articles **31** from the bottom of the container **27** in a manner to be described.

Near its rear end, the slide **9** is provided with a slot **10** through which a lever **12** extends, said lever having its lower end pivoted on a rod **14** extending between the end walls of the housing. At its upper end, the lever is provided with a fork or clevis **11** having arms slotted at their ends, as indicated at **25**. The arms of the clevis **11** embrace the article-holding container **27** between them, and pins or studs **26**, extending from the opposite side walls of the container, engage the slots **25** in the arms of the clevis, as clearly shown in FIGS. 1 and 5. Adjacent to its upper end, the container **27**, or a number of these containers in the case of a multi-unit machine, is pivotally mounted on a rod **30** (FIG. 1). Through the arrangement described, it will be apparent that when the slide or plunger **9** is manually drawn out, or moved toward the left as viewed in FIGS. 1 and 5, the container **27** will be pivotally swung in the same direction and to the position shown in dotted lines in FIG. 1 and in full lines in FIG. 4, resulting in the dispensing or ejection of one of the vended articles.

The articles to be vended, and which are contained in the stack in the container **27**, may be any articles, and particularly those of flat, packet-like form, and the same are shown at **31**, the lowermost one of the articles in the stack being indicated at **31***a*. The articles dispensed from the container **27** are successively removed from the bottom of the stack. To facilitate the successive removal of the articles or packets, the bottom of the container **27** is provided with a slot-like opening **29** defined by the inturned flanges **28** on which the lowermost article **31***a* is rested and from which it is slid during the ejection or dispensing operation.

When the container **27** is swung toward the left, or to the position shown in FIG. 4, the forward end of the lowermost article **31***a* in the stack comes into contact with the end portion **36** of an upwardly-projecting finger **32**, pivoted at **33** in a bracket **34** (FIG. 1) mounted on a plate **35** secured to and extending from the front wall **2** of the housing. The finger **32** normally assumes the position shown in FIGS. 1 and 4, being maintained in that position by gravity and limited in its pivotal swing in a counter-clockwise direction by its flange **40** extending over the top of the plate **35**. This arrangement is such that when the article-container **27** is swung to the left, as shown in FIG. 4, the forward edge of the lowermost article **31***a* will come into contact with the finger **32**, and as the swing of the container **27** continues, the finger **32** will slide the article **31***a* from the bottom of the stack and out of the container to eject the same, as indicated in FIG. 4. On the ejection of the lowermost article **31***a*, the stack will descend within the container **27** and will contact with and pivot the finger **32** on its pivot **33** in a clockwise direction, so that the articles in the stack can then ride over the finger and the container thus swings back to its initial position, or that shown in full lines in FIG. 1.

The slide or plunger **9** is provided with a locking mechanism, which includes the cam **6** and other elements to be now described. Mounted on the top of the slide or plunger **9** is a plate **15**, secured to the plunger by the

screws **16** or other equivalent fastening means. Said plate **15** is formed at one end with an upturned portion constituting a lug **17** for cooperation with the cam **6**. Unless the shaft **5** is freed by the insertion of a coin in its controlling mechanism, so that said shaft can be pivotally moved, the cam **6** will constitute an abutment for the lug **17** so that only a very slight movement of the slide, and insufficient to swing the container **27** to article-ejection position, is possible.

When a coin has been deposited into the coin mechanism, and the shaft **5** is then free to be rotatively moved, the slide or plunger **9**, when drawn to the left, will not only swing the container **27** in that direction, but will also bring the lug **17** into contact with the cam **6** and engage the notch **7** thereof and cause swing of the cam and pivotal movement of the shaft **5**. As this takes place, the cam **6** will swing down into the clearance slot **18** and clear the slide, and as movement of the slide continues, the finger **32** will force the lowermost article **31***a* out of the container **27**, causing it to descend into a suitably-positioned chute from which it can be claimed by the purchaser. Upon return movement of the slide **9**, the cam **6** will be restored to the locked position shown in FIG. 1, and the container **27** will be swung back to its initial position.

To maintain the slide against partial outward pull and then return movement, the slide or plunger **9** is provided with a ratchet, consisting of the teeth **21** engaged by the dog **37**, biased by the coil spring **38**. The action of this ratchet mechanism is to require full withdrawal action of the slide before it can be retracted. Plate **8** is slotted, as indicated at **13**, to permit movement of the lever **12** as well as to permit slidable movement of the slide **9**.

When a number of the vending units are arranged in side-by-side position within a cabinet, it is undesirable that an effort to pull out several of the slides simultaneously, when a single coin is inserted, be successful. This result is secured by providing each of the slides **9** with a lance **22** so arranged that when any one of the slides is pulled, it enters between the ends of spaced plates **23** slidably mounted in a guide **24** located on the under side of the shelf **8**. These plates **23** are so spaced apart that only one of the lances **22** can be entered between them at a time, so that an effort to simultaneously move more than one of the slides to ejection position will be prevented. This blocking arrangement is known in this art and therefore is not described in detail herein.

The apparatus described is one which can be used for the vending of many articles. As herein mentioned, it can be used in association with other units, and it is sturdy and effective in operation.

Having described a single embodiment of the invention, it is obvious that the same is not to be restricted thereto, but is broad enough to cover all structures coming within the scope of the annexed claims.

What I claim is:

1. In a vending machine, a housing having a front wall, a pivotally mounted open bottom article container within the housing and adapted to be swung toward or away from the front wall and to have an article ejected from it on its movement toward the front wall, a yoke pivoted within the housing below the article container and having a forked upper end straddling the container and connected thereto so that a pivotal movement of the yoke imparts a swinging movement to the container, a slide movable through the front wall and in engagement with the yoke in a manner to swing the yoke on movements of the slide, a finger pivotally mounted at a point between the front of the container and the front wall of the housing, a support on which the finger is pivotally mounted, means on the finger for contact with the support to limit the pivotal movement of the finger in one direction, a coin-controlled oscillating shaft, an arm projecting radially therefrom, said arm having a notched end, an upstanding projection on the slide for engagement with the notch on forward movement of the slide and on resultant forward swing of the container, which container on such forward swing causes the lowermost article within it to be brought into contact with the finger and forced out of the container.

2. In a vending machine as provided for in claim 1, wherein the forked end of the yoke straddling the container is connected to the side walls of the container at the lower portion of the container, the slide having a slot in engagement with the yoke at a point below the container, the means on the finger which connects to the support being a laterally-projecting flange which contacts with the support and limits the movement of the finger to article-engaging position, and the upstanding projection on the slide engaging wtih the notch on the arm only after the shaft has been freed for oscillatory movement by a coin deposit.

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