Nov. 14, 1933. H. SWAN 1,935,134

VENDING MACHINE

Original Filed Oct. 2, 1929 2 Sheets-Sheet 1

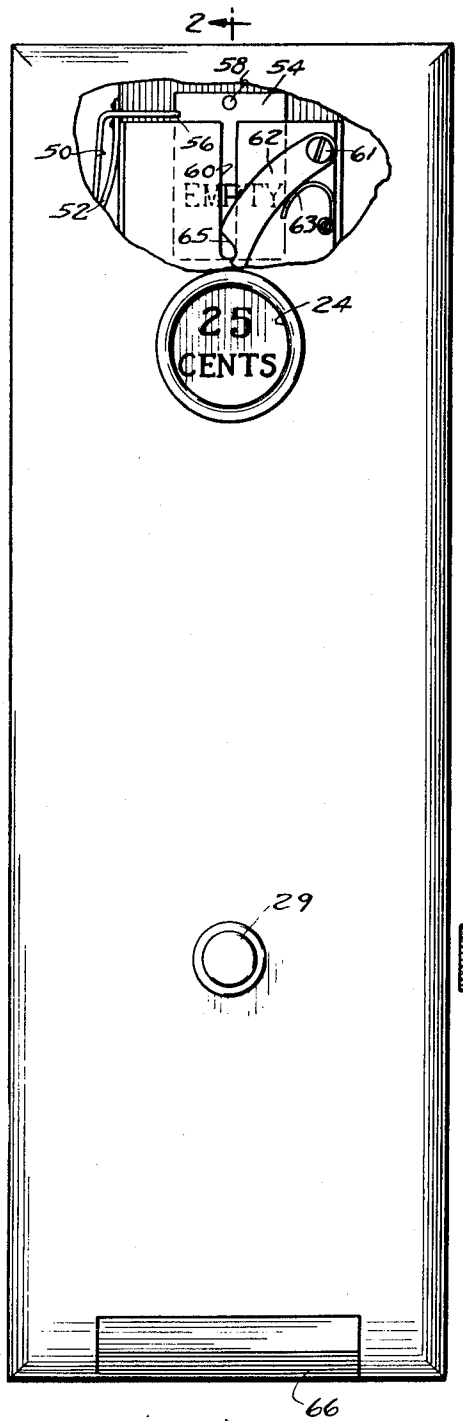


FIG. 1.

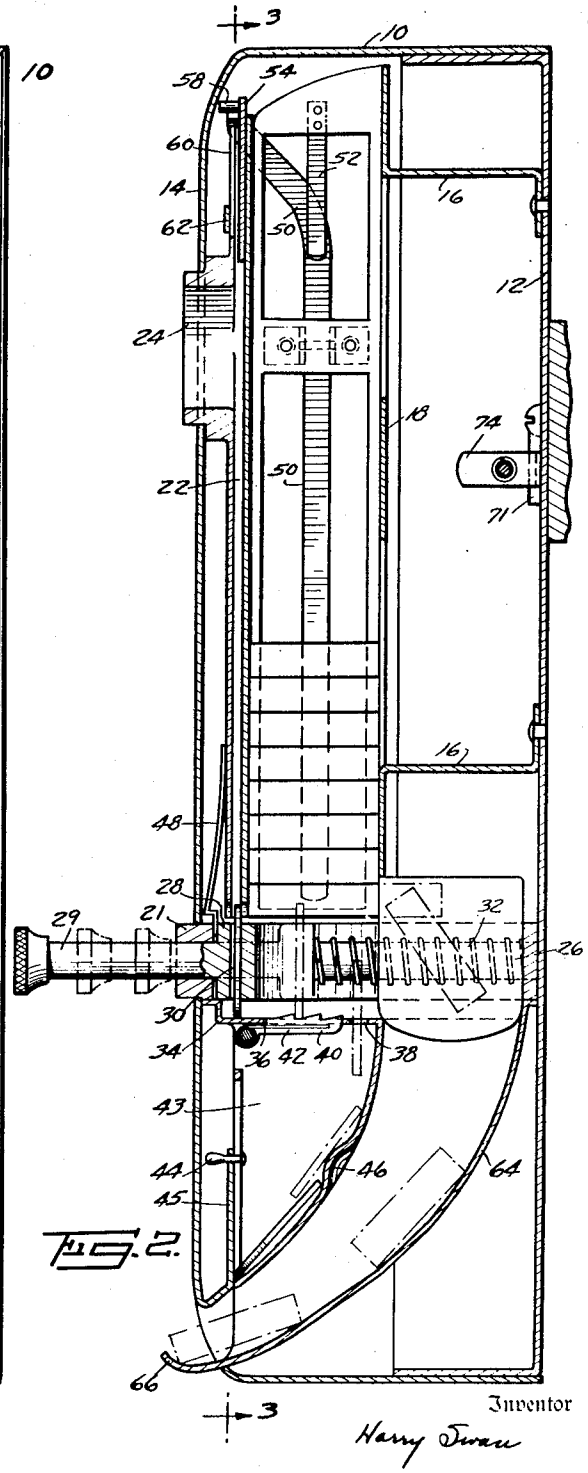


FIG. 2.

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VENDING MACHINE

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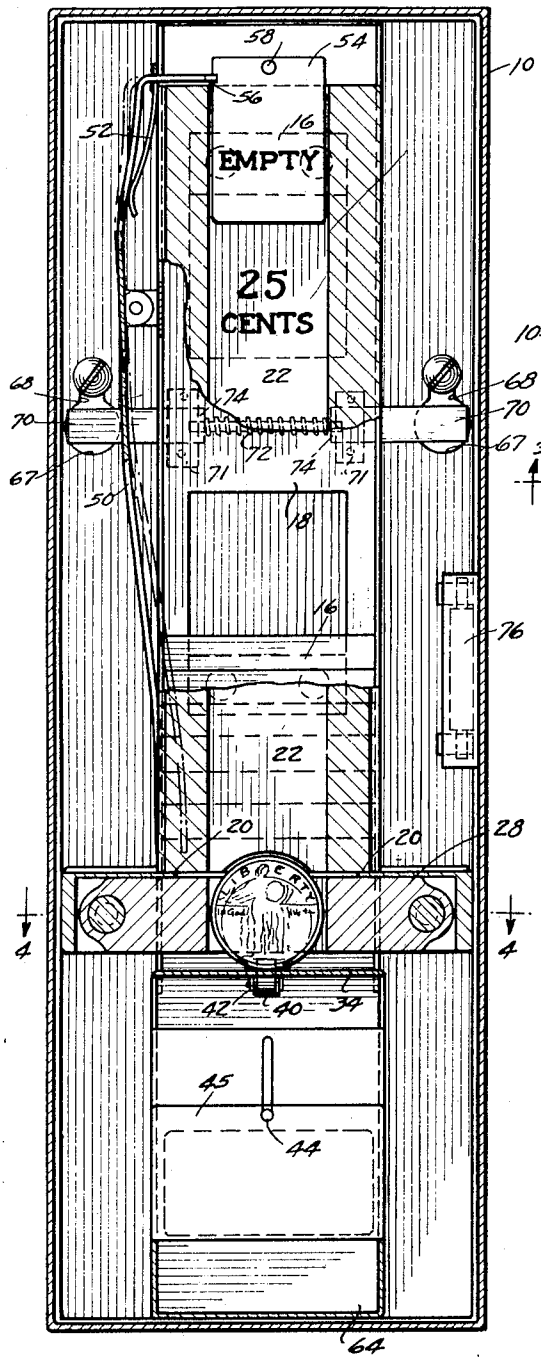


FIG. 3.

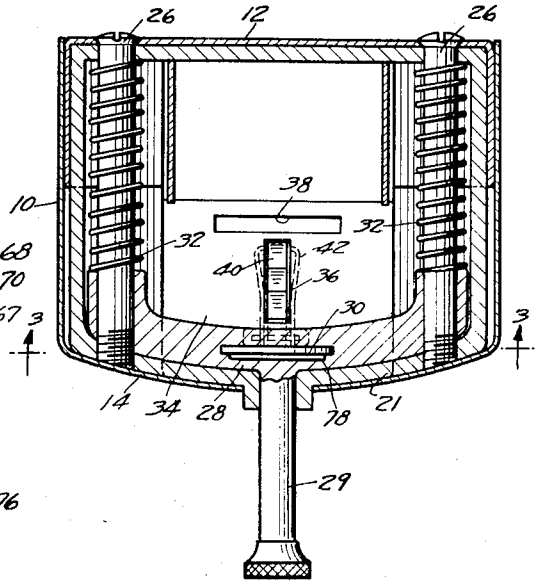


FIG. 4.

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UNITED STATES PATENT OFFICE

1,935,134

VENDING MACHINE

Harry Swan, New York, N. Y.

Original application October 2, 1929, Serial No. 396,619. Divided and this application June 14, 1930. Serial No. 461,072

8 Claims. (Cl. 194—1)

This is a division of my copending application Serial No. 396,619, filed October 2nd, 1929.

My invention relates to vending machines and contemplates the provision of a machine of this type wherein a coin is used to eject the article sold.

Among the advantages of my invention is the provision of a simple and sturdy machine which is not apt to get out of order or to clog and one which will stand without injury, rough usage that such a machine is apt to receive.

Another object of my invention is to provide a vending machine which will be neither actuated nor clogged by coins of improper denomination.

A still further object of my invention is the provision of a device whereby the same coin cannot be used to eject more than one article.

Further objects and advantages of my invention will be apparent from the following specification taken in connection with the accompanying drawings which form a part thereof and on which:

Fig. 1 is a front elevational view, partly broken away, of a preferred embodiment of my invention;

Fig. 2 is a vertical cross-sectional view, taken on the line 2—2 of Fig. 1;

Fig. 3 is a vertical cross-sectional view, taken on the line 3—3 of Fig. 2; and

Fig. 4 is a cross-sectional view, taken on the line 4—4 of Fig. 3.

Referring to the drawings, reference character 10 designates generally the casing composed of a base portion 12 and a cover portion 14. Supported on base portion 12 by means of suitable brackets 16 is an article hopper 18 which is open at the top and has a bottom partially closed by flanges 20 formed on a yoke 21. The articles to be sold are placed in hopper 18, which is of proper horizontal dimensions to accommodate the articles and here the latter are constrained to lie flat therein and will not become jammed. The lowermost article rests on flanges 20.

In front of hopper 18 is a vertical coin chute 22. Near the top of chute 22 is a coin receiver 24 of proper diameter to accommodate the proper coin for actuating the vending machine. The coin receiver 24 extends through cover portion 14 and is thus accessible when the cover is in place. Slidably positioned on rods 26 below hopper 18 and coin chute 22 is a coin carrier 28 provided with a coin carrying slot 30. Rods 26 pass through the base portion 12, the back of yoke 21 and engage the front of the yoke by means of screw threads formed on the respective members. A plunger 29 is either formed integral with coin carrier 28 or suitably attached thereto and projects through the front of yoke 21 and cover portion 14 and provides means for moving the coin carrier against the force of coil springs 32 which tend to push coin carrier 28 forward and hold it in such a position that coin slot 30 is directly beneath coin chute 22. Coin slot 30 extends entirely through coin carrier 28 and a coin in position therein will be supported by a horizontal flat plate 34 in which is formed a slot 36 and a slot 38. Pivoted on plate 34 and extending within slot 36 is a notched bar 40 which is held in a substantially horizontal position by means of a spring 42. Beneath slot 38 is formed a coin bank 43 for the reception of coins dropping through slot 38. A projection 46 is provided in order to deflect the coins and this prevents them from piling up in a single layer on the inclined side of the bank which might interfere with the passage of coins through slot 38. The front of coin bank 43 is normally closed by a vertically slidable door 45. When cover portion 14 is removed door 45 may be raised by means of a handle 44 so that the coins can fall into a receptacle held beneath the vending machine.

Secured to the front of coin chute 22 is a flat spring 48 having a lower end formed with two right angle bends as is clearly shown in Fig. 2. Spring 48 is ordinarily held in the position shown by coin carrier 28 but when the carrier is moved inwardly and coin carrying slot 30 therein is not in line with coin chute 22 spring 48 lies flat against the outside of the coin chute and its lower end projects beneath the coin chute and thus prevents a coin from passing out of the chute while the coin carrier is not in a position to receive it.

Pivotally supported on the side of hopper 18 is an arm 50, the lower end of which extends into the hopper through a slot in the side thereof. A spring 52 pressing against the upper end of arm 50 tends to maintain the lower end of arm 50 within hopper 18 but the presence of one or more articles therein will hold the lower end of the arm out against the force of spring 52. Positioned in the upper part of coin chute 22 is a rectangular disc 54 upon which is formed the word "Empty". Disc 54 is provided with a notch 56 in one edge thereof and a pin 58 extending perpendicular to the base of the disc. A vertical slot 60 is provided in front of coin slot 22 directly in line with pin 58. The upper end of arm 50 is adapted to engage notch 56 when the lower end of the arm is held out by articles in the hopper.

However, when the last article has been sold, spring 52 moves arm 50 out of engagement with notch 56 and disc 54 drops down until pin 58 strikes the bottom of slot 60, in which position the disc prevents the insertion of a coin into coin chute 22 and the word "Empty" appears in the coin receiver. An arm 62 is pivoted at 61 and is movably held with its lower end extending over slot 60 by means of a spring 63. The lower end of arm 62 is formed with a cut-away portion 65. When disc 54 is returned it drops downwardly in the coin chute and pin 58 strikes arm 62 and moves the arm against the force of spring 63, so that the pin may pass by the arm. The arm then is returned to the position shown in Fig. 1 by the spring and the pin is held in the cut-away portion 65. Thus disc 54 cannot be moved upwardly until arm 62 is rotated slightly in a counter clockwise direction, which cannot be done until cover portion 14 has been removed.

Attached to base portion 12 and below and to the rear of hopper 18 is an article delivery chute 64 which extends through the front of cover portion 14 and is provided with an upturned end 66 so that an article delivered therethrough will not fall on the floor. Base portion 12 is secured to any suitable support by means of screws, bolts or the like which pass through holes 67 formed in the base. These holes are of a generally circular shape but have a slot 68 extending from the upper part of the circular hole. The width of slot 68 is less than the diameter of the heads of the screws or bolts used. To place the machine in position on the bolts the heads are first inserted through circular holes 67 and then the base portion is moved downwardly so that the bolts are in slots 68. In order to prevent removal of the machine by unauthorized persons a pair of sliding bars 70 are provided which are retained in guides 71 and which are forced away from each other by means of a spring 72 and thus cover circular hole 67 sufficiently to prevent removal of the base portion from the bolts while bars 70 are in this position. Bars 70 are provided with small hand grips 74 by means of which the bars may be brought together, thus uncovering the hole 66 but grips 74 may be reached only after cover portion has been removed. The cover 14 is ordinarily secured to base portion 12 by means of a suitable lock 76.

The method of operation of the device is substantially as follows:

A number of packages of merchandise are in position within hopper 18, the lowermost package resting on flanges 20. When a coin is inserted in coin receiver 24 it drops downwardly through coin chute 22 and into slot 30 in coin carrier 28.

Plunger 29 is now pressed inwardly and coin carrier 28 and the coin therein moves to the right as viewed in Fig. 2. The top of the coin projects above coin carrier 28 sufficiently to engage the lowermost package contained in chute 18 and moves the package to the right until it falls into delivery chute 64, while the coin drops through slot 38 into bank 43. Upon the release of pressure on plunger 29 the plunger is returned by means of spring 32 to its initial position.

If the operator attempts to secure more than one package by means of releasing plunger 29 after the first package has been ejected but before the coin has dropped through slot 38, the return motion of coin carrier 28 with the coin in slot 30 thereof will be prevented by the lower edge of the coin engaging one of the teeth on member 40. The formation of these teeth is such that the coin may pass over them to the right as shown in Fig. 2, without interference therefrom, particularly as member 40 is pivoted and could be depressed slightly if necessary.

If too small a coin is placed in the coin chute it will drop into slot 30 in coin carrier 28 but will not be of sufficient diameter to engage the lowermost package in hopper 18 and hence will not eject the same through delivery chute 64. In case the machine is chosen for the use of twenty-five cent pieces it is preferable to make slot 30 of a greater width near its more central portion, as is shown at 78 in Fig. 4. Thus, if a five cent piece which is thicker than a quarter, is placed in the slot it will be retained in the more central portion of slot 30 and will not be able to jam the machine, as it might if it rested loosely in a larger slot. Too large a coin will not pass through coin receiver 24 and hence cannot be put in the machine at all.

While I have described and illustrated a preferred embodiment of my invention, it is to be understood that modifications such as are apparent to one skilled in the art fall within its scope, which is to be limited only by the appended claims taken in view of the prior art.

What I claim is:

1. In a vending machine, a casing comprising a base portion and a cover portion, an article hopper mounted on said base portion, a coin chute adjacent said article hopper, a spring-pressed resilient arm pivoted beside said article hopper, the lower end of said arm extending through a slot in the side of said hopper and held outwardly by articles in the hopper and a disc releasably held suspended in the upper part of said coin chute by engagement with the upper end of said arm.

2. In a vending machine, an article hopper, a vertical coin chute, a coin receiver in said coin chute, a pivoted arm having one end spring-pressed against articles in said article hopper, a disc slidably positioned in said vertical coin chute so as to be movable by gravity, means to limit the downward movement of said disc so that its lowermost position will be opposite said coin receiver and means comprising said pivoted arm to retain said disc suspended above said coin receiver while there is an article in said article hopper.

3. In a vending machine, an article hopper, a vertical coin chute, a coin receiver in said coin chute, a pivoted arm having one end spring-pressed against articles in said article hopper, a disc slidably positioned in said vertical coin chute so as to be movable by gravity, means to limit the downward movement of said disc so that its lowermost position will be opposite said coin receiver and a notch in said disc arranged for engagement with the other end of said pivoted arm while there is an article in said article hopper so that said disc will be held suspended above said coin receiver.

4. In a vending machine, a coin chute, a coin carrier formed with a coin slot and arranged to receive a coin from said coin chute, a horizontal plate below said coin carrier on which the lower edge of a coin rests when the coin is positioned within the coin slot, means to move said coin carrier, a pivoted bar having toothed projections normally extending above said horizontal plate, and a spring for yieldably maintaining said bar in normal position, said bar being so arranged as to be depressed by, and to allow movement of, a coin in one direction over the projections thereon but to engage a coin

moving in the opposite direction and thus arrest such motion of the coin and coin carrier.

5. In a vending machine, an article hopper, a vertical coin chute, a coin receiver in said coin chute, a pivoted arm having one end spring-pressed against articles in said article hopper, a disc slidably positioned in said vertical coin chute so as to be movable by gravity, means to limit the downward movement of said disc so that its lowermost position will be opposite said coin receiver, means comprising said pivoted arm to retain said disc suspended above said coin receiver while there is an article in said article hopper, and means for locking said disc in its lowermost position.

6. In a vending machine, an article hopper, a vertical coin chute, a coin receiver in said coin chute, a pivoted arm having one end spring-pressed against articles in said article hopper, a disc slidably positioned in said vertical coin chute so as to be movable by gravity, means comprising a projection on said disc to limit the downward movement of said disc so that its lowermost position will be opposite said coin receiver, means comprising said pivoted arm to retain said disc suspended above said coin receiver while there is an article in said article hopper, and means for engaging said projection when said disc is in its lowermost position for locking the disc in said lowermost position.

7. In a vending machine, an article hopper, a vertical coin chute, a coin receiver in said coin chute, a pivoted arm having one end spring-pressed against articles in said article hopper, a disc slidably positioned in said vertical coin chute so as to be movable by gravity, means comprising a projection on said disc to limit the downward movement of said disc so that its lowermost position will be opposite said coin receiver, means comprising said pivoted arm to retain said disc suspended above said coin receiver while there is an article in said article hopper, and a pivoted arm for engaging said projection when said disc is in its lowermost position for locking the disc in said lowermost position.

8. In a vending machine, an article hopper, a vertical coin chute, a coin receiver in said coin chute, a pivoted arm having one end spring-pressed against articles in said article hopper, a disc slidably positioned in said vertical coin chute so as to be movable by gravity, means comprising a projection on said disc to limit the downward movement of said disc so that its lowermost position will be opposite said coin receiver, means comprising said pivoted arm to retain said disc suspended above said coin receiver while there is an article in said article hopper, and a spring-pressed pivoted arm having a notched end for engaging said projection when said disc is in its lowermost position for locking the disc in said lowermost position.

HARRY SWAN.