Sept. 16, 1941. W. A. GABRIEL 2,256,022

DISPENSING MECHANISM

Filed Dec. 24, 1938 2 Sheets-Sheet 1

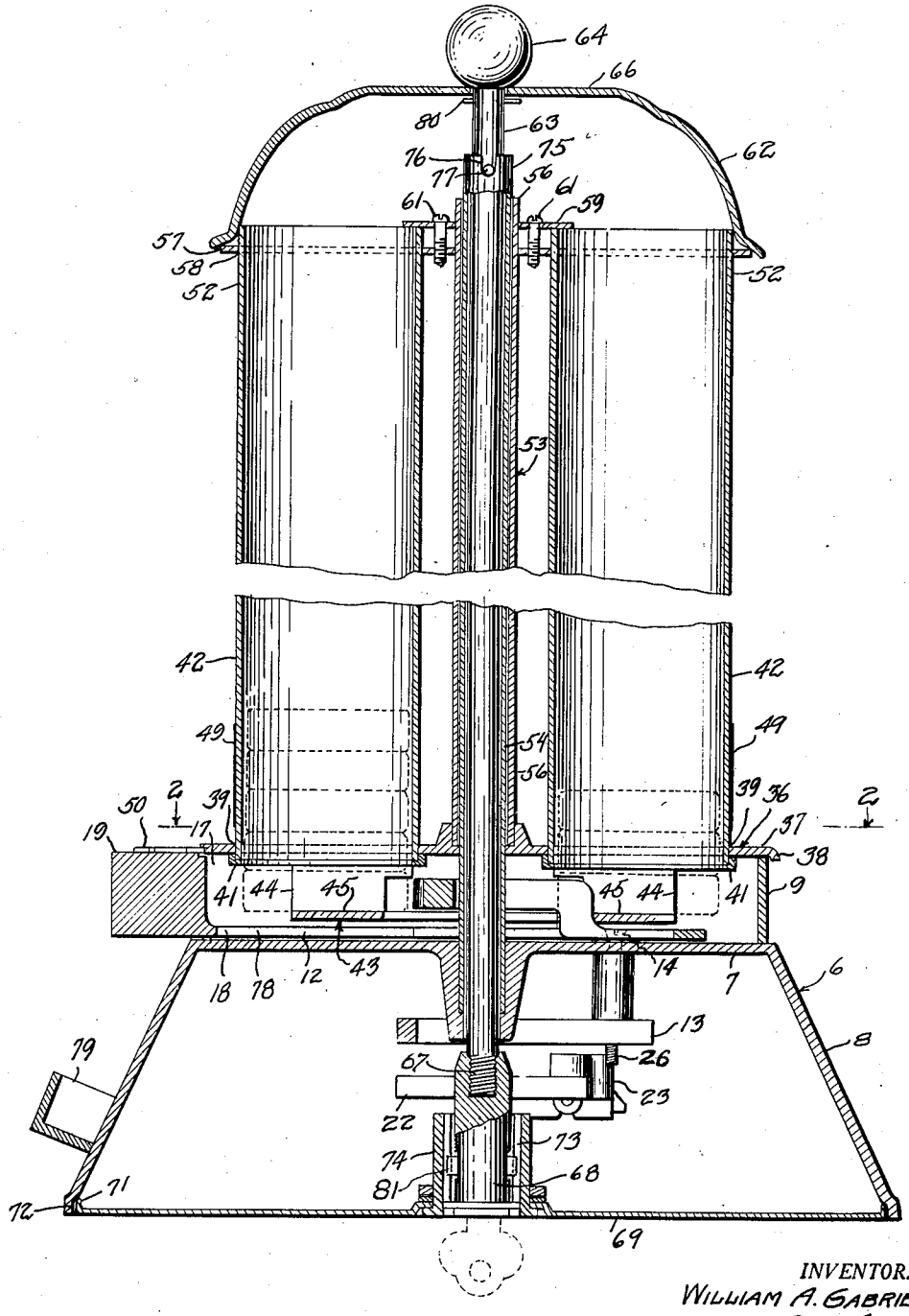


Fig. 1

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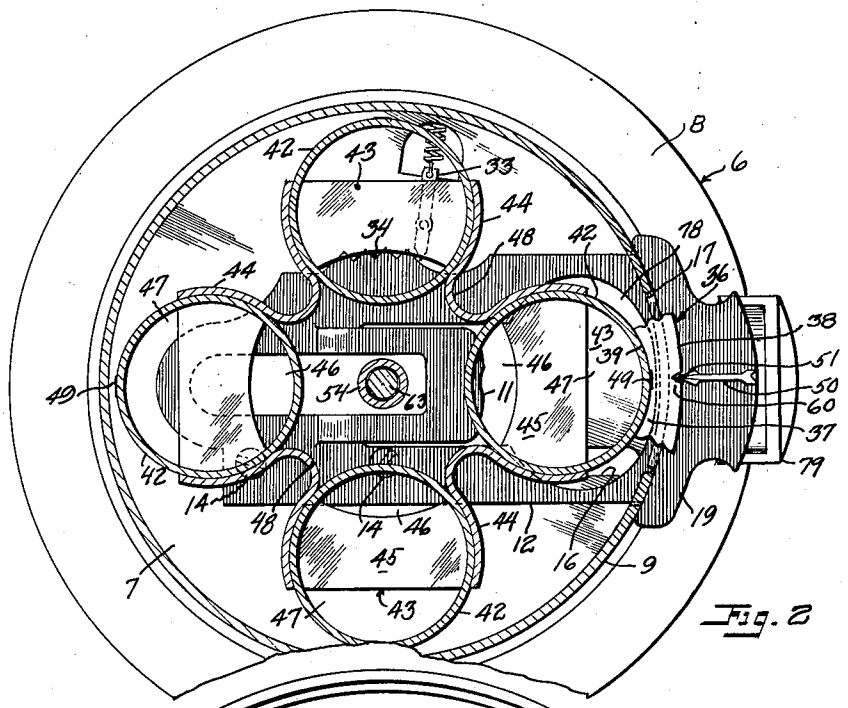


Fig. 2

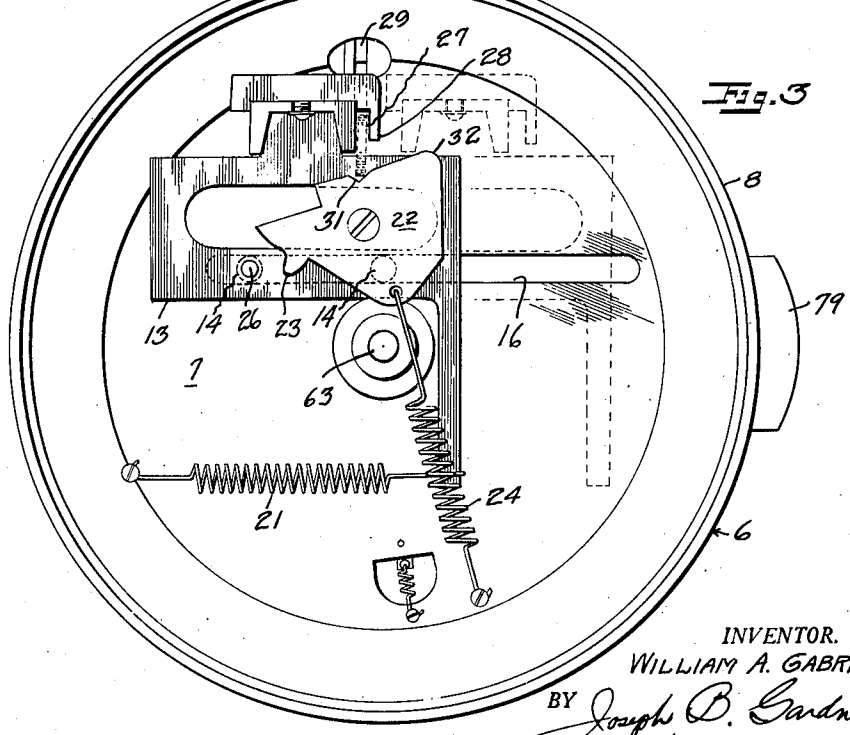


Fig. 3

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UNITED STATES PATENT OFFICE

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DISPENSING MECHANISM

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Application December 24, 1938, Serial No. 247,619

5 Claims. (Cl. 312—64)

The invention relates to dispensing machines and more particularly to those adapted for coin operation and arranged for the dispensing of relatively small single units of merchandise.

An object of the present invention is to provide a dispensing mechanism of the character described which may be constructed with a single coin controlled delivery mechanism, which is so operatively associated with a plurality of article containers that each and any of said containers may be selectively positioned in operative relation to the delivery mechanism, whereby the single delivery mechanism may be used for dispensing a plurality of different articles.

Another object of the invention is to provide a dispensing mechanism of the character above which will be constructed of a minimum number of simply and ruggedly built parts, whereby the apparatus may be subjected to long and continued usage without danger of breakage or sticking or jamming of the several parts as has been heretofore frequently encountered and which have rendered other dispensing devices inoperative or defective in operation.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawings and description may be adopted within the scope of the invention as set forth in the claims.

Referring to said drawings:

Figure 1 is a vertical cross-sectional view of a dispensing mechanism constructed in accordance with the present invention.

Figure 2 is a horizontal sectional view taken substantially on the plane of line 2—2 of Figure 1.

Figure 3 is a bottom view of the apparatus with the bottom plate removed.

The dispensing mechanism of the present invention comprises in brief, a base casing or support having a passage for discharging articles to be dispensed, a delivery mechanism carried by said base casing and movable towards and away from said passage, and a plurality of article containers which are supported for movement on said base casing and which are adapted for manual displacement into and from an operable position intermediate said mechanism and said passage for the delivery of the articles therein to said passage.

The dispensing mechanism as depicted in the accompanying drawing comprises a base casing 6, including a top wall 7, a depending side wall or skirt 8 and an upstanding cylindrical collar 9 circumscribing the wall 7. Mounted within the collar 9 and in vertically spaced relation over the wall 7 is an ejector 11 which in the present case is formed as a part of a slide 12 carried on the top wall 7 and which is secured in position thereon by means of a part 13 secured to the underside of the wall 7 by screws 14 extending through an elongated slot 16 in the wall. The collar 9 is formed with an opening or passage 17 therein, through which a part 18 of the slide 12 is extended. The slide is provided with an enlarged handle portion 19 on the outer end thereof which is engageable with the outer circumferential side of the collar 9 to limit the inward movement of the slide. A spring 21 in the base casing and secured to the slide part 13 normally urges the slide to an inwardly extended position.

In accordance with the present construction, the slide is normally locked against manual movement and is released for movement by means of a coin operated mechanism, here including a lever 22 pivoted to the underside of wall 7 and which is provided with a part 23 which is normally positioned by means of spring 24 in position to engage a pin 26 here provided as the lower end of one of the screws 14 carried by the slide part 13. In accordance with the present operation, the lever 22 is rocked or rotated from its normal position by means of an operative connection established between the lever and the slide part 13 by a coin 27. As here shown, the slide part 13 is formed with a coin supporting guide 28, into which a coin may be inserted in the normal inward position of the delivery mechanism through a coin chute 29 in the skirt 8 of the base casing, and which is formed to operatively hold the coin 27 in a valley or seat 31 formed in the lever 22 opposite to the coin support 28, whereby upon initial movement of the slide the lever 22 will be rocked, in a clockwise direction as viewed in Figure 3, to remove the part 23 thereof from the path of movement of the pin 26. In order to enable an initial rocking of the lever 22 prior to the engagement of the pin 26 with the part 23, the pin 26 is normally spaced from the part 23 in the retracted position of the slide, so that upon advancement of the pin towards the part 23 after insertion of a coin, sufficient movement of the slide and lever will be permitted to rotate the lever out of alignment with the pin. Upon movement of the slide to adjacent the end of its outward movement, the coin is displaced beyond an end portion 32 of the lever and is released for deposit into the bottom of the casing. The outward movement of the slide may be limited in any desired manner and is here limited by an engagement of the slide part 13 with the inner side of the skirt 8. In the return movement of the slide, the pin under-rides the portion 23 to rock the lever as the pin proceeds past the part 23 into its initial normal position.

Preferably means is provided to prevent a reciprocal movement of the slide intermediate its end positions so as to prevent the delivery of more than one article of merchandise. As here shown, a ratchet in the form of a spring detent 33 on the top wall 7 of the casing engageable with a rack 34 on the side of the slide is used to prevent a retraction or inward displacement of the slide after the outward movement thereof has been started and prior to the full outward displacement of the slide. The ratchet is further operative upon the return movement of the slide to prevent an outward movement thereof prior to the return of the slide to its innermost position. Upon movement of the slide to its inner position, the pin 26 is returned into an operative position with respect to the lever 22, as afore-described, so as to thereafter prevent an outward displacement of the slide without inserting an additional coin.

In accordance with the present invention, the delivery mechanism is adapted to selectively dispense a plurality of different articles by means of the coin controlled delivery mechanism above described. This is accomplished by the provision of a plurality of article containers which are movably supported by the base casing and which may be manually moved into and out of an operative position relative to the delivery mechanism and the discharge passage 17. As here shown, I mount on the base casing a carriage 36 here consisting of a horizontal plate 37 which is formed with a depending circumscribing flange 38 which fits over and around the top of the collar 9 to provide a concentric rotatable support for the plate. The plate is also formed with a plurality of circumferentially spaced openings 39 bounded by seats 41 for the lower ends of a plurality of vertical tubes 42 which are here used for the article container. Preferably the tubes are formed of glass or other transparent material so as to provide an attractive display of the articles of merchandise carried therein. Carried on the under-side of the plate 37 and in alignment with the openings 39, are a plurality of article receiving members 43, here shown with vertical depending sides 44 and a bottom 45, the latter being positioned directly under the openings 39 and spaced over the top of the slide 12 but under the ejector 11. As will be seen in Figure 2, the opposed sides 44 of each of the article receivers are curved in horizontal section and foreshortened from a full circumferential extension so as to define inner and outer open portions 46 and 47 in the article receivers. In accordance with the present arrangement the opposed walls 44 are so arranged as to position the openings 46 and 47 in substantially radial alignment, and the opening 46 is of sufficient size to enable the entry into the receiver of the ejector 11 for displacing the article in the receiver outwardly through the opening 47 and into the discharge opening of the mechanism.

The tubes are preferably open at the bottom thereof so that the articles carried therein are supported directly on the bottom 45 of the article receivers and in accordance with the present arrangement, the vertical spacing between the bottom 45 and the plate 37 is greater than the vertical dimension of the article to be dispensed, whereby the article may be moved out from between the bottom and the plate by means of the ejector 11. If desired, the vertical spacing between the bottom and the plate may be selected so as to accommodate therebetween more than one article or unit of merchandise, but in any case such spacing is preferably such that only a desired unit height of merchandise may be dispensed.

As an important feature of the present construction, the side walls 44 of the adjacent receivers are joined at their radially inner ends to provide a closed cam or beveled portion 48 which is positioned to engage the ejector 11 in a misaligned position of the ejector and openings 46 and 47, and is so curved as to cause upon advancement of the ejector the rotation of the carriage into an aligned position of the ejector and the openings 46 and 47. Ordinarily, however, the carriage will be manually rotated by the user so as to position one of the tubes 42 into an operative relation with respect to the ejector and the discharge passage 17. This operative position is defined as above indicated by the alignment of the inner and outer openings 46 and 47 with the ejector and discharge passage 17. In order that the operator may quickly and accurately position any of the article containers in operative position as aforesaid, I prefer to place on each of the tubes 42 a vertical mark 49, preferably in the form of an arrow, which may be aligned with a horizontal mark, here shown as an arrow 50, on the handle part 19 of the slide. If desired, and as also here shown, the arrow 50 may be formed as a raised embossment on the handle and extended inwardly into direct contactual engagement with the flange 38 on the upper carriage plate 37, and the flange provided with a plurality of circumferentially spaced notches 60 engageable with the point 51 of the arrow 50 for holding the carriage in selected rotated position. In this manner the arrow 50 operating in cooperation with the spring 21 which normally urges the handle to an inner position, acts as a spring detent for detachably holding the carriage in precisely the proper rotated position for each of the containers.

The upper open ends 52 of the tubes are preferably closed and supported independent of the support provided the tubes by the seats 41 by means of a centrally disposed support 53 carried by the base. This support includes as part thereof a vertical tube 54 rigidly fastened to the top wall 7 of the base casing and on which is journaled an outer tube 56 which is rigidly supported at its lower end to the top plate 37 of the carriage and which extends upwardly to beyond the upper ends 52 of the tubes. A plate 57 is fastened to the tube 56 adjacent the upper end thereof and is provided with a plurality of circumferentially spaced openings 58 for the reception of the upper ends 52 of the tubes, so as to hold these ends against shifting about their base seats 44. Also a disc 59, preferably of fibre material is slidably mounted on the tube 56 and is held by screws 61 against the upper ends of the tubes to prevent longitudinal displacement of the tubes. Mounted over the upper end of the tubes and supported upon the plates 57 is a closure plate 62 which in accordance with the present arrangement, is securely anchored on and supported against the plate 57 by means of a rod 63 fastened to the closure plate and extending longitudinally through the inner tube 54 for attachment at its lower end to the base casing. The rod 63 may be provided with a suitable enlargement 64, such as the ball here shown, for bearing against the top surface 66 of the closure plate to hold the latter down against the plate 57, so as to prevent unauthorized access to the upper ends of the tubes

52. The lower end 67 of the rod is here shown threaded and is engaged by a nut 68 supported by a removable base plate 69 on the bottom of the base casing. The plate 69 as here shown, is formed with an upturned edge flange 71 which is fitted into a recess or seat 72 formed in the bottom inside surface of the skirt 8 so that upon tightening of the nut upon the lower threaded end of the rod, the cover plate 62 will be drawn against the upper end of the device while the bottom plate 69 is drawn up against the bottom of the base casing. Since in the present construction the device is coin operated and the coins are deposited into the base casing and upon the plate 69, it is desirable that the nut 68 be secured against unauthorized removal. This is accomplished in the present instance by the use of a barrel type lock nut which includes a plurality of key controlled tumblers 81 which are engageable into a longitudinal slot 73 formed in a wall 74 of the lock housing, so as to prevent rotation of the nut when the tumblers are extended and positioned in said slot. In accordance with this type of lock nut, the nut may be rotated upon insertion and rotation of a key to retract the tumblers into the barrel of the lock. In order to prevent rotation of the rod 63 from the upper end thereof so as to release the nut and rod, I provide a locking means for fastening the rod to the stationary inner sleeve 54 to prevent rotation of the rod relative to the base support. As here shown, the inner sleeve 54 is extended above the upper end of the outer sleeve 56 and is provided at its upper end 75 with one or more end notches 76 which are adapted to receive a pin 77 carried by the rod at the underside of the cover plate 62. A pin 80 on the rod directly below the cover plate supports the latter in place on the rod under the enlargement 64 when the device is not in assembled position.

If desired and as here shown, the portion 18 of the slide which is adapted for movement to the outer side of the base casing may be provided with an enlarged opening 78 of sufficient area to pass therethrough an article to be dispensed, so that upon outward displacement of the handle and ejection of an article from the passage 17, the article will fall through the opening 78 and free from the slide mechanism and handle. Preferably, an article receiving cup 79 is mounted on the wall 8 of the base casing under the discharge passage 17 for receiving the discharged article. The operation of the device is in this manner simplified, since the operator may with the use of but one hand insert a coin, withdraw and release the operating handle, and thereafter remove the article dispensed without necessitating the removal of the article from the slide while holding the same in an outwardly displaced position.

I claim:

1. A dispensing mechanism comprising, a base casing having a top wall and an upstanding cylindrical collar circumscribing said wall, said collar being formed with a discharge opening therein for articles to be dispensed, an ejector mounted substantially centrally on said top wall and having a part extending through said opening for manual displacement of said ejector to and from said opening, a carriage rotatably mounted on said base casing and including a horizontal plate positioned above said ejector and being supported on the top of said collar and being provided with a plurality of circumferentially spaced openings, a plurality of vertical article containers carried by said plate in said last named openings, article receiving means carried by said plate under said openings and including a bottom wall and opposed circumferentially spaced side walls, said containers having open bottom portions for deposit of articles in said means, said side walls being spaced by a distance permitting the entry of said ejector therebetween and the discharge of an article into said first named opening, and means between said side walls of adjacent receiving means for engaging said ejector and rotating said carriage into an aligned position of one of said receiving means with said ejector and first named opening.

2. A dispensing mechanism comprising, a base provided with an upstanding cylindrical collar formed with a discharge opening therein for articles to be dispensed, an ejector mounted on said base substantially centrally within said collar and having a part extending through said opening for manual displacement of said ejector to and from said opening, a carriage rotatably mounted on said base and including a horizontal plate positioned above said ejector and supported on the top of said collar and being provided with a plurality of circumferentially spaced openings, a plurality of vertical article containers carried by said horizontal plate in said last named openings, article receiving means carried by said plate under said openings, said containers having open bottom portions for deposit of articles into said means, said ejector being manually displaceable into said article receiving means for displacement of articles outwardly through said first named opening, said plate being provided with a plurality of circumferentially spaced notches, and a detent member carried by said ejector part and engageable with selected notches in said plate for detachably holding said carriage in a rotated position with one of said containers in alignment between said ejector and said first named opening.

3. A dispensing mechanism comprising, a base, a carriage rotatably mounted on said base, a plurality of circumferentially spaced vertical tubes adapted for receipt of articles to be dispensed mounted on said carriage and adapted to deposit the lowermost articles in said tubes of said carriage, a delivery mechanism movable radially into portions of said carriage vertically aligned with said tubes for discharge of said articles from said base, a vertical sleeve rigidly supported by said base, a central vertical sleeve on said carriage journaled on said first sleeve, closure means overlying the upper ends of said tubes, a rod fastened to said closure means and mounted through said first sleeve, and a nut containing a locking mechanism supported by said base and engageable with the lower end of said rod.

4. A dispensing mechanism as characterized in claim 3 having locking means on said rod and first named sleeve to prevent relative rotation and to prevent turning of said rod at the top thereof relative to said base to cause said rod to unthread and disengage from said nut.

5. A dispensing mechanism as characterized in claim 3 having a plate adjacent the top of said first named sleeve and provided with openings adapted to fit over and support the upper ends of said tubes, and means supported by said last named plate and engageable with the ends of said tubes to prevent vertical displacement thereof.

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