

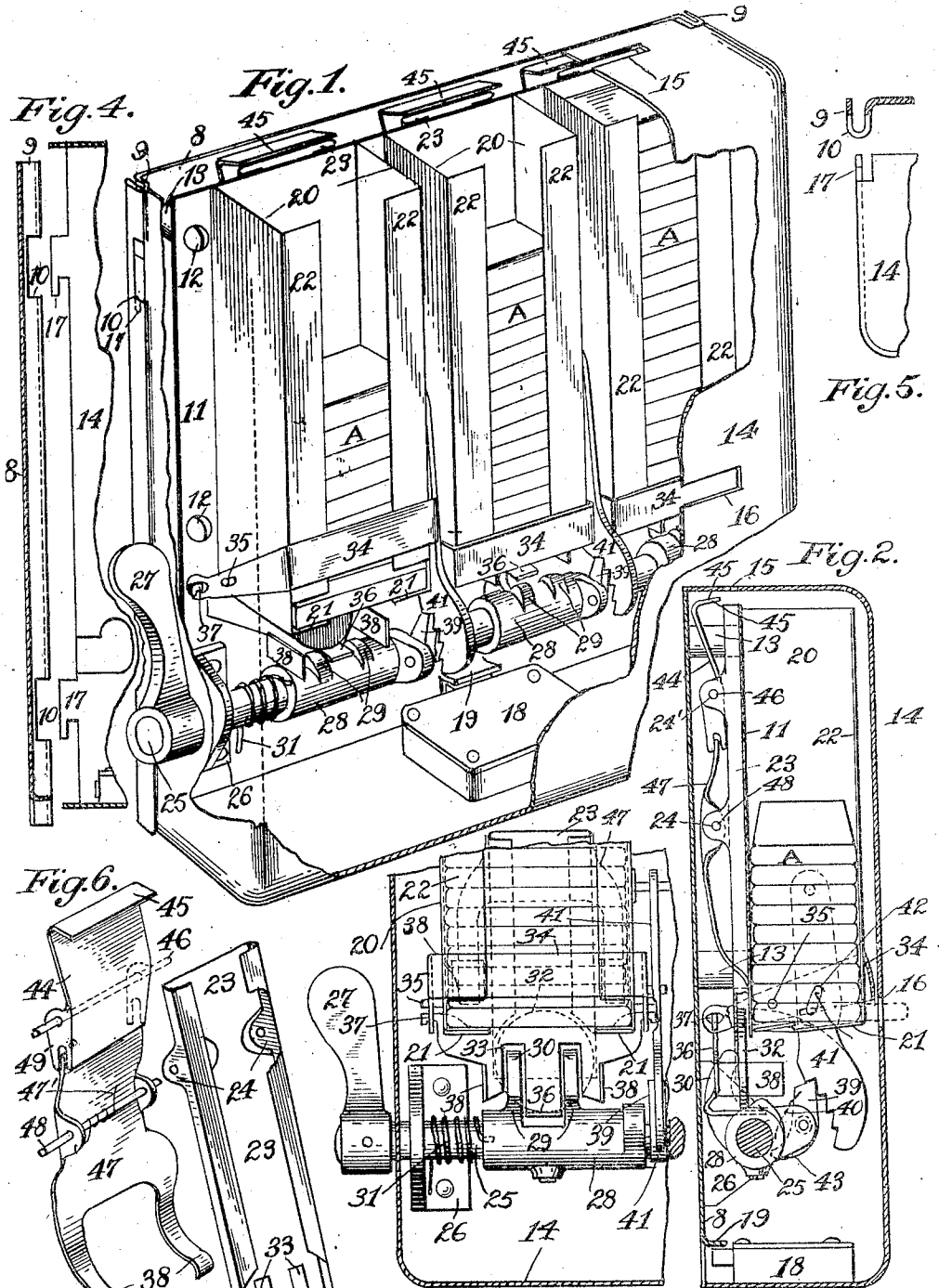
E. C. ANGELL.
VENDING MACHINE.

APPLICATION FILED JUNE 6, 1911. RENEWED JUNE 13, 1912.

1,050,594.

Patented Jan. 14, 1913.

2 SHEETS—SHEET 1.



Witnesses:
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Benedict Mirabella

Fig. 7.

Fig. 3.

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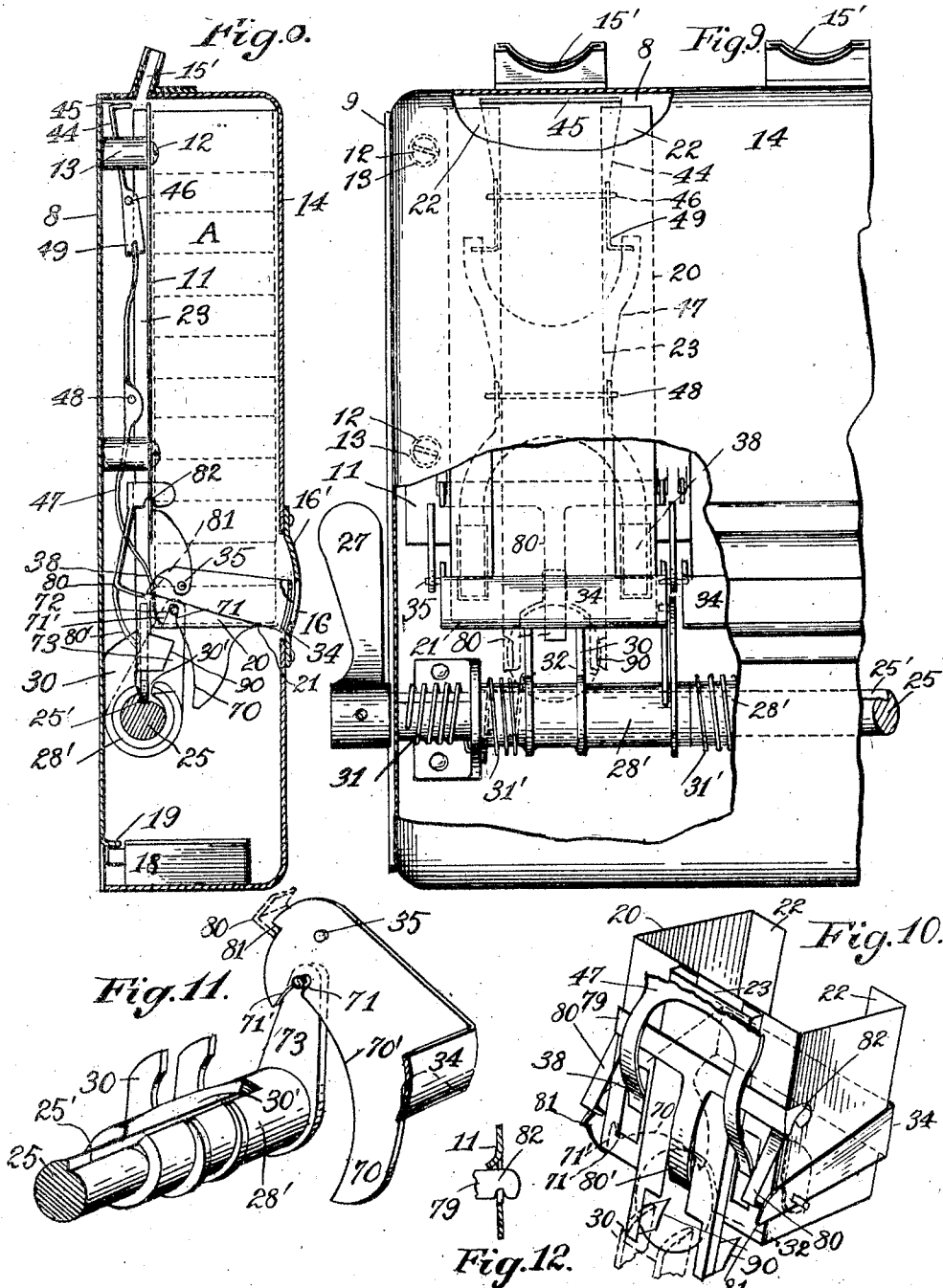
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UNITED STATES PATENT OFFICE.

EDWARD C. ANGELL, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO
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VENDING-MACHINE.

1,050,594.

Specification of Letters Patent.

Patented Jan. 14, 1913.

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To all whom it may concern:

Be it known that I, EDWARD C. ANGELL, a citizen of the United States, residing in the borough of Manhattan, in the city, county, and State of New York, have invented new and useful Improvements in Vending-Machines, of which the following is a specification.

This invention relates to vending machines, and particularly to that class of apparatus for vending small packages or articles, such as gum, chocolate, and the like, in which a coin is inserted in a slot and by the operation of a lever an article is ejected from the machine, and it is an object of the invention to provide an apparatus of this character that is cheap and compact in construction and which may be readily secured in any suitable place, as a wall or bracket conveniently located on counters in the usual manner, and is particularly adapted to be secured to the backs of opera chairs to take up a minimum amount of space.

It is the principal object of the invention to provide a vending apparatus in which the coin is utilized to form a part of the mechanism to eject the article from the apparatus, the coin forming a part of the operating mechanism, the coin being released after the ejection of the article and the apparatus again being ineffective until another coin is inserted.

Further objects of the invention relate to improved means to close the opening through which the articles are ejected to prevent the fraudulent removal of the articles or tampering with the apparatus, and to improved means to automatically close the coin slot to prevent the insertion of a coin after all of the packages have been ejected from a package container or carrier.

A still further object of the invention relates to improved means of constructing the casing comprising a back plate and an intermediate plate carrying the different mechanism of the apparatus, the said back and intermediate plates being secured in place by means of screws or the like from the interior of the casing, a releasable cover forming the front, sides, top and bottom of the casing, which may be readily removed

to refill the package carriers or any other purpose.

In the drawings accompanying and forming a part of this specification, Figure 1 is perspective view of my improved vending apparatus, the cover or front being partly broken away to illustrate the interior of the apparatus. Fig. 2 is a sectional side elevation to illustrate the ejecting mechanism, the coin being in position to eject a package. Fig. 3 is a sectional fragmentary front elevation to illustrate the package ejecting mechanism. Fig. 4 is a sectional detail of a portion of the casing sections to illustrate the manner of releasably securing them together. Fig. 5 is a detail, partly in section, to illustrate the construction of the side edges of the back plate whereby the cover or front is releasably held in place. Fig. 6 is a perspective view of the mechanism to automatically close the coin slot when all of the packages or articles have been ejected from the package carrier; Fig. 7 is a perspective view of the coin chute. Fig. 8 is a sectional side elevation illustrating a modification of ejector and shutter operating mechanism. Fig. 9 is a fragmentary front elevation, partly broken away, to illustrate the mechanism shown in Fig. 8. Fig. 10 is a fragmentary perspective view of the coin chute and package carrier to illustrate the manner of unlocking the shutter mechanism by means of the coin. Fig. 11 is a detail perspective view, partly in section, of the shutter actuating and locking mechanism; and Fig. 12 is a sectional detail view to show the manner of mounting the shutter-locking mechanism.

Similar characters of reference designate like parts throughout the different views of the drawings.

In the embodiment of my invention illustrated in the drawings I have shown the mechanism inclosed in a casing comprising a plate 8 constituting the back of the casing provided with hooked or substantially U-shaped flanges 9 at the side edges having slots 10 for a purpose to be hereinafter described. An intermediate plate 11, carrying the different mechanism of the apparatus, and the back plate 8 are removably secured

in a fixed position, as to the back of an opera chair, a wall, or a bracket to be conveniently located on a counter, by means of screws 12 or the like, a spacer sleeve 13 being interposed between the two plates so that the intermediate plate will set away from the back plate. A cover 14, to entirely inclose the mechanism of the apparatus, is provided with coin slots 15 in the top and slots 16 in the front through which the articles are ejected. The said cover is removably connected to the back plate 8, and for this purpose is provided with hooks 17 (Fig. 4) which pass through the slots 10 and engage back of the flanges 9 of the back plate and retained in such position by the tumbler of an ordinary lock 18 engaging under a forwardly extending projection 19 on the plate 8.

The package carriers or containers are connected to the intermediate plate 11 and comprise the side walls 20 bent up at right angles at the bottom, as at 21, and whereby the packages or articles (designated in a general way by A) to be vended are supported in superposed piles at the ends. The forward edges of the walls 20 are bent up at right angles, as at 22, whereby the packages are maintained in position in the containers, the said bent up portions 22 being cut away at the bottom to permit of the passage of a package as it is ejected. The coin chutes 23 are also connected to the intermediate plate 11 at the back thereof in line with the coin slots 15 in the cover and consist of a piece of sheet metal bent up to form hook-shaped flanges at the sides and whereby they are secured to the plate 11, the said edges being also provided with ears 24, 24' for a purpose to be hereinafter described.

The ejector mechanism comprises a rocker shaft 25 journaled in lugs secured to the back plate 8, one end of the shaft projecting out through a slot in the cover and provided with a handle or lever 27 outside of the casing. Sleeves 28 are mounted upon the shaft 25 directly under the coin chutes and package containers and are provided with ears or lugs 29 and fingers 30, the fingers adapted to pass through slots 33 in the lower end of the coin chutes. As already stated the deposited coin is utilized to form a part of the package ejecting mechanism. As the coin 32 is inserted in the slot 15 it passes down the chute 23 and falls upon the sleeve 28 between the ears 29 and fingers 30 where it is seated, the top of the coin being in position to engage in back of the lowermost package in the pile A, the fingers 30 engaging in back of the coin substantially midway thereof, as clearly shown in Figs. 1, 2 and 3. A forward pull is now applied to the lever 27 and the bottom package will be pushed from beneath the pile and out through the opening 16 in

the front of the cover, the coin after the package has been ejected dropping to the bottom of the casing, when the rocker shaft is returned to position for the reception of another coin by a spring 31.

To prevent the fraudulent removal of the packages or tampering with the apparatus through the ejector slot 16 I provide a shutter 34 normally engaging in back of the ejector slot, as shown at the right of Fig. 1. This shutter consists of a piece of sheet metal with the ends bent up and whereby it is pivotally supported upon the side walls of package container, as at 35. The shutter is thrown up away from the ejector slot 16 by the coin engaging with a cradle 36 pivotally connected to the cradle, as at 37, as the coin falls to position upon its seat on the sleeve 28, as clearly shown in Figs. 1 and 2. The cradle is also provided with the forwardly projecting guides 38 to guide the coin during its forward movement and prevent lateral movement thereof.

To prevent the ejector mechanism being partly operated so that a package will be partly ejected and then withdrawn, the ejector mechanism being returned to initial position and a second package ejected with the same coin, I provide means whereby the lever must be pulled to its full forward position before it can be returned to initial position. For this purpose I provide a pawl 39 pivotally carried by a lug on the sleeve 28 and caused by a spring 40 to engage with serrations or teeth in a latch or lever 41 pivotally carried by the side wall 20 of the package container. (Fig. 2.) As the shutter 34 is swung up away from the ejector slot 16 by the coin engaging with the cradle 36, a pin 42 on said shutter engaging in a slot in the latch 41 will cause it to bear against the pawl 39 so that the latter engages with the first notch or tooth in said latch, as shown in Fig. 2. As the lever 27 is pulled forward and the package is being ejected the pawl will ride over the latch notches and prevent the return movement of the lever, a pallet 43 adapted to engage with the shaft 25 preventing the forward throw of the pawl. However, as the package is ejected and the coin drops into the casing, and the shutter returns to normal position, the engagement of the pin 42 in the latch slot will throw the latch away from the pawl and permit the return of the lever by its spring.

To prevent the insertion of a coin after all of the packages have been ejected from the container, I provide a rocker plate 44 having a flange 45 adapted to engage under the coin slot 15, said rocker plate pivotally supported by a bar 46 in the chute-ears 24. A second rocker plate 47 is pivotally supported upon a bar 48 in the chute-ears 24, the upper end of which plate 47 engages in slots in a pair of ears 49 on the rocker plate

44. The lower end of the plate 47 is provided with a pair of fingers 50 which are adapted to engage with the lowermost package in the pile A, thereby maintaining the plate 44 in such position that it will rock the plate 44 so that it will be in the position indicated in Fig. 2. However, as the last package is ejected, the plate 47 being so balanced that the fingers will move forward thereby rocking the plate 44 so that the flange 45 will engage beneath the coin slot.

While I have shown the apparatus in the present instance as provided with three package containers or carriers, and the shaft 25 with three sets of ejector mechanisms, it will be obvious that a greater or less number may be employed.

In the construction shown in Figs. 8 to 12, inclusive, the shaft 25 is provided with a groove 25' which may extend the entire length thereof to serve as the coin seat. Rotatably mounted on the shaft 25, directly under the coin chute and package container, is a sleeve 28', one for each package carrier when the apparatus comprises more than one such carriers, said sleeve provided with the fingers or projections 30, the same as the sleeve 28, and a slot 30' to normally register with the groove in the shaft 25, so that when a coin is inserted in the chute it will pass through the sleeve-slot 30' and engage in the groove in the shaft, the coin acting as a key to lock the sleeve to the shaft, and as the shaft is rocked by means of its lever 27, the fingers 30 will engage in back of the coin and the coin engage with the lowermost package in the pile to force it from underneath the pile and out through the ejector slot. The shaft 25, as already stated, is returned to normal position by the spring 31, and the sleeve 28' is returned by a spring 31', the coin during such return movement of the sleeve rubbing or bearing against the lowermost package in the pile and thereby be drawn from its seat in the sleeve-slot and shaft-groove.

The shutter 34 is substantially similar as in Figs. 1 to 7, inclusive, and pivotally carried by the package carrier, with the exception that one of the arms is provided with a projection 70. To lock the shutter 34 in position so that it will engage in back of the ejector slot 16, which in this case is formed in a plate 16' extending across an opening in the front wall of the cover, I fix to the sleeve 28' an arm 73 having a pin 71 to engage in a slot 71' in the shutter arm so constructed that on the initial movement of the sleeve 28' and just prior to the ejection of the package through the slot 16 the pin is caused to oscillate the shutter by engaging with the forward wall of the slot. Upon the continued rocking of the shaft and sleeve and as the package is being ejected the pin 71 will maintain the shutter

34 away from the ejector slot by engaging with and riding along a cam face 70' on the shutter projection 70. As the shaft and sleeve are returned by their respective springs, the pin 71 will ride along the cam face 70' until it engages in the slot 71', the shutter closing by gravity.

To lock the shutter in position in back of the ejector slot to prevent tampering with the mechanism from the exterior or the fraudulent removal of the packages, I provide a rocker 79, fulcrumed upon the intermediate plate 11 by bending up the ends 82 of the rocker substantially at right angles and passing such ends through punched holes in said intermediate plate 11, the ends 82 having a cut-out portion in which the edge of the punch hole engages to provide a substantially knife-edge bearing. By bending back the portion which was punched out of the hole in the intermediate plate 11 the ends 82 of the rocker are prevented from being accidentally withdrawn from the hole, as clearly shown in Fig. 12. The rocker is provided with a pair of forwardly projecting arms 80 the ends of which are bent up to form latches to engage with jogs 81 on the shutter 34. The rocker is also provided with a finger 80' passing through a slot in the lower end of the coin chute in position in back of the coin. The fingers are so constructed that when a coin is deposited and during the initial movement of the shaft 25 the upper end of the coin will be tilted backward thereby engaging with the finger 80' and throwing the latches 80 out of engagement with the shutter jogs 81.

The lower end of the coin chute 23 is provided with a pair of forwardly projecting resilient or springy fingers 90 to engage the lateral edges of the coin as a forward motion is imparted to the latter and a package is being ejected. The distance between these fingers 90 is less than the width of the coin, but as the coin is moved forward by the shaft and sleeve the fingers will spread apart and permit the passage of the coin, springing back to initial position as soon as the coin has passed from between the same. When the coin has passed from between the fingers 90 the package has been ejected to an extent that it protrudes slightly from the ejector slot 16. Should the package be withdrawn and the shaft 25 rocked to return the coin to initial position to eject another package the coin will engage with the ends of the fingers 90 and be forced from its seat in the shaft and sleeve and drop into the bottom of the casing. These fingers 90 are provided to prevent the unloading of all of the packages from a package carrier by means of a single coin, by giving the shaft 25 a partial movement, or until the package slightly protrudes from the ejector slot whereupon it may be

grasped by the fingers and withdrawn, the coin being returned to initial position to eject another package.

Variations may be resorted to within the scope of my invention.

Having thus described my invention, I claim:

1. In a vending machine, the combination with a casing having a carrier for a superposed pile of packages and a coin chute, of a rock-shaft located beneath the coin chute and adjacent the lowermost portion of the package carrier and an operating lever fixed to the shaft, said shaft having a groove formed therein, a sleeve rotatably mounted on the shaft and having a slot normally registering with the groove in the shaft, and a pair of upwardly extending fingers carried by the sleeve and located upon the rearward side of the slot, the sleeve and shaft being located in such relation to the lowermost package in the package carrier and the coin chute that when a coin is deposited in the coin chute it engages in the sleeve slot and shaft groove locking the sleeve to the shaft, said fingers backing up said coin and said coin directly engaging with and ejecting the lowermost package from the pile, and means to return the sleeve and shaft to normal position.

2. In a vending machine, the combination with a casing having a carrier for a superposed pile of packages and a coin chute, of a rock-shaft located beneath the coin chute and adjacent the lowermost portion of the package carrier, an operating lever fixed to the shaft, said shaft having a groove formed therein, a sleeve rotatably mounted on the shaft and having a slot normally registering with the groove in the shaft, a pair of upwardly extending fingers carried by the sleeve and located upon the rearward side of the slot, the sleeve and shaft being located in such relation to the lowermost package in the package carrier and the coin chute that when a coin is deposited in the coin chute it engages in the sleeve slot and shaft groove locking the sleeve to the shaft, said fingers backing up said coin and said coin directly engaging with and ejecting the lowermost package from the pile, means to return the sleeve and shaft to normal position, and means to prevent the return of the shaft and sleeve to initial position until a full forward movement has been imparted thereto, said last named means comprising a latch pivoted upon the package carrier, and having a series of notches, a spring influenced pawl carried by the sleeve to engage with the latch notches, and means to maintain the latch in engagement with the

pawl during the forward movement of the sleeve and shaft and to throw and maintain it out of engagement with the pawl after a full forward movement has been imparted to the shaft.

3. In a vending machine, the combination with a casing having a carrier for a superposed pile of packages and a coin chute, of a rock-shaft located beneath the coin chute and adjacent the lowermost portion of the package carrier, an operating lever fixed to the shaft, said shaft having a groove formed therein, a sleeve rotatably mounted on the shaft and having a slot normally registering with the groove in the shaft, a pair of upwardly extending fingers carried by the sleeve and located upon the rearward side of the slot, the sleeve and shaft being located in such relation to the lowermost package in the package carrier and the coin chute that when a coin is deposited in the coin chute it engages in the sleeve slot and shaft groove locking the sleeve to the shaft, said fingers backing up said coin and said coin directly engaging with and ejecting the lowermost package from the pile, means to return the sleeve and shaft to normal position, and a pair of fingers connected to the coin chute with which the coin engages to unseat said coin as the shaft and sleeve are returned to normal position.

4. In a vending apparatus, the combination with a container for a superposed pile of packages and a coin chute, of ejector mechanism comprising a rock-shaft extending below the coin chute and having a groove therein; a sleeve rotatably mounted on the shaft having a slot normally registering with the groove in the shaft, the deposited coin engaging in the slot in the sleeve and shaft groove to lock the sleeve to the shaft, said sleeve provided with a pair of fingers to engage in back of the coin; an operating lever connected to the shaft whereby to rock the shaft to impart a forward movement to the coin to eject the lowermost package from the pile; and means to unseat the coin as the ejector mechanism returns to initial position, comprising a pair of resilient fingers connected to the coin chute to engage with the lateral edges of the coin, said fingers converging inward at the free ends but adapted to spread apart as the coin is moved forward, and as the coin passes from between said fingers springing together and preventing the return of the coin to initial position.

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