

No. 681,686.

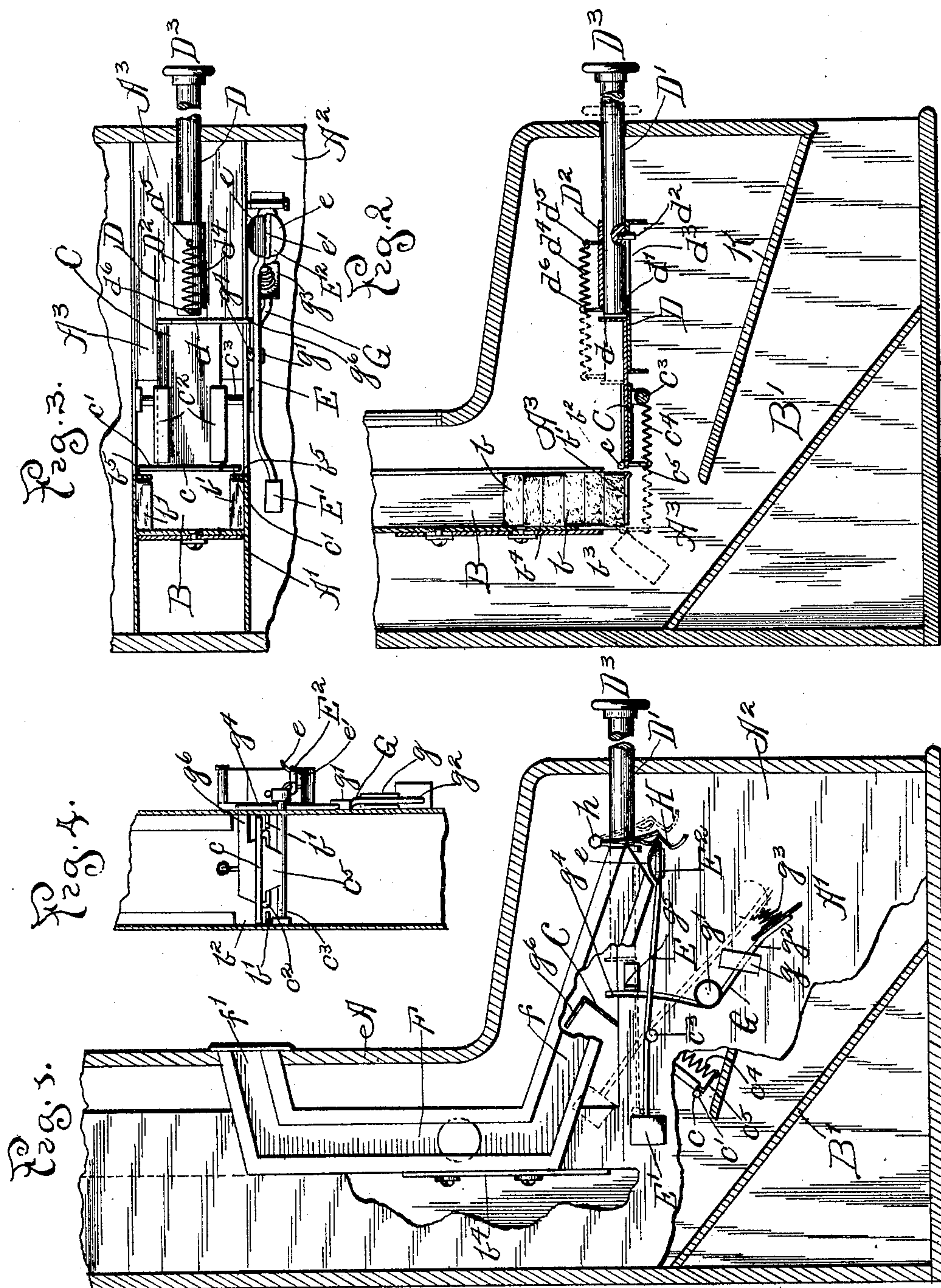
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AUTOMATIC VENDING MACHINE.

(Application filed Nov. 30, 1898. Renewed Jan. 23, 1901.)

(No Model.)



Witnesses!

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AUTOMATIC VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 681,686, dated September 3, 1901.

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To all whom it may concern:

Be it known that I, WALTER DYER, a subject of the Queen of Great Britain, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Vending-Machines, of which the following is a specification.

My invention relates to apparatus controlled by the deposit of a coin for the sale of small articles of merchandise, such as chewing-gum, candy, and other goods capable of being stacked or superposed in columns or otherwise to present the lowermost only at the delivery-point; and it consists in combining with a coin-chute a counterbalanced coin-lever receiving therefrom, a tilting discharge-slide swung into effective position by the weight of the coin deposited upon said lever, a thrust-rod engaging with said slide when in such position, and a merchandise-receptacle having lateral openings at its bottom swept by said slide when impelled by the thrust-rod; in combining with a coin-chute and counterbalanced coin-lever receiving therefrom and with delivery apparatus controlled by said lever a catch engaging with said lever in position to be unlatched by the impact of the coin falling thereon from the chute simultaneously with its reception in the pan thereof; in combining with a coin-chute and counterbalanced coin-lever receiving therefrom and having a slotted coin-pan to receive the coin edgewise and with delivery apparatus controlled by said lever; a yielding coin-ejector positively actuated by said delivery apparatus in its effective discharging movement to move against the bottom of the coin-pan and lift the coin therefrom, and in the various other combinations and details of construction hereinafter described and claimed.

In the drawings, Figure 1 is a sectional side elevation through the coin-box of apparatus embodying my invention, partly broken away to show the delivery devices beyond. Fig. 2 is a second sectional side elevation through the merchandise-receptacle and delivery-chute, showing in full and dotted lines two positions of the delivery apparatus. Fig. 3 is a horizontal section, partly broken away,

showing the coin-lever and delivery apparatus in plan view; and Fig. 4 is a sectional rear elevation, also partly broken away, embracing said coin-lever and delivery apparatus, together with the coin-ejector.

A represents a suitable casing divided by a vertical partition A' into a coin-chamber A² and merchandise-chamber A³, the former containing the coin-chute and tripping devices and the latter the merchandise-receptacle B, merchandise-chute B', and delivery mechanism.

The merchandise-receptacle herein shown is a vertical way adapted to receive a column of rectangular or flat packages *b* of chewing-gum, candy, or similar articles. This receptacle is provided with lateral bottom ledges *b'* and with a front opening *b*² immediately above the bottom ledges for the passage of the delivery-slide and a rear opening *b*³ for the discharge of the lowest package. An adjustable slide *b*⁴ regulates the vertical height of the rear opening to correspond with the thickness of the packages made up for sale. The front of the receptacle may be formed by vertical flanges *b*⁵, leaving an opening to expose the contents.

C is the delivery-slide, the body of which is made less in width than the space between the lateral bottom ledges of the merchandise-receptacle, so as to pass between them, and is provided upon the end adjacent to the receptacle with a flange *c* to engage the package resting upon said ledges, this flange extending into fingers *c'*, projecting laterally over the bottom ledges of the receptacle, so as to hold the slide up to its work in its passage therepast. The slide moves in guides *c*², secured to a rock-shaft *c*³, and is held normally back in said guides by a contraction-spring *c*⁴, connecting a hanger *c*⁵ from said slide with the rock-shaft or other suitable fixed point. A table D is arranged in the front part of the casing in such manner that when the guides are rocked into a horizontal position the outer end of the slide rests upon said table and its body is alined with the bottom ledges of the merchandise-receptacle, so that if pushed theretoward its lateral fingers will ride over said ledges and retain it against tilting until they have passed completely be-

yond them. To impart such movement to the slide, a thrust-rod D' is mounted in a sleeve D^2 on said table, so that an upstanding flange d on the end of the slide comes immediately in advance of the inner end d' of the rod whenever said slide is brought to rest upon the table. A pin d^2 from the rod, working in a slot d^3 in the table, serves to hold said rod against rocking and to stop it at either extreme of its traverse. A knob D^3 upon the rod exterior to the casing provides a convenient handle by which it may be pushed in, and a spring d^4 , connecting lug d^5 from the guide-sleeve with pin d^6 from the rod, resists such inward thrust and restores it to normal position when released.

In Fig. 1 the inoperative position of the parts is indicated in full lines, the slide with its guides being tilted, so that the thrust-rod may be pushed in without engaging it or causing any merchandise to be discharged. This is its normal position, and it can only be brought to the operative position indicated in dotted lines in said figure and in full lines in Fig. 2 by rocking the shaft which carries the guides. To this end the shaft is extended through into the coin-compartment and there receives a coin-lever E , one end of which carries a counterbalance E' of sufficient weight to normally retain the slide in its inoperative position and restore it thereto whenever free from counteracting agencies, the other having flaring wings e and central slot e' for the reception edgewise of a coin or being otherwise suitably shaped to receive and temporarily retain such coin.

F is a coin-chute delivering by inclined way f to the pan of the coin-lever, so that upon the insertion of a coin into the mouth f' of the chute said coin will descend therealong until it drops into said pan and is directed by its wings into the slot thereof, overbalancing the weight at the other end of the lever and causing the latter to tilt until the delivery-slide is carried into the position indicated in full lines in Fig. 2, where it is stopped by contact with the table, and with it the lever, as represented in dotted lines in Fig. 1, in which position the coin still rests in the pan to hold the slide down until the thrust-rod has been pushed inward sufficiently to cause the lateral fingers at the advancing end of the slide to engage over the bottom ledges of the merchandise-receptacle, thereby locking slide and lever during the remainder of the passage of said fingers over the ledges. Before this is accomplished, however, it is necessary or at least desirable that the coin should be discharged from the pan in order that the slide and the lever may return to normal inoperative position when the lock is broken by the fingers riding off of the further end of the ledges. To this end a bent lever G , playing in keeper g , is pivoted at g' beneath the coin-lever and its lower arm provided with a spring g^3 , herein shown as coiled, but not necessarily so, which spring

comes immediately beneath the slot in the pan of the coin-lever when the latter is tilted to its full extent, but not in contact with such pan, sufficient clearance being allowed to keep the coin from being prematurely ejected by striking the spring when the pan reaches the limit of its descent. The upper arm g^4 of this bent lever, hereinafter called the "ejector-lever," projects above the surface of the table D and is normally held in contact with a stop g^5 by the overbalancing-weight of the lower arm, and when the delivery-slide is swung down upon said table by the tilting of the coin-lever, induced by the deposit of a coin thereon, a lateral push-lug g^6 from said slide closes down in front of said arm, so that when the slide is pushed in to discharge a packet the ejector-lever will be rocked upon its pivot, carrying the spring up against the pan of the coin-lever and pushing the coin out of the slot therein. As the coin-lever is at the moment held unyieldingly the yielding of the spring compensates for any further movement of the ejector beyond that necessary to clear the coin from the slotted pan until the push-lug from the slide passes off of the arm g^4 and releases said ejector, when the sudden expansion of the spring will tend to restore it to normal. Preferably this release of the ejector is synchronous with the unlocking of the slide by the arrival of its lateral fingers at the point where they fall off from the bottom ledges of the merchandise-receptacle, so that the sudden expansion of the spring acts not only to instantly restore the ejector to normal, but also to so restore the slide and coin-lever.

In order to lock the coin-lever against tampering and to prevent it from being tilted otherwise than by coins of the requisite weight and diameter, I employ a latch H , which engages it in its normal position and is opened only by the deposit in the pan of a coin of such diameter as to push it aside. This latch may be a gravity-catch, as shown, suspended from pivot h above the pan end of the coin-lever, so shaped as to be pushed aside by the lever as it is returned to normal position after the delivery-slide has been actuated and to immediately swing back and engage with the outer edge of the pan and of such an outline above the engaging notch that as a coin of the requisite size is discharged from the chute into the pan and settles in place therein it shall strike it and push it out of engagement, permitting the lever to tilt if the coin is also of the requisite weight. Since the ejector-spring may be caused to restore the coin-lever, as above explained, this latch may supplement a deficient counterbalance-weight or take the place of one altogether; but in this case the size of the coin alone will determine the operation of the mechanism, and its weight will be an insignificant factor.

To prevent the tilting of the delivery-slide

into effective position by instrumentality inserted from beneath, a shield K is interposed between said chute and the overlying table and slide.

5 In operation a coin of the requisite size and weight being deposited in the coin-chute descends therein until it rolls upon the pan of the coin-lever, sinking edgewise into the slot therethrough and striking against and releasing the latch, when the lever sinks beneath its weight, thus bringing the delivery-slide down upon the table. The thrust-rod is now pushed in, moving the slide against the lowermost package in the merchandise-receptacle 10 until its lateral fingers ride upon the bottom ledges of said receptacle, when the lug from the slide engages the upper arm of the ejector-lever and forces the spring-carrying arm thereof toward the coin-pan, compressing the spring thereagainst and ejecting the coin. 15 As the delivery-slide moves on, discharging the lower package, the spring is still further compressed until, in case the parts are adjusted to that end, the push-lug from the delivery-slide rides off the end of the ejector simultaneously with the fall of the lateral fingers from said slide over the rear ends of the bottom ledges and the instantaneous breaking of the lock upon said slide. As the inner 20 end of the thrust-rod is at the moment very nearly above the rock-shaft, its action upon the slide, in connection with retraction-spring c^4 , is rather to intensify the snap with which such lock is broken, and the ejector-spring beingsuddenly released acts both against the coin-lever and the ejector-lever to throw them forcibly away from each other and restore them to normal. The thrust-rod having of course been released as soon as this operation 40 took place and the packet having been delivered, all parts are now at rest, incapable of effective operation until again tipped by the deposit of purchase money.

Having thus described my invention, I desire it to be understood that I do not limit myself to the specific details of the apparatus hereinbefore described, believing myself to be, among other things, the first to combine with a delivery-slide and a pushing device 50 therefor coin-controlled apparatus which normally holds said slide bodily out of the path of the pushing device, but throws it into said path upon the introduction of a coin; the first to combine with a coin-lever, tilted by the weight of the coin, a locking-latch opened 55 by the size of the coin as it settles into place in the pan of the lever, and the first to combine with a coin-lever depressed by the weight of the coin and a latch to hold it and with the delivery mechanism a lock to hold said lever down while the delivery mechanism is being operated and a spring concurrently compressed to restore said lever to place when said lock is broken.

65 I claim—

1. The combination with a merchandise-receptacle, of a delivery-slide for discharging

goods therefrom by thrusting impact, a pushing device for said slide, and coin-controlled apparatus normally holding said slide out of 70 the effective path of the pushing device but throwing it therein upon the reception of a suitable coin.

2. The combination with a coin-chute, of a tilting coin-lever receiving therefrom, a tilting delivery-slide swung into effective position by the weight of the coin deposited upon said lever, a pushing device engaging with said slide only when in such position, and a merchandise-receptacle having lateral open- 80 ings at its bottom swept by said slide when moved in by the pushing device.

3. The combination with a coin-chute, of a counterbalanced coin-lever receiving therefrom, a tilting delivery-slide swung into effective position by the weight of the coin deposited upon said lever, a spring-retracted thrust-rod engaging with said slide only when in such effective position, and a merchandise-receptacle having lateral openings at its bottom swept by said slide when impelled by the thrust-rod. 85

4. The combination with a merchandise-receptacle, of a delivery-slide for discharging goods therefrom by thrusting impact, a manually-controlled pushing device for said slide, coin-controlled apparatus normally holding said slide out of the effective path of the pushing device but throwing it therein upon the reception of a suitable coin, and a locking 100 device acting only during the passage of said slide across the foot of the merchandise-receptacle, to hold it in such effective position.

5. The combination with a coin-chute and a tilting coin-lever receiving therefrom, of a tilting delivery-slide swung into effective position by the tilting of said lever under the weight of the coin deposited thereon, a pushing device engaging with said slide only while in such effective position, a locking device acting only during the passage of said slide across the foot of the merchandise-receptacle, to hold it in its said effective position, and means for restoring said slide to its normal ineffective position at the end of said 115 movement.

6. The combination with a coin-chute and with a tilting coin-lever receiving therefrom, of a merchandise-receptacle having lateral bottom ledges and front and rear openings immediately above said ledges, a tilting delivery-slide for traversing the space between said ledges, having an abutment and lateral fingers to sweep said lateral openings and engage with said ledges, and swung into effective position by the tilting of said coin-lever by the weight of the coin deposited thereon, a pushing device engaging with said slide only when in its effective position, and means for restoring said slide to its normal ineffective position when it passes from engagement with said ledges. 120 125 130

7. The combination with a coin-chute and tilting coin-lever receiving therefrom and

having a slotted coin-pan to receive and hold the coin edgewise, and with delivery mechanism controlled by said lever, of a positively-actuated elastically-yielding ejector or clearer moved against the bottom of the coin-pan after the coin-depressed lever has come to rest, to discharge the coin therefrom.

8. The combination with a coin-chute and tilting coin-lever, of a delivery-slide brought into effective position by the tilting of said lever under the weight of the coin deposited thereon, a manually-controlled operating device for actuating such delivery-slide while in its effective position, a locking device engaging said slide during its movement of delivery only, to retain it in effective position, and a positively-actuated ejector or clearer acting upon the coin after said locking device has engaged, to discharge it from the coin-lever.

9. The combination of a coin-chute and tilting coin-lever having a slotted coin-pan to receive and hold the coin edgewise, of delivery apparatus controlled by said lever, a manually-controlled operating device for actuating said delivery apparatus, an ejector-lever one arm of which projects beneath the coin-pan to close against its bottom and lift the coin therefrom, and a lug forced positively against the other arm of said lever during the conjoint movement of the manually-controlled operating device and delivery apparatus.

10. The combination with a coin-chute and tilting coin-lever having a slotted coin-pan, of a delivery-slide brought into effective position by the tilting of said lever under the weight of the coin received in its pan, a manually-controlled operating device for actuating said slide while in its effective position, an ejector-lever one arm of which projects beneath the coin-pan and the other arm of which rises alongside the effective position of the delivery-slide, and a lateral lug on said delivery-slide, arranged to engage with said arm as the slide is pushed inward.

11. The combination with a coin-chute and tilting coin-lever having a slotted coin-pan, of a delivery-slide brought into effective position by the tilting of said lever under the weight of a coin received in its pan, a manually-controlled operating device for actuating said slide while in its effective position, an ejector-lever, one arm of which projects beneath the coin-pan, and the other arm of which rises alongside the effective path of the delivery-slide, a lateral lug on said slide, arranged to engage with said arm as the slide is pushed inward, and a locking device which engages said slide before the ejector-lever is rocked, to hold it in said effective position.

12. The combination with the coin-lever

having a slotted coin-pan, and with the ejector-lever, of the spring carried by the latter beneath said coin-pan.

13. The combination with a tilting coin-lever and a delivery-slide normally held out of effective position thereby, but carried into effective position by the tilting of said lever, of a manually-controlled pushing device acting upon said slide while in effective position, a locking device acting to hold the tilting lever depressed while the slide is being pushed through its path of discharge, and a spring concurrently compressed against said lever and acting upon it to restore it to normal position when the lock is broken.

14. The combination with a tilting coin-lever having a slotted coin-pan, of a delivery-slide normally held out of effective position by said lever, but carried into effective position when it tilts, a manually-controlled pushing device acting upon said slide while in effective position, a locking device holding such slide in said position while being pushed, and with it the coin-lever in its tilted position, an ejector-lever actuated after the locking device is engaged, to discharge the coin from the coin-pan, and a spring carried by said ejector-lever and compressed against the coin-lever in its movement.

15. The combination with the tilting coin-lever and its coin-receiving pan, and with the coin-chute, of a latch holding said lever in normal position and arranged to be struck and disengaged by the deposit of a coin in said pan, simultaneously with its reception therein.

16. The combination with the coin-chute and with the tilting coin-lever having a slotted pan to which said chute delivers the coin edgewise, of a latch engaging with said pan to hold the lever at normal and arranged to be disengaged by the impact of the coin as it settles into the slot in the pan.

17. The combination with a coin-lever and a latch to hold it, opened by the size of the coin, and with the delivery mechanism, of a lock to hold said lever down while the delivery mechanism is being operated and a spring concurrently compressed to restore said lever to place and cause it to engage with the latch when the lock is broken.

18. The combination of the coin-lever, the rock-shaft to which it is secured, the ways secured to said rock-shaft, the delivery-slide mounted in said ways, the retraction-spring acting on said slide, the table, the thrust-rod and the merchandise-receptacle.

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