

No. 614,553.

Patented Nov. 22, 1898.

A. & O. JAEGER.
AUTOMATIC VENDING MACHINE.

(Application filed Feb. 3, 1898.)

(No Model.)

3 Sheets—Sheet 1.

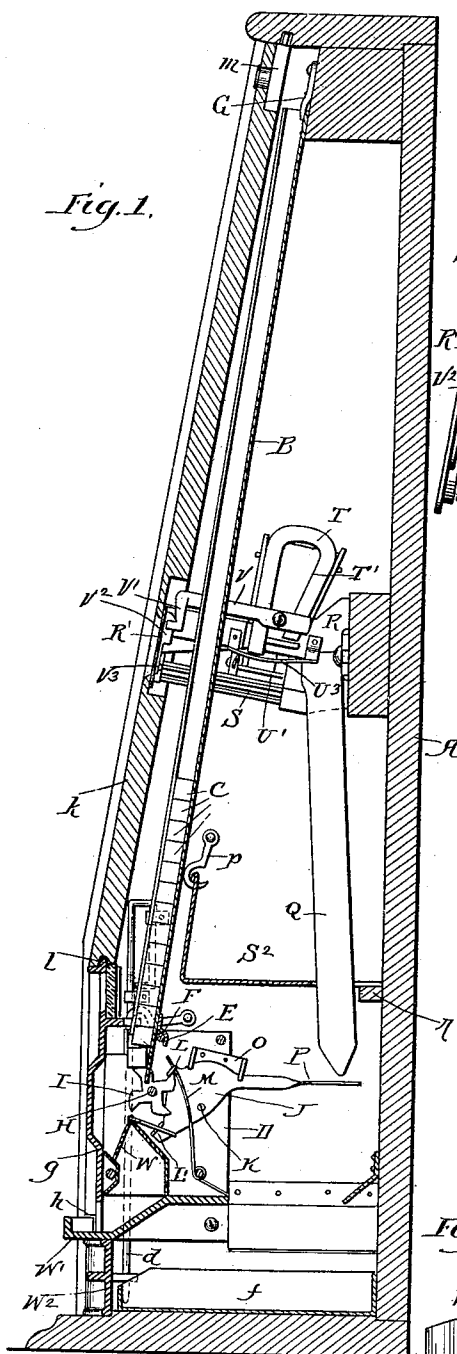


Fig. 1.

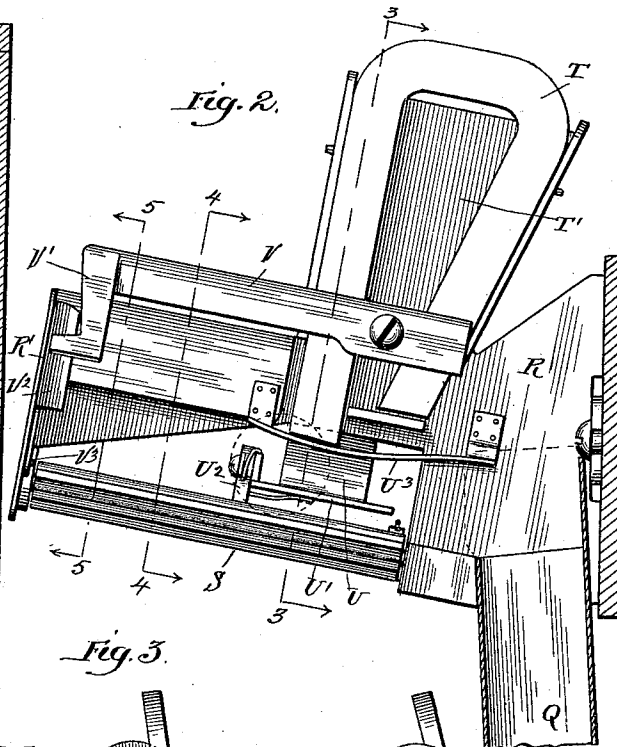


Fig. 2.

Fig. 3.

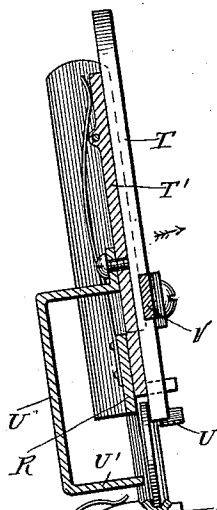


Fig. 4.

Fig. 5.

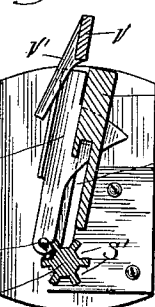
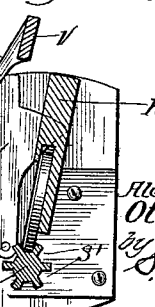


Fig. 6.



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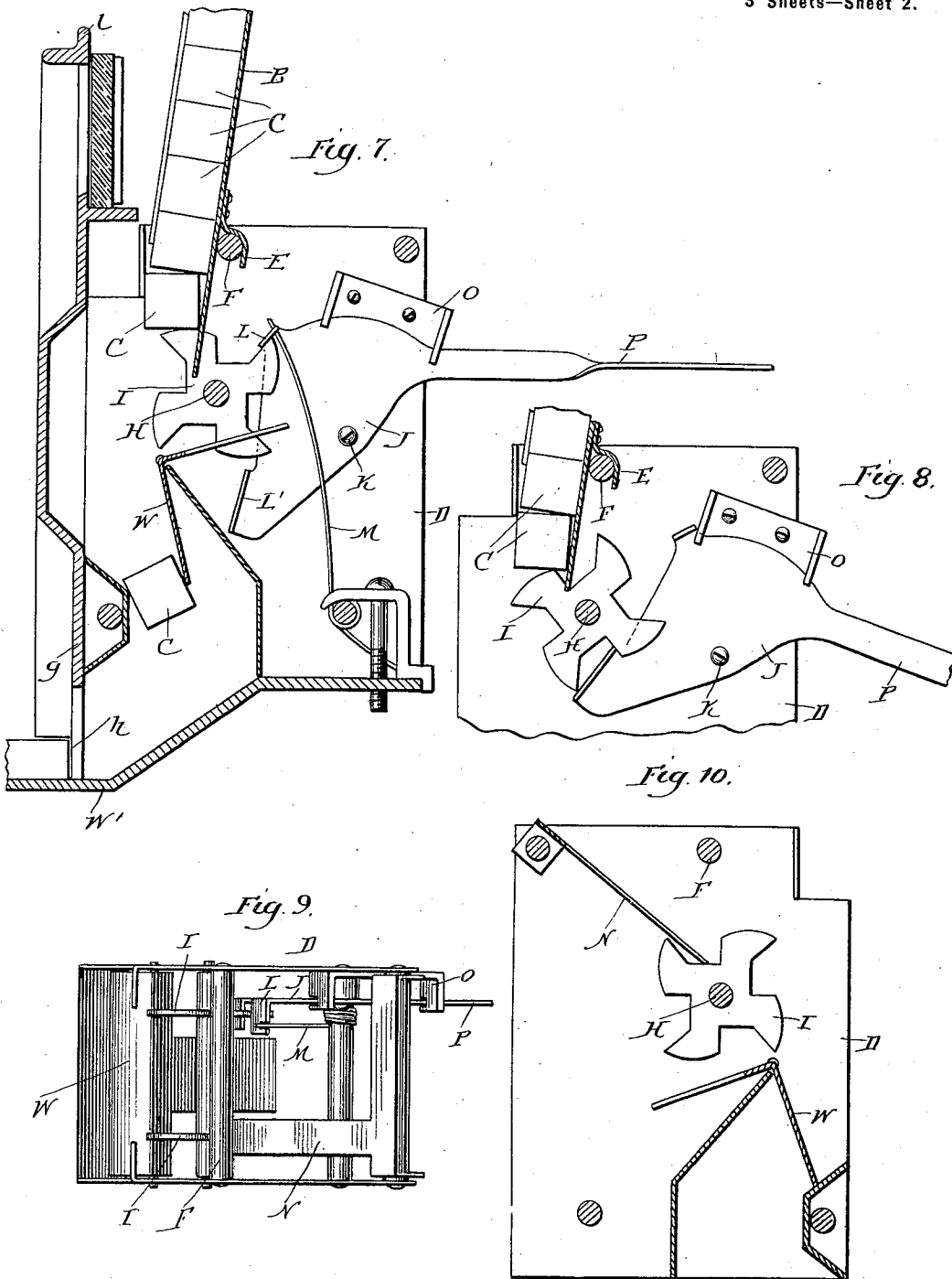
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3 Sheets—Sheet 2.

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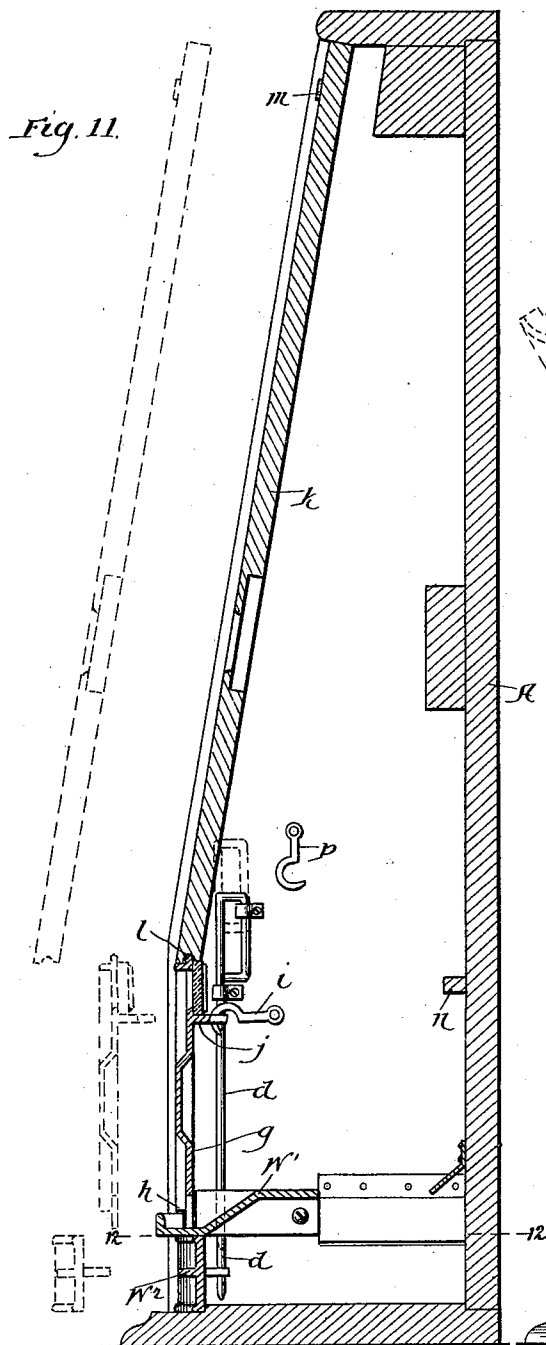
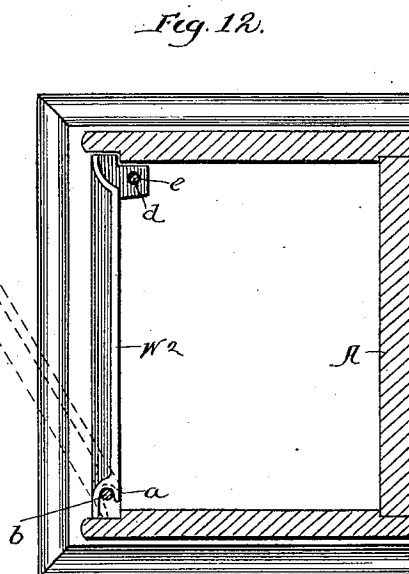
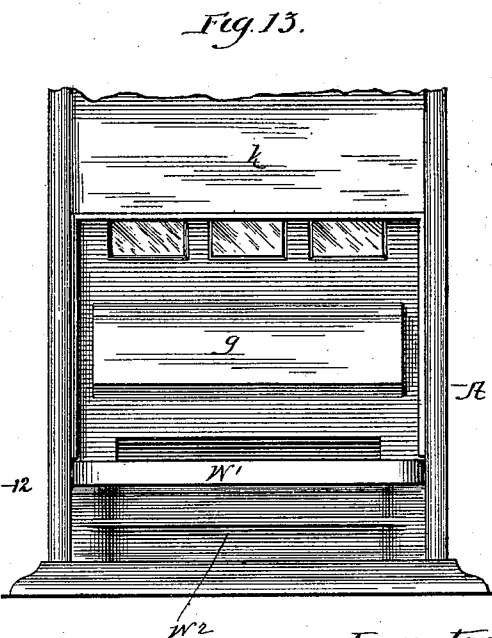
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

ALEXANDER JAEGER AND OTTO JAEGER, OF PHILADELPHIA,
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AUTOMATIC VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 614,553, dated November 22, 1898.

Application filed February 3, 1898. Serial No. 668,951. (No model.)

To all whom it may concern:

Be it known that we, ALEXANDER JAEGER and OTTO JAEGER, citizens of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improvement in Automatic Vending-Machines, of which the following is a specification.

Our present invention relates to a new and useful improvement in automatic vending-machines, and has for its object to provide a coin-detector of such construction as to render impossible the passage of iron or steel disks to the money-drawer of the machine, even though said disks be of a size which exactly correspond with the coin intended to be used in operating the mechanism of the machine, and to discharge these disks, which have been detected, to one side of the chute and outside of the trough by the insertion of the next coin or disk; also, to prevent the money-passage from being clogged by paper, wood, or other material.

A further object of our invention is to provide for the automatic discharge of the articles being vended, thus avoiding the necessity of having to operate a lever or pull for the ejection of said articles, and a still further object of our invention is to generally improve the construction and arrangement of devices of this description.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a vertical section, taken through the center of one of the holders, showing the articles therein resting upon the trip-wheels and the mechanism in its normal position ready to be actuated by a coin so as to eject the lowest of the articles in the holder; Fig. 2, an enlarged side view of the coin-detector, the upper portion of the chute being shown in elevation; Fig. 3, a section at the line 3 3

of Fig. 2, looking in the direction of the arrows; Fig. 4, a section at the line 4 4, also looking in the direction of the arrows; Fig. 5, a section at the line 5 5, looking in the direction of the arrows marked adjacent thereto; Fig. 6, a view similar to Fig. 5, but showing a coin inserted within the slot and the mechanism for ejecting the spurious coins and other articles forced sidewise; Fig. 7, an enlarged section of the trip mechanism, illustrating the manner in which the articles to be vended are extracted from the holder and conveyed to the tray; Fig. 8, a view of the trip mechanism, showing the trip-wheels as having been partially rotated by the action of the escapement and weight of the articles in the holder; Fig. 9, a plan view of the escapement mechanism and its frame; Fig. 10, a view similar to Fig. 7, but looking in the opposite direction and showing the pawl for preventing a retrograde movement of the trip-wheels and also the swinging gate for permitting the outgo of the articles to be vended, but adapted to prevent tampering with the mechanism; Fig. 11, a vertical section of the case, illustrating the manner of locking the panel which protects the money-drawer; Fig. 12, a horizontal section of the case, further illustrating the manner of securing the panel which protects the money-drawer; and Fig. 13, a front elevation of the lower portion of the machine.

In carrying out our invention as here embodied A represents the casing, which is preferably made of wood and of any suitable design to hold the operating parts of the device and the material to be vended, and within this case is located the holders B, which may be in any number to suit the requirement of the particular use to which the machine is to be put, and these holders are so constructed as to receive and hold the articles C, which are to be vended in small packages. Within the lower portion of the machine are placed a series of trip mechanisms D, which correspond in number to the number of holders, and the frame of these mechanisms support the lower ends of the holders by means of clips E, formed upon the back of the holders, engaging with the cross-pins F, while the upper ends of the holders are held in place by

the turn-button G, thus facilitating the removal of these holders when occasion may require, as will be readily understood.

Each of the trip mechanisms consists of a shaft H, which is journaled in the side plates of the frame and has secured thereon two escapement-wheels I, each having four teeth or notches therein. These escapement-wheels are so located relative to the lower ends of the holders that the articles contained within the holders rest upon one of the teeth of each of the wheels, thus preventing the downward movement of the articles so long as the wheels remain in the position shown in Figs. 1 and 7. These wheels are held in this position by the trip-lever J, which is pivoted at K and has formed thereon the escapement-teeth L and L', a spring M normally holding the escapement-tooth L in engagement with one of the teeth of the escapement-wheel, so that to trip these escapement-wheels it is only necessary to swing the escapement-lever so as to carry the escapement-teeth upward, causing the tooth L to pass out of engagement with the teeth of the escapement-wheel, while the tooth L' enters into engagement with another tooth of this holder and acts after the manner of a cam to insure the initial movement of the escapement-wheels, and this, in connection with the weight of the articles within the holder, which, as clearly shown, is beyond the center of the shaft H, will cause the escapement-wheels to revolve one step or a distance equal to one-half of one of the teeth of the escapement-wheels, thereby bringing the mechanism to the position shown in Fig. 8. Now when the escapement-lever is released the spring M will return to its normal position and in so doing again permit the escapement-wheels to revolve another step, which will be equal to the half of a tooth, and consequently these two steps will have equaled the movement of one tooth and permitted the last package in the holder to drop therefrom. This of course will cause the articles remaining in the chute to fall a distance equal to the package removed and the next lowest package to rest upon the teeth of the escapement-wheels, as before described. To prevent a retrograde movement of the escapement-wheels, a pawl N is so pivoted as to engage with the teeth thereof at the proper junction, and thus hold the wheels while the escapement is not acting thereon.

O is a stop-plate secured to the frame of each of the escapement mechanisms and so located as to limit the movement of the escapement-lever in both directions, and the escapement-lever has an extension P projecting rearward therefrom, the outer portion of which is turned flat to afford a suitable surface against which the coin may strike when dropping from the chute Q.

A bracket R is secured to the back board of the casing and serves to support that portion of the mechanism which receives the coin from the slot, sizes and tests the same be-

fore permitting it to pass to the chute, and ejects those coins and imitations of coins or other articles which are not up to standard, it being understood that there are as many brackets and mechanisms carried thereby as there are holders. An escutcheon R' is attached to the front portion of the bracket and has a slot R² therein for the insertion of the coin, and immediately back of this escutcheon is journaled a rod S, in which are formed longitudinal grooves S', giving this rod in cross-section the appearance of a pinion. Each of the grooves in the rod may serve as a guide for the coin after entering the slot, and as the rod is set upon an incline the tendency of the coin when entering the top groove is to roll rearward, and if it be of standard metal it will pass to the chute Q and, dropping downward, fall upon the rear end of the lever P, depressing the same and bringing about the movement of the escapement-wheels, as before set forth, to extract one of the articles contained within the holder.

The chute Q is set upon an angle, and the lower side thereof is cut away, so as to just afford a bearing for a coin of standard size, so that should the coin or imitation be of less than standard size it will be dropped from the chute in its downward passage and be caught in the pan S². A horseshoe-magnet T' is secured to the plate T', which latter is pivoted within a portion of the bracket, so as to swing sidewise in the direction of the arrow marked adjacent thereto, and one pole of this magnet normally lies just to one side of the path of travel of the coin, as clearly indicated in Fig. 3, so that the coin in its passage from the slot to the chute must come in close proximity to this pole, and should an iron or steel disk be inserted within the slot for the purpose of operating the machine when reaching this pole it will be attracted thereby and prevented from gaining access to the chute. It is obvious that while the spurious coins or other articles thus stand in the passage-way between the slot and the chute a standard coin cannot reach the chute to operate the machine, so that it is essential that this spurious coin be ejected from the passage-way, and this we accomplish in the following manner:

An arm U is secured to the plate T' and so bent as to form a push-off or ejector U', which normally lies to one side of the passage-way through which the coin passes, and this arm also has pivoted thereto a pawl U², the nose of which engages with the grooves in the rod S, so that it is only necessary to force the plate T' to one side in the direction of the arrow to swing the magnet in this direction and at the same time force the ejector U' against the spurious coin and likewise operate the pawl U² to revolve the rod one step, which will carry the lower portion of the coin or other articles sidewise, and a strip U³ will prevent the upper portion of the spurious coin following the pole of the magnet, thus freeing said coin and permitting it to drop

into the pan S^2 , as clearly shown in Fig. 4. The slot in the escutcheon is of such a size as to just admit a coin of the proper dimension, so that unless the coin is of standard size or
 5 it cannot be inserted, whereas should it be under standard size it will drop from the chute, as before set forth, and should it be of iron or steel it will be ejected before reaching the chute, thus avoiding the possibility of the
 10 machine being operated by spurious or imitation of coin.

The ejector is operated upon the insertion of each coin by means of a bar V , which is secured to the plate T' and has formed there-
 15 with an arm V' , which extends downward and into contact with the lever V^2 , the latter being pivoted at V^3 and lying partially across the slot, so that when inserting a coin this lever must be forced sidewise and in turn
 20 force the arm V' sidewise and bring about the movement of the plate T' , which actuates the ejector mechanism, as before set forth. This will eject the spurious coin or other articles and leave the passage clear for the next coin
 25 to pass to the chute.

When the rod S is revolved one step, the next groove comes into position and acts as a guideway until again revolved, and this is of considerable importance in that should par-
 30 ticles of grit or foreign matter become lodged in the groove being used as a guideway it will fall therefrom when revolved, so that when this groove again comes into position it will be free from the obstruction of the passage
 35 of the coin. A pawl V^4 is arranged to engage with the grooves in the rod S and prevents a retrograde movement thereof.

When one of the packages has been with-
 40 drawn from the holder, it will in its downward movement come in contact with the gate W , the latter being so pivoted and weighted as to normally remain closed, as shown in Figs. 1 and 10, and when this package comes in contact therewith the gate will be swung
 45 open and the package permitted to continue its downward movement until reaching the tray W' , the rear portion of said tray being inclined, so as to slide the package forward into plain view of the customer. After the
 50 package has passed the gate the latter will again close, and thus form an effective obstacle for the insertion of a wire or other implement for the unauthorized operation of the trip mechanism which would tend to withdraw the
 55 packages.

From this description it is obvious that the would-be purchaser has only to insert the coin within the slot to set in operation the proper mechanism for the extraction of a package
 60 from either of the holders, and no further manipulation of the machine is necessary, since the entire operations are performed automatically and the package dropped into the tray in plain view, from which it may be
 65 removed.

A tray W' is secured between the sides of the casing by suitable screws, and beneath

the front portion thereof is fitted a plate W^2 , as shown in Fig. 12, said plate having a forked end a , which fits around a pin b , so that the
 70 plate may be swung after the manner of a hinged door, and yet when partly swung open may be removed and when closed is held in place by the bolt d , fitted to slide upon one side of the casing and its lower end to enter
 75 a hole e , formed in the lug projecting from the plate. The bolt being inside of the casing when the latter is closed, it will be seen that access cannot be had to the bolt to re-
 80 lease the plate, and thus the money-drawer f cannot be tampered with. The face-plate g is held in place by its lower edges entering into engagement with the notches formed in the tray, as indicated at h , and the engage-
 85 ment of the hooks i with the lugs j , and finally the casing is closed by the front board k , which has a groove in its lower edge adapted to fit over the bead l , formed upon the upper edge
 90 of the face-plate, and a suitable lock is located at m for securing the upper portion of this front board. This arrangement permits of
 95 ready access to any portion of the machine, and especially to the holders and to the money-drawer. The pan for spurious coins rests upon the ledge n , its front edge being sup-
 100 ported by the hooks p , and is thereafter easily removed when occasion requires.

Of course we do not wish to be limited to the exact details of construction here shown, as these may be varied to some extent with-
 105 out departing from the spirit of our invention.

Having thus fully described our invention, what we claim as new and useful is—

1. In a vending-machine, a coin-testing mechanism consisting of a grooved rod acting
 105 as a coin-guide, a magnet pivoted to swing at right angles to said rod, and means for actuating said magnet, substantially as described.

2. In a vending-machine, a grooved rod to act as a coin-guide a magnet pivoted to in-
 110 tercept a spurious coin of magnetic metal, and means connected with the magnet for forcing the latter sidewise, as and for the purpose described.

3. In a vending-machine of the character
 115 described, a coin-testing mechanism consisting of a grooved rod so journaled as to act as a guide for the coin from the slot to the chute, a pivoted magnet so arranged as to intercept an imitation coin of magnetic metal, means
 120 connected with the magnet for forcing the latter sidewise when the next coin is inserted within the slot, and means for revolving the grooved rod with the sidewise movements of the magnet, as and for the purpose set forth.
 125

4. In combination with a machine of the character described, a coin-detector consist-
 130 ing of a suitable bracket, a grooved rod journaled therein, a magnet pivoted upon the bracket, a bar attached to the magnet, a lever arranged to partly cross the slot and in contact with an arm of the bar, so that the insertion of a coin within the slot will swing the magnet sidewise, a pawl so carried that

the sidewise movements of the magnet will cause it to revolve the grooved rod, a pawl for preventing the retrograde movement of the rod, an ejector also moving in unison with
5 the magnet, and a strip for forcing the spurious coin from the pole of the magnet, as and for the purpose set forth.

5. In a vending-machine, a holder containing the articles to be vended, escapement-
10 wheels arranged beneath said holder said wheels having notches formed therein producing teeth, the lower edges of said teeth being in the form of cams, a trip-lever, escapement-teeth projecting from the end thereof, one of
15 said teeth normally engaging the upper sides

of the teeth of the escapement-wheel to hold it against movement, and the other upon a movement of the lever being adapted to engage the under sides of said teeth to force said wheels around, and an extension formed
20 upon said lever on which the coins strike, as and for the purpose described.

In testimony whereof we have hereunto affixed our signatures in the presence of two subscribing witnesses.

ALEXANDER JAEGER.
OTTO JAEGER.

Witnesses:

JOHN A. AU,
AUGUST JAEGER.