

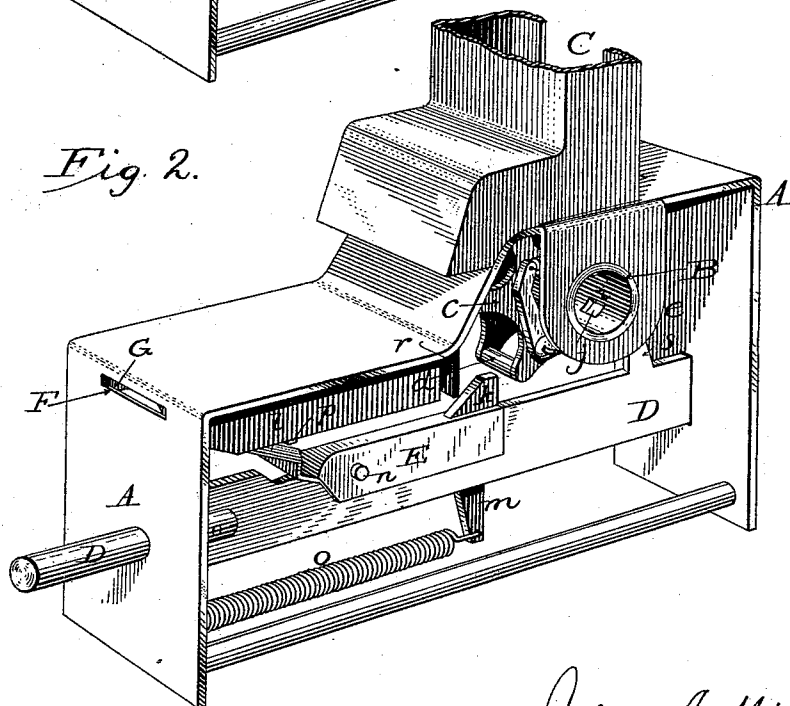
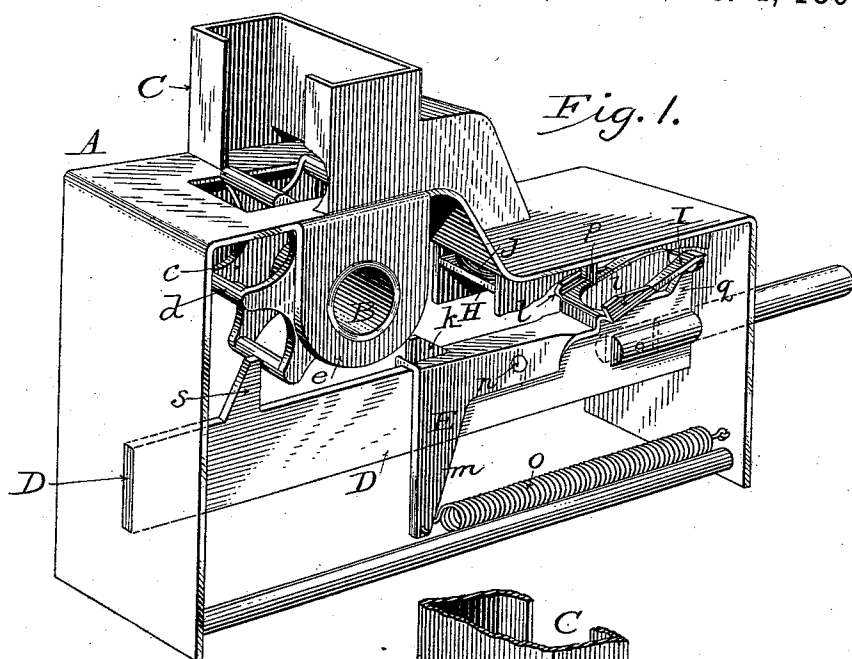
(No Model.)

3 Sheets—Sheet 1.

J. A. WILLIAMS.
VENDING APPARATUS.

No. 530,148.

Patented Dec. 4, 1894.



Witnesses
C. C. B. B. B.
C. B. B.

John A. Williams,
Inventor
by Dodge & Sons
Attorneys.

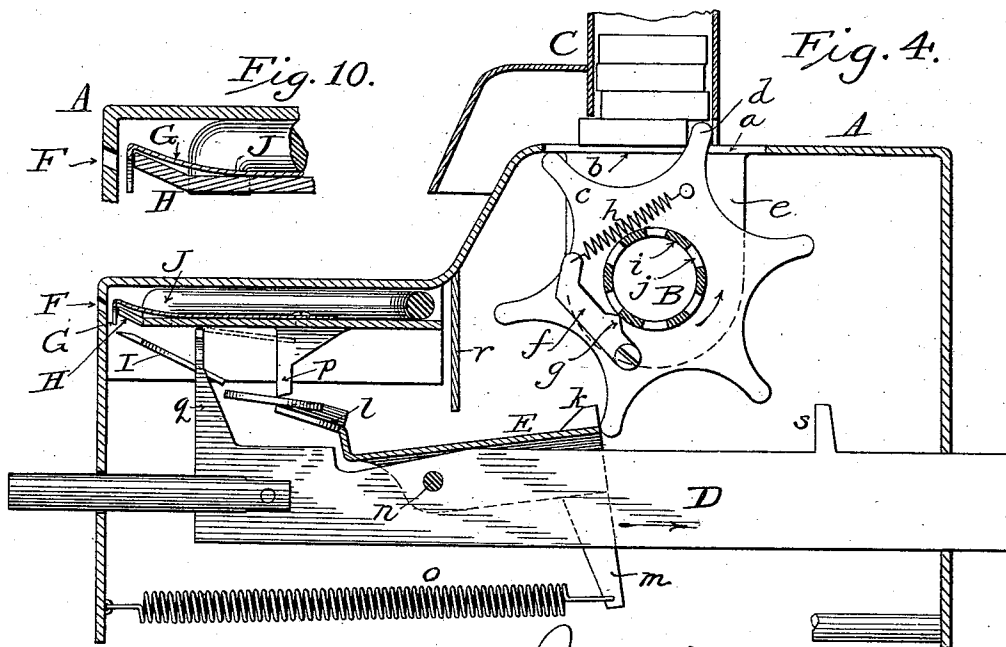
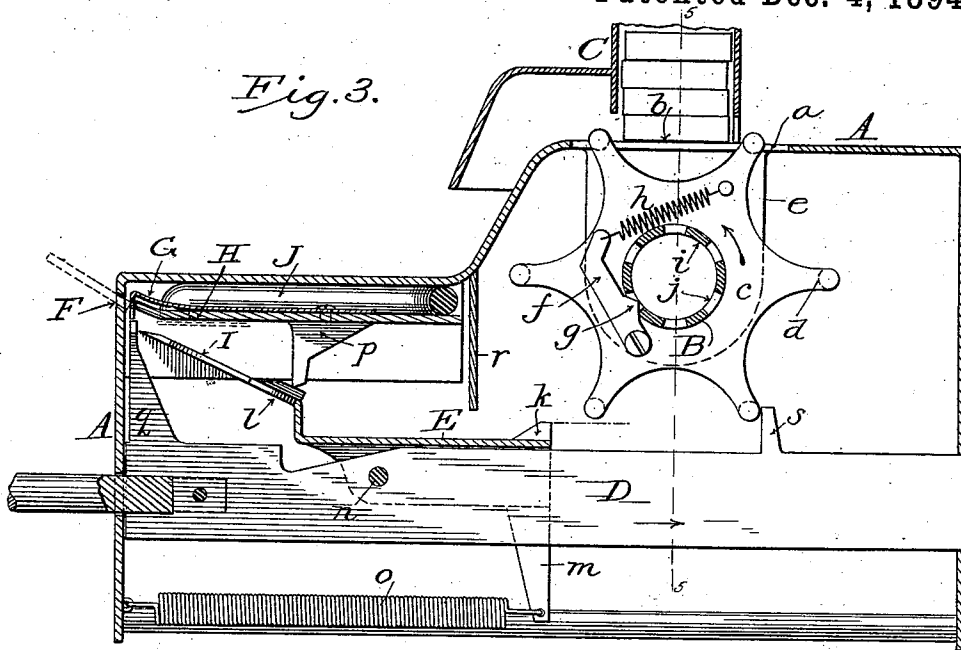
(No Model.)

3 Sheets—Sheet. 2.

J. A. WILLIAMS.
VENDING APPARATUS.

No. 530,148.

Patented Dec. 4, 1894.



Witnesses
C. B. Burdette.
C. F. Bull.

John A. Williams
Inventor

By Dodge & Sons
Attorneys.

(No Model.)

3 Sheets—Sheet 3.

J. A. WILLIAMS.
VENDING APPARATUS.

No. 530,148.

Patented Dec. 4, 1894.

Fig. 5.

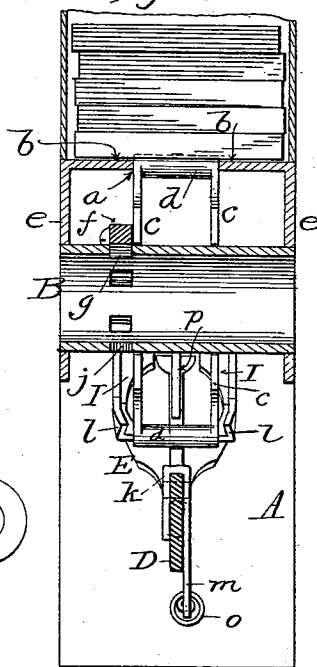


Fig. 7.

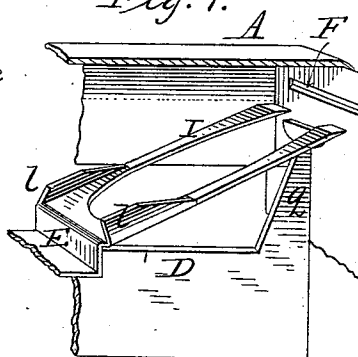


Fig. 6.

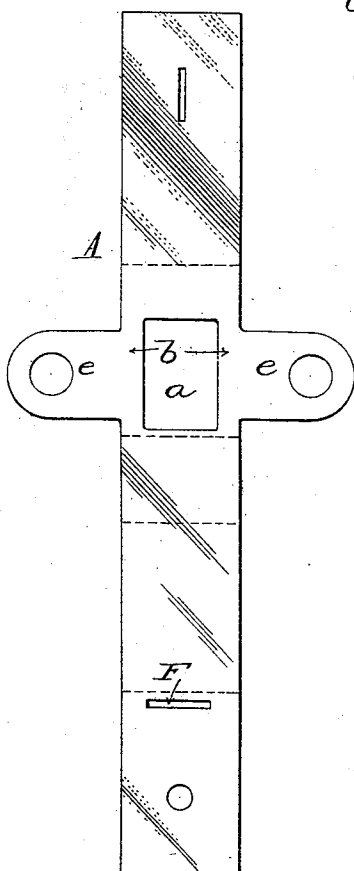


Fig. 8.

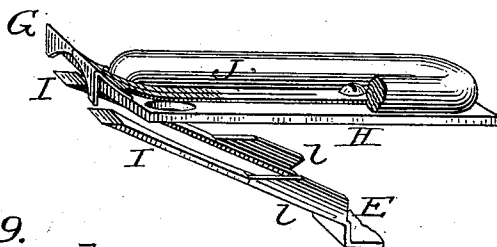
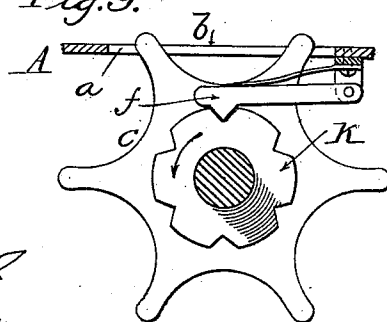


Fig. 9.



Witnesses

W. B. Bull

John A. Williams
Inventor
by Dodge Lane,
Attorneys

UNITED STATES PATENT OFFICE.

JOHN A. WILLIAMS, OF BATH BEACH, ASSIGNOR TO THE TUTTI-FRUTTI AUTOMATIC VENDING COMPANY, OF BROOKLYN, NEW YORK.

VENDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 530,148, dated December 4, 1894.

Application filed February 27, 1894. Serial No. 501,684. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. WILLIAMS, a citizen of the United States, residing at Bath Beach, in the county of Kings and State of New York, have invented certain new and useful Improvements in Vending Apparatus, of which the following is a specification.

My invention relates to coin-controlled vending apparatus, and consists in various novel features hereinafter set forth and claimed.

In the drawings,—Figure 1 is a perspective view of the operative mechanism of my improved machine, looking from the rear; Fig. 2, a similar view, looking from the front; Fig. 3, a vertical longitudinal sectional view with the parts in their normal position; Fig. 4, a similar view showing the actuating slide moved partially inward and the rotary ejector in the act of discharging an article; Fig. 5, a vertical transverse sectional view on the line 5—5 of Fig. 3, looking toward the front of the machine; Fig. 6, a plan view of the blank from which the main frame of the machine is made; Figs. 7 and 8, perspective views illustrating certain details of construction; Fig. 9, a view illustrating a modification; and Fig. 10, an enlarged sectional view of the cut-off for the coin-slot.

The present machine comprises, essentially, but three moving parts, a rotary ejector, which, while serving to eject the packages or articles, does not have to support them or those above; an actuating slide; and a lever pivoted to the actuating slide, the said lever having its inner end thrown upward to engage the ejector, upon the insertion of the proper coin and the pushing inward of the actuating slide.

There are other features of construction which will be hereinafter described in detail, and which are employed to protect the machine against operation by spurious tokens, and to lessen the cost of manufacture, which is a matter of considerable importance.

The main frame A of the machine is, in the present instance, made up of a single piece of steel as shown in Fig. 6, stamped or cut out, and then bent to proper form in suitable dies.

By the employment of sheet steel I am enabled to make a stronger and lighter frame than can be made of cast iron, and this too,

at less expense, as the increased expense in making the dies is more than offset by the saving in material and cost of finishing. In this blank, near its center, is a rectangular opening *a*, through which the rotary ejector works, said opening being of a width less than that of the articles or packages,—see Fig. 5,—so that the weight of the column of packages shall be carried by the ledges *b b* of the frame at each side of the opening *a*, and not by the ejector. This is a feature of importance, for by relieving the ejector of the weight of the column of packages, less power is required to turn the ejector, thereby reducing the wear on the moving parts and enabling me to make such parts lighter.

The ejector is composed of two plates or disks *c c* connected by a series,—preferably six,—bars or rods *d*, the whole being mounted freely upon the fixed tubular shaft B, which latter is carried at its ends by the hangers *e* forming a part of the main frame, as shown in Figs. 1, 2, 3, 4, and 5. This ejector, comprising the heads or disks and the cross-bars, has its arms or bars so spaced that when the machine is in its normal position,—see Fig. 3,—they will not be in contact with the lowermost package. The front and rear faces of the package chute or compartment C are cut away to allow the said bars to pass there-through when the ejector is rotated. An important point in connection with this ejector resides in the fact that it is turned or rotated intermittently and in but one direction; and in order to hold it at rest after it has been turned far enough to eject the package, I employ a pawl *f* which, as shown in Figs. 2, 3, 4, and 5, is pivoted at one end, to one of the heads of the ejector. This pawl is provided with a pointed spur *g*,—Figs. 3 and 4,—which is held in engagement with the shaft B by means of a light spring *h*, said shaft being provided with alternate bars *i* and openings *j* corresponding in number and position to the number of ejector-bars *d*. When the parts are at rest,—see Fig. 3,—the spur *g* is in one of the openings *j* of the shaft and thereby prevents any accidental movement of the ejector, but when the ejector is turned, by means hereinafter described, the beveled spur *g* is forced out of the opening and caused

to bear upon one of the bars *i* (the periphery) of the shaft, as in Fig. 4. Just the instant before the ejector completes its rotary movement, the spur *g* will be brought opposite the next opening *j* and the spring will force the spur into the same. As the beveled nose or spur enters this opening, it will, owing to its inclined form, ride along the wall or edge of the opening, and give to the ejector a sudden final movement, which will cause the package to be ejected with some force; the said spur serving, as it enters fully into the opening, to prevent further rotary movement of the ejector. The action of the pawl just alluded to also causes the lowermost arm of the ejector, which is in engagement with the actuating slide, or the lever carried thereby, to be thrown upward out of engagement with the slides so that there shall be no chance of effecting further rotation of the ejector by a continued inward movement of the slide, even were the slide capable of such continued movement.

It will be noted upon reference to Fig. 3 that normally there is no weight upon the ejector, the packages or articles being supported upon the ledges *b* as before stated; but when the ejector is rotated, one of the bars thereof will ride up behind the lowermost package and beneath the pile or column, and lift the superposed packages slightly up off the lowermost one, thus enabling me to eject the latter without danger of tearing up the wrapper,—a feature of importance in gum machines. While it is not essential that the arms of the ejector be long enough to raise the pile or column, such construction is preferred, as the pressure exerted by the column during the lifting of the latter is but momentary.

The ejector differs from the ordinary feed wheels common to this class of machines in that it is not provided with cells or pockets to contain the articles; and also in that it is designed to act as a delivery device which shall force the articles from the machine so that they may be reached by the purchaser, and not merely as a feeder for other mechanism.

The actuating slide *D* comprises merely a flat bar supported at its front and rear ends in corresponding openings formed in the front and rear walls of the main frame. Pivoted upon the upper face of the slide is a lever *E* which has at its rear or inner end a lug or projection *k*; at its forward end the separated coin-receiving arms *ll*, as shown in Figs. 1 to 5; and at its rear end an arm or lug *m* which extends below the pivot pin *n*. A coiled spring *o* connected at one end with the front wall of the main frame, and at the other end with the lug *m* of lever *E*, performs the two-fold function of keeping the slide in its normal position, and the lever in such position upon the slide that should the slide be pushed inward without first inserting the proper coin, the lever would not strike and actuate the ejector. It will be noted upon reference to Fig. 3 that when the parts are at rest, the up-

per edge of the lug *k* is below the lowermost bar or bars of the ejector, and hence, unless the lug be raised by the insertion of a proper coin, against the force of the spring *o*, the reciprocation of the slide will not affect the ejector. It is only when the inner end of the lever is thrown upward, as in Fig. 4, that the ejector will be actuated by the slide.

The coin arms *ll* are provided on their upper faces with longitudinal side flanges, see Figs. 1 and 5, which incline at their upper edges toward each other. This construction and arrangement forms at the base of the side flanges a passage or channel wider than that at the upper edge of said flanges, so that in case a thin disk should happen to get upon the arms it will slide along and off the latter, even though it be of the same or greater diameter than, for instance, a cent. As also noted in Fig. 5, these arms *ll* converge slightly at their inner or lower ends so as to prevent the proper coin (which in this machine is a cent) from sliding off.

Projecting downward from the frame to a point where it would strike the coin upon the arms *ll* is a stud *p*, which will advisably be provided with a sharp nose; said stud being located centrally between the arms and at or near the lower ends of the latter as shown in Figs. 1, 3, 4, and 5. Now if a coin of proper size be placed upon the arms *ll*, it will be held at its side edges by the inner edges of the side flanges, but out of contact with the stud *p* above. If the slide *D* be moved inward, the coin, which is held in an inclined position upon the coin arms, will be brought against the fixed stud *p*, which acts temporarily as a stop, but upon the slide being pushed farther inward, the lever will be depressed at its front end and elevated at its inner or rear end as shown in Fig. 4, so as to throw the lug *k* up into engagement with the ejector, and cause a rotation of the latter. The stud *p*, whose sharp nose engages the coin, holds the latter while the depressed lever is being carried from beneath the coin, and by the time that the slide has been moved inward far enough to give the desired movement to the injector, the lever will have moved entirely from beneath the coin, which latter, being now unsupported, falls into the usual money box. After this has taken place, the spring returns both the lever and the slide to their normal positions. The coin is held against the stud *p* with considerable force by reason of the spring *o*, and it is necessary to overcome this force in order to rock the lever. It is clear, therefore, that disks of tin, paper, or lead, if placed upon the coin arms, would be bent out of shape if they were forced against the stud *p*, and would fail to rock the lever *E* and operate the machine. If a washer were placed upon the arms *ll*, it would, when pushed forward with the slide and lever, ride up on the stud *p* and be drawn off the arms without rocking the lever. While these devices are designed to prevent the actuation of the ma-

chine in cases spurious tokens should find their way into the coin-arms, it is desirable that the insertion of such spurious devices should be prevented if possible, and to this end I employ the construction shown in Figs. 3 and 4. In the front wall of the frame is a coin slot F, which instead of extending perpendicularly through the front wall, is made oblique, so that the coin has to be inserted at an angle as indicated by dotted lines in Fig. 3. Behind this slot is a vertically-moving cut-off, comprising a spring arm G having its front end bent downward and cut away on the arc of a circle as shown, while directly behind the down-turned end of the arm is a plate H which is designed to support said cut-off and prevent its being pushed inward out of the way. This plate, which is secured to the main frame, also forms a convenient means for the support and attachment of the body of the arm or cut-off.

When a coin of proper size and material is inserted through the inclined slot, its side edges will strike the curved lower edge of the cut-off which is behind the slot, and raise the cut-off sufficiently to allow of the passage of the coin. After the passage of the coin, the resiliency of the spring arm returns the cut-off to its normal position across the slot. If a lead disk be passed into the slot, it cannot raise the cut-off because it will be held at the edges by the curved edge of the cut-off which the lead disk strikes at an angle. The lead becomes indented upon the application of pressure and thus becomes locked, as it were, to the cut-off, so that by continuing to press upon the disk, the cut-off is drawn down farther across the slot, as practical tests have repeatedly demonstrated.

Paper or other such disks, not having a comparatively hard and smooth edge, cannot get into the machine, the angle at which they are compelled to enter, causing them by their locking with the cut-off, to carry the cut-off downward instead of raising it, in the same manner essentially as does the lead disk. It is found that by placing the slot at an angle as shown and described, glass disks, and lead disks (even with the edges compressed) and of the same diameter and thickness as a cent, cannot pass the cut-off, whereas if the coin were inserted at right angles to the cut-off, there would be little or no difficulty in effecting a passage of the spurious token. After the proper coin has passed by the cut-off it falls upon the fixed guideways I, Figs. 1, 3, and 4,—which form a feeder for or continuation of the coin arms *l l*. The force that is required to pass the coin by the cut-off is sufficient to send it along the fixed ways I down onto the coin-arms.

In order to prevent the actuation of the machine by iron disks, which can successfully pass the cut-off, I employ a permanent magnet J which is supported by the plate H, and has its poles projecting down through the plate into proximity to the fixed ways I, as

shown in Figs. 3 and 4. An iron disk being passed through the slot will be attracted and held by the magnet, as indicated by dotted lines in Fig. 3; and if the slide be pushed inward, the disk will be dislodged by means of an arm *q* which projects upwardly from the slide D as shown in Figs. 1, 3, and 4.

In order to prevent the actuation of the ejector by means of wires inserted through the coin slot, I provide the main frame, in front of the ejector, with a depending apron *r*, shown in Figs. 2, 3, and 4 (but omitted from Figs. 1 and 5), and I provide the slide D with a lug *s* in rear of the ejector.

The invention herein described is capable of variation in many of its details. For instance, the cut-off may consist of two spring arms, Fig. 8, instead of one; and the shaft B instead of being hollow, may be made solid and provided with peripheral sockets to take the place of the openings *j*.

As shown in Fig. 9, the shaft of the ejector may be provided with a star-wheel K, adapted to be engaged by a pawl *f'* carried by the main frame, said construction operating in the same manner as that shown in Figs. 3 and 4.

Having thus described my invention, what I claim is—

1. In combination with frame A provided with a coin slot; the spring arm G having its down-turned end cut away on the arc of a circle and arranged behind the slot, and a supporting plate H arranged behind the down-turned end of the spring arm.

2. The frame A for a vending machine, comprising the long sheet having the openings *a* and F, and openings for the support of an actuating slide; and provided also with the perforated lateral wings *e e*.

3. In combination with an ejector having a series of bars *d* separated from each other as described; and means for rotating said ejector; of a package support provided with an opening through which the ejector works.

4. In a vending machine, the combination with a package-support; of an ejector provided with arms which are normally free from the weight of the articles to be delivered; and means normally independent of the ejector for rotating the latter intermittently to deliver the lowermost package to the purchaser,—whereby when the ejector is rotated the arms thereof shall ride beneath and raise the pile of packages up off the lowermost package.

5. In a vending machine, the combination with a rotary ejector and means for operating the same; of a pawl for giving to said ejector a sudden impulse or final movement.

6. In a vending machine, the combination with a rotary ejector and means for operating the same; of a pawl provided with a beveled spur, and adapted to enter a corresponding socket or opening, whereby the ejector is given a final impulse and then locked in position.

7. In a vending machine, the combination with the shaft B provided with openings *i* and

bars *j*; the ejector mounted thereon and provided with a spurred spring pawl *f*; and means for rotating the ejector.

5 8. In a vending machine, the combination with an ejector; of an actuating slide; and a coin-holder carried by the slide to engage the ejector.

9. In a vending machine, the combination with an ejector; of an actuating slide; a coin-holder carried by the slide to engage the
10 ejector; and a spring common to the slide and the coin-holder.

10. In a vending machine, the combination with an ejector; of an actuating slide; a coin-holder carried by the slide to engage the
15 ejector; and a stud to engage and hold the coin against the lever.

11. In a vending machine, the combination

with an ejector; of an actuating slide; a coin-holding lever pivoted to the slide; and a stud 20 to engage and hold the coin against the lever while the lever is carried from beneath the coin.

12. In a vending machine, the combination with an ejector; of a reciprocating slide; a 25 lever pivoted to the slide and provided at one end with the coin-holding arms *ll* and at the opposite end with the lugs *k* and *m*; a fixed stud *p* to engage the coin on the arms *ll*; and a spring secured to the lug *m*. 30

In witness whereof I hereunto set my hand in the presence of two witnesses.

JOHN A. WILLIAMS.

Witnesses:

E. B. VANDERVEER,

A. H. CLARK.