(No Model.)

J. A. WILLIAMS.

VENDING APPARATUS.

No. 443,343. Patented Dec. 23, 1890.

Fig. 1.

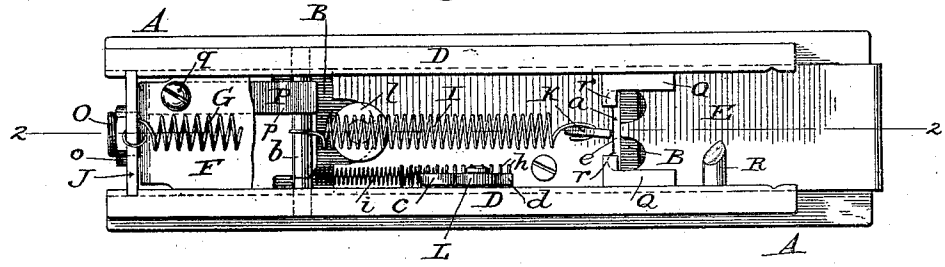


Fig. 2
ON LINE 2-2

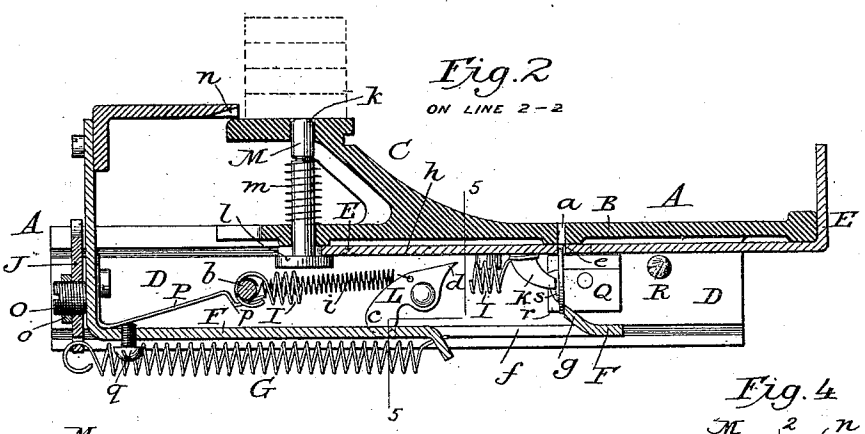


Fig. 3.

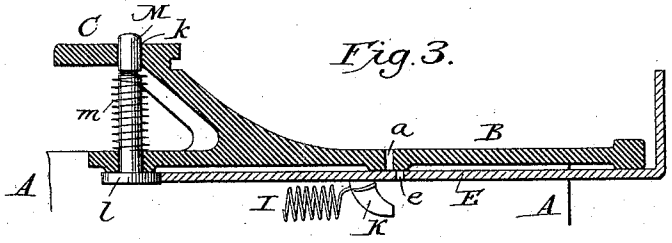


Fig. 4.

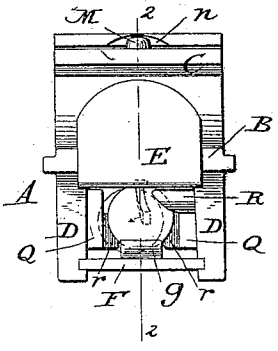


Fig. 5.
ON LINE 5-5

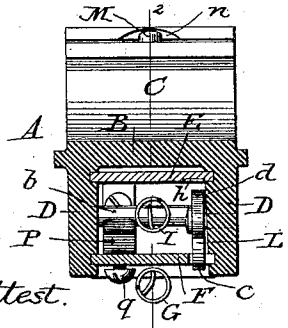


Fig. 6

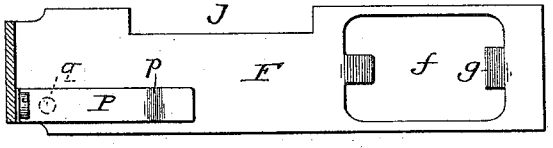
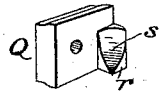


Fig. 7.



Attest.

Sidney P. Hollingsworth

James F. Duhamel

Inventor.

John A. Williams

by Dodger Sons,

attorneys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN A. WILLIAMS, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE WILLIAMS AUTOMATIC MACHINE COMPANY, OF MOUNDSVILLE, WEST VIRGINIA.

VENDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 443,343, dated December 23, 1890.

Application filed May 23, 1890. Serial No. 352,882. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. WILLIAMS, a citizen of the United States, residing at Brooklyn, 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 vending apparatus; and it consists in various features and details, hereinafter fully set forth and claimed.

In the accompanying drawings, Figure 1 is a bottom plan view of the operating mechanism of a vending-machine, partly in section; Fig. 2, a longitudinal central section on line 2 2 of Fig. 4; Fig. 3, a sectional view illustrating the operation of the mechanism by means of which the insertion of a coin into the machine is prevented; Fig. 4, a front face view; Fig. 5, a vertical sectional view on the line 5 5 of Fig. 2; Fig. 6, a plan view of the horizontal portion of my delivery-slide, and Fig. 7 a perspective view of one of the blocks for supporting the coin when it is first inserted into the machine.

The present invention is designed as an improvement upon the various machines represented by certain Letters Patent issued to me, dated and numbered, respectively, August 21, 1888, No. 388,101; April 30, 1889, No. 402,374; November 12, 1889, Nos. 414,786 and 414,787; April 22, 1890, No. 426,086, and June 14, 1890, Nos. 430,497, 430,498, and 430,499.

A indicates a supporting-frame for the operating mechanism, which frame, in the present instance, is shown as made of a single casting. The frame comprises a plate B, having a coin-opening *a*, a block C, upon which the articles to be sold rest, and parallel walls or guides D, which are grooved on their inner faces to receive the operating-slide E and the delivery-slide F, these parts being arranged substantially as shown in my patent, No. 430,497, before referred to, to which reference is hereby made for details not contained herein.

The operating-slide E is provided with a coin-slot *e*, normally in alignment with the coin-slot *a* in the plate B, and the outer end of the said slide E is turned upwardly, so as to form a handle by means of which this slide may be actuated.

Delivery-slide F is provided with an opening *f* near its front end, and in advance of the opening it is provided with a lug or projection *g*, as shown in Figs. 2, 4, and 6, the said lug or projection being located in advance of the arm K, secured to the under side of the operating-slide. A coiled spring G, connected at one end with the delivery-slide and at the opposite end with the removable back plate J, serves to hold the delivery-slide normally within the machine, while a similar spring I, connected at its forward end to the operating-slide (or its arm K) and at the rear end to a pin or rod *b*, extending across the frame from one wall D to the other, serves to hold the operating-slide also normally within the machine.

L indicates a pawl or dog pivoted to the inner face of one of the walls or guides D, and said pawl is provided with a rounded lower end or tail *c* and a pointed nose *d*, as shown in Fig. 2, the nose of the pawl being adapted to engage the under face of the operating-slide E, which latter is serrated or roughened, as at *h*, Fig. 2. A light coiled spring *i* extends from the pawl to the rod or stem *b*, so that when the delivery-slide is pulled forward so as to bring the cut-away portion *j* beneath the tail of the dog, the latter will be rocked or tipped and its nose *d* thrown into engagement with the operating or actuating slide E.

M indicates a bolt which works through a vertical hole or opening *k* in the table or support C, and is provided at its lower end with a head or enlargement *l*, which extends beneath plate B into position to engage the actuating or operating slide E and prevent the inward movement of the latter. A light coiled spring *m* encircles the bolt M and tends to hold the upper end of the latter above the top of the table or support C against the pressure of the articles to be sold, which rest upon the said table or support.

The operating-slide is (advisably, but not necessarily) cut away at its inner end, so that when the head of the bolt M is brought to the position shown in Figs. 1 and 2 the said slide may move inward over the head or enlargement *l*, so as to bring the coin-slot *e* into

alignment with the coin-slot *a*. That portion of the delivery-slide which moves over the face of the table or support C has its front edge beveled, as shown at *n*, Figs. 2, 4, and 5, so that when the slide moves forward over the said support or table it will depress the pin or bolt M in case the latter should be up into the position shown in Fig. 3.

In order to vary the relative positions of the slides E F and for the further purpose of limiting or varying the backward or inward movement of the slide F, I provide the plate J with an adjusting-screw O, which is adapted to bear against the upturned end of the delivery-slide, as clearly shown in Fig. 2, said screw being held in its adjusted position by means of a lock-nut *o*, as shown in Figs. 1 and 2.

Secured to the delivery-slide F near its inner end is a device for regulating or controlling the amount of force required to operate the machine, which regulating or resistance device is shown as comprising a spring-arm P, which is provided near its forward end with a shoulder *p*, as shown in Figs. 1, 2, 5, and 6. The free end of this spring-arm rests normally beneath the rod *b*, so that when it is desired to pull the slide F forward it will be necessary to depress the free end of the spring-arm, or, in other words, to cause the shouldered portion *p* to ride beneath the rod *b*. In order to regulate, govern, or vary the force of this spring-arm, I provide a set-screw *q*, which, bearing upon the under side of the spring-arm, forces the latter against the under side of the rod *b* with greater or less force, as may be desired. This important feature of the present invention is to be distinguished from that class of devices wherein there is employed an air-cylinder and piston to delay or to prevent the too rapid movement of one of the parts, and thereby give time for the proper movement of the other parts connected with the first-mentioned part.

Q Q indicate two blocks, which are arranged opposite each other upon the inner faces of the walls or guides D D immediately below the coin-slot *a*, as shown in Figs. 1 and 2. Each block is provided on its inner face with a lug or projection *r*, having a rounded or curved bearing-face *s* for the reception of the coin, the curved faces extending downwardly and inwardly from their upper ends, as clearly shown in Fig. 7.

Projecting from the inner face of one of the walls or guides D is a pin or stud R, which, as shown in Figs. 1, 2, and 4, has its inner end beveled or inclined, so that when the coin which is carried by the slides E and F comes into contact with this pin or stud the latter will move the coin to one side and downward, as shown by the dotted lines in Fig. 4, so that the coin will be thrown out of engagement with the actuating or operating slide.

When the machine is filled with the articles to be sold, the latter, resting upon the table or support C, depress the pin or bolt M so that the head of the latter shall be below the bottom face of the actuating or operating slide, or, in other words, the weight of the material to be sold shall depress the locking-bolt M, so that the coin-slot *e* of the actuating or operating slide may come into alignment with the coin-slot *a* in the plate B of the frame A, as shown in Fig. 2. Now when a coin is dropped into the slot *a* it passes downward and falls upon and is supported at the sides by the curved faces *s* of the lugs or projections *r* of the blocks Q, and it will also be supported at its upper edge within the opening or slot made in the actuating or operating slide E, as shown in Fig. 2.

It would, perhaps, be well to call attention to the fact that the front wall of the coin-slot *e* in the operating-slide is cut out, as shown in Fig. 1, so as to leave a narrow tongue or projection to bear upon the coin when the slide is pulled outward, this tongue or projection being represented in Fig. 1. At the time that the coin is inserted and before the slide E is pulled outward the lower end of the pawl or dog L will come into contact with the front wall of the cut-away portion *j* of the delivery-slide F and will be prevented by the said front wall from coming into engagement with the actuating or operating slide E, as clearly shown in Fig. 2. By moving or pulling the slide E outward the coin will strike against the lug *g* on the delivery-slide and will, by reason of the engagement of the coin with the slide E and its arm K, be carried off the lugs *r* of the blocks Q, and as soon as the two slides E and F are thus locked together by means of the coin any further outward movement of the slide E will cause a corresponding outward movement of the slide F; but it will be observed that at the instant that the slide F is moved forward far enough to permit the small spring *i* to come into action the pawl or dog L will be tipped or rocked and its nose *d* thrown upward into engagement with the underside of the actuating-slide E, and thereby locks said slide in position in case it shall not have been pulled outward far enough to cause the discharge of one of the articles to be sold. It will also be observed that inasmuch as the coin connects the slides E and F this locking of the slide E by means of the pawl L also indirectly effects a locking of the slide F. Continuing the outward movement of the slide E the coin is brought into contact with the beveled nose or inner end of the pin or stud R, and is moved laterally and downwardly, so that the upper end of the coin is freed from engagement with the actuating-slide E, and as soon as this is accomplished the spring G connected with the delivery-slide draws the said slide inward to its normal position, and when it arrives at this point the end wall of the cut-away portion *j* of the said slide F will strike the tail of the pawl or dog L and throw the nose of the latter out of engagement with the slide E, and thereby permit the spring I to draw the said

actuating-slide inward to its normal position. In order to actuate the machine, the force of the springs G and I has to be overcome, and in order to increase the force required to operate the machine the spring-arm P may be adjusted so as to press upon the under face of the rod B with a greater or less force, as desired.

If the spring-arm be set up so as to require a considerable pull upon the slide E in order to actuate the machine and a lead or other counterfeit be inserted into the machine, the said counterfeit will not be able to withstand the force or power to which it is subjected, and will therefore yield and prevent the surreptitious working of the machine. This feature is particularly valuable with machines of the character herein described—that is, in which the two slides are connected directly by means of the coin—for it is clear that if the coin or other token be not of the proper strength it cannot withstand the strain to which it is subjected in locking the two slides together.

When the articles to be sold are all exhausted, the coiled spring *m* throws the pin or bolt M up into the position shown in Fig. 3, the head or enlargement *l* of the said bolt coming up into alignment with the actuating or operating slide E, so that the coin-slot *e* of the latter will be prevented from coming into alignment with the coin-slot *a* in the frame A. By this means the insertion of a coin into the machine is prevented, unless the machine be provided with the articles to be sold in exchange for the coin.

By turning the screw O in such direction as to cause the slide F to move forward the lug *g* thereon will be carried far enough in advance of the coin-supporting lugs *r* to make the space between said lugs *r* and *g* wide enough to permit thin counterfeits and dummies to pass through into the money-box, instead of remaining in engagement with the slides E F. The relative position of the lug *g* to the curved faces of the coin-supporting blocks is a matter of considerable importance in adapting the machine to the rejection of counterfeits, which are frequently inserted through the slots *a e*. The curved faces *s* of the coin-supporting lugs *r* are so shaped that an irregularly-shaped piece of money (or thin bogus piece) will be tipped and its lower edge carried forward over and in advance of the space formed between the lugs *r* and *g*, so that its lower edge will not be engaged by the lug *g*. If the coin or bogus piece be of regular (circular) shape, but is too thin, it will not be tipped, as just above described, but will fall straight down through the slides E F between the lugs *r* and *g*. The rejection of counterfeits is further insured by the formation of the tongue, which forms the front wall of the slot *e* of the slide E, as it is clear that if an angular coin or token be inserted into the machine it will be tipped, as before described, and its upper edge will be brought out of line with this narrow point. Of course if the slide E be pulled outward while the coin is in this position the lower edge of the coin will (possibly) strike against the lug *g*; but as soon as it does this its upper edge, being unsupported, will be thrown forward, and the coin will fall into the box without locking the slides together. By these various devices the surreptitious working of the machine is effectually prevented.

Having thus described my invention, what I claim is—

1. In a vending-machine in which the strain necessary for the actuation of the machine comes upon the coin inserted, the combination, with the actuating-slide of such a machine, of a resistance device constructed and arranged substantially as shown and described, and means for adjusting the resistance device to increase or diminish the strain put upon the coin or token inserted.

2. In a vending-machine in which the actuating and delivery slides are adapted to be connected by a coin or similar token, the combination, with such slides, of a resistance device constructed and arranged, substantially as shown and described, to come into action only when a coin or token is inserted, and means for adjusting the resistance device.

3. In a vending-machine, the combination, with the actuating and delivery slides and their retracting-springs, of a resistance device independent of the springs, adapted to come into action only in case a coin or similar token is inserted.

4. In a vending-machine, the combination, with a slide, of the bolt or pin *b* and the spring-arm P, all arranged substantially as shown.

5. In combination with a slide, the pin or bolt *b*, the spring-arm P, and a set-screw *q*, all arranged substantially as shown.

6. In a vending-machine, the coin-supporting blocks Q, provided each with a lug *r*, having a curved face *s*, the said curved faces extending diagonally across the lugs, substantially as shown.

7. In a vending-machine, the combination, with an actuating-slide and a delivery-slide, of an adjustable stop O to limit the inward movement of the delivery-slide and to vary the relative positions of the two slides.

8. In combination with a delivery-slide and an actuating-slide adapted to be connected by means of a coin, a pin or stud R, having a beveled inner end to dislodge the coin after the slides have been pulled outward far enough to eject an article.

9. In a vending-machine, the combination, with a frame provided with a coin-slot *a*, of an actuating-slide E, provided with a coin-slot *e*, and a detent held out of action by the articles to be sold, all substantially as shown, whereby when the articles to be sold are exhausted the detent may prevent the two coin-slots from coming into alignment.

10. In combination with frame A, having a coin-slot *a*, an actuating-slide E, having a coin-

slot *e*, a detent M, adapted to be depressed by the articles to be sold into such position as to allow the coin-slots to come into alignment, and a spring, arranged substantially as shown, to throw the detent into position to prevent the alignment of the coin-slots when the supply is exhausted.

11. In a vending-machine, the combination, with an actuating-slide, of a delivery-slide, a spring P, carried by the latter and adapted to bear against a fixed surface, and a screw for adjusting the spring, all substantially as shown.

12. In a vending-machine in which an actuating-slide and a delivery-slide are adapted to be connected by a coin, a single pawl or dog, as L, arranged, substantially as shown and described, to engage one of said slides and to hold both in a partially-extended position in case they should not be pulled outward far enough to eject the article to be sold.

13. In a vending-machine, the combination, with an actuating-slide, of a delivery-slide adapted to be connected therewith by means of a coin, of a pawl or dog L to engage the actuating-slide and adapted to be disengaged by the delivery-slide, all substantially as shown and described.

14. In a vending-machine, the combination, with an actuating-slide, of a pawl adapted to engage said slide, and a delivery-slide adapted to be connected with the actuating-slide by means of a coin and arranged, substantially as shown, to hold the pawl normally out of engagement with the actuating-slide and to automatically release said pawl from engagement when the disengagement has been permitted.

15. In a vending-machine, the combination, with slides E and F, (the latter having a cut-away portion *j*,) of a pawl L, having a tail to work in the cut-away portion, and a spring *i*, connected with the pawl, all substantially as shown.

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

JOHN A. WILLIAMS.

Witnesses:

GEO. W. SHERMAN,

WILLIAM F. BUTLER.