

1,003,167

Patented Sept. 12, 1911.

4 SHEETS-SHEET 1.

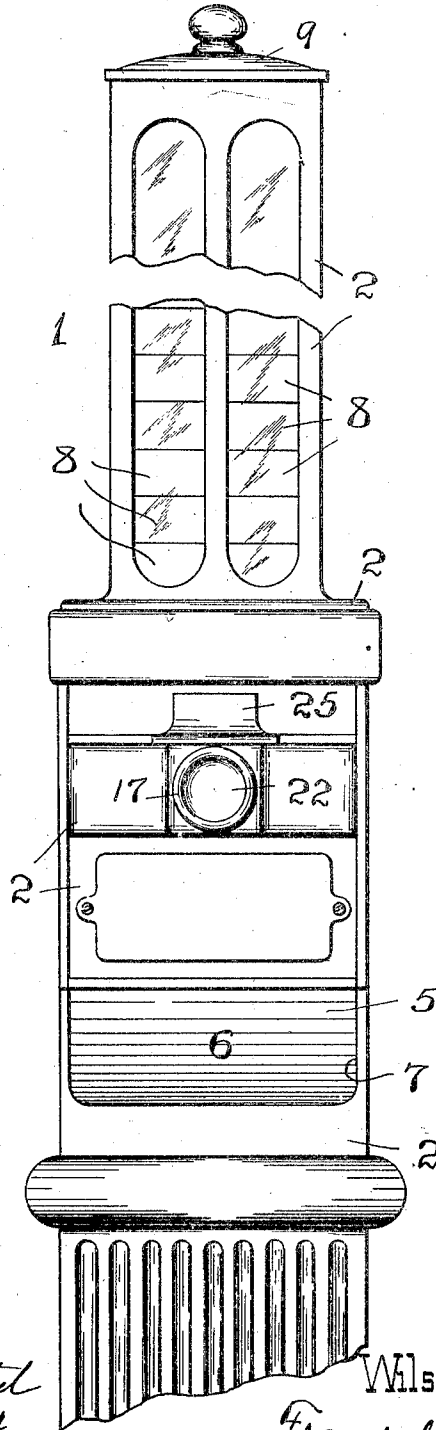


Fig. 1

WITNESSES:
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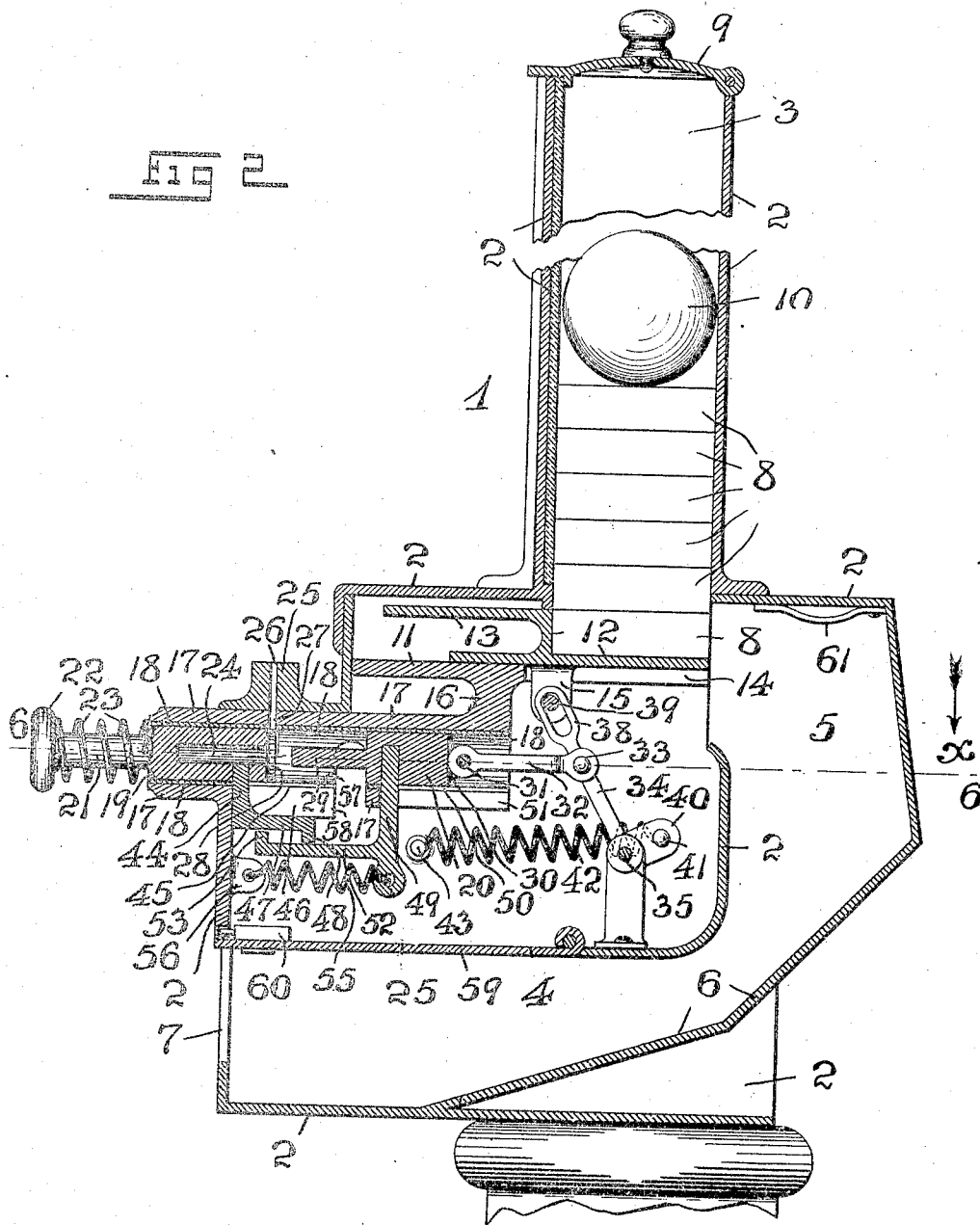
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W. D. C. WRIGHT,
 VENDING MACHINE.
 APPLICATION FILED JAN. 16, 1911.

1,008,167.

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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

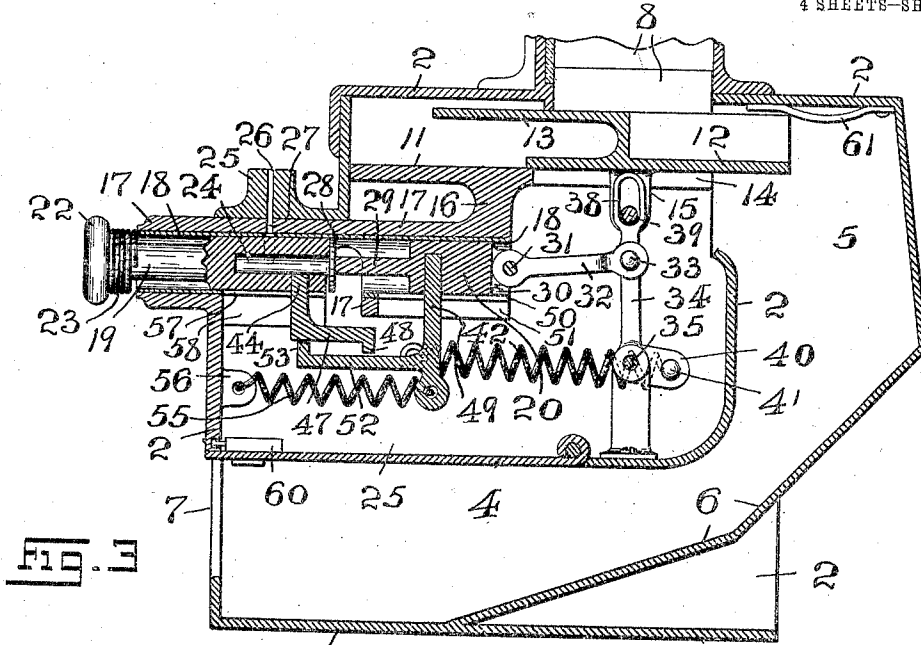


Fig. 3

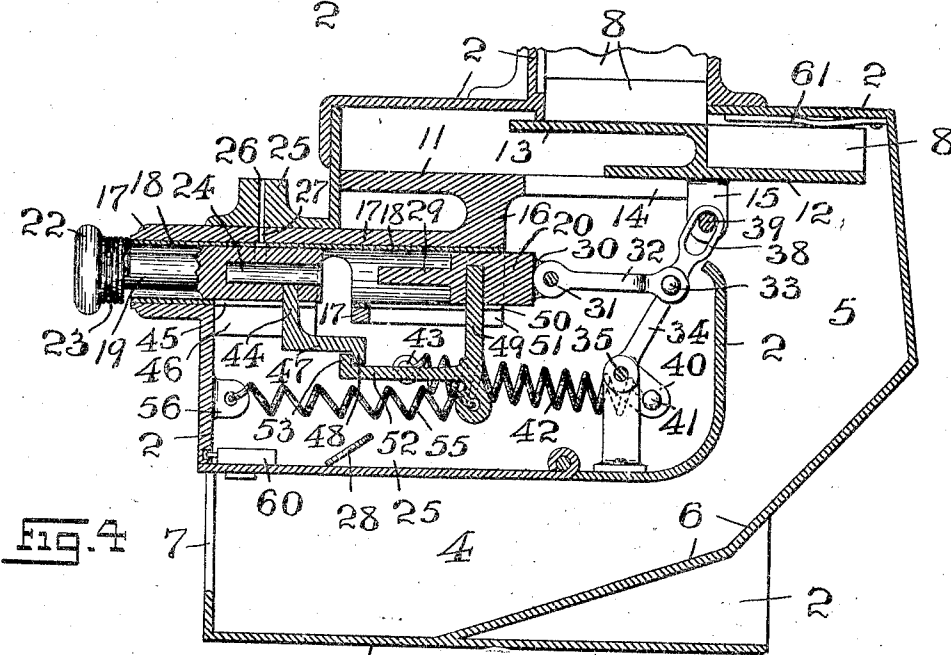


Fig. 4

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4 SHEETS—SHEET 4.

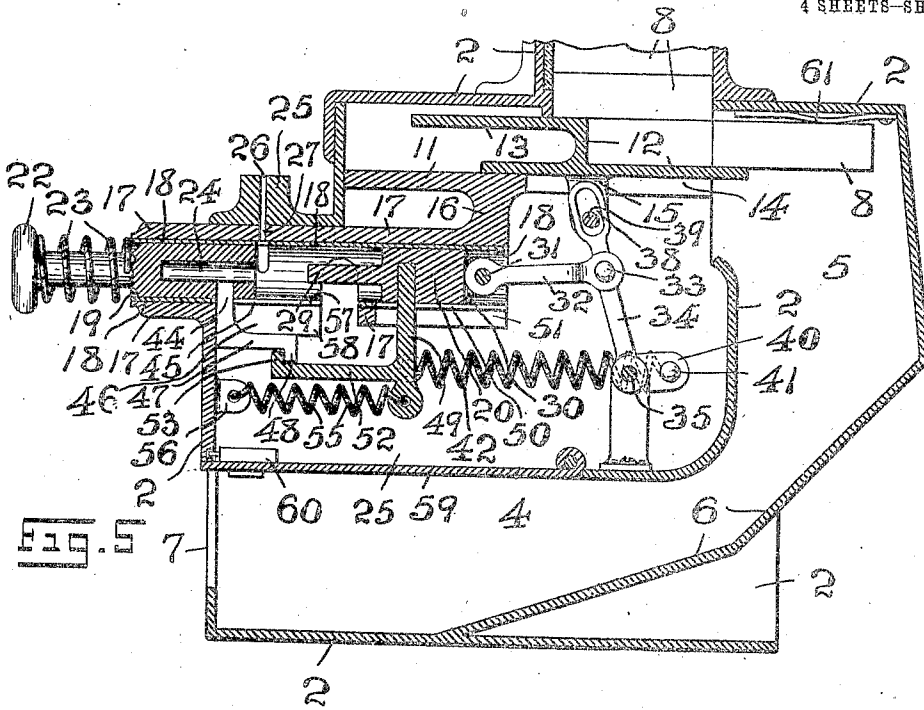


Fig. 5

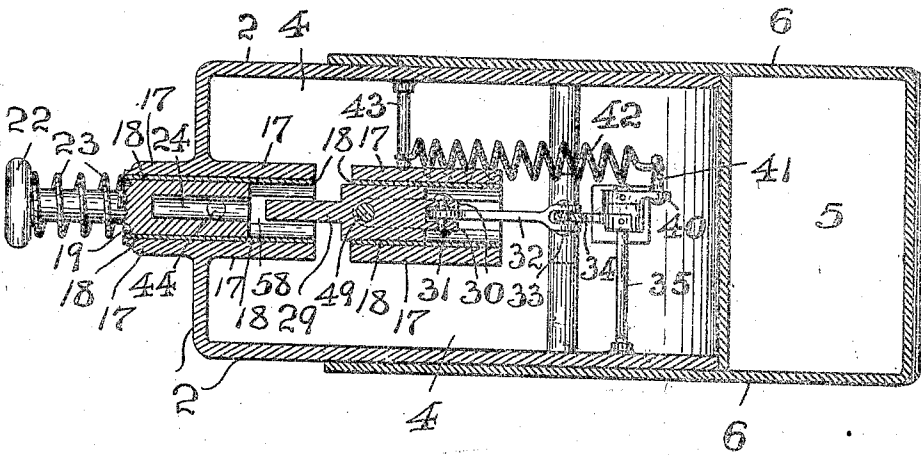


Fig. 6

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UNITED STATES PATENT OFFICE.

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VENDING-MACHINE.

1,003,167.

Specification of Letters Patent. Patented Sept. 12, 1911.

Application filed January 16, 1911. Serial No. 602,808.

To all whom it may concern:

Be it known that I, WILSON D. CRAIG WRIGHT, citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Vending-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

The present invention relates, generally, to improvements in coin-controlled vending machines; and, the present invention has reference, more particularly, to a novel construction of vending machine for controlling the delivery or discharge from the machine of packages, boxes, or other articles.

The present invention has for its principal object to provide a simple, easily operated, and efficient construction of coin-controlled vending machine for vending packages, boxes, or other articles, in which the operating parts are few in number and are simple, but are most effective in action, at the same time being little liable to become disarranged and inoperative.

Other objects of the present invention not at this time more particularly enumerated will be clearly understood from the following detailed description of my present invention.

With the objects of the present invention in view, the said invention consists, primarily, in the novel construction of vending machine hereinafter set forth; and, furthermore, this invention consists in the novel arrangements and combinations of the various devices and parts, as well as in the details of the construction thereof, all of which will be hereinafter more fully described, and then finally embodied in the clauses of the claim which are appended to and which form an essential part of this specification.

The invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a front elevation of a coin-controlled vending machine made according to and embodying the principles of the present invention. Fig. 2 is a longitudinal

central vertical section of the same, illustrating the interior operative parts of the mechanism. Figs. 3, 4, and 5 are vertical sections, similar to that shown in Fig. 2, but each view illustrating some particular phase of the operation of the said interior operative parts of the mechanism. Fig. 6 is a horizontal cross-section taken on line 6—6 in said Fig. 2, looking in the direction of the arrow *a*.

Similar characters of reference are employed in all of the hereinabove described views, to indicate corresponding parts.

Referring now to the several figures of the said drawings, the reference-character 1 indicates a complete vending machine made according to and embodying the principles of the present invention, the same comprising a suitable casing 2 comprising and providing a compartment 3, an ejector compartment 4, and a delivery compartment 5, the bottom walls of the said casing being properly inclined to provide a delivery chute 6, and the front wall of said casing being further provided with a suitable opening 7 giving access to the bottom of said delivery compartment 5, to which the ejector mechanism delivers packages, boxes, or other articles, when the vending machine is operated. The said stock compartment 3 is adapted to contain a stock of articles 8 to be vended, and the same may be in the form of packages, boxes, or merely the articles themselves. Said casing 2 is provided at its upper end with a cover-member 9 which, when opened, gives access to the interior of said stock compartment when it is desired to replenish the same with a fresh supply of goods. Arranged in said stock compartment 3, above said articles 8, is a weight 10, of any desirable form, the same being adapted to aid gravity in feeding the articles 8 to the ejector-mechanism.

Arranged within said ejector compartment 4 is an ejector-mechanism, the same comprising a frame-work 11 suitably secured within said casing 2. Said frame-work 11 is adapted to slidably support an ejector-member 12 which is provided with a rearwardly extending cut-off member 13, the latter serving to cut off the outlet of said stock compartments against the passage of the articles 8, while said ejector-member 12 is moving forward to eject one of said ar-

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articles 8. Said frame-work 11 is provided with a slot or opening 14 which permits the passage or movement of downwardly projecting ears or lugs 15 with which the bottom of said ejector-member is provided. Said frame-work 11 is further provided with a downwardly extending portion 16 which serves to support one end of a guide-portion 17, the same being provided with a tubular bore in which is arranged a tubular element 18 adapted to slidably support, in proper coöperative relation with each other, a primary plunger 19 and a secondary plunger 20. Said primary plunger 19 is arranged at the outer end of said tubular element 18, and the same is provided with an outwardly projecting shank 21 having upon its free end a push-piece 22, the latter being presented upon the outer side of said casing. Arranged about the said shank 21, between the outer end of said guide-portion 17 and said push-piece 22, is a spring-element 23 which serves to maintain said primary plunger 19 in its normal initial position. Said primary plunger 19 is also provided with a receiving socket 24, the purpose of which will be hereinafter more fully specified. Formed in a portion of said casing 2, registering above said guide-portion 17, is a coin-receiver 25, the same being provided with a suitable slot 26, which registers with a slot 27 with which said guide-portion 17 and its tubular element 18 is provided, said respective slots being arranged and located in such a manner, so that they will present a coin 28 in front of the inner end of the said primary plunger 19, and within said tubular element 18. Said secondary plunger 20 is provided at its forward end with an extension 29 of reduced diameter, the same being receivable in said receiving socket 24 of the primary plunger 19, when the latter is moved forwardly, without having first deposited a coin 28, as above described. In such an event, said extension 29 will enter within said receiving socket 24, as the primary plunger moves forward, thereby permitting the latter to move without causing a corresponding inward movement of the secondary plunger 20, and a consequent operation of the ejector-mechanism. The rear end of said secondary plunger 20 is provided with a pair of ears or lugs 30 and a pin or stud 31 carried thereby, or any other suitable means for pivotally securing to the said secondary plunger 20 a link-member 32. The free or outer forked end 33 of said link-member is pivotally secured, in a proper connection, to an oscillating lever-arm 34. The said lever-arm 34 is suitably secured upon a rock-shaft 35, which is journaled in bearing-members 36 and 37, the said bearing members, being of any suitable form, and being located or mounted within said ejector-compartment 4 in any suitable location and

manner. The upper free end of said oscillating lever-arm 34 is provided with a slotted portion 38 which is pivotally connected with a suitable pin or stud 39 carried by said downwardly extending ears or lugs 15 with which the bottom of said ejector-member 12 are provided. Secured upon said rock-shaft 35, so as to oscillate synchronously with said lever-arm 34, is a trigger-arm 40, the same being arranged at a proper angle with relation to said lever-arm 34 so that it will perform the functions hereinafter to be described. Said trigger-arm 40 is provided, adjacent to its free end, with an outwardly extending pin or stud 41 or any other suitable means for securing in operative relation with said trigger-arm 40, one end of an actuating spring-member 42, the other end of which is secured or anchored upon another pin or stud 43 which is rigidly connected with any suitable portion of the said casing 2; it being preferable, however, to locate said pin or stud 43 on a line coincident with a horizontal plane passing through the axis of said rock-shaft 35, so as to assure a proper actuating operation of said spring-member.

Rigidly connected with said primary plunger 19 is a primary retractor-arm 44, the same passing downwardly through suitable registering slots or openings 45 and 46 with which said tubular-element 18 and said guide-portion 11 are provided, the said slots permitting the forward and backward movements of said primary retractor-arm 44, when the primary plunger 19 is moved. Said primary retractor-arm is provided with a forwardly extending horizontal portion 47 having at its free end a downwardly extending lug or coupling-member 48. In like manner, said secondary plunger 20 is provided with a rigidly connected secondary retractor-arm 49, the same passing downwardly through suitable registering slots or openings 50 and 51 with which said tubular member 18 and said guide-portion 17 are provided, the said slots permitting the forward and backward movements of said secondary retractor-arm 49, when said secondary plunger is moved. Said secondary retractor-arm is provided with a rearwardly extending horizontal portion 52, the same extending normally beneath said primary retractor-arm 44, and upon its free end is an upwardly extending lug or coupling member 53, the latter lying, normally, an appreciable distance forward of the lug or coupling-member 48 of said primary retractor-arm 44. Said secondary retractor-arm 49 is further provided with a suitably disposed perforated ear 54, or other suitable fastening means, for connecting therewith one end of a retractor-spring 55, the other end of which is secured to a suitably disposed perforated gear 56, or other suitable

fastening means, connected with said casing 2.

Said tubular element 18 and said guide-portion 17 are provided upon their under sides with suitably located registering cut-away portions 57 and 58, the same providing a coin-drop through which the coin 28 escapes to the bottom of said ejector-compartment 4 after it has performed its function in connection with said ejector-mechanism. The bottom of said ejector-compartment 4 is provided with a suitably hinged door 59, secured in its closed relation by means of any desirable locking device 60, said door 59 providing access to said ejector compartment 4 for the purpose of removing the coins which have been deposited therein.

Arranged against the upper wall of said delivery compartment 5, and secured thereto in any desirable manner, is a flat or leaf-spring 61 which serves to retain or hold an article 8 within said delivery compartment until said ejector-member 12, which delivers the same thereto, returns to its normal initial position after performing its ejecting function.

The operation of my novel vending machine constructed as above described is as follows:—The coin 28, when deposited in the coin-receiving slot 26, is carried in front of said primary plunger 19 and within said tubular element 18, being so arranged or disposed as to cover the mouth of said receiving socket 24 against the entry of the extension 29. The push-piece 22 is now pressed inwardly, causing thereby an inward movement of said primary plunger 19, which brings in contact with the end of said extension 29, the coin 28, whereby the inward movement of said primary plunger 19 is communicated to said second plunger 20, thereby causing an inward movement of the latter. The inward movement of the secondary plunger 20 is communicated by said link-member 32 to said oscillating lever-arm 34 and the rock-shaft 35, whereby the same is caused to oscillate or swing rearwardly, thereby carrying forward the said ejector-member 12 upon which rests the lowermost article 8 contained in said stock-compartment 3. The rearward movement of said ejector-member 12 carries said lowermost articles 8 partially into said delivery compartment 5; and, at the same time, said cut-off member 13 holds back the remaining articles 8 within the stock compartment 3. When the limit of the inward movement of said primary plunger 19 has been reached, (as shown in Fig. 3 of the drawings) said lever-arm 34 has only been partially oscillated; but, in the mean-time, said trigger-arm 40 has also been partially oscillated against the tension of said actuating spring-member 42, until its point of connection with the spring-member has been carried be-

low a line coincident with a horizontal plane passing through the axis of said rock-shaft 35. In other words, the trigger-arm has been caused to pull against said spring-member 42 until a dead center has been passed, (as shown in Fig. 3 of the drawings) so that the pull of said spring-member 42 operates to continue the oscillation of said trigger-arm 40 to a further limit in the same direction. Thus, said spring-member 42 tends to continue the oscillation of the trigger-arm 40, the lever-arm 34, and the rearward movement of the ejector-member 12, until the complete ejecting movement of the latter has been consummated, and the article 8 is delivered wholly within said delivery compartment 5 (as shown in Fig. 4 of said drawings). This completion of the movement of said ejector-member 12 by means of the action of said actuating spring 42 tends also to continue the inward movement of the secondary plunger 20, which serves two purposes:—first, to release the binding and operative connection of the coin 28 between said primary and secondary plunger, so that the coin is free to drop, and does drop, through the coin-drop formed by said cut-out portions 57 and 58 into the ejector compartment 4; and, secondly, to bring into operative connection or coupled relation with each other the respective coupling members 48 and 53 of the said retractor-arms 44 and 49, thus preparing said ejector-mechanism to retract itself and leave the article 8 free to drop through said delivery compartment 5, and to be guided in said drop by the chute 6 to a position adjacent to the opening 7 of said compartment, whereby the same may be easily removed by the vendee or purchaser. To this end, said flat or leaf spring 61 engages to hold said article 8, by offering a greater resistance thereto, than the slipping pull of the returning ejector-member 12, during the retraction of the latter. The retracting movement of said ejector-mechanism takes place as follows:—The pressure of the vendee or purchaser being removed from said push-piece 22, the spring-member 23, which has been compressed by the inward movement thereof, presses the same outwardly, thereby causing an outward movement of said primary plunger 19 and a corresponding movement of said retractor arm 44 connected therewith. The coupling-member 48 of the retractor arm 44 being engaged operatively with said coupling-member 53 of the retractor-arm 49, the outward movement of the primary plunger 19 is transmitted through said coupled retractor-arms to said secondary plunger 20, the link-member 32, the lever-arm 34, the trigger-arm 40, and the ejector-member 12, in a manner clearly to be understood. Furthermore, this inward movement, as above de-

scribed, is aided by the pull of the retractor-spring 55 connected with said retractor-arm 49, and in such a manner, that the pull of the combined resources of said spring-member 23 and said retractor-spring 55 is sufficient to overcome the resistance of the opposite pull of said actuating spring-member 42 upon said trigger-arm, until the dead center is again passed and said spring-member itself aids in the retractive movements of the various parts, (as shown in Fig. 5 of the accompanying drawings,) and all the various parts of said ejector-mechanism are returned to their normal initial positions ready to again perform their several co-operative functions when a coin is deposited in said slot 26 by the vendee or purchaser.

From the above description it will be clearly apparent, that the present invention supplies a novel, efficient and simple construction of vending machine, the ejector-mechanism of which comprises but few parts, little likely to become disarranged or out of order; and, furthermore, the operation of the ejector-mechanism is easily and quickly accomplished by a simple initial movement or impulse administered by the vendee or purchaser.

I am aware that changes may be made in the various arrangements and combinations of the several devices and parts, as well as in the details of the construction of the same, without departing from the scope of the present invention as described in the foregoing specification, and as defined in the claims which are appended thereto. Hence, I do not limit my invention to the exact arrangements and combinations of the various devices and parts as set forth in the said specification, nor do I confine myself to the exact details of the construction of the said parts, as illustrated in the accompanying drawings.

I claim:—

1. In a vending machine the combination with a casing providing a stock compartment, an ejector compartment and a delivery compartment, of an ejector-member slidably arranged beneath said stock compartment, an oscillating lever-arm connected with said ejector-member, a manually operated means connected with said oscillating lever arm adapted to move the same to give an initial ejecting impulse to said ejector-member, and means connected with said oscillating lever-arm for continuing the initial movement of the same to complete the ejecting movement of said ejector-member independently of said manually operated means, substantially as and for the purposes set forth.

2. In a vending machine the combination with a casing providing a stock compartment, an ejector compartment and a delivery compartment, of an ejector-member slidably arranged beneath said stock compart-

ment, an oscillating lever-arm connected with said ejector-member, a manually operated means connected with said oscillating lever arm adapted to move the same to give an initial ejecting impulse to said ejector-member, and means connected with said oscillating lever-arm for continuing the initial movement of the same to complete the ejecting movement of said ejector-member independently of said manually operated means, and means for retracting said oscillating lever arm and said ejector member to their normal initial position, substantially as and for the purposes set forth.

3. In a vending machine the combination with a casing providing a stock compartment, an ejector compartment and a delivery compartment, of an ejector-member slidably arranged beneath said stock compartment, an oscillating lever-arm connected with said ejector-member, a manually operated means connected with said oscillating lever arm adapted to move the same to give an initial ejecting impulse to said ejector-member, and means connected with said oscillating lever-arm for continuing the initial movement of the same to complete the ejecting movement of said ejector-member independently of said manually operated means, comprising a rock-shaft upon which said oscillating lever-arm is secured, a trigger-arm connected with said rock-shaft, and an actuating spring connected with said trigger-arm, substantially as and for the purposes set forth.

4. In a vending machine the combination with a casing providing a stock compartment, an ejector compartment and a delivery compartment, of an ejector-member slidably arranged beneath said stock compartment, an oscillating lever arm connected with said ejector-member, a manually operated means connected with said oscillating lever arm adapted to move the same to give an initial ejecting impulse to said ejector-member, and means connected with said oscillating lever-arm for continuing the initial movement of the same to complete the ejecting movement of said ejector-member independently of said manually operated means, comprising a rock-shaft upon which said oscillating lever-arm is secured, a trigger-arm connected with said rock-shaft, and an actuating spring connected with said trigger-arm, and means for retracting said oscillating lever-arm, said trigger-arm and said ejector member to their normal initial positions, substantially as and for the purposes set forth.

5. In a vending machine, the combination with a casing providing a stock compartment, an ejector compartment and a delivery compartment, of an ejector-member slidably arranged beneath said stock compartment and in registration with the mouth of said delivery compartment, an oscillating lever-arm connected with said ejector-member for

operating the same, a manually operated means for partially oscillating said lever-arm to give a manually communicated ejecting impulse to said ejector-member, and means operating in connection with said lever-arm for continuing its oscillation beyond the point of its manually controlled movement to complete the ejecting movement of said ejector-member, comprising a trigger oscillating in cooperation with said lever-arm, and an actuating-spring connected with said trigger-arm, substantially as and for the purposes set forth.

6. In a vending machine, the combination with a casing providing a stock compartment, an ejector-compartment and a delivery compartment, of an ejector-member slidably arranged beneath said stock compartment and in registration with the mouth of said delivery compartment, an oscillating lever-arm connected with said ejector-member for operating the same, a manually operated means for partially oscillating said lever-arm to give a manually communicated ejecting impulse to said ejector-member, and means operating in connection with said lever-arm for continuing its oscillation beyond the point of its manually controlled movement to complete the ejecting movement of said ejector-member, comprising a rock-shaft upon which said lever-arm is secured, a trigger-arm secured upon said rock-shaft, and an actuating spring connected with said trigger-arm, substantially as and for the purposes set forth.

7. In a vending machine, the combination with a casing providing a stock compartment, an ejector compartment and a delivery compartment, of an ejector-member slidably arranged beneath said stock compartment and in registration with the mouth of said delivery compartment, an oscillating lever-arm connected with said ejector-member for operating the same, a manually operated means for partially oscillating said lever-arm to give a manually communicated ejecting impulse to said ejector-member, and means operating in connection with said lever-arm for continuing its oscillation beyond the point of its manually controlled movement to complete the ejecting movement of said ejector-member comprising a rock-shaft upon which said lever-arm is secured, a trigger-arm secured upon said rock-shaft, and an actuating spring connected with said trigger-arm, and means for retracting said oscillating lever-arm, said trigger-arm and said ejector-member to their normal initial positions, substantially as and for the purposes set forth.

8. In a vending machine, the combination with a casing providing a stock compartment, an ejector compartment and a delivery compartment, of an ejector-member slidably arranged beneath said stock com-

partment and in registration with the mouth of said delivery compartment, an oscillating lever-arm connected with said ejector-member for operating the same, a manually operated means for partially oscillating said lever-arm to give a manually communicated ejecting impulse to said ejector-member, and means operating in connection with said lever-arm for continuing its oscillation beyond the point of its manually controlled movement to complete the ejecting movement of said ejector-member, comprising a rock-shaft upon which said lever-arm is secured, a trigger-arm secured upon said rock-shaft, and an actuating spring connected with said trigger-arm, and means for retracting said oscillating lever-arm, said trigger-arm and said ejector-member to their normal initial positions, comprising retractor-arms connected with said manually operated means connected with said lever-arm, coupling-members connected with each retractor-arm and adapted to be brought into coupled relation with each other upon the completion of the ejecting movement of said ejector-member, and a retractor-spring connected with one of said retractor-arms, substantially as and for the purposes set forth.

9. In a vending machine the combination with a casing providing a stock compartment, an ejector compartment and a delivery compartment, of an ejector-member slidably arranged beneath said stock compartment, an oscillating lever-arm connected with said ejector-member, a manually operated means connected with said oscillating lever-arm adapted to move the same to give an initial ejecting impulse to said ejector-member, and means connected with said oscillating lever-arm for continuing the initial movement of the same to complete the ejecting movement of said ejector-member independently of said manually operated means, and means for retracting said oscillating lever arm and said ejector member to their normal initial position, comprising retractor-arms connected with said manually operated means connected with said lever-arm, coupling members connected with each retractor-arm adapted to be brought into coupled relation with each other upon the completion of the ejecting movement of said ejector-member, and a retractor-spring connected with one of said retractor-arms, substantially as and for the purposes set forth.

10. In a vending-machine, a slidably mounted ejector-member, a rock-shaft and connected with said ejector-member, and means for rocking said rock-shaft to continue the forward movement of said lever-arm and ejector-member, comprising a trigger-arm secured to said rock-shaft,

and an actuating spring connected with the free end of said trigger-arm, substantially as and for the purposes set forth.

11. In a vending-machine a slidably
5 mounted ejector-member, a rock-shaft, an oscillating lever-arm secured on said rock-shaft and connected with said ejector-member, and means for rocking said rock-shaft to continue the forward movement of said
10 lever-arm and ejector-member, comprising trigger-arm secured to said rock-shaft, and an actuating spring connected with the

free end of said trigger-arm, and means for retracting said lever-arm, ejector-member, and trigger-arm to their normal initial positions. 15

In testimony, that I claim the invention set forth above I have hereunto set my hand this 12th day of January, 1911.

WILSON D. CRAIG WRIGHT.

Witnesses:

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Jos. H. YERKES.