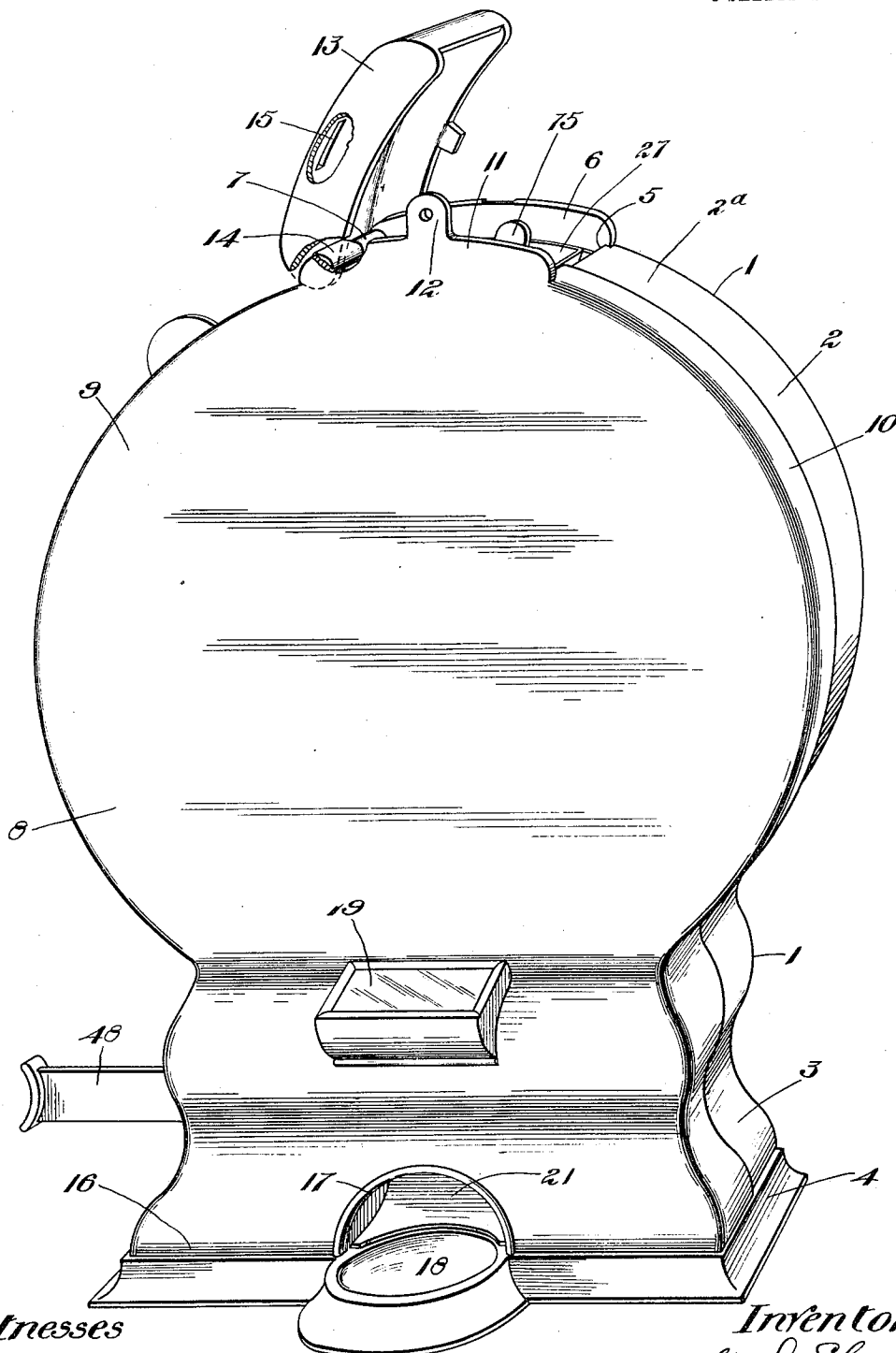


1,046,502.

G. D. SHRUM.
AUTOMATIC VENDING MACHINE.
APPLICATION FILED APR. 4, 1910.

Patented Dec. 10, 1912.
3 SHEETS—SHEET 1.



Witnesses

A. J. Dunnington
W. C. Blair

Fig. 1.

Inventor

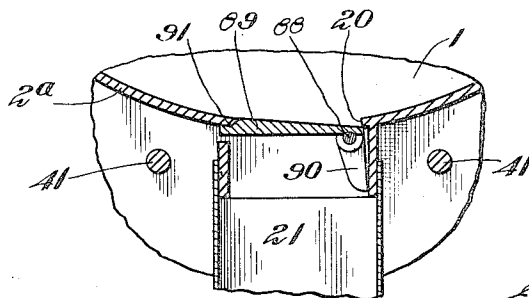
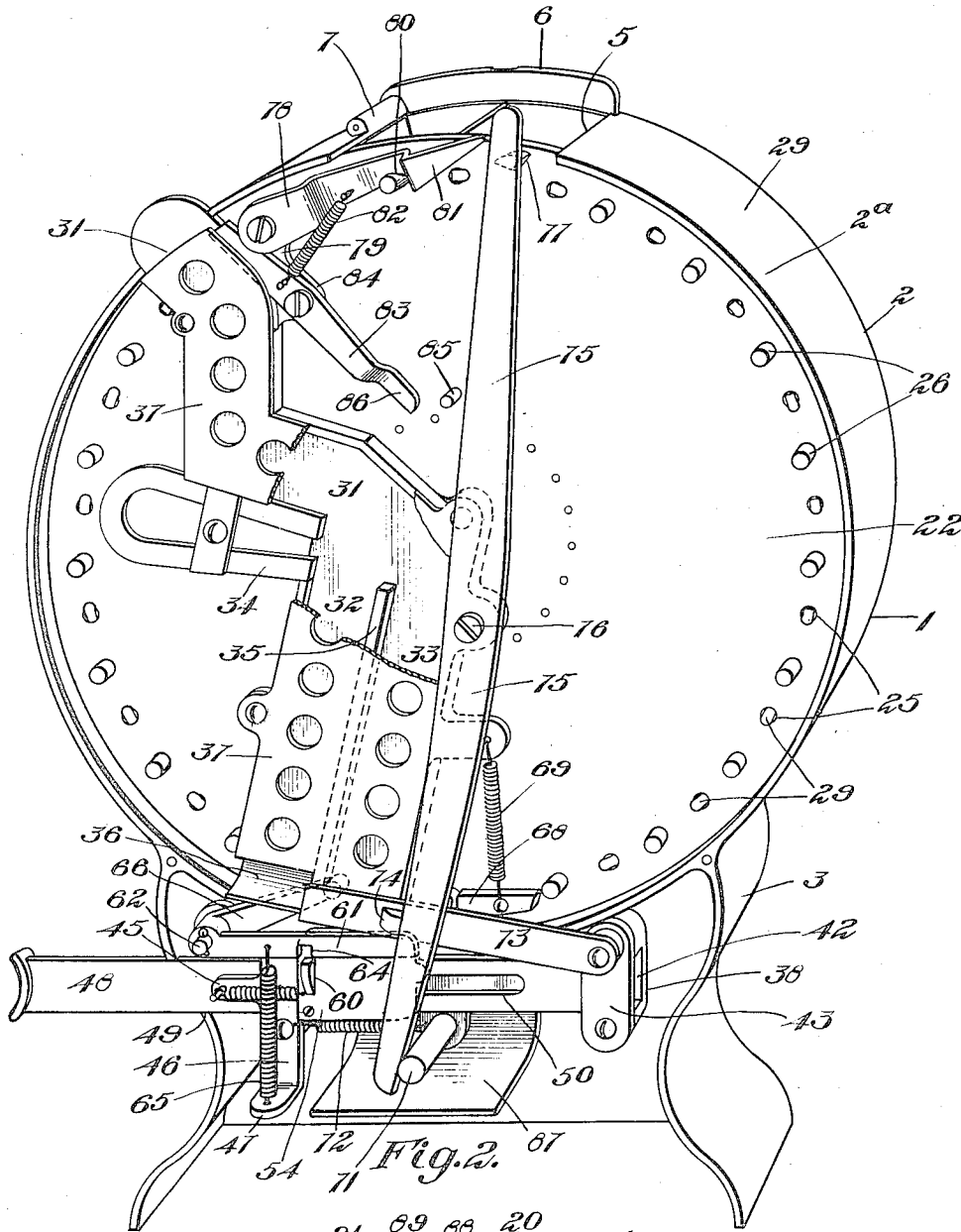
G. D. Shrum
by *E. J. Hutchinson*
att'y.

G. D. SHRUM.
AUTOMATIC VENDING MACHINE.
APPLICATION FILED APR. 4, 1910.

1,046,502.

Patented Dec. 10, 1912.

3 SHEETS—SHEET 2.



Witnesses
A. J. Dunnington
W. C. Miller

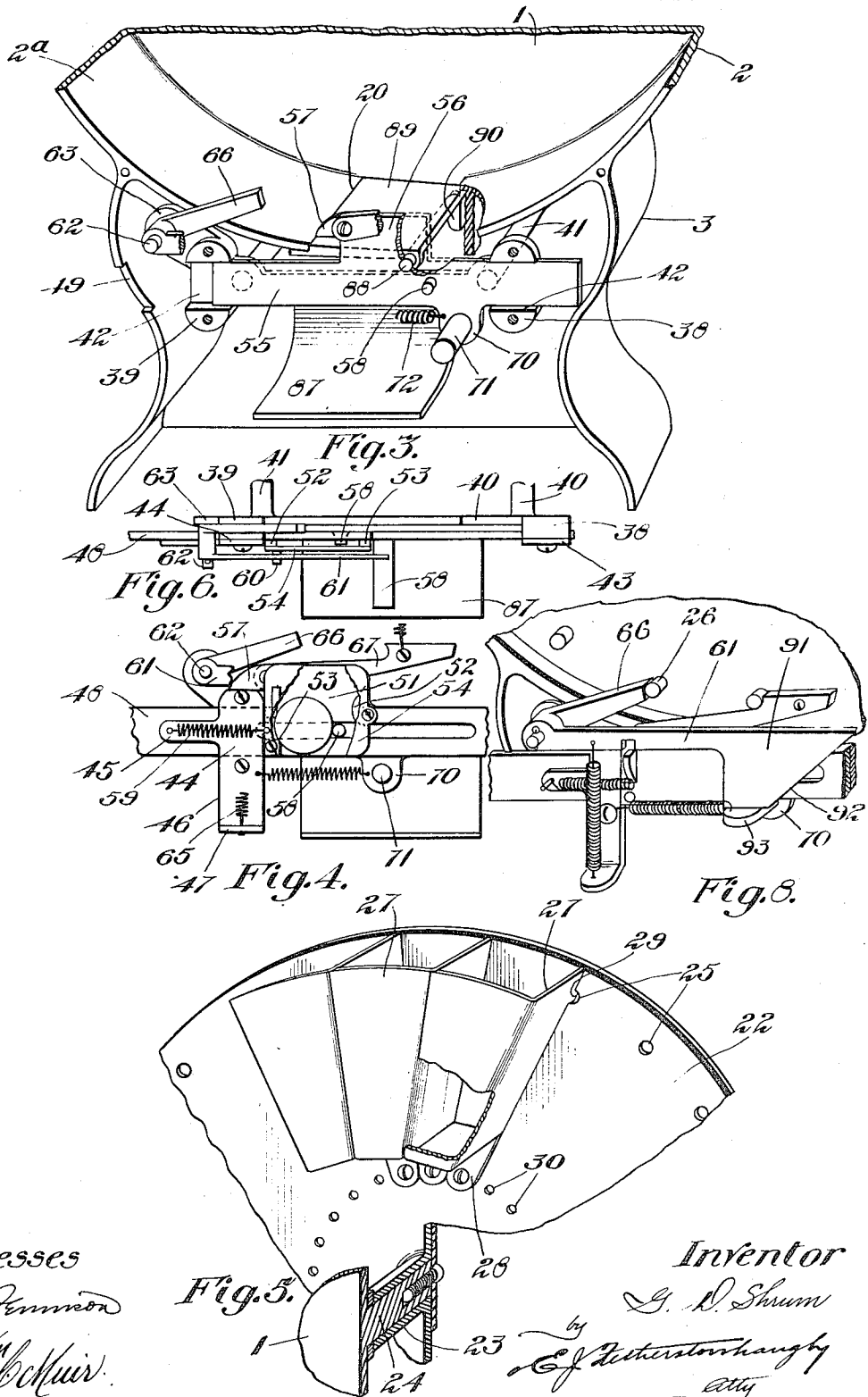
Inventor.
G. D. Shrum
by
E. J. Dunnington
att'y.

G. D. SHRUM.
 AUTOMATIC VENDING MACHINE.
 APPLICATION FILED APR. 4, 1910.

1,046,502.

Patented Dec. 10, 1912.

3 SHEETS—SHEET 3



Witnesses
 H. J. J. J.
 W. C. C. C.

Fig. 5.

Inventor

G. D. Shrum
 by
 E. J. J. J.
 atty

UNITED STATES PATENT OFFICE.

GEORGE D. SHRUM, OF TORONTO, ONTARIO, CANADA, ASSIGNOR OF TWO-THIRDS TO
RICHARD THORNE, OF TORONTO, ONTARIO, CANADA.

AUTOMATIC VENDING-MACHINE.

1,046,502.

Specification of Letters Patent.

Patented Dec. 10, 1912.

Application filed April 4, 1910. Serial No. 553,304.

To all whom it may concern:

Be it known that I, GEORGE D. SHRUM, a citizen of the United States of America, and resident of the city of Toronto, county of York, Province of Ontario, in the Dominion of Canada, have invented certain new and useful Improvements in Automatic Vending-Machines, of which the following is a specification.

The invention relates to improvements in automatic vending machines, as described in the following specification and illustrated in the accompanying drawings that form part of the same.

The invention consists essentially in the novel construction and arrangement of parts, whereby the goods are contained in individual pockets and the contents of one pocket are delivered for each sale.

The objects of the invention are, to obviate the necessity of having the goods specially made to an exact size and shape and packed in individual packages, and to devise a machine, simple as to its parts, positive in its operation and in which the goods to be sold may be placed in bulk form and disposed of in definite portions for each sale.

In the drawings, Figure 1 is a perspective view of my device showing the top cover in a raised position and partly broken away. Fig. 2 is a perspective view of the machine with the front casing removed, some of the parts being broken away. Fig. 3 is a perspective detail of a portion of the casing and some of its operating parts. Fig. 4 is a front elevational view of the coin receiving device and co-acting parts, the front plate of said coin receiving portion being broken away. Fig. 5 is a perspective detail of a portion of the pocket supporting member showing the pockets secured to the face thereof. Fig. 6 is a detail plan-view of the plunger and coin operating mechanism. Fig. 7 is a sectional detail of a portion of the frame showing the means for closing the opening through which the goods are discharged. Fig. 8 is a perspective detail view showing a slightly modified form of stop mechanism.

Like numerals of reference indicate corresponding parts in each figure.

Referring to the drawings, 1 is the main casing of the machine, the upper portion 2 thereof being circular in form and having

an annular flange 2^a extending laterally 55 therefrom. The lower portion 3 of the casing 1 extends downwardly from the circular portion 2 and flaring outwardly at the bottom rests within the flanged base 4 and is secured to said base in any suitable manner. 60

5 is an opening in the top side of the flange of the upper circular portion 2 of the casing.

6 is an upstanding narrow flange projecting upwardly from the back of the casing 1 and extending a short distance to each side 65 of the opening 5.

7 is a lug formed integral with the flange 2^a at one side of the opening 5.

8 is the front cover of the machine, having the upper circular portion 9 formed with a flange 10 adapted to fit over the edge of the flange of the main casing and having an upstanding portion 11 corresponding with the flange 6 on the casing 1 and a central lug 12 projecting upwardly from the 75 portion 11, said lug having a hole there-through.

13 is a cover having a hinge portion 14 pivotally connected to the lug 7 by a suitable pin and also having a slot 15 in the top thereof through which the lug 12 extends when said cover is in its lowermost position. The cover 13 completely closes in the opening 5 in the main casing and is secured in 85 place by a suitable padlock having its hasp inserted through the orifice in the lug 12.

The lower portion 16 of the front cover extends downwardly into the base 4 and is formed with an arc shaped opening 17 at the lower edge, said opening spanning the cup shaped receptacle portion 18 of said base.

19 is a display receptacle formed on the front face of the cover 13 having a glass front to exhibit the goods that are being sold in the device. 95

20 is an opening in the flange of the main casing 1 at the bottom thereof, said opening leading to a chute 21, said chute in turn leading to the cup shaped receptacle 18 in the base 4 and conveying the goods delivered thereinto to said receptacle. 100

22 is a disk having a central hub 23 journaled upon the stud 24 centrally arranged and projecting inwardly from the back of the casing 1. The disk 22 is of slightly smaller diameter than the interior of the 105

casing 1 and turns freely therein and is formed with a plurality of orifices 25 spaced equidistant adjacent to its outer edge.

26 are pins forming part with or secured to the disk 22 and extending outwardly therefrom to the opposite side from the hub 23 and spaced equidistant adjacent to the outer edge thereof.

27 are sheet metal casings each formed with two sides and a bottom portion and a downwardly extending lug 28 having an orifice through the end thereof and an outwardly projecting lug 29 extending through the orifices 25. The casings are formed with their outer edges arranged in radial relation so that they fit snugly together in a circle, the lugs 28 being secured by suitable screws extending into the threaded orifices 30 in the disk 22 and the outer portions being secured by the lugs 29 extending through the orifices 25 and flanged over on the outside. A plurality of radially arranged pockets are thus formed on the disk 22, each separate and distinct from the other and the outer edges of the pockets are arranged to swing very close to the inner surface of the annular flanged portion of the main casing 1 so that small candies, peanuts, pop corn and such like articles may be placed in the pockets without being wrapped up and held therein by the annular flange of the casing 1, the pockets being filled through the upper opening 5 in said flange and the disk rotated to allow the filling of all of the pockets.

31 is the coin chute extending through the flange of the casing 1 adjacent to the top opening. The chute 31 extends angularly inward from its opening for a short distance and then extends vertically downward, again turning angularly inward and leading at a gentle angle to a pair of passages 32 and 33 arranged side by side and extending downward in a slightly backwardly sloping direction, that is to say, sloping angularly slightly off the perpendicular toward the entrance opening of the chute.

34 is a permanent magnet supported from the chute 31 and forming the bottom of the gently sloping incline leading to the passages 32 and 33. The rib 35 dividing the passages 32 and 33 terminates below the upper terminal end of the magnet 34.

36 is a lip at the bottom end of the passage 32 curving outwardly.

37 is a plate covering the chute 31 having a plurality of perforations therein. The peculiar formation of the chute 31, together with the coin operating mechanism, prevents fraudulent operation of the machine. The coin is carried into the machine on the short step incline at the entrance of said chute. The inward travel is arrested by the perpendicular portion and the coin drops upon the edge of the magnet 34 and travels downward on the gentle incline. If the coin is

the proper weight, the impetus given in its passage so far, throws it over the top end of the rib 35 so that it drops down the passage 33, but if it is heavy it will roll down the passage 32, or if an iron washer or anything of a like nature is dropped in, the magnet exerts sufficient pull upon it to hold it from jumping across the opening to the passage 32 and falling down the passage 33.

38 and 39 are brackets connected together by the cross bar 40 and supported from the back of the casing 1 below the circular portion by the studs 41.

42 are horizontal slots formed in the front faces of the brackets 38 and 39.

43 is a plate secured by suitable screws to the face of the bracket 38 and covering in the slot 42 therein.

44 is a plate secured by suitable screws to the bracket 39 and having a laterally extending arm 45 and a downwardly extending portion 46, said downwardly extending portion having an outwardly bent lip portion 47 at the bottom end.

48 is the plunger bar slidably supported in the horizontal slots in the brackets 38 and 39 and extending outwardly through a slot 49 in the frame 1, said bar having a longitudinal slot 50 arranged therein. The plunger 48 is formed with an upwardly extending portion 51 adjacent to one end of the slot 50 and outwardly projecting bosses 52 and 53, said bosses having suitably threaded screw holes therein.

54 is a plate rigidly secured to the outer faces of the bosses 52 and 53 by screws and held from the outwardly extending portion of the plunger 48 a sufficient distance to allow the desired coin to enter between said plunger and the inner side of said plate.

55 is a bar slidably arranged in the slots in the brackets 38 and 39 to the inside of the plunger 48 and having an upwardly extending portion 56 arranged about mid-way of its length, said upwardly extending portion having a projecting portion 57 formed with a rounded upper edge.

58 is a pin secured to the bar 55 and extending through the slot 50 in the plunger 48, said pin being so arranged that when the plunger and bar 55 are in their normal position, the distance between the inner side of said pin and the boss 52 is a shade smaller than the diameter of the coin intended to operate the machine. The coin drops down through the passage 33 into the receptacle formed by the plunger 48 and plate 54 and striking against the sloping surface of the boss 53 falls between the boss 52 and pin 58 and is stopped thereby. The coin thus forms an operating connection between the plunger and bar 55 so that when the plunger is pushed inwardly, said bar moves with it in an inward direction.

59 is a spring secured to the end of the

lateral arm 45 and to a suitable pin extending outwardly from the plate 54 said spring holding the plunger to its normal position.

60 is a lug projecting outwardly from the face of the plate 54.

61 is a pivotal arm having a boss at one end thereof pivoted on a pin 62 secured to an extension arm 63 from the bracket 39. The arm 61 is formed with a notch 64 in its under edge adapted to receive the lug 60 on the plate 54. The arm 61 is held in engagement with said lug 60 by a spring 65, at one end secured to the lip 47 and at the other end secured to said arm.

66 is an arm rigidly secured to the boss on the arm 61 and extending upwardly therefrom and adapted to engage the pins 26 projecting from the disk 22 to arrest the movement of said disk in one direction.

67 is an arm pivotally supported from the upward extension of the bar 55, said arm 67 having a hook shaped outer end 68. The arm 67 is spring held upwardly by a spring 69 supported from the chute 31 and operates as a ratchet to turn the disk 22 as hereinafter described.

70 is a lug projecting downwardly from the bar 55 and having the pin 71 extending outwardly therefrom.

72 is a spiral spring secured at one end to the lug 70 and at the other end to the downwardly extending portion 46 of the plate 44.

73 is a bar extending from the bracket 38 to the bottom of the chute 31, being rigidly secured to said chute and forming a brace therefor.

74 is a lug projecting outwardly from the bar 73 adjacent to where it is secured to the chute.

75 is an arm pivotally supported upon the screw 76 secured in a suitable lug on the side of the chute 31. The lower end of the arm 75 engages the pin 71 and the upper end of said arm projects upwardly through the opening 5 in the flange 2^a in the circular portion of the main casing.

77 is a lug projection from the inside of the arm 75 adjacent to its upper end.

78 is a latch member pivotally secured to a lug 79 extending from the top side of the chute 31, said latch member having the notch 80 in its underside and formed with an offset end 81, said offset end having a sloping underside adapted to engage the lug 77 from the arm 75.

82 is a spiral spring holding the latch 78 to engage the pins 26 on the disk 22.

83 is a lever pivotally supported from a lug 84 extending from the side of the chute 31, one end thereof being adapted to swing in between the front and back plates of said chute and close the passage to said chute.

85 is a pin secured to the disk 22 and adapted to engage the offset end 86 of the lever 83, to tilt said lever and close the said

chute. The spring 82 connected at one end to the latch 78 is connected at the other end to the lever 83 and holds said lever normally clear of the chute.

87 is a shield supported from the cross bar 40 and extending underneath the coin receiving chamber in the plunger, guiding the coins into the coin receptacle in the base of the machine arranged to each side of the chute 21.

88 is a pin rigidly secured in the bar 55 and extending inwardly immediately beneath the annular flange of the upper circular portion of the casing 1.

89 is a leaf pivotally supported on the pin 88 and having a downwardly extending spur 90 adapted to engage the side of the wall of the chute leading from the said upper circular portion of the casing 1 and having a notch 91^a in its forward edge to receive the edge of the annular flange.

In the operation of this device, a coin is placed in the mouth of the chute 31 and the said coin drops down the vertical portion and falls on the upper side of the magnet 34. The coin then rolls down the inclined edge of the magnet and jumps across the partition or rib 35 and drops down the passage 33 and into the receptacle formed on the plunger 48. The coin is arrested and held in the receptacle between the pin 58 and the boss 52 as previously described. The plunger 48 is then pushed inwardly and the bar 55 carried with it through the medium of the coin resting edgewise between the boss 52 and pin 58. The longitudinal movement of the bar 55 carries the pivotal arm 67 with it and said arm springs downwardly under the next succeeding pin 26 on the disk 22, and the hook shaped portion immediately springs up and engages the said pin. The plunger is then released and is returned to its normal position by the spring 59 and the bar 55 is also returned to its normal position by the spring 72. As the plunger 48 returns to its normal position, the lug 60 slides along the underside of the pivotal arm 61 and as the said plunger reaches the limit of its return movement, and the notch 64 registers with the lug 60, the spring 65 pulls the said arm downwardly, consequently tilting the arm 66 and throwing the outer end thereof clear of the pins 26 on the disk 22.

The return movement of the bar 55 carries the arm 67 with it and the hook shaped outer end 68 rotates the disk 22. As the bar 55 approaches the limit of its return movement, the rounded portion of the projection 57 engages the underside of the arm 66, throwing it back to its normal position and engaging one of the pins on the disk. The movement of these parts is very sharp so that the arm 66 is withdrawn from engagement with one of the pins of the disk and returned immediately to engage the next suc-

ceeding pin as the arm 67 rotates the disk. It will therefore be seen that the disk is moved, upon each movement of the plunger, just the distance between two of the pins and as these
 5 pins are arranged on the disk to correspond with the number of the pockets supported on said disk, the said disk will be moved to bring the next succeeding pocket over the opening in the bottom of the circular flange
 10 2^a of the main portion of the casing. The leaf 89 closing the opening in the bottom of said main casing is moved clear of the said opening simultaneously with the return of the bar 55 and the contents of the pocket are
 15 discharged into the chute leading therefrom and delivered into the pocket shaped receptacle in the base. As soon as the plunger is released, after being pushed in, the coin is immediately released and falls into the coin
 20 receptacle in the base of the machine.

It will be readily seen that unless the coin placed in the machine is of the proper dimensions it will not lodge in the coin receptacle in the plunger, as the pin 58 is arranged just the proper distance away from
 25 the boss 52 to hold the coin just about at its center. If the coin is only slightly smaller it will pass between the said boss and pin, therefore the inward movement of the plunger will not move the bar 55.
 30

If iron washers or slugs of heavier weight than the proper coins are placed in the machine they will drop upon the magnet in the same manner as the coin and if the slug is
 35 iron, the attraction of the magnet retards its movement down the inclined edge and it rolls over the corner of said magnet and drops down the passage 32, being thrown clear of the mechanism by the lip at the bottom of said passage. Slugs of lead or such
 40 like material, if heavier than the proper coin, will not clear the rib 35 and consequently fall down the passage 32. The pivotal arm 7 is spring held in engagement with the pins 26 on the disk 22 as described
 45 and prevents the disk turning backwardly while the pivotal arm 67 is moving forwardly to engage the next succeeding pin prior to turning the disk and said arm 78 merely springs upwardly and allows the
 50 disk to rotate with the return movement of the bar 55.

The machine may be operated in the manner described until the contents of the last
 55 pocket have been delivered and as the disk rotates to bring the last pocket delivering goods into its proper position, the pin 85 projecting therefrom engages the offset end of the lever 83 tilting said lever on its pivot
 60 and swinging the forward end thereof across the mouth of the chute, thus preventing the placing of coins in the machine after it is emptied.

In order to refill the machine the cover
 65 13 is unlocked and swung back upon its

hinge. The arm 75 is then swung on its pivot and the lower end engaging the pin 71 moves the bar 55 forwardly. Simultaneously with the forward movement of the bar the lug 77 lifts the latch member 78 upwardly clear of the pins 26 on the disk 22.
 70

The retraction of the bar 55 withdraws the projection 57 from engagement with the arm 66 and allows the arm 61 to swing downwardly, as the notch in the underside of said arm is then registering with the
 75 lug projecting from the plunger. The said arm 66 is thus moved clear of the pins 26 and as the arm 67 acts as a ratchet, the disk may be turned freely and each of the compartments or pockets secured to said disk filled with goods to be sold. The swinging
 80 of the arm 75 and the retraction of the bar 55 moves the leaf 89 to its closed position, the spur 90 abutting the side of the chute and swinging the front end of said leaf close up to the closed position shown in Fig. 7. The leaf 89 forms a continuous annular flange of the main casing so that the goods
 85 are held securely in their respective pockets as the disk is rotated.
 90

On the completion of the filling of the pockets, the arm 75 is thrown back to its normal position releasing the latch member 78 and allowing the bar 55 to move back to its normal position, said bar re-setting the locking arm 66. The machine is then ready for operation.
 95

In Fig. 8 a slight modification of the means for throwing the arm 66 back to engage the pins 26. In this form the arm 61
 100 is elongated and formed with an enlarged end 91 having a beveled front edge 92 sloping backwardly from the top edge. 93 is a horizontal lug projecting from the lug 73 upon which the lower edge of the end 91 rests, while the machine is idle. On the inward movement of the plunger 48 the lug 93 is moved from under the bottom edge of the portion 91 of the arm 61 and when the said
 105 arm 61 is dropped, on the return of the plunger, to move the arm 66 free of the pin 26, the sloping edge 92 engages the lug 93. The lug 93, on the return movement of the bar 55 engages the sloping edge 92 of the arm 61 and swings said arm upwardly, thus returning the arm 66 to its original position immediately the bar 55 begins its return movement. The arm 66 is thus returned to intercept the next pin and stop the rotation
 110 of the disk. This means for operating the stop arm 66 is more positive than the means previously described.
 115

A machine such as described is very simple and there are no delicate parts which
 125 will get out of order easily. The vending of articles in bulk form makes possible the vending of articles of various shapes and sizes and therefore effects a considerable saving in labor and materials and also allows
 130

the user to change the class of goods to be sold, at will.

What I claim as my invention is:—

1. In an automatic vending machine, the combination with a frame and a rotary goods containing member having a plurality of lateral pin projections arranged on one of its side faces, of a member slidably arranged in said frame and spring held to its normal position, a hook shaped pawl member pivotally supported on said slidable member and adapted to engage said pin projections and to rotate said goods container with the return movement of said spring actuated slidable member, a pivotal stop arm adapted to be moved into the path of said pin projections to arrest the movement of said goods container, and means for operating said slidable member.

2. In an automatic vending machine, the combination with the frame and a rotary goods containing member having a plurality of lateral pin projections arranged on its side face, of a member slidably arranged in said frame, an arm pivotally secured to said slidable member having a hook shaped end adapted to engage said pin projections to rotate said rotary member, a stop arm pivotally supported from the frame and adapted to normally engage one of the pins of the rotary member, spring means for withdrawing said stop arm from engagement with said pins, means secured to said slidable member for returning said stop arm to its normal position, and means for controlling the operation of said slidable member.

3. In an automatic vending machine, the

combination with the frame and a rotary goods containing member having a plurality of lateral pin projections arranged on its side face, of a member slidably arranged in said frame, means operatively connected with said slidable member adapted to engage the pin projections on said rotary member to rotate said member, a plunger adapted to operate said slidable member having a lug projecting therefrom, a pivotal stop arm adapted to engage said pins to limit the movement of said rotary member, said stop arm having a notched arm secured thereto and adapted to rest on said lug, and means secured to said slidable member for lifting said notched arm to disengage the lug of said plunger from the notch therein.

4. In an automatic vending machine, the combination with the frame and a rotary goods containing member having a plurality of lateral pin projections arranged on its side face, means for rotating said rotary member, means for limiting the rotation of said member, a spring held ratchet member adapted to prevent the backward movement of said rotary member, and a pivotal lever adapted to move said limiting means out of operation and to move said spring held ratchet arm out of engagement with said pins.

Signed at the city of Toronto, county of York, Province of Ontario, in the Dominion of Canada, this 24th day of March, 1910.

GEORGE D. SHRUM.

Witnesses:

H. DENNISON,

E. HERON.