March 15, 1927. 1,621,244

A. A. FAGEN

COIN OPERATED VENDING MACHINE

Filed May 11, 1922 2 Sheets-Sheet 1

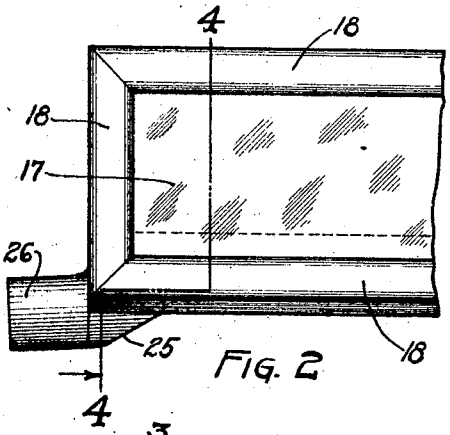


FIG. 2

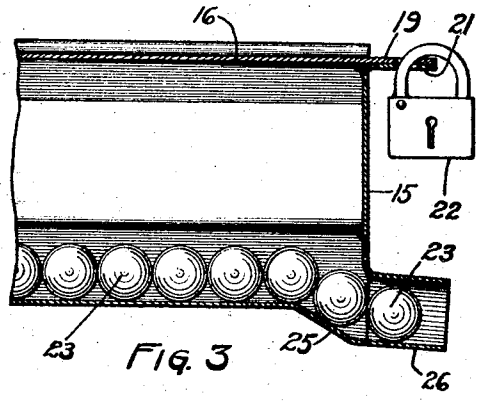


FIG. 3

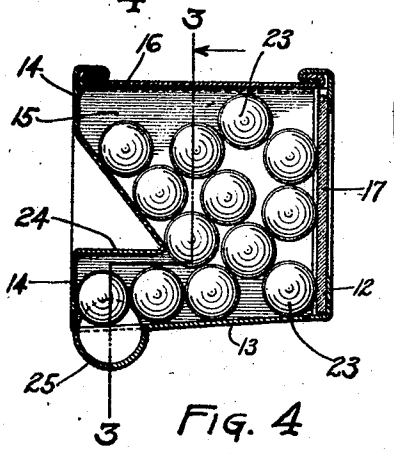


FIG. 4

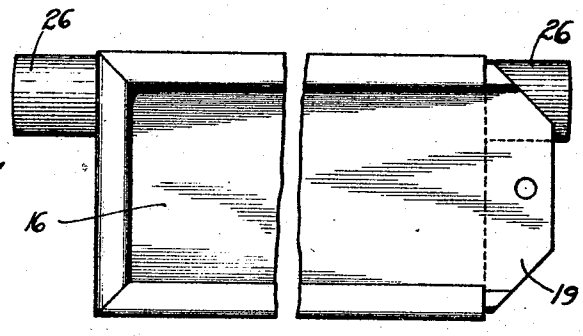


FIG. 5

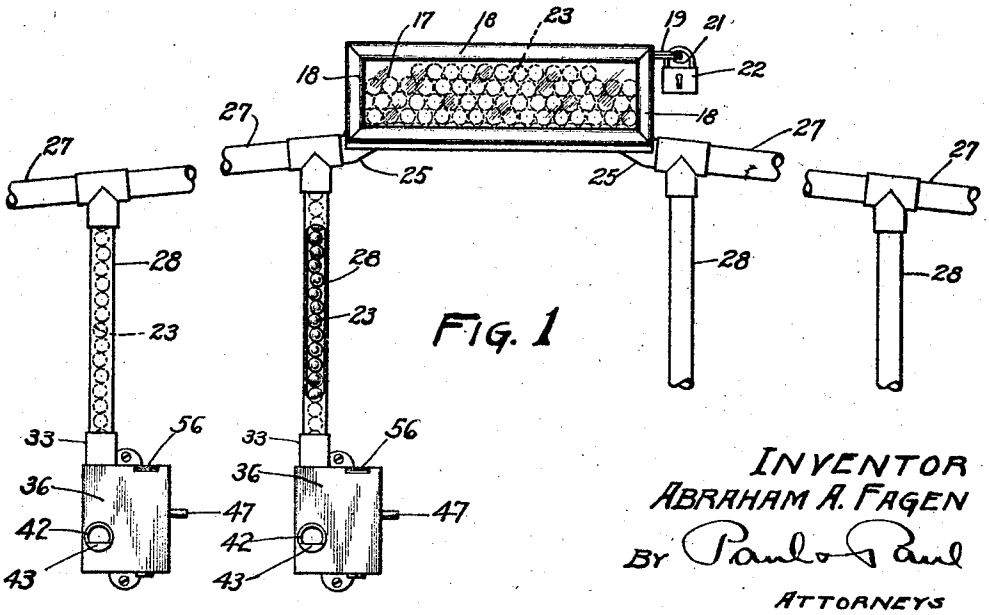


FIG. 1

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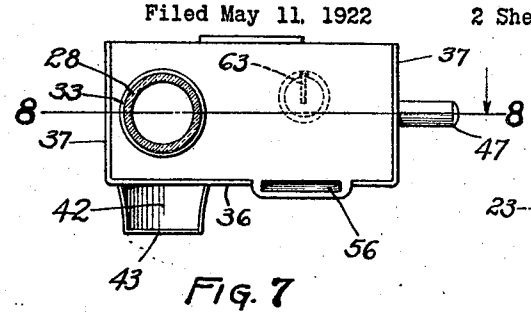


FIG. 7

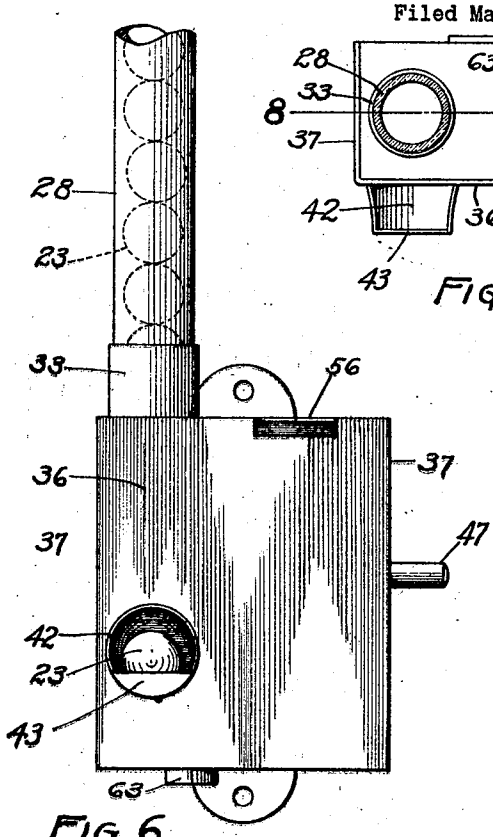


FIG. 6

FIG. 8

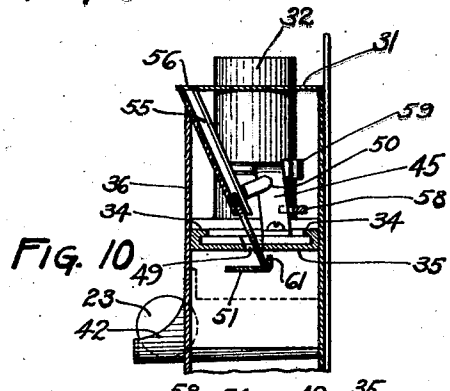


FIG. 10

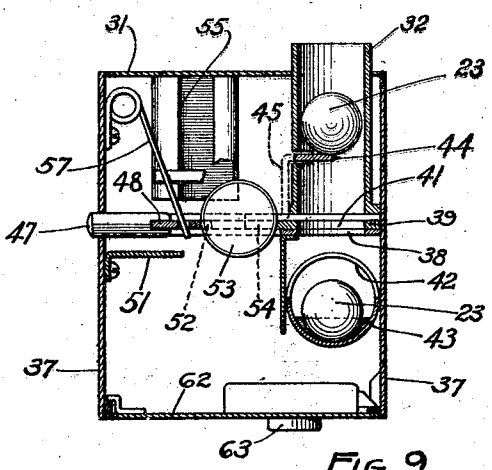


FIG. 9

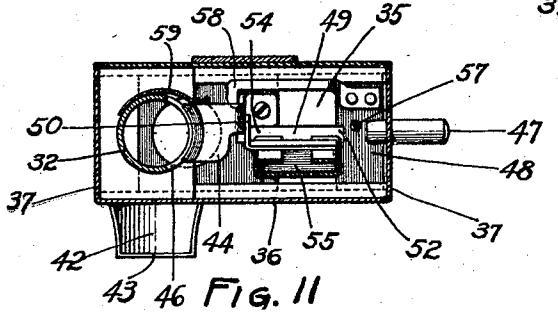


FIG. 11

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Patented Mar. 15, 1927. 1,621,244

UNITED STATES PATENT OFFICE.

ABRAHAM A. FAGEN, OF MINNEAPOLIS, MINNESOTA.

COIN-OPERATED VENDING MACHINE.

Application filed May 11, 1922. Serial No. 560,215.

This invention relates to improvements in coin-operated vending machines. This invention is directed more particularly both to improvements in the coin-actuated delivery mechanism as well as in a reservoir adapted to be connected to one or several such delivery mechanisms. This vending machine is adapted for use in a manner similar to that set forth in United States Patent No. 1,412,464 of the inventor hereof.

The object, therefore, of this invention is to provide an improved vending machine.

Other objects of the invention will more fully appear from the following description and the accompanying drawings and will be pointed out in the annexed claims.

In the accompanying drawings, there has been disclosed a structure designed to carry out the objects of the invention, but it is to be understood that the invention is not confined to the exact features shown, as various changes may be made within the scope of the claims which follow.

In the drawings:

Figure 1 is a view in front elevation of an improved reservoir showing the manner of feeding the vendible articles to a plurality of vending mechanisms;

Figure 2 is a view in front elevation of a portion of the reservoir;

Figure 3 is a vertical sectional view on the line 3—3 of Figure 4;

Figure 4 is a vertical sectional view on the line 4—4 of Figure 2;

Figure 5 is a plan view of the reservoir;

Figure 6 is a view in front elevation of the coin-operated delivery mechanism;

Figure 7 is a plan view of the same;

Figure 8 is a vertical sectional view on the line 8—8 of Figure 7 and showing the parts in normal position with an inserted coin;

Figure 9 is a view similar to that of Figure 8, but showing the completed delivery operation;

Figure 10 is a vertical sectional view on the line 10—10 of Figure 8; and

Figure 11 is a horizontal sectional view on the line 11—11 of Figure 8.

The general construction of the reservoir may be of any convenient type to carry out the particular objects desired to attain. It is here shown as formed of sheet metal in a plurality of pieces shaped to provide a marginal front 12, base 13, back 14, similar ends 15, and a top 16. A transparent panel 17, preferably of glass may form as shown the major portion of the front of the reservoir in order to permit inspection of reservoir contents and a somewhat decorative sheet metal border 18 may be added if desired. Preferably the top 16 is formed by a slide movable in the slideway formed, as shown in Figure 4, by the opposed marginally bent portions of the reservoir. A suitable handle for the slide is afforded by outwardly extending the terminal slide portion 19 and a convenient locking means may be provided by an outwardly projecting portion on the reservoir side 15 which substantially forms a bracket 21 and by aperturing the handle portion 19 and the bracket so that the two apertures are superimposed when the slide is in its reservoir-closing position as shown in Figure 3. A common form of lock 22 may be employed to lock the slide in closing position to prevent access to the contained articles 23. Such articles are here shown as substantially spherical objects, such as the usual balls of candy or candy-covered gum.

In this novel construction, the rear wall or back 14 of the reservoir is re-entrantly shaped to form the ledge 24 preferably forwardly extending a short distance in spaced relation to the base 13. The function of this ledge is to maintain the articles in a single layer adjacent the transverse back portion of the base. Thus jamming of the articles is prevented adjacent the outlet from the reservoir which is made adjacent the back wall at one or both ends of the reservoir. An outlet or opening to the chute is here shown at each end of the reservoir at the back and adjacent the base. As is shown in Figures 3 and 4, the openings are similar and each is circular in form and slightly larger than the object to be delivered. Preferably, the base 13 is formed with a semi-circular depressed portion 25 to provide a short descending portion or incline to facilitate article-delivery by gravity to the chute. A short coupling member 26 is soldered to the marginal portion of each of the reservoir openings so that each may conveniently be connected to a delivery pipe 27 leading to a plurality of chutes such as pipes 28 to deliver the articles to the individual coin-operated vending mechanisms at the lower ends of the pipes 28.

The base 13 of the reservoir is also preferably downwardly inclined in a rearward di-

rection to assure the gravitational presentation of the articles to the reservoir outlets.

The coin-operated vending mechanisms employed are similar and therefore but one need be shown and described. Each mechanism comprises a suitable metallic casing, the top 31 of which is preferably apertured to receive therethrough an upwardly projecting article receptacle such as the tube 32 carried by the casing. This tube is substantially of the same diameter as the pipe 28 and they are adapted to be positioned and held in terminally abutting and intercommunicating position as is shown in Figure 8. A collar 33 may surround the union between these article holders for reinforcing purposes. The lower end of the tube 32 is enlarged and is mounted upon the upwardly spaced flanges 34 integral with an elongated plate 35 preferably soldered to the front 36 and ends 37 of the casing. These flanges are oppositely disposed along the longitudinal margins of the plate. The plate is provided with an opening 38 in alinement with the open end of the tube 32. These spaced flanges have their upper marginal portions inwardly turned so as to provide a guiding slideway for the slide 39.

This slide controls the delivery of articles received within the tube 32. An aperture 41 is cut in the slide adjacent one end thereof. This aperture is of the same diameter as that of the tube 32 and the slide is normally adapted to be held in the position shown in Figures 8 and 11 wherein the extreme end portion of the slide 39 extends across the opening 38 in the plate 35 so that the articles are held in the tube 32. Obviously, upon movement of the slide 39 so that this aperture 41 comes into registry with the opening 38, the articles 23 may drop from the tube 32 through the alined aperture and openings to a transversely extending semicylindrical delivery member 42 which is carried by and extends through the front of the casing and is preferably provided with an upstanding lip 43 to prevent the article from dropping therefrom. Means are provided to prevent the drop of more than one article 23 at each operation of the slide 39. This is carried out by mounting a detent upon the upper face of the slide 39. The detent consists of a plate 44 carried by an integral strip 45 screwed to the slide 39 as is shown in Figure 10. The strip 45 upwardly extends so that the detent plate is held in spaced relation above the slide 39. This slide is adapted to be extended within the tube 32 through a slot 46 cut in the tube. The detent plate 44 is spaced from the slide 39, as shown in Figure 8, a distance equal to the outside diameter of an article 23. Thus, when the slide and detent plate are moved from the position shown in Figure 8 to that shown in Figure 9, the lower article 23 may be delivered while the article 23 next above is held by the detent plate 44. Furthermore, when the slide is retracted, its marginal portion will extend across the tube opening simultaneously with the removal of the detent plate 44 from the tube.

The slide and detent are adapted to be actuated by means of a manually actuable plunger-head through the intermediary of a coin in order that, upon insertion of a coin, an article may be delivered; while, if the plunger-head be pushed without insertion of a coin, the slide will not be moved to delivery position. A plunger 47 slidably projects through one end 37 of the casing and is secured, at its inner end, to a head 48 consisting of a substantially oblong piece of sheet metal. This plunger-head is also slidably mounted in the slideway formed by the plate flanges 34. The head 48, even when the plunger is inwardly pushed, does not move the slide 39 to delivery-opening position with relation to the tube 32. Such spaced relation of the head and guide necessitates the interposition of the coin to cause movement of the head to move the slide to releasing position. The plate 35 is provided with a central elongated slot 49 which is adapted to receive a coin. A coin-support is provided in the casing beneath the plate 35 in order initially to support the coin in the plate slot. This coin-support consists of an angled bracket 51 screwed to the end 37 of the casing. As is shown in Figure 8, this bracket 51 extends only a short distance beneath the plate slot 49 in order that the inserted coin may be initially supported in the position shown in Figure 8. Preferably the plunger head at its inner end is provided with a relatively short central notch 52 which is adapted to receive an edge of the inserted coin 53. Similarly, the opposed marginal portion of the slide 39 is provided with a relatively deeper notch 54 likewise to receive the substantially opposite portion of the coin received within the elongated slot 49 of the plate 35. Thus, the inserted coin provides a connecting median between the head 48 and the slide 39 so that the latter may move to article-releasing position. For the convenient insertion of a coin, there is provided a coin chute 55 extending from the coin slot 56 in the front of the casing and downwardly terminating at a point above the elongated slot 49 in the plate 35.

Means are provided normally and yieldably to hold the plunger 47 in outwardly extended position. This is simply effected by means of the wire spring 57 having one end secured to the casing end 37 and having its relatively free end passed through an aperture in the head 48. This spring normally tends to hold the head 48 in the position shown in Figure 8. In order that this spring also may move the slide to tube-

obstructing position, a finger 58 is riveted to the head 48 and inwardly extending is terminally offset to provide a hook adapted to engage the adjacent face of the strip 45, whereby, upon tensioned retraction of the plunger-head, the slide will also be moved to delivery preventing position. A stop lug 50 is secured to the chute 55 to engage the strip 45 to limit the retraction movement of the detent plate 44 and slide 39. It is believed preferable to place the plate 35 under some frictional braking means to obviate any tendency to movement upon unauthorized movement of the plunger-head. This is easily carried out by means of the relatively narrow leaf spring 59 having one end secured to the outer face of the tube 32, as by solder. This spring is arcuate in form and extends part way about the tube 32 and is so positioned that its inner face is adapted to be engaged and slightly outwardly held by the detent plate 44 with the resultant frictional tension which is resistant to movement of the slide and its detent.

In the operation of the device, the reservoir is initially filled with the articles with the result that the articles drop down the delivery pipes 27 to the chute pipes 28 and thence to the individual tubes 32 of the various coin-operated vending mechanism where the articles are held by the terminal portions of the various slides 39. When a purchaser desires to acquire one of the articles, a coin is inserted in the coin chute 55 and is thereby received within the elongated slot in the plate 35. The coin is supported in such position by the bracket 51 which preferably has a short marginal flange 61 to prevent the coin from slipping edgewise off the bracket as it is preferably delivered in an inclined position. The purchaser then inwardly pushes the plunger 47 so that its head 48 moves the coin with the result that the slide 39 is moved from the position shown in Figure 8 to that shown in Figure 9 with the result that the lowermost article 23 drops to the delivery member 42 which, as suggested in Figure 10, is downwardly inclined so that the article comes to a stop against the lip 43 outside the casing and is thus presented for easy removal by the purchaser. Upon release of the plunger 47 by the purchaser, the coin 53 is free to drop from the working position shown in Figure 9 to the bottom 62 of this inclosed casing, while the plunger and its head are tensionably removed to outer position ready for further vending operation of the mechanism. Preferably the bottom 62 of the casing is removable as is shown in Figure 9, it being preferably held in position by means of any suitable lock 63. The purpose of this locked removable bottom is to facilitate collection of the coins by the owner of the vending machine.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is:

1. A device of the class described comprising a casing having side and end walls, and a bottom slanting from one side wall to the other, a delivery opening in one end wall below the lowermost portion of the bottom, and a projection extending laterally from the side wall, overlying and spaced from the bottom a distance substantially equal to the diameter of the spherical bodies to be delivered, whereby the bodies are deliverd laterally to the channel thus formed to form a row of bodies for delivery through the opening in direction at right angles to their reception.

2. A device of the class described for permitting and obtaining a predetermined row formation of substantially spherical bodies, for successive guided delivery from opposite ends of the row into corresponding discharge chutes, comprising a substantially rectangular sheet metal structure having a bottom slanting downwardly from one side to the other, and delivery openings in its end walls partly below the level of the lowermost portion of the bottom, that wall adjacent the lowermost portion of the bottom being bent inwardly over the bottom and spaced therefrom a distance substantially less than twice the diameter of a spherical body to be delivered, and forming a passage for lateral reception of the lowermost elements of a pile of spherical bodies, to form a straight row of such bodies abutting the side wall, and alined in direction of and between said discharge openings.

3. A device of the class described as a central reservoir for successively delivering spherical bodies in opposite directions which comprises a sheet metal structure having side and end walls and a bottom slanting downwardly from one side wall to the other and having alined delivery openings in opposite end walls partly below the lowermost portion of the bottom, that said wall adjacent said openings being bent inwardly over the bottom and spaced therefrom to receive only those bodies resting upon the bottom and forming a passage for the lateral reception of the lowermost bodies of a pile of such bodies to form a row of bodies alined with the delivery openings, said bottom having grooves leading downward to the delivery openings, and said side wall being rebent outwardly and upwardly to form an incline for directing some of the overlying bodies toward the elongated lateral intake of the channel.

4. A device of the class described, comprising a casing having side and end walls and a slanting bottom and alined delivery openings in opposite end walls below the lowermost portion of the bottom, said bot-

tom adjacent the openings having guiding channels leading downward thereto, a projection extending from the side wall over the guide channels and longitudinally between and above the openings and spaced to receive only those spherical bodies resting upon the bottom and adapted to obtain a linear formation of the bodies against the side wall at the lowermost portion of the bottom for successive delivery through the openings in opposite directions.

In witness whereof, I have hereunto set my hand this 5th day of May, 1922.

ABRAHAM A. FAGEN.