

Dec. 6, 1927.

1,651,606

L. V. KUHN ET AL

VENDING MACHINE

Filed May 15, 1926

2 Sheets-Sheet 1

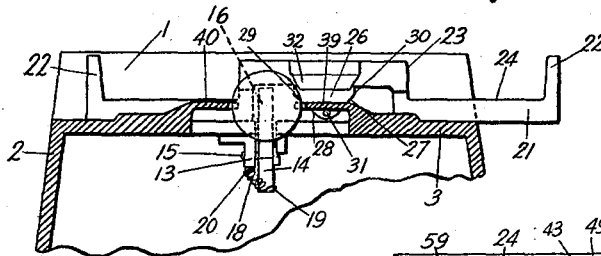


Fig. 2

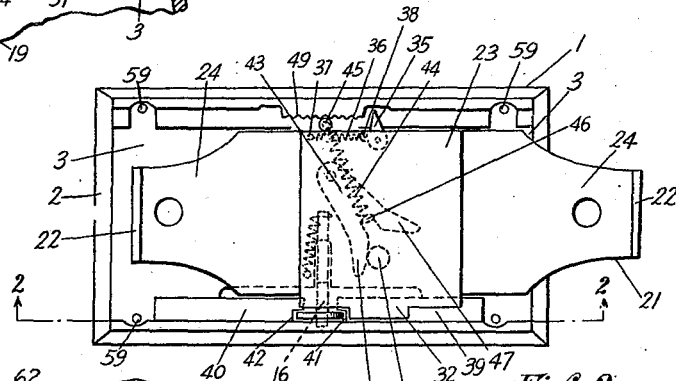


Fig. 3

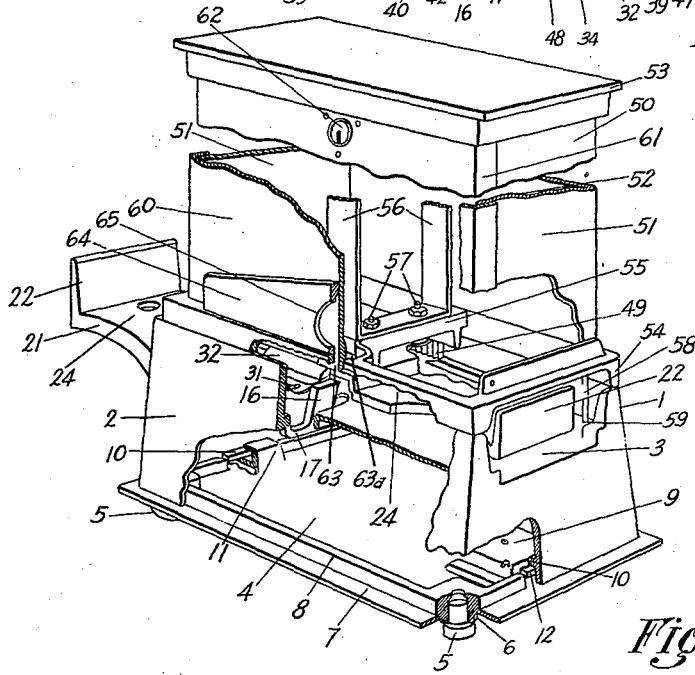


Fig. 1

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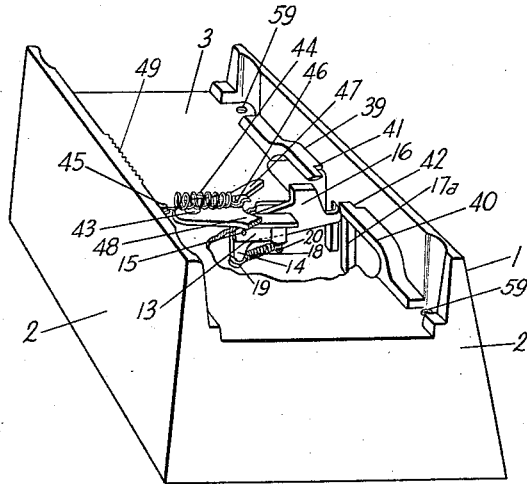


FIG. 4

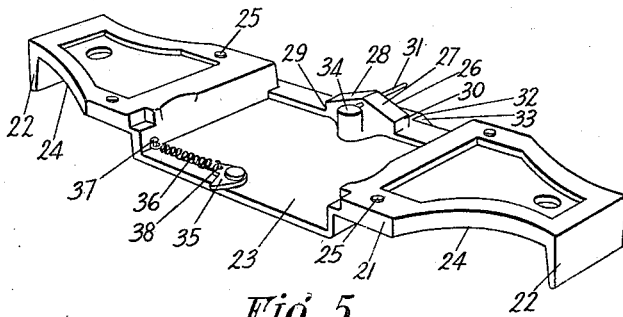


FIG. 5

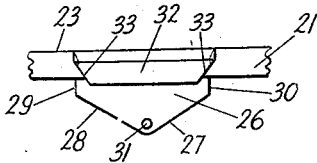


FIG. 6

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VENDING MACHINE.

Application filed May 15, 1926. Serial No. 109,252.

Our invention relates broadly to a vending machine and pertains more particularly to a coin controlled mechanism for delivering small packages or the like from a magazine.

5 The principal object of our invention is the provision of a simple and positive mechanism for delivering articles, such as boxes of matches, and the like from a magazine containing a supply of such articles.

10 A further object of our invention is the provision of a novel ratchet and pawl mechanism for positively preventing reversal of the delivery slide after partial operation thereof.

15 A still further object of our invention is the provision of a novel cam arrangement for assisting operation of the delivery slide.

20 A further object of our invention is the provision of means for positively ejecting a coin from the delivery mechanism after it has served to unlock and permit movement of the delivery slide which carries articles from the magazine.

25 Another object of our invention is the provision of a novel locking device for the delivery slide that it adapted to be unlocked to release the delivery slide by the insertion of a coin of the correct denomination.

30 Other important features of our invention reside in the means for eliminating friction between the base and the delivery slide; the manner of securing the closure plate to the base to prevent removal of coins therefrom; and the general design and assembly of the different parts of the complete machine.

35 A vending machine embodying the novel features of our invention is illustrated in the accompanying drawings, wherein similar reference numerals designate corresponding parts in the several figures and wherein—

40 Figure 1 is a perspective view having parts broken away and parts in section showing the general design of our vending machine and the nature and relation of its different parts;

45 Figure 2 is a fragmentary vertical sectional view taken on line 2—2 of Figure 3 and showing the operation of the coin control and delivery slide during operation;

50 Figure 3 is a fragmentary plan view of the base showing in particular the locating cam and the ratchet and pawl mechanism for preventing reversal of the delivery slide after partial operation;

Figure 4 is a perspective view having parts of the base broken away to show the arrangement of parts of the vending mechanism and the locating cam;

80 Figure 5 is a perspective view of the bottom of the delivery slide shown in Figures 1, 2 and 3;

Figure 6 is a fragmentary front elevational view of the delivery slide.

65 In the drawings, our novel vending machine is shown as comprising three principal parts which may be respectively designated as the base, vending mechanism and article containing magazine. Each of these parts will be separately described below and then 70 the operation of the machine as a whole explained to make clear the interaction of the several parts.

75 The base 1 comprises the walls 2, a top 3 and a removable bottom plate 4. The base 1 forms a coin receiving receptacle and is provided with the removable bottom plate for permitting access thereto. The bottom plate 4 is preferably provided with a plurality of resilient leg cushions 5 that are secured within suitable sockets 6. It also, has 80 flanges 7 and 8 which are designed to interfit with the bottoms of the walls 2 of the base to prevent removal of coins; and a lock 9 for attaching the bottom plate to the base. 85 The end walls of the base are preferably formed with projections 10 which the socket 11 and the tongue 12 of the lock 9 engage to hold the bottom plate 4 in position. It will be noted that the bottom plate 4 is of such 90 construction that the removal of coins from the base is effectively prevented, and that the resilient leg cushions are a safeguard against damage to any surface upon which the machine may rest. Accumulated coins 95 may be removed from the base by detaching the bottom plate 4 after unlocking the lock 9.

100 Secured to the underside of the top 3 of base 1 is a bracket 13. This bracket has pivoted thereto a detent 14 by means of screw 15. The detent 14 has a portion 16 that projects above the top 3 as shown in Figures 1 and 4. This detent is also formed with a recessed end 17 which fits in between 105 two guides 17^a formed on the front wall 2 for a purpose to be hereafter explained. The detent 14 is normally held in the position indicated in Figures 1 and 4 by means of a tension spring 18 connected at one end to a 110

depending portion 19 of the detent and at the other end to a pin 20 carried by the bracket 13.

The delivery slide 21 is carried by the top 3 of base 1 and is reciprocable with reference thereto. As particularly shown in Figures 2 and 5, this slide is preferably provided with upstanding end portions 22 and an intermediate portion 23 that is somewhat higher than the package receiving portions 24. The delivery slide 21 preferably has knobs 25 formed on the bottom thereof and these knobs 25 bear against the top 3 of base 1 when the delivery slide is in position. The purpose of these knobs is to reduce friction and make for easier operation of the delivery slide. Centrally of the bottom of the delivery slide and adjacent one edge thereof is formed a depending portion 26 which has oppositely inclined faces 27 and 28 and substantially vertical sides 29 and 30. The depending portion 26 also carries a pin 31 that constitutes the means for positively ejecting a coin after the release and operation of the delivery slide. The slide 21 is further formed with an element 32 which has the oppositely inclined end portions 33, the purpose of which will hereafter appear. A post 34 projects from the bottom of slide 21 and is adapted to cooperate with the locating cam hereafter described. A pawl 35 is pivoted to the slide 21 (see Figure 5) and this pawl is normally held in the position shown in Figure 5 by a spring 36 which is connected at one end to a fixed pin 37 and at the other end to a projecting ear 38 formed on one side of the pawl. The purpose and operation of the parts just described will be explained hereinafter.

The top 3 of base 1 is preferably formed adjacent one side and integral with one wall with the upstanding flange or guide members 39 and 40. These members are preferably recessed as at 41 and 42 to form a coin retaining opening which in combination with the recessed portion 17 of detent 14 supports a coin in operative relation to the vending mechanism in the manner hereafter described. To the top 3 of base 1 is also provided a locating cam 43 which can be positioned as shown in Figure 4, but which normally tends to move laterally under the influence of a tension spring 44 that is connected at one end to the fixed post 45 and at its other end to the tongue 46 on the locating cam. The locating cam 43 is preferably provided with the forks 47 and 48 and when the delivery slide is in position, these forks straddle the post 34. Thus, an initial movement of the delivery slide past 34 past the center position of cam 43 will be positively completed by the spring 44 without further assistance from the operator. Also, when the delivery slide begins movement the pawl 35 will engage or co-act with

the teeth of ratchet 49 to prevent reversal of the direction of movement of the delivery slide after partial operation thereof.

The magazine 50 consists of side walls 51 and a back wall 52 and to these walls are secured a top 53 and a bottom frame 54. The bottom frame 54 is provided with a transverse member 55 and to this member are secured the upright guides 56 by means of bolts 57. The bottom frame 54 may be secured to the base 1 by means of screws 58 which extend through openings 59 formed in the base 1 and engage with suitable threaded sockets formed in the frame 54. The front of magazine 50 consists of a removable plate 60 which has side flanges 61 for overlapping the side walls 52. The plate 60 may be secured to the front of magazine 50 by means of a lock 62 that is adapted to engage with the top 53 and a projection 63 that is designed to engage in an opening 63^a formed in the base frame 54. A plate 64 having a coin receiving opening 65 is attached to plate 60.

The operation of my novel vending machine is as follows:

The front plate 60 may be removed and the boxes of matches or other packages stacked on opposite sides of the guides 56. One of the stacks will rest in one of the package receiving portions 24 of the delivery slide 21, and the other stack will rest on the center elevated portion 23 of the delivery slide 21. At this time the delivery slide will be locked by the portion 16 of detent 14 engaging against one of the vertical sides 29 or 30 (depending upon which end of the slide projects from the machine) of the depending portion 26 (Figure 2). Movement of the slide and delivering of the articles from the magazine can not be accomplished until a coin of the correct denomination has been placed in opening 65. Opening 65 communicates with the vending mechanism beneath, and a coin deposited therein will drop down and lodge in the recessed portion 17 of detent 14 and be retained therein by the recesses 41 and 42 in the guides 39 and 40 (see Figure 2). When the projecting end of the delivery slide 21 is pushed, the coin will first be wedged between the recessed end 17 of detent 14 and one of the inclined portions 33 of the element 32. As the movement of the slide 21 is continued one or the other of the inclined portions 27 or 28 will contact with the portion 16 of detent 13 and so continue the downward movement thereof commenced by the inclined end portions of the element 32. Further movement of the delivery slide in the same direction will depress the portion 16 of detent 14 and allow one of the vertical sides 29 or 30 to pass part 16 when the coin will be forced beneath one of the guides 39 or 40 by the continued movement of the slide. Ord-

narily the element 32 will be sufficient to dislodge the coin from the vending mechanism but as an additional means for this purpose, the pin 31 is provided and this passes
 5 beneath the guides 39 and 40 and will positively eject the coin in case it has not already been dislodged. During movement of the delivery slide in either direction the pawl 35 will engage with the teeth of ratchet 49
 10 and thereby prevent any reverse movement of the delivery slide until the stroke has been completed. When the post 34 on the bottom of slide 21 has carried the locating cam 43 beyond its center position, the spring
 15 44 will contract and complete the stroke of the delivery slide without further assistance from the operator. When the delivery slide has reached its extreme position and delivered a package held in one of the package
 20 receiving portions 24 of the delivery slide, the pawl 35 will disengage from the ratchet 49 and turn under the influence of spring 46. It is understood that the pawl 35 is always pulled over the teeth of ratchet 49 and there-
 25 fore operates for both directions of movement of the delivery slide. The next operation of the machine is accomplished by inserting a coin in the usual manner and pushing the opposite or projecting end of the delivery
 30 slide. It will be understood that the delivery slide is moved alternately in opposite directions to deliver packages from the different stacks of articles in the magazine alternately.

Having thus described our invention,
 35 what we claim is:

1. A coin controlled vending apparatus comprising, in combination with a delivery slide, a locking means operating in a vertical plane, a means on the delivery slide for
 40 forcing a coin downwardly to initially release said locking means by pressure of the coin, a means on said delivery slide to then force said locking means downwardly by its own pressure, and a means carried by
 45 the slide for then ejecting said coin from operative relation to said locking means.

2. A coin controlled vending apparatus comprising a delivery slide, a locking member therefor yieldable vertically and having
 50 a coin supporting surface upon its upper side, slotted ribs in cooperative relation to said locking member to maintain a coin in operative relation thereto, means for forcing a coin downwardly to release said locking
 55 member, and a pin movable beneath said ribs and into position to remove the coin from operative relation to said locking member.

3. A coin controlled vending apparatus comprising a base, a locking member yieldable vertically and having a coin supporting surface upon its upper side, slotted ribs in cooperative relation to said locking member to maintain a coin in operative relation
 65 thereto, a delivery slide, a means operable

by the movement of said slide to initially release said locking member by the pressure of the coin, a means operable by the movement of said slide to supplementally release
 70 said locking member, and a pin movable beneath said ribs by the movement of said slide to remove the coin from operative relation to said locking member.

4. A coin controlled vending apparatus comprising, in combination with a delivery
 75 means, a locking means therefor, means carried by the delivery means for forcing a coin against said locking means to effect release thereof, and means on said delivery means to then force said locking means downwardly and permit the operation of said delivery
 80 means.

5. A coin controlled vending apparatus comprising in combination with a delivery
 85 means, a yieldable hook-shaped locking means therefor, slotted ribs in cooperative relation to said hook-shaped locking means whereby said locking means and said ribs will retain a coin in operative relation to
 90 said locking means, means carried by said delivery means for forcing said coin against said locking means to effect release thereof, and means on said delivery means to then force said locking means downwardly and permit the operation of said delivery
 95 means.

6. A coin controlled vending apparatus comprising in combination with a delivery
 100 means, a locking means therefor, slotted ribs in cooperative relation to said locking means whereby said locking means and said ribs will retain a coin in operative relation to said locking means, means carried by said
 105 delivery means for forcing said coin against said locking means to effect release thereof, and means on said delivery means to then force said locking means downwardly and permit the operation of said delivery means.

7. A coin controlled vending apparatus comprising, in combination with a means
 110 for effecting delivery to alternate sides of said apparatus, a locking means, a means for forcing a coin against said locking means to initially release said locking means by pressure of the coin, a means to supplementally
 115 supply pressure to said locking means to insure release without pressure from the coin, and a means for ejecting said coin from operative relation to said locking means, said last three means being operable by movement of said first means in either direction.
 120

8. A coin controlled vending apparatus comprising, in combination with a delivery
 125 slide movable to deliver alternately at opposite sides of the apparatus, a locking means, a lug carried by said slide and forming a keeper for said locking means in alternate positions of said slide, a means on said slide for forcing a coin into initial releasing contact with said locking means by movement
 130 of said slide in either direction, said lug be-

ing effective in further movement as a supplemental releasing means for said locking means.

9. A coin controlled vending apparatus comprising, in combination with a delivery slide movable to deliver alternately at opposite sides of the apparatus, a locking means, a lug carried by said slide and forming a keeper for said locking means in alternate positions of said slide, a means on said slide for forcing a coin into initial releasing contact with said locking means by movement of said slide in either direction, said lug being effective in further movement as a supplemental releasing means for said locking means, and a means carried by the slide for

then forcing said coin out of operative relation to said locking means.

10. A coin controlled vending apparatus comprising, in combination with a delivery slide, a locking means, a means for forcing a coin against said locking means to initially release said locking means by pressure of the coin, a means to supplementally apply pressure to said locking means to insure release without pressure from the coin, and a means for ejecting said coin from operative relation to said locking means.

In testimony whereof we affix our signatures.

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FRANK H. VOGEL.