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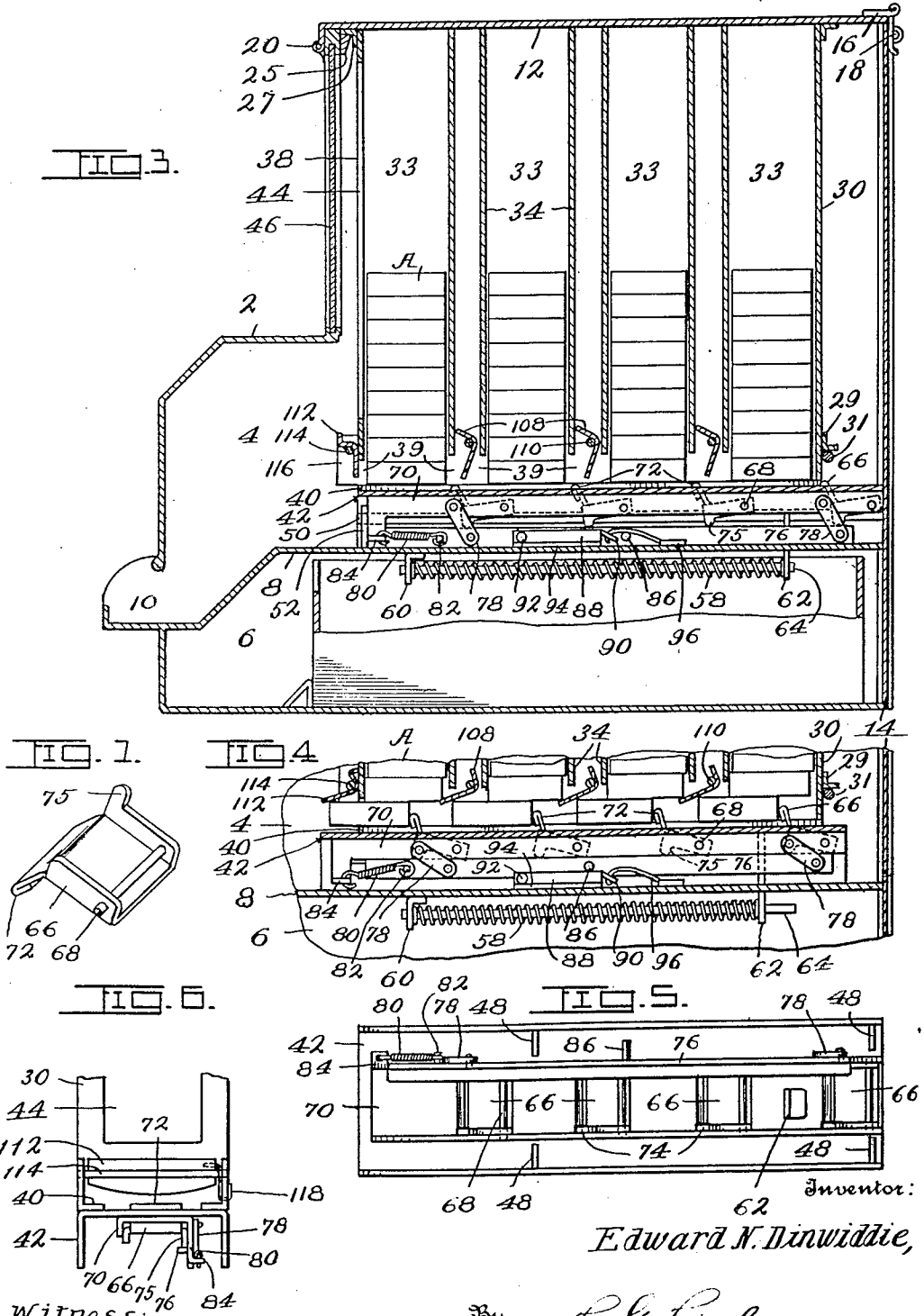
1,564,540

E. N. DINWIDDIE

VENDING MACHINE

Filed Dec. 11, 1922

3 Sheets-Sheet 2



Witness:
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By

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Attorney.

Dec. 8, 1925.

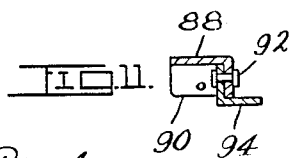
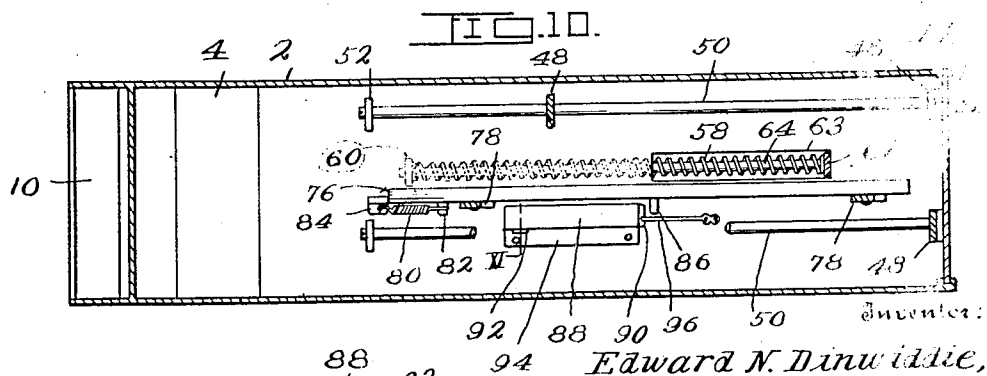
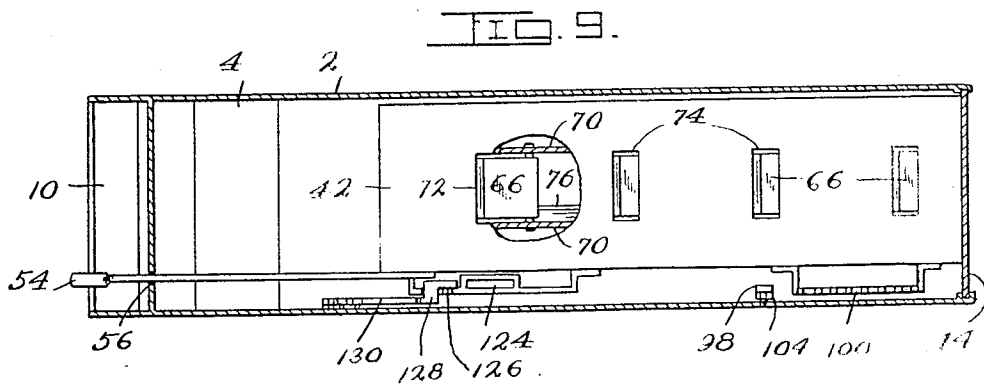
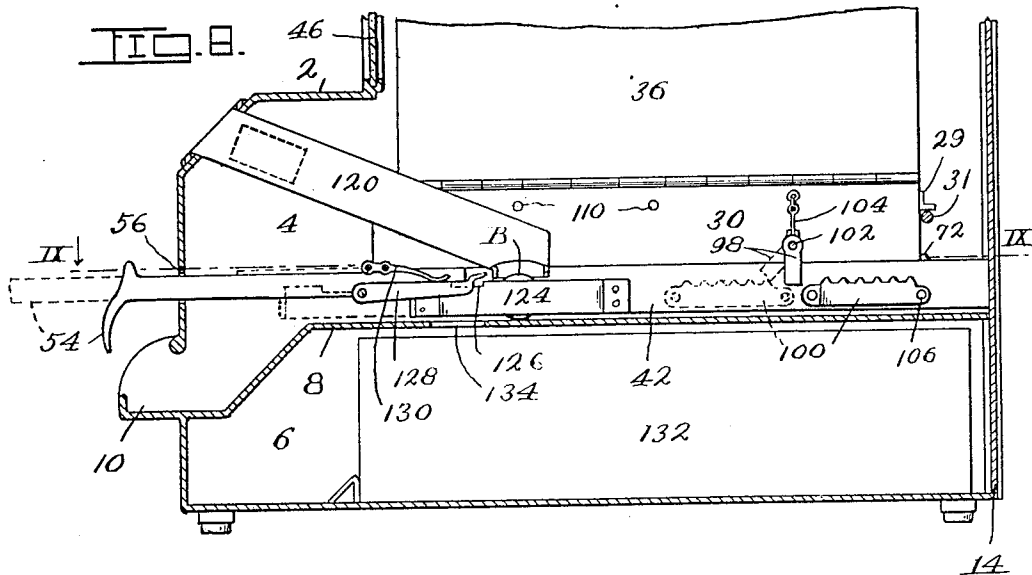
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3 Sheets-Sheet 3



Witness:
Fred G. Kischer.

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Summary

Patented Dec. 8, 1925.

1,564,540

UNITED STATES PATENT OFFICE.

EDWARD N. DINWIDDIE, OF KANSAS CITY, MISSOURI.

VENDING MACHINE.

Application filed December 11, 1922. Serial No. 606,066.

To all whom it may concern:

Be it known that I, EDWARD N. DINWIDDIE, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Vending Machines, of which the following is a specification.

My invention relates to coin-controlled vending machines and one object is to provide novel mechanism whereby articles of merchandise may be delivered one by one on each insertion of a proper coin.

A further object is to provide a vending machine of simple construction which can be economically manufactured, is positive in operation and not likely to become clogged.

Other objects will hereinafter appear and in order that the invention may be readily understood reference will now be had to the accompanying drawings, in which:

Fig. 1 is a perspective view of the vending machine.

Fig. 2 is a perspective view of the magazine.

Fig. 3 is a vertical section on line III—III of Fig. 1.

Fig. 4 is a fragmentary vertical section on the same plane as Fig. 3, and showing some of the parts in the act of delivering the merchandise.

Fig. 5 is an inverted plan view of a delivery slide.

Fig. 6 is a fragmentary front elevation of the magazine, the delivery slide, and some of the associate mechanism.

Fig. 7 is a detail perspective of an abutment, a number of which are pivotally mounted on the delivery slide.

Fig. 8 is a broken vertical section of the case with the interior mechanism in elevation.

Fig. 9 is a horizontal section of the case on line IX—IX of Fig. 8, with the delivery slide partly broken away to show some of the underlying parts.

Fig. 10 is a horizontal section of the case on the same plane as line IX—IX, but with the delivery slide removed to show some of the underlying mechanism.

Fig. 11 is a detail cross section of a rail and its support on line XI of Fig. 10.

In carrying out the invention I employ a suitable case 2 divided into upper and lower compartments 4 and 6, respectively, by a horizontal partition 8, the forward

portion of which is formed into a tray 10 into which the articles of merchandise A are delivered for the vendee. Access is had to the compartments 4 and 6 through a lid 12 and a slidable door 14 provided with a hasp 16 and a staple 18, respectively, so that both may be secured by a single padlock, not shown.

30 designates a magazine removably secured within the case 2 by suitable means such as a rod 31 extending transversely through the case 2, into which one end of the rod is preferably threaded. The magazine 30 is divided into vertical compartments 33 by partitions 34 and has a hinged door 36 at one side through which the compartments 33 may be readily loaded with merchandise. The lower ends of the partitions 34 and the front wall 38 terminate a suitable distance above the bottom of the magazine 30 to leave openings 39 for the passage of the merchandise as will hereinafter appear. The bottom of the magazine 30 consists of two intumed flanges 40 whereby the merchandise is supported just above the upper surface of the delivery slide 42. The front wall 38 of the magazine 30 has a large opening 44 and the upper front wall of the case 2 has a glass front 46 through which the front compartment 33 may be viewed for the purpose of ascertaining when the magazine 30 requires reloading. In order to permit free movement of the underlying delivery slide 42, the weight of the magazine 30 is supported by a shoulder 25 and a flange 27 on the front walls of the case 2 and the magazine 30, respectively, and by a flange 29 fixed to the rear of the magazine 30 and resting upon the cross rod 31.

The delivery slide 42 is interposed between the bottom of the magazine 30 and the horizontal partition 8 and is provided with depending lugs 48 slidably mounted upon a pair of rods 50, secured to lugs 52 extending upwardly from the horizontal partition 8. A handle 54 extending through a slot 56 in the front wall of the case 2 is secured at its rear end to the delivery slide 42 so that the vendee may draw said delivery slide 42 forwardly to effect delivery of an article of merchandise. A coil spring 58 interposed between a lug 60, depending from the horizontal partition 8, and a lug 62 depending from the delivery slide 48 carries said delivery slide 42 backwardly to

its normal position after the delivery of an article of merchandise. The lug 62 extends through a slot 63 in the partition 8 and the ends of said slot 63 constitute a stop for the lug 62 and thus check the forward and backward movement of the delivery slide 42. A rod 64 secured at its forward end to the lug 60 and loosely extending through the lug 62, extends through the coil spring 58 to retain its coils in axial alignment when the spring is contracted.

66 designates a plurality of abutments associated with the delivery slide 42 to coast therewith in delivering the merchandise. The abutments 66 are equal in number to the magazine compartments 33 and each abutment 66 is mounted upon a pivot 68 mounted in the downturned flanges of a channel bar 70 fixed to the underside of the delivery slide 42. Each abutment 66 has an upturned forward portion 72 projecting through a slot 74 in the delivery slide 42 to engage the rear ends of packages of merchandise A, as shown by Fig. 4. Each abutment 66 has a depending lug 75, which rests upon a swingable bar 76 pivotally connected to the lower ends of links 78, which are pivotally connected at their upper ends to the adjacent depending flange of the channel bar 70. The swingable bar 76 is normally held in its forward and lowermost position upon the horizontal partitions 8 by a spring 80 connected at its ends to a lug 82 on the bar 76 and a lug 84 at the forward portion of the channel bar 70.

When the swingable bar 76 is carried forward with the delivery slide 42 a pin or lug 86 fixed to said swingable bar 76 raises the same to the position disclosed by Fig. 4, as said pin or lug 86 travels over a rail 88. As the swingable bar 76 is raised as stated, it raises the forward ends of the abutments 66, bringing the upturned ends 72 thereof into engagement with the lowermost packages of merchandise A, as shown by Fig. 4, to advance said merchandise. The free end of the rail 88 is inclined as indicated at 90, so that the pin 86 can readily reach its upper surface. About the time the delivery slide 42 reaches the end of its forward movement the pin 86 leaves the forward end of the rail 88 and permits the spring 80 to restore the swingable bar 76 to its lowermost position, so that it in turn will permit the forward portions of the abutments 66 to move downwardly so that they may pass backward beneath the lowermost packages of merchandise A to the position disclosed by Fig. 3. As the pin 86 moves backward to normal position with the swingable bar 76 and the delivery slide 42 it passes under the flanged top of the rail 88 which latter is connected at its forward end by a pivot 92 to an angle bar 94, so that its rear end may be raised by the pin 86 as the

same passes under the incline 90. A spring 96 secured to the partition 8, presses downwardly upon the forward end of the rail 88 to normally hold the same down upon the angle bar 94 which is fixed to the partition 8.

A detent 98 and a rack 100 prevent the delivery slide 42 from moving backwardly to normal position before making a complete forward movement. The detent 98, which is mounted upon a pivot 102 secured to the adjacent wall of the case 2, is normally held in vertical position by a spring 104 connected to the adjacent wall of the case 2. The toothed portion of the rack 100 is, substantially, equal in length to the movement of the delivery slide 42 to which it is connected by suitable means such as rivets 106.

108 designates gates fixed upon pivots 110 mounted in the lower side portions of the magazine 30, a gate 108 being disposed between each pair of partitions 34 as shown by Figs. 3 and 4. As the lowermost articles A are advanced as shown by Fig. 4, those at the rear of the gates 108 contact and swing the same beneath the stacks of articles so that said gates 108 will coast with the advancing articles in supporting the stacks until the three rearmost articles pass into position beneath the three foremost stacks, thus the three foremost stacks cannot fall in front of the three advancing rearmost articles and check the forward movement thereof. Just before the three rearmost articles gain their position beneath the three foremost stacks said articles pass from beneath the gates 108 and permit the same to swing back to normal position.

112 designates a gate which normally closes the outlet of the foremost magazine compartment 33 to prevent articles from being surreptitiously removed by insertion of a wire through the tray 10 or by tipping the case 2 forwardly. Said gate 112 is fixed upon a pivot 114 mounted in lugs 116 at the lower front portion of the magazine 33. A coil spring 118 yieldably holds said gate 112 closed until pushed open by the foremost lower package, as shown by Fig. 4.

120 designates a coin chute having an entrance slot 122 at the front of the case 2. Said coin chute 120 leads to a pocket 124 fixed to one side of the delivery slide 42. The pocket 124 has a notch 126 to receive the free end of a latch 128, which is normally held in the notch 126 by a spring 130 to normally lock the delivery slide 42 from forward movement. On insertion of a proper coin B into the chute 120, said coin rolls down into the pocket 124 above which it projects, so that when the handle 54 is pulled outwardly the upper portion of the coin B will engage the free end of the latch 128 and raise it out of the notch 126, thus releasing the delivery

slide 42 so that it may be drawn forwardly for the purpose of delivering an article into the tray 10. As the delivery slide 42 moves forward the coin B drops into an underlying cash box 132 through a slot 134 in the partition 8. When the delivery slide 42 is returned to normal position by the spring 64 the latch 128 drops into the notch 126 and again locks the delivery slide 42 from forward movement until another proper coin is delivered into the pocket 124.

From the foregoing description it will be understood that I have provided a vending machine embodying the advantages above pointed out, and while I have shown and described the preferred construction, combination and arrangement of parts I reserve the right to make such changes as properly fall within the spirit and scope of the appended claims.

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

1. In a vending machine, a magazine having a series of compartments for holding articles and arranged one in advance of the other and having alined outlets at their lower portions, a slide extending beneath said outlets to support and deliver the articles and having openings equal in number to the compartments, a series of abutments pivotally connected to the slide and extending through said openings to coact with said slide in delivering the articles, a bar swingably-connected to the underside of the slide and upon which said abutments rest, spring-means for normally holding said bar in lowered position, and means in the path of the bar for raising the same as it moves forward with the slide so that the bar in turn will raise the abutments to engage and advance the articles with the slide.

2. In a vending machine, a magazine having a series of compartments for holding articles and arranged one in advance of the other and having alined outlets at their

lower portions, a slide extending beneath said outlets to support and deliver the articles and having openings equal in number to the compartments, a series of abutments pivotally connected to the slide and extending through said openings to coact with said slide in delivering the articles, a bar swingably-connected to the underside of the slide and upon which said abutments rest, spring-means for normally holding said bar in lowered position, a pin projecting from the bar, a pivoted member over which said pin travels to raise the bar in its forward movement and beneath which the pin travels during the rearward movement of the bar to permit the same to swing downward to normal position, and means for normally securing the slide from forward movement.

3. In a vending machine, a magazine having a series of compartments for holding articles and arranged one in advance of the other and having alined outlets at their lower portions, a slide extending beneath said outlets to support and deliver the articles and having openings equal in number to the compartments, a series of abutments pivotally connected to the slide and extending through said openings to coact with said slide in delivering the articles, a bar swingably-connected to the underside of the slide and upon which said abutments rest, spring-means for normally holding said bar in lowered position, a pin projecting from the bar, a rail pivoted at one end to the frame of the machine and over which said pin passes to raise the bar in its forward movement and beneath which the pin travels during the rearward movement of the bar to permit the same to swing downward to normal position, and elements pivotally mounted between the compartments and which are swung forwardly by the advancing articles to support the articles in the compartments.

In testimony whereof I affix my signature.

EDWARD N. DINWIDDIE.