Oct. 16, 1934. F. CASAU 1,977,543

VENDING MACHINE

Original Filed July 7, 1930 3 Sheets-Sheet 1

Fig. 1.

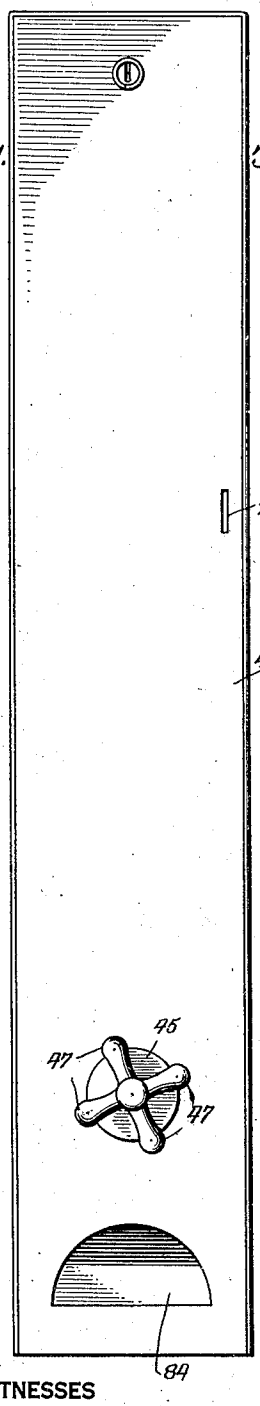


Fig. 2.

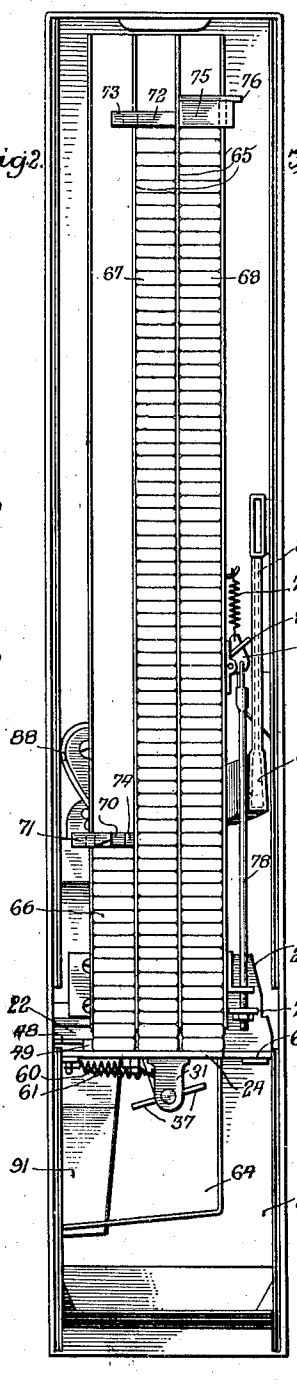
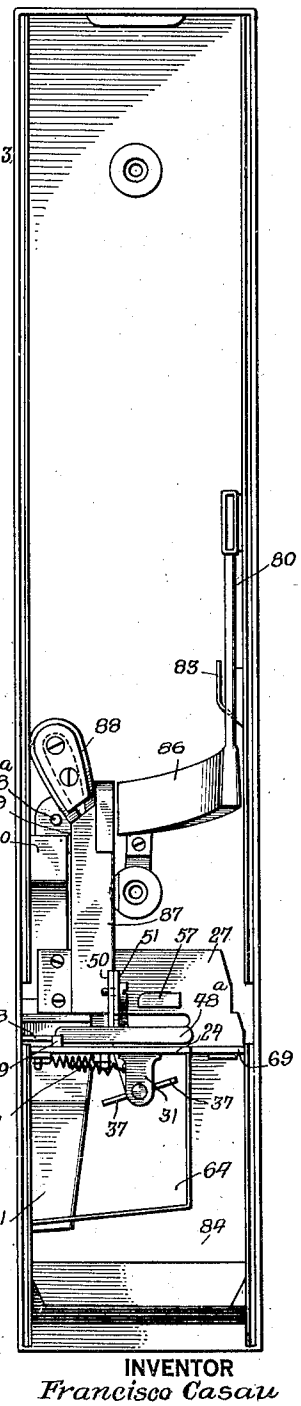


Fig. 3.



WITNESSES

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VENDING MACHINE

Original Filed July 7, 1930 3 Sheets-Sheet 2

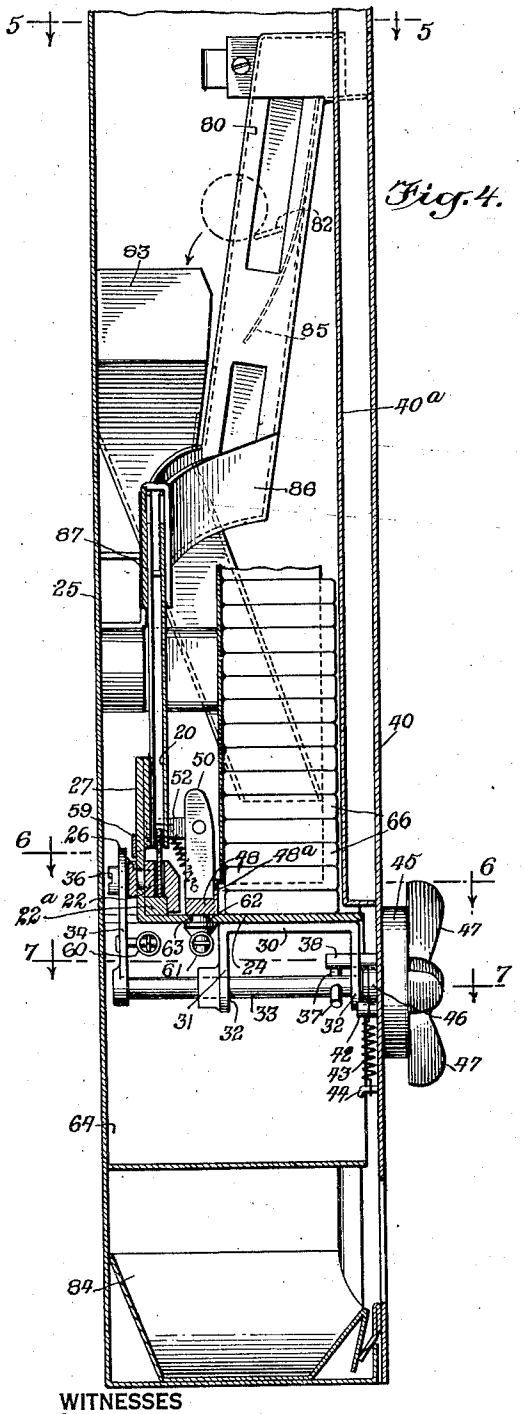


Fig. 4.

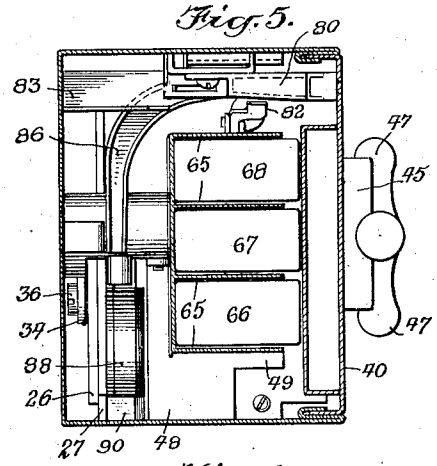


Fig. 5.

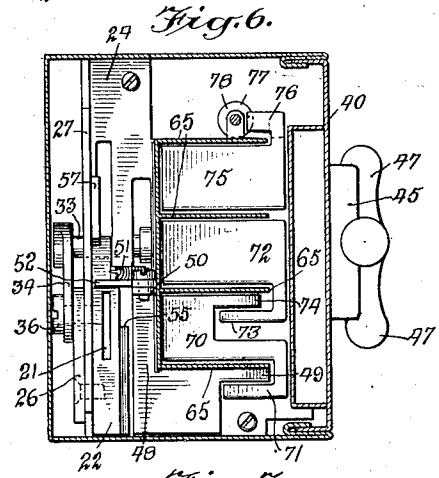


Fig. 6.

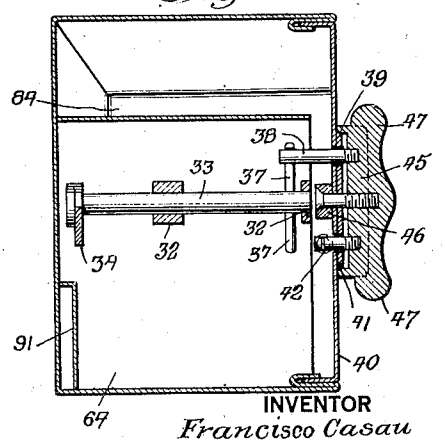


Fig. 7.

WITNESSES

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VENDING MACHINE

Original Filed July 7, 1930 3 Sheets-Sheet 3

Fig. 8.

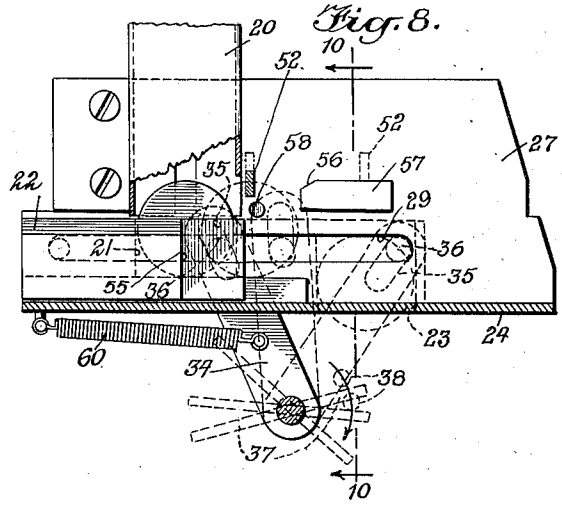


Fig. 10.

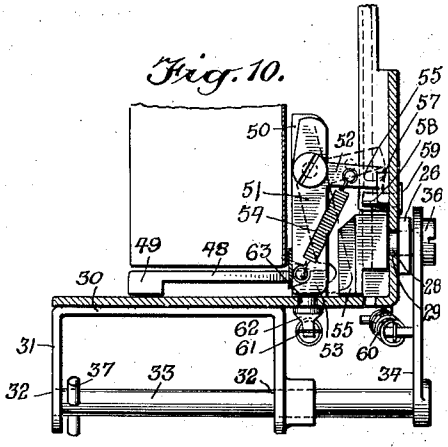


Fig. 9.

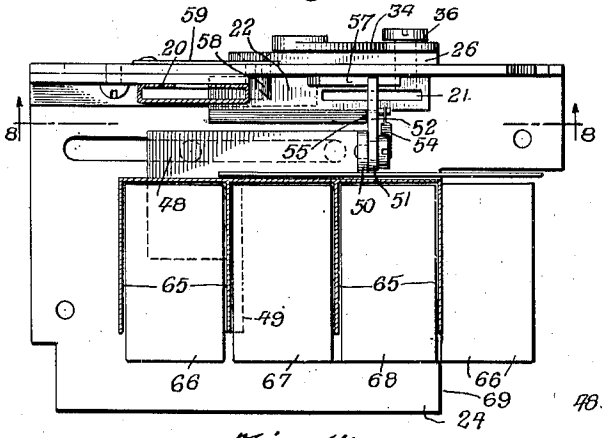


Fig. 11.

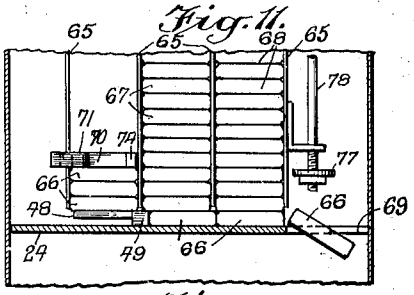


Fig. 12.

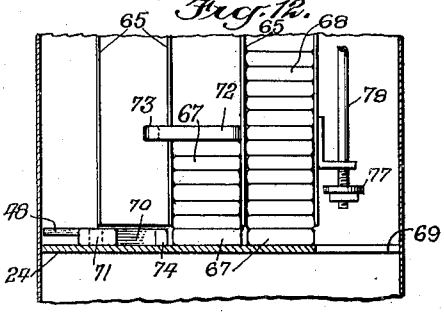


Fig. 14.

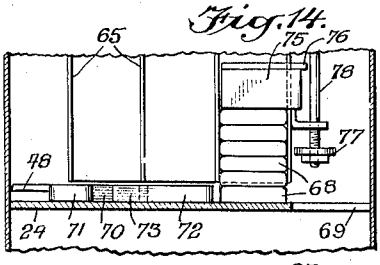


Fig. 13.

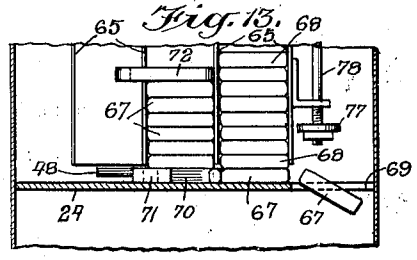
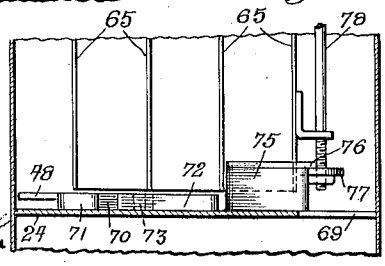


Fig. 15.



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UNITED STATES PATENT OFFICE

1,977,543

VENDING MACHINE

Francisco Casau, Stamford, Conn., assignor to Merchandise Distributors, Inc., a corporation of New York

Application July 7, 1930, Serial No. 466,303
Renewed June 18, 1934

14 Claims. (Cl. 194—91)

The invention comprehends a vending machine having novel means by which a coin slide carrying a coin is adapted to operate an ejector, novel ejector means, and novel means for returning light coins, slugs and, when the machine is empty, coins of full value.

An object of the invention is to provide a vending machine having means on an ejector controlled by a coin carried by a coin carrier by which the coin carrier is adapted to operate the ejector.

Another object of the invention is to provide a coin carrier which carries a coin to move a member on an ejector into operative position for operating the ejector by the coin carrier, there being means to hold the said member on the ejector in operative position after it has been freed by the coin, and there also being means to prevent the return of the coin carrier to operative position with the coin.

Another object of the invention is to provide a vending machine with a plurality of columns of packages with an ejector for ejecting all of the packages in the different columns.

Still another object of the invention is to provide an ejector for passing beneath the several columns of packages for ejecting the packages in the several columns.

Still another object of the invention is to provide weights at the tops of the columns of packages, the weight nearest the ejector being positioned, when the packages in its column have been ejected, to be engaged by the ejector to eject the packages in the next adjacent column.

Still another object of the invention is to provide the weight on the last column of packages with a member for actuating means to return the coin when all the packages in the said column have been ejected.

An additional object of the invention is to provide means for returning light coins and slugs.

Additional objects of the invention will appear in the following specification in which the preferred form of the invention is described.

In the drawings similar reference characters refer to similar parts in all the views, of which

Figure 1 is a view showing a front elevation of the vending machine,

Figure 2 is a view similar to Figure 1 with the front of the casing removed,

Figure 3 is a view similar to that shown in Figure 2, but with the supports for the columns of packages removed,

Figure 4 is an enlarged fragmentary side sectional elevation of the invention showing the operating mechanism,

Figure 5 is a sectional view on the line 5—5 of Figure 4,

Figure 6 is a sectional view on the line 6—6 of Figure 4,

Figure 7 is a sectional view on the line 7—7 of Figure 4,

Figure 8 is a sectional view on the line 8—8 of Figure 9,

Figure 9 is a sectional plan view illustrating the coin mechanism,

Figure 10 is a sectional view on the line 10—10 of Figure 8,

Figure 11 is a fragmentary sectional view illustrating the manner in which the packages are ejected in the column nearest the ejector,

Figure 12 is a view similar to the view shown in Figure 11, but with the first column of packages ejected and with the weight which has been supported by the packages in the first column positioned for ejecting packages in the second column,

Figure 13 is a view similar to that shown in Figure 12, but with the ejector ejecting a package,

Figure 14 is a view illustrating the position of the weights and the ejector for ejecting packages in the last column of packages, and

Figure 15 is a view similar to the view illustrated in Figure 14, but with the weight in the last column of packages operating the mechanism for returning a coil.

By referring to the drawings, and particularly to Figures 6 and 8, it will be seen that the bottom 20 of the coin slot leads a coin to a slot 21 in a coin carrier 22, the slot 21 passing through the bottom of the coin carrier 22 so that when the coin carrier 22, which is in the nature of a slide, moves to the position shown in the dotted lines in Figure 8, the coin will fall through an opening 23 in a horizontal plate 24 which is supported in the casing 25. The coin carrier 22 slides on the plate 24, as will be seen by referring to the drawings, and it is held in position by a plate 26 at the rear of a vertical plate 27 integral with the horizontal plate 24, the plate 26 being connected with the coin carrier or slide 22 by means of screws or bolts 28 which extend through a horizontal slot 29 in the plate 27. Preferably there is a support 22^a mounted on the plate 24 on which the coin carrier slides, this support 22^a serving to hold a coin in the slot 21 above the plate 24 to

operate an arm 52, which will be presently described, until the coin reaches the opening 23 in the plate 24.

To the underside of the plate 24 there is secured a bearing member 30 having depending arms 31 with bearings 32 in which is journaled a shaft 33, the shaft 33 having an arm 34 with a slot 35 in which a pin or screw 36 is disposed, the said screw 36 being secured to the plate 26. It will, therefore, be seen that the coin carrier or slide may be moved on the plate 24 by rotation of the shaft 33. This shaft 33 has pins 37 which are positioned for engagement by a pin 38 which moves in a slot 39 in the removable front panel 40 of the casing 25. There is another slot 41 in the panel 40 in which a pin 42 is disposed, this pin 42 having secured thereto a spring 43, the spring 43 being also secured to a pin 44 on the inner side of the panel 40. The pins 38 and 42 are secured to an operating disc 45 which is journaled to the panel 40 at 46. Wings or finger pieces 47 are secured to the operating disc 45 so that the operating disc 45 may be conveniently rotated. By the means which has been described the coin carrier 22 may be moved to slide on the plate 24.

Disposed on the plate 24 and at the side of the coin carrier 22 there is an ejector 48, the ejector having an extending horizontal arm 49 for a purpose which will shortly be described, and a standard 50. Pivoted to this standard 50 there is a lever 51, the lever 51 having a horizontal arm 52 extending across the top of the path of the coin carrier 22, and a depending arm 53, a spring 54 being provided which connects the arm 52 with the standard 50 so that the lever 51 will be normally disposed with the arm 52 in the position indicated by the full lines in Figure 10 of the drawings. However, when a coin is in the coin slot 21 of the coin carrier 22 and the coin carrier 22 is moved to the right in the direction of the dotted lines in Figure 8 of the drawings, the coin will engage the arm 52 to move the said arm upwardly to the position shown in the dotted lines of Figure 10, which movement will direct the horizontal arm 52 of the lever 51 to the position illustrated in the dotted lines in the said Figure, where it will be engaged by the shoulder 55 on the coin carrier 22. Therefore, with a further movement of the coin carrier 22 to the right the shoulder 55 on the coin carrier will serve to move the ejector to the right, through the lever 51 and the standard 50.

As the coin carrier 22 and the ejector 48 are moved to the right the arm 52 of the lever 51 will ride up on the cam 56 on a plate 57 secured to the plate 27 so that the arm 52 will be positioned as indicated by the dotted lines in Figure 8 of the drawings, and the said arm 52 will be supported on the plate 57 as the coin carried by the coin carrier 22 passes through the opening 23 in the plate 24. As a means to prevent a return movement of the coin carrier 22, when the ejector has been operated sufficiently to eject a package and before the coin has passed through the slot 23 in the plate 24, I provide a pin 58 which extends through an opening in the plate 27 and which is held yieldingly outwardly from the said plate 27 by means of a leaf spring 59 which is secured to the rear of the plate 27. One side of the end of the pin 58 is beveled to permit the coin to push the pin 58 rearwardly as the coin on the coin carrier 22 moves to the right. Inasmuch as the other side of the pin 58 is not beveled it will be engaged by the coin should an attempt be made to return the coin carrier 22 to the left and which will prevent a return movement of the coin carrier 22 until the coin has been freed therefrom by passing through the slot 23. In this way it is impossible to eject more than one package with a single coin. A spring 60 is secured to the arm 34 and to the bottom of the plate 24 for holding the arm 34 yieldingly to the left with the coin carrier 22 positioned with its slot 21 under the bottom 20 of the coin slot. Another spring 61 is provided which is secured to a stud 62 disposed through a slot 63 in the plate 24, and which is secured to the ejector 48. This spring 61 is also secured to the bottom of the plate 24. Therefore, when the coin has passed through the slot 23 in the plate 24 the coin carrier 22 and the ejector 48 will return to an operative position. The coin passes through the slot 23 in the plate 24 to the coin receiver 64 in the casing 25.

As has been stated, the ejector 48 has an extending arm 49 which moves with the ejector along the plate 24 beneath the partitions 65 which hold the columns of packages 66, 67 and 68 in position, the partitions 65 being spaced from the plate 24 to permit the ejector 48 and its arm 49 to pass between the plate 24 and the partition 65, as indicated in Figures 11, 12, 13, 14 and 15. When the ejector 48 with its arm 49 is moved to the right, as indicated in Figure 11, it will push the package 68 which has been at the bottom of the column farthest from the ejector from under the column of packages 68, so that the package will fall through an opening 69 in the plate 24 to be delivered to the purchaser. The ejector 48, together with the coin carrier 22, will then be returned to the left where the ejector 48 and its arm 49 will be disposed at the left of the column of packages 66, so that with the next operative movement of the ejector 48 with its arm 49 another package at the bottom of the column of packages 66 will be moved to the right and in this way all the packages 66 will be moved to the right and ejected before more than one of the packages 67, or more than one of the packages 68, are ejected. When all the packages 66 have been ejected the weight 70, which has been disposed at the top of the packages 66, will rest on the plate 24 and, as will be seen by referring to Figure 6 of the drawings, this weight 70 has an arm 71 which will interlock with the arm 49 of the ejector 48 so that the weight 70 may serve as a continuation of the ejector arm 49 to engage the packages 67 in the next column. The packages 67 may then be ejected, one at a time, in a manner readily understood and when all the packages 67 have been ejected the weight 72, which has been disposed at the top of the packages 67, will also rest on the plate 24. This weight 72 has an arm 73 which will interlock with an arm 74 on the weight 70 so that the weight 72, as well as the weight 70, will be secured to the arm 49 of the ejector 48, and will serve to eject the packages 68 in the last column. When the last of the packages 68 has been ejected the weight 75, which has been disposed at the top of the packages 68, will rest on the plate 24, and, as illustrated in Figures 6 and 15, a finger 76 which extends from the weight 75 will engage a flange 77 on a rod 78 to operate the coin returning mechanism, which will shortly be described. A spring 48a extends to the right from the ejector 48 which engages the rear of any package rest-

ing on the plate 24 and prevents the packages from displacement rearwardly.

In operating the vending machine a coin is introduced in the slot 79 in the front panel 40, as illustrated in Figure 1, and the coin will pass downwardly in the coin slot 80, as illustrated in Figure 4. Should all the packages in the machine have been ejected the rod 78 will have moved downwardly against the resiliency of the spring 79' with a pivoted member 81 having a finger 82, all best shown in Figure 2 of the drawings, and the finger 82 will move into the coin slot 80 through an opening therein to direct a coin to the return chute 83, this return chute serving to direct the coin to the compartment 84 to which the packages are also ejected. However, if there are still packages in the machine the finger 82 will not extend into the coin slot 80. The coin will then pass to engage a spring 85 which is secured in the coin slot 80, this spring serving to direct light coins or slugs which are not heavy enough to press the spring 85 downwardly into the return chute 83. When a suitable coin is introduced it will press the spring 85 downwardly and will pass through the coin slot 80 to a curved portion 86 of the coin slot, and then to another portion 87 of the coin slot. At the intersection of the curved portion 86 of the coin slot and the portion 87 of the coin slot there is a magnet 88 which will direct iron or steel slugs and prevent them from passing through the portion 87 of the coin slot so that the iron and steel slugs will pass to the left, through an opening 89 in the portion 87 of the coin slot to a return slot 90, this return slot 90 continuing at 91 through the coin receiver 64 where the iron and steel slugs will be delivered at the compartment 84. A pin 88^a is provided against which the slug will strike to free it from the magnet.

The bottom of the portion 87 of the coin slot is indicated at 20 so that the coin passes to the coin carrier 22 in the manner which has been described. The front panel 40 has on its rear face an extending portion 40^a for holding the packages in position.

What is claimed is:

1. In a vending machine, a coin carrier for carrying a coin and provided with a shoulder, an ejector having a standard and being disposed at the side of the coin carrier, a lever pivoted to the top of the standard and having a horizontal arm in the path of a coin carried by the coin carrier, and a depending arm for engagement by the shoulder on the coin carrier.

2. In a vending machine, a coin carrier havin a slot for carrying a coin and provided with a shoulder, an ejector, a lever pivoted to the ejector and having an arm in the path of a coin carried by the coin carrier to the said arm and another arm for engagement by the shoulder on the coin carrier, and means to hold the lever in operative position when freed by the coin.

3. In a vending machine, a member having a coin slot, an ejector, means cooperating with the member and the ejector and operable by a coin moved by the member to the said means by which the member serves to operate the ejector, and means to hold the first mentioned means in operative position when freed by the coin.

4. In a vending machine, a member having a coin slot, an ejector member, means mounted on one of the members for engagement by the other member by which the first mentioned member serves to operate the ejector member, the said means being operable by a coin carried to the said means by the first mentioned member, and means to hold the first mentioned means in operative position when freed by the coin.

5. In a vending machine, a coin carrier having a slot for carrying a coin and provided with a shoulder, an ejector, a lever pivoted to the ejector and having an arm in the path of a coin carried by the coin carrier to the said arm, and another arm for engagement by the shoulder on the coin carrier, means to hold the lever in operative position when freed by the coin, and means to prevent the return of the coin carrier to operative position until the coin is discharged therefrom.

6. In a vending machine, a member having a coin slot, an ejector, means cooperating with the member and the ejector and operable by a coin in the coin slot by which the member serves to operate the ejector, means to hold the first mentioned means in operative position when freed by the coin, and means to prevent the return of the member to operative position until the coin is discharged relatively to the member.

7. In a vending machine, means for supporting a row of columns of packages, an ejector for moving longitudinally of the said means and below the said row of columns of packages to eject the packages in each column, and weights normally disposed on the columns of packages respectively, the weights having interlocking means and one of the weights having means for interlocking with the ejector.

8. In a vending machine, means for supporting a row of columns of packages, an ejector for moving longitudinally of the said means and below the said row of columns of packages to eject the packages in each column, means controlled by a coin to operate the ejector, means to lead a coin to the said means, weights normally disposed on the columns of packages respectively, means to direct a coin from its normal path in the third mentioned means, means controlled by one of the weights for operating the fourth mentioned means, the other weights and the ejector having interlocking means.

9. In a vending machine, means for supporting a row of columns of packages, an ejector for moving longitudinally of the said means and below the said row of columns of packages to eject the packages, means to operate the ejector, weights normally disposed on the columns of packages respectively, means controlled by one of the weights to render the second mentioned means inoperative, the other weight or weights and the ejector having interlocking means.

10. In a vending machine, a coin carrier for carrying a coin and provided with a shoulder, an ejector, a lever pivoted to the ejector and having an arm in the path of a coin carried by the coin carrier and another arm for engagement by the shoulder on the coin carrier, and a string-pressed pin in the path of a coin carried by the coin carrier for preventing the coin carrier with a coin from moving in one direction, one side of the pin being beveled which permits the coin to press the pin aside when the coin carrier carrying the coin moves in the opposite direction.

11. In a vending machine, a coin carrier member, an ejector member, means mounted on one of the members for engagement by the other member by which the first mentioned member serves to operate the ejector member, the said means being operable by a coin in the coin car-

rier, and a spring-pressed pin in the path of a coin carried by the coin carrier for preventing the coin carrier with a coin from moving in one direction, one side of the pin being beveled which permits the coin to press the pin aside when the coin carrier carrying the coin moves in the opposite direction.

12. In a vending machine, a coin carrier for carrying a coin and provided with a shoulder, an ejector, a lever pivoted to the ejector and having an arm in the path of a coin carried by the coin carrier and another arm for engagement by the shoulder on the coin carrier, and a cam for engagement by one of the arms on the lever for holding the lever in a predetermined position.

13. In a vending machine, means for supporting a row of columns of packages, an ejector for moving longitudinally of the said means and below the said row of columns of packages to eject the packages in each column, and weights normally disposed on the columns of packages respectively, the weights having interlocking means and one of the weights having means for interlocking with the ejector, the said interlocking means extending laterally between the horizontal planes at the top and at the bottom of the weights.

14. In a vending machine, means for supporting a row of columns of packages, an ejector for moving longitudinally of the said means and below the said row of columns of packages to eject the packages, means to operate the ejector, weights normally disposed on the columns of packages respectively, means having a flange for rendering the second mentioned means inoperative, one of the weights having a finger disposed for pressing down on the flange for operating the third mentioned means, the other weight or weights and the ejector having interlocking means.

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