Jan. 18, 1944. C. GABRIELSEN 2,339,391

VENDING MACHINE

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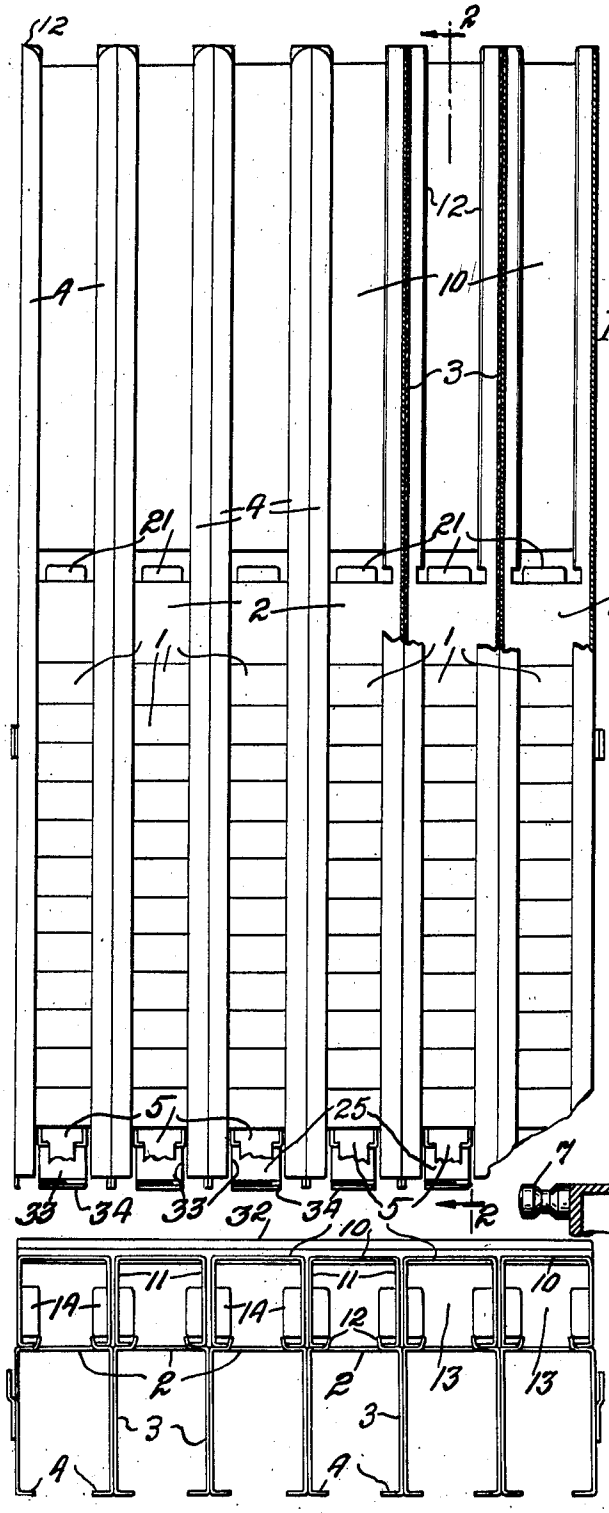


Fig. 1.

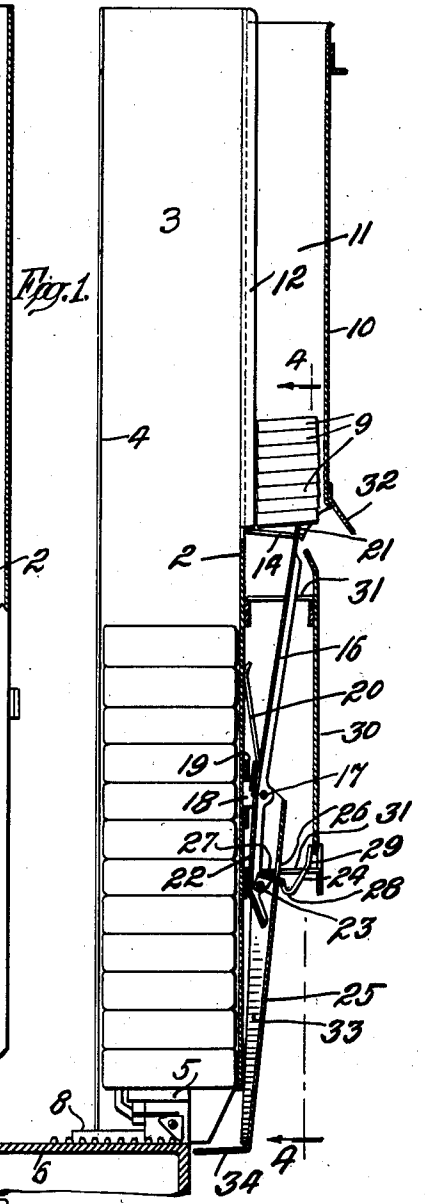


Fig. 2.

Fig. 3.

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Fig. 4.

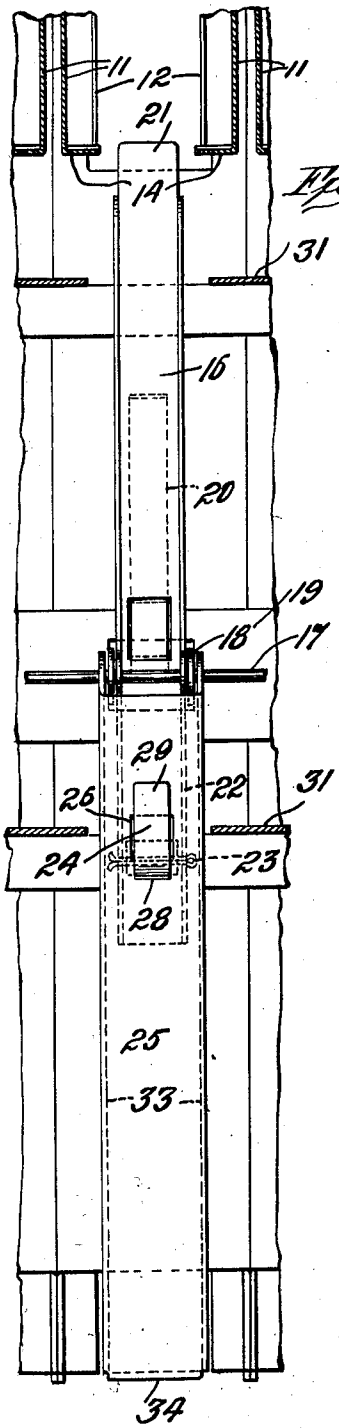


Fig. 5.

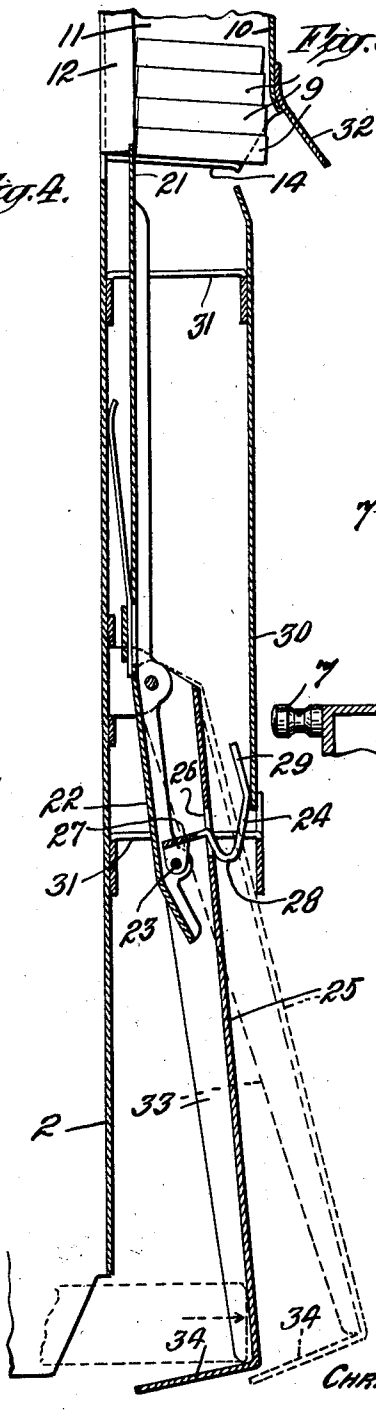


Fig. 6.

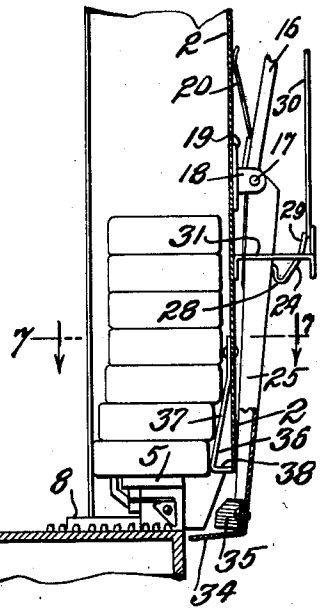
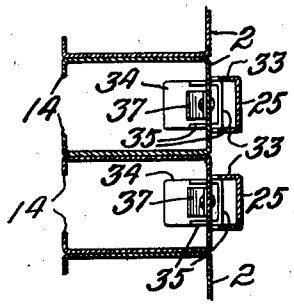


Fig. 7.



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2,339,391

VENDING MACHINE

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Application June 27, 1940, Serial No. 342,642

6 Claims. (Cl. 312—67)

This invention relates to vending machines.

It is an object of the invention to provide in a vending machine improved means for ejecting auxiliary articles and for supporting the principal articles to be dispensed during ejection. A further object of the invention is to adapt machines to the vending of articles of different sizes, such as cigarette packages of different lengths, and to co-ordinate the dispensing of such articles with the ejection of auxiliary articles, such as book matches. Another object of the invention is to provide a container unit complete in itself which can be inserted in vending machines of various types without disturbing the delivery or other mechanism of such machines.

With these and other objects which will appear in the following full description in mind, the invention consists in the combinations and arrangement of parts and details of construction which will now first be described in connection with the accompanying drawings and then pointed out more particularly in the appended claims.

In the drawings—

Figure 1 is a front elevation, partly broken away, of a container unit embodying the invention in a preferred form as applied to the vending of cigarettes;

Figure 2 is a vertical cross section taken on the line 2—2 of Figure 1;

Figure 3 is a plan view of the unit of Figure 1;

Figure 4 is a section taken on the line 4—4 of Figure 2 and on an enlarged scale;

Figure 5 is an enlarged view of a portion of Figure 2 and showing the parts in different operating positions;

Figure 6 is a view showing the lowermost part of Figure 2 with certain devices inserted to adapt a column to the vending of shorter packages; and

Figure 7 is a horizontal section taken on the line 7—7 of Figure 6.

Referring now to Figures 1, 2, 3 and 7, the container unit of the invention comprises a plurality of open chutes for holding a number of columns of packages of cigarettes 1 and formed in the usual way of sheet metal, including rear walls 2, side walls 3 and front flanges 4. This container unit may be inserted as a whole into existing vending machines instead of the container units originally provided therewith if desired, and fastened therein by clips or any other convenient means, to adapt such machines to the securing of the advantages of the present invention. In Figures 1, 2 and 6 enough of the plunger mechanism of such a machine is illustrated to show the relation of the container unit to the delivery mechanism. As there shown, the container unit is positioned above article supporting and delivery tables 5 which are movable with reference to the bed plate 6 of the machine by hand operated plungers 7, so as to permit the column of cigarettes to descend in the usual way upon withdrawal of a plunger, and to rest upon bosses 8 (Figures 2 and 6) for rearward ejection of the bottom package upon return of the plunger to the position of Figure 2.

Associated with the cigarette columns are auxiliary columns for book matches 9 formed with rear walls 10, side walls 11 and front flanges 12 turned back from the metal of the rear walls 2 of the cigarette columns and thus forming apertures 13 for use in adjusting the match columns where necessary. Side walls 11 are formed with bottom flanges 14 to support the column of matches during ejection.

The invention contemplates the use of an improved match ejector mechanism including a match ejecting lever 16, which is pivotally mounted on a shaft 17 carried in brackets 18 on a stiffening member 19 running across the rear of the machine and is urged (clockwise in the figures as shown) by a spring 20 pressing against the rear wall 2 of the associated cigarette column. Lever 16 comprises an upper arm 21, adapted to support the column of matches when in its rearward position (Figure 2) and to eject the lowermost package when brought forward to the position of Figure 5 and then returned to the position of Figure 2, and a lower arm 22, which serves to stop the lever in the position of Figure 2 and on which is pivotally mounted at 23 a shoe 24 by means of which the arm 16 is operated. The operating mechanism for the arm 16 comprises an arm 25 swingable about the shaft 17 and provided with an opening 26 to accommodate shoe 24. Starting with the parts in the position of Figure 2, to which they are normally urged by the spring 20, the operation is as follows: Shoe 24 being in the position of Figure 2 toward which it is urged by its own weight, a straight portion 27 thereof will be resting upon the lower edge of the opening 26 and an angular portion 28 will be to the rear of the arm 25. Movement of the arm 25, acting through the shoe 24, swings the arm 16 to the full line position of Figure 5, bringing the upper arm 21 to the front of the column of matches and permitting the column to descend to the position of Figure 5 preparatory to ejection. At this time, however, a slanted end 29 of the shoe 24 comes in contact with a rear plate

30, fastened to the rear walls 2 of the cigarette columns by struts 31, so that further movement of the arm 25 pressing the shoe 24 against the wall 30 lifts the shoe 24 to a point where the angle 28 thereof is above the lower edge of the opening 26. Thereupon the arm 16 is released from the arm 25 and snaps backward to the position of Figure 2, ejecting the lowermost package of matches 9 rearwardly between the plate 30 and a deflector plate 32. Arm 25 being similarly released from lever 16, is now free to move backward to the dotted line position of Figure 5. After delivery of the package of matches and the cigarettes, the arm 25 will return by gravity to the position of Figure 2 raising the shoe 24 and permitting the same to fall into the position of Figure 2 in readiness for a repetition of the delivery operations. Arm 25, in addition to operating the match ejecting mechanism, serves also the purpose of guarding the cigarette columns against the insertion of wires from the rear during the delivery operation. To this end, the arm 25 is provided with suitable stiffening and positioning means such as the side flanges 33 adapted to rest against the rear wall 2 of the cigarette column for maintaining the arm 25 in proper relation to the container and carries at its lower end a cigarette package supporting angle 34. This combination of the match ejecting and protecting functions is made possible by the trigger action of the shoe 24 and opening 26 previously described, as a result of which, the arm 25, after passing the solid line position of Figure 5, hangs idly so that undue pressure is not exerted upon the cigarette package and the cigarette package is free to fall off the angle 34 as soon as its forward end clears the bed plate 6 of the machine.

The machine of the invention as thus far described may be proportioned for handling cigarette packages of the so-called king size and which are about three and three-eighths inches in length. However, any column may readily be adapted to selling the hitherto more commonly used shorter package, which is about two and seven-eighths inches long, by inserting the parts shown in Figures 6 and 7. In this adaptation, an angle 35 is inserted at the foot of the arm 25, as shown, the cigarette-engaging forward portion of this angle protruding about one-half inch beyond the flanges 33. The column is adapted to the shorter package by inserting therein a part 36 comprising an upper slanting portion 37 and an angularly related lower portion 38 adapted to abut against the rear wall 2. With these parts 35 and 36 inserted, the column of shorter cigarette packages is guided forward as it descends in the machine, so that the forward end of the lowermost package is in the same position as in Figure 2 and the rearward end of the package is related to the part 35 as the rearward end of the package in Figure 2 is related to the flanges 33. These conditions being fulfilled, the operation of the ejecting arm 25 for a shorter package of cigarettes is the same as that previously described in connection with the longer packages shown in Figure 2.

What is claimed is:

1. In a vending machine, and in combination, means for storing a stack of principal articles to be vended and means for successively delivering articles therefrom, a container for a supply of auxiliary articles adjacent to the first named storing means, ejecting means for delivering articles successively from said container, and actuating mechanism for said ejecting means comprising a movable operating member extending across the path of movement of said principal articles during delivery for movement by pressure of said principal articles and means for connecting said member to said ejecting means during a predetermined part of said movement and thereafter disconnecting said member from said ejecting means whereby the said member and principal articles engaging the same during delivery are enabled to move freely prior to completion of the operation of the first named delivery means.

2. The combination according to claim 1, in which the said member comprises a portion adapted to support the said principal articles during delivery thereof and to cover the delivery end of the stack of principal articles.

3. The combination according to claim 1, in which the said head ejecting means comprises a spring adapted to urge the said member toward the said stack of principal articles when the said ejecting means is connected to the said member by said connecting means.

4. The combination according to claim 1, in which the means for storing a stack of principal articles and the said member, respectively, comprise corresponding removable spacers adapting the same to operation with articles of a given length, whereby the relation between the articles and the said member during ejection of articles of the said given length is substantially the same as the relation of articles of a greater given length with the said spacers removed.

5. In a vending machine, and in combination, means for storing a stack of principal articles to be vended and means for successively delivering articles therefrom, a container for a supply of auxiliary articles adjacent to the said first named storing means, ejecting means for delivering articles successively from said container, and actuating mechanism for said ejecting means comprising a movable operating member extending across the path of movement of said principal articles during delivery for movement thereby and including a portion adapted to support said principal articles during delivery and to cover the delivery end of said stack of principal articles, the said means for storing a stack of principal articles, and the said member, respectively, comprising corresponding removable spacers adapting the same to operation with articles of a given length, whereby the relation between the articles and the said member during ejection of articles of the said given length is substantially the same as the relation of articles of a greater given length with the said spacers removed.

6. The combination according to claim 5, in which the said actuating mechanism comprises means for connecting said member to said ejecting means during a predetermined part of said movement and thereafter disconnecting said member from said ejecting means.

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