

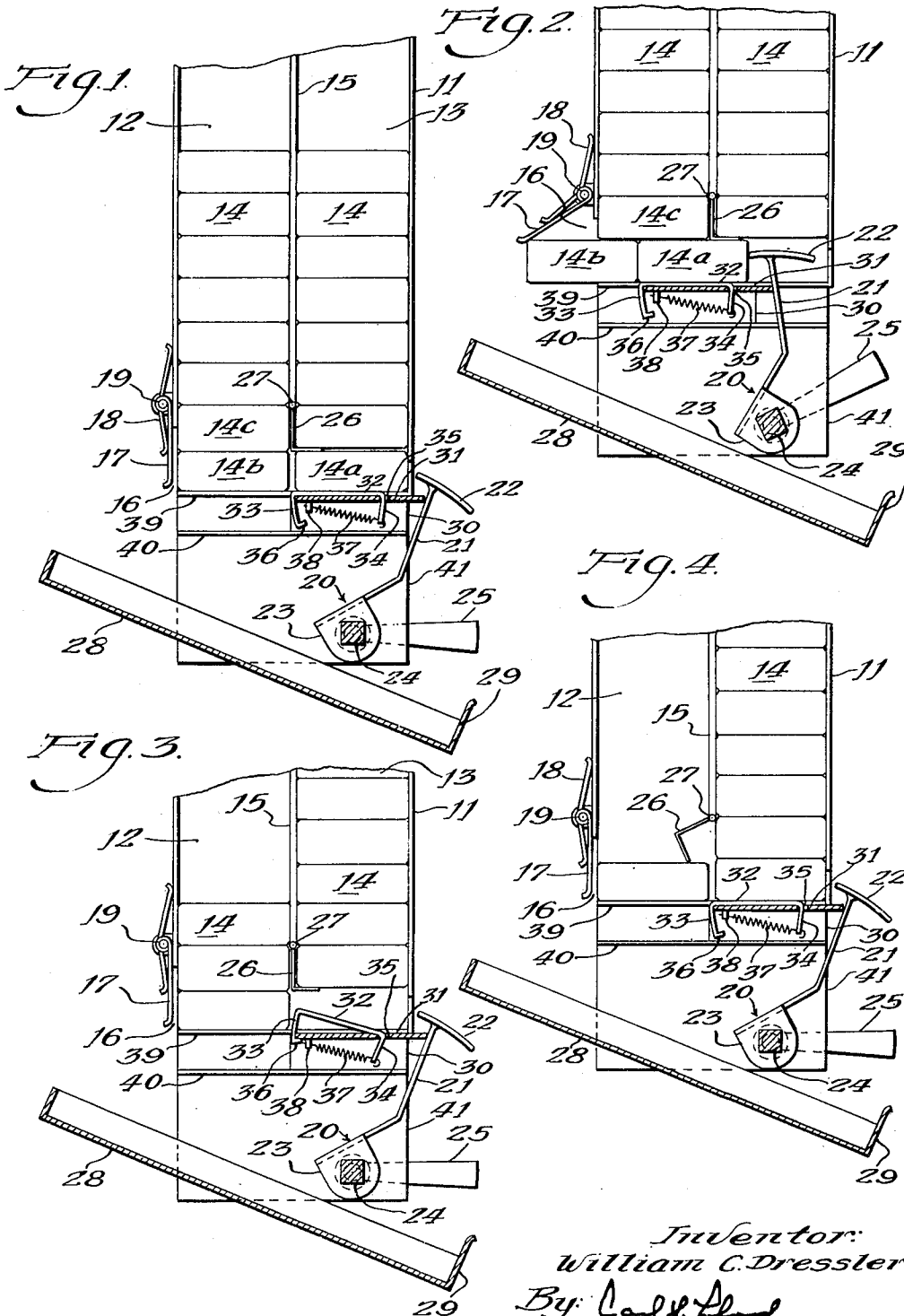
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MERCHANDISE VENDING MACHINE

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MERCHANDISE VENDING MACHINE

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6 Claims. (Cl. 312—67)

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This invention relates to vending machines for dispensing cigarettes, candy packages and similar articles of merchandise and pertains particularly to improvements in a machine of a character described and claimed in application for Letters Patent, Serial No. 654,306, filed March 14, 1946, by Louis Steiner.

An object of the invention is to provide, in a multiple-column mechanical vending machine in which the packages or articles of merchandise in one column are held out of the zone of action of the ejector of the vending mechanism until another column has been emptied, means whereby the column nearest the position of the operator and the front of the machine will be emptied last and thus, when a glass face is used in the front of the machine, a display of the merchandise will be maintained until substantially all of said merchandise has been dispensed.

Another object of the invention is to provide, in a vending machine of this character, means for obtaining a smooth and effortless ejection of merchandise by supporting a stack of articles out of the zone of the ejector in a manner whereby the weight of said stack will not rest upon an article moved by said ejector.

Still another object of the invention is to provide a simple and reliable construction in such a machine whereby upon the emptying of a first column the same will automatically be obstructed to prevent an effective refilling thereof with fresh merchandise until the older merchandise remaining in the next adjacent column has been removed.

Other objects and advantages will be apparent from the following description taken in connection with the accompanying drawings, in which:

Fig. 1 is a partial front-to-back view of a machine embodying my invention, with certain parts shown in section and others broken away for convenience in illustration, showing the position of the parts of the machine and the articles of merchandise prior to the initial dispensing operation;

Fig. 2 is a similar view showing the action of the ejector mechanism during the initial dispensing operation;

Fig. 3 is a like view showing the supporting of the articles in a front column while the articles in a rear column are being dispensed; and

Fig. 4 is a view similar to the other figures illustrating the position of the parts of the machine after the rear column has been emptied and while the articles in the front column are in position to be dispensed.

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Referring in detail to said drawing, a machine incorporating my invention may comprise a plurality of parallel tiers 11 (only one of which is shown) each containing two vertical chutes or columns 12 and 13 in which packages or articles 14 to be dispensed are stacked one upon the other.

A wall or guide member 15 separates the two columns except at their bases, and a discharge opening 16 is provided at the rear of each of said tiers and is normally closed by a pivoted gate 17 held in a closed position by a spring 18 mounted on a pin 19 about which said gate pivots.

An ejecting device 20 comprising an arm 21 carrying a striker plate 22 at its upper end having ears 23 at its lower end is mounted upon a square shaft 24 which extends transversely of the machine in the lower portion thereof beneath the columns 13, said shaft being adapted to be rocked by a handle 25 which is accessible to the operator of the machine.

An angular supporting finger 26 is pivotably mounted at the bottom of the guide 15 by a pin 27, the function of said finger being hereinafter described.

In filling the machine with merchandise, an article 14a is first dropped into the column 13. Said article striking the finger 26 will cause said finger to pivot out of the passageway of the column and allow said article to come to rest at the base of said column. Articles 14b and 14c are then dropped into the column 12, and the finger 26, by the presence of said latter articles in said column 12, will be caused to take a position over said article 14a in the column 13 as shown in Fig. 1. Thereafter the remaining empty space in said columns may be filled in any order desired.

In the initial dispensing operation the handle 25 is raised by the operator of the machine and the striker plate 22 moves the article 14a to the left, as viewed in Fig. 2, to the position occupied by the article 14b, thus causing the ejection of the latter article through the opening 16. Said article 14b, as do all of the other articles upon their subsequent ejection, drops from said opening into an inclined tray 28 and thereupon slides forwardly to a front wall 29 from which position said package may be removed by the operator of the machine.

After the removal of the article 14a from its original position at the base of the column 13, it will be seen that the remainder of the articles in the column are supported out of the zone of movement of arm 21 and the striker plate 22 by the finger 26 which is prevented from pivoting

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and releasing the weight of said remaining articles so long as more than one article is present in the column 12. It will also be observed that none of the weight of the stack of articles supported thusly rests upon any articles moved by the ejecting mechanism in accomplishing subsequent dispensing of merchandise, a factor which materially decreases the amount of energy required to operate said mechanism.

A slide 30 having an upper plate 31 secured to the ejector arm 21 in a suitable manner, moves back and forth, with each operation of the latter, upon flanges 40 provided upon the wall members of the tiers 11. A follower member 32, having legs 33 and 34, is carried by the plate 31 of said slide 30, said leg 34 extending downwardly through a slot 35 in the plate and the leg 33 extending downwardly beyond the rear edge of said plate, said leg 33 having a stop flange 36 thereon adapted to engage the plate 31 and thus limit the extent of the upward movement thereof caused by the action of a spring 37 connected to the leg 34 of said follower 32 and to a stud 38 on the under side of the plate 31.

After the ejection of the first article and as the handle 25 and the ejecting device 20 are returned manually or by spring means (not shown) to their normal positions, the follower 32 is projected upwardly by the spring 37 to the position shown in Fig. 3 and each actuation of the ejector mechanism will then discharge one of the articles from the rear column 12, the stroke of the ejector mechanism being at all times the same.

When the next to the last article in the column 12 has been dispensed, the finger 26, being no longer held in a supporting position by the presence of articles in said column, will be pivoted about the pin 27 by the weight of the articles in the column 13 and said articles will drop downwardly to the base of said column 13 and depress the follower 32 as is illustrated in Fig. 4. With each subsequent actuation of the ejector mechanism the striker plate 22 will engage the lowermost article in the column 13 and through said package will impart the necessary force to the article in front of the discharge opening 15 to move the latter article through said opening into the receiving tray 28 as upon the initial operation hereinbefore described, opposed flanges 39 being provided at the bottom of the columns as a track for the sliding movement of the articles.

It will readily be observed that after the finger 26 has been pivoted in the above-described manner said finger will be caused to assume an obstructing position in the rear column 12 shown in Fig. 4 and will be there held so long as articles of merchandise remain in the front column 13. Servicemen will thus be unable to effectively refill said column 12 with merchandise until the articles in said column 13 have been removed. This will tend to insure that, during the refilling operation, the older merchandise remaining in the front column will be placed in the rear column where it will be dispensed first.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, but the appended claims should be construed as broadly as permissible in view of the prior art.

I claim:

1. In a vending machine embodying a plurality of chutes for containing stacks of articles to be vended and having a discharge opening at the base of said chutes through which said articles

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from each of said chutes may be ejected, an ejector operable to eject individual articles first from the one of said chutes nearest said discharge opening, one article upon each operation, until said first chute is emptied and then to similarly eject the articles from a second of said chutes next nearest said discharge opening, and means, comprising a pivoted finger disposed between said chutes and contactable concurrently by an article in each, for supporting and holding articles in said second chute out of the zone of action of said ejector until said first chute is emptied, said finger being of angular formation and having a vertical portion adapted to be contacted by the articles in the first chute and having a horizontal portion adapted to be contacted by an article in the next to the lowermost position in the second chute and to support the column of articles in such chute when said finger is in its operative position.

2. In a vending machine embodying a plurality of chutes for containing stacks of articles to be vended and having a discharge opening at the base of said chutes through which said articles from each of said chutes may be ejected, an ejector operable to eject individual articles first from the one of said chutes nearest said discharge opening, one article upon each operation, until said first chute is emptied and then to similarly eject the articles from a second of said chutes next nearest said discharge opening, and means, comprising a pivoted finger disposed between said chutes and contactable concurrently by an article in each, for supporting and holding articles in said second chute out of the zone of action of said ejector, said finger being retainable beneath the lowermost article in said second chute and adapted to be so held until said first chute is emptied, said finger being of angular formation and having a vertical portion adapted to be contacted by the articles in the first chute and having a horizontal portion adapted to be contacted by an article in the next to the lowermost position in the second chute and to support the column of articles in such chute when said finger is in its operative position.

3. In a vending machine embodying a plurality of chutes for containing stacks of articles to be vended and having a discharge opening at the base of said chutes through which said articles from each of said chutes may be ejected, an ejector operable to eject individual articles first from the one of said chutes nearest said discharge opening, one article upon each operation, until said first chute is emptied and then to similarly eject the articles from a second of said chutes next nearest said discharge opening, and means, comprising a pivoted finger disposed between said chutes and contactable concurrently by an article in each, for supporting and holding articles in said second chute out of the zone of action of said ejector, said finger being retainable beneath the lowermost article in said second chute and adapted to be so held until said first chute is emptied, whereupon said finger is automatically withdrawn from supporting position, said finger being of angular formation and having a vertical portion adapted to be contacted by the articles in the first chute and having a horizontal portion adapted to be contacted by an article in the next to the lowermost position in the second chute and to support the column of articles in such chute when said finger is in its operative position, the finger being arranged to be moved to its operative and inoperative positions respec-

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tively by the weight of articles in the respective chutes under predetermined conditions.

4. In a vending machine embodying a plurality of chutes for containing stacks of articles to be vended and having a discharge opening at the base of said chutes through which said articles from each of said chutes may be ejected, an ejector operable to eject individual articles first from one of said chutes one article upon each operation, until said first chute is emptied and then to similarly eject the articles from a second of said chutes, and means, comprising a pivoted finger disposed between said chutes and contactable concurrently by an article in each, for supporting and holding articles in said second chute out of the zone of action of said ejector, said finger being retainable beneath the lowermost article in said second chute by successive articles in said first chute until said first chute is emptied, said finger being of angular formation and having a vertical portion adapted to be contacted by the articles in the first chute and having a horizontal portion adapted to be contacted by an article in the next to the lowermost position in the second chute and to support the column of articles in such chute when said finger is in its operative position.

5. In a vending machine embodying a plurality of chutes for containing stacks of articles to be vended and having a discharge opening at the base of said chutes through which said articles from each of said chutes may be ejected, an ejector operable to eject individual articles first from one of said chutes one article upon each operation, until said first chute is emptied and then to similarly eject the articles from a second of said chutes, and means comprising a finger pivoted between said chutes and retainable within the passage of said first chute, after the same has been emptied, by successive articles in said second chute thereby making it difficult to effectively refill said first chute until all articles have been removed from said second chute, said finger being of angular formation and having a vertical portion adapted to be contacted by the articles in the first chute and having a horizontal portion adapted to be contacted by an article in

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the next to the lowermost position in the second chute and to support the column of articles in such chute when said finger is in its operative position.

6. In a vending machine embodying a plurality of chutes for containing stacks of articles to be vended and having a discharge opening at the base of said chutes through which articles from each of said chutes may be ejected, an ejector operable to eject individual articles first from one of said chutes, one article upon each operation, until said chute is emptied and then to similarly eject the articles from a second of said chutes, and means comprising a finger pivoted between said chutes and contactable concurrently by an article in each, said finger being retainable beneath the lowermost article in said second chute by successive articles in said first chute until said first chute is emptied and thereupon being pivoted, by the weight of the articles in said second chute, to a position within the passage of said first chute and there being retainable by successive articles in said second chute whereby said first chute may not be effectively refilled until all articles have been removed from said second chute, said finger being of angular formation and having a vertical portion adapted to be contacted by the articles in the first chute and having a horizontal portion adapted to be contacted by an article in the next to the lowermost position in the second chute and to support the column of articles in such chute when said finger is in its operative position.

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