April 30, 1935. C. WALKER 1,999,887

VENDING MACHINE

Filed Oct. 21, 1931

Fig. 1.

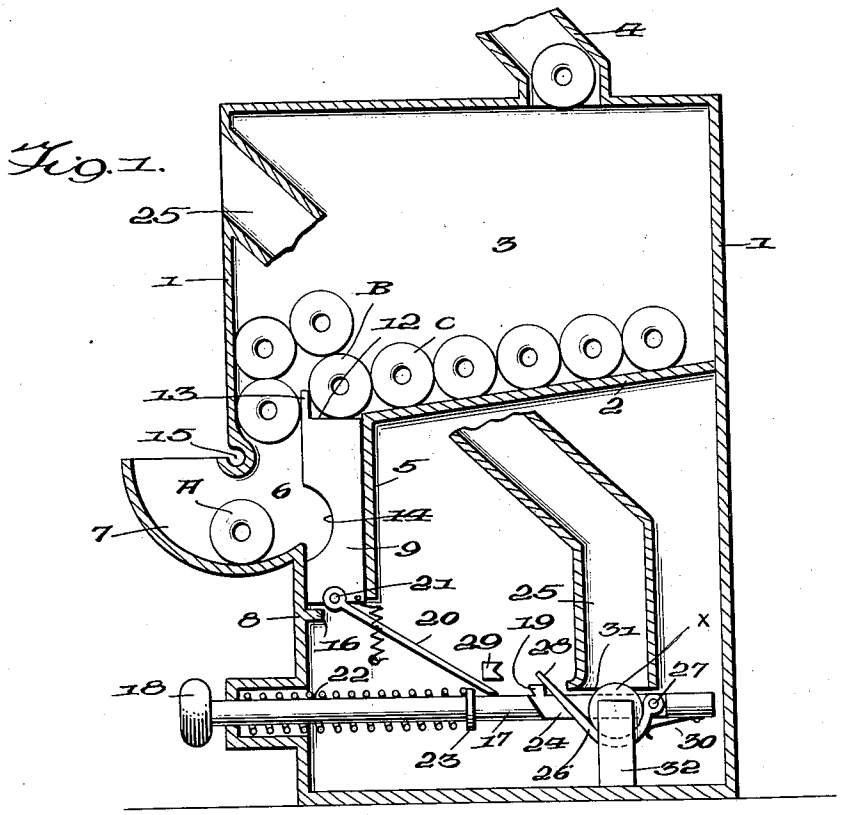


Fig. 2.

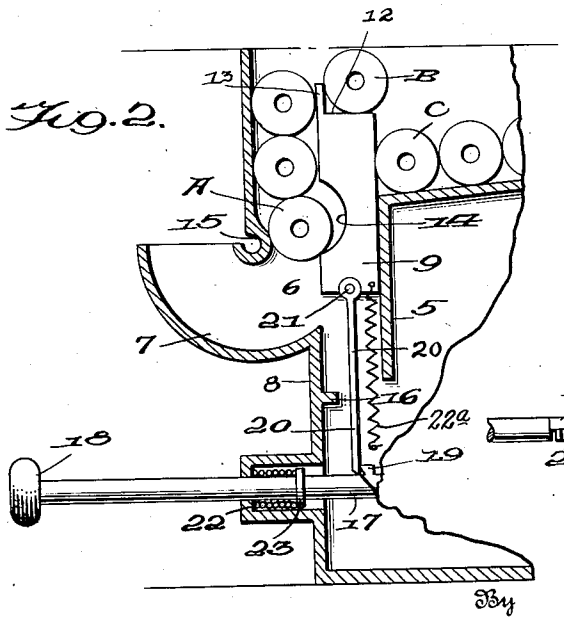


Fig. 4.

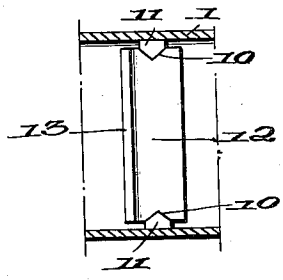
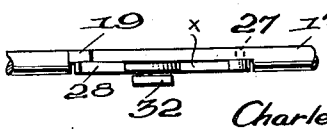


Fig. 3.



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1,999,887

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1,999,887

VENDING MACHINE

Charles Walker, Knoxville, Tenn.

Application October 21, 1931, Serial No. 570,076

6 Claims. (Cl. 312—47)

My invention consists in new and useful improvements in coin controlled vending machines and has for its object to provide a device of this character capable of holding a large number of articles such as spools of thread and the like, and vending the same either individually or in predetermined numbers commensurate with the value of the coin inserted.

Another object of my invention is to provide means whereby the delivery of more than a predetermined number of articles is positively prevented.

With the above and other objects in view which will appear as the description proceeds, my invention consists in the novel features herein set forth, illustrated in the accompanying drawing and more particularly pointed out in the appended claims.

Referring to the drawing in which numerals of like character designate similar parts throughout the several views,

Fig. 1 is a vertical longitudinal section through the machine with the parts shown in normal inoperative position.

Fig. 2 is a similar view of the vending mechanism shown in Fig. 1 with the parts shown in pre-delivery position.

Fig. 3 is a plan view of the coin controlled mechanism, and

Fig. 4 is a transverse sectional view of the delivery element.

In the drawing, 1 represents the housing of the vending machine which is provided in its upper portion with a partition 2 downwardly inclined toward the front to form a magazine 3 for retaining the articles to be vended. This magazine may be filled in any suitable manner or it may be connected by means of a chute 4 to a source of supply.

The partition 2 terminates at its forward extremity in a downwardly extending wall 5 which is spaced rearwardly from the front wall of the housing 1 to define a delivery passageway 6. The front wall of the housing 1 is provided adjacent the delivery passageway with a receptacle 7 for receiving the delivered articles, the wall beneath said receptacle being inset as at 8 toward the wall 5 of the partition.

9 represents a delivery element which is preferably substantially rectangular in shape and lies in the delivery passageway 6 between the wall 5 of the partition and the inset portion 8 of the front wall of the housing, the horizontal extremities of said element being vertically grooved as at 10 to engage guide members 11 as shown in Fig. 4, whereby said delivery element is capable of a vertical reciprocation in the rear portion of the passageway 6 as will hereinafter appear. The upper extremity of the delivery element 9 forms a carriage 12 and is provided with a vertical projection or rib 13 on its front side, said carriage being adapted to normally lie immediately adjacent the front end of the inclined partition 2 as shown in Fig. 1. The front face of the delivery member 9 is recessed intermediate its vertical extremities as at 14, said recess being so located that when the delivery member is in its uppermost position, the recess will lie directly across from a restricting projection 15 on the front wall of the housing 1. Downward movement of the delivery element 9 is limited by a lug 16 carried by the front wall of the housing adjacent the lower extremity of the delivery passageway.

Reciprocating motion may be transmitted to the delivery element by any suitable means, that shown in the drawing consisting of a coin released plunger 17 reciprocably mounted in suitable bearings and projecting through the front wall of the housing where it terminates in a handle 18. This plunger 17 carries on its upper side a lug 19 adapted to engage the free end of an arm 20 which is pivotally carried as at 21 by the lower end of the delivery element 9. Thus on the forward movement of the plunger 17, the lug 19 through the medium of the arm 20 will cause the delivery element 9 to move vertically in the delivery passageway into the position shown in Fig. 2. Upon releasing the handle 18 of the plunger 17, the parts are returned to normal position by means of a coil spring 22 which surrounds the plunger 17 and abuts a collar 23 fixed to said plunger, and spring 22a which operatively engages the delivery element 9 and normally tends to urge the latter downwardly.

As in the case of the actuating mechanism, various forms of coin control mechanism may be employed in connection with my invention. For example, as shown in Figs. 1 and 3, the plunger 17 is vertically and longitudinally recessed as at 24 which recess lies directly beneath the discharge end of a coin chute 25. Within this recess is provided a coin retaining arm 26 pivoted at one end as at 27 with its free end 28 normally projecting above the plunger 17 in direct line with a stationary lug 29 supported in any suitable way by the housing 1. The arm 26 is provided with a curved portion directly beneath the coin chute 25 so as to coincide with the shape of an inserted coin and is normally held in an upward position by a spring or the like 30 fixed

at one end to the plunger 17, whereby the upper edge of the coin X is held slightly above a curved lip 31 on the forward edge of the delivery chute 25 for the purpose hereinafter set forth. In the position shown in Fig. 1, the coin is prevented from displacement by means of a vertically extending stationary arm 32 carried by the bottom wall of the housing.

Having thus described the structure of the preferred form of my invention, its operation is as follows:—

Assuming that the magazine 3 is filled with articles such as spools of thread or the like, and the mechanism is in the position shown in Fig. 1. In the absence of a coin from the mechanism, the forward movement of the plunger 17 by the handle 18 will bring the free end 28 of the coin retaining arm 26 into engagement with the stationary lug 29, thus preventing the operation of the vending device. Upon the insertion of a coin in the chute 25, if it be of the proper denomination, said coin will drop onto the retaining arm 26 in the slot 24 of the plunger 17 where it will be held in place by the vertical arm 32. Now the forward movement of the plunger 17 will bring the upper edge of the coin into engagement with the lip 31 on the chute and cause the arm 26 to swing downwardly on the pivot 27 a sufficient distance for the upper end 28 to clear the lug 29. This permits the continued forward movement of the plunger 17 which brings the lug 19 on the plunger into engagement with the free end of the arm 20, whereby the delivery element 9 is moved upwardly into the position shown in Fig. 2. In this position, the recess 14 in the delivery element lies directly opposite the restricting projection 15, and the lowermost article A moves by gravity partially into said recess 14, the article next above being prevented from entering said recess by the forward face of the element 9.

Upon releasing the handle 18, the plunger 17 is caused to return to its normal position by the spring 22 whereupon the collar 23 kicks the lower end of the arm 20 inwardly and permits the delivery element 9 to descend. During this movement, the lowermost article A rides into the recess 14, past the projection 15 and is delivered into the receptacle 7. It will be noted that as the delivery element 9 moves downwardly, the recess 14 carrying the lowermost article A passes the projection 15 before the article next above has had an opportunity to descend further than said projection, and thus the delivery of more than one article is prevented, the others being retained by the restriction in the passageway.

Referring again to the upward movement of the delivery element 9, it will be noted that in Fig. 1 the forwardmost article B on the partition 2 has rolled by gravity onto the carriage 12 and is prevented from further forward movement by the vertical projection 13. Now upon the upward movement of the element 9, the article B will be elevated as shown in Fig. 2 and the article C next in line will roll by gravity until it abuts the rear face of element 9. The return of element 9 to its lowermost position causes the lower portion of the article B to engage the upper portion of article C whereupon the former is pushed over the projection 13 and fed to the delivery passageway.

When the plunger 17 is in its forwardmost position, it will be noted that the coin X has been moved past the vertical arm 32 whereupon it is permitted to drop from the retaining arm 26 into any suitable coin receptacle not shown.

From the foregoing it is believed that the construction, operation and advantages of my invention may be readily understood by those skilled in the art without further description, it being borne in mind that numerous changes may be made in the details of construction without departing from the spirit of the invention as set out in the following claims. For example, while I have shown the device as adapted to deliver individual spools of thread, it is obvious that by increasing the size of the recess 14, two or more spools of thread may be delivered as desired. Furthermore, the machine may be used for vending various different types of articles with equal effect.

What I claim and desire to secure by Letters Patent is:—

1. A vending machine comprising a casing, a partition in said casing, downwardly inclined toward the front, forming an article magazine, a delivery passageway leading from said magazine and terminating below said partition in a receptacle, a vertically reciprocable delivery member adjacent said passageway, a carriage at the upper end of said delivery member adapted to normally lie adjacent the forward extremity of said partition and receive the foremost article fed by gravity from the latter, and means for reciprocating said delivery member, the upward movement of said delivery member causing said foremost article to be elevated to a position above the adjacent row of articles on said partition and permitting the article next in line to advance by gravity to a position substantially beneath a portion of said elevated article, whereby upon the return movement of said delivery member, said elevated article abuts said article next in line and is dislodged from said carriage and deposited in said delivery passageway.

2. A vending machine comprising a casing, a partition in said casing, downwardly inclined toward the front, forming an article magazine, a delivery passageway leading from said magazine and terminating below said partition in a receptacle, a vertically reciprocable delivery member restricting a portion of said passageway, a carriage at the upper end of said delivery member adapted to normally lie adjacent the forward extremity of said partition and receive the foremost article fed by gravity from the latter, means for reciprocating said delivery member whereby the upward movement of said member causes said foremost article to be elevated to a position above the adjacent row of articles on said partition, permitting the article next in line to advance by gravity to a position substantially beneath a portion of said elevated article, the return movement of said delivery member causing said elevated article to abut said article next in line, dislodging the former from said carriage and depositing the same in said delivery passageway, and means on said delivery member adapted to receive the lowermost article in said passageway on the up-stroke and deliver the same to said receptacle on the down-stroke.

3. A vending machine comprising a casing, a partition in said casing, downwardly inclined toward the front, forming an article magazine, a delivery passageway leading from said magazine and terminating below said partition in a receptacle, the mouth of said passageway being restricted, a vertically reciprocable delivery member adjacent said passageway and forming one wall

thereof, a carriage at the upper end of said delivery member adapted to normally lie adjacent the forward extremity of said partition and receive the foremost article fed by gravity from the latter, a recess in said delivery member adjacent said passageway and adapted to normally lie below the restricted mouth of the latter, and means for reciprocating said delivery member, the upward movement of said member causing said foremost article to be elevated to a position above the adjacent row of articles on said partition and permitting the article next in line to advance by gravity to a position substantially beneath a portion of said elevated article, whereby upon the return movement of said delivery member, said elevated article abuts said article next in line and is dislodged from said carriage and deposited in said delivery passageway, said upward movement simultaneously bringing said recess to a point adjacent the restricted portion of said passageway to permit the delivery of an article therefrom upon the down-stroke of said delivery member.

4. A vending machine comprising a casing, a partition in said casing, downwardly inclined toward the front, forming an article magazine, a delivery passageway leading from said magazine and terminating below said partition in a receptacle, stationary means for restricting one side of the mouth of said passageway, a vertically movable member for restricting the opposite side of said mouth, means for moving said last named member past said stationary restriction to enlarge said passageway, a carriage at the upper end of said movable member adapted to normally lie adjacent the forward extremity of said partition and receive the foremost article fed by gravity from the latter, and means on said carriage for normally preventing articles from said partition, from entering said passageway, the upward movement of said carriage elevating the article carried thereby to a position above the adjacent row of articles on said partition and permitting the article next in line to advance by gravity to a position substantially beneath a portion of said elevated article, whereby upon the return movement of said carriage, said elevated article abuts said article next in line and is dislodged from said carriage and deposited in said passageway.

5. A vending machine as claimed in claim 4 wherein said movable member is of less thickness than that of the article carried thereby and is mounted in suitable guideways.

6. A vending machine comprising a casing, a partition in said casing, downwardly inclined toward the front, forming an article magazine, a delivery passageway leading from said magazine and terminating below said partition in a receptacle, a vertically reciprocable delivery member adjacent said passageway, the upper end of which is adapted to normally lie adjacent the forward extremity of said partition and to receive the foremost article fed by gravity from the latter, and means for reciprocating said delivery member, the upward movement of said delivery member causing said foremost article to be elevated to a position above the adjacent row of articles on said partition and permitting the article next in line to advance by gravity to a position substantially beneath a portion of said elevated article, whereby upon the return movement of said delivery member, said elevated article abuts said article next in line and is forced off of said delivery member and deposited in said delivery passageway.

CHARLES WALKER.