Sept. 12, 1933. A. D. ANTOINE ET AL 1,926,662

VENDING MACHINE

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Fig. 1

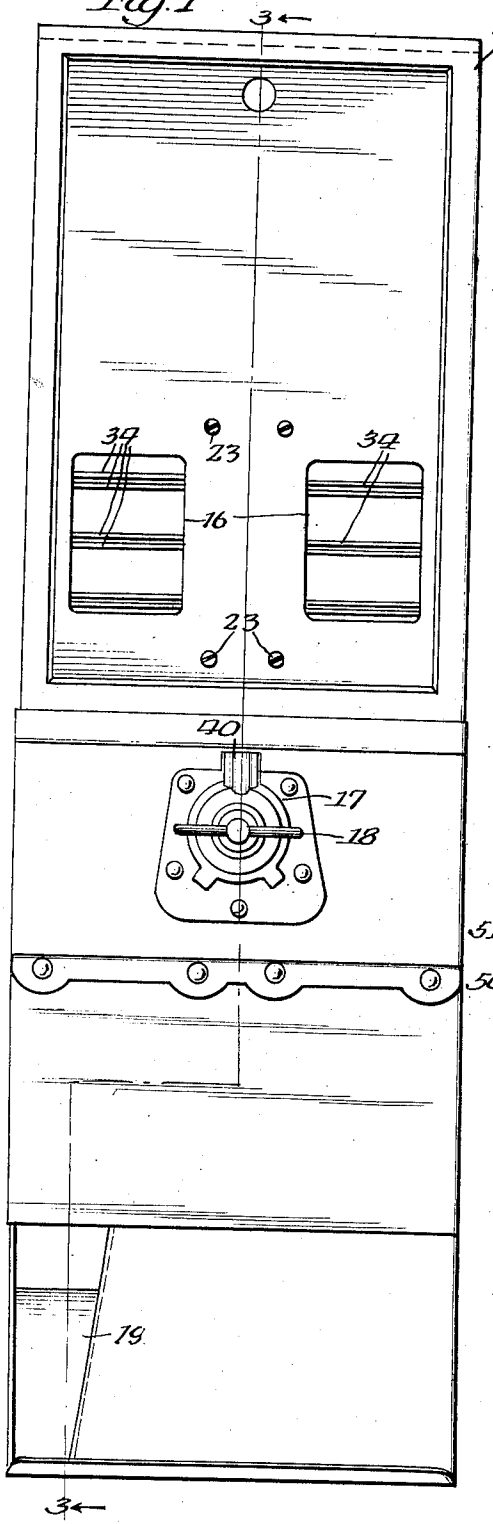
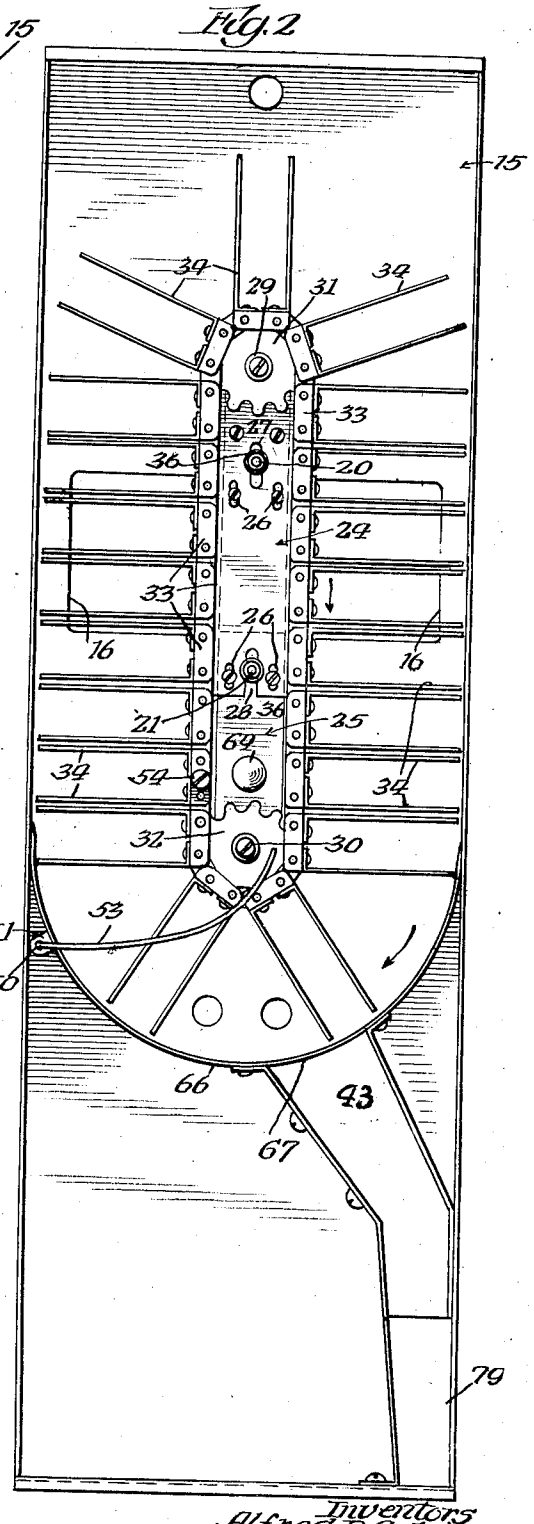



Fig. 2




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Fig. 3

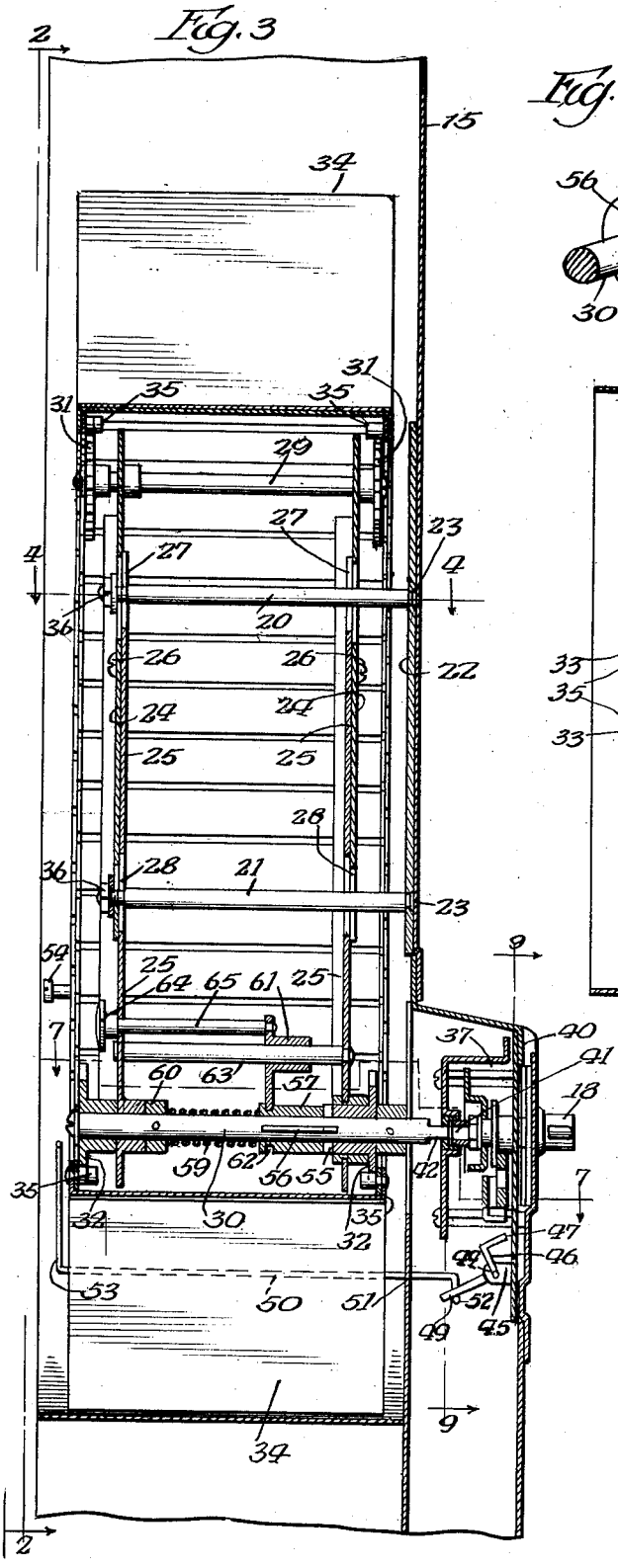



Fig. 6

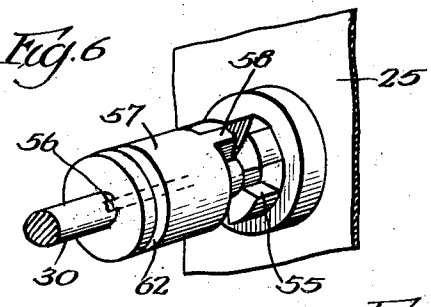



Fig. 4

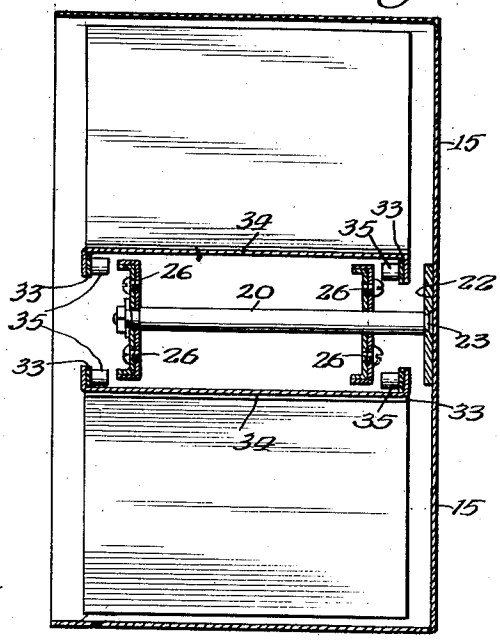
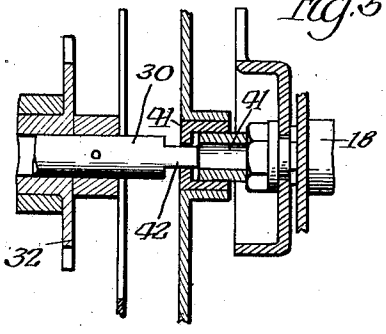



Fig. 5




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Fig. 7

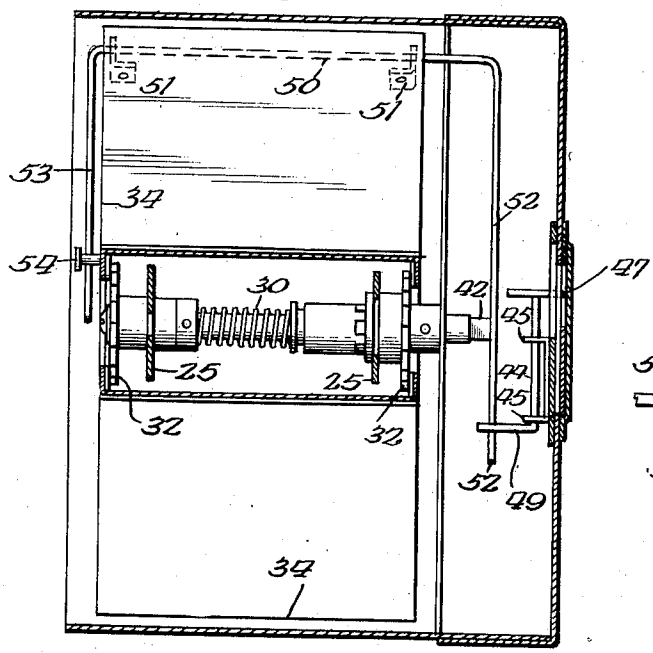



Fig. 8

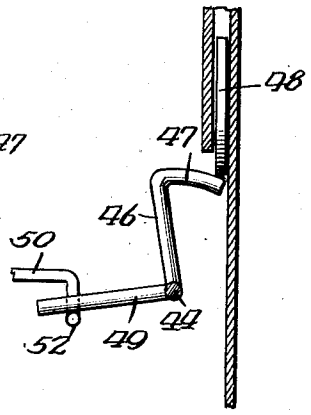



Fig. 9

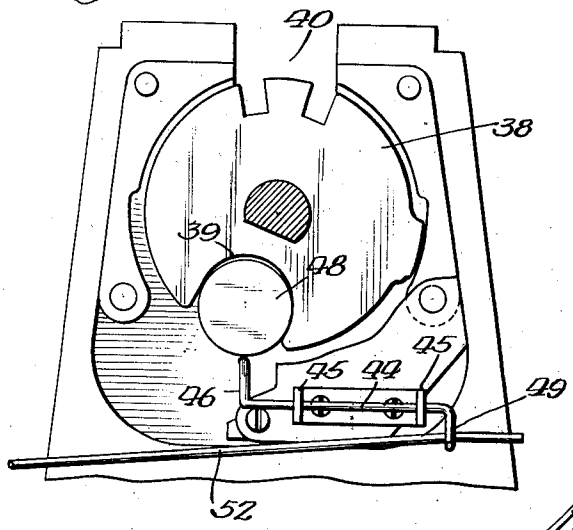
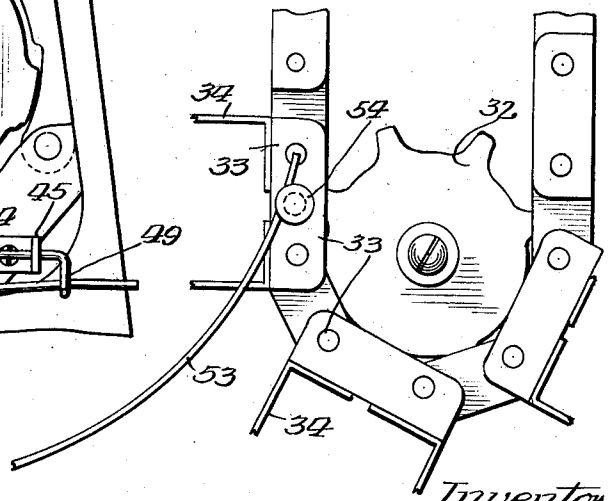



Fig. 10




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# UNITED STATES PATENT OFFICE

1,926,662

## VENDING MACHINE

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Application December 23, 1929
Serial No. 415,920

6 Claims. (Cl. 312—97)

This invention relates to improvements in vending machines of the type embodying a chain or endless conveyor for the articles of merchandise adapted to be intermittently actuated upon the insertion of a proper coin or check into the machine, and operating to successively discharge or deliver the articles or merchandise therefrom when the article reaches a predetermined station.

A further object is to provide improved means responsive in its operation to the endless carrier whereby at a predetermined time in the cycle of operation of the mechanism, additional means will be rendered active to prevent the discharge of the coin from the coin carrier and cause the coin to be returned to the operator.

A further object is to provide in a machine of this character an endless carrier for the merchandise, having a constant direction of movement by the operator after a coin has been deposited therein, and improved means for adapting the carrier for reverse movement for facilitating in filling or loading the carrier.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings illustrating this invention and in which

Figure 1 is a front elevation taken from the outside of the casing of a machine of this character constructed in accordance with the principles of this invention.

Figure 2 is a vertical sectional view taken on line 2—2, Figure 3, with parts omitted.

Figure 3 is a vertical sectional view taken on line 3—3, Figure 1, with parts omitted.

Figure 4 is a detail sectional view taken on llne 4—4, Figure 3.

Figure 5 is an enlarged detail sectional view showing the connection between the operating shaft and the coin controlled mechanism.

Figure 6 is a detail perspective view of a clutch.

Figure 7 is an irregular sectional view taken on line 7—7, Figure 3, with parts omitted.

Figure 8 is an enlarged detail view, partly in elevation, partly in section and partly broken away, of the mechanism for preventing the delivery of the coin into the machine from the coin carrier.

Figure 9 is a detail sectional view taken on line 9—9, Figure 3, with parts omitted.

Figure 10 is a detail view partly in elevation, partly broken away and with parts omitted, showing the trip mechanism for controlling the parts shown in Figure 8.

Referring more particularly to the drawings the numeral 15 designates generally a casing in which the mechanism is arranged and which casing is provided in its front wall preferably with windows or openings 16, through which the goods may be viewed.

The numeral 17 designates generally a coin controlled mechanism having an operating handle 18 by means of which the carrier may be set into operation by the insertion of a proper coin or check and 19 designates a delivery or discharge opening through which the articles are dispensed.

Arranged within the casing 15 and spaced above each other are two supports 20—21 and these supports are secured to the casing wall in any suitable manner preferably through the medium of a supporting plate 22 which rests against the rear face of one of the walls of the casing and which plate in turn is secured in position by means of suitable fastening screws 23. A frame comprised of spaced members each of which comprises overlapping sections 24—25 is provided for supporting the carrier and these overlapping sections may be secured together for adjustment one with relation to the other by means of fastening devices 26, slots 27—28 being provided through the members, and through which slots the supports 20—21 pass, the frame members being held spaced from each other in any desired or suitable manner.

Carried by the upper end of the frame members is a shaft or bearing 29 and carried by the lower ends of the frame members is a rotatable shaft 30. Mounted to rotate upon the shaft 29 are spaced sprocket wheels 31, and rotatably supported upon the shaft 30 are corresponding sprocket wheels 32, one of the sprockets 32 being arranged beneath each of the sprockets 31.

An endless flexible member, preferably in the form of a chain, comprising links 33 pivotally secured together pass over the respective co-operating sprockets 31—32, and carried by the links 33 are holders 34 preferably in the form of pockets for receiving and conveying the articles or merchandise. These pockets or holders 34 form the connection between the endless members 33 and the links are provided with projections 35 which enter the spaces between the teeth of the sprockets.

The frame together with the carrier, including the endless flexible members thus constructed

are adapted to be placed into and removed from the casing 15 as a unit and to that end the slots 27—28 are provided which permit the supports 20—21 to respectively pass therethrough, the unit being held in position by means of nuts or collars 36 screwed on to the ends of the supports 20—21. The slots 27—28 permit of a bodily adjustment of the unit in the casing 15 and the adjustability of the sections 24—25 with respect to each other serve as a means whereby the endless flexible elements 33 may be adjusted or tightened.

Mounted in a suitable compartment in the casing 15 is a coin controlled mechanism designated generally by the reference numeral 37 and which coin controlled mechanism may be of any desired or suitable construction. Suffice it to say that the coin controlled mechanism embodies a coin carrier 38 having a coin pocket or seat 39 therein. The carrier 38 is connected with the handle 18 so as to advance the coin when the latter is deposited into the seat 39 through the opening 40. The coin mechanism also embodies a recessed element 41 which is preferably angular in cross section and into which recess (see particularly Figure 5) a reduced extremity 42 of the shaft 30 is adapted to enter so that the shaft 30 will be given one step of rotation upon each movement in one direction that is imparted to the handle 18 upon the insertion of a proper coin and thereby successively advance the pockets or holders 34 to a position adjacent a chute 43 that delivers the article into the discharge chute or outlet 19.

When the conveyor is provided with a package or an article in the holders 34 and a proper coin is deposited in the coin seat 39 of the carrier 38, one step of rotation will be given to the shaft 30 and the coin will be deposited into the machine and will fall out of the pocket or seat 39 when the latter is inverted. This delivery of the coin into the machine from the coin carrier 38 is well known in this art and forms no part of the present invention.

In order to prevent the deposit of the coin from the seat 39 into the machine and to cause the same to be returned to the operator when there are no articles in the conveyor or carrier to be vended, means are provided for retaining the coin within the seat 39 when the latter is inverted.

Any suitable means may be provided for that purpose. A simple and efficient means, however, embodies a shaft 44 journaled in suitable bearings 45 (see particularly Figure 9), the shaft being provided with an arm 46 having a deflected extremity 47 and which extremity 47 is adapted to be positioned beneath the coin 48 in the coin seat 39, as shown more clearly in Figures 8 and 9, at predetermined times in the cycle of operation of the mechanism.

The shaft 44 is also provided with an arm 49, the weight of the arm 49 being adapted to withdraw the deflected extremity 47 from beneath the coin and permit the latter to drop into the machine, under normal conditions.

When, however, the endless carrier assumes a predetermined position, the extremity 47 of the shaft 44 is adapted to be positioned as shown in Figure 8. To that end there is provided a rock shaft 50 journaled in suitable bearings 51 and having a deflected portion 52 projecting beneath the arm 49 as shown more clearly in Figure 7. The shaft 50 is also provided with an arm 53, the end thereof being arranged to stand within the path of movement of a lug or projection 54 carried by one of the links 33 so that when the projection or lug 54 moves from the position shown in Figure 2 to the position shown in Figure 10, it will engage the portion 53 of the shaft 50 to rock the latter and cause it in turn to rock the shaft 44 to move the extremity 47 of the arm 46 of the shaft 44 to the position shown in Figure 8, thereby preventing the coin 48 from dropping out of the seat 39, with the result that upon the reverse movement of the handle 18 the coin 48 will be returned to the operator. This operation will take place when the carrier is empty of articles.

During the operation of the machine the carrier with the pockets 34 thereon has a constant direction of movement, that is in the direction indicated by the arrow in Fig. 2. When, however, the machine is to be refilled, it is desired that the endless carrier 33 may be moved in the opposite direction so as to properly position the lug 54 and at the same time position the pockets 34 to be filled by the attendant. To that end means are provided whereby the endless carrier with its pockets or holders may be released with respect to the coin controlled mechanism and rotated in the opposite direction.

A simple and efficient means for accomplishing this result will now be described. One of the sprocket wheels 32 is provided with a clutch face 55 (see particularly Figure 6) and mounted upon the shaft 30 is a clutch member 57 secured to rotate therewith but for sliding movement thereupon by means of a key or feather connection 56. The clutch member 57 is provided with a face 58 which co-operates with the clutch face 55.

A spring 59 encompasses the shaft 30 and bears at one end against the clutch member 57 and at the other end against a collar 60, and the spring 59 tends normally to move the clutch member 57 in a direction to engage and co-operate with the clutch face 55 on the sprocket 32. Thus the sprocket 32 will be locked to the shaft 30 for rotation therewith.

In order to release the clutch to permit the endless carrier to be moved in the opposite direction a member 61 is provided which has a yoke engaging in a groove 62 in the clutch member 57. This member 62 preferably slides upon a support or guide 63 which latter in turn is preferably supported by the members 25 of the frame, and an operating handle 64 is connected by means of a stem 65 with the member 61. The handle 64 is located in a convenient position for the operator preferably adjacent the outer face of one of the members 25 of the frame and between the runs of one of the endless carrier members 33. When the clutch member 57 is withdrawn so as to disengage the clutch face 55 on the sprocket 33, and against the stress of the spring 59, it will be manifest that the endless carrier may be moved in either direction at the will of the operator, so long as the clutch member 57 is thus held. When, however, the clutch member is released the spring 59 will move it into co-operative relation with the clutch 55 of the sprocket 32 and the endless carrier will then be locked for rotation with the shaft 30.

A shield 66 is provided so as to form a closure for the open edges of the pockets or carrier 37 when the pockets or carriers are inverted and the shield is provided with an opening 67 therethrough which communicates with the chute 43 so that when the open side of one of the pockets is in alinement with the opening 67 in the shield 66 the contents of the pocket will fall by gravity

therefrom through the opening 67 and into the chute 43.

While the preferred form of the invention has been herein shown and described, it is to be understood that various changes may be made in the details of construction and in the combination and arrangement of the several parts, within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:—

1. A vending machine embodying a casing, a frame therein, said frame embodying sections secured together for adjustment one with respect to the other, sprockets carried by the respective sections, endless conveyors passing over the sprockets, article holders connected with the sprockets, actuating means separate from said frame, an operative connection between the actuating means and one of said sprockets, for moving the conveyors in one direction, said connection embodying a clutch whereby the connection may be broken to allow the conveyor to be moved in the opposite direction, and an operating handle mounted upon said frame for controlling the said clutch device.

2. In a vending machine, a casing, a supporting structure, a plurality of pairs of laterally spaced sprockets mounted upon said structure, endless flexible members passing over the cooperating sprockets of the respective pairs, article holders connecting said flexible members, said structure constituting a dispensing unit and removable as a unit from the casing, an operating shaft separate from said unit and a clutch connection between one of said sprockets and said operating shaft, the elements of said clutch device being separable by removal of said unit from the casing.

3. A vending machine embodying a casing, a frame therein, spaced sprockets carried by the frame, endless conveyors passing over the sprockets, article holders connected with the conveyors, supporting rods carried by the casing, there being openings through the frame members through which the rods pass to support the frame, means securing the frame against displacement with respect to the rods, said frame and the structure supported thereby being removable as a unit from said rods and from the casing, actuating mechanism separate from the frame, and a separable connection between one of the sprockets and the said actuating means and rendered active and inactive respectively upon the insertion and removal of said frame from the casing.

4. A vending machine embodying a casing, a frame therein, spaced sprockets carried by the frame, endless conveyors passing over the sprockets, article holders connected with the conveyors, supporting rods carried by the casing, there being openings through the frame members through which the rods pass to support the frame, means securing the frame against displacement with respect to the rods, said frame and the structure supported thereby being removable as a unit from said rods and from the casing, actuating mechanism separate from the frame, a separable connection between one of the sprockets and the said actuating means and rendered active and inactive respectively upon the insertion into and removal of said frame from the casing, clutch mechanism carried by said frame, and means for controlling the clutch at will for rendering the sprockets inactive with respect to the said actuating means when the latter is active.

5. A vending machine embodying a casing, a frame therein, spaced sprockets carried by the frame, endless conveyors passing over the sprockets, article holders connected with the conveyors, supporting rods carried by the casing, there being openings through the frame members through which the rods pass to support the frame, means securing the frame against displacement with respect to the rods, said frame and the structure supported thereby being removable as a unit from said rods and from said casing, actuating mechanism separate from the frame, a driving shaft, a separable connection between said shaft and said actuating mechanism and rendered active and inactive respectively when said frame is inserted into and removed from said casing, means for connecting one of said sprockets with said shaft, and means for rendering said connection between the shaft and sprocket inactive at will.

6. A vending machine embodying an endless flexible conveyor, article holders connected with the conveyor throughout its length for traveling movement therewith, a sprocket wheel over which the endless conveyor passes, a shaft, actuating means for the shaft, a clutch connection between said shaft and said sprocket wheel, and a controlling handle for rendering the said clutch connection inactive to permit said sprocket and said endless conveyor to be freely operated while the connection between the shaft and the operating means remains active.

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