

Sept. 17, 1957

A. O. VAN VACTOR  
AUTOMATIC MERCHANDISING UNIT

2,806,631

Filed Jan. 13, 1953

2 Sheets-Sheet 1

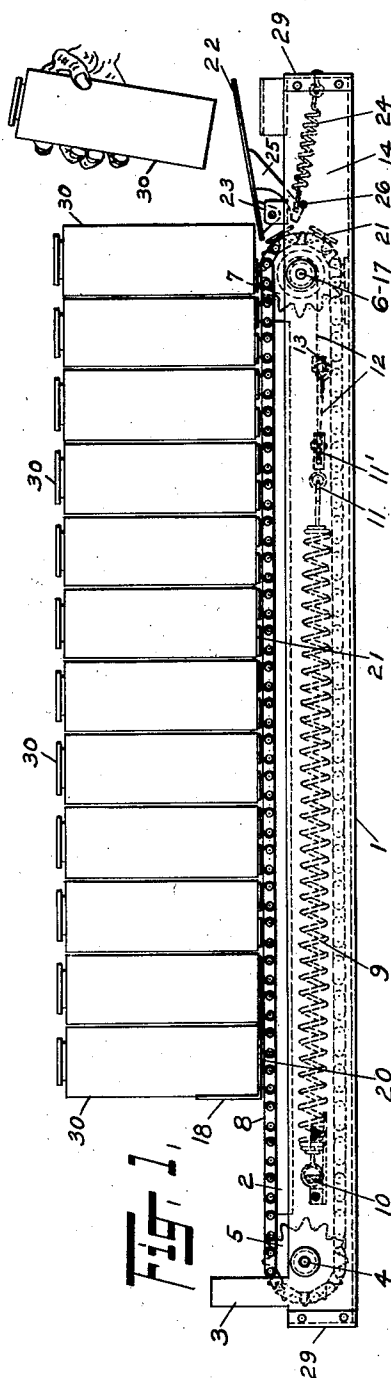


FIG. 1

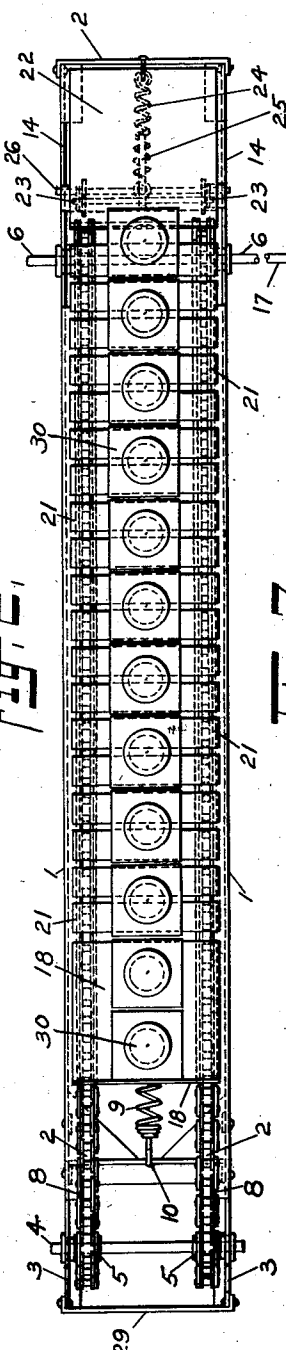
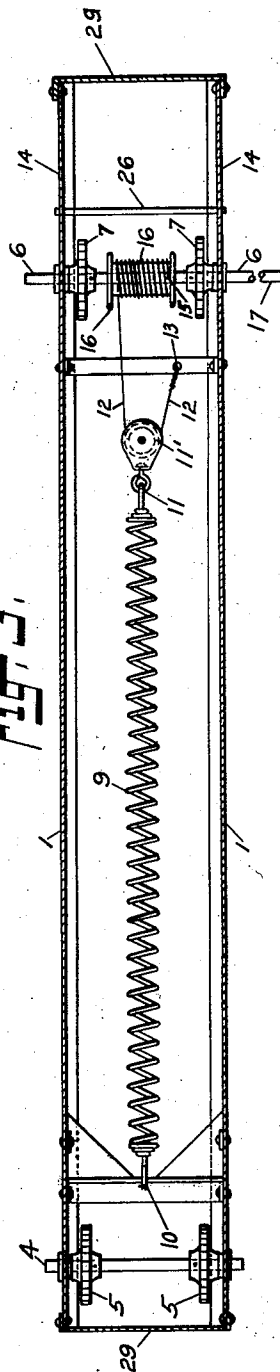


FIG. 2



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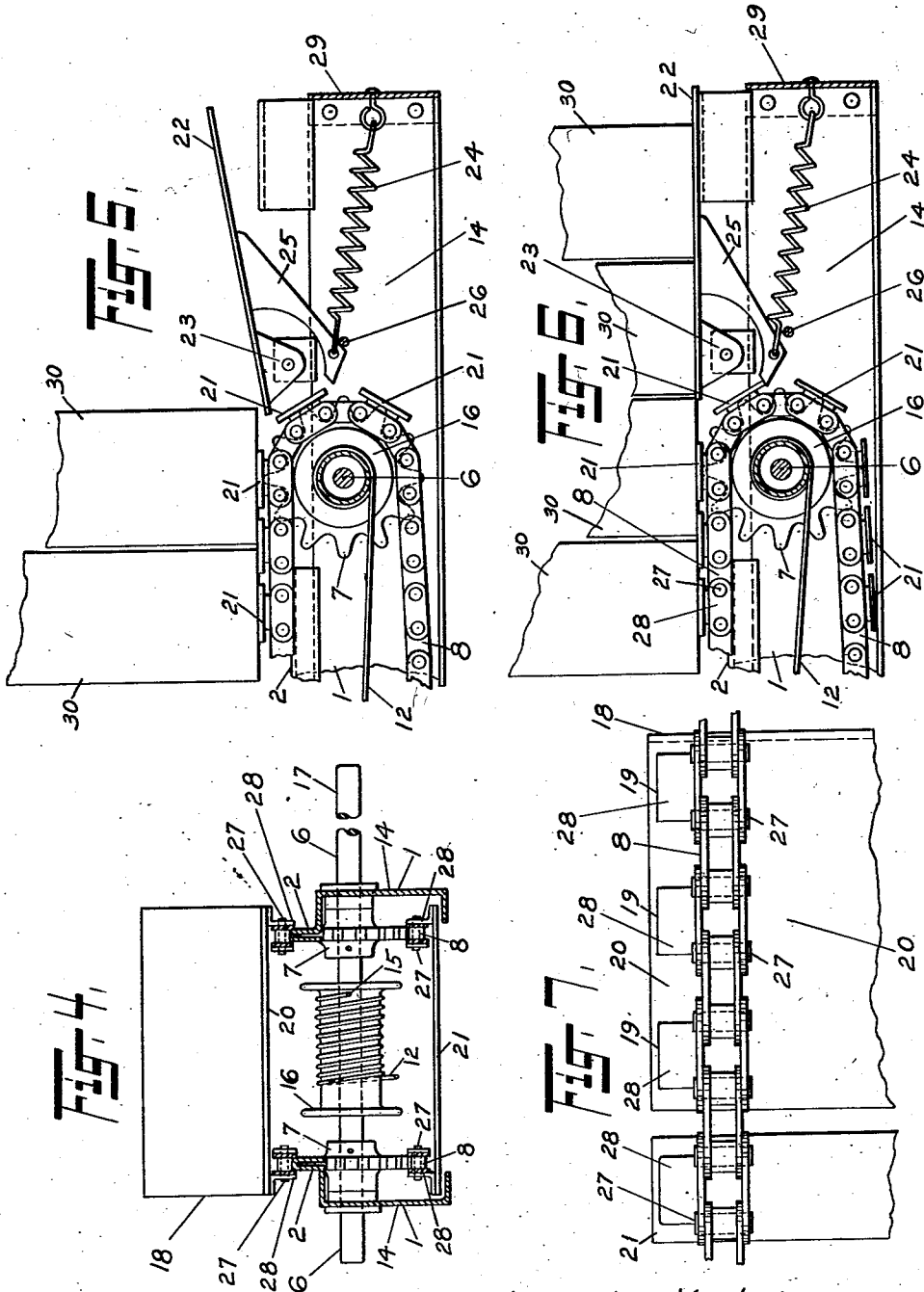
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1

2,806,631

## AUTOMATIC MERCHANDISING UNIT

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Application January 13, 1953, Serial No. 331,056

4 Claims. (Cl. 221—13)

This invention is related to an automatic storing and vending system, and it more especially consists of the features described and claimed in the accompanying specification and shown on the associated drawing.

The purpose of my invention is to provide a combined storage and delivery system for salable merchandise; that is not limited to any one class or size of merchandise; that is adapted to the storage and display of all kinds and sizes of goods; and that utilizes a single or duplicate machine to serve either a modest business or a large business emporium without limitations as to the class, weight or bulk of the merchandise.

With these and other related ends in view I illustrate on the accompanying drawing such instances of adaptation as will disclose the broad features of my system without limiting myself to the exact specific details embodied in the description and drawing.

Figure 1 is a side elevation of a self serving merchandiser in service.

Figure 2 is a top plan view of Figure 1.

Figure 3 is a top plan view of a spring motor drive.

Figure 4 shows the attachment of the carriage to the driving chains.

Figure 5 is a side edge elevation of the trip plate.

Figure 6 is a detached view of the delivery plates showing its relation to the stop between two storage plates.

Figure 7 shows the attachment of the storage plates to the chain.

In practicing my invention I may make such changes in the structure as the exigencies of varying conditions may demand without departing from the broad spirit of the invention.

In the main my invention includes special adaptations which serve either small or large merchandise operations. These may be varied according to the class and size of the merchandise that is to be stored and automatically delivered to a purchasing customer.

The same principle is involved in the mechanism for storing merchandise and also for selling the merchandise whether it is large or small and whether it is operated by external driving means or a self contained motor, such as a power spring to control the delivery of a purchased item to a waiting customer.

The device includes a frame 1 of two separate channel members which form a track on their upper edges. These members extend to whatever length is required to handle the merchandise. The rear end of the channel 2 is provided with stops 3, that prevent the carriage from passing off the frame at the rear end.

There is a transverse idling shaft 4, which has its ends supported by the channels. On the shaft 4, there are two sprocket wheels 5. There is a drive shaft 6, at the front end 14, of the frame 1. It also has two sprocket wheels 7. There are two endless chains 8, between the sprockets on the two separate shafts 4 and 6. These chains 8, support storage plates 21, which in turn serve to receive merchandise for storage and delivery when a purchase has been made.

2

The chains 8, are placed just inside of the side frame 1, and they serve to move the carriage 18, and attached storage plates 21, into storage position and deliver individual merchandise items which are on view to the customer.

A small size storage dispenser may be spring driven as an individual unit illustrated on the drawing. As many units as may be needed to serve a large quantity of merchandise are usually spring driven, so that the different units are independent of each other. In the present instance a long coil spring 9, is used. It is fastened to the inside of the frame 1 at 10. The free end of the spring is attached by a hasp 11, which encloses a sheave 11'.

The stored power of the spring is transmitted to the pair of endless chains 8, through an inverted or a "block and tackle system" which includes the cable 12. The one end of the cable 12 is attached to the inside of the frame 1 at 13 near the delivery end of the frame. This end of the frame is also located by the numerals 14. The other end of the cable after passing over the sheave is attached to the drive shaft by a conventional fastening.

At this point the cable passes to the drum 16, on the drive shaft 6, the drum 16 is secured to the shaft. This shaft has bearings in the side plates of the frame. In case of an external motor being used instead of self contained motor spring, the drive shaft 6 may project through the frame and be attached to a differential connection that will simulate the differential action of the spring. These features are not shown on the drawing.

The end 15 of the cable is fastened to the drum 16. The extra projection of the shaft 6 is identified by the numeral 17, the carriage 18 slides on the upper face 2, of the side channels 1. It is attached at 19, to the two chains 8, in front of the carriage also attached to the chains are storage plates 21. These plates are not attached to each other but are free to lie on a horizontal plane when they are positioned above the chains and at other times they lie also horizontal below, chains. The under face 20 of carriage 18 is not attached to the chains except at its side edges.

The delivery plate 22 is pivoted along its rear edge on the hinges 23. There is a spring 24 under the delivery plate 22, which keeps it raised at its front edge. A stop 26 which limits its movements upwards and on the underside of the delivery plate 22 there is a projection 25 that cooperates with an extension that terminates adjacent the front edges of delivery plates 22. This extension serves to lock or stop any movement of the merchandise and chains 8 by reason of the extension dropping between the adjacent edges by the tilting plate 22, put in a horizontal position by the weight of a first portion of merchandise to be sold.

The chains are of standard construction and consist of side links 28 and pivot pins 27. With all the parts listed above in operative relation to each other the entire mechanism in its successive movement is automatic. The different movements of the apparatus rather closely follow each other as is now described.

In the first instance the device shown or any enlarged modification of it will in all cases serve two purposes each:

The first purpose is to store salable goods and the second purpose is to deliver goods to a customer. This is accomplished as follows: the item is placed one by one on the storage plates, the first item being next to the carriage and each succeeding item in front of the preceding one that is stored. As the successive items are put on the storage plates they are pushed to the rear of the supporting frame successively item by item until all the supporting plates are filled and a last item will rest on the tilting delivery plate.

The first customer will find an item on the delivery

3

plate and removes it; this then frees the delivery plate in position between the chains and a new item of merchandise is again pushed forward onto the delivery plate. Thereafter the movements are duplicated until the last item is sold. If desired each operative dispenser may have new items for sale placed on the remaining unoccupied storage plates. The operation is thoroughly automatic throughout. If a customer desires two or more items they may be taken as fast as they are moved forward one by one on the delivery plate.

The movement up and down of the delivery plate controls the time when the motor spring is set into action. So long as the delivery plate is in a horizontal position the movement of the chains is stopped but as soon as it tilts due to an item being purchased and its removal from the delivery plate. This action allows the spring under the plate to tilt it and automatically unlocks the progress of the chains and is attached to the storage plates and the merchandise on them.

In practically carrying out my invention I may adapt the dispenser to a larger variety of goods to be sold, making it larger for bulky things and also connecting a group of smaller machines to each other for motor drive and a larger machine also similarly connected to be motor driven.

The dispenser may form a part of a housing outfit that keeps all of the stored items closed as much as desired through the structure of the walls of the merchandising room. The dairy merchandise such as cartons or milk bottles represent 30. The two side members 1 are held in spaced apart relation by two cross members 29 located at each end of the frame.

What I claim is:

1. A conveyor comprising a movable support for merchandise, a platform tiltable in a vertical plane constituting a continuation of the support and serving as a mounting for merchandise, power means independent of said tiltable platform for moving the support toward the platform, abutment means carried by the platform, means for urging the platform, when free of merchandise, to a tilted position in which position the abutment means is disengaged from the movable support, and said platform when held in a substantially level position by the weight of merchandise thereon serving to place the abutment means for engagement by the movable support to prevent movement of the latter.

2. A conveyor comprising a movable support having a plurality of individual spaced rests for separate items of merchandise to be conveyed, a platform tiltable in a vertical plane and constituting a continuation of the rests,

4

power means for moving the support toward the platform, means carried by and projecting from the platform, a stop, means for urging the platform, when free of merchandise, to a tilted position in which position the projecting means is located away from the support so the support may be moved by said power means, and said platform when held in a substantially level position and against the stop by the weight of merchandise on the platform serving to locate the projecting means in a position for selective engagement by a rest to prevent movement of the support.

3. A conveyor comprising an endless movable support for merchandise, a plurality of spaced abutments carried by the support, a tiltable platform constituting a continuation of the support and serving as a mounting for merchandise, power means for moving the support toward the platform, means for normally maintaining the platform, when free of merchandise, tilted in a position away from the abutments in which position the power means is rendered operative so that any merchandise on the support will be carried onto the platform to place the platform in a substantially level position, in which position the platform will be caused to engage one of the abutments and prevent further movement of the support until merchandise on the platform is removed, whereupon the platform will return to its tiltable position away from the abutments to again prevent movement of the support toward the platform.

4. A conveyor comprising a movable support for merchandise, a movable platform constituting a continuation of the support and serving as a mounting for merchandise, power means for moving the support toward the platform, means for maintaining the platform, when free of merchandise, in a position disengaged from the support to cause the power means to move the support so that any merchandise thereon will be conveyed onto the platform and thereby move the platform to cause its engagement with the support to prevent movement of the latter until it is again disengaged therefrom.

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