

Nov. 10, 1931.

F. E. HALL

1,831,107

CONVEYER

Filed Feb. 3, 1930

4 Sheets-Sheet 1

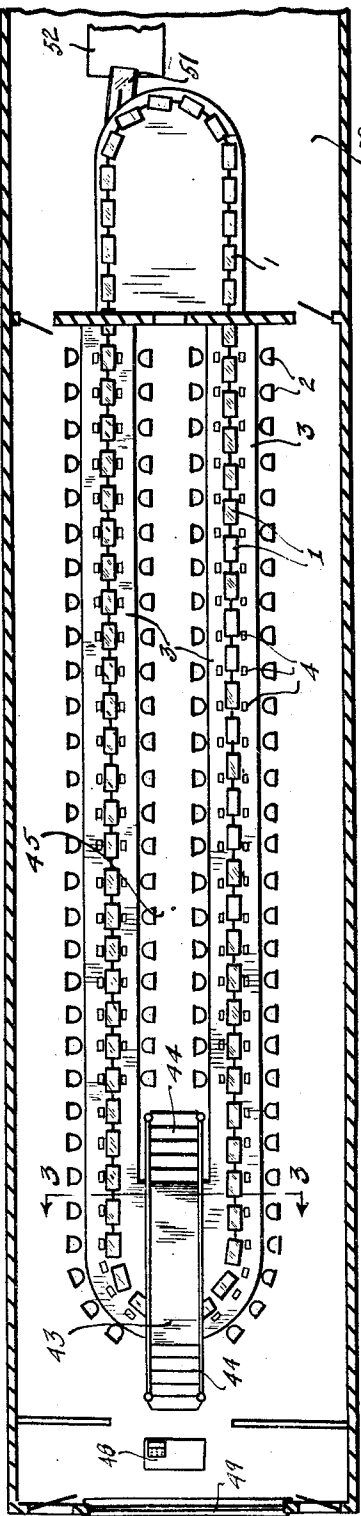


Fig. 1

Fig. 10

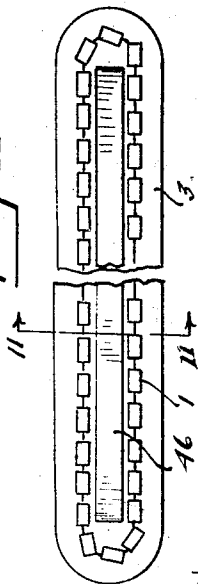
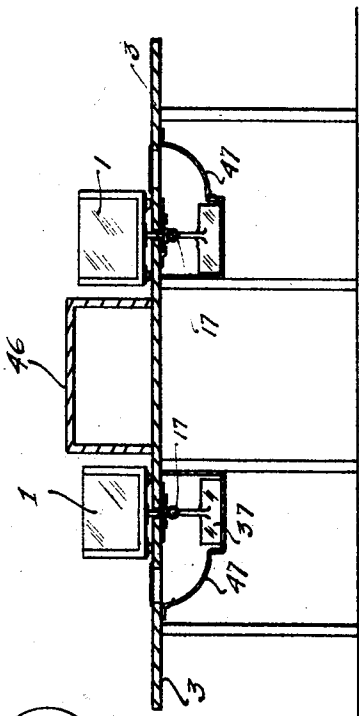


Fig. 11



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4 Sheets-Sheet 2

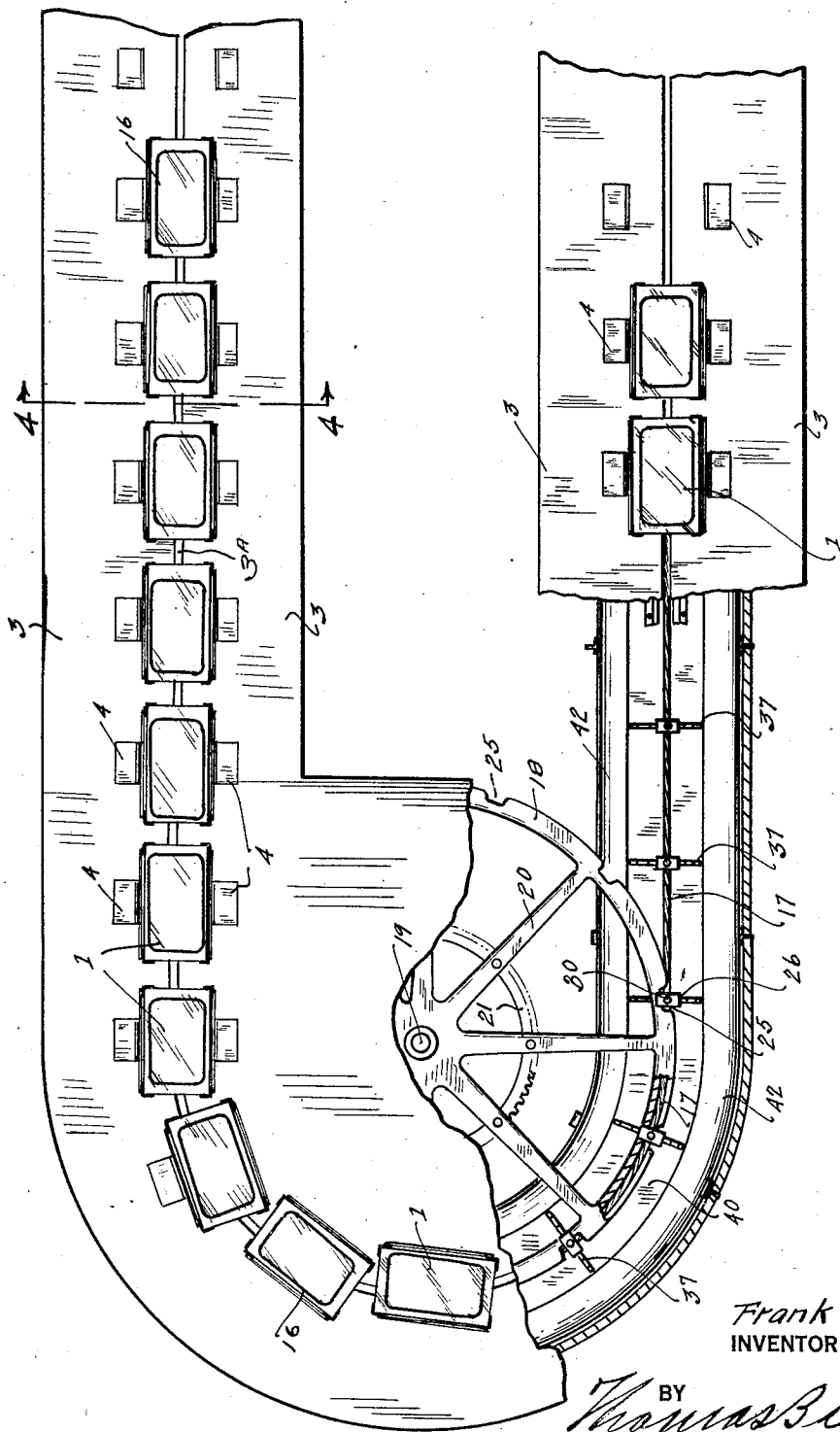


Fig. 2

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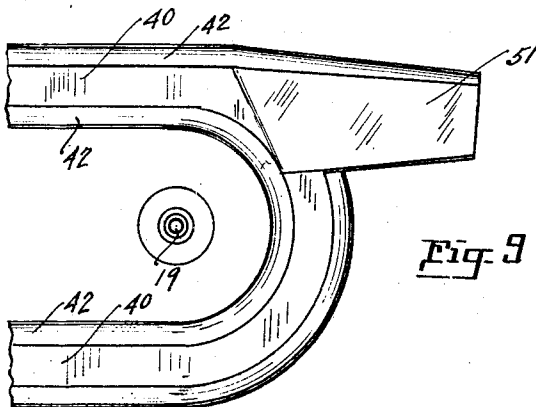
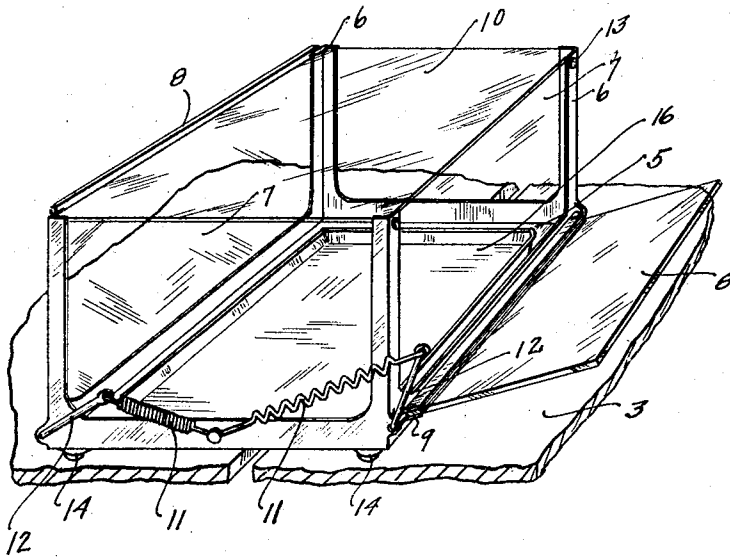
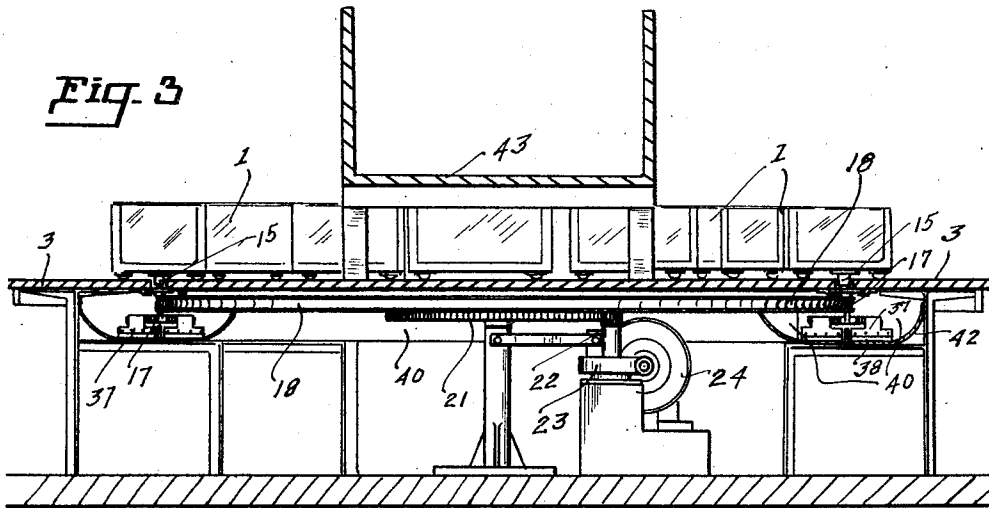
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CONVEYER

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4 Sheets-Sheet 3



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4 Sheets-Sheet 4

Fig 4

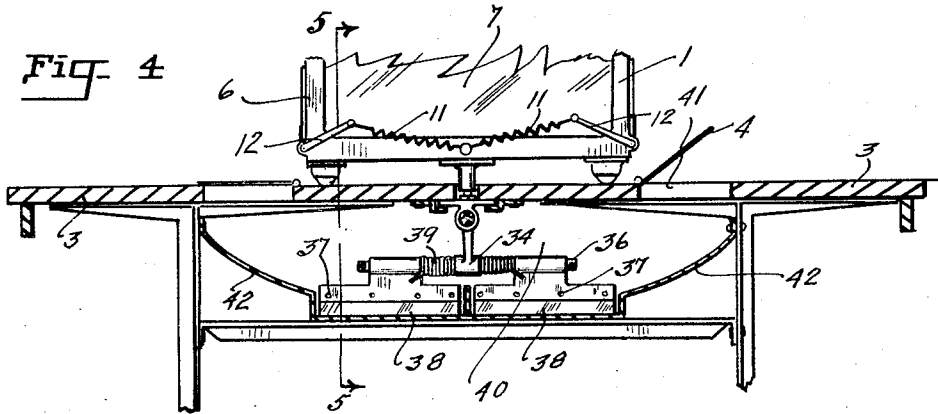


Fig 5

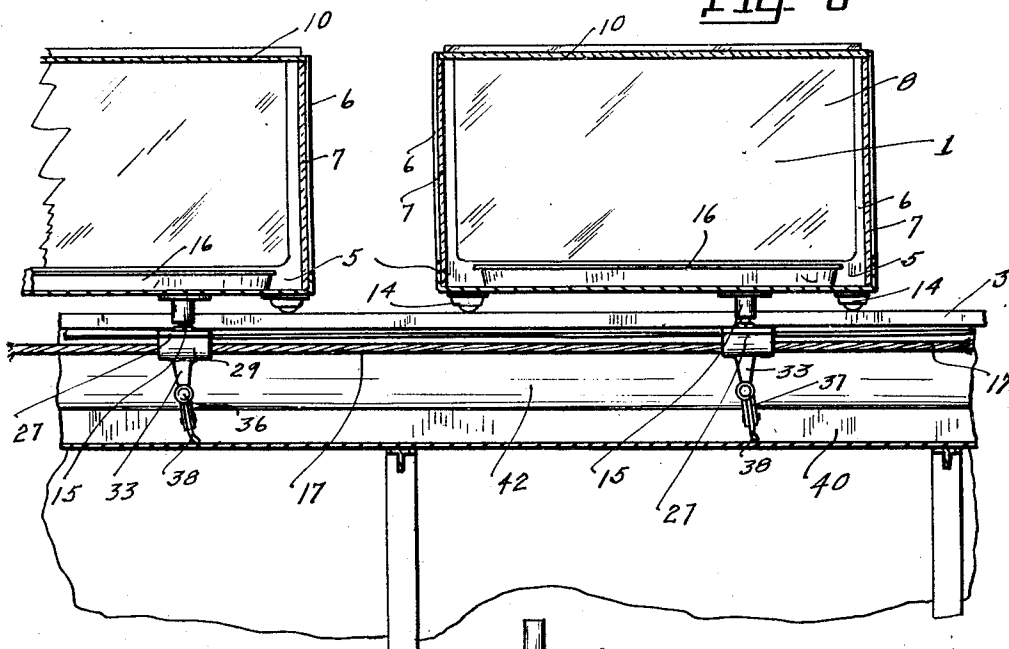


Fig 7

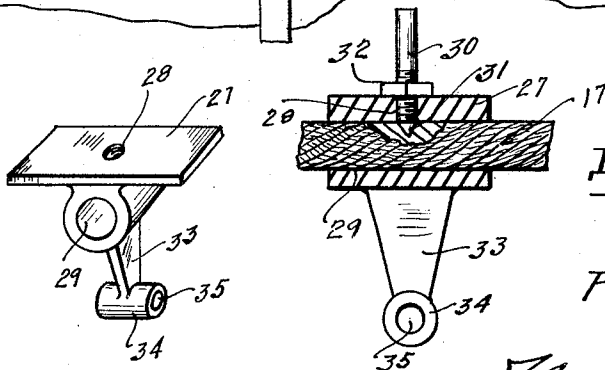
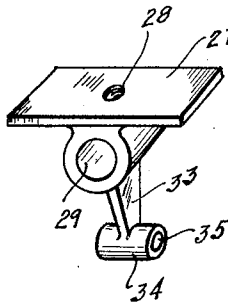


Fig. 6



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UNITED STATES PATENT OFFICE

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CONVEYER

Application filed February 3, 1930. Serial No. 425,503.

My invention relates to conveyers for use in eating establishments, merchandising establishments and any and all places where it is found desirable to move materials, either food or merchandise, upon endless conveyers for inspection and purchase by patrons or for any other reason.

The invention in its preferred embodiment consists of a power driven endless conveyer adapted for carrying a series of display vehicles in spaced relationship and in endless horizontal movement throughout a predetermined line of movement.

The invention consists of a power driven endless driving element, as a cable or chain, to which is attached a plurality of vehicles upwardly extending that are removably secured to the driving endless element. The vehicles have transparent side, end and top walls. Each of the side walls are adapted to being hinged downward to permit access into the interior of the vehicle. The vehicles are driven in endless spaced relationship throughout a predetermined line of movement and the same are maintained in a horizontal position throughout their travel. A series of brackets downwardly extend from the endless power driven element to which a sweeper blade is attached, the purpose being to move refuse and other products within a channel way that is developed parallel to the line of movement of the vehicles. Means are provided for depositing the elements to be moved within the channelways and within the line of travel of the sweeper blades.

Where the device is to be used for the conveying and displaying of food or other materials, the paths of the longitudinal movement of the vehicles are sufficiently spaced apart to permit patrons being placed therebetween, access being had to the spaced space by an elevated ramp preferably passing over one end of the conveyer. Where the display is being made in a relatively narrow space the lengthwise movement is spaced apart sufficiently only to permit of a display being made therebetween.

The object of my invention is to convey and display simultaneously articles for inspection and sale.

A further object of my invention consists in providing a display for food and merchandise in a relatively narrow display space, the object being to give a maximum capacity for the display with a minimum of inconvenience to the patrons wherein the same is to be displayed.

A still further object of my invention consists in providing a display for cooked foods wherein a maximum number of patrons may be served simultaneously and with a minimum of delay for each of the patrons.

A still further object of my invention consists in providing means for conveying display vehicles in horizontal movement within a predetermined pathway and past patrons with means for seating the patron conveniently to the line of travel of the vehicles with means for removing the desired articles from the vehicles as the same are moved past the patron.

A still further object of my invention consists in providing a simplified construction adapted for the continuous displaying of articles for sale with means being provided for the removal of the vehicle to give a maximum display and sales capacity within a relatively narrow display space.

With these and incidental objects in view, the invention consists in certain novel features of construction and combination of parts, the essential elements of which are set forth in the appended claims, and a preferred form of embodiment of which is hereinafter shown with reference to the drawings which accompany and form a part of this specification.

In the drawings:

Fig. 1 is a fragmentary, plan view of the assembled device.

Fig. 2 is a fragmentary, sectional, plan view of one end of the assembled device.

Fig. 3 is a sectional, end view, taken on line 3—3 of Fig. 1, looking in the direction indicated.

Fig. 4 is a sectional, end view of one side only of the assembled device, the same being taken on line 4—4 of Fig. 2, looking in the direction indicated.

Fig. 5 is a sectional, side view of the mech-

anism illustrated in Fig. 4, the same being taken on line 5—5 of Fig. 4, looking in the direction indicated.

Fig. 6 is a perspective, end view of one of the brackets for placement upon the endless driving element for moving the vehicles in spaced relationship therealong and to the bottom end of which a sweeper blade carrying a flexible contact is attached.

Fig. 7 is a sectional, side view of the bracket illustrated in Fig. 6 the same being made to illustrate the cable disposed within the bracket and the clamp for clamping the bracket to the cable.

Fig. 8 is a perspective, end view of one of the vehicles in which the articles to be conveyed are placed, the same being adapted for being carried in spaced relationship and in endless formation upon a driving element and within a prescribed path of movement.

Fig. 9 is a plan view of one end of the conveyer mechanism for conveying refuse developed along the transfer and illustrating the means for removing the same from the conveyer system.

Fig. 10 is a top, plan view of a modified form of device primarily made to illustrate one of my new and improved conveyer systems in use in a merchandising establishment, the same being primarily intended for use in relatively narrow display store.

Fig. 11 is a sectional, end view taken on line 11—11 of Fig. 10, looking in the direction indicated.

Like reference characters refer to like parts throughout the several views.

In preferred embodiment my device consists of a plurality of spaced vehicles 1 adapted for being moved within a predetermined path of movement past seats 2 disposed at either side of the path of movement of the vehicles. The vehicles are spaced apart sufficiently to permit the patron to view the articles disposed therein and for removing the same from the vehicles as desired. A counter 3 is disposed at either side of the vehicle and between the patron and the vehicles. A channelway 3A is disposed centrally of the display counter 3 which the downwardly extending arms of the vehicles are disposed. Deposit outlets 4 are disposed within the counter through which articles and refuse may be deposited by the patron and from the counter. The vehicles are preferably made as illustrated in Fig. 8 wherein a body element 5 is formed having upwardly extending corner posts 6 disposed at either corner of the body element. Transparent ends 7 are removably disposed within the corner posts and transparent side walls 8 are hingedly secured to the body element. The transparent side walls are composed primarily of a sill 9 hingedly secured to the body element having the transparent element 8 disposed therein. A transparent top 10

is placed upon the vehicle and within the corner posts, the same resting upon the end elements or being supported by any other suitable means. A reacting element 11 is secured to an arm 12 secured to the sill 9, the purpose of which is to maintain the hinged side closures in a normally closed position. A compressible element 13 is disposed in the line of travel of the transparent side walls to absorb the shock as the same are closed by the reacting elements. Trunnions 14 are disposed at either corner of the vehicle for supporting the same. A hub 15 is disposed at the lower side of each of the vehicles and is secured thereto. A supporting tray 16 is removably disposed within each of the vehicles. A power driven endless driving element 17, as a cable, is trained about suitable sprocket wheels 18. The sprocket wheel 18 is mounted upon a vertically disposed shaft 19. Secured to the shaft and/or to the spokes 20 of the sprocket wheel is a gear 21. The gear 21 is adapted for coacting with a pinion 22. The pinion 22 is also disposed upon a vertically disposed shaft associated with the speed reducer 23. The speed reducer 23 is driven by any suitable power means as by a prime mover 24. Spaced notches 25 are disposed in the outer periphery of the sprocket wheel. The spacings are sufficiently spaced apart to receive the bracket 26 disposed upon the driven endless conveyer element. The brackets 26 are preferably made as illustrated in Fig. 6, the same having a platform 27 and having a stud 28 upwardly extending to form the engagement within the hub 15. The endless power driven conveyer element, as the cable, is passed longitudinally through the opening 29 within the bracket. The bracket may be secured to the driven endless element by any suitable fastening means as by a threaded stud 30, the stud 30 being threaded relative to the bracket and the point 31 of the stud being pointed to engage within the cable. A locking nut 32 fixedly positions the stud 30 relative to the bracket. The stud 30 may be formed integral with the pin 28 that engages within the hub 15. When it is desired to remove the vehicle entirely from the driving element the same may be lifted off from the stud. An arm 33 downwardly extends from the bracket having a hub 34 disposed at either side thereof and an opening 35 is disposed longitudinally of the hub. A shaft 36, as illustrated in Fig. 4 runs longitudinally of the hub 34 and one or more sweeper blades 37 downwardly extend from the shaft and are lockably disposed thereabout. A flexible blade 38 is disposed therein that is adapted for engagement upon the supporting surface. A reacting element 39 maintains the shaft in preferred position and the lower surface of the flexible blade 38 is in intimate engagement with the surface. The re-

spective blades move within suitable guide-ways or channelways 40 as illustrated in Figs. 4 and 5 and refuse and other material to be moved longitudinally of the assembly may be deposited through open entrance ways 4 disposed upon the counter. The entrance way being adapted thereabout and adapted for closing the same. An inwardly sloping surface 42 permits the sliding of the refuse and other materials into the channelway to be swept therealong. Where my new and improved device is to be utilized for the display of food and/or merchandise the longitudinal path of movement of the vehicles is sufficiently spaced apart to permit of patrons sitting at either side of the line of travel of the vehicles. Where this form of structure is to be used, an elevated ramp 43 is disposed at one end of the display steps 44 being disposed at either end of the ramp to permit the patrons' entrance into the space 45. Where the display is to be used in relatively narrow display quarters the device may be made as illustrated in Fig. 10 wherein the longitudinal movement of the vehicles is spaced apart sufficient only to have a display counter 46 disposed between the longitudinal movement of the vehicles. When so utilized the sweeper blades secured to the brackets disposed at the lower side of the vehicles move within a channel having an entrance way 47 at one side only of the same. A pay station 48 is disposed at the entrance end 49 of the display space and past which each of the patrons are required to go in their entry and exit from the display space. A work room 50 may be provided at one end of the display space and the endless vehicles are required to pass through the work room for facilitating the placement of articles to be sold or merchandised upon the vehicles as the same pass through the display space. A discharge chute 51 is disposed in the line of travel of the sweeper blades and from where the refuse and other elements are to be discharged. The same are deposited upon any suitable receptacle 52 disposed at the end of the discharge chute.

While the form of mechanism herein shown and described is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to confine the invention to the one form of embodiment herein shown and described, as it is susceptible of embodiment in various forms, all coming within the scope of the claims which follow.

What I claim is:

1. In a device of the class described, the combination of an endless driving element, brackets removably secured to the driving element and in spaced relation with each other, sprocket wheels disposed upon vertical shafts and about which the driving element is trained, notches disposed in spaced

relation about the outer periphery of the sprocket wheels adapted for receiving the bracket, disposed upon the driving element, therein, a post upwardly extending from each of the brackets, a vehicle removably secured to the upwardly extending post, trunnion wheels disposed at each of the lower corners of the vehicle that act as supports for the vehicles, a sweeper blade disposed at the lower extremity of each of the brackets, a channelway for predetermining the path of travel of the sweeper blades and a prime mover for driving the driving element.

2. In a device of the class described, the combination of a plurality of vehicles uniformly spaced apart and removably secured to an endless driving element, a driving and a driven sprocket about which the endless driving element is supported, the sprockets being disposed upon vertical axes, power means for driving the sprockets and the driving endless conveyer, supporting brackets disposed in uniform spaced relation upon the driving element, vehicles having trunnion supporting wheels adapted for being removably secured to the brackets and to being driven thereby along a predetermined path of travel, a display counter disposed adjacent the line of travel of the endless driving element, a channelway disposed beneath the counter, sweeper blades driven in the channelway, communicating openings disposed through the counter into the channelways and a common discharge outlet from the channelway.

3. In a device of the class described, the combination of a series of vehicles disposed in spaced relation upon an endless, power driven cable, horizontally disposed sprockets about which the cable is trained, a counter disposed at either side of the cable throughout its line of travel, a channelway disposed in registerable alignment with the line of travel of the cable, sweeper blades secured to the cable and extending into the channelway, means for depositing articles through the counter and into the channelway, and a common discharge outlet from the channelway.

4. In a device of the class described, the combination of a power driven endless conveyer, means for supporting the endless conveyer in a horizontal position throughout its line of travel, a display counter disposed adjacent either side of the endless conveyer throughout its line of travel, means for supporting articles to be displayed upon the endless conveyer, a channelway disposed beneath the display counter and midway its inner and outer edge, means for impelling articles within the channelway and communicating door covered openings extending through the counter and into the channelway.

5. In a device of the class described, the

combination of a power driven conveying endless cable, means for supporting the cable in a horizontal position throughout its line of travel, means for attaching vehicles in spaced relation to the cable, said vehicles having transparent top and side walls, the side walls being hingedly disposed relative to the body of the vehicle, a display table disposed adjacent the line of travel of the cable, a channelway having a common discharge outlet disposed beneath the display table, and means secured to the table for conveying articles within the channelway.

6. In a device of the class described, in combination, a power driven endless driving element, brackets disposed in spaced relation upon the driving element, a stud threadably disposed in and upwardly extending from each of the brackets, a vehicle removably disposed upon each of the studs, a display counter disposed at either side of the line of travel of the vehicles, said counter having a channelway disposed therethrough, an arm having a hub therein extending downwardly from each of the brackets, sweeper blades secured to each of the hubs of the arms, a channelway through which the sweeper blades travel, a plurality of openings disposed in spaced relation through the display counter and in direct communication with the last mentioned channelway, and a discharge disposed at one end of the line of travel of the driving element.

7. A bracket to be used with a device of the class described comprising a platform, an opening disposed longitudinally therein, a threaded opening in direct communication with the first mentioned opening, a stud threadably disposed therein, an arm downwardly extending from the platform, a hub having an opening therein made integral with the arm and parallel to the platform, a shaft disposed within the opening of the hub, sweeper blades disposed upon the shaft, and means for maintaining the shaft centrally of the hub.

8. A vehicle to be used with a device of the class described comprising an inclosed body element having upwardly extending posts disposed at each corner, side walls hingedly secured to the body element, an arm disposed at one end of each of the side walls, reacting means secured to the arms and to the body element for normally maintaining the side walls in upright position, trunnions disposed at each corner on the under side of the body element, and a hub downwardly extending from the underside of the body element.

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