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L. P. SHIELD
DISPLAY AND DELIVERY DEVICE

2,623,641

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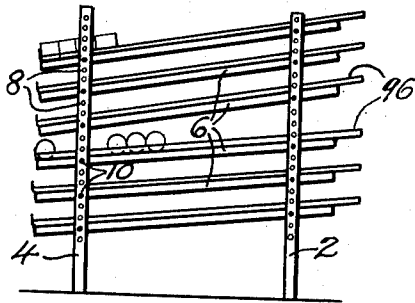


FIG. 1.

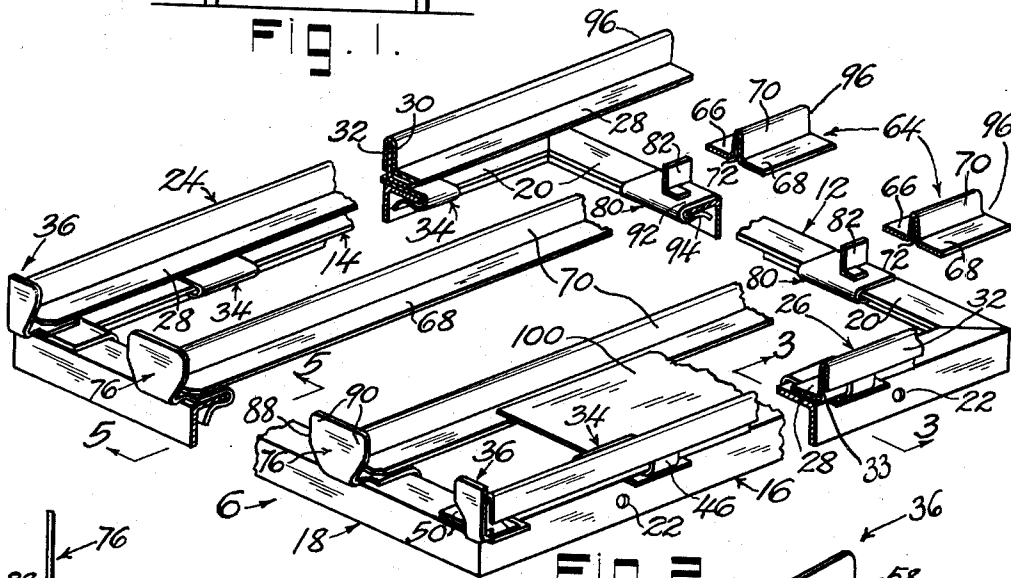


FIG. 2.

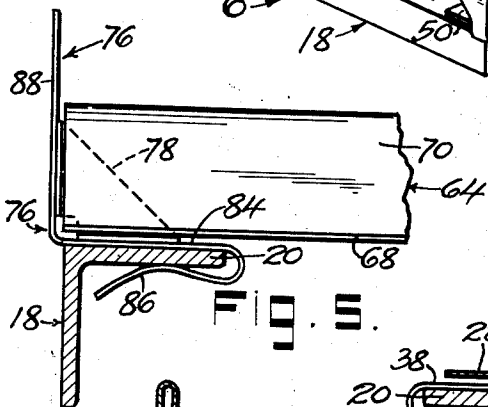


FIG. 3.

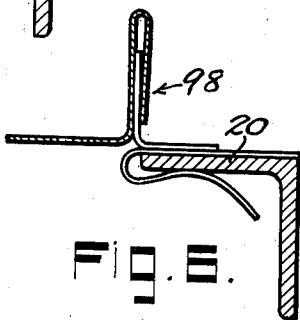


FIG. 4.

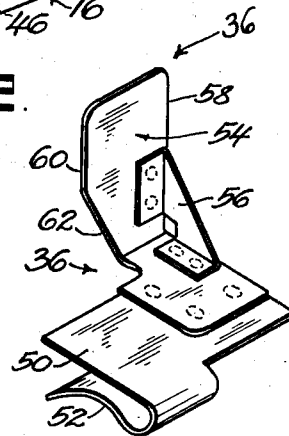


FIG. 5.

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DISPLAY AND DELIVERY DEVICE

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7 Claims. (Cl. 211-49)

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My invention relates to display and delivery means and is directed particularly to improvements in constructions of the type illustrated in Design Patents Nos. D. 146,386 and D. 146,387, dated February 18, 1947.

The display and delivery stands shown in said patents are adapted for use in grocery stores and elsewhere, and are provided with shelves and tracks which are inclined downwardly from the rear toward the front of the stand so that articles placed on the shelves by clerks at the rear of the stand will be delivered by gravity into positions where they may be removed from the chutes by customers at the front of the stand. Constructions of this type have proved an outstanding success in grocery stores and particularly in markets and stores catering to self-service trade. However, changes in the positioning and arrangement of the shelves and tracks is necessary in order to accommodate such stands for delivery of cans, bottles and packages of different length or shape. Such changes are frequently required with changing seasons since salad dressing, olives, pickles, bottled drinks and other articles which are in great demand during the summer months are sold in less quantity during the winter season, whereas canned fruits and vegetables are in greater demand in the wintertime. It is therefore necessary from time to time to change the positions and spacing of the tracks along which the articles pass in moving from the rear to the front of the stand. Moreover, it is necessary to form the shelves, tracks and article retaining means so as to permit free movement and ready removal of the articles along the tracks in all positions and arrangements of the shelves.

In accordance with the present invention novel means are provided for positioning and securing the tracks along which the articles move and for retaining articles on the tracks in position to be removed easily from the shelves. A particular feature of the present invention resides in the flexibility of the assembly whereby changes in the position and arrangement of the elements may be made easily and quickly while the number of elements employed is reduced and their construction simplified. The elements provided are further designed to insure rigidity and strength throughout the whole structure.

One of the objects of my invention is to provide novel and improved elements for positioning and holding the tracks in an article display and delivery device.

A further object of my invention is to simplify the operation of changing the positions and

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arrangement of article delivery tracks in a display stand.

A particular object of my invention is to provide novel means for securing and positioning tracks and article retaining means in stands for use in the display and delivery of articles in self-service stores.

These and other objects and features of my invention will appear from the following description thereof in which reference is made to the figures of the accompanying drawings.

In the drawings:

Fig. 1 is a diagrammatic end view of a typical display and delivery stand embodying my invention;

Fig. 2 is an enlarged perspective showing one of the frames mounted on the stand illustrated in Fig. 1 with parts broken away;

Fig. 3 is a vertical sectional view of the construction illustrated in Fig. 2 taken on the line 3-3 thereof;

Fig. 4 is a perspective illustrating one of the corner positioning members embodied in the construction shown in Fig. 2;

Fig. 5 is a vertical sectional view taken on the line 5-5 of Fig. 2; and

Fig. 6 is a vertical sectional view similar to Fig. 3 illustrating a modified construction which may be used in the assembly of Fig. 2.

In that form of the invention illustrated in the drawings, the stand embodies rear uprights 2 and front uprights 4 having a plurality of rectangular shelf frames 6 mounted on the uprights and arranged in vertically spaced relation with the rear of each frame higher than the front of the frame. Each frame is inclined from the rear toward the front of the stand at an angle which is suitable to insure ready movement of articles along tracks carried by the frames. The uprights are provided with a series of openings or other means indicated at 8 for receiving bolts 10 or the like for mounting the frames in any preferred angular positions. As shown in Fig. 1 the frames for the upper shelves may be inclined at a greater angle than the frames for the lower shelves, but the lower front ends of the shelves are spaced apart sufficiently to permit easy removal of the articles from each shelf. The lower front ends of the shelves may be arranged in a vertical plane as shown in Fig. 1, but if desired the lower shelves may project forward further than the upper shelves as shown in the issued patents referred to above.

As shown in Fig. 2 the frames 6 are each provided with an upper rear frame member 12, op-

posite side frame members 14 and 16 and a lower front frame member 18. The frames are preferably formed of angle iron or similar material so that each frame member presents an inwardly facing flange 20. The side members 14 and 16 of each frame are also provided with openings 22 for receiving the mounting bolts 10 for securing the frames in the desired vertically spaced and inclined positions on the uprights 2 and 4.

The tracks by which the articles are supported and along which they move from the rear to the front of the stand are mounted on the frames 6 as shown in Fig. 2. For this purpose the tracks 24 and 26 which extend along the opposite side members 14 and 16 of the frames are generally L-shaped in cross section with the lower supporting portions 28 of each track facing inwardly and extending parallel to the flange 20 of the side frame member. The upwardly extending guide portion 30 of each track is provided with an outer downwardly turned portion 32 which cooperates with the guide portion 30 to form gripping means with a slot 33 therebetween. The tracks are held securely in place on the side frame members 14 and 16 by positioning members 34 located at suitably spaced points along the side frame members and by the positioning members 36 at the lower front corners of the frame.

The positioning members 34 are each in the form of a clip with a top bearing portion 38 which rests upon the upper face of the inwardly extending flange 20 of the frame member. A retaining element 40 is carried by and preferably formed integral with the bearing portion 38 but extends about the inner edge of flange 20 and into firm contact with the lower face of the flange. As shown in Fig. 3 the retaining element has a sloping extremity 42 and an adjacent contact portion 44 and the whole positioning member is formed of tempered steel or other resilient material so that it may be slipped over the inwardly projecting edge of flange 20 and will grip the flange securely in any position desired throughout the length of the side member. Each positioning member is further provided with an upwardly extending fin or track holding element 46 fixedly secured to the bearing portion 38 and formed to extend into the slot 33 between the guide portion 30 and the outer downwardly turned gripping means 32 of the track. The track may therefore be slipped over the track holding elements of the positioning members on the side frame members so as to grip these elements and hold the track securely in place. Any suitable number of positioning members 34 may be arranged in spaced relation along the side members of the frame but as shown in Fig. 2 two such members are generally sufficient to position and hold each track in place.

The positioning members 36 located adjacent the lower front corners of the frame are each provided with a bearing portion 50 having a reversely turned spring retaining element 52 which extends about the inwardly projecting flange 20 of the lower front frame member 18 into clamping engagement with the lower surface of the flange. The upper bearing portion of the positioning member 36 carries a stop member 54 and has a track holding element 56 which is formed and positioned to extend into the slot 33 between the bearing portion and gripping means of the track at the lower end of the track. In this way the track is secured in fixed position at its lower end and is properly located with respect to the

stop member 54. At the same time the track holding member serves to brace and hold the stop member in an erect position so that it will withstand repeated impacts of cans or articles moving down the tracks and into engagement with the stop member.

The stop member 54 as shown in Fig. 4 has an outer edge 58 which is substantially vertical, whereas the inner edge 60 projects inward above the supporting portion 28 of the track to engage the foremost article and hold it in place so that it may be readily removed by a customer at the front of the stand. The stop member 54 is cut away at 62 so as to leave the maximum clearance at the base of the stop member for insertion of a person's fingers whereby the articles mounted on the tracks may be readily grasped to remove them from the tracks.

Between the inwardly facing tracks 24 and 26 at opposite sides of the frame 6 are located intermediate tracks 64 which cooperate with each other and with the tracks 24 and 26 to support the articles to be delivered and to define the channels or chutes down which the articles move from the rear to the front of the stand. Any suitable number of intermediate tracks may be employed and they are spaced apart varying distances to form channels which are slightly wider than the articles they are to receive so as to leave sufficient clearance at the ends or sides of the articles to prevent binding or sticking and insure free movement of the articles along the tracks to the lower front ends thereof. Any suitable number of intermediate tracks may be provided, although only two are shown in Fig. 2.

As seen in Fig. 2 the intermediate tracks 64 are in the form of inverted T-shaped members having oppositely extending supporting portions 66 and 68 and a central guiding portion 70 presenting a downwardly facing slot 72. Intermediate positioning members 76 are mounted on the lower front frame member 18 and are each provided with a fin or track holding element 78 whereas complementary positioning members 80 are mounted on the upper rear frame members 12 and are each provided with a track holding element 82. The track holding elements are illustrated as fins which lie in a plane extending from the front to the rear of the stand so as to project into slots 72 in the intermediate tracks and into position to be firmly clamped between the spaced guiding portions 70 thereof.

The positioning members 76 each have a bearing portion 84 which rests on the upper face of the inwardly projecting flange 20 of the lower frame member 12. Reversely turned retaining elements 86 are provided, which are similar to the retaining elements 40 of the positioning members 34, and extend about the inner edge of the flange 20 and into clamping engagement with the lower face thereof to hold the positioning member securely in place so as to mount the intermediate track 64 rigidly and in predetermined spaced relation with respect to other tracks on the frame. The positioning member also carries a stop member 88 which extends upward substantially at right angles to the bearing portion 84 and has wings 90 which project laterally above the supporting portions 66 and 68 of the track so as to serve as abutments engageable by the lowermost articles on adjacent tracks on the frame. The portion of the stop member below the wings 90 is preferably narrow and serves to cooperate with the stop members on adjacent tracks to provide a large hand hole between the stops so that

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articles held in place at the lower ends of the track may be easily grasped for removal from the stand.

The stop members 58 are held in erect position and are supported against the impacts of cans or articles moving downward along the track by the bracing effect of the track holding elements 78 of the track positioning members 76.

The positioning members 80 located on the upper rear frame member 12 are provided with bearing portions 92 which engage the flange 20 of the upper frame member 12 and have retaining elements 94 which extend about the edge of the flange and into retaining and clamping engagement with the lower face of the flange. The track holding elements 32 on the positioning members extend upward at right angles from the bearing portions into the slots 72 between the guide portions of the intermediate tracks so as to be clamped thereby to hold the tracks in place. In this way both the lower end and the upper portion of each of the intermediate tracks is held securely in place and supported adjacent the lower and upper frame members although the upper ends of the tracks may extend beyond the upper frame member 12 so as to project beyond the frame as shown at 96 in Figs. 1 and 2.

In assembling the tracks and positioning members on the frames in any installation, or in changing the arrangement of the tracks in the stand, the positioning members 34 are applied to one of the side frame members, say the member 16, by placing the bearing portion 30 of a member adjacent the top of the flange 20 with the extremity 42 of the retaining element 40 in engagement with the lower face of the flange. The positioning member is then forced inward to its clamped track retaining position shown in Figs. 2 and 3. Other positioning members 34 are applied to the frame member 16 at suitably spaced points along the member 16 for holding the track firmly in place. The lower corner positioning member 36 is then applied in a similar way to the lower front frame member 18 in position so that the track holding element 56 on member 36 will be aligned with the track holding elements 46 on the positioning members 34. The track 26 is then applied to the track holding elements by placing the track above said elements with slot 33 located above the track holding elements and with the supporting portion 28 of the track facing inwardly. The track is then forced down over the track holding elements until the supporting portion 28 of the track rests on the bearing portions 38 and 50 of the positioning members 34 and 36 and the elements 46 and 56 are securely clamped between the guide portion 30 and the outer downwardly turned portion 32 of the track. The track may be further positioned or moved longitudinally if necessary to bring the lower end thereof into engagement with the inner face of the stop member 54 on the positioning member 36. In actual practice the upper end of the track 24 usually projects a substantial distance beyond the upper frame member 12 of the frame 6.

After mounting track 26 on the frame as described, an intermediate positioning member 76 is applied to the lower frame member 18 and a positioning member 80 is applied to the upper frame member 12. The latter two positioning members are spaced from the side frame member 16 and track 26 and are located so as to receive and hold the intermediate track 64. When properly positioned, the guide portion 70 of the track

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64 and the guide portion 30 of track 26 are spaced apart a distance slightly greater than the length (or width) of the articles to be supplied to that pair of tracks whereas the supporting portions 68 and 28 of the tracks extend toward each other to receive and support the articles. The tracks then combine to form a delivery channel which is particularly formed and suited to receive and deliver a selected article or a selected size and type of package or container.

Other intermediate tracks are then applied to the frame 6 in the same manner and are spaced apart predetermined distances to form delivery channels adapted to receive and deliver other articles. When the articles to be delivered differ in size and shape each channel may be of different width whereas when all or most of the articles are of standard or uniform dimensions the tracks may be equally spaced.

By employing positioning members which are in the form of clips that may be spaced varying distances apart and shifted readily by sliding them along the front and rear frame members 18 and 12 from one position to another across the frame it is possible to vary the positions of the tracks and utilize the full width of the frame. However, in some instances it may be found that the distance between the track 24 and the last intermediate track placed on the frame in progressing from track 26 toward track 24, is too great for a single channel but insufficient for two channels. The intermediate positioning members and the tracks carried thereby then may each be shifted or slipped longitudinally of the front frame member 18 and the rear frame member 12 by only a fraction of an inch one way or the other to provide a little more or a little less clearance between the guide members defining the channels. Further, as shown in Fig. 6, the positioning members applied to either or both of the side frame members 14 and 16 may be formed with track holding elements 98 which are located adjacent the inner edge of the flange 20 of the frame member. Thus the width of the channels may be adjusted and varied easily to accommodate the stand for use with a wide variety of articles or packages. Moreover, as shown in Fig. 2 at 100, slides may be placed on the tracks to present a continuous surface between the tracks and to provide a particularly smooth and slippery surface for the movement of boxes, bags or other articles freely along the channels.

In using the construction described, the movement of the articles along the tracks and the vibrations incident thereto tend to urge the tracks downward and along the frames into more secure engagement with the track holding elements of the positioning members. Moreover, the impacts of the articles on engaging the stop members at the lower ends of the tracks tend to drive the retaining elements of the positioning members 36 and 76 into firm and constant contact with the lower end frame member 18. Therefore, the tracks are automatically retained in place and are prevented from becoming disengaged or displaced during use.

With this construction any suitable or desired number of channels may be provided and the frames and tracks forming the channels may be vertically spaced various distances to receive articles of different height or thickness and they may be inclined at different angles to insure proper movement thereof from the rear to the front of the stand. When it is desired to change the arrangement of the channels to receive dif-

ferent articles the positioning members which support and position the opposite ends of the intermediate tracks may be slipped laterally along the front and rear frame members until the track forming flanges are properly spaced to receive other articles. In the event one or more tracks are to be removed or added, the tracks themselves and the positioning members may be easily removed from or applied to the frame. When once positioned the retaining elements of the positioning members serve to hold the tracks securely in place whereas the form and arrangement of the tracks and members is such that impacts or vibration on the tracks and members serve only to urge them more firmly in place.

While I have shown and described typical and preferred forms of track positioning means and stop members capable of ready application and removal from the frames of a stand, it will be apparent that numerous changes and modifications may be made in the form and arrangement of the elements employed without departing from the spirit of the invention. In view thereof it should be understood that the forms of my invention shown in the drawings and described above are intended to be illustrative only and are not intended to limit the scope of my invention.

I claim:

1. A display and delivery stand comprising a rectangular frame, means supporting said frame in inclined position with a lower portion adjacent the front of the stand, an upper portion of the frame adjacent the rear of the stand and side portions of the frame connecting said upper and lower portions, tracks supported on said frame and extending from said upper to said lower portion, track positioning members movable along said upper and lower portions to any selected positions and arranged in corresponding positions on said upper and lower portions and engaging and holding said tracks in predetermined spaced relation and parallel to said side portions, said side portions each having a plurality of similarly adjustable and separately formed track positioning members thereon with tracks engaging the same, each of said track positioning members having an upwardly projecting track holding element and said tracks each being provided with an opening receiving the track holding elements for holding the tracks in place, and means adjacent the lower ends of said tracks for retaining articles in place on the tracks.

2. A construction of the character defined in claim 1 wherein the frame portions each present an inwardly facing flange and the track positioning members each have a retaining element embracing the inner edge of the flange and frictionally securing the track positioning members in selected positions thereon.

3. In a display and delivery stand a horizontally extending member at the front of the stand presenting a rearwardly projecting flange, a horizontally extending member at the rear of the stand and at a higher elevation than the front member, said rear member presenting a flange which lies in substantially the same plane as the flange on the front member, parallel tracks supported by said members and adjustably held in predetermined spaced relation thereon by track positioning members adjustably engaging said flanges, each of said track positioning members being in the form of a clip having a bearing portion resting on the upper surface of a flange and a retaining portion embracing the free edge of the flange and frictionally engaging the lower

surface of the flange to hold said track positioning member in adjusted position thereon, the bearing portion of each track-positioning member having a track holding element in the form of a fin projecting upward therefrom at right angles to said flange, each of said tracks having a downwardly facing slot into which extend the fins of track holding elements which are similarly positioned on said front and rear supporting members, and stop means carried by the track positioning members which engage the lower front member, said stop means projecting laterally in front of the lower end of one of said tracks to hold articles in place on the tracks, whereby articles supported on said tracks and engaging said stop means serve to urge the track positioning members into engagement with said front supporting member.

4. In a display and delivery stand a horizontally extending supporting member at the front of the stand presenting a rearwardly projecting flange, a horizontally extending supporting member at the rear of the stand and parallel to but at a higher elevation than the front supporting member, said rear supporting member presenting a flange which lies in substantially the same plane as the flange on the front supporting member, track positioning members mounted on the flanges of both of said supporting members, said positioning members each including a bearing portion resting on the upper surface of the flange and a retaining portion embracing the free edge of the flange and frictionally engaging the lower surface of the flange to secure the positioning members in similar adjusted positions on the front and rear supporting members, the bearing portion of each of the track positioning members having a track holding element in the form of a fin projecting upward therefrom at right angles to said flange and at right angles to the supporting member, a track which has a cross section in the form of an inverted T with a downwardly facing slot therein into which extend the track holding elements of the track positioning members on the front and rear supporting members, and stop means carried by the track positioning member which engages the front supporting member, said stop means projecting laterally on both sides thereof in front of the lower end of said track to hold articles in place on both sides of the track, whereby articles supported on both sides of said track engage said stop means and serve to urge the track positioning member into engagement with said front supporting member.

5. In a display and delivery stand, a clip for application to the framework of the stand to support a track in adjusted position thereon, said clip having a bearing portion with track holding means projecting upward therefrom for detachably receiving a track and with stop means extending upwardly and laterally from the bearing portion to project in front of the end of a track engaging said track holding means, and yieldable retaining means connected to said bearing portion for frictionally securing the clip in a selected position on said framework.

6. A track positioning member for application to a horizontal support of a display and delivery stand to hold an article carrying track in a selected position on the support, said track positioning member embodying a bearing portion formed to engage the upper surface of a support, a yieldable retaining portion connected to the bearing portion at one side thereof and extending rear-

wardly and downwardly therefrom to embrace the support and frictionally engage the lower surface thereof so as to retain the positioning member in any selected position to which it may be moved lengthwise of the support, said bearing 5 portion having upwardly projecting track holding means thereon engageable by a track to hold the track in adjusted position with respect to the support, and stop means extending upwardly from the bearing portion at the opposite side thereof 10 and projecting laterally from said track holding means to be engaged by an article supported on said track.

7. A display and delivery stand having a pair of horizontally extending supporting members with one member of said pair adjacent the front of the stand and the other member of said pair adjacent the rear of the stand and at a higher elevation than the front member, holding elements carried by said members and each including an upwardly projecting fin lying in a vertical plane extending from the front to the rear of the stand, said fins being similarly spaced apart horizontally on each of said supporting members to receive and support parallel tracks, a plurality of tracks each of which is provided with a downwardly facing slot extending substantially the full length of the track for receiving the fins on said holding elements at any points along the length of the tracks to hold the tracks in position with 30

respect to said holding elements even though the space between the supporting members varies in different portions of the stand, said tracks each having a laterally projecting supporting portion extending toward another track in position to cooperate therewith to form a delivery channel serving to direct and deliver articles placed thereon from the rear to the front of the stand, and means adjacent the lower ends of said tracks for retaining articles in place on the tracks.

LANSING P. SHIELD.

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