Oct. 13, 1959 L. W. PATTERSON 2,908,395

DISPLAY RACKS WITH FOLDING AND VERTICALLY ADJUSTABLE TRAYS

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FIG. 1.

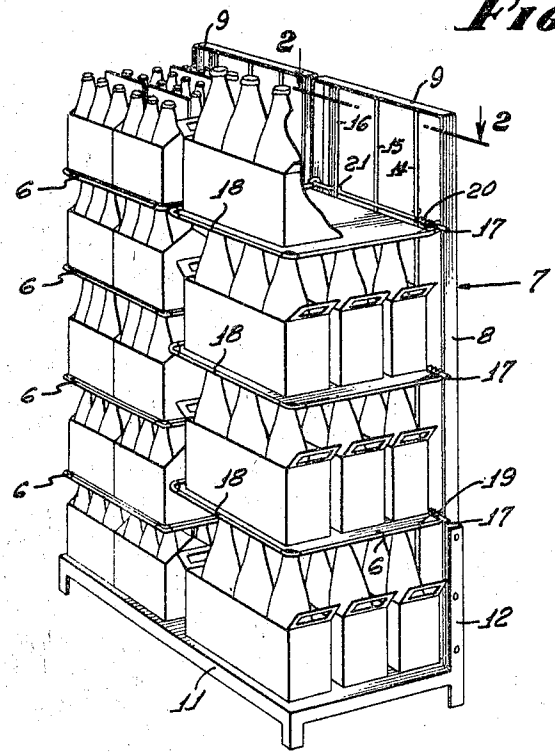


FIG. 3.

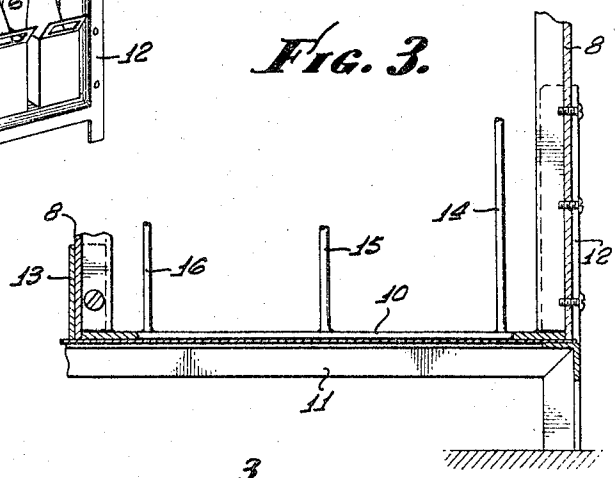
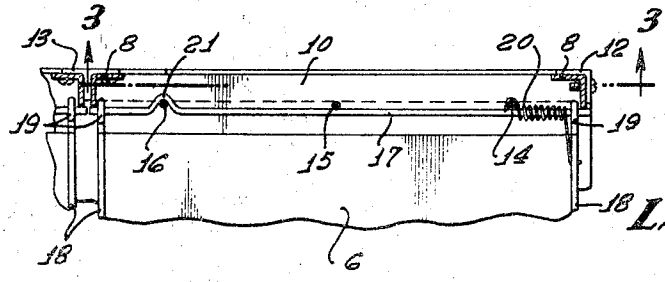


FIG. 2.



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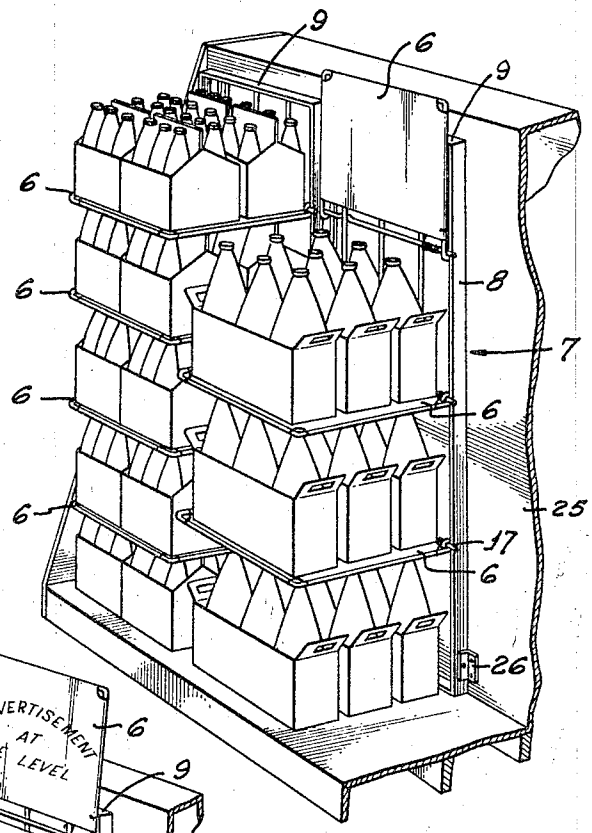
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FIG. 4



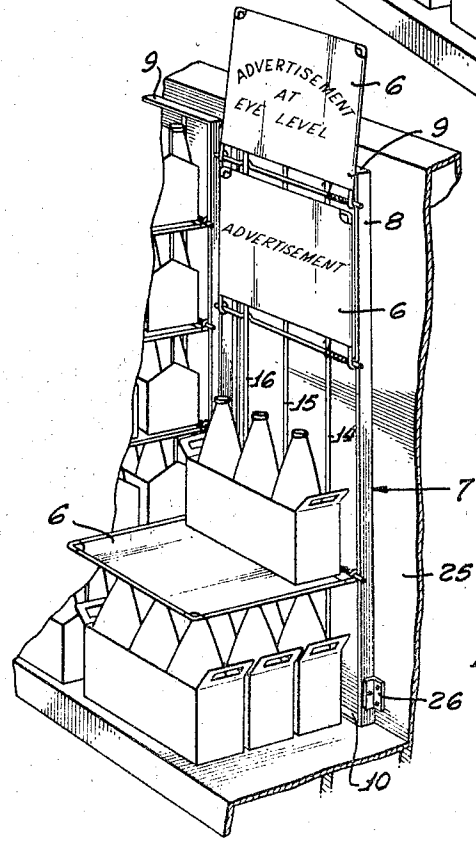


FIG. 5.

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DISPLAY RACKS WITH FOLDING AND VERTICALLY ADJUSTABLE TRAYS

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Application January 11, 1957, Serial No. 633,678

5 Claims. (Cl. 211—49)

This invention relates to self-help merchandising and display racks for merchandise having rigidity and substantially uniform height, such as bottled goods, canned goods, and like articles.

In my Patent 2,637,445 I disclosed a rack for displaying and merchandising goods of the class described, in which separator trays were hinged to swing above and below a horizontal plane, and were spring-urged to swing upwardly when the last merchandise resting upon them had been removed. The rack described therein had great advantages in creating an attractive bulk display of merchandise, from which units of merchandise could readily be taken from the uppermost merchandise-bearing separator tray of the moment, and furthermore it compacted the whole display into a virtually solid pack, not easily jarred or spilled. However, the described rack was suitable only for merchandise of the particular height for which it was built, and the great variety in the heights of bottles and canned goods necessitated making an equal variety of models. Also, it frequently required aisle-space, instead of being able to fit into available space above the basic floor fixtures of a grocery store, generally known as gondolas. Furthermore the up-swinging shelves, while they could be fitted with printed cards of advertising, did not, because of their fixed level, bring such cards to eye-level which has proved to be an important factor in grocery merchandising.

The objects of my present invention are to provide a rack having separators swingable above and below a horizontal position and spring-urged to an upward position, in which the hinge mechanism is adjustable in height so that the spacing of the separators, with respect to each other and to supporting means may be varied according to the user's requirements; to provide a rack which may be affixed to support means to be found in nearly all grocery stores; to provide a rack giving eye-level display of advertising matter; and to provide a rack mounted on one basic frame in which merchandise of two distinct heights could be displayed side by side, for example quart bottles on widely spaced separators at one side of frame, and pint bottles on more narrowly spaced separators directly beside the first separators.

In the accompanying drawing, illustrative of presently preferred and modified embodiments of my invention,

Fig. 1 is a perspective view of a rack built upon a portable base and having two sets of separators adjusted to different spacings.

Fig. 2 is an enlarged horizontal sectional view on the line 2—2 of Fig. 1, showing tension means for holding the separators at desired spacings.

Fig. 3 is a vertical sectional view on the line 3—3 of Fig. 2, showing the structure of the base of the rack.

Fig. 4 is a perspective view of a modified form of rack; and

Fig. 5 is a fragmentary perspective view of the rack shown in Fig. 4, showing the upper vacant separators raised to positions where their advertising messages are prominent.

Having reference now to the details of the drawing, I have shown in Fig. 1 a display rack which may comprise one or more vertical columns of separators 6, two columns being shown. Each column is provided with a vertical frame 7 comprising side angles 8 and top and bottom cross-bars 9 and 10. As many frames 7 as may be desired may be mounted upon a base 11 and secured thereto by suitable angle irons 12 at the corners of the base. Where two columns combine to form a unit, the adjacent side angles 8 may be joined by a single I-beam 13. Between the cross-bars 9 and 10, there extend a plurality of vertical rods 14, 15, 16 etc. of which three are shown.

Considering now only a single frame 7, as double and triple frames will be like it in structure, a plurality of horizontal hinge bars 17 are arranged to slide individually up and down upon the rods 14, 15, 16 and the side angles 8. These hinge bars 17 each carry one of the separators 6. Wires 18 bordering each separator 6 are formed with loops 19 which encompass the ends of the respective hinge bar 17 and permit the separator 6 to swing up and down thereon. For each hinge bar 17 and separator 6 there is a spring 20, one end of which is wound around the hinge bar and then anchored by looping around the adjacent vertical rod 14, while the other end extends outwardly and is looped around the wire 18 of the separator 6, upon which it exerts a lifting force.

It will be seen from Fig. 2, that each hinge bar 17 is pulled against the vertical rod 14 by the spring 20 which is coiled around both bar and rod. The hinge bar 17 is forced towards the side angle 8 and towards the vertical rod 15 by the same spring force. The forward surfaces of all the vertical rods 14, 15, 16 and of the side angles 8 are aligned. Thus the vertical rods 15, 14, and the side angle 8 all bear frictionally against the center and one end of the hinge bar 17. Near the other end of the hinge bar 17 is a bend 21 which encompasses the rearward surface of the vertical rod 16, the end of the hinge bar then extending in contact with the forward surface of the other side angle 8. By making the hinge bar 17 from very slightly springy material and interlacing it with some vertical rods and angles and binding it by spring tension to other vertical elements, a high degree of friction is provided which resists vertical displacement of the hinge bar. Nevertheless this friction may be overcome manually, and the hinge bars 17 may be adjusted to any desired height upon the frames 6.

My improved display stand is operated in the same manner as the stand described in my earlier mentioned Patent 2,637,445. That is, the separators 6 actually carry no load when apparently burdened with merchandise, but because the separators are free to swing below the horizontal as well as above it, the load upon the uppermost separator is transmitted through that separator to the merchandise directly beneath it, and so on down to the base or other bottom element through successive separators and layers of merchandise. The great advantages of a solid pack which is not easily tumbled are thus maintained, and yet the moment one separator has been cleared of merchandise it will swing up and make the merchandise immediately below it available to the customer. My improved display stand has, however, the great additional advantage that the spacing of separators is not predetermined to accord with merchandise of a specific height, but may be adjusted manually and without requiring any special tools. This is possible because the individual separators weigh very little, and when empty they spring up to a position in which their weight exerts little leverage and is most easily borne. Not only can merchandise of different sizes be accommodated with display stands of a single standard arrangement, as shown in Figs. 1 and 4,

but when the separators have been emptied they may be pushed upward, as shown in Fig. 5, bringing advertising matter on their under sides up to desirable eye-level.

In Fig. 4 I have shown the application of my display stand to a grocery store "gondola" **25** instead of to a portable base. Simple brackets **26** are sufficient to attach the frames to the gondola back, because as has been explained there is no weight of merchandise carried by any part of the stand, the whole weight of merchandise being transmitted to the gondola base.

I claim:

1. In a display stand, upright support means including vertical elements; horizontal hinge bars extending between and supported by said vertical elements and individually vertically adjustable in relation to said elements; separator trays hingedly secured to said hinge bars and swingable arcuately to substantially vertical positions above and below the level of the hinge bars to which they are secured; and springs engaging said separator trays and said hinge bars and urging said separator trays to swing upwardly about said hinge bars when said separator trays are unweighted by merchandise, said springs also pressing said hinge bars in yielding frictional engagement with said vertical elements sufficient to restrict vertical movement of hinge bars pertaining to unweighted separator trays.

2. In a display stand, the structure set forth in claim 1, in which that end of each of said springs engaging one of said hinge bars also slidably encompasses one of said vertical elements to provide friction between said one hinge bar and said one vertical element resistant to displacement of said hinge bar.

3. In a display stand, the structure set forth in claim 1, in which said hinge bars are interlaced with said vertical elements to provide friction resistance to displacement of said hinge bars.

4. In a display stand, the structure set forth in claim 1, in plural units, adjacent ones of said units having one of said vertical elements in common, said hinge bars and said trays of different units being adapted to different vertical adjustment.

5. In a display stand, the structure set forth in claim 1 including means on some of said support means for attaching said support means directly to a store fixture, said fixture providing support for the lowest tier of displayed merchandise, the lowest of said separator trays resting on said lowest tier, when loaded.

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