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Cook

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[54] **DISPLAY AND DISPENSING BIN**

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[52] **U.S. Cl.** ..... **312/42,** 211/49 D
[51] **Int. Cl.** **A47f 1/00**
[58] **Field of Search** ..... 312/42; 211/184, 211/49 D; 108/60, 61

[56] **References Cited**

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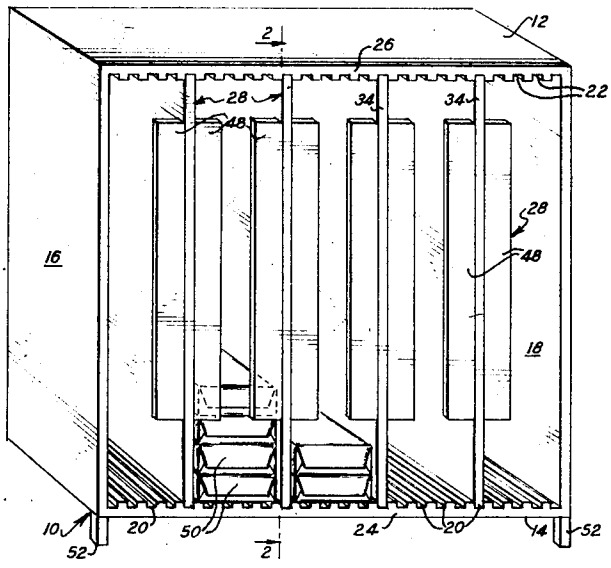
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[57] **ABSTRACT**

Display, storage and dispensing rack for packages having a parallelogram shape and laterally moveable and adjustable flanged partitioning elements to enclose packages of any selected size in a stack, the partitioning elements having extending diagonally disposed points insertable in oppositely paired upper and lower grooves to secure the partitioning elements.

9 Claims, 2 Drawing Figures



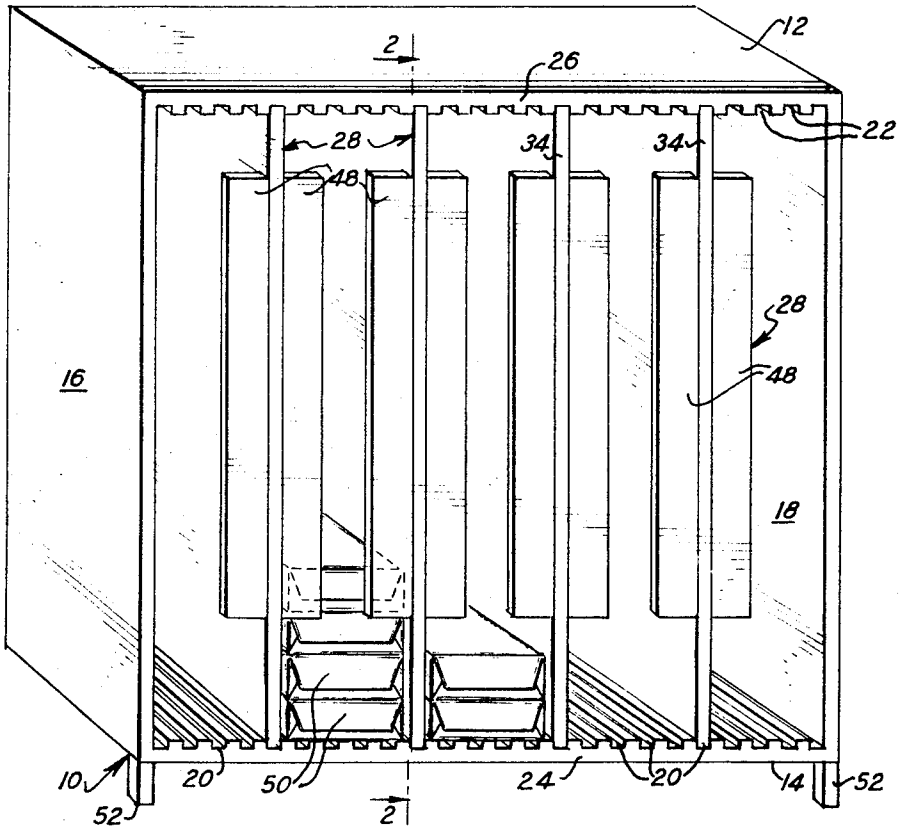


FIG. 1

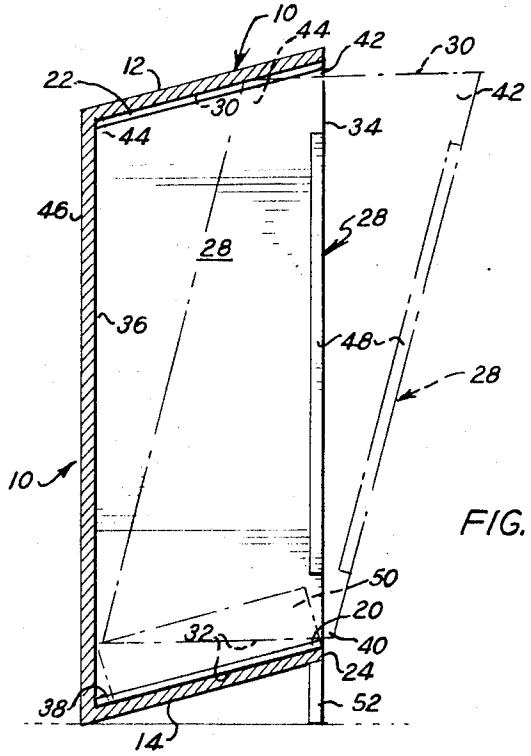


FIG. 2

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DISPLAY AND DISPENSING BIN

This invention relates to a display, storage and dispensing bin or rack in which uniformly shaped packages are supported for vending display in a plurality of stacks, each separated by a partition; and particularly to a parallelogram shaped rack having grooved ends and parallelogram-shaped, manually moveable and emplaceable partitions supported therein to easily adjust the lateral positions of the partitions to accommodate the varied sizes of the packages to be displayed and dispensed therefrom.

In prior constructions of storage or display racks or bins in which packaged small unit commodities such as small rectangular packages or cylinders i.e., bottles, cans, cigarette or dye packages, batteries or other common hardware, electrical, food or medicinal packages, are mounted for display and storage on a counter or supported against a wall for visible display for sale of the commodity, the need for use of partitioning elements movably supported and capable of lateral adjustment has been proposed. However, these have been difficult to move or emplace in selected lateral positions as needed to quickly accommodate various sized packages and in firmly secured position allowing easy movement. The prior partitioning elements tended to tighten and to jam or stick, resisting easy removal and replacement to adjusted lateral positions or sometimes the support was so loose and insecure as to fail in its purpose or to require frequent reassembly.

According to the present invention a parallelogram-shaped rack, bin or similar display and dispensing cabinet is provided, having easily removeable and insertable parallelogram-shaped partitioning elements supported between aligned pairs of upper and lower grooves, in the rack. The partitioning elements themselves have opposite extending points, preferably formed as ends of front to rear tapers at their upper and lower ends. These tapered partition ends modify the overall configuration of the partition to a parallelogram, the acute angular corners allowing easy removal and support of the parallelogram in the upper and lower aligned grooves of the rack.

Consequently, a primary object of this dispensing and display rack is to provide a parallelogram-shaped rack having upper and lower aligned pairs of grooves in which are supported opposite diagonally extending ends of a partitioning element, including particularly the peaked acute angular corners, with a vertical side of the partitioning elements lying against the rear vertical wall of the rack. The partitioning element may further be fitted at its forward edge with flat enclosing walls or flanges extending laterally, so that pairs of the lateral enclosing walls, between partitioning elements, form a partial enclosure against which a tier of packages —bottles, cans or the like— may be mounted in a stack.

The invention is further described in relation to the drawings wherein:

FIG. 1 shows in perspective a rectangular bin or rack with moveable partitioning elements mounted therein; and

FIG. 2 is a side elevation in section showing the mounting of one of the partitioning elements in the bin taken on the line 2 — 2 of FIG. 1.

As shown in the drawing, a parallelogram-shaped bin or rack **10**, has an upper slanted supporting wall **12** and a lower slanted supporting wall **14**. End walls **16** and **18** may be mounted thereon at any selected lateral distance. However, the bin may be indefinitely extended laterally to form a portion of a shelf in a store in which are mounted packaged commodities for display or sale. The rack **10** will usually be a moderately sized open faced box mountable on the store counter, or it may be in the form of a display rack with supporting legs **52** supporting the rack upright to be disposed in any part of the store. The rack **10** has a series of grooves **22** extending across the upper end **26** and a series of grooves **20** at the lower end **24**. The front end **26** of the rack has both support elements **24** and **26** lying in a forward plane extending to a plane **46** at the rear; and the grooves **20** and **22** pass angularly downward directly from the front edge to the rear and are laterally spaced at regular intervals such as one-fourth to one-half inch, larger or smaller, as may be useful for the purpose, to suitably support slanting ends **30** and **32** of partitioning elements **28**.

The grooves **20** and **22** are shown to be rectangularly shaped, but they may be half rounded or triangularly shaped as desired for easier sliding partition support. The ends **30** and **32** of the partitioning elements **28** are shaped usually to the same groove shape or configuration for easy sliding movement therein. The upper end **30** of a partitioning element **28** will be noted to be tapered downward from the front to the rear; that is, from an upwardly extending point **42** downward to a lower inner partition level **44**. Similarly the lower end **32** of the partitioning element **28** tapers upwardly from the lowermost point **38** disposed at the rear of the partition to an upper level **40** to the front partition edge **34**. The scope of the slanted ends **30** and **32** may be substantial, usually 10° to 20° such as about 15°. While the shape of the partition wall **28** appears as a parallelogram, the angle of the upper and lower ends **30** and **32** are not necessarily exactly the same, and may vary slightly, but not enough to exceed the depth of a groove **20** and **22** whereby ends fit in the grooves loosely for easy removal and emplacement and the parallelogram shape is approximate. The upper and lower points **42** and **38** of the ends extend diagonally upward and downward, and grooves **20** and **22** are at a depth such that the lowermost point **38** of the tapered end **32** will lie well and deeply within the groove **20**. In the upper end of the partition **28**, the upward extending tip **42** will correspondingly be well and deeply within the forward end of a groove **22**.

Thus, while the upper and lower tapered ends **30** and **32** of the partition **28** are angulaly beveled and may be approximately parallel to each other to impart a parallelogram shape to the side of the partition **28**, the upper and lower extending points **38** and **42** may lie deeper within the grooves **20** and **22** than the rest of the upwardly and downwardly slanted ends **30** and **32**, which will lie more shallowly within the grooves, providing a firm support at both partition ends while allowing most easy emplacement and removal of a partition.

In mounted position of the partitioning element **28**, the forward end **34** is supported vertically between the rack top **12** and rack bottom **14** of the bin **10** by the extending points **38** and **42** secured within grooves **20** and **22**, as shown. The rear end **36** of the partition **28** also is supported by lying vertically against a back wall **46** of the bin **10**. In this manner the partition in mounted position in the bin as shown in FIG. 2 is supported be-

tween the back 36 against the wall 46 and by both ending points 38 and 42, bottom and top of the partition, lying within grooves 20 and 22. Where the bin 10 is part of or forms shelves upon a normal building wall, the extra rear bin wall 46 may be omitted and the top 12 and bottom 14 may be supported directly against a building wall including the vertical wall 36 of a partition 28, thus substituting for the supporting effect of an extra bin wall 46.

The forward end 34 of each partition has a flange 48 so that adjacent flanges 48 extending toward each other between adjacent partitioning elements 28 form a partial enclosure for a tier of packages 50 supported between adjacent partitioning walls 28 allowing ready dispensing from the bottom of the stack of packages 50, one package element at a time. Moreover, it will be noted that the stacked packages 50 lie within a rectangular bin space formed between the partitioning elements 28 at each side, the vertically supported flanges 48 at the front, the back wall 46 completing the rectangular space enclosure. With that construction the packages 50 also serve to provide some support to maintain the partitioning elements and flanges vertical, preventing any sagging or canting of a partitioning element forward from its emplaced position.

In use, a partitioning element 28 may be canted forward so that its upper and lower ends 30 and 32 are rotated to a position and held substantially parallel to the lower and upper grooves 20 and 22, as shown in the dotted line position of FIG. 2. This allows easy inserting of the partitioning element 28 with the lower tip 38 of the lower edge 32 in position to engage groove 40, passing the partition inward of the bin substantially to contact the rear wall 46 of the bin, and then, by lowering of the partitioning end 38 into the groove 20, and slightly angularly rotating the partitioning element 28, the partitioning wall is twisted from the dotted line position of FIG. 2 to the full inserted line position of FIG. 2. In the inserted position, the upper tip 42 of the upper end 30 then lies within groove 22 and lower tip 38 lies within groove 20 to complete upright support, the inner end 36 of the partition lying parallel to and against the back wall 46, deriving steadying support therefrom as well. In that manner the partition is easily inserted without friction and is firmly supported by the diagonally opposite extending points 38 and 42 within the grooves 20 and 22 and stabilized by the back edge 36 lying against the back wall 46. Moreover, with the bin space filled with packages 50, these also assert a stabilizing effect upon the stability of the inserted partition.

As thus described, the parallelogrammed partitioning elements are firmly inserted within aligned pairs of grooves for easy mounting in the bin, and are easily dismounted therefrom by a forward twisting or rotating motion, whereby the tapered ends 38 and 42 are easily supported within or removed from the grooves with little frictional resistance to handling. Obviously, as shown, the partition elements can be arranged and rearranged in selected spacing laterally within any pair of grooves desired. Thus, stacks of various sizes can be formed by any selected lateral disposition of the partitioning within the bin.

Certain modifications will occur to those skilled in the art. As indicated, the back wall 46, where the unit is to be mounted against a building wall, may be omitted but usually is present. The entire assembly may be supported by brackets or may be part of a larger shelving arrangement for other commodities in a store where the bin may be supported independently on legs for vending. Again, the bin, as shown, may be modified to become part of a vending machine for coin operation with supply of additional structural features known in the art. It may be supported within an oven for dispensing warmed packages or specially heated packages or within a refrigerating box for cold or frozen packages. Moreover, the unit may be made of metal paneling, or wood, or plastic, or the like, attractively colored and marked with indicia for special products for optimum utility and attractiveness for sale and easy handling.

The parallelogram-shaped rack or bin offers numerous advantages. The slanted bottom tends to supply additional stability to the vertical column of packages so that even where the packages very loosely fit in the bin, they do not tend to bind, to fall out, or sideways or to become disarrayed as a column, but are easily dispensed from beneath the open portion of the laterally extending flanges sized to accommodate removal of only one, or possibly two, packages at a time. This is an important advantage since packages, bottles or the like, tend to vary in shape as cubical, ovate, round, etc., and the slanted bottom, as indicated, supplies that extra stable dispensing support. Accordingly, it will be apparent that the parallelogram-shaped rack, and the substantially parallelogram partitions firmly retained and easily inserted with lateral adjustmemt are an improved construction for a dispensing rack or bin.

Accordingly, it is intended that the description herein be regarded as exemplary and not limiting except as specifically defined in the claims appended hereto.

What is claimed is:

1. A display, storage and dispensing rack having an upper closure and lower supporting elements, both of said elements being laterally horizontal extending members for enclosing packaged commodities to be dispensed therefrom, said upper closure and lower supporting members being canted upward from rear to front at an angle of about 10° to 20°, a series of laterally corresponding spaced grooves in the upper surface of said supporting element and in the lower surface of the closure element extending between front and rear, vertical partitioning elements supported between a pair of said corresponding upper and lower grooves laterally spaced each to form supporting side walls for vertical stacks of commodities between partitioning elements, said partitioning elements having their upper and lower ends angularly tapered to substantially correspond to the canted closure and support members.

2. A display, storage and dispensing rack as defined in claim 1 wherein said partitioning elements have parallel vertical edges joined by parallel tapering ends forming a parallelogram having upper and lower diagonally disposed point corners comprising acute angles, both said upper and lower closure and support elements having grooves aligned with respect to each other and extending laterally along the horizontal surfaces thereof, whereby at least said diagonally opposite extending points of each tapering end lies within an upper and lower aligned groove.

3. Display, storage and dispensing rack as defined in claim 1 wherein said upper closure element is parallel to said lower support element, said elements having their front and rear edges disposed in planes common to both elements, said rack having a wall in the rear

plane, the vertical back edge of each partitioning element lying within said rear plane and bearing against said wall to provide additional support for the partitions in groove-engaged position of said points.

4. Display, storage and dispensing rack as defined in claim **3** wherein the angle of said taper is about 15°.

5. Display, storage and dispensing rack as defined in claim **1** wherein the grooves are disposed in a series in each surface laterally separated a distance of about one-fourth to one-half inches.

6. Display, storage and dispensing rack as defined in claim **3** wherein said partitioning elements have flanges mounted across their forward edges and extending vertically therealong, terminating at lower and upper points substantially above and below the respective levels of the lower and upper support elements, said flanges extending laterally on both sides of each partition a substantial distance toward but less than about one-half the normal distance between the lateral disposition of partitions, whereby to form in a plane of the front edges of said support elements a substantial closure of said rack to enclose packages in a stack between a pair of adjacent partitioning elements.

7. Display, storage and dispensing rack as defined in claim **1** wherein said closure and support elements have front and rear edges disposed in planes common to both elements, said rack having a wall in the rear plane, the vertical back edge of each partitioning element lying within said rear plane and bearing against said wall to provide additional support for the partitions in groove-engaged position of said points, the upper and lower diagonally opposite disposed points of said partitioning elements comprising acute angles with said tapering upper and lower ends whereby said partitioning elements have a parallelogram shape corresponding in shape with said rack, the tapers of upper and lower ends of a partition being at a substantial angle to its vertical sides whereby diagonally opposite extending points each lie within an upper and lower aligned groove.

8. The rack as defined in claim **7** having legs at forward edges of each end, each of a height to support the said upwardly tapered lower surface of said rack.

9. A display, storage and dispensing rack comprising upper and lower parallel horizontal support elements secured between vertical ends angularly forming a parallelogram in end section, both said upper and lower support elements having grooves aligned with respect to each other and extending laterally along the horizontal surfaces thereof, a plurality of partitioning elements each mounted for support between an aligned pair of upper and lower grooves, each partitioning element having diagonally disposed upper and lower extending points each lying in a respective upper and lower groove of an aligned pair, vertically supporting a partitioning element therebetween.

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