United States Patent [19]

Silva

[11] **3,780,873**

[45] **Dec. 25, 1973**

[54] **AUTOMATIC DISPLAY RACKS**

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[22] Filed: **Jan. 8, 1973**

[21] Appl. No.: **321,802**

Related U.S. Application Data

[63] Continuation of Ser. No. 141,646, May 10, 1971, abandoned.

[52] **U.S. Cl.** ..... **211/49 D,** 211/43, 211/51, 211/184, 220/22.3, 271/62 B, 308/3.8, 312/61

[51] **Int. Cl.** **A47f 1/00,** A47f 3/00, A47f 7/03

[58] **Field of Search** ..... 211/44, 49 D; 206/DIG. 26, 74; 220/22.6, 22.4, 22.3

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[57] **ABSTRACT**

An automatic, package-positioning display rack adapted to stack uniformly sized packages in one or more compartments. The individual compartments are sloped downwardly from back to front causing the packages to slide forward whenever a gap is created by the removal of one or more of their number being removed from the rack. A slidably mounted stacker is provided which, bearing against the rearmost package of a group, ensures that this action will take place immediately upon the removal of any package.

2 Claims, 4 Drawing Figures

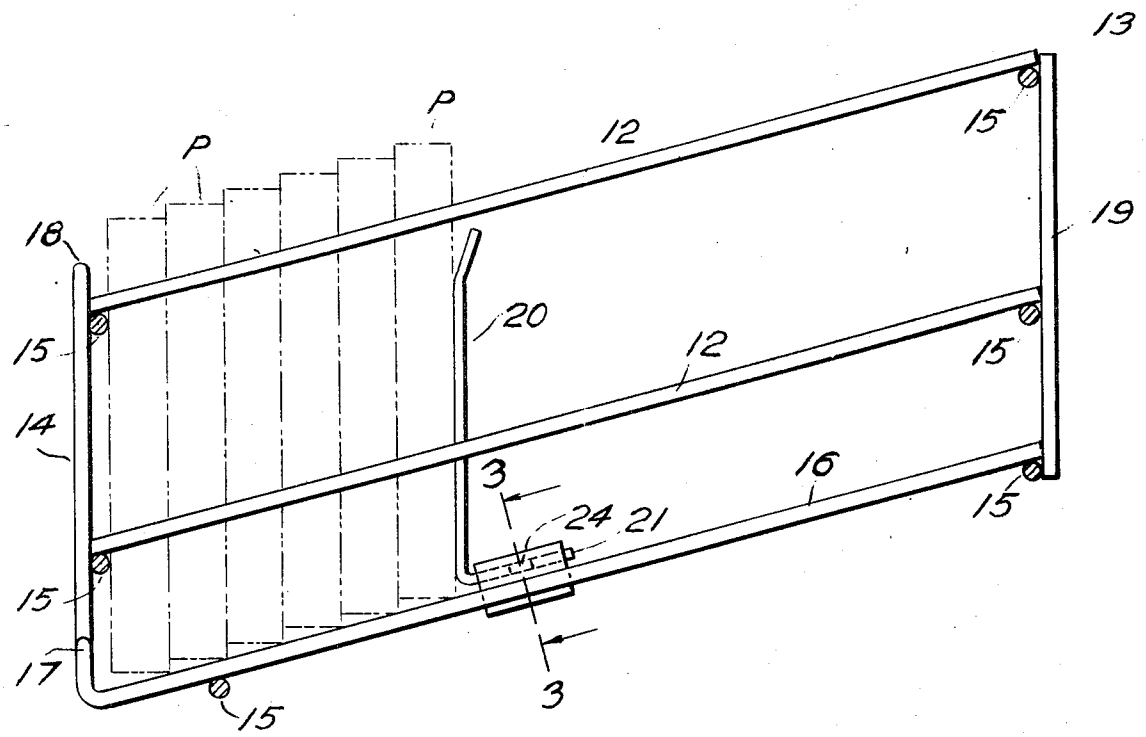


Fig. 1

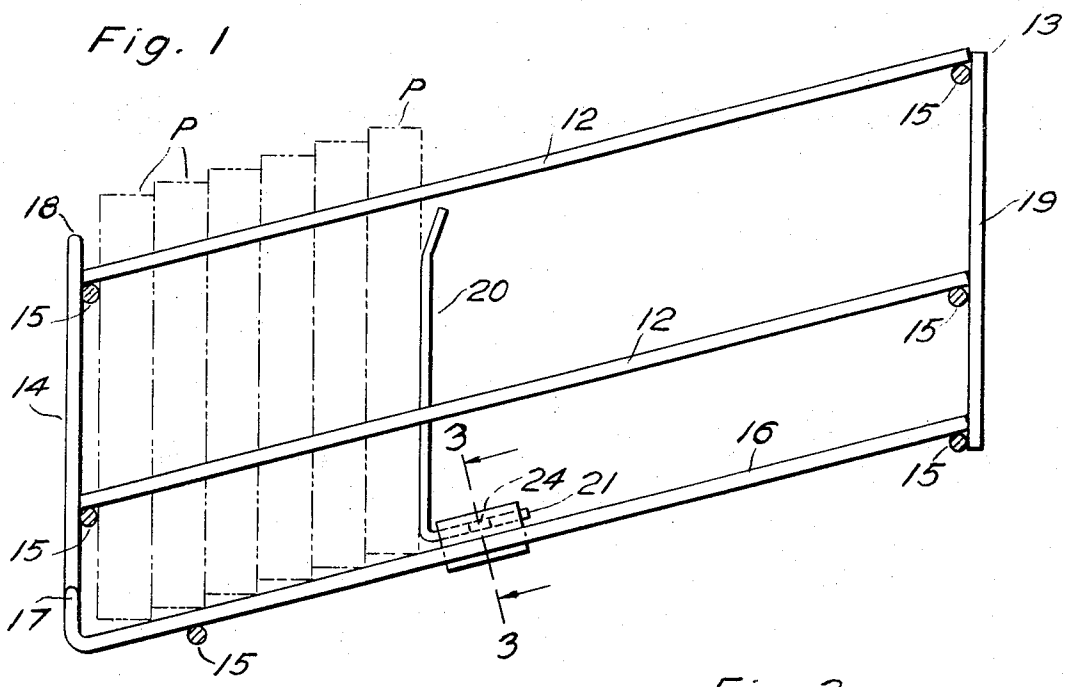


Fig. 2

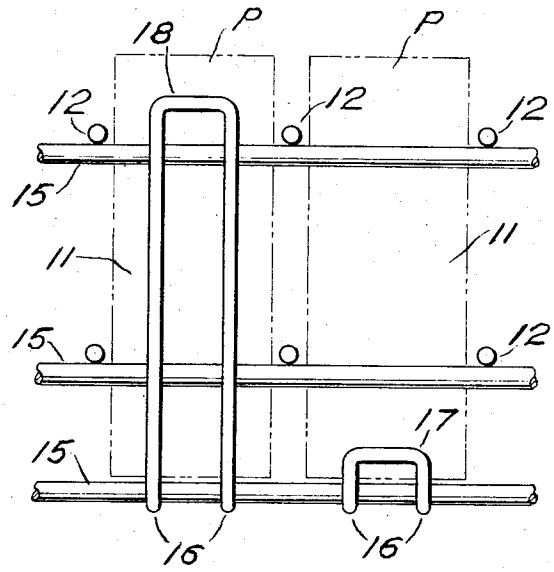


Fig. 3

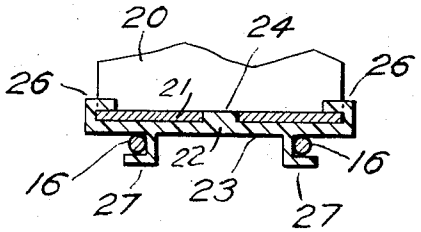
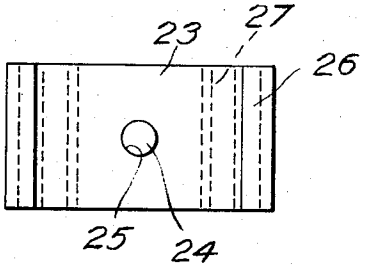


Fig. 4



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AUTOMATIC DISPLAY RACKS

This is a continuation of application Ser. No. 141,646 filed May 10, 1971 now abandoned.

This invention relates to package display racks, and more particularly to the type of rack which will automatically maintain all of the packages contained therein in prearranged and compact groups. A review of the art reveals that various designs of racks have been disclosed wherein inclined planes and gravity are utilized to maintain a stack of packages in a forward position. Such designs are described and illustrated in U. S. Pats. to Lorber, Nos. 1,418,153, Seelman, 1,452,659 and Smith, 2,376,561.

While the instant disclosure utilizes the principal of inclined planes and gravity, it is the object thereof to provide a much simplified design of rack that will readily lend itself to mass production methods and resultant economy of manufacture.

A further object of the invention is the provision of a rack in which all metal to metal contact of sliding surfaces has been avoided. It has been found in actual use that where such metal to metal contact with sliding elements does exist, the abrasive action which takes place as a result thereof, frequently caused maloperation of the stacking unit.

Another object of the invention is the provision of a rack having a stacker in which no screws, rivets, or welding is used in its manufacture or assembly.

These and other objects of the invention will become apparent during the course of the following description and appended claims, taken in connection with the accompanying drawing forming a part hereof, and in which:

FIG. **1** is a longitudinal section through a preferred embodiment of the rack.

FIG. **2** is a front elevation of two adjacent compartments.

FIG. **3** is an enlarged, fragmentary section taken on line 3—3 of FIG. **1.**

FIG. **4** is an enlarged plan view of the slidable member attached to the lower end of the stacker.

Referring to the drawing in detail, a rack comprises one or more compartments **11** consisting of longitudinally extending guide rails **12,** which slope downwardly from the back **13** to the front **14** of the rack. These rails are spaced apart to accomodate packages P which are to be displayed, and are arranged in pairs in upper and lower rows, the individual members of each pair being in vertical alignment. In the design of a rack having a plurality of compartments, each of the guide rails **12** serves as a common divider of the adjacent compartments, all of them being supported by transversely extending rods **15,** to which they are attached by welding or other suitable means.

The bottom of each compartment is defined by a pair of support rails **16** extending from back to front of the rack in the manner of the guide rails **12.** They are in substantially parallel alignment and vertical symmetry therewith, are at a lower level, each pair having its individual rods spaced somewhat closer together than are the said guide rails. These rods or rails **16,** being so arranged, form a track which supports a number of packages P in serried and contiguous relationship as is illustrated in phantom. The rails **16** are also attached to the complete rack by rods **15** as are the guide rails **12.**

Each pair of support rails **16,** all of which are formed from a single length or rod, are bent upwardly in the

form of an inverted U, part of them, as at **17,** extending a relatively short distance up the front of the rack. The remaining pairs are similarly bent, as at **18,** but extend upwardly beyond the top front transverse rod **15,** and are attached to both front members **15** to form the front of the rack. The number and arrangement of the upwardly extending portions **17** and **18** of the respective support rails will be commensurate with the structural requirements of each particular model of rack.

The rear transverse rods **15** are secured in place by being fixedly attached to vertical rods **19** as is illustrated in FIG. **1.**

Each compartment has, slidably mounted on its respective pair of support rails, a package follower or stacker. This stacker consists of a vertically upstanding plate **20,** the lower end **21** of which is bent backward and upward to a point where it is parallel with its support rails **16.** Mounted on this bent portion of the stacker is a slide **22** consisting of a flat rectangular base portion **23** in faying relationship with the underside of the said bent portion of the stacker. This slide is maintained in place by means of a dowel **24** which engages an aperture **25** in the lower end of the plate, and is further secured by means of inverted L like flanges at each end thereof. These flanges **26** are formed complimentary to the edges of the stacker portion **23,** forming channel like recesses which hold the two elements firmly together.

Similar angle flanges depend from the underside of the slide **22,** these flanges **27** being so proportioned and arranged as to fit loosely between the individual members of the pairs of support rods **16,** as can be clearly seen by reference to FIG. **3.** The slide **22** will be formed of a suitable plastic material having an inherent resilience and antifriction properties. It will be assembled on the stacker plate by being deflected downwardly at the center a sufficient amount to allow the dowel to slide along the underside of the stacker until it is in alignment with the aperture therein. The dowel will then snap in place. Stackers will be assembled in the racks by springing apart the members of the pairs of support rails, thus allowing them to be inserted therebetween.

Racks will be constructed in single or multiple compartment models as required, and appropriate feet or bases will be provided to suit individual applications.

From the foregoing it will be apparent that I have provided an improved design of automatic stacking display rack. One which will give continued service free from malfunction, and one which will greatly facilitate the ease of assembly of the various parts, thus producing a unit which can be made available at a reasonable cost. While I have illustrated and described a preferred embodiment of my invention, it will be understood that minor modifications may be made within the spirit and scope of the appended claims.

I claim:

1. An automatic package-positioning display rack consisting of compartment defining guide rails and package-supporting rails sloping downwardly from back to front, and being provided with a stacker, said stacker having positioning means at the lower end thereof whereby it can be attached to said package supporting rails in slidable and constraining relationship; the said supporting rails being so constructed and arranged as to permit lateral displacement of the intermediate portions of the individual rails of a pair thereof by

an amount sufficient to allow the reception of said stacker therebetween, said displacement being within the elastic limits of the material of said rails; the said stacker-positioning means consisting of a lower portion sloping rearwardly and upwardly to such a degree as to be in substantial parallel relationship with the supporting rails of said rack, a slide mounted on said lower portion of the stacker comprising a flat base portion having upstanding flanges on the ends thereof, said flanges having recesses on their inner sides whereby the lower portion of said stacker can be inserted between said

flanges, the edges of the lower portion being contained within said recesses and its final assembled position fixed by dowel and dowel-engaging means, and a pair of flanges depending from the lower face of said slide having recesses adapted to receive said supporting rails in slidable relationship.

2. A combination as in claim **1** wherein the constraining surfaces of said slide supporting rails and said slide are of metalic and plastic materials respectively.

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