United States Patent

[11] 3,543,943

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[22] Filed **Jan. 13, 1969**
[45] Patented **Dec. 1, 1970**

[54] **ROTARY STORAGE RACK**
10 Claims, 5 Drawing Figs.

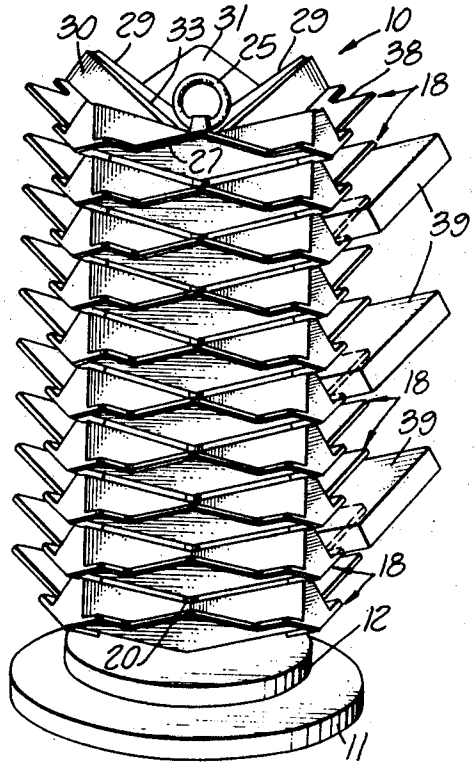
[52] **U.S. Cl.** **211/131,** 211/163
[51] **Int. Cl.** **A47f 3/10,** A47f 5/02
[50] **Field of Search** ..... 211/163, 131, 129, 166, 53, 56, 58, 70, 77, 78, 115, 144, 133, 128, 103, 126; 312/125, 135; 108/94—95, 139, 141, 91, 103

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ABSTRACT: A lazy susan type storage rack for albums, tape casettes, records, etc., having a central tie bolt passing through a plurality of compartmented dished trays, each compartment of which is sized to store a carton or the like with its exposed rim conveniently positioned for reading. The trays are preferably formed separately and similarly and nest to form a tiered rack of a height and capacity dependent on the number of trays held assembled by the central tie bolt.



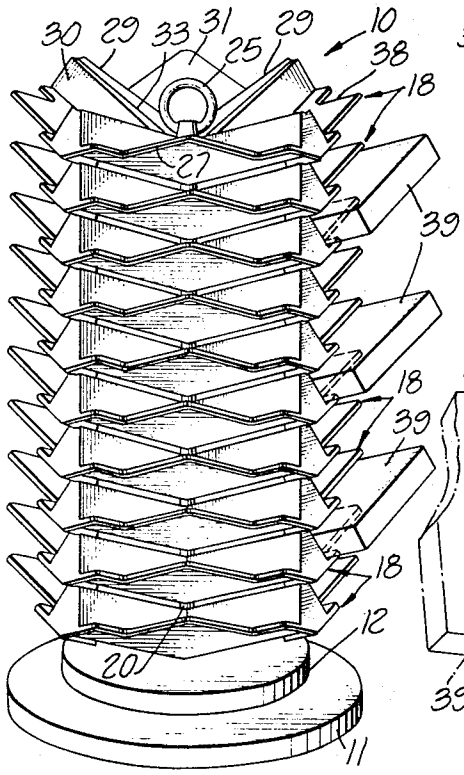


FIG. 1.

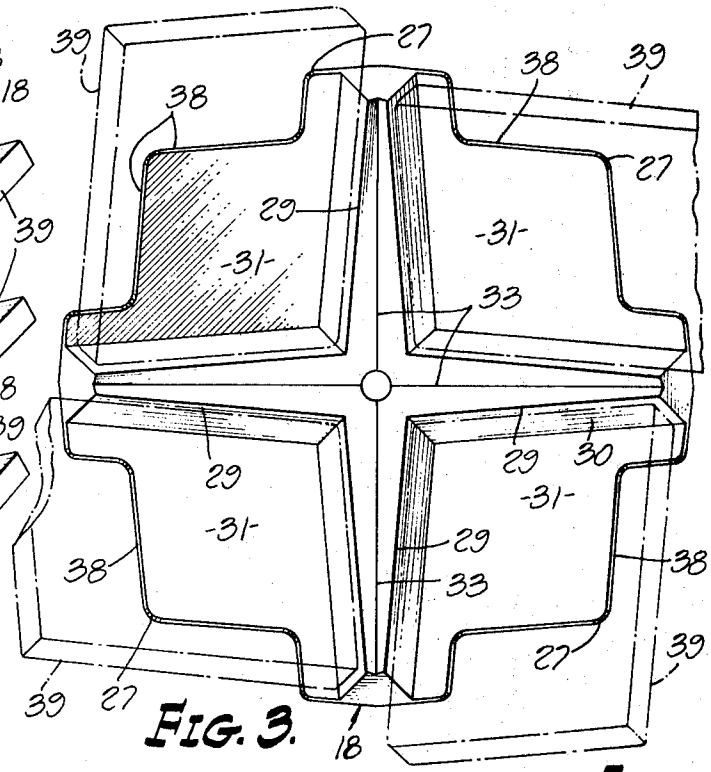


FIG. 3.

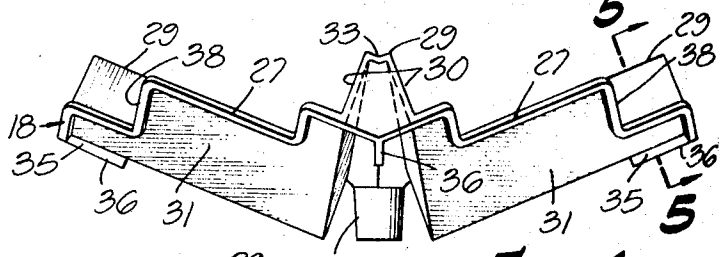


FIG. 4.

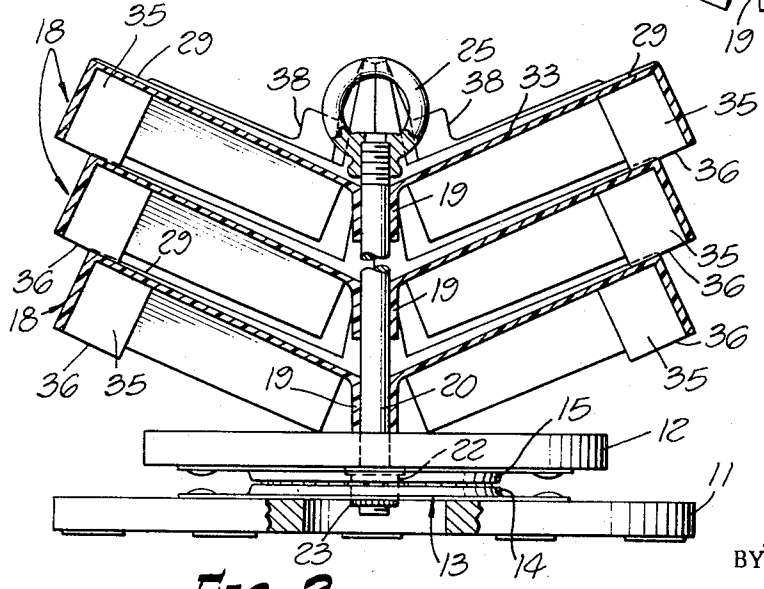


FIG. 2.

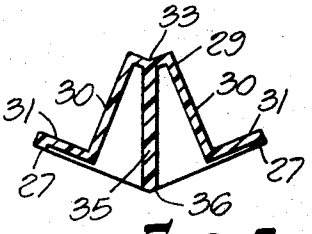


FIG. 5.

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ROTARY STORAGE RACK

This invention relates to storage racks and more particularly to an improved rotary rack having tiers of trays designed to provide storage pockets arranged in a ring with each pocket inclined downwardly and inwardly.

The convenient storage of a multiplicity of smaller similar items in such manner that each is readily accessible without disturbing the others presents problems not satisfactorily resolved by prior design proposals. A typical example of the problem is that presented in endeavoring to store casettes of magnetic tape, phonograph albums, photographic film cartons, and the like. Large numbers of similar sized items are involved, each having identifying indicia imprinted along one or more edges. It is desirable that such items be packaged as compactly as possible yet with individual items freely insertable and withdrawable from an individual storage recess without disturbing adjacent stored items. The problem is equally frustrating and vexatious for merchants, purchasers and users.

To meet the aforementioned needs and to overcome the shortcomings of prior storage devices, there is provided by this invention a lazy susan type storage rack utilized with a multiplicity of similarly constructed trays each having a ring of downwardly and inwardly inclined pockets separated by radial partitions and each adapted to accommodate an item to be stored inserted from the perimeter of the pocket. The trays nest one within another and are held assembled by a tie bolt anchored to a suitable rotary base. The capacity is readily increased or decreased by adding or removing trays. The trays are preferably molded in one piece from lightweight strong plastic composition with dividing partitions having a height slightly greater than the thickness of the item to be stored.

It is therefore a primary object of the present invention to provide an improved rotary storage rack having a multiplicity of similar storage receptacles accessible from the outer periphery of the rack and arranged for gravity retention of an item therein.

Another object of the invention is the provision of a rotary storage rack having tiers of vertically arranged storage receptacles arranged in a ring about a common supporting hub assembly.

Another object of the invention is the provision of a storage rack readily expandable in capacity comprising a plurality of dished storage trays divided into compartments and held assembled in nested relation to a rotary base assembly.

These and other more specific objects will appear upon reading the following specification and claims and upon considering in connection therewith the attached drawings to which they relate.

Referring now to the drawings in which a preferred embodiment of the invention is illustrated.

FIG. 1 is a perspective view of a preferred embodiment of the invention storage rack;

FIG. 2 is a fragmentary vertical sectional view on an enlarged scale of the rack shown in FIG. 1;

FIG. 3 is a top plan view of an individual tray;

FIG. 4 is an elevational view taken from the lower side of FIG. 3; and

FIG. 5 is a cross-sectional view taken along line 5–5 of FIG. 4.

Referring more initially to FIG. 1, there is shown a typical embodiment of the invention rack, designated generally 10, supported on a base comprising a stationary member 11 and a rotary member 12 secured together by a suitable ball bearing assembly 13 Bearing assembly 13, of a conventional construction, includes a lower race ring 14 secured to member 11 and an upper race ring 15 secured to member 12. Race rings 14 and 15 are charged with a ring of ball bearings and held permanently assembled in known manner.

Overlying the base assembly 11, 12, 13 is a column of internested dished trays 18, 18. Each tray is provided with a hollow hub 19 accommodating a tie bolt 20 threaded at its opposite ends. The lower end of this bolt is equipped with an inner nut 22 and an outer nut 23 seating against the opposite sides of race ring 15. When firmly tightened against the opposite faces of ring 15, the lower end of bolt 20 is rigidly anchored to bearing assembly and to rotary base member 12. It will be understood that the length of tie bolt 20 corresponds with the nested height of the particular number of dished trays 18 to be employed. Alternatively, bolt 20 may be formed with a threaded well, not shown, it its upper end to seat a mating shank on an extension tie bolt thereby to accommodate a greater number of trays. These trays are held firmly assembled about the bolt by a thumb nut 25 which may be formed in the shape illustrated in FIGS. 1 and 2 for convenience in carrying the storage rack from place to place.

The storage trays 18 are preferably molded in one integral unit from suitable high strength plastic material and have the configuration clearly illustrated in the several figures of the drawing. The wall thickness of the trays is substantially uniform throughout and includes a flanged rim 27. As illustrated herein, each tray is subdivided into four storage compartments or pockets by the radially disposed partitions 29. The opposite sides 30 of these partitions lie at right angles to the tray bottoms 31, it being noted that the opposite sides of each partition converge upwardly in the manner best illustrated in FIG. 5. The upper edges of these partitions are relatively narrow and include a V-shaped trough 33 (FIG. 5) which increases in width toward the center of the tray as is best illustrated in FIG. 3. The opposite sides of these shallow channels lie parallel to the inclined bottoms 31 of the tray pockets. The means herein shown for supporting the trays in vertically nested relation comprises a rectangularly shaped boss 35 projecting downwardly from the lower outer ends of each trough 33 in the manner clearly shown in FIGS. 2 and 5. The lower edges 36 of these bosses seat against channels 33 of an underlying tray and serve to hold the several trays accurately internested and against relative rotation.

The outer rim edge of each pocket is also preferably notched at 38, as is best illustrated in FIG. 3, to provide ample access for the insertion of the user's fingers about the rim edges of a carton 39. Thus, as illustrated in FIGS. 1 and 3, the storage rack is designed and sized to store casettes of magnetic tape. For this purpose, the storage receptacles have a height and depth readily accommodating such a casette with the outer rim edges projecting beyond the outer perimeter of the storage rack and inclined upwardly in a convenient position for reading indicia printed therealong.

The use of the described storage rack will be readily apparent from the foregoing description of the construction. Owing to the downwardly and inwardly inclined character of the individual storage recesses, it will be recognized once the forward edge of a carton is inserted into a selected storage pocket, gravity suffices to shift the carton downwardly along inclined bottom wall 31 into its fully stored position with its adjacent inward edges lying snugly against the adjacent inclined walls 30 of partitions 29. The two outer or exposed rim edges of the carton are then fully exposed and readily readable by the user.

It will also be readily apparent that the purchaser or user of the rack can quickly expand the capacity by purchasing additional trays and adding a length of rod 20 to that already present. For this purpose it is merely necessary to add an extension component for tie bolt 20 with its threaded shank mating with the threaded counterbore of the existing tie bolt. By this means it is unnecessary to discard any part of the rack when desiring to increase or decrease its capacity, it merely being necessary to add or remove an appropriate length of bolt 20.

While the particular rotary storage rack herein shown and disclosed in detail is fully capable of attaining the objects and providing the advantages hereinbefore stated, it is to be understood that it is merely illustrative of the presently preferred embodiments of the invention and that no limitations are intended to the details of construction or design herein shown other than as defined in the appended claims.

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,543,943 Dated December 1, 1970

Inventor(s) Theodore K. Joy et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the grant (only) insert columns 3 and 4.

3

We claim

1. A rotary storage rack for storing and displaying similar cartons each adapted to be marked with identifying indicia on the edge thereof, said storage rack comprising a rotary rack having four closely spaced vertically alined tiers of right-angled pockets each occupying one quadrant of a ring with their respective right-angle corners closely adjacent vertical hub means and separated from a pocket in an adjacent tier by radial partition means, said pockets converging downwardly and inwardly toward said hub means and each effective to snugly seat a four-sided carton or the like with the outer rim edge thereof inclined acutely to the vertical for convenience in reading indicia thereon.

2. A storage rack as defined in claim 1 characterized in that said rotary rack includes a plurality of similar unitary tray components each having a single ring of pockets, and said hub means including tie means extending vertically therethrough and effective to clamp said unitary tray components together with the pockets thereof in vertically alined tiers.

3. A storage rack as defined in claim 1 characterized in that said rack includes a plurality of trays each formed with a plurality of generally radial partitions dividing the same into said four separate and independent merchandise storage pockets.

4. A storage rack as defined in claim 3 characterized in that said trays are thin walled and said partitions are hollow with upwardly converging sidewalls merging with one another along their upper edges.

5. A storage rack as defined in claim 1 characterized in that

4

the same comprises a stack of similar shallow trays form one piece from plastic, each of said trays including a plu of generally radial hollow partitions disposed to coopera forming a ring of four pockets having their sidewalls generally at right angles to one another, and the perir edges of said trays being notched to permit the contents pocket to be grasped.

6. A storage rack as defined in claim 5 characterized ir said trays include an integral boss formed on said parti and positioned to rest against the partition of the next l tray.

7. A storage rack as defined in claim 5 characterized in each of said trays includes hollow vertically disposed means centrally thereof.

8. A storage rack as defined in claim 7 characterized i provision of a common tie rod extending through the a hub means of said trays and holding the same firmly pr against one another.

9. A storage rack as defined in claim 8 characterized b provision of a stationary base for said rack, and rotary be means interconnecting said base and said tie rod and mitting the latter and said trays to rotate as a unit abou axis of said tie rod.

10. A storage rack as defined in claim 1 characterize that the pockets at each level vertically of said rack formed with flat bottoms and upstanding partitions betv adjacent pockets.

Signed and sealed this 4th day of May 1971.

(SEAL)
Attest:

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Attesting Officer

WILLIAM E. SCHUYLER, JR
Commissioner of Patents