Dec. 15, 1953 H. B. ALEXANDER 2,662,644

ROTARY STAND FOR PARTS CONTAINERS

Filed July 12, 1951 3 Sheets-Sheet 1

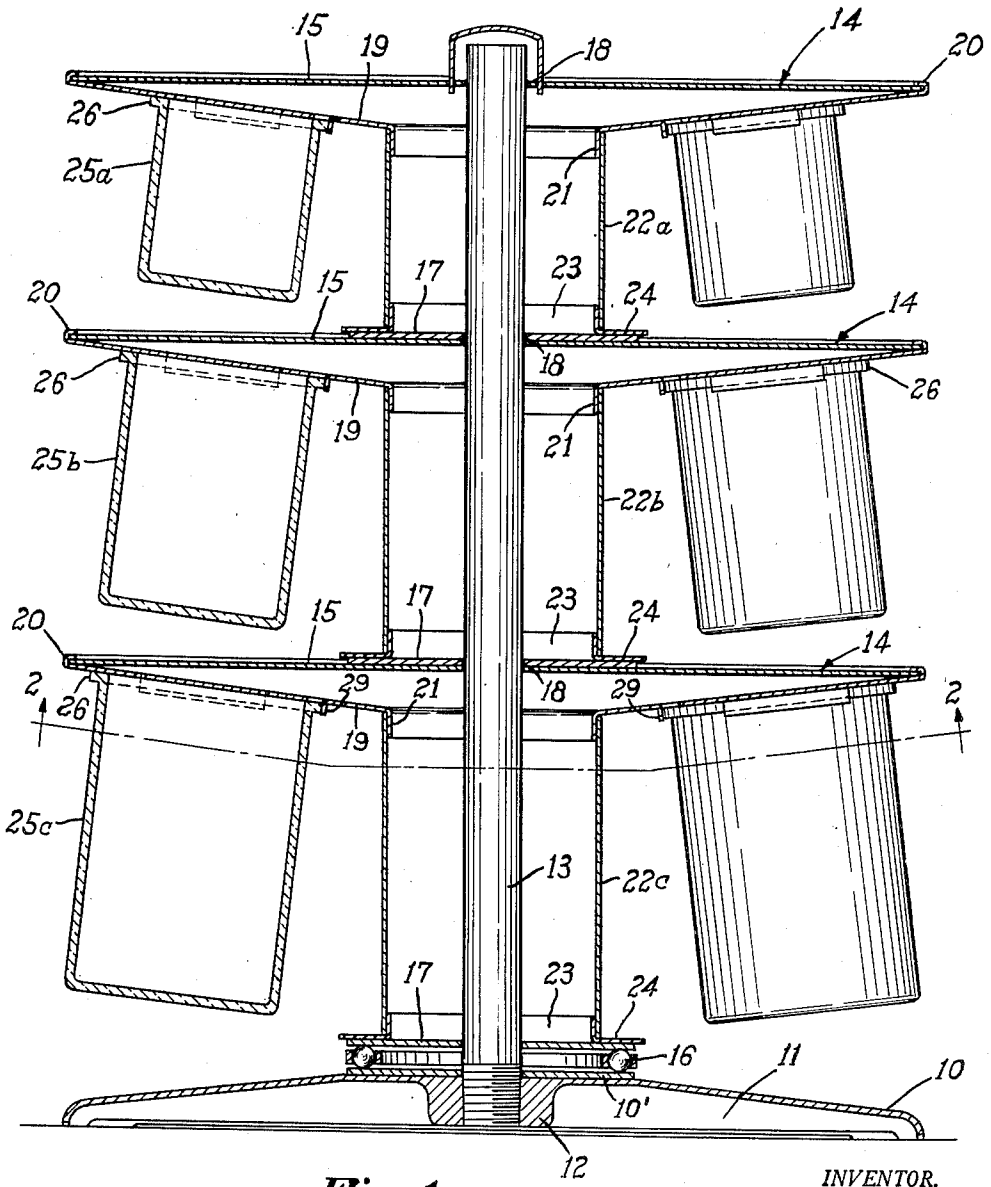


Fig. 1

INVENTOR.
Harry B. Alexander
BY
Frease, Bishop & Hamilton
ATTORNEYS

Dec. 15, 1953 H. B. ALEXANDER 2,662,644

ROTARY STAND FOR PARTS CONTAINERS

Filed July 12, 1951 3 Sheets-Sheet 2

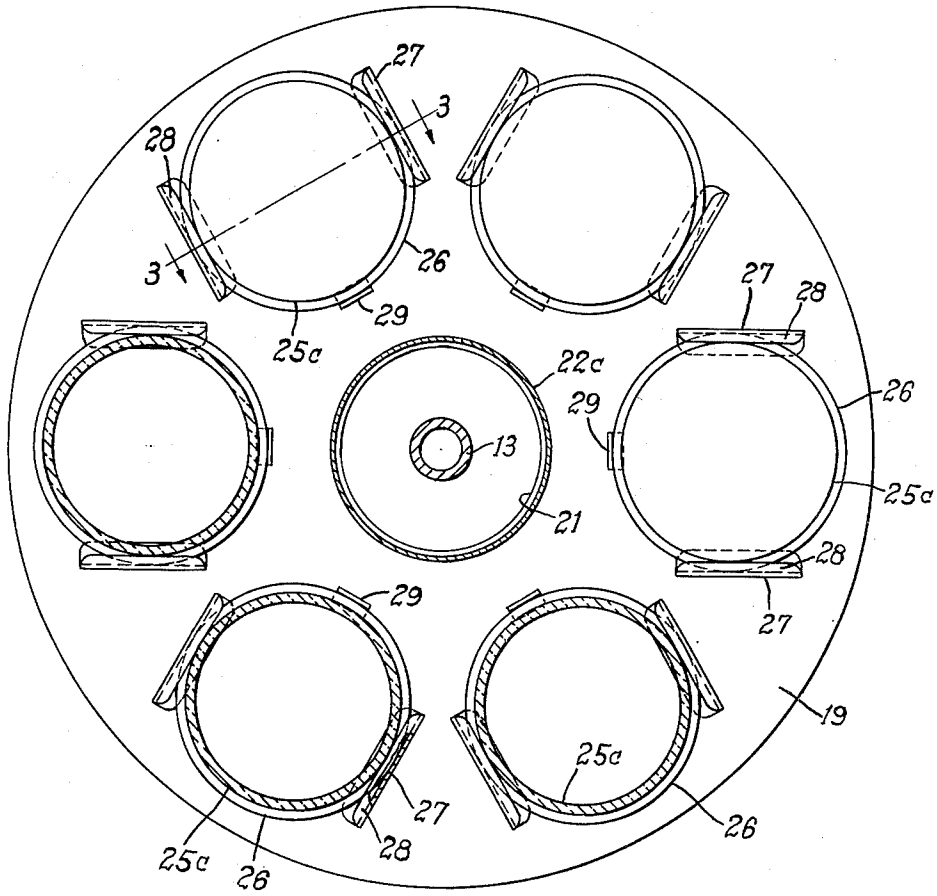


Fig. 2

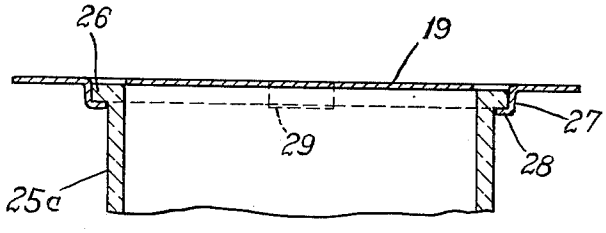


Fig. 3

INVENTOR.
Harry B. Alexander
BY
Frease, Bishop & Hamilton
ATTORNEYS

Dec. 15, 1953 H. B. ALEXANDER 2,662,644

ROTARY STAND FOR PARTS CONTAINERS

Filed July 12, 1951 3 Sheets-Sheet 3

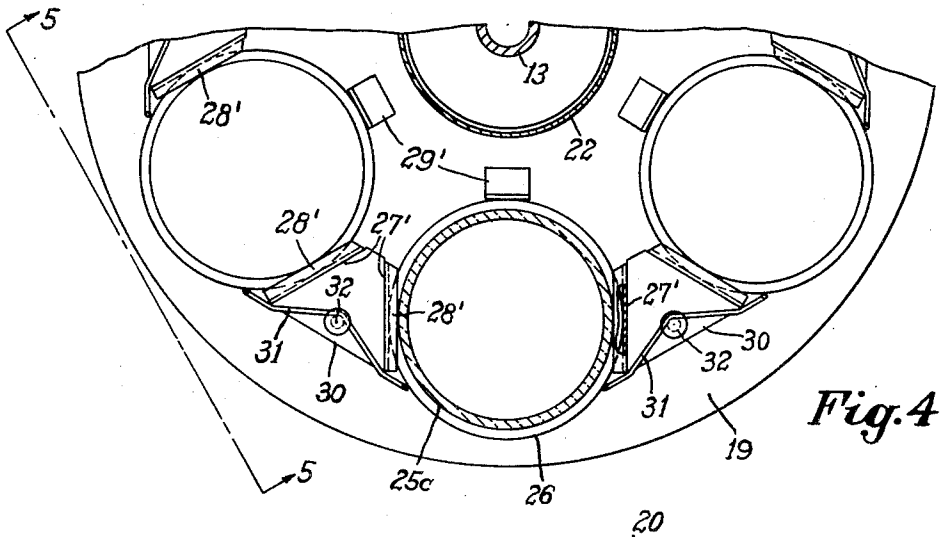


Fig. 4

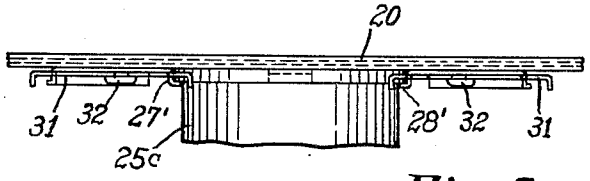


Fig. 5

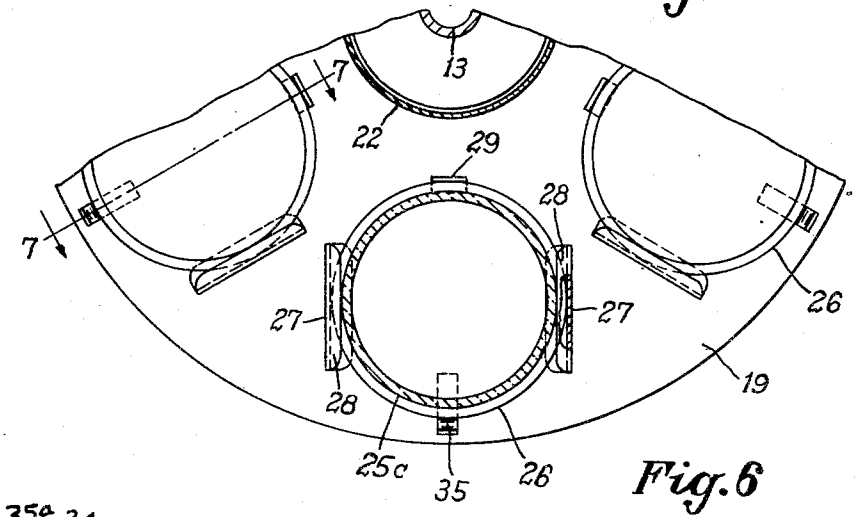


Fig. 6

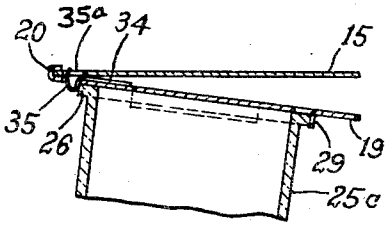


Fig. 7

INVENTOR.
Harry B. Alexander
BY
Frease, Bishop & Hamilton
ATTORNEYS

Patented Dec. 15, 1953

2,662,644

UNITED STATES PATENT OFFICE

2,662,644

ROTARY STAND FOR PARTS CONTAINERS

Harry B. Alexander, Canton, Ohio, assignor to The Superior Switchboard & Devices Company, Canton, Ohio, a corporation of Ohio

Application July 12, 1951, Serial No. 236,339

6 Claims. (Cl. 211—77)

1

The invention relates generally to a stand for mounting a plurality of jars or containers for small parts, and more particularly to a tiered holder which will hold a large number of containers in position to be rotated selectively into view and into a position of easy access.

The novel stand of the present invention is designed and adapted to hold a large number of preferably glass jar containers having a variety of small parts such as nails, bolts, screws and washers for industrial or home use, and to hold such containers so that the user can inspect quickly all of the containers and select and remove the one desired.

Certain prior container stands have had flanged trays or decks for supporting the containers and cooperating walls or surfaces on the rim flanges and a central collar to maintain the individual containers in position on the trays. These stands have been relatively expensive to construct because either the outer rim of the tray must be polygonal or the central collar must be scalloped or indented in order to provide the necessary abutments for positioning the individual trays.

Moreover, when such trays are rotated or spun rapidly the containers are apt to be thrown outward by centrifugal force and either tipped over or dislodged from the trays. Likewise, if such stands are used on shipboard the containers tend to become tipped or dislodged as the ship rolls.

Another disadvantage with these prior container stands is that they use jars which have caps to keep dust and dirt from the parts stored therein, and when a jar is removed from the stand the user has to unscrew or otherwise remove the cap, take out the desired part, and then replace the cap on the jar before returning it to its proper place on the stand.

It is an object of the present invention to overcome the foregoing disadvantages and generally improve the construction of a rotary stand for parts containers.

More specifically, it is an object to provide a novel container stand which will more securely hold the individual containers in position to prevent their dislodgment if the stand is spun rapidly or is tipped or tossed about as on shipboard.

Another object is to provide a novel rotary stand which is adapted for holding a plurality of jars in position without requiring individual covers on the jars, so that the handling of the cover is eliminated when the jar is removed from the stand for taking out or inserting parts therein.

2

A further object is to provide a novel stand having a tier of rotatable decks adapted for mounting a plurality of open jars in such manner that the decks act as closures for the jars when mounted.

A still further object is to provide a novel and improved rotary stand which is extremely simple and inexpensive to construct, and easy and effective to use.

These and other objects are accomplished by the parts, constructions, arrangements and combinations comprising the present invention, preferred embodiments of which are shown in the accompanying drawings and described in the specification as exemplifying the best known mode of carrying out the invention, the nature of the invention being set forth in the following general statement, and the scope of the invention being defined in the appended claims.

In general terms the invention may be stated as comprising a stand having a plurality of decks tiered one above the other on a base and spaced apart vertically to allow insertion and removal of jars between the decks, the decks being rotatable in horizontal planes and the undersides of the decks being conical and having downwardly extending inturned flanges for engaging under the flanged top ends of the jars for holding the upper ends of said jars against the undersides of said decks.

Referring to the drawings forming part hereof, in which preferred embodiments of the invention are shown by way of example,

Figure 1 is a vertical sectional view through a stand embodying the invention and having three superposed decks, some of the jars being shown in elevation;

Fig. 2 is a bottom plan sectional view as on line 2—2, Fig. 1;

Fig. 3 is an enlarged fragmentary sectional view as on line 3—3, Fig. 2;

Fig. 4 is a fragmentary bottom plan sectional view similar to Fig. 2 of a modified form of the invention;

Fig. 5 is a fragmentary elevational view as on line 5—5, Fig. 4;

Fig. 6 is a fragmentary bottom plan sectional view similar to Fig. 2 of another modified form of the invention; and

Fig. 7 is a fragmentary sectional view as on line 7—7, Fig. 6.

Similar numerals refer to similar parts throughout the drawings.

The stand shown in Fig. 1 includes three decks tiered or superposed one above the other, and the decks are spaced apart differently for mount-

ing different sizes of jars. It will be understood that different numbers of decks can be used and that the spacing between the decks may be varied to suit a variety of conditions, without departing from the scope of the invention as defined in the claims. Likewise, while the decks are indicated as being made of metal and the jars of glass, the decks may be made of plastic or any suitable material and the jars may also be made of a preferably transparent plastic material.

Referring to Figs. 1 and 2, the improved stand preferably includes a circular base 10 which may have radially extending reinforcing ribs 11 and a central boss 12. Preferably a shaft or column 13 is screwed at its lower end into the boss 12 and extends upwardly therefrom. The column 13 forms a central shaft around which the several decks indicated at 14 are rotatably mounted.

On top of the central portion of the base 10 is a bearing plate 10' on which a ball bearing 16 is rollably supported, and an upper bearing plate 17 rests on the ball bearing 16 for taking the thrust of the superposed decks 14. Each deck assembly 14 consists of a flat circular plate 15 which has a central aperture 18 fitting around the column 13, and a frusto-conical plate 19 of thin resilient metal below the plate 14 and secured to the outer edge thereof. Preferably the plate 19 is flanged over the outer edge of the plate 15 as indicated at 20.

Each frusto-conical plate 19 is preferably formed at its central portion with a downturned cylindrical flange 21 which is preferably spaced radially outward of the column 13. A cylindrical collar is fitted around the cylindrical flange 21 and the upper end of the collar overlaps and tightly fits the flange. The collars act as the spacers between the decks, and as shown in Fig. 1 they may have different lengths as indicated at 22*a*, 22*b* and 22*c* for accommodating different sizes of jars. Preferably the bottom end of each collar 22 overlaps the cylindrical flange 23 of an annular member having a horizontal annular flange 24 which rests on the bearing plate of the next deck below. The annular member at the bottom of collar 22*c* rests on the top bearing plate 17, and the annular members at the bottoms of the collars 22*b* and 22*a* rest on similar plates 17 which bear on tops of the decks below. Thus, all of the decks 14 are rotatable as a unit about the column 13 on the bearing 16.

As shown in Figs. 1 and 2 each of the decks 14 is adapted to mount six jars arranged circumferentially of the deck. The lower deck may mount relatively large jars, the middle deck may mount smaller size jars and the upper deck may mount still smaller size jars, although the number of jars and the arrangement as to sizes may be varied as desired. As shown in Figs. 1, 2 and 3, the jars 25*a*, 25*b* and 25*c* differ only as to size, and each has a cylindrical wall with an open top formed within a radially projecting rim flange or bead 26. The jars on each deck are adapted to be held against the undersurface of the frusto-conical plate 19, so that the plate acts as a cover for all of the jars supported thereon and is a substantially dust-tight cover to protect the contents of the jars. Because of the flat angled conical shape of the plate 19, all of the jars are tilted inwardly at their top ends, and this position of the jars aids by gravity in restraining the jars from being thrown outwardly when the trays are rotated or spun rapidly.

The jars are supported or hung from the plate 19 by means of pairs of diametrically opposite circumferentially arranged flanges 27 which extend downwardly from the plate 19 and have inturned lips 28 at their bottom ends for engaging under the rim flanges 26 of the jars, as best shown in Fig. 2 and 3. An inner abutment flange 29 is preferably struck downwardly from the plate 19 between each pair of flanges 27 and spaced inwardly thereof to abut the rim flange 26 and position each jar 25. If desired, the flanges 29 and 27 may be punched or struck out of the metal of the plates 19 as shown in Figs. 1, 2 and 3, or the flanges may be separate pieces welded to the plate 19.

The inturned lips 28 are positioned to engage under the beads 26 so as to hold the jars 25 tightly against the undersurface of the frusto-conical plates 19. Due to the conical curvature or crown of the plates 19, the portion thereof which abuts each rim flange 26 will not be entirely flat, but the thin metal of the plate 19 has sufficient spring or resiliency to allow the plate to be pressed into substantially flat condition as the rim flange 26 is inserted above the lips 28 of the flanges 27. Accordingly, each jar 25, when forced into position against the abutment flange 29 with the lips 28 engaging under the bead 26 of the jar, will be resiliently held in position so that any centrifugal force tending to throw the jars outwardly will have to overcome both the upward incline of the plate 19 and the resilient gripping of the flange 26 before the jars are dislodged.

In the operation of the improved stand, the user rotates the deck or decks 14 until he sees that the desired jar is in a position of easy access, and then he grips the desired jar and pulls radially outward with sufficient force to overcome the resilient contact of the rim flange between the frusto-conical plate 19 and the lips 28 of the hanger flanges 27. After the jar has been thus removed, the user may continue to hold it in one hand while he either dumps out the required part into the other hand or extracts the part with the fingers of said other hand. While still holding the jar in the one hand and the extracted part in the other, he pushes the jar into position between hanger flanges 27 with the rim flange 26 of the jar above the lips 28, and presses radially inward with sufficient force to overcome the yielding resistance of the sheet metal plate 19 due to its conical curvature. Thus the user never has to unscrew or remove a lid from the jar, then put the lid down while extracting the desired part, and then put the part down while applying the lid back onto the jar.

The modified construction of Figs. 4 and 5 includes the same central column 13, cylindrical collars 22 and frusto-conical plates 19, each with its outer rim flanged at 20 over a flat top plate. In this embodiment the abutment flanges 29' may be welded to the underside of plate 19, and the hanger flanges 27' with inturned lips 28' are formed on substantially triangular hanger members 30 which may be spot welded to the plate 19 between the jar positions. Preferably, a spring wire retaining clip 31 is fastened to each triangular member 30 as by a screw or rivet 32, and the ends of the clip are formed to normally yieldingly engage the rim flange 26 of each jar on opposite sides thereof. Accordingly, in order to remove a jar from its position, the user has to exert sufficient outward force to overcome the resistance of the spring clips as well as the resiliency of the conical plate pressing against the lip flanges 28'.

In the modified form shown in Figs. 6 and 7, the flanges 27 with their inturned lips 28 and the abutment flanges 29 may be formed by being struck downwardly from the plates 19 as in the embodiment of Figs. 1, 2 and 3, and the decks are rotatably mounted on the column 13 and spaced apart by the cylindrical collars 22. Likewise, the rim flanges 26 of the jars are forced between the plate 19 and the lips 28 so as to slightly spring the metal of the plate 19 and resiliently hold the jars in position. In addition, a spring clip 34 is provided to resiliently engage the outer edge of each jar, and each clip 34 is secured as by spot welding to the upper surface of the plate 19 and has a rounded nib portion 35 which extends through a slot 35*a* in the plate 19 and resiliently engages the outer edge of the rim flange 26, when the jar is in position between the hanger flanges 27.

The improved construction is economical because it can be formed substantially entirely of sheet metal, and the method of forming and assembling the several trays using the straight cylindrical collars 22 as spacers is inexpensive both from the standpoint of labor and materials. Moreover, the jars are always resiliently held in place to prevent their accidental or unintended dislodgment by centrifugal force, or tilting of the stand, or for any other reason.

An important advantage in using the present improved tray lies in the fact that the operator never has to handle or manipulate a separate lid or cover for the individual jars, which leaves him with one hand to hold the jar and the other to extract the desired part. There is thus no possibility of individual lids becoming lost or misplaced during use.

In the foregoing description, certain terms have been used for brevity, clearness and understanding, but no unnecessary limitations are to be implied therefrom beyond the requirements of the prior art, because such words are used for descriptive purposes herein and are intended to be broadly construed.

Moreover, the embodiments of the improved construction illustrated and described herein are by way of example, and the scope of the present invention is not limited to the exact details of construction.

Having now described the invention, the construction, the operation and use of preferred embodiments thereof, and the advantageous new and useful results obtained thereby; the new and useful constructions, and reasonable mechanical equivalents thereof obvious to those skilled in the art, are set forth in the appended claims.

I claim:

1. A rotary stand for a plurality of circumferentially arranged flanged containers including a base, a column fixed to and extending vertically from said base, a plurality of decks spaced one above another on said column and rotatably supported on said base, each deck having a frusto-conical resilient lower plate sloping inwardly downward, spaced pairs of circumferentially spaced container hanger flanges extending downwardly and inwardly from said lower plate, the flanges in each pair being extended toward each other and adapted to engage under the flange of a container to hold the same tightly against said undersurface, and a container stop means abutting the radially inner side of said container located between said hanger flanges at a point on said plate inwardly thereof.

2. A rotary stand for a plurality of flanged containers including a base, a column fixed to and extending vertically from said base, a plurality of decks spaced one above another on said column and rotatably supported on said base, pairs of circumferentially spaced hanger flanges extending downwardly from each deck, each pair having inturned lips adapted to engage under a container flange to hold the same tightly against the undersurface of said deck, means yieldingly restraining radially outward movement of a container engaged in said flanges, and means associated with each pair of hanger flanges for limiting inward movement of a container supported in said pair of flanges.

3. A rotary stand for a plurality of flanged containers including a base, a column fixed to and extending vertically from said base, a plurality of decks spaced one above the other on said column and rotatably supported on the base, each deck including a flat upper plate and a frusto-conical resilient lower plate secured thereto, said lower plate sloping inwardly downward toward a central portion, a cylindrical collar depending from each said central portion and spacing the decks apart vertically, and circumferentially spaced hanger flanges depending from said lower plate, each pair of hanger flanges having inturned lips adapted to engage under the flange of a container to press the same against the lower plate.

4. A rotary stand for a plurality of flanged containers including a base, a column fixed to and extending vertically from said base, a plurality of decks spaced one above the other on said column and rotatably supported on the base, each deck including a flat upper plate and a frusto-conical resilient lower plate secured thereto, said lower plate sloping inwardly downward toward a central portion, a cylindrical collar depending from and secured to each said central portion and spacing the decks apart vertically, and circumferentially spaced hanger flanges depending from said lower plate, each pair of hanger flanges having inturned lips adapted to engage under a container flange to press the same against the lower plate, and abutment flanges on said lower plate, and said abutment flanges being associated with each pair of hanger flanges for limiting inward movement of a container supported in said pair of flanges.

5. A rotary stand for a plurality of circumferentially arranged flanged containers including a base, a column fixed to and extending vertically from said base, a plurality of decks spaced one above the other on said column and rotatably supported on said base, hanger members secured to the underside of each deck and located in circumferentially spaced relationship thereabout, each hanger member having angular lip flanges adapted to engage under the flanges of containers, supported on each side thereof, and a spring wire clip on each hanger member extending in front of adjacent pairs of said hanger members for yieldingly restraining radial outward movement of contains supported thereby.

6. A rotary stand for a plurality of circumferentially arranged flanged containers comprising, a base, a column fixed to and extending vertically from said base, a plurality of decks spaced one above the other on said column and rotatably supported on said base, triangular hanger members secured in equally and circumferentially spaced relationship about the underside of each deck, each hanger member having angular lip

flanges formed outwardly on two converging sides of the hanger adapted to engage the flanges of containers supported one on each side thereof in cooperation with those hanger members located on either side thereof, and a spring wire clip on each hanger member extending for a spaced distance toward those hanger members on either side thereof for yieldingly restraining radial outward movement of containers supported on either side thereof.

HARRY B. ALEXANDER.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
278,161	McKee	May 22, 1883
905,975	Anderson	Dec. 8, 1908
1,754,094	Glass, Sr.	Apr. 8, 1930
1,761,218	Lundy et al.	June 3, 1930
1,908,928	Stein	May 16, 1933
2,557,801	Shapiro	June 19, 1951