

TURNTABLE STORAGE DEVICESPECIFICATION

This invention relates to turntable storage devices and to granular material storage and dispensing
5 containers. More particularly, this invention relates to such devices for use in storing and dispensing granular materials such as condiments.

Most prior turntable storage devices suffer from a lack of versatility in mounting and handling,
10 insufficient ease of dis-assembly and assembly, and/or insufficient ability to hold storage containers. Condiment dispensers used with such devices often are not sufficiently easy to use and dispense accurately - measured quantities of condiments.

15 For example, although turntable devices have been proposed in which separate units can be stacked on top of one another, the separate units are not believed to be usable separately.

Similarly, although turntable devices have been
20 proposed which can be hung from the bottom of a shelf, such devices are not believed to be capable of being stacked together and/or hung from a shelf. Also, they do not have a detachable carrying handle to make them portable.

25 Prior proposed turntable condiment storage devices lack means for holding condiment containers securely in place, and for accurately dispensing pre-measured amounts.

Accordingly, it is an object of the present
30 invention to provide a turntable storage device which is well suited to solving or alleviating the foregoing problems.

In particular, it is an object of the present invention to provide a turntable storage device which
35 carries a plurality of containers for storing materials, such as flour, condiments, and other granular materials

for the kitchen, as well as other small objects or materials.

It is another object of the present invention to provide a turntable storage device that can be mounted
5 and used in a variety of different mountings and configurations.

It is a further object of the present invention to provide a turntable storage device wherein containers are securely held in place on a turntable to prevent them
10 from sliding off of the turntable.

It is yet another object of the present invention to provide a turntable storage device wherein the parts are easily attached together and separated without tools.

15 In accordance with the present invention, the foregoing objects are met by the provision of a turntable storage device which has a turntable and a plurality of containers that are removably attachable to the turntable.

20 In one aspect, the invention comprises a novel convertible turntable. The turntable unit can be stacked with other units, or the units can be used separately. Alternatively, each unit or a stack of units can be suspended from the bottom of a shelf.

25 The turntable preferably includes a platform and a base member. The base member is integrally connected to an upwardly extending hollow post. Each unit has a detachable upper projection dimensioned to fit into the bottom opening of the hollow post of another
30 unit and lock in position to enable the units to be stacked and thus occupy less shelf space, or to be used to attach the turntable to the underside of a shelf.

The upper projection is easily detachable and can be replaced with an easily-attachable handle for
35 carrying the turntable.

The containers can be of any shape but are preferably wedge-shaped so that they provide maximum

storage volume while fitting together snugly when assembled on the turntable.

In one embodiment, each of the containers has a measuring dispenser which is operable to dispense a predetermined quantity of material from the container. Preferably, the containers also include dispensing openings for spooning and shaking out the material.

In this embodiment, a rotary measuring dispenser, which is operable to dispense a predetermined amount of material, is located in each container. The dispenser includes an external knob attached to an internal metering rotor that has integral radially-extending spaced-apart blades defining a plurality of cavities between the blades. As the rotor is rotated, a measured quantity of material is dispensed through a hole in the bottom of the container for each partial revolution of the rotor equal to the angular separation between adjacent blades. As the knob is turned, the cavities are successively filled and then emptied through the dispensing hole.

In another embodiment of the invention, the individual condiment containers do not have individual metering dispensers. Instead, an adjustable measuring spoon is attached to the turntable. It is easily detached and is dimensioned to fit into the containers to dip out measured quantities of the contents.

Preferably, the top of each container contains two hinged dispensing openings, one for spooning out material from the container and another for shaking out material.

Each container can be securely positioned on the turntable by means of a projection located on each container, the tab is received by a receptacle located on the platform. Preferably, the tab is located on the bottom of the back wall of the container and the receptacles are located circumferentially around the upwardly extending post of the turntable.

The platform includes projections each of which is adapted to extend upwardly into a recess in the bottom of one of the containers to further hold the containers in place. Each projection forms a circumferentially
5 extending ridge which engages a bottom edge of the container as it is positioned onto the platform, thus helping to prevent the container from slipping off of the turntable.

The foregoing and other objects and advantages
10 will be set forth in or are apparent from the following description and drawings.

IN THE DRAWINGS:

FIG. 1 is a perspective assembly view of a turntable dispenser device constructed in accordance with
15 the present invention;

FIG. 2 is a perspective view of the turntable device shown in FIG. 1, with the containers removed from the turntable;

FIG. 3 is an exploded perspective, partially
20 cross-sectional view of the turntable shown in FIG. 2;

FIG. 3A is a cross-sectional elevation view of a portion of the turntable shown in FIGS. 2 and 3;

FIG. 4 is a partially cross-sectional,
partially broken away and partially schematic elevation
25 view illustrating certain features of the turntable dispenser device of the present invention with two of the devices stacked on top of one another and/or one or two of the devices being suspended from beneath a shelf;

FIG. 4A is an enlarged, broken away elevation
30 view of a portion of the structure shown in FIG. 4;

FIG. 5 is an exploded view of one of the dispensing containers shown in FIG. 1;

FIG. 6 is a perspective, broken-away view of a portion of the structure shown in FIG. 5;

35 FIG. 7 is a perspective view of a portion of an alternative embodiment of the invention;

FIG. 8 is a perspective view of a component of the structure shown in FIG. 7; and

FIG. 9 is a perspective view of another component of the structure shown in FIG. 7.

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GENERAL DESCRIPTION

FIG. 1 is a perspective view of a turntable-dispensing device 20 constructed in accordance with the present invention.

The device 20 includes a turntable 22 and
10 twelve containers 24 on the turntable. In FIGS. 2 and 3, the turntable 22 is shown separately, with the containers removed.

Referring to FIG. 3, the turntable includes a molded plastic base 26 with an integral central vertical
15 post 28. A circular platform 30 (also see FIG. 2) is rotatably mounted on the base 26.

The platform 30 has a raised central hub 32 whose inner diameter is slightly larger than the diameter of the post 28 at its base so as to rotate freely around
20 the post.

Referring to FIG. 2 as well as FIG. 3, the platform has twelve generally wedge-shaped receptacle structures, each for holding one of the containers 24 on the surface of the platform 30.

25 Each such receptacle structure includes an aperture 34 in the lower portion of the wall of the hub 32, a pair of shallow radial grooves 36, and a raised projection 38 located at the outer periphery of the platform 30 between the radial grooves 36. Each of the
30 raised projections 38 is shaped generally like a portion of the bottom wall of each container 24 and is dimensioned to fit into a recess in the bottom wall of the container 24. The innermost edge 39 of each projection 38 mates with a vertical wall in each
35 container to help prevent the container from falling off of the turntable.

It should be understood that only a relatively small number of the raised platforms and other container receptacle structures is shown in FIG. 3, for the sake of simplicity in the drawings.

5 Each of the projections 38 has a curved vertical recess 42 and a curved horizontal recess 40 to help in removing the containers from the turntable, and in order to present a pleasing ornamental appearance.

Referring again to FIG. 3, attached to the top
10 of the post 28 is a disc 44. A decorative cover 46 covers the central opening in the structure, and a handle 48 is attached to the disc 44 for carrying the turntable.

As it will be explained in detail below, each
15 of the containers 24 preferably has an integral metering dispensing device so that granular materials such as spices or other condiments can be dispensed from the container by removing it from the turntable, holding it over a receptacle into which the material is to be dispensed, turning a knob by a predetermined distance,
20 and replacing the container on the turntable.

Each container alternatively can be used without a built-in measuring dispenser, and measured quantities of the materials can be removed from the containers by means of measuring spoons, etc. In
25 particular, an alternative embodiment of the invention utilizes an adjustable measuring spoon which is conveniently attached to the turntable/

TURNTABLE DEVICE

Referring again to FIG. 3 as well as to FIG. 4,
30 the rotatable platform 30 rotates on a ball bearing structure including a retainer ring 50 with a plurality of individual ball bearings 52 held in retainers on the ring 50. The ball bearing structure fits into a race 54 molded into the base 26. The base 26 has molded
35 upstanding ridges 56 for the purpose of strengthening the turntable structure. It also has a recess 47 for

receiving and seating the upper surface of one of the disc 44 when the turntable units are stacked.

The platform is easily assembled onto the base without tools by means of a pair of resilient locking
5 tabs 58. After the ball bearing structure is seated in the race 54, the platform 30 is slipped downwardly over the post 28 and is pushed downwardly until the hub 32 moves past the tabs 58. The tabs 58 are flexed inwardly by the hub, and then snap outwardly as the hub 32 moves
10 past the lower edges of the tabs 58.

The post 28 is slightly tapered from top to bottom; that is, it has a slightly smaller diameter at the top than at the bottom. This facilitates the assembly process described above, facilitates molding of
15 the post and base structure, and facilitates the interference fit of a tapered attachment member inserted into the hollow interior of the post when stacking units atop one another.

The disc 44 also can be easily attached to the
20 top of the post 28 and removed from it without the use of tools.

The top of the post is recessed so as to form a ledge 69. Three vertical slots (only two are visible in FIG. 3) 60 are formed in the vertical wall of the reduced
25 diameter top portion of the post 28. A horizontal slot 61 (Fig. 3A) connects with each vertical slot 60. The notches 60 are dimensioned to receive three tabs 62 which extend inwardly from a hub 68 at central opening of the disc 44 so that the tabs 62 can be inserted into the
30 slots 60. When the disc 44 is rotated, the tabs 62 slide into the slots 61 and engage the undersurface of the upper end wall 63 of the post 28 when the disc 44 is rotated (See Fig. 3A). The lower edge of the hub 68 rests on the ledge 69 so as to form a solid support for
35 the disc 44 on the end of the post. The disc 44 has radial strengthening ribs 67.

The disc 44 can be removed from the structure simply by rotating the disc in the opposite direction to disengage the tabs 62 from the slots 60 and 61.

The cover 46 also is removably attached to the
5 disc 44 by means of tabs 47 which fit into slots 64.

The handle 48 is removably attached to the disc 44 by means of locking tabs 70 which extend into locking slots 66 having a wide entrance and a narrower following slot so that the handle is locked into the slots 66 by
10 rotation of the handle relative to the disc after inserting the tabs 70 in the slot. This causes the outwardly-extending feet 71 of the tabs to engage the undersurface of the disc.

MOUNTING HUB STRUCTURE

15 In accordance with another feature of the invention, as shown at the bottom of FIG. 3, a mounting hub or projection 72 is provided in order to facilitate stacking of turntables one on top of another, or for mounting one or more turntable devices onto the underside
20 of a shelf.

The mounting hub is a molded plastic cylindrical structure, slightly tapered to match the taper of the inside of the hollow post 28. The mounting hub 72 either can be inserted into the hub and locked in
25 place there, or mounted onto the disc 44 in place of the handle 48.

For insertion into the hollow interior of the post 28, the external dimensions of the hub 72 are slightly less than those of the interior of the post 48
30 so that when the hub 72 is inserted upwardly into to hollow post the hub will fit snugly, preferably with an interference fit. Two tabs 76 fit into the slots forming the tabs 58, and then slide into horizontal slots 79 when the hub 72 is rotated to lock the hub 72 and the post 28
35 together.

For attachment to the disc 44, the hub 72 is provided with three locking tabs or feet 74 which fit

into the slots 64 so that when the hub 72 is rotated counterclockwise, the feet 74 will slide under the surface of the disc 44 and will be locked in place.

STACKED MOUNTING

5 FIG. 4 is a cross-sectional view of one half of a vertical stack of two of the turntable devices. It should be understood that, although a handle 48 is shown in FIG. 4, actually it would be removed in the stacked construction shown and is shown in FIG. 4 only for the
10 convenience of illustrating its means of attachment.

 In the stacked structure shown in FIG. 4, two hubs are in use; one hub 72 is inserted into the hollow interior of the post 28 of the upper turntable, and the other hub 72 is attached to the disc 44 of the upper
15 turntable.

 FIG. 4 is partially schematic in that it also shows how the stacked structure is attached by means of screws 84 to the under surface of a shelf 80, such as a shelf of a kitchen cabinet. The front of the cabinet is
20 shown schematically at 82.

 FIG. 4 also shows the stacked structure resting on a counter top surface 86, for the purpose of illustrating both types of mounting.

 FIG. 4 also illustrates how the containers 24
25 are mounted on the turntable platforms, with the projection 38 extending into the recess in the bottom of the container, and the vertical wall 138 of the container engaging the rear edge 39 of the projection 38.

 When the containers are removed, they are
30 lifted upwardly at the outer edge and slid outwardly from the center of the turntable. This lifts the container off the projection 38, and allows the projection 140 at the rear of the container to be removed from the hole 34.

 It should be understood that each of the
35 turntable storage devices 22 can be used alone resting on a counter top such as the counter top 86, or each can be suspended from beneath a shelf alone, without being

stacked together with another turntable unit. However, stacking the units is particularly advantageous in that it saves additional counter top space as compared with single stand-alone units.

- 5 When two units are stacked together, but not hung from beneath a shelf, the handle 48 shown in FIG. 4 then can be used to carry the stacked units to some other location, if desired.

DISPENSING CONTAINER

- 10 FIG. 5 is an exploded perspective view of one of the dispensing containers 24 shown in FIGs. 1 and 4. Each container includes a molded outer end wall 88, and a molded body unit 89. The body unit has two side walls 90 and 92, a rear wall 94, and an upper wall 96.

- 15 The front wall 88 has a sloping outer end surface 108 containing a large opening 100 for use in filling the container, and for pouring large quantities of the contents of the container, or for use in dipping the contents of the container out with a spoon.

- 20 The front wall 88 has a thumbnail recess to facilitate lifting a lid 112 which covers the opening 100. A circular recess 104 receives a rotary dial 116 with a shaft 118 which fits through a hole 122 and into a dispensing rotor 126 which has vanes 128.

- 25 The width of the innermost end wall 94 is much less than the width of the outer wall 88, thus giving the container a pie-shaped cross-section, as is desirable to enable a substantial number of the containers to be fitted onto the circular surface of the platform 30.

- 30 Internally within the container 24 are a sloping raised bottom wall 136 and a vertical wall 138 whose lower edge is shown at 95.

- A pair of slanted bottom walls 130 and 132 are provided with a gap 134 between them. The walls 130 and 35 132 have end tabs 124 which fit into slots (not shown) in the rear of the front wall 88. The walls 130 and 132

have curved areas 125 to fit snugly against the rotor blades 128 to prevent leakage of condiments.

When the front wall 88, the rotor structure 126, the knob 116, are all assembled together to form the housing, the half-cylindrical shaft 118 fits into a similarly-shaped hole in the rotor 126. The rotor 126 has a pivot hole in one end into which is fitted a pivot pin 139 which extends from the wall 138, and the vanes 128 contact the curved surfaces 125 of the members 130 and 132 to prevent material from being dispensed from within the container through the opening 134 until the rotor is rotated.

The front wall member 88 preferably is attached to the body member 89 by ultrasonic bonding.

When the rotor 116 is rotated, a quantity of material between two adjacent vanes 128 on the rotor 126 is dispensed through the opening 134 when the rotor is turned by the angular distance between two adjacent vanes 128. Since there are eight vanes on the rotor 126, a premeasured quantity of material is dispensed for every 1/8th of a revolution of the knob.

This dispenser is similar to that shown in U.S. Patent 4,957,219, the disclosure of which hereby is incorporated herein by reference.

The easy measurement of predetermined quantities of materials is accommodated by the provision of a detent structure including eight depressions 120 which mate with two similar projections (not shown) on the rear surface of the knob 116. When the projections snap into the holes 120, this positively tells the user that the knob 116 has been turned through 1/8th of a revolution, and that one unit of volume has been dispensed.

The projections are shaped like ratchet teeth and the holes 120 are shaped so as to form a ratchet structured which allows the knob 116 to be turned in only one direction.

Another desirable feature of the container 24 is that it has a window 110 which is fitted into a opening 98 in the front wall 88. The window permits one to see the contents of the container.

5 The opening 100 is covered by a hinged lid 112 which has pivot pins 114 which fit into holes 115 in projections 106 extending upwardly from the upper edge of the front wall piece 88. Lid 112 has a ridge (not shown) which fits into the opening 100 to snugly close the
10 opening.

The top wall 96 of the container also has a shaker grill 146 which is at the innermost edge of the container 24. A hinged cover 142 with hinged projections 144 fitting into notches 148 in the structure 150
15 provides a cover for the shaker grille. FIG. 6 shows the shaker structure in greater detail. the grille includes a plurality of slots 152 in an upstanding projection. The undersurface of the cover 142 (not shown) has projections to fit into the slots 152 to close
20 the grille completely and reduce accumulation of materials in the slots.

The location of the shaker opening at the end of the container where it is narrowest is advantageous in that it allows the funneling of the contents of the
25 container towards the shaker outlet 146.

The bottom walls 130, 132, the rotor 126 and the wall of the recess 104 all are located above the bottom edges of the container walls so as to form the recess into which the projection 38 fits (See Figs. 2 and
30 4).

The sloping bottom wall 136 guides material toward the rotor 126, and its bottom edge 95 engages with the rear edge 39 of the projection 38 as shown in Fig. 4.

NON-DISPENSING CONTAINER EMBODIMENT

35 In accordance with the another aspect of the invention, the cost of individual dispensing mechanisms for each of the containers 24 can be avoided by

eliminating the dispensing mechanism in each, and providing a solid bottom wall for the container instead. Materials can be dipped out of the containers with spoons, or they can be dispensed through the shaker grille 146.

Alternatively, the dispensing of measured quantities of spices, flour, and other such granular materials can be achieved by use of a special handle structure shown in FIGs. 7, 8 and 9.

Instead of the handle 48 shown in FIGs. 1-3, a new handle structure 154 attached in the same way as handle 48 is provided. The handle structure 154 has a body 156 with two ridges 158 and 160 and a tapered projection 162 extending upwardly from between the two projections 158 and 160. A cavity 164 is provided at one end of the projection 162.

Fitted into this structure is an adjustable measuring spoon including an elongated body with a tapered receptacle in the bottom to fit snugly onto the projection 162 to hold the measuring spoon releasably onto the handle.

The measuring spoon has a downwardly bent rear end 174, a slider 172 which has an end wall (not shown) which extends downwardly into a bowl 170 at the end of the spoon so as to provide an adjustable measuring cavity by sliding the slider 172 along the body of the adjustable measuring spoon 166.

In use, the adjustable measuring spoon 166 can be removed from the handle, set to the proper measurement desired, and inserted into the large opening 100 in one of the containers so as to remove a premeasured quantity of materials. Thus, the present invention provides a very handy means for mounting an adjustable measuring spoon so that it will be readily at hand when needed.

The material of which the turntable 22 and containers are made preferably is thermoplastic resin. The rotor 126 of the dispenser (Fig. 5) preferably is

made of a relatively flexible plastic material such as sanoprene or low-durometer polyethylene. The flexibility of the blades minimizes grinding and binding of grains of condiments between the blades and their mating surfaces

5 125.

The covers 112 and 142 preferably are made of a flexible material such as polypropylene which is resistant to attack by spices.

This invention can be practiced in many
10 different forms other than the specific forms described above. Those specific forms are described in order to set forth the best mode presently contemplated for carrying out the invention. However, the protection of
15 this patent should not be limited to those forms and should be interpreted to cover other turntable storage devices utilizing the spirit and inventive contribution of this invention.

CLAIMS

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WHAT IS CLAIMED IS:

1. A granular material dispensing device comprising:
 - 5 a plurality of containers, and
a turntable for holding said containers;
each of said containers having a housing and a
measuring dispenser mounted to said housing and operable
to dispense a predetermined quantity of said material
10 from said container.
 2. A device as in Claim 1 wherein said
housing has a bottom wall and at least one side wall,
said measuring dispenser is a rotary dispenser which is
mounted in said housing, said housing having an outlet
15 opening in said bottom wall, and said dispenser being
positioned to dispense said material through said
opening.
 3. A device as in Claim 2 wherein said
housing includes an aperture communicating with the
20 outside of said container,
wherein said rotary dispenser is comprised of
a metering rotor rotatably mounted in said housing;
said rotor having a plurality of
circumferentially spaced apart cavities; and
25 a knob mounted on said rotor for turning said
rotor;
whereby said cavities may be sequentially
filled with material in said container upon being in
communication with the interior thereof and emptied upon
30 being in communication with said aperture.
 4. A turntable storage device comprising:
a plurality of containers, and
a turntable for holding said containers;
wherein one of said turntable and said
35 containers has a plurality of projections and the other
has a plurality of receptacles for receiving said
projections, whereby said containers can be held in place

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on said turntable by engaging said projections with said receptacles.

5. A device as in Claim 4 wherein said turntable includes a vertical post with a rotatable platform upon which said containers rest, and a disc attached to said post and extending outwardly therefrom to a position adjacent the tops of said containers when they are resting on said platform.

6. A stackable turntable for holding a plurality of containers; said turntable having a base; a hollow receptacle on the bottom of said base; a central projection extending above said base, the upper end of said projection being shaped to fit into said hollow receptacle,

wherein said projection can be removably fitted into the hollow receptacle of another turntable for stacking a plurality of turntables.

7. A turntable device comprising: a base structure having a flat base member, an upwardly-extending central post, and a platform rotatably mounted on said base structure, said platform being adapted to support a plurality of containers, and a hanging support member at the upper end of said post for attaching said turntable to the underside of an overhanging surface to suspend said turntable under said overhanging surface.

8. A turntable comprising a base structure having a flat base member, an upwardly-extending central post, and a platform rotatably mounted on said base structure, said platform being adapted to support a plurality of containers, a locking structure for rotatably holding said platform and said base structure together, said locking structure comprising at least one resilient tab extending outwardly from said post adjacent but spaced from said base member, said platform having an upper surface encircling said post and dimensioned to

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depress said tab when fitted over said post, and to release said tabs when seated against said base member.

9. A condiment container having vertical side walls, a vertical front wall, a top wall and a bottom wall with a dispensing opening, said top wall having a relatively large opening and a second opening with a grille over it for shaking condiments out of said container, and a dispenser mechanism operable from the outside of said container to dispense premeasured quantities of condiments through said dispensing opening.

10. A storage container for particulate materials, said container having vertical side walls, a bottom material retainer structure, and a top structure, said side walls including a pair of opposed side walls which are spaced apart at a distance varying across the width of said opposed side walls to give said container a tapered shape, said side walls comprising at least two molded plastic parts joined together along vertical lines.

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