

May 20, 1969

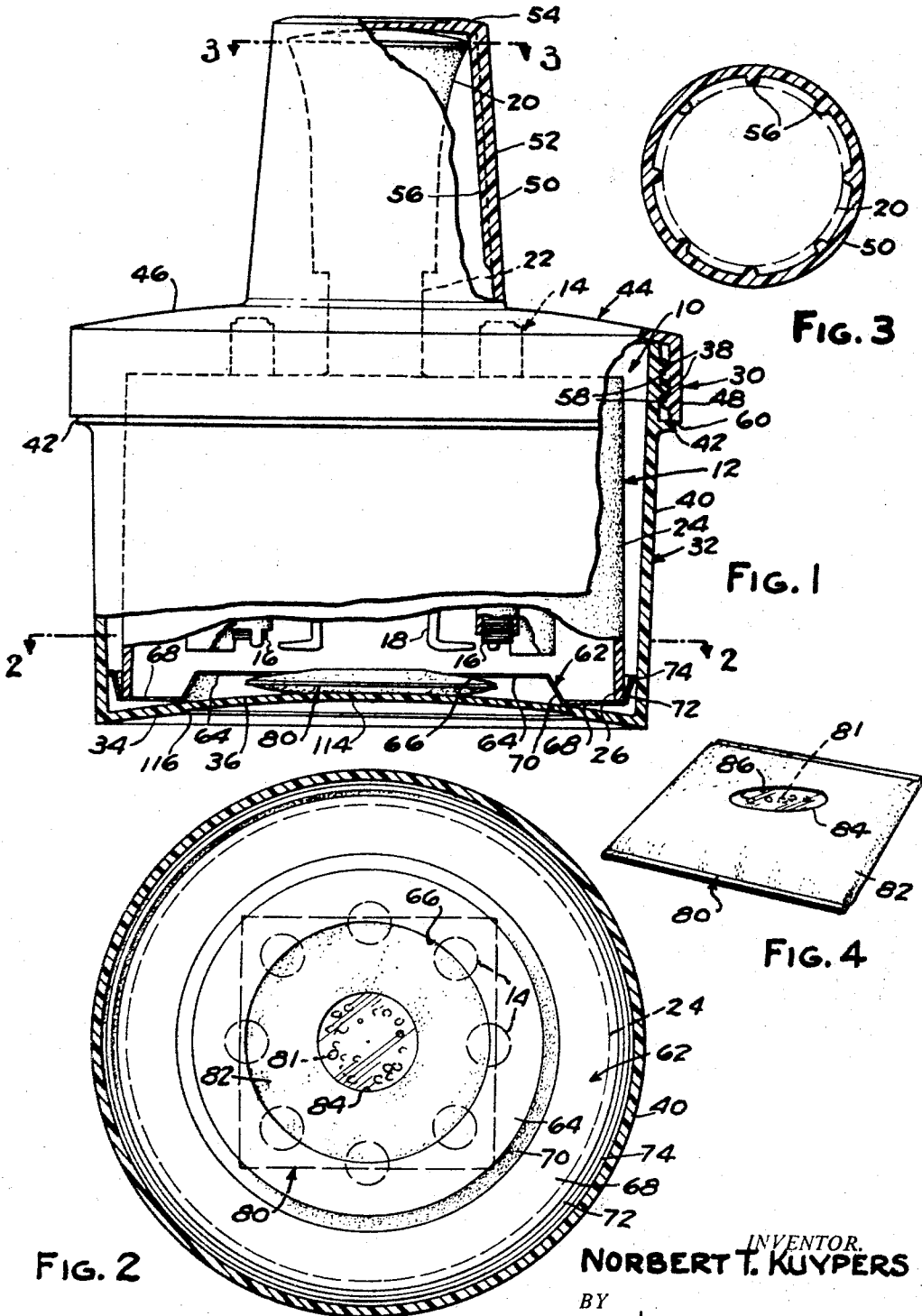
N. T. KUYPERS

3,445,149

APPARATUS FOR STORING ARTICLE DISPENSERS

Filed Oct. 20, 1966

Sheet 1 of 2



INVENTOR.
NORBERT T. KUYPERS

BY

Bernard, Kuehl, Risch & Choute

ATTORNEYS

May 20, 1969

N. T. KUYPERS

3,445,149

APPARATUS FOR STORING ARTICLE DISPENSERS

Filed Oct. 20, 1966

Sheet 2 of 2

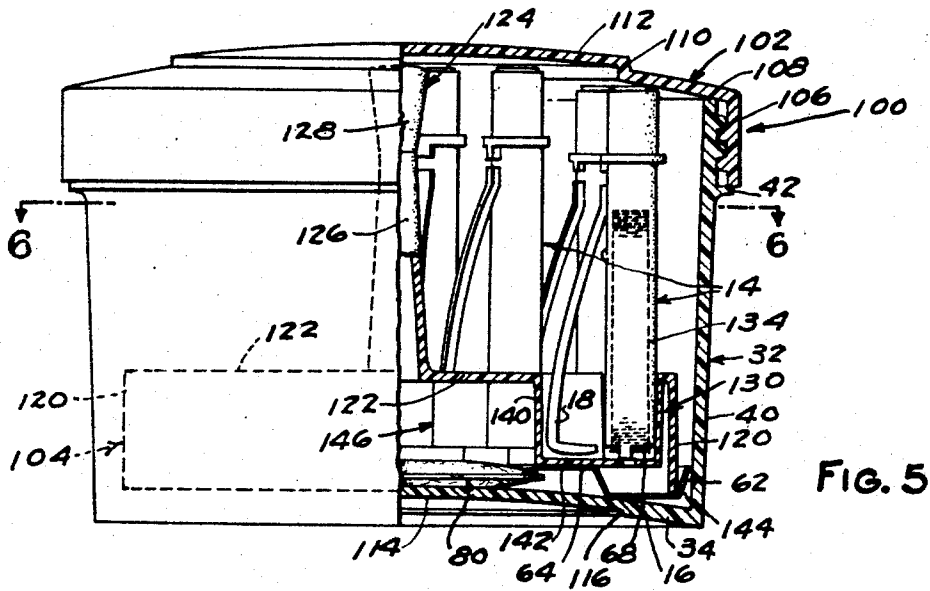


FIG. 5

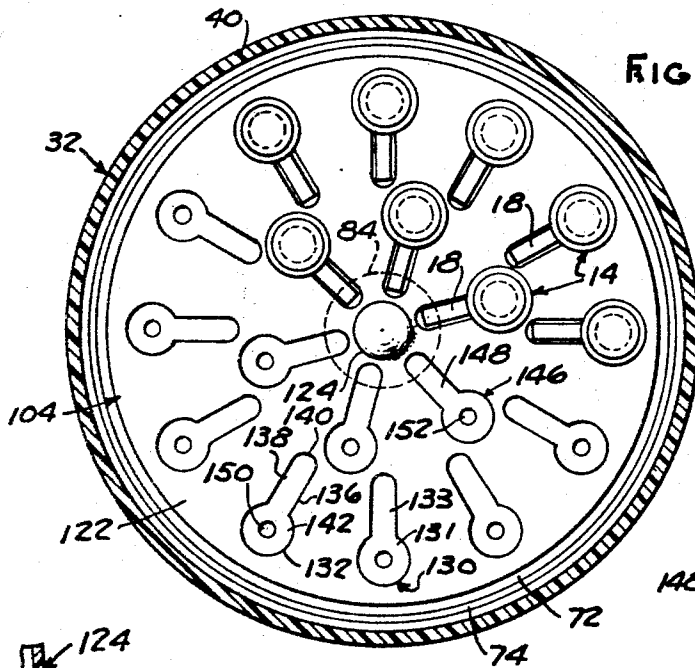


FIG. 6

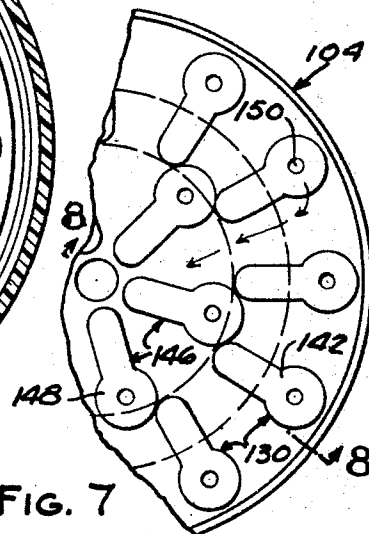


FIG. 7

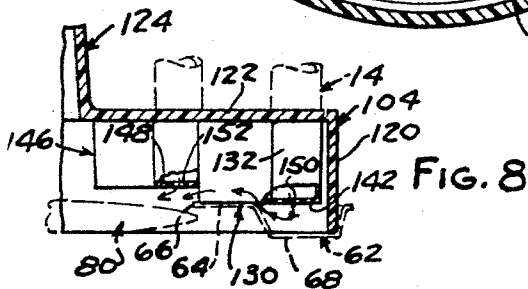


FIG. 8

INVENTOR.
NORBERT T. KUYPERS

BY
Barney Kinelle, Raich & Choute
ATTORNEYS

1

2

3,445,149 APPARATUS FOR STORING ARTICLE DISPENSERS

Norbert T. Kuypers, Warren, Mich., assignor to Difco Laboratories, Incorporated, Detroit, Mich., a corporation of Michigan

Filed Oct. 20, 1966, Ser. No. 588,163

Int. Cl. A47b 81/00

U.S. Cl. 312—31

9 Claims

ABSTRACT OF THE DISCLOSURE

A storage container for storing dispensers containing reagent or sensitivity discs, and an associated storage rack for holding a plurality of disc dispensing magazines which fits inside the container over a desiccant retaining insert in the container. The container and rack are particularly adapted for use with the disc dispensing magazines, and the container for use with the multiple disc dispensers, disclosed in United States Patent 3,300,087.

This invention relates generally to storage containers, and more particularly to a container structure for storing dispensers containing reagent or sensitivity discs which are used in testing the sensitivity of microorganisms to chemical agents.

It is common in medical laboratory practice to employ sensitivity tests to determine which of several reagents kill or inhibit growth of microorganisms in the specimen being tested. Discs for such sensitivity tests are made of absorbent material, usually paper, and each disc is impregnated with a solution of a particular reagent. Typically, several discs, each impregnated with a different reagent, are placed on a medium to which the test specimen has been applied. The medium and discs are incubated, and during incubation reagents diffuse from the discs into zones in the medium surrounding the discs. After incubation the activity of the reagents is determined by inspection. If a particular reagent is effective to inhibit or stop growth of the microorganisms, there will be a clear zone around the disc containing that reagent. On the other hand, if a given reagent has little or no effect, the microorganisms will grow up to the edge of the disc.

In earlier days, the reagent discs were used while still wet, but at the present time they are dried at the place of manufacture and then stored in a dehydrated condition in containers. The discs may be thus stored for a long period of time, both prior to and subsequent to distribution to the ultimate laboratory user.

Accordingly, it is an object of the present invention to provide apparatus for conveniently and economically storing reagent discs and the like in a sealed environment, both during shipment and storage prior to sale, and during subsequent use of the disc by the ultimate customer.

Another object is to provide apparatus of the above character adapted to maintain the atmosphere surrounding the stored discs dehydrated to prevent absorption of moisture by the discs, as well as to remove moisture picked up during periods of use when the discs are exposed to humid atmosphere, so that the discs remain dehydrated until actually dispensed or consumed in making the aforementioned sensitivity tests.

A further object is to provide storage apparatus of the above character in which the discs may be conveniently and safely packaged for shipment and storage while disposed in dispensing magazines.

Still another object is to provide an improved disc storage apparatus of the above character which is compact, rugged, economical to manufacture, which is readily and economically recharged with a desiccant or drying agent

and which provides a visual indication of the condition of the desiccant indicating when the same needs to be reactivated.

Yet another object is to provide a storage apparatus of the above character which is particularly adapted for use with both the disc dispensing magazines and multiple disc dispenser as disclosed in my copending application Ser. No. 453,058, filed May 4, 1965, now United States Patent 3,300,087.

Other objects as well as features and advantages of the present invention will become apparent from the following detailed description taken in conjunction with the accompanying drawings in which:

FIG. 1 is a side elevational view of the form of a storage container in accordance with the present invention, with portions thereof broken away to better illustrate details thereof.

FIG. 2 is a horizontal section taken on the line 2—2 of FIG. 1.

FIG. 3 is a horizontal section taken on the line 3—3 of FIG. 1.

FIG. 4 is a perspective view illustrating a desiccant package in accordance with the present invention used in the storage container of the invention.

FIG. 5 is a side elevational view of another form of storage container in accordance with the present invention, with the right half thereof broken away and shown in vertical center section to better illustrate details thereof.

FIG. 6 is a horizontal section taken on line 6—6 of FIG. 5.

FIG. 7 is a fragmentary bottom plan view of a storage rack of the present invention incorporated in the embodiment of the storage apparatus of FIGS. 5—8.

FIG. 8 is a fragmentary vertical section taken on line 8—8 of FIG. 7.

Referring first to FIGS. 1—4 inclusive, the sensitivity disc storage apparatus illustrated in these views represents an exemplary form of the present invention particularly adapted for use with a multiple disc dispenser 10 of the type disclosed and claimed in my aforementioned copending application Ser. No. 453,058, filed May 4, 1965. Generally speaking, dispenser 10 includes a stand 12 which supports several magazines 14, each containing a vertical stack of reagent discs 16. Magazines 14 are themselves single-disc dispensers, and each carries its own ejector lever 18. The levers of all magazines in stand 12 are actuated simultaneously to dispense a plurality of discs simultaneously, one from the bottom of the stack in each of the magazines, by depressing a handle 20 mounted on a rod (not shown) which extends vertically through the upper end of a shaft 22 which in turn extends upright from stand 12. Handle 20 is normally biased upwardly by a spring contained internally. Stand 12 includes a tubular shell 24 which has an open lower end 26 adapted to be placed over a petri dish (not shown). Shell 24 is adapted to support a plurality of magazines 14, for example eight, which are removably inserted in shell 24 from the upper end thereof such that their lower ends are suspended, as shown in FIG. 1, a predetermined distance above the lower end 26 of shell 24, the magazines being arranged in a circle concentric with shaft 22 and shell 24. For further details of multiple disc dispenser 10, reference may be had to my aforesaid copending application.

In accordance with the present invention, an air-tight storage container 30 is provided for housing the multiple disc dispenser 10 en route to the customer, and also thereafter, in a sealed and dehydrated atmosphere in order to maintain discs 16 in their original dehydrated condition. Container 30 includes a cup 32 open at its upper end and closed at the bottom by an upwardly curved wall 34 which presents a convex upper surface

36 to the interior of the container. An external thread 38 is provided around the upper end of the slightly upwardly diverging conical side wall 40 of cup 32, and a lip 42 projects radially outwardly from and circumferentially around wall 40 immediately beneath threads 38. Cup 32 is preferably made of air and moisture impermeable plastic material, such as that known as polypropylene plastic, and may be economically mass produced by injection molding equipment.

Container 30 also includes a cover 44 having a slightly upwardly domed top wall 46, a cylindrical skirt 48 dependent from the outer margin of wall 46 and a hollow snout or dome 50 projecting upwardly from the center of wall 46. Dome 50 has an upwardly converging frusto-conical side wall 52 and is closed at its upper end by a top wall 54. A series of eight inwardly projecting and vertically extending ribs 56 (FIGS. 1 and 3) are provided on the interior surface of wall 52. Ribs 56 facilitate placement of cover 44 on cup 32 after dispenser 12 has been placed in the cup, these ribs guiding the cover by engagement with handle 20 to thus conveniently center the cover for threading on the cup. The upper ends of ribs 56 are located to closely receive the upper end of handle 20 to further insure against any sidewise rattling of dispenser 12 in the container. The inner surface of skirt 48 has internal threads 58 (FIG. 1) adapted to mate with threads 38 for threadably securing cover 44 on cup 32. When cover 44 is screwed all the way down on the cup, the lower edge 60 of skirt 48 falls short of lip 42 in order to insure that an air-tight and moisture-tight seal is made between the circular upper edge of the cup 32 and the underside of the domed top wall 46. When container 30 is thus closed with dispenser 12 positioned therein as shown in FIG. 1, top wall 54 contacts the upper end of handle 20 and depresses the same against the pressure of the spring mechanism therein. By thus maintaining its actuating mechanism in compression, dispenser 12 is maintained securely in container 30 so that it cannot rattle during handling or shipment. In the closed condition of the container, wall 46 of cover 44 is closely spaced from the upper ends of magazines 14 to likewise prevent upward movement or rattling of the magazines in dispenser 12. Cover 44 is preferably made of the same plastic material as cup 32 and is also adapted for economical mass production by injection molding equipment.

In accordance with another feature of the present invention, container 30 also includes a removable insert 62 (FIGS. 1 and 2), which is sufficiently thin in cross sectional thickness (for example, about .018 inch) and made of styrene or other suitable material so as to be yieldably and resiliently compressible radially of the insert. Preferably, insert 62 has the form of an annulus made up of a flat, annular radially extending center portion 64, the inner margin of which defines a central aperture 66, an annular seat or trough portion 68 concentrically encircling and axially downwardly offset from portion 64, a downwardly and outwardly sloping frusto-conical wall portion 70 connecting portions 64 and 68, an upwardly and outwardly inclined wall portion 72 joined to the outer margin of seat portion 68, and a radially outwardly projecting circumferential lip 74 joined to the upper edge of portion 72 and disposed coplanar with portion 64.

Insert 62 preferably has an outside diameter which is slightly larger than the inside diameter of wall 40 at the point where lip 74 engages wall 40 when insert 62 is seated against the cup bottom wall 34 as shown in FIG. 1. However, the outside diameter of insert 62 is less than the inside diameter of wall 40 above a plane approximately in the vicinity of the section line 2-2 in FIG. 1 so that the insert has a clearance fit from the upper end of cup 32 down to this plane. Hence insert 62 may be dropped into cup 32 until lip 74 engages the inner surface of wall 40, and thereafter insert 62 must

be pushed downwardly into fully seated position. As this is done, lip 74 is cammed inwardly to thereby slightly radially compress the insert, thereby firmly frictionally retaining it in seated position in the cup. Once in seated position insert 62 provides a false bottom in cup 32 on which dispenser 12 is supported when stored in container 30. Preferably the lower end 26 of stand 12 is dimensioned to rest on seat portion 68 adjacent wall portion 72, insert 62 being deflected slightly downwardly by the pressure of cover wall 54 bearing against handle 20. The resilience of insert 62 thus cooperates with the internal springs of dispenser 12 to axially compress the dispenser in container 30, thereby further cushioning dispenser 12 in the container and maintaining the same firmly seated against rattling.

Another feature of the present invention is the provision of a desiccant package 80 (FIG. 4) which is removably received in container 30 in the generally cylindrical cavity or space formed between portion 64 of insert 62 and the upper surface 36 of wall 34 (FIGS. 1 and 2). Preferably package 80 consists of a generally flat, square envelope of heavy bond paper which is filled with crystals 81 of any suitable inexpensive desiccant material, such as silica gel. The top layer 82 of envelope 80 is provided with a central circular aperture 84 which is covered by a patch of cellophane 86 glued to the inner surface of wall 82 around the margin of aperture 84. Since both the paper material of package 80 as well as the cellophane window 86 are permeable to water vapor, the desiccant crystals 81 within the package are effective to absorb moisture from the atmosphere within container 30 to thereby preserve the original dehydrated condition of the desiccant discs 16 stored in magazines 14.

Preferably crystals 81 are a commercially available indicator type silica gel wherein the crystals are treated with a substance such as cobalt which visibly indicates the moisture content of the crystals. For example, the indicator may impart a blue color to the crystals when they are dehydrated, but when they have absorbed sufficient moisture to render them substantially non-hygroscopic the indicator may impart a red color to the crystals. When containing a desiccant so treated, package 80 makes it readily apparent to the user, upon removal of dispenser 12, whether or not the desiccant material within the package is due for reactivation. If such is the case, insert 62 is removed by gripping and pulling upwardly on the inner margin of portion 64 of insert 62 to thereby remove the same from cup 32, which then exposes package 80 for removal. Package 80 may then be heated in an oven for several hours at 100° C. to drive off the moisture from the crystals 81 and thus reactivate the desiccant package. To replace the package, the same is merely laid on the center of the bottom wall 34 and insert 62 reinserted in place over the package as shown in FIGS. 1 and 2. The inner margin of portion 64 of the insert overlaps the four corners of package 80, which are dimensioned to just meet portion 70 of the insert, so that the package is thereby maintained in centered position in the container with most of the package exposed in close proximity to the exposed discs 16 at the lower end of each of the magazines 14.

Referring now to FIGS. 5-8 inclusive, the sensitivity disc storage apparatus of the invention also includes a modified form of storage container 100 which includes the cup 32, removable insert 62 and desiccant package 80 described previously, but differs from container 30 in that a domeless cover 402 is substituted for cover 44 and a novel storage rack 104 for a plurality of magazines 14 is substituted for dispenser 12 to thereby provide a container which is adapted for storage of a plurality of disc dispensing magazines 14 which may be removed from the container for use individually as single disc dispensers or as replacement magazines for dispenser 12. Cover 102 is adapted to form an air-tight and moisture-tight seal with the upper edge of cup 32 when a

threaded skirt 106 of cover 102 is screwed down on cup 32. Cover 102 has a top wall formed by an upwardly arched marginal portion 108 which is joined by a vertical circular shoulder portion 110 with a raised central portion 112. Preferably, portion 112 of cover 102 has a convex curvature which matches the concave recessed surface 114 provided in the bottom wall 34 of cup 32, and the outside diameter of shoulder 110 is slightly less than the diameter of the shoulder 116 formed at the junction of surface 114 with the surrounding thicker outer margin of wall 34. A series of containers 100 may thus be stacked one upon another with portion 112 of the cover 102 nesting into the recess 114 of bottom wall 34 of the super-adjacent container, this nesting arrangement facilitating centering of the containers one upon another in stacked relation and also maintaining the stack in relatively stable condition during packaging and shipment by the manufacture, and also when stacking the containers in refrigerator storage compartments in the customer's laboratory.

Storage rack 104 of the present invention cooperates with container 100 to provide an interior support for a plurality of the aforementioned disc dispensing magazines 14. Rack 104 is adapted to removably support the magazines in a vertically disposed array within the container, and is itself removable from the container with the magazines thereon so that the customer has conveniently at hand a reserve supply of filled magazines which may be individually removed to replace empty magazines in dispenser 12 or for use as single disc dispensers. Rack 104 is preferably made of the same material as dispenser 10, for example a material known commercially as Marbon GSM a.b.s. plastic and comprises a circular base having a cylindrical skirt 120 integrally joined at its upper edge to a flat horizontal wall 122. Rack 104 also includes an upright carrying handle 124 made up of a hollow stem 126 integrally joined to the center of wall 122 and a knob 128 cemented to stem 126, these two portions being tapered inwardly toward their junction. As shown by way of example herein, rack 104 is adapted to support in an upright array a total of eighteen magazines, six of these magazines being arranged in an inner circular row around handle 124 and the remaining twelve magazines being arranged in an outer circular row concentric with the inner row. Knob 128 is disposed flush with the upper ends of the inner circular row of magazines 14 (FIGS. 5 and 6), the inner magazines being supported by rack 104 at a slightly higher elevation than the outer row of magazines 14, the upper ends of the inner magazines projecting into the headspace provided beneath raised portion 112 of cover 102.

Each magazine 14 in the outer row is removably supported in rack 104 by a pocket structure 130 which depends integrally from wall 122 of the rack. Outer pockets 130 each comprise a cylindrical side wall 132 which is open along its inner side to a slot-like cavity 133 (FIG. 6) which extends radially inwardly therefrom. Cavity 133 is formed by a pair of parallel side walls 136 and 138 and a curved end wall 140 (FIGS. 6 and 7). The bottom of pocket 130 is closed by a flat bottom wall 142 disposed parallel to wall 122. Each pocket 130 thus resembles a keyhole in cross sectional configuration (FIGS. 6 and 7), the cylindrical cavity 131 defined by wall 132 receiving the tubular portion 134 (FIG. 5) of magazine 14 and the radial cavity 133 receiving the lever arm 18 of the magazine. The bottom wall 142 of each outer pocket 130 is offset upwardly from the lower edge 144 of skirt 120 of the rack (FIG. 5) by a distance slightly greater than the vertical spacing between portions 64 and 68 of insert 62 so that the lower edge 144 of skirt 120 may be seated on portion 68 and then slightly depress the same before bottom walls 142 seat on portion 64. Each pocket 146 of the inner row is similar to outer pockets 130, but the bottom walls 148 of the inner pockets are offset upwardly from bottom walls 142 such that pockets 146 are spaced

above and clear of package 80 to provide an air circulation space therebetween (FIG. 8).

As best seen in FIGS. 6 and 7, twelve outer pockets 130 are equally angularly spaced from one another in a circular row adjacent skirt 120, and the inner row of six pockets 146 are also arranged at equal angular intervals from one another in a circular row adjacent handle 124, with one pocket 146 disposed angularly between every adjacent pair of pockets 130. With this arrangement the circumferential spacing between pockets 146 is approximately equal to that between the pockets 130 and hence magazines 14 in the inner row may be individually lifted and removed from the rack without disturbing the adjacent magazines in the inner row. The angularly staggered relationship of the inner and outer rows of pockets exposes the magazines in the inner row to view from the side of the rack so that indicia on the outer sides of magazines in the inner row may be read without removing them from the rack.

The radially inwardly directed arrangement of the slot-like cavities 133 of pockets 130 and 146 also serves an orienting function in that this keyhole configuration assures that the magazines when inserted in the rack are always disposed with the sides thereof opposite arms 18 facing radially outwardly. Hence identification indicia imprinted on the outer sides of the magazines is always presented to the view of the user. The circular array of magazines around the centrally disposed handle 124 also facilitates quick selection of the proper magazine since the rack may be readily spun about the axis of the handle, thereby reducing to a minimum the time involved in hunting for the desired magazine.

As best seen in FIGS. 7 and 8, the upwardly offset disposition of the inner row of pockets 146 relative to the outer row of pockets cooperates with the central disposition of desiccant package 80 and the stepped configuration of insert 62 to promote air circulation between the lower open ends of magazines 14 and the desiccant package. For this purpose each bottom wall 142 is provided with a vent hole 150 at the center of the cylindrical cavity defined by wall 132, and likewise each inner pocket 146 is provided with a center vent hole 152. Due to the offset of wall 142 above the lower edge 144 of skirt 120, there is an airspace between wall 142 and portion 68. Hence air can circulate as indicated by the arrows in FIGS. 7 and 8 between the lower end of the magazine 14 stored in pocket 130 and package 80 via hole 150, the space below hole 150 (FIG. 8) and thence via the space between each pair of pockets 130 (FIG. 7). Likewise, the further upward offset of the bottom walls 148 of pockets 146 provides an airspace between vent holes 152 so that free circulation exists between the bottom ends of the inner row of magazines and package 80 to thereby insure adequate ventilation beneath the magazines and thus effect pickup of moisture from the discs stored therein. In addition, the vertically offset relationship of pockets 146 and 130 positions the upper ends of the magazines in each row closely adjacent the top wall of cover 102 to thereby reduce or prevent rattling of the magazines during handling and shipment of container 100.

From the foregoing description, it will now be apparent that the present invention provides an economical storage apparatus for sensitivity disc dispensers or the like which insures safe handling and shipment of the dispensers, and which increases the overall reliability of the sensitivity test procedure by insuring that the discs are maintained in their original dehydrated condition both during shipment and storage to the point of sale and subsequently during use in the laboratories. By providing three parts, namely cup 32, insert 62 and package 80, for use in both storage container 30 and storage container 100, the total number of parts is reduced, thereby effecting considerable economy in manufacture. The desiccant package 80 cooperates with the removable insert 62 to insure that the desiccant material is maintained in a central

position for most efficient dehydration of the exposed sensitivity discs at the lower ends of the magazines. The spent condition of the desiccant material in package 80 quickly shows up as a red patch through the cellophane window 86 of the package, thereby signalling to the user that the desiccant package should be removed and reactivated. This, coupled with the preservation of the discs in a dehydrated condition, promotes greater accuracy and reliability in the sensitivity disc test procedure due to greater uniformity in the moisture content of the discs over an extended period of use. Although the storage apparatus of the invention may take various forms without departing from the scope of the present invention, the particular configuration of the parts as shown in the drawings herein is preferred since it represents a commercially successful production model which lends itself to mass production injection molding techniques.

I claim:

1. Container apparatus for storing articles in a dry atmosphere including in combination a moisture impermeable cup-like receptacle having a bottom wall closing the bottom end of the receptacle and being open at the upper end, a moisture impermeable cover removably engaged with the open end of said receptacle and adapted to form an air-tight seal therewith, a removable insert disposed in said receptacle adjacent said bottom wall thereof and adapted to form a false bottom in said receptacle, said insert having a center portion spaced from said bottom wall and having a central aperture for establishing communication between the space below said false bottom and the interior space of said receptacle above said false bottom, and desiccant means removably received axially between said center portion of said insert and said bottom wall and in registry with said central aperture, said cover having a skirt provided with internal threads and said receptacle having external threads at its upper end engageable with the internal threads of said skirt, said closure having an annular portion joined to said skirt and an upright hollow dome joined to the center of said annular portion, said dome having a generally frusto-conical side wall and a transverse top wall, said cover being dimensioned relative to said receptacle such that in the closed sealed condition of said container said top wall of said dome is spaced from said insert such that a multiple disc dispenser received therebetween of the type having an upwardly biased spring-loaded actuating handle received in said extension and a stand received in said receptacle is axially compressed by said dome top wall and said insert to thereby prevent rattling of the dispenser in the container.

2. The combination set forth in claim 1 wherein said dome has a series of axially extending ribs on the inner surface of the frusto-conical wall thereof adapted to guide said dome along the handle of the dispenser when placing the cover on the receptacle of the container.

3. Container apparatus for storing articles in a dry atmosphere including in combination a moisture impermeable cup-like receptacle having a bottom wall closing the bottom end of the receptacle and being open at the upper end, a moisture impermeable cover removably engaged with the open end of said receptacle and adapted to form an air-tight seal therewith, a removable insert disposed in said receptacle adjacent said bottom wall thereof and adapted to form a false bottom in said receptacle, said insert having a center portion spaced from said bottom wall and having a central aperture for establishing communication between the space below said false bottom and the interior space of said receptacle above said false bottom, desiccant means removably received axially between said center portion of said insert and said bottom wall and in registry with said central aperture, and a storage rack disposed in said receptacle comprising a base open at its bottom end and closed at its top end by a transverse wall, said base having a dependent peripheral skirt seating on said insert, a carrying handle extending

upright centrally from said transverse wall arranged between said handle and said skirt, each of said pockets being open at its upper end and adapted to removably receive the lower end of a disc dispenser magazine therein to thereby support said magazines upright on said rack.

4. The combination set forth in claim 3 wherein said pockets are arranged in inner and outer circular rows concentric with said skirt, the pockets within each row being equally angularly spaced from one another, said pockets in said inner row being disposed in angularly staggered relation relative to said pockets in said outer row.

5. The combination set forth in claim 4 wherein said pockets are each formed with a generally keyhole-like cross sectional configuration with a generally cylindrical cavity adapted to receive the tubular body of a disc dispensing magazine and a slot-like cavity extending therefrom radially inwardly of said base and adapted to receive an actuating arm of the magazine of the type which projects laterally from the tubular body of the magazine.

6. The combination set forth in claim 5 wherein said bottom wall of each of said pockets has a vent hole aligned with the axis of the cylindrical portion thereof, said bottom wall of each of the outer pockets being offset upwardly from the lower edge of said skirt at the open end of the base of the rack such that the bottom wall is spaced above the immediately subjacent portion of said insert to permit air circulation between said vent hole and said desiccant means.

7. The combination set forth in claim 4 wherein said insert has a flat annular seat portion concentrically surrounding said central portion and disposed in a plane offset axially downwardly from the plane of said central portion, said seat portion being disposed in contact with said bottom wall of said receptacle and supporting said central portion spaced above said bottom wall, said pockets of said rack each having a bottom wall, the bottom walls of said pockets in said outer row being offset upwardly from the lower edge of said skirt a distance at least equal to the axial offset between said central and seat portions of said insert and having a portion overlying said seat portion with a vent hole therethrough, the bottom walls of each of said pockets in said inner row being offset upwardly from the bottom walls of said pockets in said outer row and having a vent hole therein.

8. The combination set forth in claim 3 wherein said bottom wall of said receptacle is arched upwardly and has a circular recess in the center of the under surface thereof and said cover has a generally upwardly arched transverse wall with a raised circular center portion on the outer surface thereof dimensioned to nest within said recess of said bottom wall to facilitate stacking of a plurality of said containers one upon another.

9. A storage rack for supporting a plurality of disc dispenser magazines in an upright array thereon comprising a circular base open at its bottom end and closed at its top end by a transverse wall, said base having an axially extending skirt dependent from the outer periphery of said wall, a carrying handle extending upright centrally from said transverse wall, and a series of pockets dependent from said transverse wall arranged between said handle and said skirt, each of said pockets being open at its upper end and adapted to removably receive the lower end of one of the disc dispenser magazines therein to thereby support the magazines upright on said rack, said pockets being arranged in inner and outer circular rows concentric with said skirt, the pockets within each row being equally angularly spaced from one another, said pockets in said inner row being disposed in angularly staggered relation relative to said pockets in said outer row, said pockets each being formed with a generally keyhole-like cross sectional configuration with a generally cylindrical cavity adapted to receive the tubular body of a disc dispensing magazine and a slot-like cavity extending therefrom radially inwardly of said base and adapted to receive an actuating arm of the magazine of the type which

projects laterally from the tubular body of the magazine, said bottom wall of each of said pockets having a vent hole aligned with the axis of the cylindrical cavity of the pocket.

References Cited

UNITED STATES PATENTS

2,695,207 11/1954 Windsor ----- 312—31

2,821,448 1/1958 Bender ----- 312—31
3,135,566 6/1964 Frank ----- 312—31
3,300,087 1/1967 Kuypers ----- 221—93

5

BOBBY R. GAY, *Primary Examiner.*

JAMES L. KOHNEN, *Assistant Examiner.*