Sept. 20, 1971 R. M. HAYES 3,606,074

MULTIPLE PURPOSE GRIPPING LID

Filed July 24, 1969 2 Sheets-Sheet 1

FIG 1

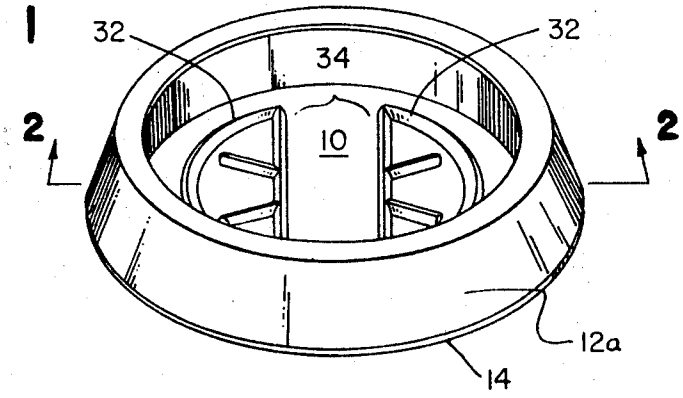


FIG 2a

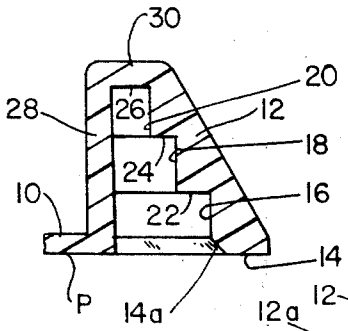
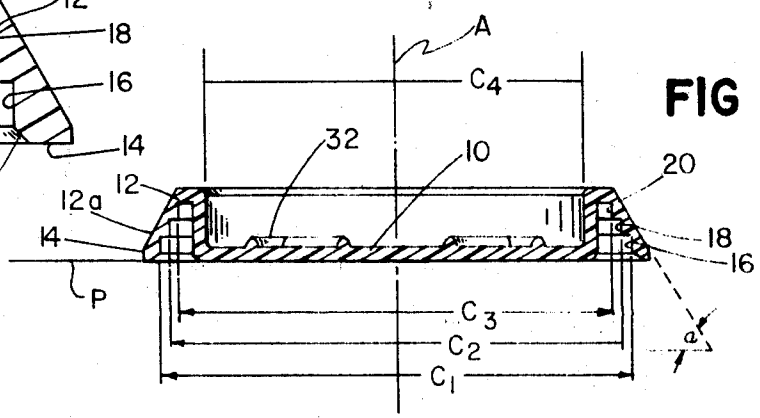


FIG 2



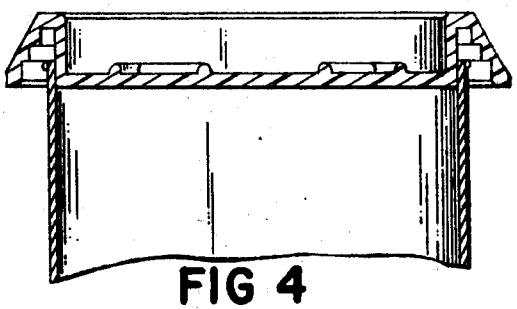


FIG 4

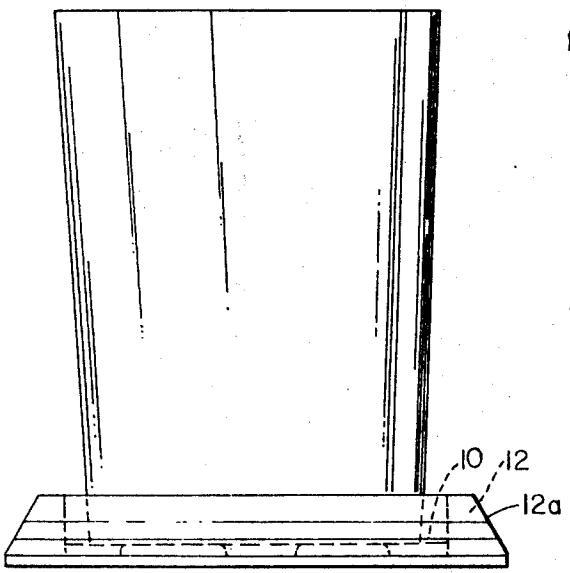


FIG 3

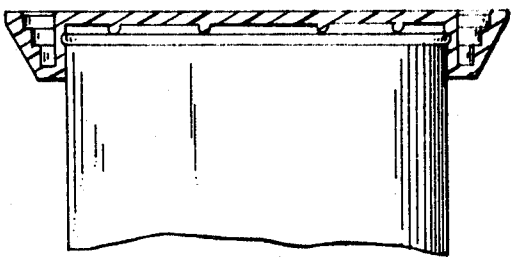


FIG 5

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MULTIPLE PURPOSE GRIPPING LID

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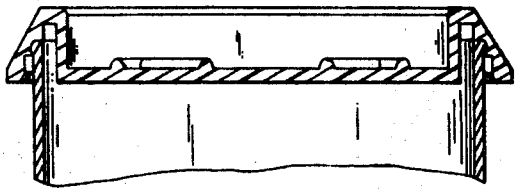


FIG 7

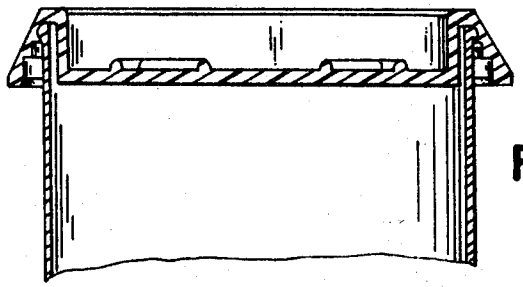
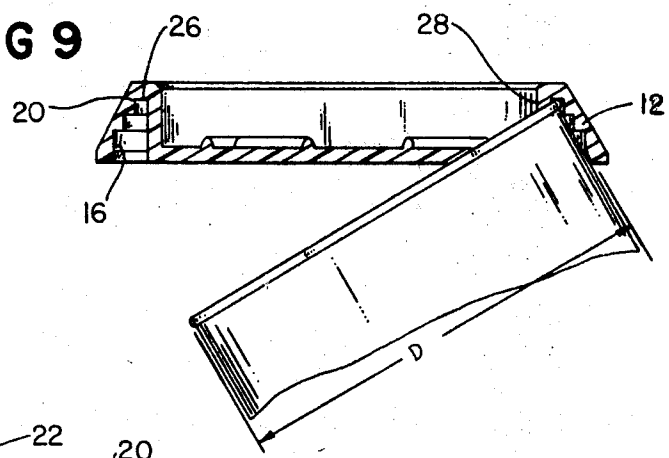


FIG 6

FIG 9



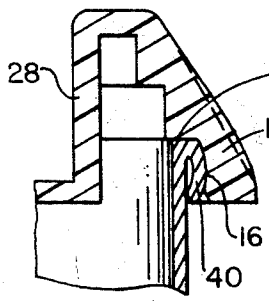


FIG 8a

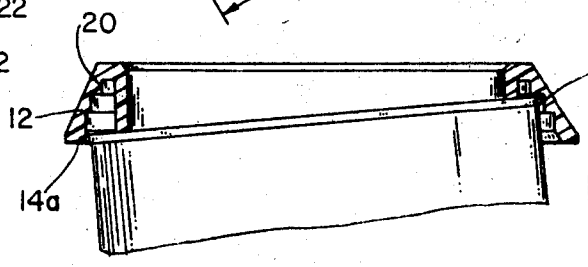


FIG 10

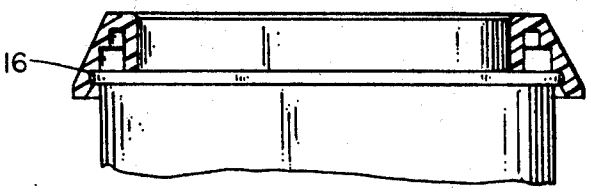


FIG 8

United States Patent Office

3,606,074

Patented Sept. 20, 1971

3,606,074

MULTIPLE PURPOSE GRIPPING LID

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Somerville, Mass. 02143

Filed July 24, 1969, Ser. No. 844,437
Int. Cl. B65d *41/00*
U.S. Cl. 220—42 5 Claims

ABSTRACT OF THE DISCLOSURE

A multiple purpose lid suitable for open cans and other containers of various sizes has a closed top and a side wall shaped to resiliently grip the edges of different sized cans. There is shown an upwardly extending series of decreasing diameter ring surfaces formed in the inner surface of the side wall, adjacent ring surfaces joined by ledge surfaces which the can top can abut when the lid is in place. There is also shown a second inner side wall joined to the first, providing a smaller size gripping surface. There is also shown a combination in which the lid also defines a coaster acceptable for use in the home.

This invention relates to gripping lids useful in the kitchen and other places where it is desired to close or seal opened tin or other cans.

It is an object of the invention to provide a gripping lid which has greater utility than lids heretofore known and to provide such a lid which can be manufactured simply and economically.

According to the invention it has been realized that many containers of various sizes, in particular tin cans, are stored openly in the refrigerator or elsewhere under conditions where the moisture, odors and flavors of the contents of the can are undesirably released, as results for instance when an open can of dog food is placed in the refrigerator. In other instances the homemaker goes through the extra steps of emptying the contents of the open can into another container (ordinarily a container which requires washing and a place of storage when not in use) for the simple purpose of not having an open can in the refrigerator. While theoretically at least for each different sized can a gripping lid might be provided, this would necessitate keeping on hand a number of lids and the task of selecting the proper lid each time.

With these realizations, it has been further realized that a simple device made inexpensively by long and well known techniques, e.g. plastic molding, in the form of a closed top and a side wall shaped to resiliently grip the edges of different sized cans, can solve these problems.

The invention features such a construction in which, along the inner surface of the side wall there is an upwardly extending series of decreasing diameter ring surfaces, adjacent ring surfaces joined by ledge surfaces which the can top can abut when the lid is in place.

The invention also features a second, inner, side wall joined to the first, providing a smaller gripping surface.

The invention also features a combination in which the lid also defines a coaster acceptable for use in the home.

The invention further features all of the above in a single lid member which is simple to manufacture, which is both attractive and visually presents desirable smooth surfaces when used as a coaster, while still having the capability of closing a considerable number of different sized containers or cans.

Other objects and features will be understood from the following detailed description of a preferred embodiment, in connection with the drawings wherein:

FIG. 1 is a perspective view of a preferred embodiment of the invention, viewed from above;

FIG. 2 is a vertical cross-sectional view taken on line 2—2 of FIG. 1;

FIG. 2*a* is a magnified cross-section of a portion of FIG. 2;

FIG. 3 is a side view of the embodiment, used as a coaster;

FIGS. 4–8 are vertical cross-sectional views of respectively different sized cans being closed by the embodiment;

FIG. 8*a* is a magnified view of a portion of FIG. 8; and

FIGS. 9 and 10 are views illustrating intermediate steps in the procedure of placing the lid on a can as shown in FIG. 8.

Referring to FIGS. 1, 2 and 2*a* the lid comprises a closed top **10** joined integrally to a side wall **12** of circular horizontal cross-section terminating in lower edge **14**. The inner surface of the side wall is defined by a stepped series of inwardly directed ring surfaces **16**, **18** and **20** extending upwardly from the lower edge **14**. The ring surfaces are centered on the same axis A and are of decreasing diameter (e.g. $C_1>C_2>C_3$ etc.) in the direction up from lower edge **14**. Downwardly directed ledge surfaces **22**, **24** and **26** connect adjacent ring surfaces. The lid is made of a form-retaining resilient plastic such as low density polyethylene and the thickness and properties of the wall are such that a ring surface can be slightly resiliently distorted by a can top of slightly larger size to effect a resilient grip between the exterior surface of the can top and the ring surface. Under this condition the can top can abut an upper ledge surface, which enables the user to sense when the lid is properly seated.

Advantageously, for the reasons described more fully in connection with FIGS. 8–10 below, the inner surface **14***a* of the lower wall edge **14** is sloped upwardly, inwardly to serve as a guide to facilitate the assembly of the lid onto cans of large size. The ring-ledge corners similarly serve as guides.

In this preferred embodiment the side wall **12** is integrally joined to the top wall **10** through a second, inner side wall **28** which is joined through bridge **30** to the top of side wall **12**. Inner side wall **28** extends downwardly to horizontal plane P which corresponds with lower edge **14** of outer side wall **12**. To this lower portion of the inner wall **28** is integrally joined top wall **10**, the latter also lying in plane P. Wall **28** is spaced from wall **12** providing a space for the tops of cans to enter therebetween, see e.g. FIG. 9.

As shown in FIGS. 4 and 5 both the inner and outer surfaces of inner wall **28** may be employed to engage and grip the tops of correspondingly sized cans, the cans being of smaller sizes than those engaged by outer wall **12**, see FIGS. 6–8. Thus a range of can sizes can be closed such as those sizes commonly used for beer, soft drinks, dog food, cat food, peas, etc.

As shown in FIG. 3 the lid of this embodiment is useful and acceptable to the home owner as a coaster e.g. for iced tea or highballs. The co-planar nature of the top wall **10** and the lower edge of side wall **12** give the coaster stability and wall **12** gives the sideways protection often sought for coasters. The upper surface **12***a* is smoothly inclined at angle *a* to the horizontal, thus providing an exterior of acceptable smoothly contoured form to the home owner (the person being served with these coasters will be unaware of the stepped or rough appearing undersurface, and of the fact that the coaster can also serve the other functions described above).

To combat the tendency for tumblers to stick to wet coasters, ridges **32** are provided in the upper surface. These are spaced apart in a manner previously known to

provide an open space **34** under the tumbler to allow inlet of air and drainage of liquid to break the liquid seal which causes such sticking.

While the specific form of the ring and ledge surfaces may be varied within the scope of the invention when viewed broadly, advantages are obtained employing the form shown in the drawings in which the ring surfaces are substantially vertical (or cylindrical) and the ledge surfaces are substantially horizontal, (or annular) with no re-entrant curves or the like. Not only is such a form readily and inexpensively molded, it also provides easy adjustment of the lid and can top to the appropriate ring.

In FIG. 9 there is shown a can the upper edge of which has a diameter D slightly greater than C_1, the diameter of the lower-most ring **16**. The edge of the can however is shown inserted the full way into the space between walls **12** and **28**, abutting ledge surface **26**, adjacent ring **20**.

As shown in FIG. 10 as the lid and can are moved toward a closed position, the opposite edge of the can engages the upwardly, inwardly sloped edge **14***a*. As closing movement continues, stress is applied to the side wall **12**. Since the diameter of ring **20** is much smaller than the can, and since the lid is formed of a plastic which tends to retain its shape (although resilient to a degree), such as low density polyethylene, a great amount of stress would be required to expand ring **20** to fit the can (so much so that the lid or can could be permanently bent out of shape or the contents of the can inadvertently spilled). However, according to the design shown, the surfaces are smooth to a degree to avoid detrimental restraint. Accordingly the top of the can previously inserted as shown in FIG. 9 slips downwardly as closing movement continues, first to the intermediate position on ring **18** as shown in FIG. 10 and then to proper ring **16** as shown in FIG. 8. The user can detect when the lid seats uniformly on the ledge **22** which forms the upper border of ring **16**.

Referring to FIG. 8*a* in magnified scale it is seen that when seated, the bead **40** of the usual tin can seats against ledge **22** (which serves as a stop and point of reference) and distorts slightly outwardly the wall **12** as shown in solid lines (to be compared with the undistorted condition suggested by dotted lines). In addition to deflecting downwardly) by the bead of the can, thus to provide the tact is also slightly laterally distorted (i.e. upwardly and downwardly) be the bead of the can, thus to provide the desired grip and closure. Note that this occurs even when the ring surface is smoothly vertical in the unstressed condition.

Numerous variations of the specific details within the spirit and scope of the invention will occur to those skilled in this art.

What is claimed is:

1. A lid adapted to be removably placed upon a plurality of cans and other containers of varying size for storage in the refrigerator, or the like, the lid made of form-retaining resilient plastic such as polyethylene, and comprising a closed top wall and an integral first side wall of circular horizontal cross-section, said closed top being joined to said first side wall by a second side wall secured to the upper portion of said first wall and extending downwardly therefrom, said second wall being spaced inwardly from said first side wall to provide entry space for the tops of containers to be covered, and a surface of said second wall shaped for sealing engagement with the top of a container, said first side wall terminating in a lower edge, the inner surface of said first side wall defined by a stepped series of substantially inwardly directed ring surfaces, said series extending upwardly from the lower edge of said first side wall, said ring surfaces centered on the same axis and decreasing in diameter from one to the other in the direction up from said lower edge, and downwardly directed ledge surfaces connecting adjacent ring surfaces whereby a container top when effectively distorting a ring surface of slightly smaller size to effect a resilient grip between the exterior surface of said top and said ring surface, can abut a ledge surface.

2. The lid of claim **1** wherein the inner surface of said second wall is shaped and exposed to grip the exterior of a container top.

3. The lid of claim **1** wherein the closed top surface is integrally joined to the lower edge of said second wall, said lower edge, said top surface and said lower edge of said first wall lying substantially in the same plane, and the upper surface of said lid is shaped as a coaster, adapted to support a tumbler.

4. The lid of claim **3** wherein the outer surface of said first wall is sloped smoothly downwardly from its upper to its lower edge.

5. The lid of claim **3** wherein the upper surface of said top has at least two integral raised projections spaced from each other, adapted to support said tumbler while providing air passage below said tumbler to prevent sticking.

References Cited

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GEORGE T. HALL, Primary Examiner

U.S. Cl. X.R.

215—41, 69; 220—60, 100.5

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,606,074 Dated September 20, 1971

Inventor(s) Robert M. Hayes

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

Column 3, lines 43-46, cancel "In addition to deflecting downwardly) by the bead of the can, thus to provide the tact is also slightly laterally distorted (i.e. upwardly and downwardly) be the bead of the can, thus to provide the desired grip and closure."; and substitute --In addition to deflecting outwardly the substance of the wall in the area of contact is also slightly laterally distorted (i.e., upwardly and downwardly) by the bead of the can, thus to provide the desired grip and closure.--

Signed and sealed this 2nd day of May 1972.

(SEAL)
Attest:

EDWARD M.FLETCHER, JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents

USCOMM-DC 60376-P69
* U.S. GOVERNMENT PRINTING OFFICE 1969 O-