Dec. 11, 1962 R. V. BURDICK ETAL 3,067,906

CONTAINER WITH SNAP-OFF COVER

Filed Aug. 11, 1960

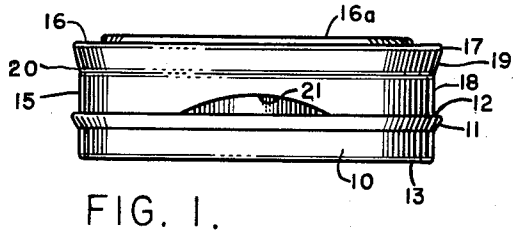


FIG. 1.

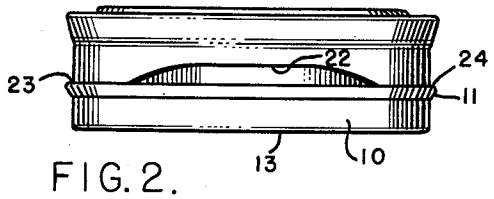


FIG. 2.

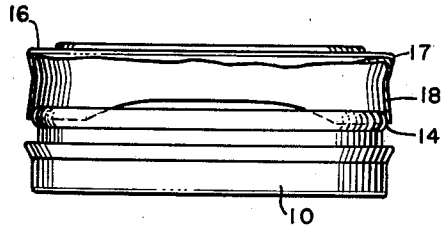


FIG. 4A.

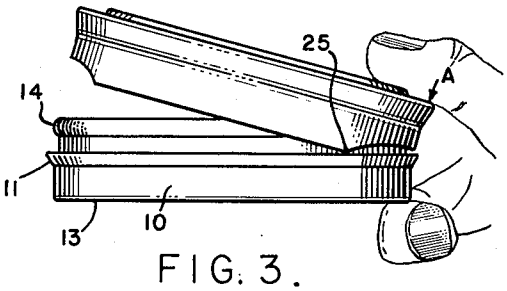


FIG. 3.

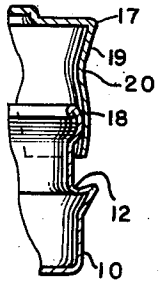


FIG. 4B.

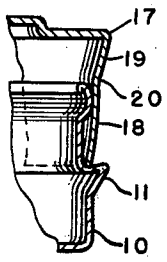


FIG. 4C.

INVENTORS
RALPH V. BURDICK
RALPH V. BURDICK, JR.
BY
Kane, Dalsimer and Kane

United States Patent Office 3,067,906 Patented Dec. 11, 1962

3,067,906

CONTAINER WITH SNAP-OFF COVER

Ralph V. Burdick and Ralph V. Burdick, Jr., both of P.O. Drawer 29, Loudonville, N.Y.

Filed Aug. 11, 1960, Ser. No. 48,901
5 Claims. (Cl. 220—43)

The invention has to do with boxes of the circular type, made, for example, from relatively thin sheet metal, wherein substantially hermetically to seal semi-solid materials, many of which contain volatiles, such as shoe polishes, waxes, ointments, creams, and the like, which it is desired to preserve, such boxes being disclosed in an earlier Patent No. 2,379,680, issued to one of the applicants herein. The subject application is provided to present an improved design and a box which is an improvement over the type set forth in our co-pending application, Serial No. 22,841, filed April 18, 1960, now abandoned, and the provision of further improvements on said patent and application is the principal object of this invention.

In has been pointed out in the foregoing application that the above mentioned patent emphasizes that boxes of this type, and particularly for such materials as shoe polish, and the like, have volatile constituents so that such boxes must be designed to maintain a substantially air-tight fit between the cover and the container portions, while at the same time maintaining all other features and as many advantages as possible in connection with the manufacture, distribution and sale thereof.

Certain of the advantages of the improvements of the aforesaid application are pointed out herein and additional ones will appear in connection with the description of the present box. However, emphasis must always be placed upon maintaining an air-tight fit and this must always be done. The fact that such air-tight engagement between cover and container portion to obtain a substantially hermetic seal is required often makes it difficult and inconvenient to remove the cover from the box. This is true of the threaded type where twisting causes too tight an engagement; as well as the unthreaded or pry-off type which requires the use of a special key or coin for opening. The necessity of a hermetic seal results, in addition to difficulty in opening such a box, in difficulty in closing as well.

Although the application referred to above overcomes many of the difficulties encountered in providing an air-tight seal in addition to simplified opening and closing, further simplification is still sought. Such simplification is provided in the structure disclosed herein and in this respect many new results and advantages have been brought about by the herein described and claimed circular box. Such new results and advantages will be specifically set forth and will otherwise appear hereinafter following a description of the present invention.

The invention herein disclosed has as its principal object the furnishing of a container with a snap-off cover which can be removed and replaced with relative ease and which will preserve an air-tight seal over long periods when closed. Additionally it is an object of this invention to provide such a box which can be opened or closed with one hand and without the application of great pressure or force.

In addition to the objects set forth above, a further principal object of this invention is to provide such a box which possesses features, properties and the relation of elements which will accomplish the objects for which the box is designed in such a manner that the external surfaces of the box will remain free at all times of the contents of the box and the opening and closing of the box will not result in discoloration or disposition upon the hand of the person using the box of the contents or a portion of the contents contained therein.

A container with a snap-off cover embodying the invention and the manner of using the same is described herein with references to the drawings in which:

FIG. 1 is an elevational view of one side of a box constructed in accordance with the teachings of this invention;

FIG. 2 is an elevational view of the opposite side of the box illustrated in FIG. 1;

FIG. 3 is an elevational view illustrating the "snap-off" or tilting action of the cover to unseat the same and a portion of the hand of a person opening the box is shown in the figure to illustrate the ease with which the box may be opened by the unseating of the cover;

FIG. 4A is an elevational view of the box as shown in FIG. 1 with the cover removed therefrom and in position to be placed thereon;

FIG. 4B is an elevational fragmentary view of a portion of the box disclosed in FIG. 4A in an intermediate state of complete closing which is a stage in the closing process wherein the box is further closed than it is as illustrated in FIG. 4A; and

FIG. 4C is an elevational fragmentary view of the type shown in FIG. 4B illustrating the cover and container in the completely closed condition with the cover embracing portions of the container in order to sealingly close the box.

Referring more particularly to the drawing, there is shown such a type of circular box for use in containing semi-solid materials, particularly shoe polishes or creams, or the like. This box comprises a conventional type of container portion **10** having an outwardly formed peripheral ledge **11** which provides with the container an upwardly facing channel **12** intermediate the bottom wall **13** and the top peripheral edge **14**, herein shown as being provided with an outwardly expanded, rolled-over, beaded edge portion around which the proper seal is effected by engagement with the cover portion about to be described.

The cover portion or member **15** is different in many respects from the type of cover heretofore generally used in this particular connection. Top surface **16** of cover **15** is provided with a circular peripheral edge **17**. As seen in the figures, the top surface **16** can be slightly raised in the center thereof as at **16*a*** for purposes of stacking wherein the raised portion is designed and proportioned to fit into a recess for receiving the same in the bottom wall of the container. Whether such raised portion **16*a*** is provided or not is not important insofar as the invention presented herewith is concerned. It is important, however, that the peripheral edge **17** define a circle having a diameter greater than the diameter of the circle defined by the bead **14** on the container. The cover portion or member has a peripheral skirt **18** which extends downwardly from the periphery of the top wall **16** which has been designated an edge and indicated by the numeral **17** in the figures. The skirt portion **18** is circular and defines a circle having a diameter lesser than the diameter of the circle formed by edge **17**. The skirt portion **18** is straight throughout its entire inner and outer area by which is meant that it has no rolled edges of any kind, no outward flares and no indentations. The skirt is joined with edge **17** by constantly decreasing diameter portion **19** which has its top edge edjacent edge **17** and its lower edge forming with the upper edge of skirt **18** inwardly bending knuckle **20**. The cover, therefore, in addition to its top wall, contains a peripheral edge **17** and a skirt **18** of lesser diameter than peripheral edge **17** which are joined together by portion **19** and at the point of juncture of the skirt and portion **19** a knuckle **20** is formed. The cover is formed of sheet metal in this particular embodiment and it is contemplated that other resilient materials can be used as well and the skirt as will be explained below is readily passed over bead **14** of the

container in order to place or have placed the cover portion on the container portion of the box.

Skirt 18 is provided with at least one and preferably two portions that are cut-out, that is, cut away as at 21 and 22, the former being of greater magnitude than the latter. In between such cut-out portions and opposite from each other, the skirt terminates in two peripheral straight edge sections 23 and 24 that are adapted to seat throughout their entire lengths against the ledge 11 and within channel 12 when the cover is placed in sealed engagement with the bottom or container portion of the box. Thus, it will appear that the larger cut-out portion 22 which preferably is arcuate, has terminal ends which, together with the adjacent terminal ends of the straight edges, form spaced-apart fulcrum points 25 around which to tilt the cover to unseat the same by pressure in the area of the cut-out portion 22.

While a smaller cut-out portion 21 is shown, it will be observed that the area of the cut-out portion is not sufficient to provide functional fulcrum points where the arcuate portions terminate and join the straight edges opposite the fulcrum points 25. Such points are not spaced inwardly or far enough apart to give such action; but such cut-out portion relieves the tensioning of the skirt in this area whereby easier tilting or upsetting is accomplished by pressure in the area of the cut-out 22; and this is so without sacrificing any of the hermetic sealing characteristics between the bead 14 and the straight skirt portion 18. If it is desired, however, the cut-portion 21 can be made larger so that fulcrum points are previded at its edges as well as at the edges or end positions of cut-out 22.

Referring now to FIGS. 4A, 4B, and 4C, the ease with which the cover portion can be placed upon the container portion to effect sealing engagement therewith can be seen. In FIG. 4A is illustrated a box with the cover portion thereof in position to be applied to the container. Skirt 18 is illustrated in FIG. 4A. The lower edge of skirt 18 is in adjacency in the first instance with bevel 14. The preferred form of this invention is such that the diameter of the circumference defined by knuckle 20 and the diameter of skirt 18 are less than the outside diameter of bevel edge 14. As the cover is drawn from its initial closing position, as illustrated in FIG. 4A, to an intermediate condition of closing, as illustrated in FIG. 4B, the resiliency of the material from which the cover is formed allows skirt 18 to change diameter as it is drawn over bead 14. Due to the presence of knuckle 20 whereas in the initial stage of closing as illustrated in FIG. 4A, the lower edge of the skirt is tending away from the container after the lower edge has passed over bead 14 due to the increase of the diameter of the circle formed by knuckle 20, as knuckle 20 approaches bead 14 the lower edge of skirt 18 tends to return to the container so that in the closed condition as shown in FIG. 4C the bead 14 lies beneath knuckle 20 but closer to the same than it is to the lower edge of skirt 18 which is directed inwardly into channel 12 formed by ledge 11. Returning to FIG. 4A, it is seen that as the cover is initially applied to the container and the lower edge of skirt 18 engages bead 14 the lower edge of the skirt forms a circle of greater diameter than the diameter of the circle formed by knuckle 20, whereas, in the finally closed position as shown in FIG. 4C, the lower edge of skirt 18 forms a circle of lesser diameter than the circle formed by knuckle 20. In intermediate positions of closing the resiliency of the cover results in a varying of the skirt diameter.

The presence of knuckle 20 and decreasd diameter portion 18 together with edge 17 and joining portion 19 provides the cover with a skirt which has sufficient diameter to enable it to be easily engaged with bead 14 and which will allow it to be drawn over bead 14 with a minimum of force. As the skirt is drawn over bead 14 the configuration of the cover causes the lower edge of the skirt to decrease in diameter so that in its completely closed position the upper portion of the skirt forms a circle of greater diameter than the lower portion which seats readily in channel 12. The resulting box is in its closed condition sealed because of the firm manner in which the skirt embraces bead 14. Additionally it has been found that it is very simple to close a box having a cover of such configuration.

This invention is, as was stated above, an improvement over a disclosure in a co-pending application. In the aforementioned copending application the cover of the box was of a different configuration so that as the skirt shown therein is drawn over the bead on the container shown therein, the lower edge of the skirt continually increases in diameter so that in the final closed position the circle defined by the lowermost portion of the skirt is of greater diameter than the cricle defined by the upper portion of the skirt. In the invention presented herein the opposite is the case since in the final stage of closing as shown in FIG. 4C the circle defined by the lower portion of the skirt has a lesser diameter than the circle defined by the upper portion of the skirt. In addition to providing a cover which is more easily closed and one that is completely closed and engaged with a minimum of force or effort applied to the top surface thereof, there is also provided by the subject invention a superior seal.

An additional improvement results from the structure disclosed herein. In FIG. 3 the box which is the subject of this invention is illustrated being opened. It is seen in FIG.3 that the opening of the box is being accomplished by pivoting the cover about pivot points 25, one of which is shown in the figure. Pivot points 25 as afore described set upon a ledge 11 and the pivoting action is accomplished by the pressing on the cover in the region above the cut-out portion 22. In the improved form of box as presented herein, the edge of the cover as described above which has been indicated by the numeral 17 in the figures, has a diameter greater than the diameter of the bead or the remaining portions of the cover. By application of force to cover 16 in the region above cut-out 22 on edge 17 the cover will readily snap up. The increased diameter of the circle formed by edge 17 results in displacing the point of application of pivoting force so that the application of the force can operate to result in a turning or pivoting moment such that the moment arm is greater than in boxes of this type heretofore presented. Thus a construction such as disclosed in FIG. 3 allows a box of this type to be opened with two fingers of one hand. As seen in FIG. 3 the force is applied to the edge 17 whereat the arrow labeled A is placed. The force is applied and the cover pivots about pivots 25 and snaps open when the skirt at cut-out portion 21 clears or arrives above bead 14.

It is seen, therefore, that the construction herein presented results in a box of the type described having superior sealing qualities as well as ease of opening and closing. This box can be opened or closed with one hand, with a minimum of force, and without resulting in the contents thereof becoming disposed upon the hand or the outside of the box. This box presents a design which accomplishes that which was heretofore unaccomplished. Heretofore, it was accepted in the trade that in order to obtain a greater sealing effect ease of opening and closing would have to be sacrificed. In the present invention the applicants embody a structure which in addition to having superior sealing qualities can be easily opened or closed.

Thus, among others, the several objects in the invention as specifically aforenoted are achieved. Obviously, numerous changes in construction and rearrangement of parts might be resorted to without departing from the spirit of the invention as defined by the claims.

We claim:

1. In a box of the character described, adapted for use in containing semi-solid materials such as shoe polish, and the like, which comprises a bottom container portion,

and a snap-off type of hermetically sealable cover portion therefor: said container portion including an upwardly extending circular side wall with a top beaded edge and an outwardly formed peripheral ledge intermediate said side wall; said cover portion having a top circular surface with a peripheral edge of greater diameter than said beaded edge, a downwardly extending circular skirt of said cover with a circumference thereof having a decreased diameter sealingly to overlie and embrace said bead, a downwardly directed portion of said cover of constantly decreasing diameter joining said skirt, an inwardly directed circumferential knuckle formed by the juncture of said downwardly directed portion of said cover and said skirt, said knuckle being disposed above said bead when the cover is secured to said bottom container portion, said skirt terminating in two oppositely disposed, peripheral edge sections adapted to seat throughout their entire lengths against said ledge, said sections being formed by an area of said skirt that is cut-out so as to provide a space between said skirt and said ledge when said cover portion is closed over said container portion, whereby downward pressure on said peripheral edge above said cut-out will unseat the same as the ends of said straight edge sections adjacent said cut-out are pivoted against said ledge.

2. A box in accordance with claim 1 in which the skirt is formed of resilient material whereby its circumference can change as it is drawn over the bead.

3. A box in accordance with claim 1 in which the cover is formed of a resilient material whereby the diameter of the knuckle can change as the skirt is drawn over said bead.

4. A box in accordance with claim 1 in which the skirt is cut-out so that the peripheral edge thereof is always between the bead and the ledge when the box is closed.

5. A box in accordance with claim 1 in which the lower edge of the skirt is directed outwardly in intermediate positions of closing until the bead is between the knuckle and the cut-out edge.

References Cited in the file of this patent

UNITED STATES PATENTS

669,964 Walsh ---------- Mar. 12, 1901

FOREIGN PATENTS

459,757 Great Britain ---------- Jan. 14, 1937