United States Patent

Franklin

[15] **3,650,427**

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[54] TWO PIECE DOUBLE WALLED CONTAINER

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[52] **U.S. Cl.** .....**215/13 R,** 220/15
[51] **Int. Cl.** **A41j 41/00**
[58] **Field of Search** .....215/13 R, 12 A; 220/15

[56] **References Cited**

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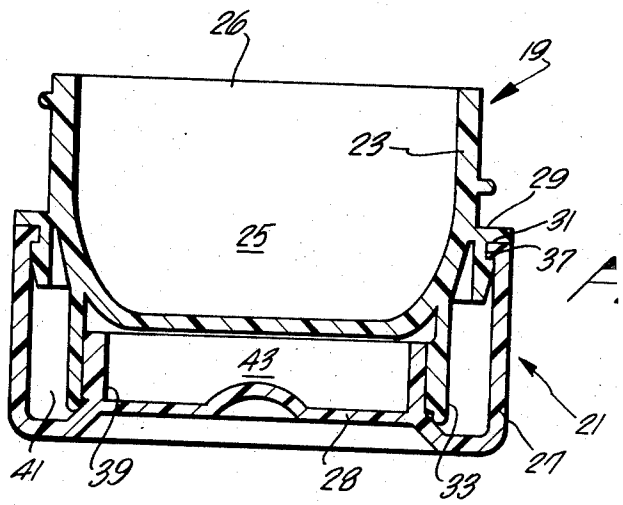
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Primary Examiner—William T. Dixson, Jr.
Assistant Examiner—James R. Garrett
Attorney—Jackson & Jones

[57] **ABSTRACT**

A two piece double walled container is disclosed comprising a first and second element. The first element is a cup-shaped member having a cylindrical wall and a bottom wall forming a compartment for receiving cosmetics or the like. The second element is also of a cup-shaped configuration having a cylindrical and bottom walls of slightly larger dimensions in order to extend over the first element in a spaced relationship to form an insulative thermal air pocket therebetween. The coupling means for uniting the two elements comprises a grooved annular collar formed on the periphery of the cylindrical wall of the first element for receiving a plurality of projections extending inwardly from the rim of the second element. A pair of tightly fitting frictionally interengaging tubular extensions are formed on the bottom walls of both elements in a coaxial relationship with respect to the cylindrical walls. The interengaging tubular extensions function to absorb any bending or axial loads applied to the two elements and to increase the frictional interengagement therebetween upon the application of the loads in order to prevent the two elements from being separated.

12 Claims, 4 Drawing Figures



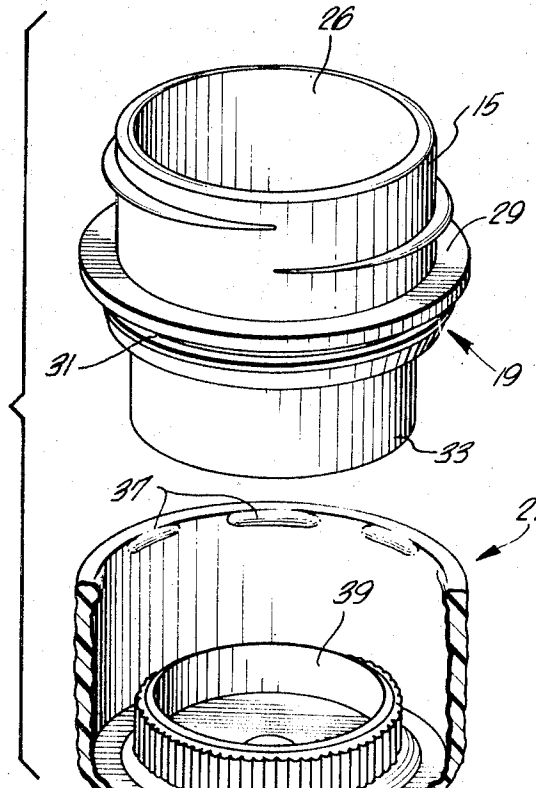


FIG. 3

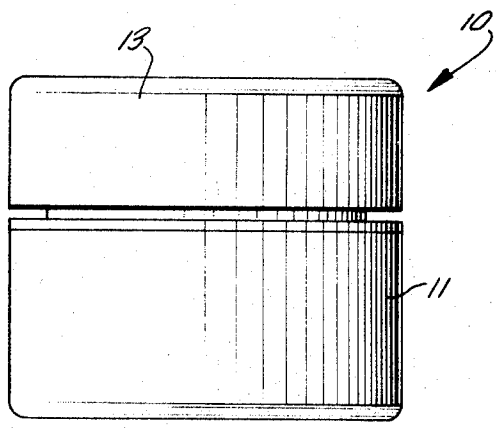


FIG. 1

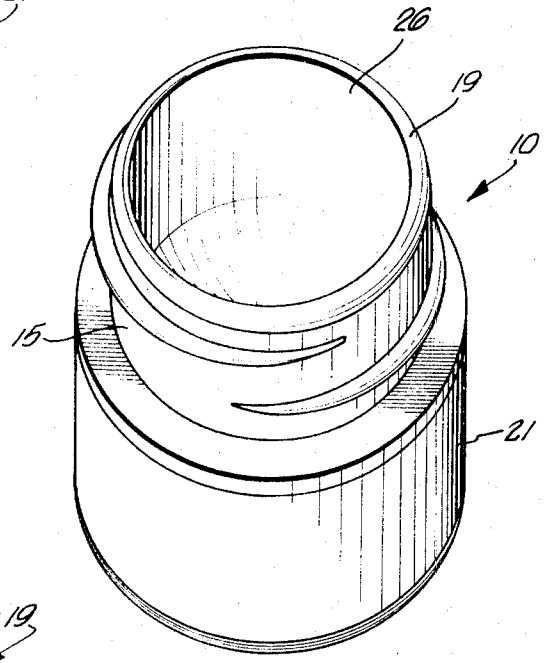


FIG. 2

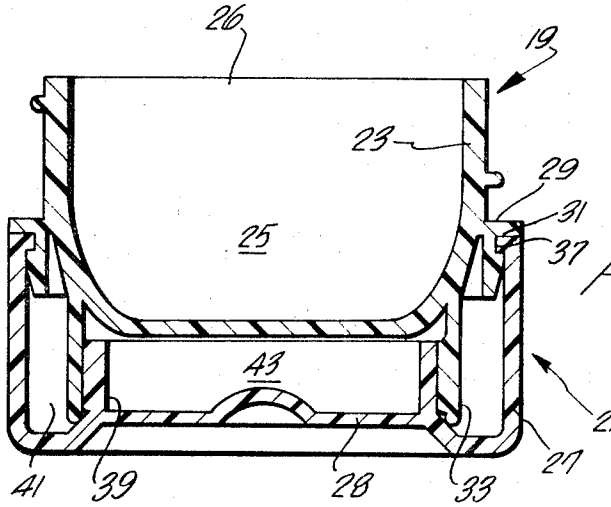


FIG. 4

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TWO PIECE DOUBLE WALLED CONTAINER

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to two piece double walled containers for packaging cosmetics and the like and more particularly to means for mechanically securing and locking the two pieces to form an integral unit.

2. Description of the Prior Art

In the cosmetic industry, the early conventional packaging medium for cosmetics had been the standard opal glass jars. Having low thermal conductivity, such jars were utilized to provide an adequate insulation for the contained cosmetics. However, because of their many disadvantages, among which include the relatively large expense of fabrication and the susceptibility to breakage, opal glass jars soon found disfavor with the packaging industry. As a result plastic containers have become the most popular medium for packaging cosmetics, mainly because they are cheaper to fabricate and are unbreakable.

One type of plastic container has been the two piece double walled container. The double wall construction, of course, provides the thermal air insulation necessary for the heat sensitive cosmetic formulations.

Such containers usually include two elements, an inner element and an outer insulative element. The inner element of the two piece construction forms the compartment for containing the cosmetics and is usually made of polypropylene. Such a material is preferred since it is chemically inert to a great majority of products used in cosmetics. The outer element of the container forming the insulative wall is usually made of styrene. The reason this material is preferred is because of its capability of being decoratively enhanced.

Although such plastic containers are currently being used, they all suffer from one serious shortcoming which has severely restricted their widespread utilization. This shortcoming is that, heretofore, no one has been able to satisfactorily unite the two elements securely and prevent them from being separated. Because the two elements are made of different materials it has been found that they can not be cemented together with adhesives.

As a result, these two elements are usually united by mechanical means. The coupling means usually comprise some type of snap-in arrangement in which a rim from one element is adapted to be snapped into engagement with a groove of the other element. However, this is unsatisfactory, since any pulling force on the two elements causes the coupling means to become disengaged and the two elements to separate. This, of course, is undesirable. Other coupling arrangements have been utilized, but none of them have sufficient strength to prevent the two elements from being separated when pulling forces were applied.

SUMMARY OF THE INVENTION

The present invention obviates the above mentioned shortcoming by providing a novel coupling arrangement for a two piece double walled container which functions to prevent the two elements from being separated by the exertion of any outside pulling forces. The container utilizing the novel coupling arrangement comprises a first and second element. The first element is of a cup-shaped configuration having a cylindrical sidewall and a bottom wall forming a compartment therein for containing the cosmetics. The second element is also of a cup-shaped configuration having a cylindrical sidewall and a bottom wall of slightly larger dimensions in order to extend over the first element in a spaced relationship to form an insulative thermal air pocket therebetween. The coupling means comprises a double interengaging locking arrangement. The first interengaging means comprises a grooved annular collar formed on the periphery of the cylindrical wall of the first element. The rim of the cylindrical wall of the second element includes a plurality of projections extending inwardly therefrom for engaging the grooved collar of the first element. The second interengaging means comprises a tubular extension extending downwardly from the bottom wall of the first element and is adapted to extend over and snugly frictionally engage a tubular extension extending upwardly from the bottom wall of the second element. The interengaging tubular extensions are coaxially positioned with respect to the cylindrical walls of the elements. The tubular extension of the second element functions to be movable with its cylindrical and bottom walls to act as a load bearing member and to increase the frictional interengagement between the tubular extensions upon the application of any external loads to prevent the two elements from becoming separated. The interengaging surfaces of the tubular extensions are also splined in order to prevent any twisting of relative rotation between the two elements.

As a result of the novel coupling means of the present invention, a two piece, double walled container can now be easily assembled into a unitary article that can not be separated during use.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objects and advantages thereof, may best be understood by reference to the following description, taken in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the two piece double walled container of the present invention;

FIG. 2 is a perspective view of the double walled container with the closure cap removed;

FIG. 3 is an exploded view, partially broken away, of the two elements forming the container; and

FIG. 4 is a sectional view of the two piece container taken along lines 4—4 of FIG. 3.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, FIGS. 1 and 2 show the overall outward appearance of a container, generally indicated by arrow **10**, having a main body portion **11** and a cap member **13**. The cap member **13** functions in a conventional manner by having an internal threaded surface which is adapted to be connected to a threaded cap receiving portion **15** of the main body member **11**.

FIG. 3 shows an exploded view of the main body member **11** which comprises a first inner element **19** and a second outer element **21**. Each element is of a molded unitary plastic construction with the element **19** preferably made of polypropylene, while the element **21** is preferably made of styrene. The first inner element **19** is of a cup-shaped configuration having a cylindrical wall **23** and a bottom wall **25** forming a compartment **26** for containing a quantity of cosmetics. The second outer element **21** is also of a cup-shaped configuration having a cylindrical wall **27** and a bottom wall **28** of larger dimensions to permit the second element **21** to extend over the first element **19** in a spaced relationship.

The cylindrical wall **23** further includes an annular flange **29** formed thereon having a groove **31** extending about the periphery thereof. The first element **19** also includes a tubular extension **33** extending downwardly from the bottom wall **25**.

The second element **21** further includes a plurality of projections **37** extending inwardly about the rim of the cylindrical wall **27**. The second element further includes a tubular extension **39** extending upwardly from the bottom wall **28**.

As shown in FIG. 4, the plurality of projections **37** of the wall **27** are adapted to extend into and engage the groove **31** of the first element **19**. This snap-in arrangement is possible because of the relative flexibility of the cylindrical wall **27**. As also shown in FIG. 4, the tubular extension **39** is adapted to extend into and snugly engage the inner surface of the tubular extension **33** of the first element **19**. It should also be noted that the interengaging surfaces are splined to prevent any relative rotation between the elements.

In this assembled form, the walls **23** and **27** of the first and second elements **19** and **21**, respectively, are spaced from one another with the space therebetween forming a thermal air pocket **41**. Likewise, because of the spacing caused by the tubular extensions **33** and **39**, a bottom thermal air pocket **43** is formed between the bottom walls **25** and **28** of the respective elements **19** and **21**. Such thermal air pockets function to insulate the cosmetic formulations in the compartments **26** from the atmosphere. It has been found that this type of insulated packaging is capable of protecting cosmetic formulations from heat ranging from above 110° F. to below 40° F.

The elements **19** and **21** can be easily united in the position shown in FIG. **4** by inserting the element **19** within element **21**, mating the tubular extension **33** with tubular extension **39**, and snapping the projections **37** into the groove **31**. In its assembled configuration, the coupling means function to maintain the two elements **19** and **21** in an interlocked position and prevent them from separating. This is accomplished because any forces acting on the elements which would tend to cause them to separate would be absorbed mainly by the interengaging tubular extensions. For example, a bending force exerted on the element **21** in the clockwise direction on the device shown in FIG. **4** would tend to pull the right corner of the rim portion of the cylindrical wall **27** out of engagement with the groove **31**. However, such a bending load acting on that corner would be transferred down the wall **27**, across the bottom wall **28** and up the tubular extension **39**, causing it to bend in the same direction. But instead of moving out of engagement, as the right hand corner does, the tubular extension **39** is forced into greater frictional engagement with the tubular extension **33**. Moreover, if an axial load is applied to separate the elements **19** and **21**, the entire rim of the element **21** would be forced outwardly tending to become disengaged with the groove **31**. When this occurs, this outward flexing of the cylindrical wall **27** causes the bottom wall **28** to bow upwardly. This movement, in turn, causes the entire tubular extension **39** to flex outwardly in a radial direction to again increase the frictional engagement between the tubular extensions. As can be seen, no matter whether the force is a bending force or an axial force, such loads are absorbed by the interengaging tubular extensions and a load path is set up between the two elements. Because of the relative rigidity of the two elements, the load paths created are able to absorb very high loads without becoming disengaged. Usually the wall structure of the two elements will break before the coupling means would become disengaged. This, of course, exceeds by far the force requirements on the two elements. As a result, no matter how great the force, short of destroying the wall structure of the elements, the load bearing member will remain interengaged and not frictionally slip out of engagement. This, therefore, guarantees the two elements from becoming separated during use.

It should be noted that various modifications can be made to the apparatus while still remaining within the purview of the following claims. For example, the container can be made in any size. Moreover, because the outer element of the container is preferably made of styrene, this material can be easily formed to any desired shape and can be finished with any desired color or surface texture.

What is claimed is:

1. A container comprising a first cup-shaped element having a cylindrical sidewall and a bottom wall forming a compartment therein;

a second cup-shaped element having a cylindrical sidewall and a bottom wall, said second cup-shaped element extending around and beneath said first cup-shaped element; and

coupling means comprising an annular collar formed on the cylindrical wall of said first element having a radially outwardly opening groove extending circumferentially about the periphery thereof, a projection means extending inwardly from the rim of said second element for engaging the grooved collar of said first element, and means for frictionally interengaging the bottom walls of said first and second element in such a manner that any external forces acting on the elements tending to separate same will increase the frictional engagement of said interengaging means.

2. The invention of claim **1** wherein said interengaging means comprises a tubular extension extending downwardly from the bottom wall of said first element and a second tubular extension extending upwardly from the bottom wall of said second element and into frictional engagement with the interior surface of said first tubular extension.

3. The invention of claim **2** wherein the frictional interengaging surfaces of said first and second tubular extensions are splined.

4. The invention of claim **2** wherein the cylindrical and bottom walls of said second element are spaced from the cylindrical and bottom walls of said first element to form insulative thermal air pockets therebetween.

5. The invention of claim **3** wherein the cylindrical wall of said second element is relatively flexible and said projection means comprises a plurality of inwardly extending shoulders intermittently spaced about the periphery of the rim of the second element.

6. The invention of claim **5** wherein the bottom wall of said second element is also relatively flexible.

7. The invention of claim **6** wherein said interengaging tubular extensions are coaxially displaced in connection with said cylindrical walls of said first and second elements.

8. The invention of claim **1** wherein the first and second cup-shaped elements are formed into a unitary container, free of any cement, and wherein said container is further characterized in that said groove and said projection means cooperate with said inter-engaging means for preventing the first and second elements from being separated by vertical, rotational or bending forces applied to the first and second elements.

9. The invention of claim **8** wherein said interengaging means comprises:

a first tubular extension extending downwardly from the bottom wall of said first cup-shaped element and a second tubular extension coaxial with the first tubular extension and extending upwardly from the bottom wall of said second cup-shaped element, said first and second tubular extensions including frictional engaging surface means for locking said first and second cup-shaped elements together in such a manner that rotational or bending forces tending to separate same serve to increase the frictional engagement thereof.

10. The invention of claim **9** wherein said groove and said projection means lock said first and second cup-shaped elements together in such a manner that vertical forces, applied in opposite directions, along a vertical axis of the container tending to separate the same increase the frictional engagement of all of the means which lock the first and second elements into said unitary container.

11. The invention of claim **10** wherein said first cup-shaped element consists of molded polypropylene material that is chemically inert to cosmetics and the like; and wherein said second cup-shaped element consists of molded styrene material suitable for decoration.

12. The invention of claim **11** wherein said first and second cup-shaped elements are separated from each other in assembled form by thermally insulative air pockets.

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