April 13, 1937. B. F. CONNER 2,077,216

JAR

Filed Oct. 1, 1936

Fig. 1

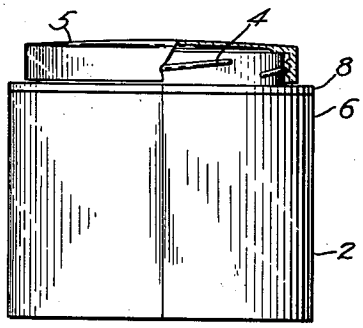


Fig. 2

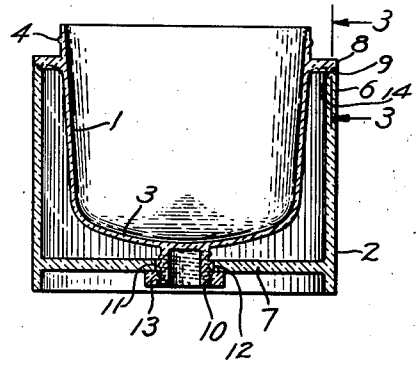


Fig. 3

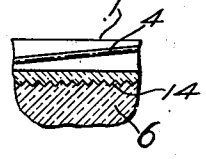


Fig. 5

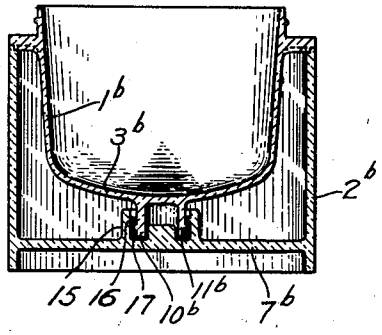
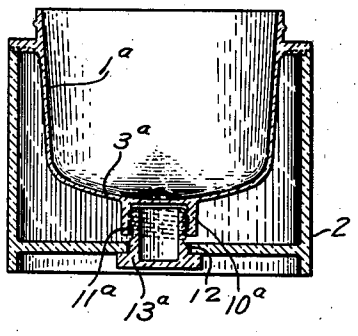


Fig. 4



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UNITED STATES PATENT OFFICE

2,077,216

JAR

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Application October 1, 1936, Serial No. 103,554

4 Claims. (Cl. 215—12)

This invention relates primarily to jars of the type disclosed in my-copending application for Jars, Serial No. 18,031, filed April 24, 1935, which jars are primarily intended for containing cosmetic preparations including salves, cold creams and other preparations of a pastelike consistency and also including powders. A jar of this type consists of two separate thin-walled members, each of which may be molded from a material of the synthetic resin class. The inner member is formed for engagement with a closure or cap and is adapted for containing the cream or other cosmetic preparation; and the outer or base member serves to support the inner or containing member and to provide at least a portion of the desired exterior contour or design. The two members are engaged with each other in such manner as to provide resistance to separation and in such manner as to prevent relative rotation. The two jar members are ordinarily formed of different materials. The difference between the two materials may be primarily a difference in color only, but usually it is necessary for the inner or containing member to be formed of a material highly resistant to the chemical action of the particular preparations which the jar is to contain. The outer or base member need not be so highly resistant to chemical action and for this a different and less expensive material may be used.

In my aforesaid application, of which this present application is a continuation-in-part, I have disclosed several embodiments of the invention which is therein broadly claimed; but the more specific claims of the said application are directed to those particular embodiments wherein the inner member and the outer member engage each other near the top of the jar and near the periphery thereof. The present application relates more specifically to those embodiments of the aforesaid broad invention wherein the inner or containing member and the outer or base member are positively connected with each other at their bottoms.

Firm engagement must be effected between the members to hold them in assembled relationship, frictional engagement being relied upon in the constructions to which the claims of the said prior application are particularly directed. In order to obtain such advantages as light weight, economy of material and satisfactory curing, the walls of the members are made quite thin, and they are therefore unavoidably somewhat fragile. When the frictional engagement is at or near the tops of the members, there is a tendency to break the thin walls, at least that of the outer member, when the members are forced together. In the constructions specifically claimed in the prior application, the shrinkage of the inner member to an extent greater than that of the outer member may cause the parts to fit so loosely as to be too readily separable from each other; or if the extent of shrinkage of the outer member is greater than that of the inner member, it may be impossible to assemble the parts at all, or attempted assembly may cause the breaking of one member or the other, usually the outer member, as already mentioned. The shrinkage of the parts may in some instances continue for a long period of time, with the result that breakage may occur long after the jar has left the manufacturer and is in the hands of the dealer or of the user.

In the constructions specifically claimed in the prior application, in addition to the difficulties due to differentials in shrinkage, further difficulties are encountered when the jar is used for a cosmetic cream or a similar product which is poured into the jar in a hot fluid or semi-fluid condition. The hot cream heats the jar, and more particularly the inner member thereof, and this heating and resultant greater expansion of the inner member may cause breakage of the outer member, even though the two members have resisted the initial strains resulting from assembly.

In my co-pending application for Jars, Serial No. 103,553 filed on even date herewith, I have disclosed and broadly claimed several alternative constructions wherein there is little or no frictional engagement between the two members at their upper peripheries where they are weakest and where their diameters are the greatest, and wherein the frictional engagement for holding the members in assembled relationship is effected at points which are near the bottom where the members are stronger. In the constructions shown in the last said application, the points of frictional engagement are preferably spaced inward from the peripheries so that the diameters are substantially less.

The constructions last above mentioned avoid any tendency to break or excessively stress the thin unsupported upper walls of the members under normal assembly conditions, and they also greatly minimize the difficulties which frequently arise, as already explained, from abnormal or unavoidable differences in shrinkage or expansion; but under some circumstances and with some materials it is preferable to entirely avoid any reliance whatsoever upon friction and to connect the two jar members with each other positively. In accordance with the present invention the said

members are connected as last above stated, preferably by means associated with their respective bottom walls.

In the accompanying drawing I have shown several embodiments of the invention, but it will be understood that the drawing is intended for illustrative purposes only and is not to be construed as defining or limiting the scope of the invention, the claims forming a part of this specification being relied upon for that purpose.

Of the drawing:

Fig. 1 is a side view of a jar embodying the invention, a portion of the closure being broken away to show the closure retaining threads.

Fig. 2 is a vertical central sectional view through the jar shown in Fig. 1, the closure being omitted.

Fig. 3 is a fragmentary vertical sectional view taken along the line 3—3 of Fig. 2.

Fig. 4 is a view similar to Fig. 2 but showing an alternative embodiment of the invention.

Fig. 5 is a view similar to Fig. 2 but showing another alternative embodiment of the invention.

Referring to the drawing and more particularly to Figs. 1, 2 and 3 thereof, 1 and 2 represent respectively the two main members constituting the jar. The member 1 is designated as the inner or containing member, and the member 2 is designated as the outer or base member.

The inner or containing member 1 is a thin-walled cup-shaped member preferably molded from a material of the synthetic resin class and it is preferably of such shape that its interior diameter at the top is at least as large as the interior diameter below the top. The bottom wall of the containing member is indicated at 3. The containing member 1 is threaded adjacent its upper periphery as indicated at 4, being thus adapted for engagement with a threaded closure 5 of the cap type.

The outer or base member 2 is so related to the containing member 1 as to permit the said containing member to be assembled vertically downward with respect thereto. The base member has a peripheral annular portion 6 which is in engagement adjacent its top with an annular portion of the containing member 1, and the base member preferably has a bottom wall 7 which is positioned beneath the containing member. While I do not necessarily so limit myself, the annular portion 6 of the base member is shown as surrounding the entire lower portion of the containing member and as being spaced outward therefrom. The containing member 1 is provided with a thin outward projecting annular flange 8 immediately below the threads at 4, this flange being of such size and so positioned that the bottom surface thereof is engaged by the top edge of the annular portion 6 of the base member. The elements 6 and 8 are shown as being provided at 9 with interengaging rabbets which serve to prevent lateral displacement of one of the members with respect to the other.

In accordance with the present invention I provide means structurally separate from the containing member and from the base member and engaging both of the said members to hold them in assembled relationship. The said structurally separate means may advantageously be associated with the bottom walls of the two members for connecting them in such manner as to positively prevent the members from separating. As shown in Fig. 2, the bottom wall 3 of the containing member 1 is provided with a downward extending plug 10 which is threaded as indicated at 11. The upper surface of the thread constitutes an upward exposed shoulder. The plug 10 extends through a hole 12 in the bottom wall 7 of the outer member 2, and the thread 11 is engaged by a threaded nut 13 which engages bottom surface of the bottom wall 7. The plug 10 and the nut 13 thus serve to prevent relative upward movement of the containing member.

Preferably serrations are provided at 14 on the bottom of the flange 8 and on the top of the annular portion 6. These serrations interengage as shown in Fig. 3 to prevent relative rotative movement between the members when they are held together as already described.

Inasmuch as friction resulting from radial pressure is entirely eliminated as a factor in holding the jar members in assembled relationship, there is no tendency for the member to separate or be broken as the result of even extreme variations in shrinkage or in expansion.

In the alternative construction shown in Fig. 4, the inner or containing member 1^a is similar to the containing member 1 shown in Fig. 2, except that a different retaining means is provided at the bottom. The outer or base member 2 is or may be identical in construction with the member 2 shown in Fig. 2. Formed on the bottom wall 3^a of the containing member 1^a is a hollow boss 10^a which is internally threaded at 11^a. The upper surface of the thread constitutes an upward exposed shoulder. An externally threaded screw 13^a is provided which projects through the hole 12 in the bottom wall 7 and engages the internal thread 11^a of the boss 10^a. By virtue of the construction shown the two members are positively held against relative movement.

In the alternative construction shown in Fig. 5, the inner or containing member 1^b is similar to the members 1 and 1^a already described excepting that a different retaining means is provided at the bottom. The outer or base member 2^b is or may be similar to the member 2 already described, except that a different retaining means is provided at the bottom. As shown, the bottom wall 3^b of the member 1^b is provided with a downward extending hollow plug 10^b which is provided with an external projection or thread 11^b the upper surface of the projection or thread constituting an upward facing shoulder. Formed on the bottom wall 7^b of the member 2^b is a hollow or apertured boss 15 constituting a socket for receiving the plug 10^b. The interior surface of the socket is provided with an internal projection or thread 16, the lower surface of which constitutes a downward facing shoulder. The projections or threads 11^b and 15 do not directly engage with each other, and in order that the parts may be held in the desired relationship the socket is filled with a body 17 of a hardened plastic material as for instance sealing wax. It will be understood that in assembly a small quantity of molten wax is pourned into the socket 15, the inner member being then put in place while the wax is still soft. As the wax hardens it forms a rigid connection between the projections or threads 11^b and 16, and it thus holds the two members 1^b and 2^b in their proper relative positions.

What I claim is:

1. The combination in a jar of the class described, of a thin-walled cup-shaped molded containing member adapted at its upper periphery for engagement with a closure of the cap type and having its interior diameter at

the top at least as large as is the interior diameter below the top, a base member adapted to permit the said containing member to be assembled vertically downward with respect thereto, the said base member having a peripheral annular portion which is in engagement adjacent its top with an annular portion of the containing member and having a centrally apertured bottom wall positioned beneath the containing member, interengaging means on the said annular portion of the base member and on the annular portion of the containing member for positively preventing relative rotation between the said members, a downward extending projection on the bottom of the containing member having an upward facing shoulder thereon, and means engaging the centrally apertured bottom wall of the base member and engaging the said shoulder on the projection to positively prevent relative upward movement of the containing member.

2. The combination in a jar of the class described, of a thin-walled cup-shaped molded containing member externally threaded adjacent its upper periphery for engagement with a closure of the cap type and having its interior diameter at the top at least as large as is the interior diameter below the top, the said member having a thin outward projecting annular flange immediately below the thread, a molded base member adapted to permit the said containing member to be assembled vertically downward with respect thereto, the said base member having an annular portion which surrounds the containing member and is in engagement at its top edge with the bottom surface of the said flange and having a bottom wall positioned beneath the containing member, interengaging means on the said annular portion of the base member and on the flange of the containing member for positively preventing relative rotation between the said members, a downward extending projection on the bottom of the containing member having an upward facing shoulder thereon, and means engaging the bottom wall of the base member and engaging the said shoulder on the projection to positively prevent relative upward movement of the containing member.

3. The combination in a jar of the class described, of a thin-walled cup-shaped molded containing member adapted at its upper periphery for engagement with a closure of the cap type and having its interior diameter at the top at least as large as is the interior diameter below the top, a base member adapted to permit the said containing member to be assembled vertically downward with respect thereto and having a centrally apertured bottom wall positioned beneath the containing member, the said base member having a peripheral annular portion which is in engagement adjacent its top edge with an annular portion of the containing member, a downward extending threaded projection on the bottom of the containing member positioned in register with the aperture in the bottom wall of the base member, and an independently rotatable nut engaging the bottom surface of the bottom wall of the base member adjacent the said aperture and having threaded engagement with the projection on the containing member to hold the latter in place.

4. The combination in a jar of the class described, of a thin-walled cup-shaped molded containing member adapted at its upper periphery for engagement with a closure of the cap type and having its interior diameter at the top at least as large as is the interior diameter below the top, a molded base member adapted to permit the said containing member to be assembled vertically downward with respect thereto, the said base member having a peripheral annular portion which is in engagement adjacent its top with an annular portion of the containing member and having a bottom wall positioned beneath the containing member, a downward extending projection on the bottom of the containing member having an upward facing shoulder thereon, a socket on the bottom wall of the base member positioned to receive the said projection and having a downward facing shoulder therein, and a body of hardened plastic material in the socket surrounding the projection and serving to positively prevent upward movement of the containing member.

BENJAMIN F. CONNER.