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M. P. KEITH

2,330,896

CLOSURE

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Fig. 1.

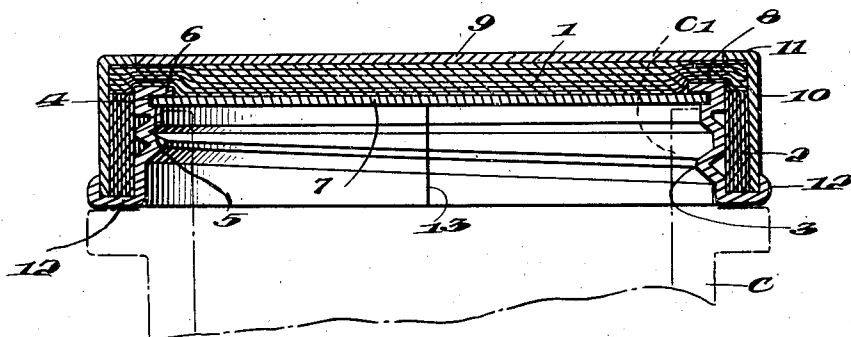


Fig. 2.

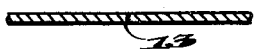


Fig. 5.

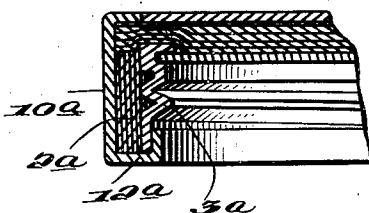
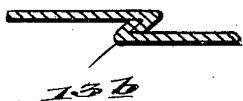


Fig. 3.



Fig. 4.



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CLOSURE

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13 Claims. (Cl. 215—43)

This invention relates to an improvement in closures for bottles, jars, and other containers, particularly of the type adapted to be removably attached thereto as for instance by screw-threads or other connecting means.

It has been proposed heretofore to construct such closures from a metal hood carrying a screw ring on the inside thereof, but this requires sufficient metal to extend over the entire top of the container, which renders the construction relatively expensive, especially when metal for this purpose is scarce because of its need in other industries, and this is especially true where the closure is constructed of a double hood, having separate portions extending over the top. Furthermore, such prior hood construction is not entirely satisfactory or practical for deep caps, and it does not lend itself readily to all manners of decoration.

The object of this invention is to improve the construction of the closure, so that it may be manufactured at a very great saving of material and labor reducing substantially the amount of metal required in the closure, and making it possible to use paper or other sheet material for the construction thereof, which reduces the cost of the closure to a very small fraction of what it would be if made from metal, and especially when formed of one or more shells as has been proposed heretofore. Furthermore, decorations are possible that cannot be furnished in any other form of closure, and in sizes to fit any package. The complete closure may be sprayed or otherwise decorated with varnishes and colors. Deep caps are possible to an extent not practically manufactured heretofore. The weight of the closure is greatly reduced as compared with the heavier metal construction or molded products. Impregnated paper and other material may be used that will permit storage in either damp or hot places with less liability to damage than are the metal and molded closures.

This object is accomplished by the attachment of a securing ring to a paper or other non-metallic body portion which nevertheless is so assembled as to provide a rigid structure which will securely seal the container and may be detachably secured thereto. A side wall and cover disc are secured to the ring in a manner which provides the necessary rigidity and strength for the closure while yet permitting it to be constructed preferably of paper or other non-metallic material, at low cost and of light weight.

A preferred embodiment of the invention is

shown in the accompanying drawing, together with modifications thereof, in which:

Fig. 1 is a cross section through the preferred form of closure;

Fig. 2 is a detail cross section through the ring joint;

Fig. 3 is a similar view showing a modified form of ring joint;

Fig. 4 is a similar view showing another modified form of ring joint; and

Fig. 5 is a cross section through a portion of a modified form of closure.

The invention is shown as applicable for the sealing of containers of the type indicated at C, having a screw neck C1, thereon which is externally screw-threaded and forms the inlet and outlet for the container.

The closure is constructed of a top or cover disc 1, preferably formed of laminated paper or other suitable material, having the laminations thereof adhesively secured together in the form of a rigid unitary structure. The outer periphery of the cover disc 1 has a side wall 2 arranged therearound, which side wall also is preferably formed of paper in the form of a coiled strip wound in several layers adhesively secured together. The top edge of the side wall 2 may be secured by adhesive to the bottom of the top disc 1, if desired for better strength, although it may be left unsealed if such added strength is not required, or if it is otherwise secured thereto.

Secured on the inner sides of the top disc 1 and side wall 2 is a guide ring 3, shown as formed of thin sheet metal, which is somewhat resilient, and having the body portion thereof screw-threaded or otherwise formed to interengage with, or to be secured upon the neck C1 of the container. This ring may be formed of paper, impregnated paper, or other material, where the added strength and pressure of a metal ring is not needed. The ring of relatively narrow width, rather than in the form of a shell that extends entirely across the top of the container, is exceptionally economical due to its saving in material and its capability of manufacture from strip material on an ordinary wire-forming machine.

At its upper edge, the ring 3 has a groove 4 formed therein, one side of which groove is formed by a shoulder 5 provided by a re-entrant portion of the metal while the other side thereof is formed by an intumed flange 6 at the upper edge of the ring. This groove 4 receives the peripheral edge of a liner 7 formed of any suitable lining material, and when inserted in place, is securely retained in the closure.

The top disc 1 has an annular groove 8 pressed into the bottom surface thereof during its blanking operation to receive the flange 6 formed on the ring so as to permit the liner 7 to fit directly against the under surface of the top disc 1.

The top disc 1 is shown as provided with a label 9 on the top surface thereof to provide a top decoration. This label 9 may be formed of paper or other material of any desired color or shape, embossed if desired. It may be printed or otherwise decorated or covered with foil or other decoration, as may be desired. A side decoration strip 10 is also provided, which may be decorated to any desired extent, and this strip 10 extends substantially throughout the height of the side wall 2 and the edge of the top disc 1, having a flange 11 overlapping the top of the disc 1, so as to bind said top disc and side wall securely together, thereby furnishing extra support for the entire structure. This side decorating strip 10 is preferably adhesively secured to the adjacent parts of the closure. The lower edge of the ring 3 has an out-turned flange 12 formed thereon extending beneath and around the lower edges of the side wall 2 and decorating strip 10, embracing the latter and securing the same rigidly to the ring. This locks the parts together in a complete rigid structure.

The ring 3 is formed preferably of thin resilient material split transversely to facilitate the assembly thereof, and shown in Figs. 1 and 2, as having a butt end joint 13 therein, although these ends may be overlapped as shown at 13a in Fig. 3, or hooked together as shown at 13b in Fig. 4, if desired, while yet allowing compression and expansion of the ring for insertion into the structure and secure attachment thereto.

The top disc 1 and side wall 2 are usually formed and assembled substantially in the relation shown in Fig. 1 and secured together either by adhesive attachment or by means of the side decorating strip 10 which should likewise be applied thereto. The ring 3 may be inserted then, being compressed with its ends overlapping, and after being moved into the assembled wall and top structure, the expansive action of the sheet metal will cause it to move to its proper position. The liner 7 may be inserted as it is stamped out, by applying a pushing action to its edges which causes them to slip over the threads in the ring and over the shoulder 5, expanding in the groove 4 to allow its center to snap in directly against the bottom face of the top disc 1. This liner 7 then holds the split ring in expanded condition, against accidental compression. By crimping the flange 12 around the lower edges of the side wall 2 and decorating strip 10, these parts are tied securely together while the side decorating strip 10 also serves to hold the top disc 1 in properly assembled relation and adds strength to the entire structure.

Instead of constructing the ring of sheet metal, it may be formed of paper or other suitable material as desired, as shown in Fig. 5, but in this event, the side decorating strip 10a preferably extends around the lower edges of the side wall 2a and ring 3a, in the form of a flange 12a, overlapping the inner edge of said ring and thereby securing the parts together without the necessity for metal construction.

As the invention thus constructs the closure of paper or other non-metallic material throughout or the major portion thereof, a tremendous saving is effected in the cost of manufacture, while still producing a structure that will ef-

fectively seal and close the container. Not only is the closure thus provided at less cost, but its lighter weight enables it to be transported at less expense and its construction enables it to be used in shapes or sizes not thought possible in other closures provided heretofore, particularly those formed of a one-piece shell having integral ring and top. Furthermore, it lends itself to attractive decoration to a greater extent than is usually possible with a sheet metal shell construction.

I claim:

1. A closure comprising a top disc, a side wall of non-metallic material extending about the periphery thereof and secured thereto, a guide ring secured inwardly of the side wall and internally threaded for adjustable connection with a container, said guide ring having an inturned flange at the upper edge portion thereof underlying the top disc and projecting inwardly beyond the inner edge of the threaded portion thereof in position to overlap the upper end of the container, and a liner disc having the periphery thereof underlying said flange for pressure engagement thereagainst by the pressure of the container.

2. A closure comprising a top disc, a side wall structure extending about the periphery thereof and secured thereto, said side wall structure including a guide ring inwardly thereof and internally threaded for adjustable connection with a container, said side wall structure having an inturned flange at the upper portion thereof underlying the top disc and projecting inwardly in overlapping relation with the threaded portion of the guide ring in position to overlap the upper end of the container, and a liner disc having the periphery thereof underlying said flange for pressure engagement thereagainst by the pressure of the container.

3. A closure comprising a top disc, a side wall extending about the periphery thereof, a decorating strip extending about the peripheral portions of the side wall and top disc and rigidly securing the same together, an internal split ring within the side wall and bearing against the underside of the top disc, said ring having means for securing the closure on a container, and means for holding the ring in expanded condition.

4. A closure comprising a top disc, a side wall extending about the periphery thereof, a decorating strip extending about the peripheral portions of the side wall and top disc and rigidly securing the same together, a transversely split internal guide ring bearing peripherally against the side wall and having its upper edge bearing against the underside of the top disc, means connected with said ring for attaching the closure to a container, said ring having an internal groove in the upper edge portion thereof, and a liner disc inserted in said groove and holding the ring in expanded condition.

5. A closure comprising a top disc and side wall extending about the periphery of the top disc and both formed of laminated non-metallic material, a peripheral decorating strip overlapping the peripheral edge portions of said top disc and side wall and securing the same together, a split internal guide ring bearing against the inner side of the side wall, means for securing the lower edge of said ring to the side wall and strip, the upper edge of said ring having a groove therein and bearing against the underside of the top disc, and a liner sheet inserted in said groove and holding the ring in expanded condition.

6. A closure comprising a top disc, a side wall separate from the top disc and extending about the peripheral portion thereof, means for securing the side wall to the top disc, a transversely split internal guide ring within the side wall and bearing rigidly thereagainst, said guide ring having its upper edge bearing against the top disc and separate therefrom, said ring having an internal groove in the upper edge portion thereof, and a liner disc inserted in said groove and holding the ring in expanded condition.

7. A closure comprising a top disc, a side wall extending about the peripheral portion thereof and secured thereto, a transversely split internal guide ring within the side wall and bearing thereagainst adapted to secure the closure on a container, said guide ring having an internal groove in the upper edge portion thereof, and a liner disc inserted in said groove and holding the ring in expanded condition.

8. A closure comprising a top disc, a side wall extending about the peripheral portion thereof and secured thereto, an internal guide ring within the side wall and adapted to secure the closure on a container, said guide ring having an internal groove in the upper edge portion thereof, and a liner disc inserted in said groove over a substantial portion of the under surface of the top disc.

9. A closure comprising a top disc, a side wall extending about the periphery thereof, a decorating strip extending about the peripheral portions of the side wall and top disc and securing the same together, and internal guide ring secured inwardly of the side wall and top disc and having means for attaching the same on a container, said guide ring having an internal groove in the upper edge portion thereof, and a liner disc for the top disc inserted in said groove.

10. A closure comprising a top disc, a side wall of non-metallic material extending about the periphery thereof, said side wall being formed of a plurality of superposed layers of non-rigid ma-

terial rigidly secured together, a paper decorating strip extending about the peripheral portions only of the side wall and top disc and securing the same together, and a substantially rigid guide ring secured inwardly of the side wall and separate therefrom, said guide ring having means for connecting the closure with a container.

11. A closure comprising a top disc, a side wall extending about the periphery of said top disc, said side wall being formed of paper coiled in a plurality of superposed layers secured together, means for securing the side wall and the top disc together, and a substantially rigid guide ring secured inwardly of the side wall and separate therefrom, said guide ring having means for connecting the closure with a container.

12. A closure comprising a top disc, a side wall of non-metallic material extending about the periphery thereof, a decorating strip of non-metallic material having a width approximately equal to the distance from the lower edge of the side wall to the top surface of the top disc and extending about the peripheral edges thereof securing said wall and disc together, and a non-metallic label disc separate from the decorating strip and superposed on the top disc.

13. A closure comprising a top disc, a side wall extending about the peripheral portion thereof and secured thereto, an internal guide ring within the side wall and adapted to secure the closure on a container, said guide ring having an internal groove in the upper edge portion thereof, and a liner disc inserted in said groove over a substantial portion of the under surface of the top disc, said guide ring having an intumed flange forming the upper side of said internal groove at the upper edge of the ring with said flange projecting inwardly of the ring beyond the inner edge of the securing portion thereof in position to overlap the upper end of the container to prevent displacement of the liner disc from the ring by the pressure of the container.

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