CONTAINER AND LID CONSTRUCTION

A container and lid construction. The lid has a series of depending flange elements with locking members extending therethrough in locking engagement with an annular stiffening flange along the open top of the container. The locking members are connected by an adjustably tensioned belt which pulls the flange elements and the locking members into firm engagement with the annular stiffening flange. The locking members include camming members hingedly connected to the lid and having a camming action with the underside of the annular stiffening flange to draw the lid into firm locking engagement with annular flange.

3 Claims, 6 Drawing Figures
CONTAINER AND LID CONSTRUCTION

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to containers having a top closure formed from a compliant material, and more particularly to the combination of an open top container body having an annular stiffening flange at the top thereof with a container closure having a compliant annular flange with spaced flange-tightening members extending downward therefrom, and cooperating with stiffener-flange-engaging members. The latter are supported by the flange-tightening members and have tension placed thereon by an endless flexible strand. The flange-tightening members have a camming action with respect to the stiffener to cause the top closure to have firm engagement with the stiffener flange.

2. The Prior Art

The prior art is best exemplified by the patents to Williams U.S. Pat. No. 1,710,956, Rose U.S. Pat. No. 1,713,676 and Punte U.S. Pat. No. 1,825,602. These patents show container closures having dependent flange elements which are brought into tight contact with the container body by means of a tensioned steel hoop.

SUMMARY OF THE INVENTION

The invention herein is directed to a combination of a container body and a top closure having compliant flange elements through which container body flange-engaging elements extend, the latter being maintained in the depending flange elements by a locking collar and by a tensioning strap.

THE DRAWING

FIG. 1 is a front elevation view of a container and lid constructed according to the present invention;

FIG. 2 is an exploded front elevation view thereof;

FIG. 3 is a vertical section to an enlarged scale taken through a portion of the lid;

FIG. 4 is a view similar to FIG. 3 showing the deformation undergone by the container top closure when the same is tightened to the container body;

FIG. 5 is an exploded perspective view showing the manner of assembling the flange-tightening structure; and

FIG. 6 is a perspective view showing details of the flange-engaging member and an endless tensioning strand.

The improved container and lid construction according to the present invention is denoted by the reference numeral 10, and includes a cylindrical container body 11 having a base 12 and an annular stiffening rim 13 at the open top thereof. A top closure 14 is adapted to be fitted to the container body 11 and has a depending annular flange 16.

A plurality of spaced flange-tightening members 17 depend from the annular flange 16, and each has an aperture 18 therein. The spaced flange-tightening members 17 have spaces 19 therebetween.

A strap 21 is adapted to pass through strap loops 22, each such strap loop 22 being formed integrally with a stiffener-flange-engaging member 23. Each of such members 17 has an inward extending tang 24 with an upper surface 26 and a wedging surface 27, each such tang 24 extending through the aperture 18 and inward against the underside of the stiffening flange 13 of the container body 11. In order to hold the flange member 23 in position in the aperture 18, each is provided with a locking collar 28.

As seen particularly in FIGS. 3 and 4, the inward extending tangs 24 have the upper surface 26 thereof in engagement with the underside of the annular stiffening flange 13. When tension is placed upon the strap 21, the spaced flange-tightening members are deformed as seen in FIG. 4, so that flange 13 is tightly engaged by the top closure 14. A buckle 29 is provided for holding the strap 21 in the locked position.

A gasket (not shown) may be interposed between the top closure 14 and the stiffener flange 13, and the structure thus far described is adapted to deform such gasket to make a leak-proof seal.

It may be noted that each flange-tightening member 17 has a degree of hinge action with respect to annular flange 16. By reason of the configuration of each tang 24, the latter may rock about a line connecting surfaces 26 and 27 thereof, this occurring when the strap 21 is tightened. The hinge effect of member 17 with respect to flange 16 enables each member 17 to be constrained inwardly toward body 11, and tang 24 to provide a closing pressure between closure 14 and flange 13.

1. In a container and closure construction:
   a. a container body having an open top with an annular stiffening rim thereat;
   b. a container top closure having a dependent compliant annular flange;
   c. a plurality of spaced flange-tightening members extending downward from said annular closure flange;
   d. a plurality of flange-engaging members supported by said flange-tightening members and extending inwardly therefrom in engagement with the underside of said annular stiffening rim;
   e. an endless flexible tensioned strand engaged with each of said flange-engaging members for exerting a radial force thereon to hold said top closure firmly to said container body.

2. The invention according to claim 1 wherein each of said flange-tightening members has an aperture therein to receive a flange-engaging member.

3. The invention according to claim 2 wherein said flange-tightening member has a collar thereon preventing separation of same from its associated flange-tightening member.

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