

June 4, 1963

E. DAVIDSON
SEALING DEVICE

3,092,281

Filed Nov. 1, 1960

2 Sheets-Sheet 1

FIG. 1

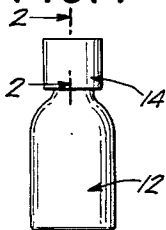


FIG. 2

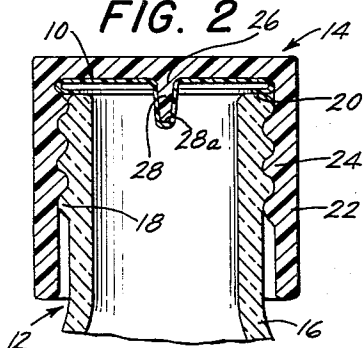


FIG. 3

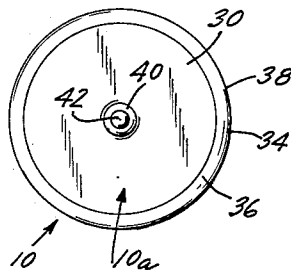


FIG. 4

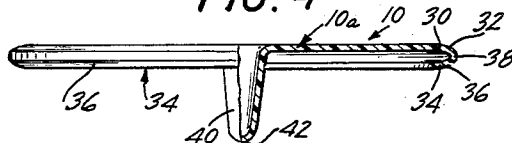


FIG. 5

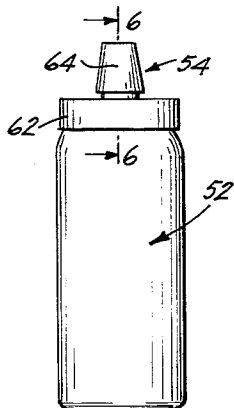


FIG. 6

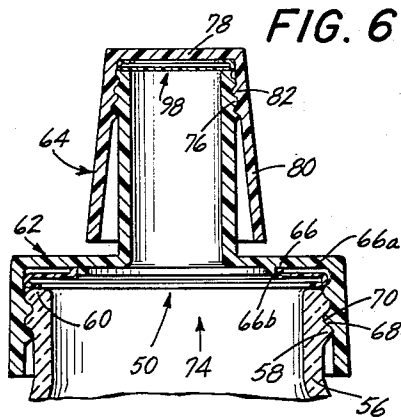


FIG. 7

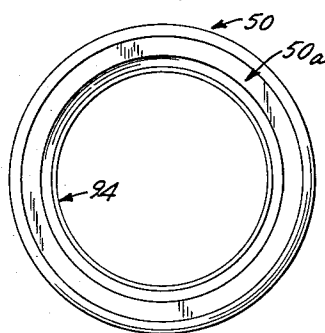
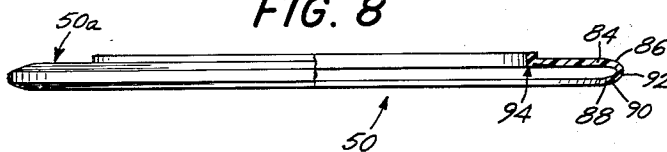


FIG. 8



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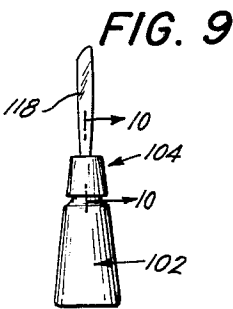
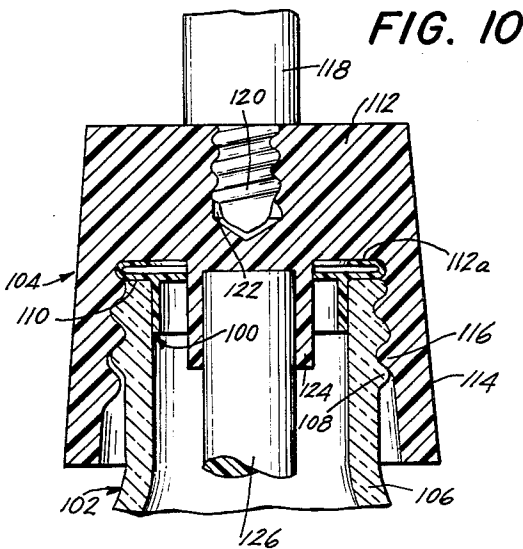
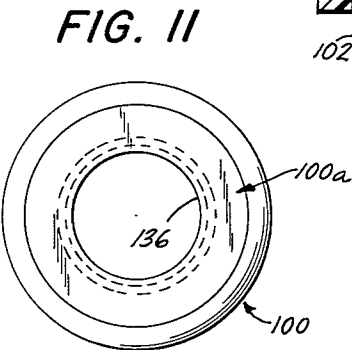
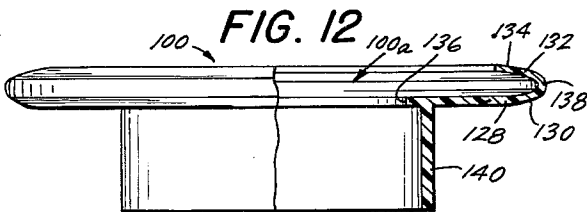
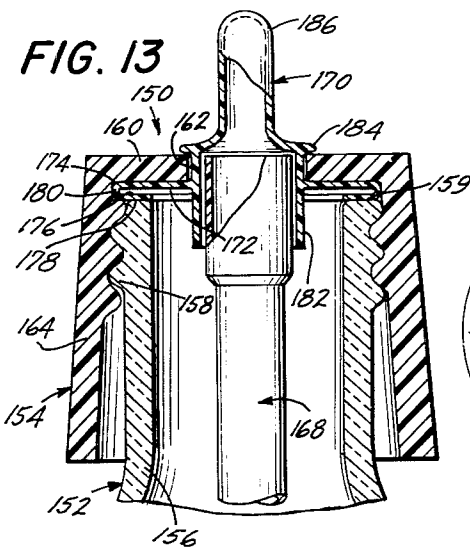
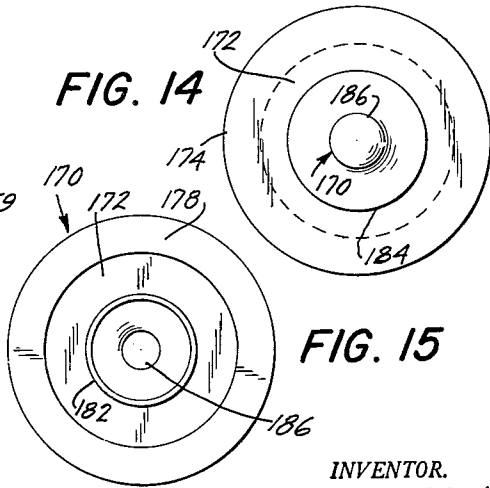
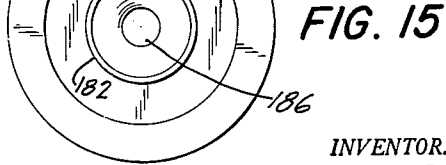
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SEALING DEVICE

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Filed Nov. 1, 1960, Ser. No. 66,479
3 Claims. (Cl. 215-40)

The present invention relates generally to gasket devices and relates particularly to a sealing device for closures such as a bottle and cap where two surfaces are brought together to form a fluid-tight seal.

Among the most commonly employed means for effecting a liquid tight seal between a bottle and a bottle cap is the use of a resilient gasket material having a disc-like or an annular shape. Specifically, it is ordinary practice to place within the inside of a bottle cap a flat disc of some reasonably resilient material which substantially covers the flat upper surface of the inside of the bottle cap. Alternatively, a washer-shaped segment of resilient material is employed which is placed against the outer portion of the flat upper surface of the inside of a bottle cap. When a cap having such sealing gaskets is placed upon its mating bottle, the upper surface of the bottle is engaged against the lower surface of the sealing material which is depressed when the cap is tightly secured to the bottle. The deformation of the gasket material which is squeezed between the cap and the top of the bottle is usually effective to seal the bottle cavity from the atmosphere. Ordinarily there are irregularities in both the top surface of the bottle and the inside surface of the bottle cap such that non-planar surfaces are formed. The function of the resilient sealing material placed between the bottle and cap is to accommodate these irregularities by providing a resilient material which will fill each one of the depressions which exist in the respective surfaces.

The above described method of sealing a bottle and mating cap has been generally successful in a large variety of differing application wherein the above described surface irregularities of bottle and cap have been of relatively small magnitude. However, this technique has proven inadequate for certain sealing operations. Notably, where the bottle cap does not have a flat and solid surface on the top of the inner portion of the cap, the sealing problems become magnified. It will be appreciated that in the ordinary situation where a flat disc-like gasket is employed there will be only one surface from which liquid contained within the bottle may leak outwardly out of the bottle. That one escape surface is the surface between the lower portion of the gasket material and the upper surface of the bottle. However, it will be further appreciated that in situations wherein an annular gasket is employed, there are two potential leakage surfaces. The first potential leakage surface is that which exists between the lower portion of the gasket material and the upper portion of the bottle (similar to the situation where a disc-like gasket is employed). The second leakage surface exists between the top of the inside of the cap and the top of the gasket material. Since the gasket material is required to accommodate irregularities in both the bottle surface and the cap surface the demanded sealing qualities often exceed the capabilities of available gasket material. Similarly, in applications where a very tight seal is required between a bottle cap and a bottle and in situations wherein the irregularities in the surfaces of the bottle cap and the bottle are relatively great, the presently known gasket materials are often incapable of providing the requisite seal.

It is the object of the present invention to provide a sealing device which obviates one or more of the above mentioned disadvantages of presently known sealing meth-

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ods. Specifically, it is the object of the present invention to provide a seal device having improved characteristics.

It is within the contemplation of the present invention to provide a sealing device which will accommodate irregularities in surfaces to be sealed and which will seal those surfaces.

It is a further object of the present invention to provide a sealing device for use with a bottle and mating bottle cap which will effectively provide a tight seal along the surface of the bottle cap and a tight seal along the surface of the bottle.

It is also within the contemplation of the present invention to provide a seal which is capable of sealing surfaces at opposite sides of the device.

It is a further object of the present invention to provide a sealing device having a first sealing member carrying a first sealing surface and a second sealing member attached thereto carrying a second sealing surface.

In accordance with an illustrative embodiment demonstrating features of the present invention there is provided a sealing device comprising a first sealing member and a second sealing member disposed in a plane parallel to the plane defined by the first sealing member and spaced therefrom. A flexible joining segment is provided to connect the first sealing member to the second sealing member at their respective outer peripheries, the first sealing member, second sealing member and joining segments being integrally formed of a resilient material. The first sealing member has a sealing surface on the side opposite from the second sealing member, and the second sealing member has a second sealing surface on its side opposite from the first sealing member. Therefore, there are provided two independent sealing surfaces which are adapted for use in situations where it is desired to provide a seal at two surfaces.

The above brief description, as well as further objects, features and advantages of the present invention will be best appreciated by reference to the following detailed description of a presently preferred embodiment when taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is an elevational view of a bottle and cap employing a sealing device according to the present invention;

FIG. 2 is an enlarged sectional view of a portion of the assembly shown in FIG. 1 taken along the lines 2-2 of FIG. 1 and looking in the direction of the arrows;

FIG. 3 is an enlarged bottom view of the sealing device utilized in the assembly of FIG. 1;

FIG. 4 is a further enlarged and partially sectional view of the sealing device according to the present invention as used in the assembly of FIGS. 1 and 2;

FIG. 5 is an elevational view of a bottle and two-part cap employing sealing devices according to the present invention;

FIG. 6 is an enlarged sectional view of the top portion of the assembly shown in FIG. 5 taken along the lines 6-6 of FIG. 5 and looking in the direction of the arrows;

FIG. 7 is a plan view of one of the devices utilized in the assembly shown in FIGS. 5 and 6;

FIG. 8 is an enlarged and partially sectioned view of the sealing device of FIG. 7;

FIG. 9 is an elevational view of a bottle and cap incorporating still another embodiment of the present invention;

FIG. 10 is an enlarged sectional view of a portion of the assembly shown in FIG. 9 taken along the line 10-10 in FIG. 9 and looking in the direction of the arrows;

FIG. 11 is a plan view of the sealing device incorporated in the assembly of FIGS. 9 and 10;

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FIG. 12 is an enlarged and partially sectioned view of the sealing device of FIG. 11;

FIG. 13 is a sectional view of still a further embodiment of the present invention;

FIG. 14 is a plan view of the sealing device shown in FIG. 13; and,

FIG. 15 is a bottom view of the sealing device as shown in FIG. 13.

Referring now specifically to the drawings there is shown in FIGS. 1, 2, 3 and 4 a first sealing device according to the present invention. This first embodiment of a sealing device is generally indicated by the numeral 10 and is illustrated in the assembly of a bottle 12 and a cap 14. The bottle 12 has a neck portion 16 including threads 18 formed therein and terminates at an upper surface 20 which defines a plane perpendicular to the axis of the neck 16. Positioned upon the neck 16 and surrounding same is the cap 14 which has depending side walls 22 having internal threads 24 integrally formed therein. The cap 14 has a top wall 26 which is substantially perpendicular to the depending side walls 24 and is perpendicular to the axis of the cap 14. Extending from the top wall 26, downwardly along the central axis of the cap 22, is a protrusion 28 of generally conical configuration which terminates in a ball shaped end 28a. The purpose of the protrusion 28 will be best appreciated in view of the following description of the seal device 10.

As is best seen in FIGS. 3 and 4, the sealing device 10 comprises a body 10a including a first sealing member 30 having a first sealing surface 32 and a second sealing member 34 having a second annular sealing surface 36. A joining segment 38 connects the outer peripheries of the first sealing member 30 with the second sealing member 34. The material employed in construction of the sealing device 10 is a resilient thermoplastic, such as polyethylene, polypropylene, polyvinyl chloride, and other copolymers. The material must have sufficient resiliency such that the joining segment 34 is flexible and allows movement between the first sealing member 30 and the second seal member 34. In addition, the material of which the sealing device 10 is composed must be resilient enough such that one portion of the sealing members 32, 34 may move with respect to other portions thereof such that the sealing surfaces 32, 36 may move with respect to their normal position. Thus, the sealing members 32, 34 and the joining segment 38 combine to form a continuous, substantially C-shaped sealing section along the outer portion of the sealing device 10.

As may be best seen in the sectional view of FIG. 2, the sealing device 12 is placed within the inside of the bottle cap 14 with its upper sealing member 30 abutting the inside of the end wall 26 of the bottle cap 14. A generally conical protrusion 40 is provided along the central axis of the sealing device 10 and perpendicular to the plane of the first sealing member 30, which protrusion 40 terminates in a rounded tip 42. The inner surface of the conical protrusion 40 is sized such as to mate intimately with the external surface of the protrusion 28 of the bottle cap 14. It will be appreciated that when the sealing device 10 is placed against the end wall 26 of the bottle cap 14 the protrusion 28 will project into the protrusion 40. This mating of the protrusions 28 and 40 is effective to secure the sealing device 10 to the cap 14 such as when the cap 14 is removed from the bottle 12 the sealing device 10 will remain inside the cap 14. It will be appreciated that the provision of the protrusions 28, 40 are not essential and are not necessary to practice the invention herein disclosed.

When the sealing device 10 has been placed within the cap 14 and the cap 14 thereupon placed onto the bottle 12 as shown in the sectional view of FIG. 2, a secure seal is effected between the top surface 20 of the bottle 12 and the inside surface of the end wall 26 of the cap 14 thereby securely sealing the cavity within the bottle 12. This seal is effected by the action of the second sealing surface 36

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engaging with the top surface 20 of the bottle 12. As the cap 14 is threaded down upon the bottle 12 the relative distance between the top surface 20 of the bottle 14 and the end wall 26 decreases. As this distance decreases, the second sealing member 34 is pressed upwardly toward the first sealing member 30, the resilient joining segment being effective to allow for this resilient deformation of the body 10a of the sealing device 10.

It will be appreciated that if the top surface 20 of the bottle 12 has any surface irregularity contained therein, fluid contained within the cavity of the bottle 12 might be able to pass out through that irregularity, down through the threads 18, 24 and out of the bottle 12. However, because of the independent suspension of the sealing members 30, 34 by the joining segment 38, the second sealing member 34 will conform to the shape of any depression which may exist in the top wall 20 of the bottle 12. Similarly, if there are any projections outwardly from the top wall 20, the second sealing member 34 will be resiliently deformed towards the first sealing member 30, at the point of those projections, however, the remaining portion of the second sealing member 34 will not be similarly deformed but will remain substantially in its undeformed condition. As the cap 14 is screwed down upon the bottle 12 there will be a general deformation of the second sealing member 34 towards the first sealing member 30 upon which the above discussed surface irregularity deformations are superimposed thereby providing a uniform seal completely around the surface 20.

A similar situation will occur at the inside of the top wall 26, however, it will be appreciated that, since the first sealing member 30 is a solid disc-like configuration, there is no problem of fluid leakage along the inner surface of the top wall 26. In situations where the first sealing member is not of a solid disc-like configuration adequate sealing of this surface is provided by sealing devices according to the present invention as will be described in detail below.

Referring now specifically to FIGS. 5, 6, 7 and 8 there is shown a sealing device generally designated by the numeral 50 which is a second illustrative embodiment of the present invention. The sealing device 50 is incorporated within assembly shown in FIGS. 5 and 6 which includes a bottle 52 and a compound cap 54. The bottle 52 is of conventional shape except so far as its neck 56 is relatively wide. The purpose of this construction is to allow the bottle 52 and its compound cap 64 to be used as a cocktail shaker or the like. The provision of a wide neck 56 allows for the passage of ice cubes or other solid objects through the wide neck 56 and into the cavity of the bottle 52. The neck 56 has formed thereon external threads 58 in the conventional manner. The top surface 60 of the neck 56 defines a plane which is perpendicular to the central axis of the neck 56 and the bottle 52 and is the surface with which the compound cap 54 must be sealed.

The compound cap includes a main cap portion 52 and a secondary cap portion 64 removably connected to the main cap portion 62. The main cap portion 62 includes a top wall 66 which is perpendicular to the axis of the cavity portion 62 and depending side walls 68 having integral internal threads 70 formed on the inner surface thereof. An upstanding spout portion 72 is joined at its base to the top wall 66 and provides an open passage, generally designated by the numeral 74 extending through the main cap portion 62. At the upper external portions of the spout 72 there are formed threads 76 which mate with appropriate threads formed within the secondary cap portion 64. The secondary cap portion 64 is of conventional design consisting of a top wall 78 and depending side walls 80 which are formed with appropriate threads 82 which mate with the threads 76 on the spout portion 72.

It will be appreciated that the compound cap 54 pre-

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sents a special problem in sealing the cavity of the bottle 52. A solid disc-like member cannot be employed as a seal because any such normal solid disc member would obstruct the passageway 74. Use of an annular solid washer between the top surface 60 of the neck 56 and the lower surface 66a of the top wall 66 would present two potential leakage paths through which fluid contained in the bottle 52 might leak out. Specifically fluid could pass between the seal and the inside surface 66a of the top wall 66, and fluid could also pass between the seal and the top surface 60 of the bottle 52. It is in situations such as the one presented by the compound cap 54, as well as other, that the teachings of the present invention are found to be particularly advantageous, as will be appreciated from the following detailed description of the sealing device 50.

The sealing device 50 is comprised of a body 50a including a first sealing member 84 having a first sealing surface 86 and a second sealing member 88 having a second sealing surface 90. A resilient joining segment 92 interconnects the sealing members 84, 88 at their respective outer peripheries. The joining segment 92 is effective to space the second sealing member 88 from the first sealing member 84 and to allow elastic relative movement therebetween.

The first sealing member 84 is of the generally annular configuration having a relatively thin thickness as compared with its diameter. A central opening 94 is formed within the first sealing member 84 and is at least as large as the passageway 74 and the axial opening within the main cap portion 62. As will be best appreciated from the sectional view of FIG. 6, the sealing device 50 is placed against the lower surface 66a of the top wall 66 of the main cap portion 62. In the present illustrative embodiment there is provided an annular shoulder 96 which mates against a complimentary annular projection 66b extending downwardly from the lower surface 66a of the top wall 66. The purpose of the annular shoulder 96 and the annular projection 66b is to secure the sealing device 50 into the main cap portion 62. It should be appreciated that the respective shoulder 96 and projection 66b are not essential to practice the present invention.

When the main cap portion 62 is threaded down onto the bottle 52 by means of the complementary threads 58, 70, the sealing device 50 is squeezed between the lower surface 66a of the top wall 66 and the top surface 60 of the neck 56. As was described above in detail in connection with the sealing device 10, the first sealing surface 86 is placed in intimate engagement with the surface 66a of the end wall 66 and the second sealing surface 90 is placed in intimate engagement with the top surface 60 of the neck 56. Any regularities which may exist in the top surface 60 are compensated for by the resilient character of the second sealing member 88 and of the resilient nature of the joining segment 92 which allows the second sealing surface 90 to independently conform to the shape of the surface 60. Similarly, the resilient nature of the first sealing member 84 and the resilient nature of the joining segment 92 provide means by which the first sealing surface 86 may conform exactly to the shape of the lower surface 66a of the top wall 66. Although there are two avenues through which fluid contained within the bottle 52 may escape between the neck 56 and the main cap portion 62 i.e. between the top surface 60 and the sealing device 10 and between the top wall 66 and the sealing device 10, the sealing device 10 and its two sealing members 84, 88 are effective to preclude the passage of fluid between the bottle 52 and the main cap portion 62.

A further sealing device, generally designated by the numeral 98 is provided between the spout portion 72 of the main cap 62 and the top wall 78 of the secondary capped portion 64. It will be seen that the sealing device 98 is similar to the sealing device 10 depicted in FIGS. 1 through 4 with the exception that the first sealing mem-

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ber does not have a projection as projection 40 on sealing device 10. It will be also noted that the sealing device 98 is positioned with its second sealing member against the cap and its first sealing member against the spout portion 72. Although the sealing device 98 is illustrated or being turned 180° from the position of the sealing device 10 in FIG. 2, it will be appreciated that the function and operation of the two sealing devices 98, 10 are identical.

Reference will now be made to FIGS. 9, 10, 11 and 12 for the description of a third illustrative embodiment, sealing device 100, placed in an installation which presents some of the same problems encountered in the installation of the sealing device 50. The sealing device 100 is employed in an assembly of a bottle 102 and a bottle cap 104 and is best seen in the elevational view of FIG. 9. It will be noted that the bottle 102 and the cap 104 are of the type commonly employed to contain nail polish, the cap 104 having a handle protruding therefrom and a brush portion which extends down into the cavity of the bottle 102 as will be described below.

The bottle 102 has a neck portion 106 of the usual configuration having integrally formed threads therein 108 and having a top surface 110 which is one of the surfaces to be sealed. The cap 104 has a top wall 112 and depending side walls 114 having threads 116 formed integrally therein which mate with the threads 108 on the bottle neck 106. A cap handle 118 is provided which has a threaded mounting lug 120 which is suitably engaged within a threaded hole 122 in the top wall 112 of cap 104. Extending downwardly from the central portion of the lower surface 112a of the top wall 112 is an integrally formed mounting collar 124 into which is secured stem 126 of an applicator (not shown) such as a nail polish brush.

As best seen in FIGS. 11 and 12, the sealing device 100 comprises a body 110a including a first sealing member 128 having a first sealing surface 130 and a second sealing member 132 having a second sealing surface 134. The first sealing member 128 is of generally annular shape having a thickness measured in a direction parallel to its axis which is relatively small as compared with its diameter. The central opening 136 formed in the first sealing member 128 is sized such as to intimately fit around the mounting collar 124 of the cap 104. The second sealing member 132 is of a generally annular shape and has a central opening longer than the central opening 136 of the first sealing member 128. A resilient joining member 138 is provided to connect the first sealing member 128 to a second sealing member 132 at their respective outer peripheries. The first sealing member 128, the second sealing member 132 and the resilient joining member 138 are integrally formed of a resilient material as described above in connection with the sealing device 10. Extending downwardly from the first sealing member 128 is a wiping collar 140 which is sized to engage the inner wall of the neck 106 of the bottle 102, as will be described below.

The sealing device 100 is placed within the inside of the cap 104, the central opening 106 being placed around the mounting collar 124 such that the wiping collar 140 extends in a direction away from the lower surface 112a of the top wall 112. The second sealing surface 134 is in intimate engagement with the lower surface 112a. When the cap 104 is screwed down onto the bottle 102, the top surface 110 of the neck 106 contacts the first sealing surface 130 of the sealing device 100 and as the cap 104 is further threaded onto the bottle 102 the sealing device is compressed between the neck 106 and the cap 104. As was described above in detail in connection with the previously discussed sealing devices, the first sealing surface 130 of the first sealing member 128 is effective to conform to the shape of the surface against which it is pressed, in this case the top surface 110 of the neck 106 of the bottle 102. Similarly, the second sealing surface

134 of the second sealing member 132 is effective to conform to the shape of the lower surface 112a of the end wall 112. By means of these two independent sealing surfaces both the seal and the lower surface 112a and the end wall 112 and at the top surface 110 of the bottle neck 106 are securely sealed against the flow of fluids out of the cavity of the bottle 102.

It will be further appreciated that when the cap 104 containing the sealing device 100, is threaded onto the bottle 102 the wiping collar 140 of the sealing device 100 will be effective to slidingly engage the inner walls of the bottle neck 106 such as to wipe away any of the contained liquid therefrom. In uses such as illustrated in FIGS. 9 and 10, where the sealing device 100 will be installed in a nail polisher container it will be normal practice for the user of the bottle 102 and the cap 104 to wipe the applicator on the edge of the neck 106 thereby leaving a deposit of nail polish on the upper portion of the inner walls of the neck 106. The wiping collar 140 is therefore provided to wipe that portion of the neck clean prior to engagement of the first sealing member 128 with the top surface 110 of the bottle 102.

FIGS. 13, 14, and 15 will now be referred to for a description of a dropper and seal assembly 150 which is a further illustrative embodiment of the present invention. The dropper and seal device 150 is utilized in an installation which includes a bottle 152 and a cap 154. The bottle 152 includes the usual neck 156 having integrally formed threads thereon 158. The cap 154 is comprised of a top wall 160 having a centrally formed opening 162 which receives the dropper and seal assembly 150 as will be described below. Extending downwardly from the top wall 160 are the side walls 164 which have formed therein internal threads 166 which mate with the threads 158 on the bottle 152 in the usual fashion.

The dropper and seal assembly 150 is a two part unit consisting of a standard eye dropper generally designated by the numeral 168 which is connected, in a manner to be described, to a bulb and seal generally designated by the numeral 170. The bulb and seal 170 includes a first sealing member 172 having a first sealing surface 174 and a second sealing member 176 having a second sealing surface 178. A resilient joining segment 180 is provided which is effective to join the first sealing member 172 to the second sealing member 176 at their respective outer periphery and to allow for relative movement therebetween. The second sealing member 176 is completely similar to the second sealing members described above in connection with sealing devices 10, 50 and 100. The first sealing member 172 is generally similar to the first sealing members described above, however, at its inner surface rather than extending completely across as was the case in sealing device 10, or terminating in a central opening as was the case in sealing devices 50 and 100, the first sealing member 172 of the dropper and seal assembly 150 abuts and is integrally formed with a vertically oriented cylindrical mounting column 182. The internal diameter of the mounting column 182 is equal to the external diameter of the upper portion of the eye dropper 168, such that the eye dropper 168 may be placed into the mounting column 182 with a force fit and retained therein.

As may be best seen in the sectional view of FIG. 13, the external diameter of the mounting column 182 is sized slightly smaller than the central opening 162 of the top wall 160 of the cap 154. An overhanging lip 184 is provided at the upper edge of the mounting column 182 and is effective to secure the bulb and seal assembly 170 within the central opening 162 of the bottle cap 154. The bulb and seal 170 is inserted into the cap 154 by pushing the mounting column 182 and the lip 184 up through the opening 162 until the lip 184 is on the upper side of the top wall 160, the first sealing member 172 being positioned against the lower surface of the top wall 160.

Extending upwardly from the mounting column 182 and above the lip 184 is the bulb 186 which is effective to supply the requisite pressure or vacuum to the dropper 168 which is in communication therewith. The bulb 186 is integrally formed with the mounting column 182 and the first and second sealing members 172, 176 utilizing a flexible material as described above in connection with the sealing device 10.

When the cap 54 is threaded down onto the bottle 52 in the usual manner, the upper surface 159 of the neck 156 engages with the second sealing surface 178 of the second sealing member 176. As the cap 154 is further threaded down upon the bottle 152 the second sealing member 178 is deformed and is moved towards the first sealing member 172. The second sealing surface 178 is effective to conform in shape to the top surface 179 of the bottle 152 and to provide a tight seal to contain fluid within the cavity of the bottle 152.

From the foregoing it will be appreciated that there is provided according to the present invention a sealing device having two independent sealing members each of which has a sealing surface.

The sealing device is adapted to provide a seal between two surfaces and comprises a body fabricated of a flexible material which includes a marginal section and a turned-in marginal flange spaced from said marginal section and substantially coextensive therewith. A joining segment is provided which interconnects the marginal section and marginal flange. The outer faces of the marginal section and the marginal flange respectively provide first and second sealing means for the two surfaces to be sealed with the joining segment allowing the sealing means to independently accommodate any irregularities in the two surfaces to be sealed.

It will be appreciated that this particular form of seal is readily adapted to all standard bottle and cap applications and finds particularly useful employment in those situations wherein there is a central column or central opening in a cap which therefore provides two possible avenues of fluid leakage.

A latitude of modification, substitution and change is intended in the foregoing disclosure and in some instances some features of the invention will be used without the use of other corresponding features. Accordingly, the claims herein should be construed broadly and in a manner consistent with the scope of the invention.

What I claim is:

1. A device for providing a seal between a cap and the neck of a bottle comprising first and second annular and generally parallel sealing members, each of said sealing members having sealing surfaces facing in opposite directions for engagement respectively with the cap and the bottle, a flexible joining segment integrally formed with said sealing members and supporting same for independent movement of said members to accommodate irregularities in the cap and bottle respectively, and an integrally formed collar extending from one of said sealing members along the axis of said sealing device for engagement with the upper internal edge of said bottle neck for providing further sealing means between the bottle and the bottle cap.

2. A sealing device for a bottle and cap wherein an applicator wand is provided on said cap extending into said bottle comprising, in combination, first, second and third sealing means, said first sealing means including a first annular sealing member having a bottle-contacting sealing surface, said second sealing means including a second annular sealing member substantially parallel to said first sealing member and having a cap-contacting surface facing in the direction opposite from said bottle-contacting surface, a resilient joining segment integrally formed with said first and second sealing members resiliently supporting same for movement to accommodate irregularities in said cap and bottle, said third sealing means including a collar formed integrally with said first

and second members and extending along the axis of said sealing device for sealing contact with the inside upper surface of the neck of the bottle, said sealing device having a central axial opening through said first sealing member, said second sealing member and said collar for the passage of the applicator wand.

3. A sealing device for a bottle and cap wherein an applicator wand is provided on said cap extending into said bottle comprising, in combination, first, second and third sealing means, said first sealing means including a first annular sealing member having a bottle-contacting sealing surface, said second sealing means including a second annular sealing member substantially parallel to said first sealing member and having a cap-contacting surface facing in the direction opposite from said bottle contacting surface, a resilient joining segment integrally formed with said first and second sealing members resiliently supporting same for independent movement to accommodate irregularities in said cap and bottle, said third sealing means including a collar formed integrally

with said first and second members and extending from said first sealing member in a direction away from said second sealing member and along the axis of said sealing device for sealing contact with the inside upper surface of the neck of said bottle, said sealing device having a central axial opening through said first sealing member, said second sealing member and said collar for the passage of the applicator wand.

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