

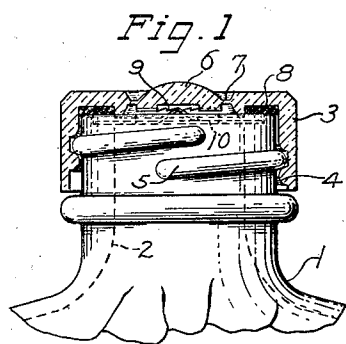
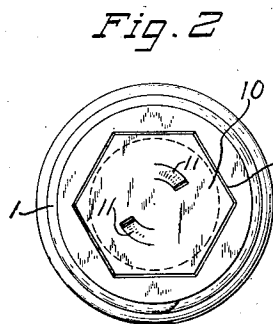
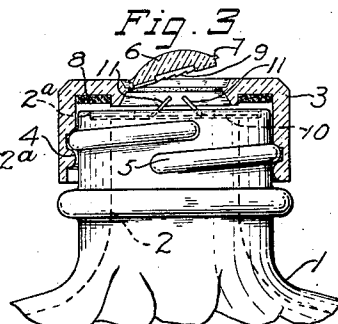
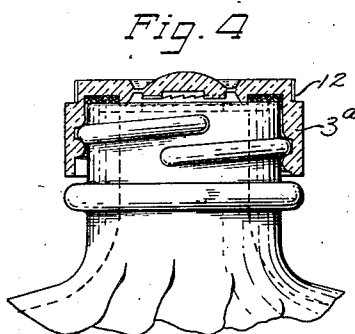
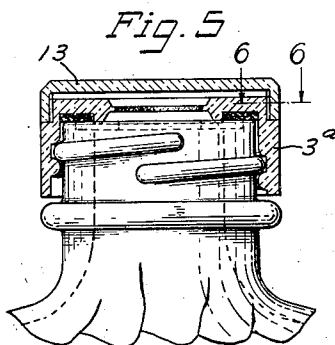
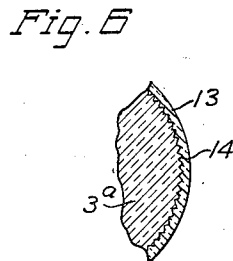
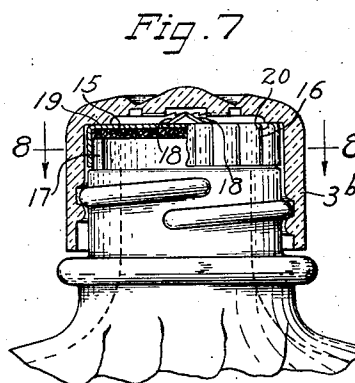
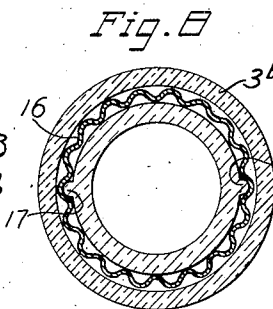
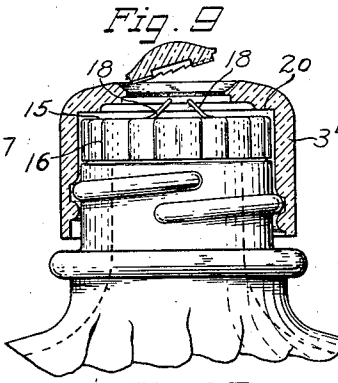
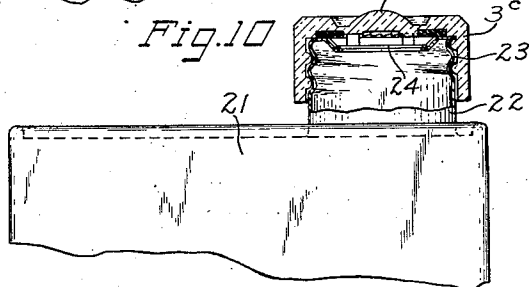
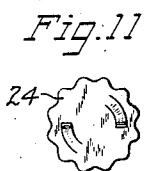
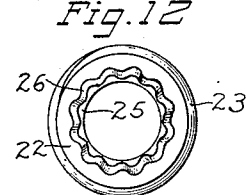
Sept. 8, 1936.

B. F. CONNER ET AL

2,054,034

CONTAINER CLOSURE MEANS

Original Filed May 4, 1934



Inventors
Benjamin F. Conner
William F. Schmalz
By S. Jay Teller
Attorney

UNITED STATES PATENT OFFICE

2,054,034

CONTAINER CLOSURE MEANS

Benjamin F. Conner, West Hartford, and William F. Schmalz, Rockville, Conn., assignors to Colt's Patent Fire Arms Manufacturing Co., Hartford, Conn., a corporation of Connecticut

Original application May 4, 1934, Serial No. 723,865. Divided and this application July 30, 1934, Serial No. 737,529

18 Claims. (Cl. 215-7)

This invention relates to container closure means of the type having a readily breakable portion which is necessarily broken when the closure means or one member thereof is removed to permit access to or discharge of the container contents. A closure means of this character when properly put in place on a container serves, so long as it remains unbroken, as a definite indication to the ultimate consumer and to each intermediate distributor or dealer who handles the package that the original contents are intact and that there has been no substitution or adulteration. More particularly the present invention relates to container closure means such as disclosed in our copending application, Serial No. 723,865, of which this present application is a division.

In a container closure means of this type there is a readily breakable indicator member which may be formed to also constitute a closure for the container. Associated with the readily breakable indicator member is a concealed device which permits free movement of the indicator in the closing direction into its normal position but which automatically serves to break a portion of the indicator member upon movement thereof in the opening or unsealing direction. The indicator member serves as a seal or lock for the closure, and when broken it provides a definite warning to anyone handling the package that the container may have been opened and the contents tampered with. The ultimate consumer or any distributor or dealer, by accepting only a package having the seal or indicator thereof intact, can thereby be certain that he is obtaining the original contents of the package as shown by the trade-mark or label or other marking thereon.

The object of the present invention is to provide a container closure means wherein the indicator member serves as the main or primary closure for the container, thus avoiding the necessity for a separate and independently effective primary closure.

Other objects of the invention will be apparent from the following specification and claims.

In the accompanying drawing there are shown several different 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 vertical sectional view of a container closure means embodying the invention, the clo-

sure means being in place on a bottle which is shown in elevation.

Fig. 2 is a fragmentary plan view of the container and of the breaking device carried thereby.

Fig. 3 is a view similar to Fig. 1, but showing the closure turned slightly in the unscrewing direction so as to break the upper portion thereof.

Fig. 4 is a view similar to Fig. 1, but showing an alternative embodiment of the invention.

Fig. 5 is a view similar to Fig. 4 and showing an auxiliary lid in place on the closure.

Fig. 6 is a fragmentary sectional view taken along the line 6-6 of Fig. 5.

Fig. 7 is a view similar to Fig. 1, but showing another alternative embodiment of the invention.

Fig. 8 is a horizontal sectional view taken along the line 8-8 of Fig. 7.

Fig. 9 is a view similar to Fig. 7, but showing the outer closure slightly turned in the unscrewing direction to break the upper portion thereof.

Fig. 10 is a vertical sectional view similar to Fig. 1, but showing still another embodiment of the invention.

Fig. 11 is a plan view of the metallic breaking device shown in Fig. 10.

Fig. 12 is a plan view of the spout of the container shown in Fig. 10, the closure and breaking device being omitted.

Referring to the drawing, particularly Figs. 1 to 3, 1 represents a container with which the container closure means embodying the invention may be used, the said container having a mouth or opening 2. The container is shown as being a glass bottle, but it will be understood that the invention may be used with a wide variety of containers.

The indicator element or closure is represented at 3, and it is shown as being a complete closure of the cap type entirely covering the opening 2 in the container. The closure 3 is provided with an internal thread 4 for engaging an external thread 5 on the container 1. The closure 3 has an externally visible portion 6 at the top which is adapted to be readily broken or separated from the remainder of the closure, this portion being surrounded by an annular zone of weakness shown at 7.

The closure 3 is provided with means surrounding the indicator portion 6 for directly engaging the top of the container 1 to prevent the escape of the container contents. Preferably and as shown this means is an annular gasket or liner 8 seated in a suitable annular recess in the closure.

The indicator member or closure 3 may be

formed of any one of a variety of materials, but it is preferred to mold the said member from a material of the synthetic resin class. Such a material is somewhat brittle and is readily breakable when provided with a sufficiently thin zone of weakness such as that at 7, and it has the further advantages that it is available in a variety of colors and can be readily molded to provide any desired external trade-mark or ornamental design. Synthetic resin material has the further advantage that upon breaking it does not form sharp fragments or splinters dangerous to the person opening the container. Container closures for the same general purpose as the present closure have commonly been made of glass or metal, and have been seriously objectionable because of the likelihood of injury to the hands of the user.

Associated with the readily breakable portion 6 of the closure 3 is a device structurally separate from the indicator member and adapted to permit the said closure to be screwed into its normal position, but causing breaking of the portion 6 thereof when the closure is turned in the opposite unscrewing direction. Preferably to facilitate the action of the breaking device, the readily breakable portion 6 is provided with internal teeth as indicated at 9. The teeth 9 are preferably very shallow in order to permit removal from the mold, such removal being possible by reason of the resilience of the molded material while still hot. The teeth as shown in the drawing are somewhat exaggerated in size.

While the invention is not so limited the breaking device may conveniently be a metallic element such as 10 having resilient pawls 11, 11. The breaking device 10, instead of being supported or held by a separate and complete inner closure, is supported directly by the container 1 so as to be held against relative rotative movement in at least one direction. As shown in Fig. 1, the mouth of the container has a portion 2^a which is non-circular in horizontal section, being shown as hexagonal. The breaking device is formed of sheet metal which is externally shaped to fit the portion 2^a of the container. The breaking device is supported by a ledge at the bottom of the portion 2^a. It will be observed that the breaking device can be engaged with or disengaged from the container by being moved vertically and without any rotative movement. While the closure is being screwed into its normal position, the pawls 11, 11 freely snap over the teeth 9 of the breakable portion 6; but upon movement of the closure in the opposite or unscrewing direction, the pawls 11, 11 automatically engage and hold the said teeth 9 and thereby break the said portion 6.

In using the closure means shown in Figs. 1 to 3 the bottle or container is filled in the usual way and the sheet metal breaking device 10 is dropped into place. Then the closure 3 is screwed into engagement with the thread on the container, the container being thus sealed in the usual way. With the parts thus assembled access to the contents of the container can only be obtained by first forcibly unscrewing the closure 3. The pawls 11, 11, being in engagement with the teeth 9, resist the turning movement, and the said pawls are bent upward, thus exerting an upward force on the portion 6 which breaks it in the upward direction as shown in Fig. 3.

It will be observed that with the construction shown and described the closure 3 is destroyed when removed, thus making it impossible for the said closure to be used to effectively reseal the

bottle or container. However, for many classes of products this is unobjectionable as the practice is to immediately use the entire contents of the container, thus avoiding any need for resealing.

In the event that at least a partial resealing is required, use may be made of the alternative construction shown in Figs. 4 to 6. In this construction there is provided a closure 3^a which may be initially exactly like the closure 3 except that it is provided with an annular rabbet or seat 12 adapted to receive an auxiliary lid. The closure 3^a is used in the same manner as already described in connection with Figs. 1 to 3.

For use in conjunction with the closure 3^a there is provided an auxiliary lid 13 having a downward extending peripheral flange adapted to enter the rabbet or seat 12, and the walls of the flange and the rabbet may be serrated as indicated at 14 to prevent relative rotation. It will be understood that the lid 13 is not originally in place on the closure 3^a but it may be supplied in the same package with the container. After the breakable top portion of the closure 3^a has been broken out, as indicated in Fig. 5, the lid 13 may be put in place to provide at least a partial closure for the container. The lid 13 will not effectively seal the container, but it will cover the opening in the closure 3^a to exclude dust and dirt.

The construction shown in Figs. 7 to 9 differs from those shown in Figs. 1 to 6 in that the breaking device 15 is larger and completely covers the mouth of the container. The device 15 may have vertical corrugations as shown at 16 and the container or bottle may have one or more vertical ribs 17 to engage with the corrugations to prevent relative rotation. The device 15 has integral resilient pawls 18, 18 similar to the pawls 11, 11 of the device 10. Fitted within the device 15 is a gasket or liner 19 for engaging the top of the bottle.

The closure 3^b is similar to the closure 3, but has no liner or gasket. The closure 3^b is provided at 20 with a downward facing shoulder for engaging the device 15 to apply downward pressure thereto and thus force the liner 19 against the top of the bottle.

When the closure 3^b is unscrewed the top portion thereof is broken out in the manner already described and as shown in Fig. 9. It will be observed that the closure 3^b remains effective to engage the device 15 and hold it in place for resealing, even though the top indicator portion of the said closure 3^b is broken out.

In Figs. 10 to 12 there is shown a construction substantially the same in principle to that shown in Figs. 1 to 3. However, instead of illustrating the container as being a bottle, we have illustrated it as being a sheet metal can of the type commonly used for lubricating oil and similar materials. The can 21 is provided with a sheet metal spout 22 having a thread 23 rolled therein. At the top of the spout 22 there is provided a sheet metal breaking device 24 corresponding in function to the device 10 shown in Figs. 1 to 3. The metal of the spout is bent inward and is depressed to form a ledge 25 for supporting the breaking device 24. In order to prevent the device 24 from turning the inclined walls adjacent the ledge 25 may be corrugated as shown at 26 in Fig. 12. The periphery of the breaking device 24 is shaped to fit the corrugations at 26. The closure 3^c is or may be substantially the same in construction as the closure 3 shown in Fig. 1, being provided with an indicator portion 6^c. The manner of use of the device shown in Figs. 10

to 12 is substantially the same as that shown in Figs. 1 to 3, and repetition of the description is unnecessary.

The closure shown in Figs. 10 to 12 is particularly adapted for use on cans of lubricating oil to indicate to the purchaser that he is obtaining the original oil package by the manufacturer and that there has been no substitution. The dealer can exhibit to the customer the complete can with the closure intact, thus allowing the customer to observe that the breakable indicator portion 6° is intact. Then in the presence of the customer the dealer can remove the closure 3°, thus breaking out the indicator portion 6°. It will be observed that this construction gives complete protection to the customer, but at the same time avoids destruction of or damage to the can itself. The can may be returned to the manufacturer and be re-used, it being only necessary to supply a new closure member 3° and probably a new breaking device 24 each time the can is refilled.

What we claim is:

1. In combination, a preformed threaded closure adapted to engage an external thread on a container and to normally completely cover the container opening and having an integral portion constituting an externally visible readily breakable indicator, a gasket adapted to directly engage the container to close and seal the mouth thereof which gasket is pressed against the container as the result of the engagement of the closure thread with the container thread, and a normally concealed device adapted to permit free rotative movement of the closure in one direction into its normal container closing position but capable of engagement with the indicator portion of the closure so as to break the said portion upon movement of the closure in the opposite unscrewing direction.

2. In combination, a preformed threaded closure adapted to engage an external thread on a container and to normally completely cover the container opening and having an integral portion constituting an externally visible readily breakable indicator, a gasket adapted to directly engage the container to close and seal the mouth thereof which gasket is pressed against the container as the result of the engagement of the closure thread with the container thread, and a normally concealed device adapted to permit free rotative movement of the closure in one direction into its normal container closing position but adapted to automatically engage and break the indicator portion of the closure upon movement of the said closure in the opposite unscrewing direction.

3. In combination, an internally threaded closure adapted to engage an external thread on a container and to normally completely cover the container opening and having an integral portion at the top constituting an externally visible readily breakable indicator, and a normally concealed device adapted to be engaged directly with the container by vertically downward movement and when so engaged held against relative rotative movement in at least one direction, the said device being adapted to permit free rotative movement of the closure in one direction into its normal container closing position but adapted to automatically engage and break the indicator portion of the closure upon movement of the said closure in the opposite unscrewing direction.

4. In combination, an internally threaded closure adapted to engage an external thread on a

container and to normally completely cover the container opening and having an integral portion at the top constituting an externally visible readily breakable indicator and having internal teeth formed thereon, and a normally concealed sheet metal device adapted to be engaged directly with the container by vertically downward movement and when so engaged held against relative rotative movement, the said device having integral resilient pawls at the top adapted to snap over the teeth on the indicator of the closure during rotative movement in the direction to screw the closure into its normal position in relation to the container but adapted to automatically engage and hold the said teeth and thereby break the said indicator portion upon rotative movement of the said closure in the opposite unscrewing direction.

5. The combination in a container closure means, of an internally threaded closure of the cap type adapted to engage an external thread on a container and having an integral portion at the top constituting an externally visible readily breakable indicator, the said closure being provided with annular means surrounding the said indicator portion and adapted to directly engage the top of the container to prevent the escape of the container contents, and a normally concealed device adapted to be engaged with the container and thereby held against relative rotative movement, the said device being adapted to permit free rotative movement of the closure in one direction into its normal container closing position but adapted to automatically engage and break the indicator portion of the closure upon movement of the said closure in the opposite unscrewing direction.

6. The combination in a container closure means, of an internally threaded closure of the cap type adapted to engage an external thread on a container and having an integral portion at the top constituting an externally visible readily breakable indicator, an annular gasket in the closure surrounding the said indicator portion thereof and adapted to directly engage the top of the container to prevent the escape of the container contents, and a normally concealed device adapted to be engaged with the container and thereby held against relative rotative movement in at least one direction, the said device being adapted to permit free rotative movement of the closure in one direction into its normal container closing position but adapted to automatically engage and break the indicator portion of the closure upon movement of the said closure in the opposite unscrewing direction.

7. The combination in a container closure means, of an internally threaded closure of the cap type adapted to engage an external thread on a container and having an integral portion at the top constituting an externally visible readily breakable indicator and having internal teeth formed thereon, the said closure being provided with annular means surrounding the said indicator portion and adapted to directly engage the top of the container to prevent the escape of the container contents, and a normally concealed sheet metal device adapted to be engaged with the container and thereby held against relative rotative movement, the said device having integral resilient pawls at the top adapted to snap over the teeth on the indicator of the closure during rotative movement in the direction to screw the closure into its normal position in relation to the container but adapted to automati-

cally engage and hold the said teeth and thereby break the said indicator portion upon rotative movement of the said closure in the opposite unscrewing direction.

8. The combination of an externally threaded container having an opening of which a portion is non-circular in horizontal section, an internally threaded closure of the cap type adapted to engage the external thread on the container and having an integral portion at the top constituting an externally visible readily breakable indicator, the said closure being provided with annular means surrounding the said indicator portion and adapted to directly engage the top of the container to prevent the escape of the container contents, and a normally concealed device adapted to be engaged with the said non-circular portion of the container opening and thereby held against relative rotative movement in at least one direction, the said device being adapted to permit free rotative movement of the closure in one direction into its normal container closing position but adapted to automatically engage and break the indicator portion of the closure upon movement of the said closure in the opposite unscrewing direction.

9. A container having an external thread adapted to be engaged by a closure of the cap type and having an opening of which a portion is non-circular in horizontal section and adapted to receive and hold a device for breaking a readily breakable top portion of the closure.

10. In a container closure means, the combination of an internally threaded closure of the cap type adapted to engage an external thread on a container and having an integral portion at the top constituting an externally visible readily breakable indicator, the said closure being provided with annular means surrounding the said indicator portion and adapted to directly engage the top of the container to prevent the escape of the container contents and the said closure being also provided with an external annular seat for an auxiliary lid, and a normally concealed device adapted to be engaged with the container and thereby held against relative rotative movement in at least one direction, the said device being adapted to permit free rotative movement of the closure in one direction into its normal container closing position but adapted to automatically engage and break out the indicator portion of the closure upon movement of the said closure in the opposite unscrewing direction.

11. In a container closure means, the combination of an internally threaded closure of the cap type adapted to engage an external thread on a container and having an integral portion at the top constituting an externally visible readily breakable indicator, the said closure being provided with annular means surrounding the said indicator portion and adapted to directly engage the top of the container to prevent the escape of the container contents and the said closure being also provided with an external annular seat, a normally concealed device adapted to be engaged with the container and thereby held against relative rotative movement, the said device being adapted to permit free rotative movement of the closure in one direction into its normal container closing position but adapted to automatically engage and break out the indicator portion of the closure upon movement of the said closure in the opposite unscrewing direction, and an auxiliary lid adapted to fit the seat on the closure and to cover the opening re-

sulting from the breaking out of the indicator portion of the closure.

12. The combination of an internally threaded outer closure of the cap type adapted to engage an external thread on a container and having an integral portion at the top constituting an externally visible readily breakable indicator, and a device adapted to be engaged with the container by vertically downward movement and when so engaged held against relative rotative movement, the said device being provided with means adapted to directly engage the top of the container to prevent the escape of the container contents and the said device being also adapted to permit free rotative movement of the outer closure in one direction into its normal position on the container but adapted to automatically engage and break the indicator portion of the closure upon movement of the said closure in the opposite unscrewing direction.

13. The combination of an internally threaded outer closure of the cap type adapted to engage an external thread on a container and having an integral portion at the top constituting an externally visible readily breakable indicator and having internal teeth formed thereon, and a device adapted to be engaged with the container by vertically downward movement and when so engaged held against relative rotative movement, the said device being provided with means adapted to directly engage the top of the container to prevent the escape of the container contents and the said device having integral resilient pawls at the top adapted to snap over the teeth on the indicator of the outer closure during rotative movement of the said closure in the direction to screw it into its normal position on the container but adapted to automatically engage and hold the said teeth and thereby break the said indicator portion upon rotative movement of the said closure in the opposite unscrewing direction.

14. The combination of an internally threaded outer closure of the cap type adapted to engage an external thread on a container and having an integral portion at the top constituting an externally visible readily breakable indicator, the said closure having an annular downward facing interior shoulder surrounding the said indicator portion, and a device adapted to be engaged with the container by vertically downward movement and when so engaged held against relative rotative movement and adapted to be engaged and held in place by the said shoulder on the outer closure, the said device being provided with means adapted to directly engage the top of the container to prevent the escape of the container contents and the said device being also adapted to permit free rotative movement of the outer closure in one direction into its normal container closing position but adapted to automatically engage and break the indicator portion of the outer closure upon movement of the said closure in the opposite unscrewing direction.

15. The combination of an internally threaded outer closure of the cap type adapted to engage an external thread on a container and having an integral portion at the top constituting an externally visible readily breakable indicator, the said closure having a downward facing interior shoulder spaced outward from the periphery of the said indicator portion, and a device adapted to be engaged with the container by vertically downward movement and when so engaged held against relative rotative movement and adapted to be engaged and held in place by the said shoulder

der on the outer closure, the said device being provided with means adapted to directly engage the top of the container to prevent the escape of the container contents and the said device being also adapted to permit free rotative movement of the outer closure in one direction into its normal container closing position but adapted to automatically engage and break the indicator portion of the outer closure upon movement of the said closure in the opposite unscrewing direction.

16. The combination of an externally threaded container having an opening and being non-circular in external horizontal section above the thread, an internally threaded outer closure of the cap type adapted to engage the external thread on the container and having an integral portion at the top constituting an externally visible readily breakable indicator, and a device adapted to be engaged with the said non-circular external portion of the container and thus held against relative rotative movement, the said device being provided with means adapted to directly engage the top of the container to prevent the escape of the container contents and the said device being also adapted to permit free rotative movement of the outer closure in one direction into its normal position on the container but adapted to automatically engage and break the indicator portion of the closure upon movement of the said closure in the opposite unscrewing direction.

17. The combination of a sheet metal container having a rolled thread surrounding the opening thereof, an internally threaded closure adapted to engage the externally exposed portion of the thread on the container and to normally com-

pletely cover the container opening and having an integral portion constituting an externally visible readily breakable indicator, a gasket adapted to directly engage the container to close and seal the mouth thereof which gasket is pressed against the container as the result of the engagement of the closure thread with the container thread, and a normally concealed device adapted to permit free rotative movement of the closure in one direction into its normal container closing position but adapted to automatically engage and break the indicator portion of the closure upon movement of the said closure in the opposite unscrewing direction.

18. The combination of a sheet metal container having a rolled thread surrounding the opening thereof, an internally threaded closure adapted to engage the externally exposed portion of the thread on the container and to normally completely cover the container opening and having an integral portion at the top constituting an externally visible readily breakable indicator, and a normally concealed device adapted to be engaged directly with the container by vertically downward movement and when so engaged held against relative rotative movement in at least one direction, the said device being adapted to permit free rotative movement of the closure in one direction into its normal container closing position but adapted to automatically engage and break the indicator portion of the closure upon movement of the said closure in the opposite unscrewing direction.

BENJAMIN F. CONNER.
WILLIAM F. SCHMALZ.