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Marg et al.

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[54] **RECLOSEABLE CALKING CARTRIDGE NOZZLES**

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[52] U.S. Cl. ..... **222/180**, 206/DIG. 8, 220/85 R, 222/541

[51] **Int. Cl.** **B67d 5/06**

[58] **Field of Search** ..... 222/541, 543, 562, 222/563, 180, 325, 327; 206/DIG. 8, 47 R; 220/27, 31.5, 38.5; 229/510 B; 215/99

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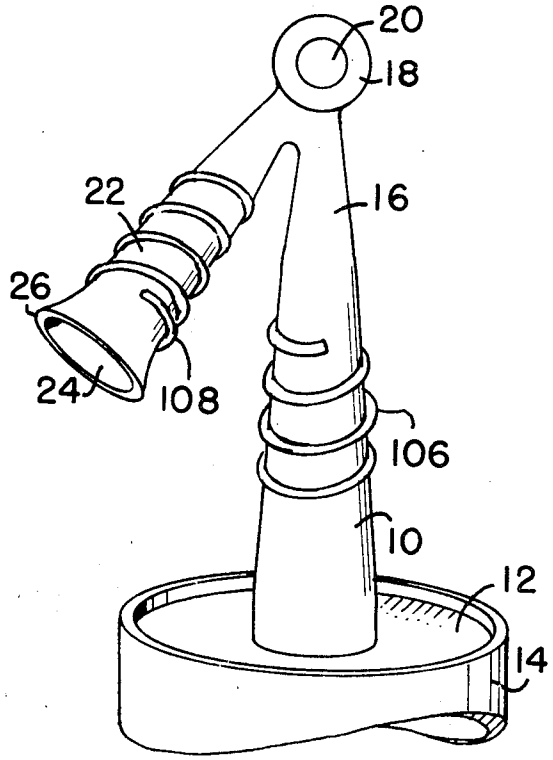
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Assistant Examiner—Larry Martin
Attorney—Karl L. Spivak

[57] **ABSTRACT**

Recloseable calking cartridge nozzles having an elongate, sealed thermoplastic spout and an associated closure attached to the spout. After the spout has been cut to allow a portion of the calking material contained within the cartridge to exit through the spout, the associated closure overfits the spout to reseal the cartridge until further use is desired. The nozzle and closure integrally connect to form a hanger for store display and home storage purposes.

6 Claims, 8 Drawing Figures



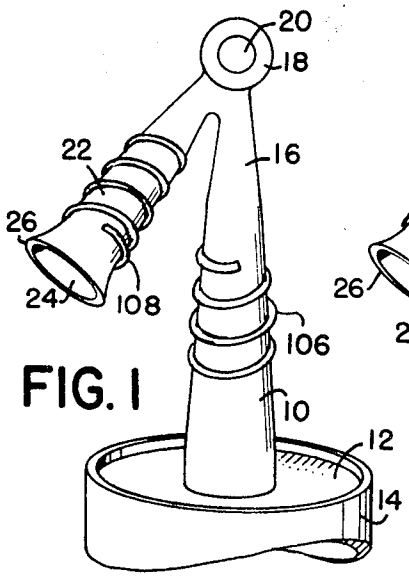


FIG. 1

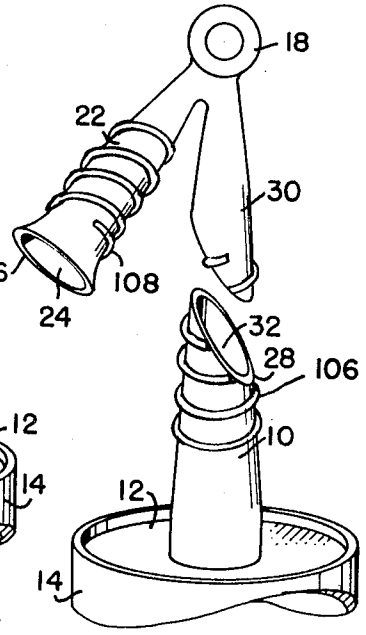


FIG. 1A

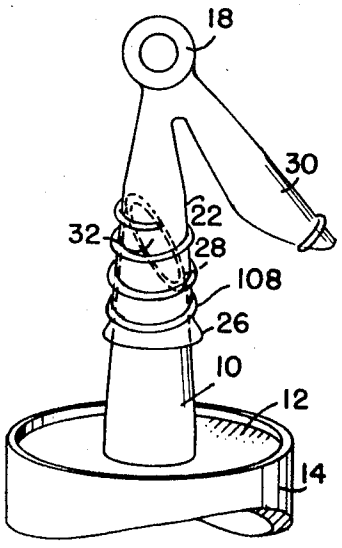


FIG. 1B

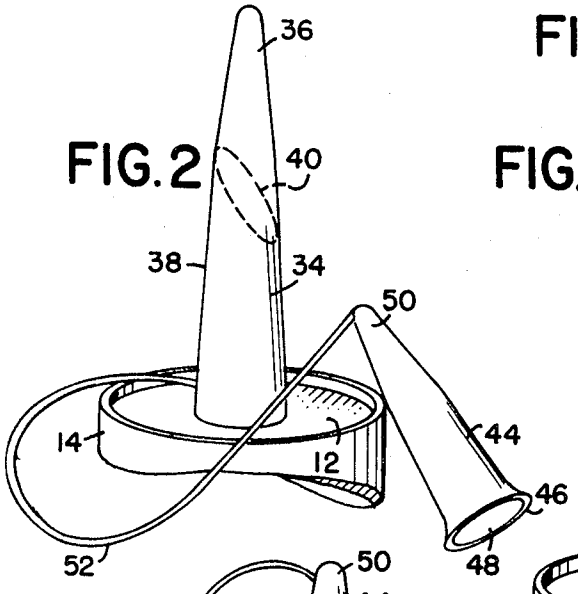


FIG. 2

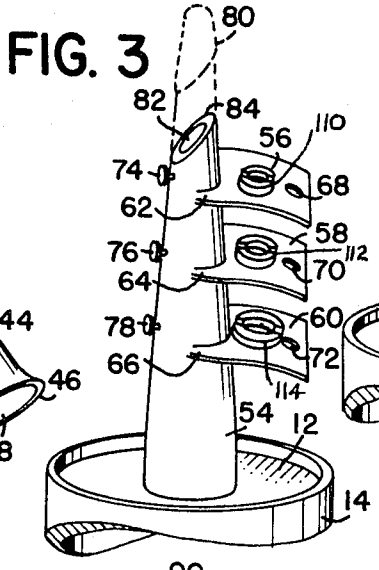


FIG. 3

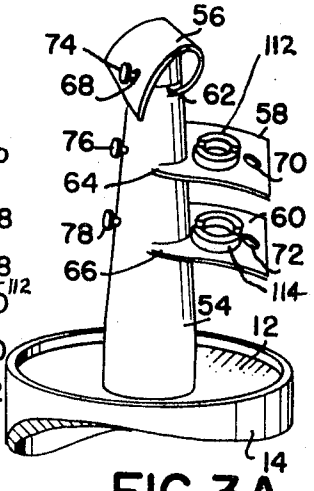


FIG. 3A

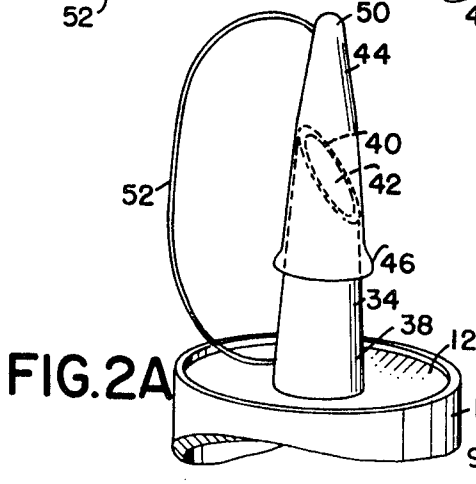


FIG. 2A

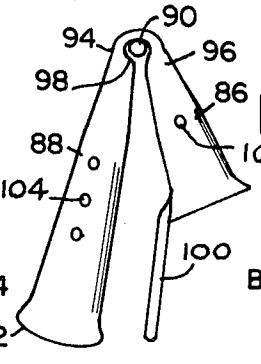


FIG. 4

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RECLOSEABLE CALKING CARTRIDGE NOZZLES

BACKGROUND OF THE INVENTION

The present invention relates generally to the field of building maintenance supplies, and more particularly is directed to improved calking cartridges which are generally employed in building construction and maintenance for calking, patching, sealing and other similar uses.

It has generally been the procedure to furnish sealing materials such as calking compounds, spackling compounds, cement patching compounds and similar maintenance materials in cartridge form for use with the generally available calking gun. Such prior art cartridges have usually been fabricated with cylindrical cardboard sidewalls having two enclosing heads. One head thereof was adapted for depressing into the interior of the cartridge for content driving purposes under impetus supplied by the calking gun. The other head of the presently available cartridges terminates in a hollow nozzle which is usually fabricated of a thermoplastic material such as polyethylene plastic. The nozzle communicates with the interior of the cartridge, is usually hollow and generally conical in configuration and terminates forwardly in a sealed top. When it is desired to use the calking cartridge, and end tip is usually cut with a knife or other sharp implement at an angular relation to the axis of the cartridge to form an angular end to facilitate accurate placing of the cartridge contents. Cutting the tip from the cartridge nozzle exposes the hollow interior of the nozzle and thereby allows the cartridge contents to exit through the severed tip.

It has been found that the present method of fabricating calking cartridges presents no problem when the entire cartridge is used at one time and is disposed upon consumption of the cartridge contents. However, in most instances, most jobs do not require the entire cartridge contents to be used at one time. Accordingly, once the cartridge nozzle top has been cut for use and the work has been completed, the additional material remaining can ooze out from the top when the cartridge gun is not in use and when the partly used cartridge is stored. This creates a messy condition which is vexious and annoying to the worker or homeowner who is using the calking cartridge. Additionally, it has has been found that after a cartridge tip has been cut open, this then allows air and the elements to enter the interior of the cartridge through the cut opening. If the cartridge is stored with the contents exposed through the cut tip, for a considerable length of time, the action of the elements tends to harden the remaining material within the calking cartridge to thereby render it unusable for satisfactory future use.

SUMMARY OF THE INVENTION

The present invention relates generally to the field of calking cartridges, and more particularly, is directed to a novel closure for rendering the nozzles of calking cartridges reclosable after periods of use.

The instant device is directed to an attachment for presently available calking cartridge nozzles which is generally associated with the cartridge nozzle in a manner to become readily available once the nozzle top has been cut for use.

A closure of suitable configuration to overfit and cooperate with the cartridge nozzle is employed and may be molded of the same material as the cartridge nozzle during the nozzle forming process. Preferably, the closure is fab ricated with a flared bottom to readily insert over the opened cartridge nozzle for nozzle sealing purposes. In a modification thereof, the flared closure may be affixed to the nozzle body by means of a flexible cord or other device to render the closure readily available when it is desired to reclose the calking cartridge at the nozzle thereof.

As a second alternate means of construction, the cartridge nozzle may be fabricated with a plurality of integral, flexible closures which lock upon the nozzle body to seal the opening in handy manner without requiring the need for bulky, and cumbersome closures which might possibly intefere with the operation of the calking cartridge itself.

It is therefore an object of the present invention to provide a novel, recloseable calking cartridge nozzle of the type set forth.

It is another object of the present invention to provide a novel, reclosable calking cartridge nozzle having a closure affixed directly to the cartridge nozzle at the forward end thereof which may be employed for cartridge hanging purposes.

It is another object of the present invention to provide a novel, reclosable calking cartridge nozzle which includes a closure having a flared bottom for readily overfitting the cartridge nozzle for nozzle sealing purposes.

It is another object of the present invention to provide a novel, reclosable calking cartridge nozzle incorporating a closure separate from the cartridge nozzle, said closure having configuration to readily overfit and seal the cartridge nozzle once it has been opened.

It is another object of the present invention to provide a novel, reclosable calking cartridge nozzle including integral, compact, nozzle sealing means suitable to reseal the cartridge nozzle once it has been opened.

It is another object of the present invention to provide a novel, reclosable caulking cartridge nozzle that is inexpensive in manufacture, simple in construction and trouble free when in use.

Other objects and a fuller understanding of the invention will be had by referring to the following description and claims of a preferred embodiment thereof, taken into conjunction with the accompanying drawings, wherein like reference characters refer to similar parts throughout the several views and in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front perspective view of a first embodiment of a nozzle and closure in accordance with the present invention with the nozzle in uncut condition suitable for hanging or display purposes.

FIG. 1A is a view similar to FIG. 1 showing the nozzle severed to permit use of the calking cartridge.

FIG. 1B is a view similar to FIG. 1 showing the closure in nozzle closing position upon a previously severed nozzle.

FIG. 2 is a front perspective view of a second embodiment of a calking cartridge nozzle and closure with the nozzle in uncut condition.

FIG. 2A is a view similar to FIG. 2 showing the closure in nozzle overfitting position to seal a previously severed nozzle.

FIG. 3 is a front perspective view of a third embodiment of a calking cartridge nozzle, the phantom lines illustrating the severed portion of the nozzle.

FIG. 3A is a view similar to FIG. 3 showing a closure in use to seal the previously severed nozzle.

FIG. 4 is a partial, side elevational view of another embodiment having utility for cartridge hanging purposes.

DESRIPTION OF THE PREFERRED EMBODIMENTS OF THE INVENTION

Although specific terms are used in the following description for the sake of clarity, these terms are intended to refer only to the particular structure of our invention selected for illustration in the drawings and are not intended to define or limit the scope of the invention.

Referring now to the drawings, we show in FIGS. 1, 1A and 1B a nozzle 10 which is affixed to the head 12 of a calking cartridge 14 in well known manner to permit the contents (not shown) of the calking cartridge to exit the cartridge under impetus of a calking gun (not shown) in well known manner once the forward end 16 of the nozzle 10 is severed by use of a knife or other sharp implement. In the embodiment illustrated, the nozzle 10 termiantes forwardly in an integral ring 18 which defines a hole 20 which finds utility for storage or display purposes prior to using the cartridge 14.

An integral closure 22 forwardly connects to the ring 18 and is molded or otherwise fabricated to provide hollow interior channel 24. The upper end of hollow channel 24 is fully closed in permanent manner by the integral connection with the ring 18 in a manner to assure that the channel 24 opens only downwardly. It is contemplated that the nozzle 10, the integral ring 18 and the attached closure 22 will all be manufactured at the same time and from the same material to facilitate the fabrication process. Preferably, a readily moldable plastic material such as polyethylene can be employed for this purpose by using well known plastic molding practices. Preferably, the closure 22 terminates downwardly in a flared opening 26 to facilitate installation of the closure 22 over the top of the nozzzle 10.

As best seen in FIG. 1A, it is the usual practice to sever the nozzle 10 intermediate its length by preferably cutting the nozzle at an acute angle to its longitudinal axis to thereby provide a slanted surface 28 to aid in precisely applying the material from within the calking cartridge 14. The severed end 30 of the nozzle 10 then lifts clear from the nozzle 10 and is no longer used in conjunction with the calking cartridge 14. The nozzle interior channel 32 communicates with the cartridge 14 interior and may be employed in well known manner to facilitate the application of the cartridge contents (not shown) in any desired location. Referring now to FIG. 1B, after use of the calking cartridge 14, the interior channel 32 may conveniently be reclosed by applying the closure 22 over the nozzle 10 until the interior configuration of the hollow channel 24 of the closure binds upon the exterior configuration of the nozzzle body 10. It will be noted that the severed end 30 affixes to the closure 22, but is no longer of any use. In this manner, the nozzle interior channel 32 may be reclosed by the closure 22 until it is again desired to use the calking cartridge 14. At that time, the closure 22, its integrally affixed ring 18 and severed nozzle end 30 can be removed from the remaining portion of the nozzle to again expose the interior channel 32 for continued use of the calking cartridge 14.

Referring now to FIGS. 2 and 2A, we show a second embodiment of the invention wherein a closed nozzle 34 is associated with a calking cartridge 14 at the head 12 thereof in well known manner. The upper end 36 may be severed from the nozzle base 38 by an angular cut 40 in well known manner to expose the nozzle interior channel 42 for cartridge operating purposes in well known manner. A modified closure 44 of configuration to overfix and cooperate with the modified nozzle 34 is formed preferably of an easily moldable plastic material such as polyethylene plastic in well known manner. The closure 44 terminates downwardly in a flared opening 46 to facilitate insertion of the closure 44 over the nozzle base 38. The closure 44 is provided with an interior channel 48 of configuration to closely overfit and bind against the outer configuration of the nozzle base 38. The modified closure 44 terminates upwardly in a closed end 50 which seals the upper end of the interior channel 48 for nozzle sealing purposes. A flexible cord 52 extends between the closed end 50 of the modified closure 44 and the base 38 of the modified nozzle 34 to retain the closure in association with the nozzle 34 during all periods of cartridge use. It is contemplated that the modified nozzle 34, the modified closure 44 and the flexible cord 52 can all be molded of the same material at the same time by using well-known plastic molding techniques. After the cartridge 14 has been used and it is desired to close the nozzle interior channel 42 until a future use, the modified closure 44 is applied over the nozzle base 38 by positioning the interior channel 48 of the closure 44 directly over the base 38 of the nozzle 34. The flared opening 46 facilitates application of the closure 44 over the nozzle base 38 for this purpose. The closure 44 is then simply pushed downwardly toward the cartridge head 12 until a snug fit is obtained to thereby permit the closed end 50 of the modified closure 44 to serve as a seal for the nozzle interior channel 42. The flexible cord 52 should be fabricated long enough to permit ready manipulation of the closure 44 with respect to the modified nozzle 34 for closure purposes.

After the cartridge 14 has been used and it is desired to close the nozzle interior channel 42 until a future use, the modified closure 44 is applied over the nozzle base 38 by positioning the interior channel 48 of the closing 44 directly over the base 38 of the nozzle 34. The flared opening 46 facilitates application of the closure 44 over the nozzle base 38 for this purpose. The closure 44 is then simply pushed downwardly toward the cartridge head 12 until a snug fit is obtained to thereby permit the closed end 50 of the modified closure 44 to serve as a seal for the nozzle interior channel 42. The flexible cord 52 should be fabricated long enough to permit ready manipulation of the closure 44 with respect to the mofified nozzle 34 for closure purposes.

Referring now to FIGS. 3 and 3A, we show the second modified closure as applied to a modified nozzle 54. In this embodiment, the nozzle 54 is fabricated of plastic material such as polyethylene plastic in well known manner and is affixed to the head 12 of a calking cartridge 14 also in well known manner for calking purposes. Integrally formed or otherwise fabricated with the modified nozzle 54 are a plurality of vertically spaced closure straps 56, 58, 60, each of which is affixed at its integral end 62, 64, 66 with the nozzle body and extends radially outwardly therefrom. The outer

end of each closure strap **56, 58, 60** is provided with an opening **68, 70, 72** for sealing purposes as hereinafter more fully set forth and may be provided with side construction if so desired for nozzle closure purposes. Diametrically opposite the integral ends **62, 64, 66** of the closure straps, a plurality of knobs **74, 76, 78** are integrally molded or otherwise provided in the body of the modified nozzle **54** for locking cooperation with the strap openings **68, 70, 72.**

Thus, when it is desired to use the calking cartridge **14** by severing the modified nozzle **54** to detach the upper end **80** in the usual manner along the cut line **84** to expose the nozzle interior channel **82,** the uppermost closure strap **56, 58** or **60** available below the cut **84** can then be utilized for nozzle sealing purposes in the manner hereafter more fully set forth. As illustrated in FIG. **3,** when the upper end **80** of the modified nozzle **54** is severed along the cut line **84** above the uppermost closure strap **56,** the upper closure strap **56** is then employed for nozzle sealing purposes upon completion of the calking operation. By fabricating the closure straps **56** of thin, flexible material which may be integrally molded, thin polyethylene plastic, thhe closure strap **56** then bends diametrically over the exposed nozzle interior channel **82** to close the channel to prevent either leakage through the open channel or to prevent the entrance of air which may harden the contents of the calking cartridge **14.** The closure side construction engages the nozzle sides to aid in this regard.

As best seen in FIG. **3A,** the opening **68** of the uppermost closure strap **56** applies directly over the uppermost knob **74** to lock the closure strap **56** over the severed end to thereby close the interior channel **82** by employing the body of the closure strap **56.** In accordance with common practice, when it is desired the apply more calking material at one time, a larger opening to the interior channel **82** may be utilized. In such in instance, the angular cut **84** could be taken between the upper two closure straps **56, 58** or if more material need be applied, the angular cut could be taken between the lower closure straps **58, 60** in well known manner to provide an opening through the interior channel **82** of desired dimensions. Should the angular cut **84** be taken intermediate the closure straps **56, 58,** then the closure strap **56** would be discarded with the severed end **80** and the closure strap **58** would be employed to position its opening **70** over its associated knob **76** thereby seal the interior channel. Similarly, should the angular cut **84** be taken between the closure straps **58, 60,** then the interior channel **82** would be sealed by the lowermost closure strap **60** by applying its opening **52** over its associated knob **78** in the manner hereinbefore described. It will be appreciated that although only three closure straps have been illustrated, more or fewer closure straps could be employed in the manner illustrated for closure purposes when so desired. It is contemplated that the openings **68, 70, 72** will be fabricated slightly smaller than the knobs **74, 76, 78** to discourage disassociation of a closure strap from its cooperating knob until physically separated therefrom by conscious effort on the part of the operator.

If desired, an extremely tight nozzle closure can be provided by integrally forming shaped plugs **110, 112, 114** which medially project from the respective closure straps **56, 58, 60.** The plugs **110, 112, 114** are designed to substantially the same dimensions as nozzle channel **82** taken along the cut line **84.** As illustrated, the plugs **110, 112, 114** preferably are severed to permit limited adjustment to facilitate insertion of the respective plugs into the nozzle channel **82.**

Referring now to FIG. **4,** we show a third modified nozzle **86** which is fabricated in the manner herein before set forth for use with a calking cartridge (not shown). A modified nozzle **88** has its upper end **98** connected to the upper end **96** of the closure **86** by a short, integral arched bridge **94** in a manner to facilitate simultaneous molding of the nozzle **88,** the closure **86** and the connecting bridge **94** and has its lower end **92** connected into the calking cartridge in usual manner. In order to facilitate placement of the closure **86** over the modified nozzle **88,** the closure terminates downwardly in a flared opening in the manner hereinbefore set forth. Thus, when the upper end **98** of the nozzle **88** is severed for calking purposes, the modified closure **86** is then free for insertion over the nozzle when it is desired to again closure the cartridge (not shown). It will be appreciated that the combination of the generally vertically disposed nozzle **88,** the closure **86** and the connecting bridge **94** form a generally inverted U-shaped construction which may be employed for cartridge hanging purposes by placing the bridge **94** over a nail or hook **90** when so desired. Accordingly, the combination of the closure **86** and the connecting integral bridge **94** serves the additional purpose of forming a hanger for calking cartridge hanging purposes.

As an added feature, the nozzle body may be molded to define a plurality of vertically spaced, circular markings **104** which can be molded directly into the nozzle material to delineate drill positions to receive a drill bit of, for example, one-sixteenths inch. A similar marking **102** is applied to the closure **86** in position to horizontally align with the marks **104** when the closure inserts over the severed nozzle **88** for cartridge closing purposes as hereinbefore more fully described. A hanger bar **100** depends from the flared bottom of the closure **86** and preferable is integrally molded therewith. The hanger bar **100** is formed to the same diameter as the markings **102, 104,** for example, one-sixteenths of an inch and is fabricated longer than the width of the closure **86.** Thus, when it is desired to employ the bridge **94** for hanging an opened cartridge upon a nail **90,** one of the markings **104** and the mark **102** may be drilled to provide identical one-sixteenths of an inch openings and the hanger bar **100** is then broken free from the bottom of the closure **86.** The closure **86** is then inserted over the severed nozzle **88** until the drilled markings **102, 104** horizontally align. The hanger bar **100** is then pushed into the aligned openings to thereby prevent relative longitudinal movement of the nozzle and closure during the period when the cartridge (not shown) is suspended from the nail **90.** To render the cartridge again ready for use, the hanger bar **100** is first pulled from the aligned openings to thus allow the closure **86** to be removed from the nozzle **88.**

Referring now to FIGS. **1, 1A** and **1B,** we show the nozzle **10** and closure **22** provided with integrally molded, cooperating screw threads **106, 108** which are identically spiralled to facilitate threaded engagement of the closure **22** upon the nozzle **10.** Thus, when it is desired to close the nozzle interior channel **32,** the closure **22** is applied over the nozzle **10** and is threadedly engaged thereon until a tight fit is obtained. See FIG. **1B.** With the parts in this position, the closure **22** can-

not easily be pulled from the nozzle **10** thereby permit the ring **18** to be employed also for hanging an opened and re-closed calking cartridge.

We claim:

1. In a calking cartridge of the type including a generally cylindrical body having an elongate closed nozzle extending axially from one end thereof, wherein the closed end of the nozzle is severed to expose a nozzle interior channel which communicates with the interior of the calking cartridge body to permit the calking compound to exit therethrough, the combination of

A. a hanger affixed to the closed end of the nozzle to suspend the calking cartridge from a fixed construction,

1. said hanger being integrally formed with the nozzle,
2. said nozzle being oriented in a first direction relative to the said hanger prior to the nozzle being severed; and

B. a closure connected to the hanger,

1. said closure being integrally formed with the hanger,
2. said hanger being interposed between the nozzle and the closure,
3. said closure having an elongate body of generally hollow configuration to define a hollow closure channel having a first end and a second end,
4. said hollow closure being closed at its first end by the closure construction,
5. said hollow closure channel terminating at its second end in an open end to overfit the second nozzle,
6. said first end connecting to the hanger in an integral connection,
7. said hollow closure channel being of dimensions and configuration to conform to and to closely overfit the exterior periphery of the nozzle end for nozzle closing purposes,
8. the said closure overfitting the nozzle and sealing the nozzle interior channel after it has been exposed by severing the said nozzle end,
9. the said nozzle being oriented in a second direction relative to the hanger after the closure has been applied to the nozzle for channel sealing purposes.

2. The invention of claim **1** wherein the said closure connects to the hanger in a position angularly offset from the point of connection between the hanger and the said nozzle end.

3. The invention of claim **2** wherein the angular offset between the nozzle connection to the hanger and the closure connection to the hanger is less than a straight angle.

4. The invention of claim **3** wherein the angular offset is an acute angle.

5. The invention of claim **1** wherein the hanger is generally annular in configuration and encompasses at least a portion of a circle to define an opening for receipt therein of the said fixed construction.

6. The invention of claim **5** wherein the hanger defines a complete circle.

* * * * *