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3,002,240

CLOSURE DEVICE

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FIG. 1.

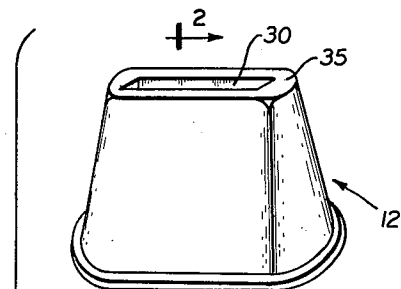


FIG. 4.

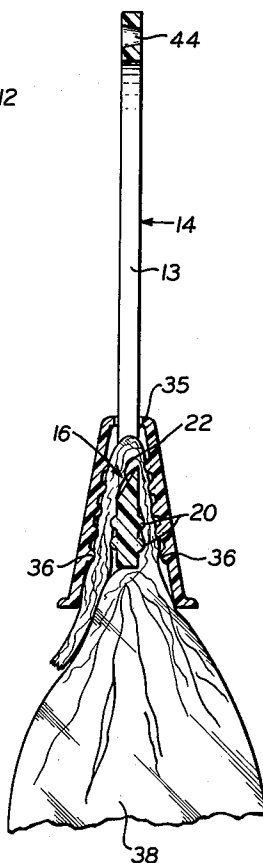


FIG. 2.

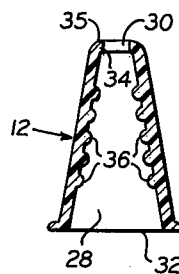
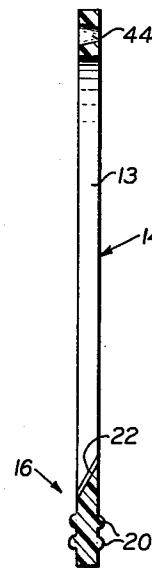
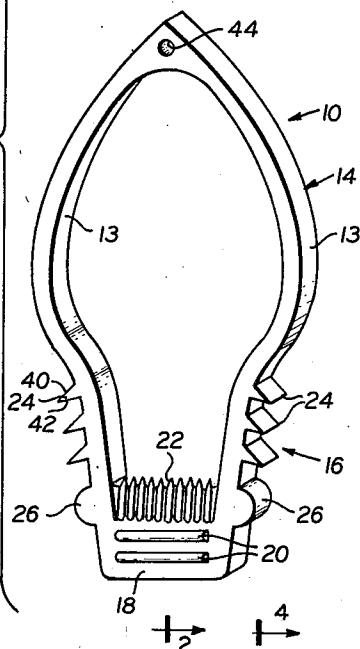
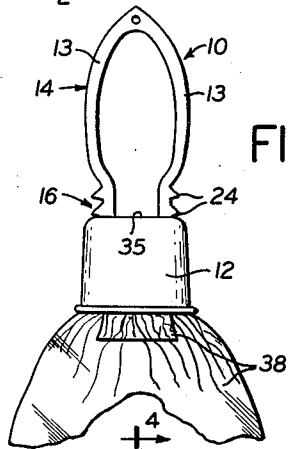


FIG. 3.



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CLOSURE DEVICE

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2 Claims. (Cl. 24—30.5)

This invention relates to closure devices and particularly to such devices that are adapted to close bags, envelopes or the like of pliable materials such as plastics, cellophane, etc.

In recent years, packaging of foods and other perishables, as well as packaging of durable materials, has become an extremely large industry, with many devices to quickly package and seal the containers in use. The most popular type of these containers is the plastic bag, sealed on all sides except one which is left open to receive the goods or material therein.

In the past, when such bags were filled with articles, their open tops were closed by any suitable means such as by heat sealing, coiled wire, or an elastic band. However, the twisted ends of the wire closures are difficult to unwind while elastic bands lose their elasticity or break easily, especially after being retained in refrigerated storage for long periods of time. Other known sealing means are generally expensive or difficult to apply or difficult to remove.

These deficiencies of the prior art are overcome by the instant closure device. The present detachable device is of two-part construction and is readily applied as a closure for bags and the like. Moreover, it is economical and simple to manufacture. As an added feature, the closure member is removable from such bags or like devices without being destroyed and is therefore available for reuse innumerable times, over and over again.

It is an object of this invention to provide a closure device that is readily applied to a pliable bag or the like to close the open end thereof and one which may be quickly removed to permit access to the contents of the bag.

It is another object of the invention to provide a closure device that is capable of withstanding extreme conditions of temperature without deterioration.

Yet another object is to provide a closure device for a pliable bag that is capable of being removed without being destroyed, thereby allowing the closure member to be reused as often as is desired.

It is another object to provide a closure member that will not be accidentally detached in the event the plastic bag is lifted by the closure member.

Other objects and features will become apparent as the description of the invention proceeds in greater detail and when considered in conjunction with the accompanying drawings wherein:

FIG. 1 is an exploded view of the two-part detachable closure device of the invention,

FIG. 2 is a section taken on line 2—2 of FIG. 1 and illustrates the gripping means of the invention,

FIG. 3 is an elevation of the invention in assembled position about a plastic container or bag, and

FIG. 4 is a section taken on line 4—4 of FIG. 3 and illustrates clearly the firm gripping action of the invention.

Referring to the figures of the drawings, and particularly to FIGS. 1 and 2, the detachable closure or locking device is of two-piece construction comprising a bridle member 10 and a collar member 12. The closure device is preferably constructed of a soft plastic material and is generally flexible in nature. While the inven-

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tion is described in relation to a plastic material, it is obvious that any structure that is rigid in form, but is somewhat flexible to plially deform, will be equally within the scope of the invention.

5 The bridle member 10 comprises a pair of spaced pliable or flexible legs 13 joined together or made integral at their upper and lower ends to form tapered surfaces of a generally heart shaped upper portion 14 and a lower tapered, locking portion 16 adapted to be received within the collar 12. The locking portion 16 includes a transverse portion or leg 18 that serves to join together the lower ends of the spaced legs 13. Transverse leg 18 is rigid, whereas the legs 13 of portion 14 are deformable inward when lateral inward pressure is applied thereto, for a purpose soon to be explained.

15 The rigid leg member 18 contains a number of laterally directed ridge projections 20 adapted to cooperate with similarly disposed ridge projections 36 provided in the collar member 12. In addition, a number of vertically pointed teeth 22 extend slightly above the transverse connecting portion of leg member 18 and slope downward at about a 30 degree angle to merge with an outer surface of the portion 18 immediately above the projections 20. The series of teeth 22 provide a plurality of pointed seats over which the gathered open end of a plastic bag 38 is adapted to be bent.

25 Formed as an integral part of the locking portion 16, and on the opposite sides of the spaced legs 13, are a plurality of outwardly disposed transverse latching projections 24. Also formed integral with and on opposite sides of the bridle 10 beneath each vertically spaced set of the latch projections 24 is a stop protuberance 26. Each stop extends outward from the locking member 16 and is designed to stop the downward movement of the collar 12 along the bridle 10 and from moving off the lower end thereof after the same has passed beyond the lowermost set of latch projections 24 on the spaced legs 13.

30 The collar 12 comprises a generally flattened hollow cone structure with the apex of the cone removed to provide a central, diverging passageway 28 open at each end 30 and 32. The open upper end 30 contains an annular ridge 34 extending inwardly to act as a stop means cooperating with the stop protuberances 26 of the bridle member 10. A plurality of vertically spaced transversely disposed ridge projections 36 are provided along the sloping facing inner surfaces of the passage 28. The ridges 36 create a corrugated effect and are intended to cooperate with the ridges 20 of the bridle member 10, also effecting a substantial corrugated shape. The combination of the two corrugated shapes serve to hold and lock the top of the plastic bag 38 in fixed position between them when the projections 36 of the collar 12 are moved into position over the cooperating locking ridge projections 20 of the bridle 10 as depicted in FIG. 4.

35 To close the open top end of the plastic bag 38 by the use of the present invention, the end thereof is gathered and inserted between the spaced legs 13 and moved down into the confines of the lower portion 16 against the pointed seats 22. The top end of the bag 38 is then bent over the pointed ridges of the plurality of teeth 22, as is shown in FIG. 4. Thereafter the bridle 10 and collar 12 are moved toward each other with the upper joined legs 13 inserted into the passageway 28 thereof by way of the lower opening 32. As the collar 12 and bridle 10 are moved relative to each other, a further amount, the collar moves down the tapered surfaces of the legs 13. Because the spacing of the legs 13 is normally wider than that of the passageway 28 of the collar, the legs are caused to deform laterally inward toward each other sufficiently to enable the collar to

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move downward thereover to reach the lower locking section 16.

Continued downward movement of the collar 12 along the legs 13 brings its corrugated shaped projections 36 into cooperation with the similarly shaped projections 20 on the bridle 10. This downward movement also brings the bent-over bag top into tighter seating non-slip engagement with the pointed seats 22 and securely locks the same between the cooperating projections 20 and 36 of the bridle 10 and collar 12 respectively. Further longitudinal downward adjustment of the collar 12 brings the upper outer surface 35 of the portion 34 successively beneath vertically disposed latch projections 24 on each leg 13.

Thus the collar 12 rides down the angularly sloped upper surface 40 of each latch projection 24 to lock beneath its bottom surface 42 until stopped by the thickness of the bag and/or its engagement with the proper latch projections 24, or by the oppositely disposed stops 26. When so engaged, it is impossible for the bent-over top end of the bag 38 to free itself and to open inadvertently. As described above, the device is capable of intermediate locking positions depending upon the material thickness of the bag 38. In this instance, the plurality of latching projections 24 cooperate with the upper outer surface 35 of the annular ridge 34 to lock the collar 12 in almost any position of its relative adjustment along the length of the bridle 10. The sloped surface 40 of each latching projection 24 enables the collar to move readily past these latching projections, while the bottom surface 42 engages the annular ridge 35 so that upward movement of the collar 12 is not possible without first squeezing the legs 13 of the bridle member 10 inwardly toward each other. An opening 44 at the top of the bridle allows the locking device to be hung up, if desired.

To release the locking action, the bridle member 10 is deformed by squeezing the legs 13 inwardly, retracting the latching means 24 toward each other and away from the collar surface 35. This releases the latching cooperation between the collar and bridle and allows the collar to be moved upwardly until the free end of the bag member 38 is exposed. Thereafter the bag may be removed from the pointed seats 22 and withdrawn from between the legs 13. Since the locking device is not in any way damaged by the aforescribed operation, it may be used again and again to perform its bag closing function.

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While the invention has been described in relation to a specific embodiment for purposes of illustration, it is to be understood that the scope thereof is not limited to the particular embodiment, but is contained within the terms of the following claims without departing from the spirit of the invention.

I claim:

1. A detachable closure device to close the open end of a bag comprising a closed loop-shaped bridle member including a plurality of oppositely disposed legs joined in spaced relationship to provide an opening therebetween through which the open end of a bag may be inserted, a seat at the lower portion of the joined legs having a plurality of angularly sloped vertically pointed teeth, a plurality of longitudinally spaced deformable teeth projecting from opposite sides of said legs, the upper surface of each of said teeth being sloped downward and the bottom surface thereof being substantially horizontal, a collar member having an opening therethrough narrower than that of said spaced legs and adjustable lengthwise along said legs to deform the same inward, said collar including peripheral ridge means defined about said opening adjustably engageable with said tooth projections to prevent the removal of said bridle member from said collar opening, horizontally disposed ridge means on said bridle and collar interior and cooperable to lock the bag end therebetween, and stop means on said legs longitudinally spaced from said teeth and engageable by said peripheral collar ridge to limit the lengthwise adjustment of said bridle member relative to said collar member, said engagement of said collar with said teeth projections being releasable by inward deformation of said legs.

2. A detachable closure device as in claim 1, said stop means being non-deformably engageable by said collar ridge.

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