ABSTRACT: A one-piece molded resilient plastic clip for sealing food bags or the like having a first flat elongated leg with a snap element formed thereon adjacent one end and a second, hingedly attached leg having a complementary snap element, said hingedly connected legs being swingable over upon themselves and snap locked together to positively clampingly seal the open neck portion of a bag interposed therebetween, there being integral finger-positioning means formed on said clip to facilitate the manual opening and closing of the same.
BAG CLOSURE MEANS

BACKGROUND OF THE INVENTION

1. Field of the Invention
   The present invention relates to closures for bags and the like, and more particularly to an airtight clamp-type closure.

2. Description of the Prior Art
   Heretofore, in attempts to seal flexible plastic bags of the type commonly used in the packaging of bread, vegetables, poultry, meat, produce, popcorn, and numerous other perishable products, as well as garment bags and bags intended for diverse other uses, there has been provided a thin plastic or paper-covered wire strip which is wound around the neck of the bag to close the same. Unfortunately, such conventional tie devices frequently do not provide an airtight seal, which is essential in order to prevent spoilage, and they are unsatisfactory in this respect. Moreover, the ends of said tie strips must ordinarily be twisted together a number of times to ensure they do not inadvertently pull apart, which repeated twisting is time-consuming and tedious, particularly when a housewife is putting up a quantity of freeze dry bags or the like and has to install a large number of said tie devices.

   To overcome the objectionable features and limitations of conventional tie devices attempts have been made in the past to design a snap-type clip for sealing food bags or the like. Unfortunately, however, such prior clip devices have all been complex in design and construction, including a plurality of interfitting and coacting shoulders and recesses, and in addition to being relatively expensive to produce they have not proven entirely satisfactory for their intended purposes. Examples of such prior closure clips are disclosed in U.S. Pat. Nos. 3,363,293 and 2,709,290.

SUMMARY OF THE INVENTION

The present invention comprises a one-piece molded plastic clip formed with a pair of hinged-connected legs which can be clamped over the neck of a food bag or the like and snap locked to provide an airtight seal protecting the contents of said bag.

A further object of the present invention is to provide a closure clip which is particularly well suited for sealing plastic food or garment bags, as described, and which clip can also be advantageously utilized for numerous other purposes including a seal for flower or goldfish shipping bags, a clip to join together mittens, gloves, or other apparel merchandise in pairs, or even as a disposable catheter clamp for surgical use.

A further object of the invention is to provide a new closure clip of the type described having an improved interfitting snap design to ensure said clip is securely releasably locked in its sealing condition.

A further object is to provide a new and improved closure clip of the type described having novel means formed thereon ensuring the proper positioning of the user's fingers to promote the quick and easy locking of said clip, as well as facilitating the manual release of said clip when it is desired to open the bag.

A further object of the invention is to provide a new and improved closure clip having a special integral hinge design promoting the smooth and easy opening and closing of said clip.

Still further objects of the present invention are to provide a new and improved airtight closure clip for food bags or other uses which is inexpensive to manufacture, which is durable and long-lasting in construction, which is simple to use, and which novel clip is otherwise particularly well adapted for its intended purposes.

BRIEF DESCRIPTION OF THE DRAWING

In the accompanying drawings illustrating a preferred embodiment of the invention, wherein the same reference numerals designate the same parts in all of the views:

FIG. 1 is a side elevational view of the clip in an open, extended condition;
FIG. 2 is a top plan view of the extended clip;
FIG. 3 is a side elevational view showing the clip in the process of being closed;
FIG. 4 is a side elevational view showing the clip in its closed condition;
FIG. 5 is a side elevational view showing said clip being manually opened; and
FIG. 6 is a perspective view showing a bread bag with the novel closure clip installed thereon.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now more particularly to the drawings, the new and improved closure clip 10 comprising the present invention includes a first substantially flat elongated leg 11 and a second elongated leg 12 connected thereto by an integral hinge section 13. Said hinge includes an arcuate cutout portion and notch 15 formed in the surface of the clip intermediate the length thereof which is designed to facilitate the folding over of the legs 11, 12 to an overlying, closed position, and ensuring that the interfitting snap elements on the inner surfaces of said leg members are accurately aligned, as will be hereinafter seen. It is to be understood, incidentally, that for the sake of simplicity and clarity the references hereinafter to the "inner surfaces" of said leg members 11 and 12 refer to the surfaces thereof that are in facing relationship when the clip is in its folded-over condition, as illustrated in FIGS. 3-6 of the drawings.

In the preferred form of the present invention said clip 10 is molded of polypropylene or similar low cost, resilient, and durable plastic, but it is to be understood that other materials and forming methods could also be utilized, and the invention is not to be limited or confined in this aspect.

With reference again to the drawings, the clip leg 11 is provided with an outwardly curved outer end portion 16, and the leg 12 is provided with an oppositely curved end portion 17. When said legs 11, 12 are arranged in their overlying, closed position, as shown in FIGS. 4 and 5, said curved outer end portions diverge to permit the insertion of the user's thumb or finger therebetween, the purpose of which will be described.

Formed and extending transversely across the inner surface of the leg 11 a short distance inwardly of the free end 16 thereof is a male snap element comprising a wedge-shaped projection or lug 18 supported by a neck or stem 19 and having downwardly diverging faces A and B. As will be seen, said lug 18 is nonsymmetrical in design, with the side A formed on one angle and the opposite side B being larger in size and formed on a less acute angle, said larger portion having a hook 22 formed on the underside thereof.

The opposite leg 12 is of a configuration providing a complementary socket 19 adjacent the leg end 17, said socket receiving an inwardly-facing opening 19' extending thereacross that is slightly smaller than the lug 18. As will be seen, the inner marginal edge of said socket opening is beveled at 14, said bevel being at an angle substantially the same as the angle of the face A of the above-described male snap element 18, and the opposite edge of said socket opening is provided with an undercutted hook member 15. In addition, the portion of the leg 12 adjacent and defining said socket includes a relatively thin neck section 20, the function of which will become apparent hereinafter.

Formed on the exterior of the leg 12 opposite the socket 19 is a curved, longitudinal protuberance or shoulder 21 which functions as a finger-positioner during the closing of the clip. In the illustrated embodiment of the invention said shoulder 21 is provided with a plurality of notches or grooves 23 forming a nonslip surface, and the curved outer end portion of the other leg 11 has similar grooves 16'. The inner surface of said leg 12 is provided with a raised longitudinal ridge 24 extending along one entire finger-positioner thereof, and being approximately one-third the width of the leg, which ridge functions to tightly sealingly engage against the inner face of the opposed leg 11 when the clip is in its closed condition, as will be described in the following operational description of the invention.
In the use of the novel clip comprising the present invention to seal a food bag or the like, as for example the bread bag 25 illustrated in FIG. 6 of the drawings, the open end or neck portion of the bag is first gathered or pinched together and held while the clip 10 is manually snapped therearound. To close the clip 10 it is merely necessary for the user to grasp said clip in one hand, as shown in FIG. 3, with his thumb positioned on the upper surface of the leg 11 and his finger on the underside of the opposite leg 12 of the clip (or the clip inverted and said finger positions reversed). Due to the presence of the curved end portion 16 of the leg 11 and the finger-positioning protuberance 21 formed on the leg 12 the user's fingers are automatically correctly positioned to ensure that proper leverage is applied to engage the interfitting snap elements 18, 19, the grooves 21 and 16 preventing slippage of his fingers during the closing operation.

During the closing action the relatively gradually-tapered male snap element or lug 18 initially projects into the restricted socket opening 19, and continued inward movement of said cannlike member 18 causes the lug face A to wedgily act upon the complementary-angled marginal edge 14 of the socket and easily force said socket opening apart, the thin, resilient neck portion 20 of the leg 12 permitting the temporary deflection of said leg and spreading of said socket opening to receive said snap element 18. As soon as the lug 18 is urged into the socket to a point where the shoulder on said male element moves past the socket opening 19' the springlike nature of the clip causes said socket to snap therearound and the hook portion 22 of said lug engages the corresponding hook 15 formed on the socket margin, thus locking the clip in its closed position.

As hereinbefore mentioned, the inner surface of the clip leg 12 is provided with a flat, raised ridge 24, and when the clip is pressurously closed over a plastic food bag or the like as described said raised ridge pinches thereagainst to provide an airtight seal which effectively prevents spoilage. Due to the wedgelike design of the snap member 18, as well as the engagement of the coating hook portions 22, 15, any pulling or spreading force applied to the bag or intermediate portion of the clip actually tightens the locking engagement of said interfitting snap members 18, 19, thereby effectively preventing the accidental or inadvertent opening of the bag. In addition to providing a superior seal, in comparison with conventional wire ties employed for the same purpose, the present clip can be installed on a bag in substantially less time than it takes to apply such twist-type ties. Moreover, the present invention is particularly advantageous for left-handed people, who ordinarily have difficulty twisting conventional ties, as well as for arthritic sufferers and others with reduced finger dexterity.

When it is desired to open the bag it is merely necessary for the user to insert his thumb or finger between the curved, diverging end portions 16, 17 of the clip legs, as illustrated in FIG. 5, and pry the resilient, yieldable snap elements 18, 19 apart. Due to the resiliency nature of the clip material, and the thin, flexible design of the neck section 20 of the leg 12 which permits the temporary downward deflection of the leg outer end portion 17 when prying force is applied, this can be achieved quickly and with relatively little force. Thus the clip cannot only be installed on a bag in less time than prior closure devices, and will remain securely locked thereon, but it is simpler and faster to disengage when it is desired to open and remove something from the bag.

From the foregoing detailed description it will be seen that the present invention provides a new and improved closure device for food bags and the like having a number of advantages over the twist-type ties heretofore used.

The invention comprises an extremely inexpensive resilient plastic clip having a pair of specially-designed coacting legs adapted to be clamped over the neck of a food bag or the like to provide an airtight seal which effectively protects the perishable or other contents thereof. Provided with unique, integral finger-positioning means to ensure proper gripping for easy opening and closing, said clip device not only provides a superior seal in comparison to that obtained with conventional twist-type bag closures, but it can be installed and removed in a fraction of the time.

It is to be understood, as hereinabove mentioned, that while the new and improved closure clip comprising the present invention is particularly well suited for use with food and garment bags, it can also be advantageously utilized for numerous other applications wherein bag closing means are employed. It is contemplated, for example, that said airtight closure could be used to positively seal the plastic bags in which golfshirts are sold, or it could be utilized with nitrogen-filled flower-shippping bags, in lieu of heat sealing said bags as is the present practice.

It is even contemplated that the novel clip comprising the present invention could be used to removably join gloves or mittens together in pairs for merchandising purposes, rather than stitching the same together which is more expensive and time-consuming, or it could be utilized for joining socks or other wearing apparel or items that are merchandised in pairs. Another possible use of the clip is as a disposable catheter clamp, as well as other surgical applications. In short, the purposes to which the present invention can be put are innumerable and by no means is the invention to be limited to the uses illustrated and hereinbefore described.

Similarly, while a preferred structural embodiment of the improved closure clip featured in the present invention has been illustrated and described herein, numerous variations or modifications in the design thereof will undoubtedly occur to those skilled in the art. What is intended to be covered herein, therefore, is not only the illustrated form of the invention, but also any and all variations or modifications thereof as may come within the spirit of said invention, and within the scope of the following claims.

1. A one-piece closure clip formed of resilient, flexible material, comprising first and second elongated legs having an outer end and an inner end portion; hinge means connecting the inner end portions of said legs in a manner whereby said legs can be folded over to an overlying position; a male snap lock element on the inner surface of said first leg adjacent the outer end thereof, said male snap lock element having downwardly diverging angular faces terminating in shoulders, complementary female snap lock means on the inner surface of said second leg adjacent the outer end thereof, said female lock means including a socket adapted to receive said male snap elements, and having one of its marginal edges defining said socket opening beveled on an angle complementary to the angle of the corresponding face of said male snap element to facilitate the wedging entry of said male snap element into said socket, the resilient flexible nature of said clip permitting said lock means to be releasably snap locked together to secure said clip in its closed condition clampingly engaging an object positioned between said legs.

2. The closure clip recited in claim 1 and wherein said female snap element socket includes a relatively thin neck portioin designed to flex in response to manual force to facilitate the joinder and separation of said interfitting snap elements.

3. The closure clip recited in claim 1 wherein said male snap element has hook means formed thereon, and wherein one of the marginal edges defining said female socket opening is provided with a coating hook element to promote the joinder of said snap elements.

4. The closure clip recited in claim 1 and including finger-positioning means on said legs adapted to promote the proper positioning of a user's fingers to facilitate the manual closing and locking of said clip.

5. The closure clip recited in claim 4 wherein said finger-positioning means includes a curved shoulder formed integrally on the exterior surface of one of said legs at a point spaced inwardly from the outer end thereof.

6. The closure clip recited in claim 4 wherein said finger-positioning means are provided with transverse grooves adapted to form nonslip surfaces.
7. The closure clip recited in claim 1 and wherein said legs are provided with oppositely curved outer end portions which diverge when the clip is in its closed condition to permit a user to insert a finger therebetween to pry said legs apart when it is desired to open said clip.

8. The closure clip recited in claim 1 and having a flat longitudinal ridge formed on and protruding from the inner surface of one of said legs engageable against the inner surface of the opposite leg when the clip is in its closed condition to pressurably clampingly engage material interposed between said legs.