United States Patent

[11] **3,571,861**

[72] Inventor **Earle L. Olson**
Greendale, Wis.

[21] Appl. No. **778,983**
[22] Filed **Nov. 26, 1968**
[45] Patented **Mar. 23, 1971**

[73] Assignee **Famco Inc.**
Menomonee Falls, Wis.

[54] **BAG CLOSURE MEANS**
8 Claims, 6 Drawing Figs.

[52] **U.S. Cl.** **24/30.5**
[51] **Int. Cl.** **B65d 63/00**
[50] **Field of Search** ..... 24/30.5, 30.5 (PB), 245 (FF), 255 (H), 255 (S), 255 (SL), 255 (BC), 259 (HC), 259 (BB), 208.1, 208.3; 229/62; 150/3, 4, 6; 128/346

[56] **References Cited**

UNITED STATES PATENTS

3,461,876	8/1969	Miller	128/346

FOREIGN PATENTS

270,934	11/1962	Australia	150/3
1,412,518	8/1965	France	24/30.5PB
28,851	8/1964	Germany	24/255SL
614,520	12/1960	Italy	24/245FF
638,338	4/1962	Italy	128/346

Primary Examiner—Donald A. Griffin
Attorney—Morsell and Morsell

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.

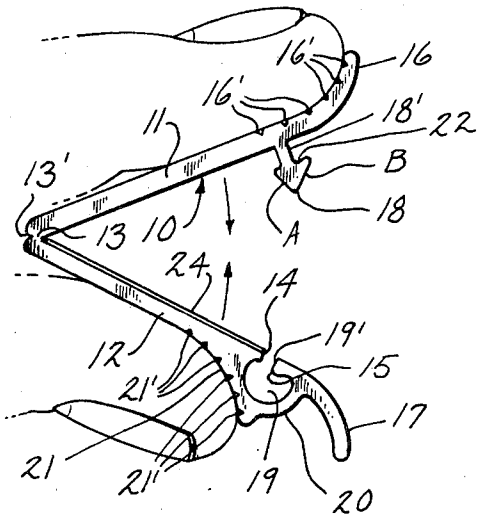


Fig. 1

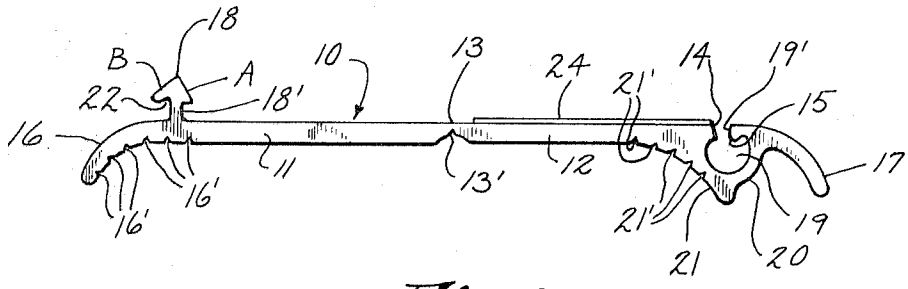


Fig. 2

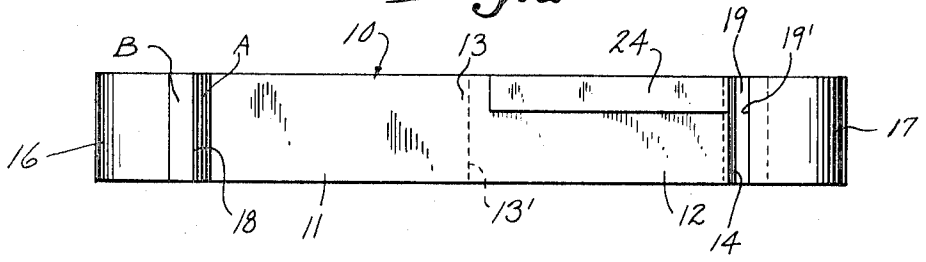


Fig. 3

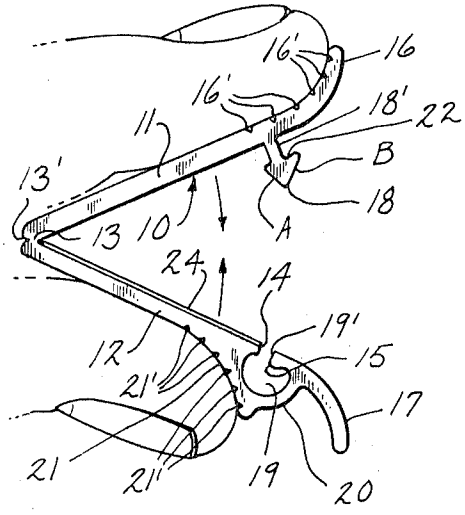


Fig. 4

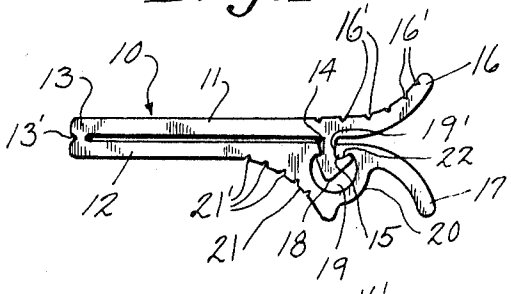


Fig. 5

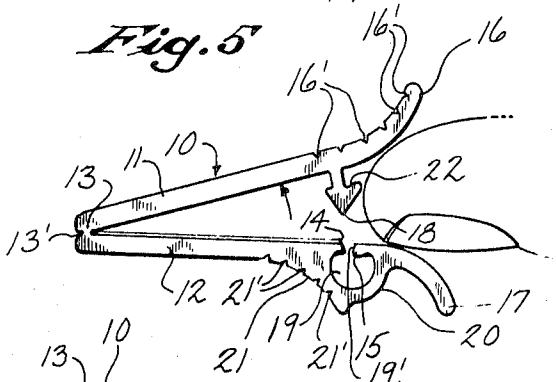
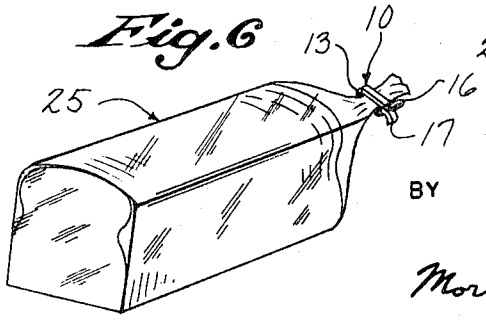


Fig. 6



INVENTOR
EARLE L. OLSON

BY

Morsell & Morsell

ATTORNEYS

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, 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 freezer 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 hingedly-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 merchandised 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 **13'** 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 on 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 **18'** 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 having 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 as 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 underturned 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 **21'** 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 camlike member **18** causes the lug face A to wedgingly 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 part 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 pressurably 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 coacting 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 resilient 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 goldfish are sold, or it could be utilized with nitrogen-filled flower-shipping 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.

I claim:

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 portion 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 coacting 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 lon-

gitudinal 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.