Aug. 20, 1968 O. E. SEIFERTH ETAL 3,397,775

CLIP AND SEAL PACKAGE

Filed Dec. 22, 1965

Fig. 2

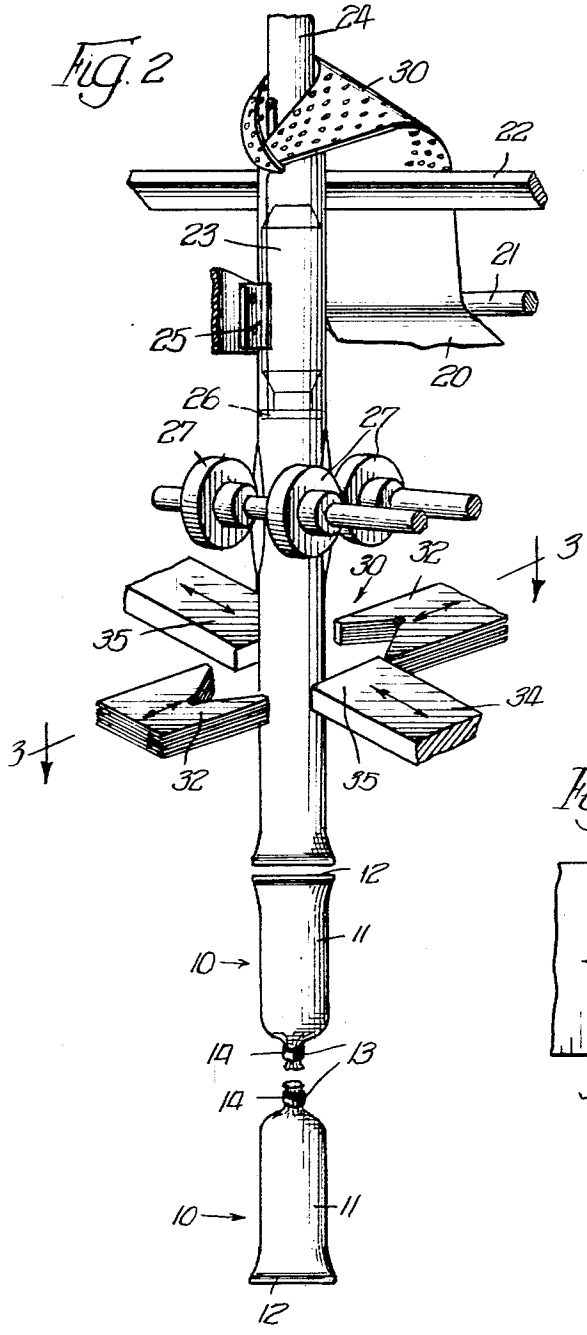


Fig. 1

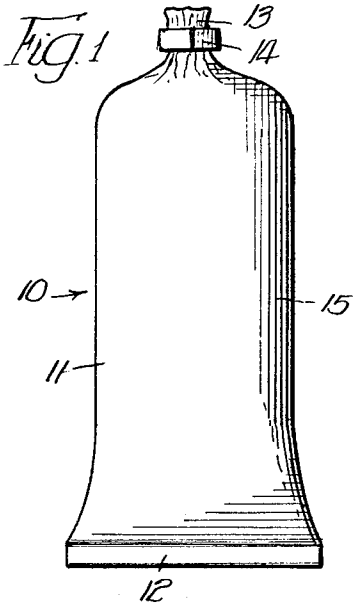
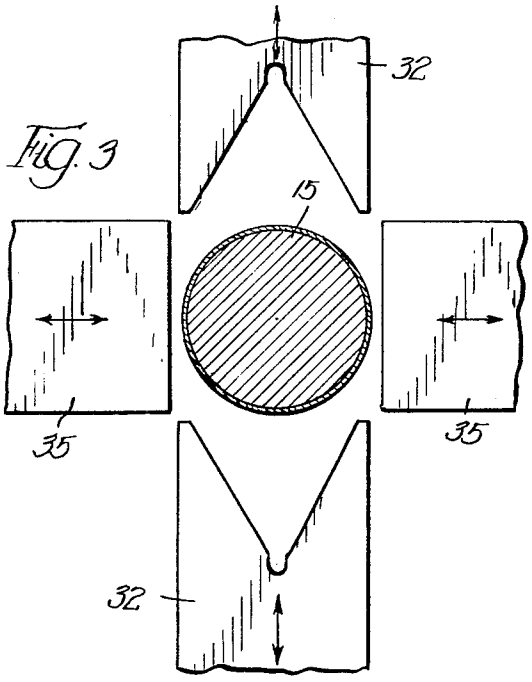


Fig. 3



Inventors:
Oscar E. Seiferth,
Glenn M. Austin,
By Brisk, Lockwood, Brunswald & Dewey.
Attys

United States Patent Office 3,397,775 Patented Aug. 20, 1968

3,397,775

CLIP AND SEAL PACKAGE

Oscar E. Seiferth and Glenn M. Austin, Madison, Wis., assignors to Oscar Mayer & Co., Inc., Chicago, Ill., a corporation of Illinois

Filed Dec. 22, 1965, Ser. No. 515,629
2 Claims. (Cl. 206—46)

This invention relates to packaging and is more particularly concerned with improvements in a package of the type in which the product is encased in a tube of thin pliable film material with closure means at opposite ends and in a method and apparatus for forming the same.

One form of package which has been used extensively in commerce for packaging various materials including meat products, cheese and other foods, is produced by continuously forming a tube on a hollow filling mandrel, feeding the material to be packaged through the mandrel and into the tube, and dividing the filled tube into a series of packages by constricting the tube at intervals, applying pairs of closure forming wire ties or metal clips about the constricted tube portions and cutting or severing the tube between the same. Such a package and the method and apparatus for forming the same is disclosed in Eberman and Jensen Patent No. 2,831,302, dated Apr. 22, 1958. Another form of this package has long been employed in the marketing of a variety of products which is produced in a similar manner with the filled tube being flattened at intervals and the closures formed by applying transverse heat seals to the flattened tube areas. This form of package is disclosed in Zwoyer Patent No. 1,986,422, dated Jan. 1, 1935 and Stokes Patent No. 2,257,823, dated Oct. 7, 1941. While both of these packages have enjoyed substantial commercial success, the use thereof has been confined to a limited number of products primarily because neither type of package has been considered appropriate for products of the character which makes it highly desirable to market them in a package which may be more readily opened than either of the packages referred to. In the marketing of some materials it is highly desirable to be able to open the package without breaking through the walls of the container which is generally necessary in opening the two conventional forms of this type package. It is also desirable to be able to leave part of the product in the container and to close the same so as to protect the remaining product. Accordingly, it is an object of the present invention to provide a package of tube-like or pillow-like form which is closed at its opposite ends by flat and gathered seals, respectively, with the seal at the gathered end being preferably operable without rupturing adjoining wall portions so as to permit closing thereof after removal of the package contents or a portion thereof.

A more specific object of the invention is to provide a package wherein one end of a tubular container body is closed by a flat, transverse heat seal of a permanent nature while the other end is gathered and closed by a clip or tie member preferably of a material which will permit of its removal without destruction of the adjoining material in the container body.

A still more specific object of the invention is to provide a package and a method and apparatus for forming the same wherein a web of relatively thin, pliant, heat sealable film is formed into a tube about a filling mandrel, the tube is filled with a product fed through the mandrel and the filled tube is constricted and closed at intervals to provide a series of packages with alternate closures comprising a flat transverse heat seals extending transversely of the longitudinal axis of the tube and wire clips or ties encompassing gathered portions of the tube which are axially spaced relative to the transverse seals so as to form the mouth of the package with the latter being openable by removal of the associated closure clip when the gathered tube portions are cut so as to free the packages.

These and other objects and advantages of the invention will be apparent from a consideration of the package, and the method and apparatus for forming the same which are shown by way of illustration in the accompanying drawings wherein:

FIGURE 1 is a side elevation of a package which incorporates the principal features of the invention;

FIGURE 2 is a perspective view, with portions broken away, illustrating an apparatus for forming the package; and

FIGURE 3 is a cross section taken on the line 3—3 of FIGURE 2, to an enlarged scale and with portions broken away.

Referring to the drawings, there is illustrated in FIGURE 1 a package **10** embodying the principal features of the invention. The package **10** comprises a tubular body **11** formed of relatively thin pliable sheet material which is heat sealable and which is closed at the bottom forming end by a flat heat seal **12** extending transversely of the longitudinal axis of the tube **10**. The other end **13** of the package is gathered and closed by a closure forming member which is preferably a metal clip **14** of a character which can be removed without the use of tools so as to leave the mouth forming end of the package free for reclosing when only part of the product **15** is removed therefrom.

The preferred method of forming the package **10** and apparatus suitable for carrying out the same is illustrated in FIGURES 2 and 3. The packages **10** are formed by the machine in a continuous connected string or series of predetermined size or length and separated by severing between pairs of end closures applied thereto. The machine illustrated in Jensen and Eberman Patent No. 2,831,302 may be employed with modifications hereinafter referred to in the manufacture of the package and details of the machine not described herein will be found in the aforementioned patent.

Material for forming the package **10** preferably is supplied in the form of a continuous web or film **20** from a suitable supply roll (not shown). Film such as saran, Pliofilm, polyethylene or similar material which will form a thin pliant skin-like casing is suitable. The tube forming film **20** is fed beneath a guide bar **21** and over a cross bar **22**, both of which extend transversely of the long axis of a vertically disposed hollow filling mandrel **23** the latter having a suitable extension **24** for connection with a product supply line. The web **20** is guided over a forming plate **30** which is cut and shaped to form a collar around the mandrel **23** and which reverses the direction of the web **20** and guides the edges thereof downwardly into overlapping tube forming relation around the mandrel **23**. The forming plate **30** may be secured on the cross bar **22**. The web **20**, guided by the plate **30**, forms a continuous tube with overlapping edges which are sealed by a sealing mechanism indicated at **25**. The particular type of sealing mechanism will be dictated by the sealing characteristics of the web **20** and it may be an electronic sealing apparatus when a film such as "saran" is employed or it may be a straight heat sealing bar when polyethylene or similar film material is employed.

The bottom end of the filling mandrel **23** terminates at a ring **26** which is of sufficient diameter to frictionally engage the interior surface of the tube and to form a barrier against upward pressure of the material being packaged. The tube is drawn down from the end of the mandrel by a pair of feed rollers **27** supported on traverse shafts **28** which are connected with the drive mechanism

(not shown) for the machine. The tube, after passing the barrier ring **26**, tends to flatten out with the rollers **27** being engaged in paired relation at oppositely disposed side portions of the walls of the filled tube and gripping flat folds on opposite sides of the tube, thereby positively feeding the tube continuously downward to a tube constricting or gathering and sealing head **30** which is mounted for vertical reciprocation below the feed rollers **27**.

The sealing head **30** carries two sets of tube constricting and sealing mechanisms which are operative in paths at right angles to each other and which are arranged for alternate engagement with the tube so as to provide two different types of seals at predetermined spaced intervals relative to the longitudinal axis of the tube. One set of sealing mechanisms **31** may be of the same character as disclosed in Patent No. 2,831,802 comprising reciprocating pairs of co-operating tube gathering plates **32** and associated mechanism for gathering the tube and applying pairs of wire clips or sealing elements **14** in the same manner as set out in the aforesaid patent. The other set of sealing mechanisms **32** comprises a pair of heat sealing bars **35** disposed on opposite sides of the tube and adapted to be reciprocated towards each other to flatten the tube and apply transverse heat seals **12** in the manner described in Patent No. 2,257,823. The seal forming mechanisms **31** and **34** may be carried by a single reciprocating head structure or they may be mounted on separate structures which are operated so that the seals are applied to the tube alternately as illustrated and the packages may be separated by tube severing elements carried by the sealing mechanisms or the severing may be accomplished subsequent to the seal forming operations.

We claim:

1. A package comprising a flowable product encased in a tubular container which is of pillow-like form and fabricated of a relatively thin, pliant, heat sealable film material, the bottom forming end of said container having a closure forming flat heat seal extending transversely of the longitudinal axis of the container and the top end of said container having top marginal portions of the side wall gathered into a tightly compacted cylindrical tube section and a tie member of relatively rigid deformable material encompassing the gathered tube material and adapted to hold the same in tightly compacted sealed relation, said tie member being adapted to be removed without rupturing the container material so as to enable the package to be readily opened and reclosed.

2. A package as recited in claim **1**, and said tie member being a relatively stiff bendable metal clip encircling the gathered tube material.

References Cited

UNITED STATES PATENTS

3,079,067	2/1963	Hill	229—65
3,107,842	10/1963	Guilfoyle	229—62

FOREIGN PATENTS

675,960	7/1952	Great Britain.
1,181,283	1/1959	France.

WILLIAM T. DIXSON, JR., *Primary Examiner.*