March 14, 1967 M. ROLAND ETAL 3,308,936

CLOSED END FILM PACKAGE

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FIG. 1.

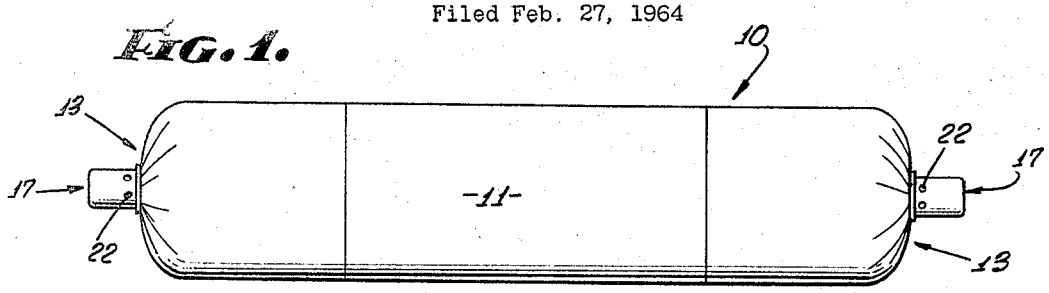


FIG. 2.

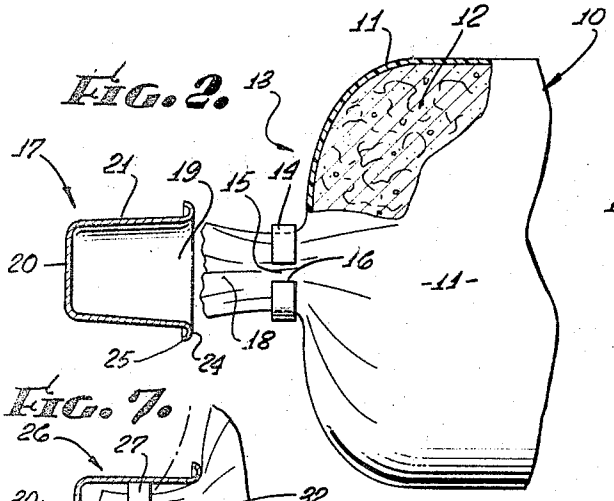


FIG. 3.

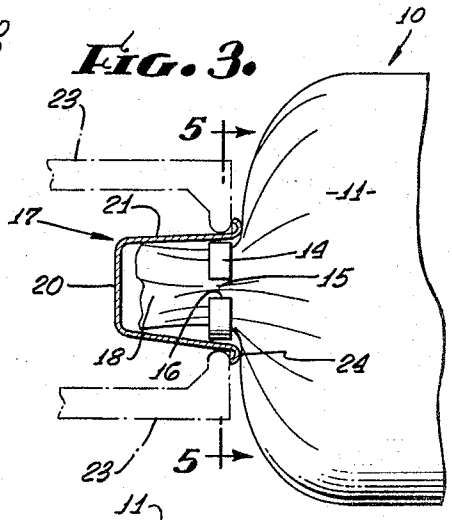


FIG. 7.

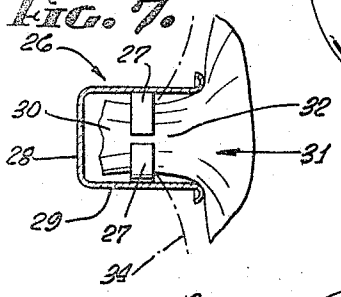


FIG. 5.

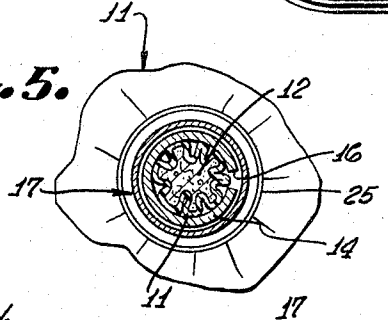


FIG. 4.

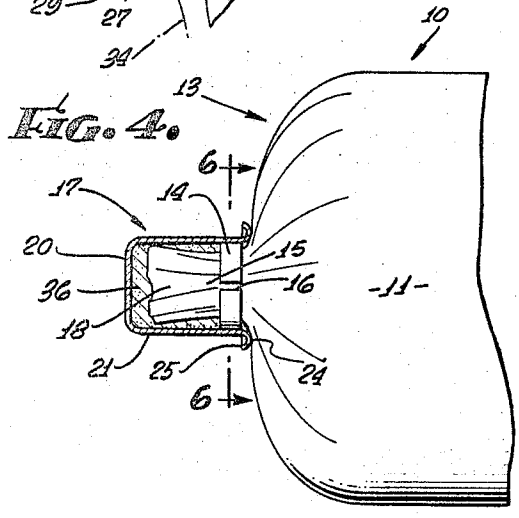
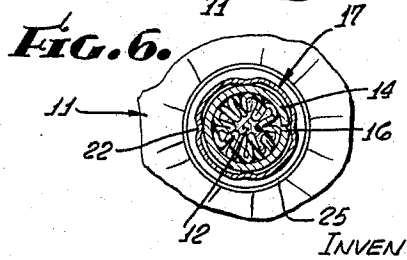


FIG. 6.



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CLOSED END FILM PACKAGE

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6 Claims. (Cl. 206—46)

This invention relates generally to closing of packages, and more particularly concerns improvements having to do with preventing inadvertent release of package closures of the type used for holding a package wrap in gathered condition at an end of the package.

In the past, packages have been closed by collapsing bands about wraps gathered at package ends. For example, so-called chub packaging involves the use of equipment operating to collapse a metallic band or clip about a film wrap to block release of the pack contents, the latter typically consisting of a flowable filler material such as sausage, dog food and the like. However, the subsequent handling of packages of this type frequently leads to inadvertent release of the contents, particularly at the band closed end or ends. It is found that forces accompanying such handling tend to create internal pressures in the flowable filler, and that these pressures can effect sufficient expansion of the collapsed band or clip at the package end to permit oozing of the filler and consequent spoilage or necessary rejection of the pack. Thus, inadvertent dropping or other impacting of the pack can loosen the band sufficiently to result in exposure or pressure release of the filler to the exterior.

The present invention has as its main object the provision of an improved package characterized as having a wrap which is closed by a band or clip, and further characterized in that means is retained on and extends about the collapsed band to block expansion thereof in order to prevent exposure of the filler to the exterior, as for example by pressure release of the filler. To this end, a metallic capping means may be provided to fit over the band and at the same time confine that portion of the wrapper film protruding through the band. Further, the capping means may be in the form of a metallic receptacle having a skirt deformed into tight engagement with the metallic band to prevent band expansion in response to application of pressure generated within the flowable filler material and applied at the band. Additionally, the package may be hermetically sealed by means of a sealant confined within the capping means.

It is a further object of the invention to provide a package characterized in that the main extent of the film wrap is held in tensioned condition at the periphery of the package by the same means acting to block expansion of the band closure. Thus, the capping means may squeeze the wrapper between the band and the main extent of the package to further gather the wrapper film and eliminate any undesired wrinkles or folds created or existing in the main extent of the wrap as an incident to the introduction of filler into it.

These and other objects and advantages of the invention, as well as the details of an illustrative embodiment, will be more fully understood from the following detailed description of the drawings, in which:

FIG. 1 is a side elevation of a chub package of the improved type characterized by the invention;

FIG. 2 is an enlarged fragmentary showing of an end portion of a chub package prior to complete assembly of the package components;

FIG. 3 is a view like FIG. 2 showing the manner in which the package components may be assembled;

FIG. 4 is a view like FIG. 2 but showing the package after assembly of its components;

FIG. 5 is a section taken on line 5—5 of FIG. 3;

FIG. 6 is a section taken on line 6—6 of FIG. 4; and

FIG. 7 is a view similar to FIG. 4 but showing a modified form of the package assembly.

Referring to FIGS. 1–6, the elongated package **10** includes a wrapper **11** covering the filler **12** which may typically but not necessarily comprise sausage, dog food or the like, any filler being contemplated so long as it is flowable in response to external force application to the package. The wrap **10** may typically comprise a shrinkable or non-shrinkable plastic film, and it is gathered at opposite end regions **13** of the package for closure by a band **14** collapsed about the terminal portion **15** of the wrapper. Typical films include polypropylene and those having the trade names Mylar and Saran. The band or clip **14** is preferably metallic and is collapsed sufficiently to hold the gathered terminal portion **15** of the wrapper in tightly compressed condition, as best seen in FIGS. 5 and 6. For this purpose, the band may have a C-shape with the terminals **16** thereof collapsed closely toward one another. Other type bands are contemplated, as for example metallic wire, and bands having circular or non-circular shape, with or without overlapping ends. It is to be noted that sufficient internal pressure generated in the filler and transmitted internally of the wrapper terminal portion **15** may effect expansion of the C-shaped band or clip to permit oozing or other release of the filler unless band expansion is prevented.

In accordance with the invention, means is provided to be retained on and to extend about the collapsed band for blocking expansion thereof, in order to prevent exposure or release of the filler. One such means is shown in the drawings to comprise a metallic cap in the form of a receptacle **17** sized to receive the film terminal portion protruding at **18** through the band **14**. The receptacle has an inlet **19** into which the film terminal portion and the band are receivable, and it also has a closed end **20** for completely confining the film terminal portion. A skirt **21** on the receptacle is seen in FIGS. 4 and 6 to be deformed inwardly into tight engagement with the band at the clamping locations **22** spaced about the band. Such deformation of the skirt is preferably carried out by dimpling the band at the locations **22** during assembly of the package components. Thus, for example, as seen in FIGS. 2 and 3 the receptacle is initially sized to loosely receive the band as the receptacle is placed over the terminal protruding portion **18** of the film wrap. Thereafter, appropriate tooling shown at **23** squeezes the receptacle skirt **21** at the dimple locations **22** to effect a tight clamping of the receptacle on the band for retention thereon to prevent band expansion. In this regard, the permanent deformation of the receptacle at the dimple locations cold strengthens the receptacle, which may for example be made of aluminum, so as the prevent band expansion.

Receptacle **17** is shown to have an end flange **24** which is turned in order to present its convex side toward the gathered end portion **13** of the wrapper **11**. As a result, the rim **25** of the flange does not come into tearing contact with the wrapper during asembly of the cap over the band.

Turning now to FIG. 7, a band capping means in the form of a receptacle **26** is shown to be retained on the band **27** of the same type as previously indicated at **14**, the receptacle **26** having a closed end **28** and a skirt **29**, these confining the protruding portion **30** of the package wrapper **31**. The gathered end portion **32** thereof is squeezed inwardly by the outwardly flanged annular end portion **33** of the receptacle **26**, and in spaced relation to the band **27**. In the absence of such squeezing, the wrapper end portion **32** would in general flare outwardly and loosely at the broken line location **34**, it being the

purpose of the FIG. 7 form of the invention to maintain the main extent of the film **31** in tensioned condition at the periphery of the package, i.e., to eliminate wrap looseness or wrinkling. The latter may result from the wrapper filling process wherein for example the filler may be heated sufficiently to result in the formation of steam or other gas pockets within the wrapper, and which condense to leave voids within the package. As a result of end squeezing of the package in the manner referred to above, the voids may be eliminated and the film, as for example Mylar, will be tensioned properly about the package. At the same time, of course, receptacle **26** is retained on the band **27** in the same manner as described above in connection with FIGS. 1–6, in order to prevent band expansion .

Comparison of FIG. 5 with FIG. 6 shows that the band is further compressed about the wrap at **15** in response to clamping of the capping means **17** thereon, the band terminals **16** typically being closer together in FIG. 6 than in FIG. 5.

FIG. 4 also shows a sealant **36** as confined within the capping means to seal off against the film terminal portion **18** protruding through the band. The sealant may for example comprise paraffin, wax, an elastomer or an adhesive for hermetically sealing the package end, confinement of the sealant within the capping receptacle protecting it from injury or destruction.

We claim:

1. An improved package, comprising a film wrap to contain a filler, a metallic band collapsed about and holding the wrap at one end of the package in gathered condition to block exposure of the filler to the exterior, and a metallic receptacle having an inwardly deformed skirt tightly retained on and extending about the collapsed band to block expansion thereof in order to prevent said filler exposure, the receptacle having a flanged end firmly engaging the film and interiorly receiving the band sufficiently as to effect film squeezing between the band and the main extent of the package thereby inwardly maintaining the main extent of the film in tensioned condition at the periphery of said end of the package.

2. An improved package, comprising a flexible film having generally tubular form to contain a flowable filler, a metallic band collapsed about and holding the film at an end of the package in gathered condition to block release of the filler, and a metallic receptacle having an inwardly deformed skirt tightly retained on and extending about the collapsed band to block expansion thereof in response to pressure exerted by the filler thereby to prevent release of the filler through the gathered film at the band, the receptacle having a flanged end firmly engaging the film and interiorly receiving the band sufficiently as to effect film squeezing between the band and the main extent of the package thereby inwardly maintaining the main extent of the film in tensioned condition at the periphery of said end of the package.

3. An improved package, comprising a flexible film having generally tubular form to contain a flowable filler, a metallic band collapsed about and holding the film at an end of the package in gathered condition to block release of the filler, and a metallic receptacle having an inwardly deformed skirt tightly retained on and extending about the collapsed band to block expansion thereof in response to pressure exerted by the filler thereby to prevent release of the filler through the gathered film at the band, the receptacle having a flanged end firmly engaging the film and interiorly receiving the band sufficiently as to effect film squeezing between the band and the main extent of the package thereby inwardly maintaining the main extent of the film in tensioned condition at the periphery of said end of the package, the film terminal portion protruding through the band and said receptacle confining said film terminal portion.

4. An improved package, comprising a flexible film having elongated generally tubular form to contain a flowable solid filler, a metallic band collapsed about and holding the film at each end of the package in gathered condition to block release of the filler, and a metallic receptacle having an inwardly deformed skirt tightly retained on and extending about the collapsed band at each end of the package to block band expansion in response to pressure exerted by the filler thereby to prevent release of the filler through the gathered film at the band, each receptacle having a flanged end firmly engaging the film and interiorly receiving the band sufficiently as to effect film squeezing between the band and the main extent of the package thereby inwardly maintaining the main extent of the film in tensioned condition at the periphery of said end of the package.

5. An improved package, comprising a flexible film having elongated generally tubular form to contain a flowable solid filler, a metallic band collapsed about and holding the film at an end of the package in gathered condition to block release of the filler, and a metallic receptacle retained on an extending about the collapsed band to block expansion thereof in response to pressure exerted by the filler thereby to prevent release of the filler through the gathered film at the band, the film terminal portion protruding through the band and being confined within said receptacle, the receptacle having a skirt permanently deformed inwardly to clamp the band at spaced locations thereabout, the band having been loosely received within the receptacle upon initial assembly of the receptacle over the band, and sealant confined within the receptacle to seal off against the film terminal portion protruding through the band, one end of the receptacle being closed, the receptacle having outward flanging at its opposite end, said flanged end firmly engaging the film so as to squeeze the film between the band and the main extent of the package thereby inwardly maintaining the main extent of the film in tensioned condition at the periphery of said end of the package.

6. The package of claim **5** in which the band is generally C-shaped.

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