July 6, 1948. B. BOGOSLOWSKY 2,444,722

END CLOSURE FOR TUBULAR CONTAINERS

Filed Feb. 7, 1945

Fig. 1.

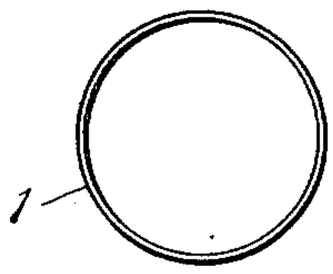


Fig. 2.

Fig. 3.

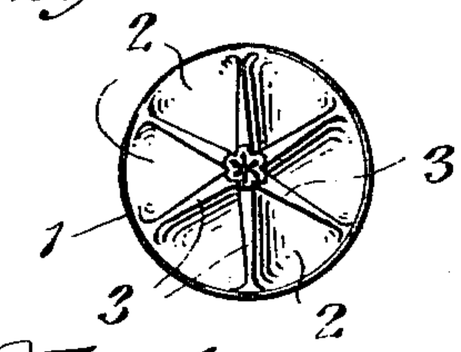


Fig. 4.

Fig. 5.

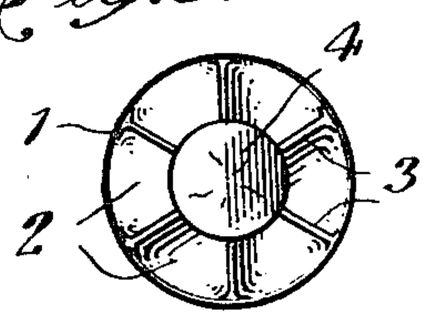


Fig. 6.

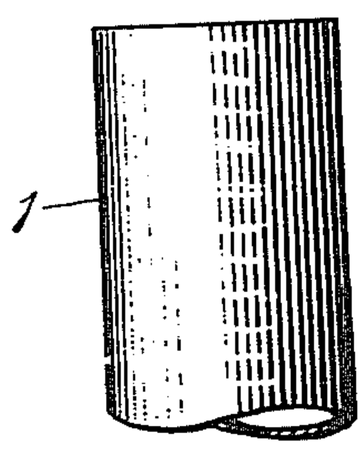


Fig. 7.

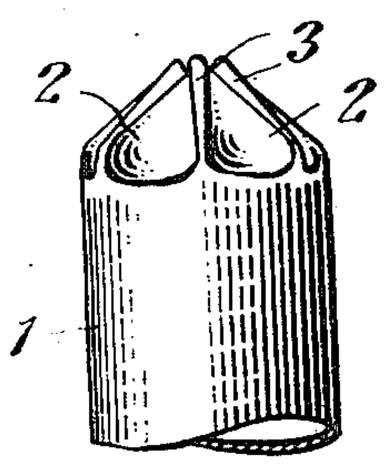
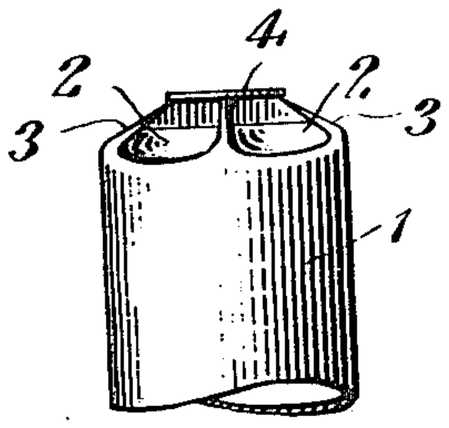
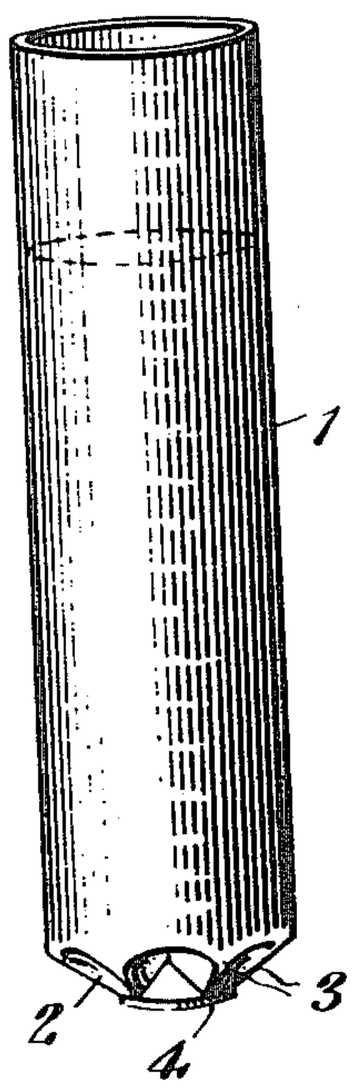
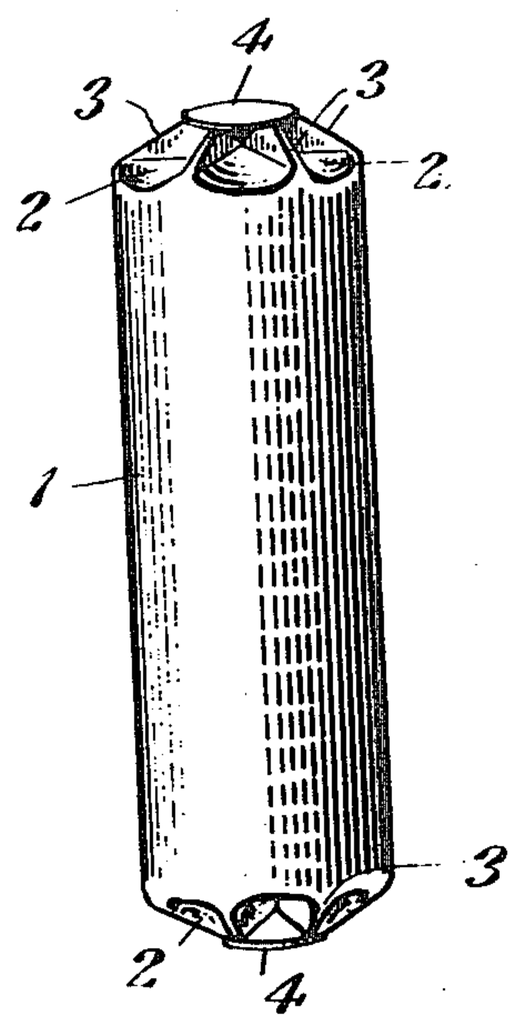


Fig. 8.







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END CLOSURE FOR TUBULAR CONTAINERS

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Application February 7, 1945, Serial No. 576,662

2 Claims. (Cl. 229—5.5)

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This invention relates to end closures for tubular containers.

It is an object of the invention to provide an end closure for a tubular container, which said closure is formed by proper manipulation of the tubular material, whereby the closure is integral with the tubular material. It is a further object of the invention to provide a closure which may be formed entirely by external manipulation, whereby said closure may be formed and sealed after said container has been filled.

Other objects and advantages of the invention will appear hereinafter.

A preferred embodiment of the invention selected for purposes of illustration is shown in the accompanying drawings, in which,

Figures 1 and 2 are top plan and front elevation views, respectively, of a tubular blank.

Figures 3 and 4 are similar views of the tubular blank after the first stage of the closure forming operation.

Figures 5 and 6 are similar views after completion of the closure.

Figure 7 is a perspective view of a tubular blank having a closure formed at one end and filled ready for closure of the other end.

Figure 8 is a perspective view of a completed container having closures at both ends.

In making a tubular container having a closure or closures according to the present invention, I start with a tubular blank 1 of any desired length and diameter, depending on the size of the container to be formed. Such tubular blanks may be formed from flat sheet material, either by convolute or spiral winding, or may be formed by extrusion of suitable plastic materials.

Many different types of materials having thermoplastic or heat sealing characteristics are suitable for the purpose, including many of the plastic films or sheets now available in the commercial market. For example, in the case of a container for liquids, a thermoplastic material such as polystyrene is particularly useful. Metal foil coated or laminated with thermoplastic materials is also useful for this purpose. For example, aluminum foil coated on both sides with Vinylite (vinyl ester resin) is an excellent material for use in containers for liquids, or in containers for dry materials which must be protected from moisture. Other thermoplastic materials or materials coated or laminated with thermoplastic materials will occur to those skilled in the art. The selection of a particular material or combination of materials will depend on the nature of the product to be contained, the important requirements

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as far as the present invention is concerned being that the material shall have thermoplastic or heat sealing characteristics, that it be reasonably strong and flexible, and capable of being bent or folded without cracking.

According to the present invention I first fold spaced portions of an open end of the tubular blank 1 inwardly toward the center of the blank to form inwardly folded shoulder portions 2 which meet at the center, and at the same time I fold the portions of said tubular blank lying between said inwardly folded shoulder portions to form a plurality of spaced pleats 3 projecting vertically from said inwardly folded portions and extending radially outwardly from the center. I then subject the central end portions of said pleats to axial pressure to flatten the same to a substantial disk shape, and I subject said disk 4 to heat to heat seal the thermoplastic material therein.

In addition to the fact that the closure described may be used to provide a leak proof seal for a tubular container, the closure has important advantages in that it is not only possible to form such closures without distorting the tubular form of the container, but also the radial pleats reinforce the ends of the container and serve to retain the original tubular form. The advantages of the integral structure are obvious.

Such containers are useful for many purposes. For example, by the selection of suitable materials, a hermetically sealed container may be formed which may be used as a substitute for a glass ampule for the packaging of pharmaceuticals and chemicals. Likewise such containers may be used for packaging cigars or coffee or other similar articles or commodities in which it is desirable to preserve moisture content or flavor constituents.

It will be understood that the invention may be variously modified and embodied within the scope of the subjoined claims.

I claim as my invention:

1. An end closure for a container having a tubular body portion, said closure comprising a plurality of spaced shoulder portions extending inwardly from said body portion to the center thereof and alternating with a plurality of spaced radial pleats extending outwardly from the center thereof, the central portions of said pleats, containing all of the end edges of said tubular blank, being flattened and heat sealed in the form of a disk spaced from said shoulder portions and lying in a plane substantially perpendicular to the axis of said tubular body portion.

2. An integral tubular container formed entirely from a single tubular blank, comprising a tubular body portion terminating at each end in a similar end closure, each of said end closures comprising a plurality of spaced shoulder portions extending inwardly from said body portion to the center thereof and alternating with a plurality of spaced radial pleats extending outwardly from the center thereof, the central portions of said pleats, containing all of the end edges of said tubular blank, being flattened and heat sealed in the form of a disk spaced from said shoulder portions and lying in a plane substantially perpendicular to the axis of said tubular body portion, said pleats serving to reinforce the ends of said container and to maintain the tubular shape of the body portion of said container.

BORIS BOGOSLOWSKY.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
177,024	Smith	May 2, 1876
1,058,523	Auchu	Apr. 8, 1913
1,123,976	Auchu	Jan. 5, 1915
1,125,644	Brewington	Jan. 19, 1915
1,362,090	Drysdale	Dec. 14, 1920
1,397,756	Drysdale	Nov. 22, 1921
1,658,543	Woodford	Feb. 7, 1928
1,904,365	Geist	Apr. 18, 1933
2,074,824	Karlson-Ygger	Mar. 23, 1937
2,242,829	Leighton et al.	May 20, 1941