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TUBULAR CONTAINER

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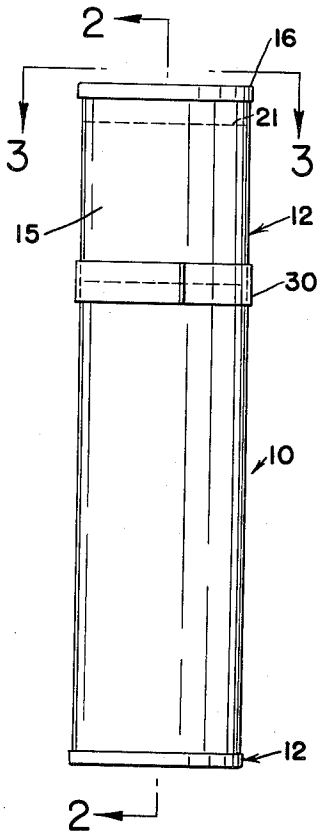

FIG. 1

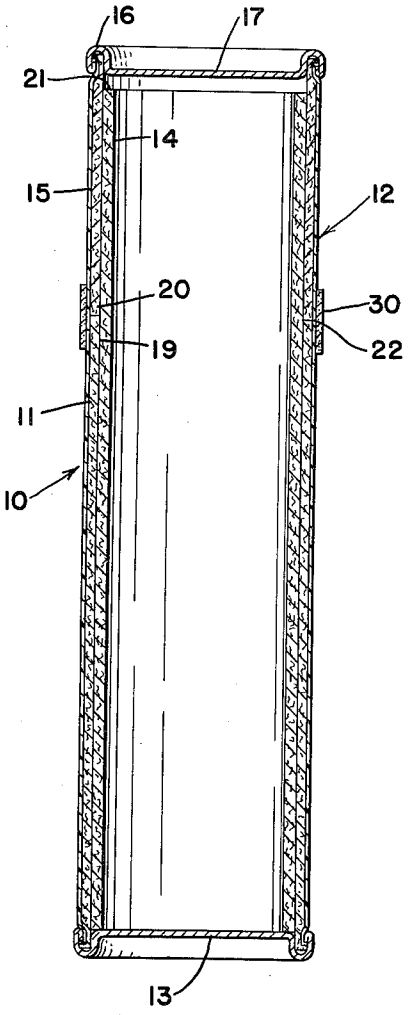

FIG. 2

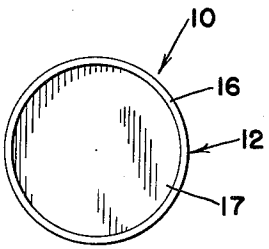

FIG. 3

INVENTORS
JACK T. WHELAN &
JOHN H. FRENCH

BY Fay & Fay
ATTORNEYS

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TUBULAR CONTAINER

Jack T. Whelan and John H. French, both of Hills and Dales Village, Canton, Ohio

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This invention, relating as indicated to a tubular container, is particularly directed towards a liquid and air-tight container for the temporary storage and shipment of articles in said container.

In general, this tubular container consists of a paper container having a cover section thereon and metal end seals on the ends thereof. Enclosing the tubular container is a seamless layer or film of polyethylene which is seamed onto the container by the metal end seam. This container provides temporary storage of goods which then may be shipped in an over shipper of specialized type to protect it against damage. The container itself is resistant to vibration, shock damage and end pull. It is also resistant to abrasion and will provide a reusable container when used with a slip cover. This container is absolutely sealed by means of the thin polyethylene coating that is seamed onto the metal end seals.

This is a new type of container that is reusable with taped joints on plastic and may be sealed against moisture and will withstand shock and vibration in transit.

An object of this invention is to provide a new and improved tubular container comprising a paperboard section and a paper cover section, which may be a slip cover, with metal end seals on the ends thereof firmly bonding in pressure friction adherence a layer of plastomer to the container.

A further object of this invention is to develop a container with a thin exterior coating of polyethylene that may provide an inexpensive protective container and secure it against moisture.

A further object of this invention is to develop a container having a first paperboard section and a second cover section that is adapted to mate with the first section, and also having a seamless layer of plastomer in pressure friction adherence with the sections and seamed to the ends of the container by means of metal end seals.

A further object of this invention is to develop a reusable container with a slip cover section and metal end seals having a seamless layer of plastomer in pressure friction adherence with the container and seamed to the container by means of the metal end seals.

To the accomplishment of the foregoing and related ends, said invention then consists of the means hereinafter fully described and particularly pointed out in the claims; the following description setting forth in detail one approved means of carrying out the invention, such disclosed means, however, constituting but one of the various ways in which the principles of the invention may be used.

In the drawings:

FIG. 1 is a side view of the container;

FIG. 2 is a cross-sectional view of the container along the line 2—2 of FIG. 1; and

FIG. 3 is a top view of the container along the line 3—3 of FIG. 1.

In connection with the drawings, **10** shows generally a tubular container having a long tubular section **11** with a metal end seal on the lower end thereof and a metal end wall **13**. A slip cover section indicated generally at **12** fits over an inner portion of paper **14** which extends in a stepped conformation above and beyond the lower section **11** of the tubular container. The slip cover has an outer layer **15** having seamed onto the end as at **16** a metal end seam. The end wall for the metal end seam is shown at **17**. The inner layer of the tubular container

14 is adhesively secured as at **19** to the lower section **11** and extends above the junction **20** with the slip cover to the top of the container as at **21**.

On the exterior side is a seamless covering of polyethylene from .005" to perhaps .050" in thickness, depending upon the size, durability and amount of protection needed. This layer of plastomer would preferably be of polyethylene, though it may be of polyvinyl chloride, polyester resin or combinations of these. In any event, it would be slipped over the outside of the cover and fastened by means of a metal end seal being clinched or seamed to the container wall and to the plastomer layer. This provides a liquid and air-tight seam that will withstand vibration, and in practice, is fairly resistant to moisture tests because of the resiliency of the plastic. Furthermore, it returns after a slight blow so that no leaks form near the metal end seam. The outer layer of plastomer would be in pressure friction adherence circumferentially, and to the extent possible by means of the end seaming operations would be stretched to provide a longitudinal tension in the container.

In some cases, though not all, we may use a pressure sensitive tape shown at **30** surrounding the junction of the slip cover section with the main body of the container. By this means the pressure sensitive tape could be removed, and the polyethylene layer cut and after removal of part of the contents, the pressure sensitive tape could be reapplied to the joint and a substantially liquid-proof joint would be provided.

In the past various types of taped joints have been provided with pressure sensitive tapes and other types of tapes. However, in connection with paperboard containers, even coated containers, the joint is not tight or else sections of the paperboard are removed with the pressure sensitive tape. In this invention it will be seen that pressure sensitive tape on polyethylene will not remove the outer coating or covering of polyethylene. It will provide a tight seal therewith. Even with some movement of the polyethylene, which is in pressure friction adherence both longitudinally and circumferentially, a tight seam can be made by this means. Further in connection with modifications of the container, under some circumstances the inner layer or portion of paperboard **14** may not be required. The cover would be properly a cover section or end section, rather than a slip cover. This container would be a non-reusable container and would be assembled in the same manner, and the polyethylene would hold the two sections of cylindrical sections together because of the tension in the polyethylene. If any misalignment occurs, the tension in the polyethylene would return the sections to register. It would not be possible to reuse this container, but it may be useful for an inexpensive single use container.

In connection with the container as shown, the sections would be assembled, the polyethylene or plastomer layer stretched over the container and seamed to the container. The package could be shipped to a loading plant where the opposite end, as for example, the metal end seam **16** and wall **13**, could be seamed on after the goods have been inserted. Opening would be by means of a cut of the polyethylene layer, as, for example, at **22** at the junction **20** between the slip cover and the elongated section **10**. By this means a knife cut could open the tubular containers so that the slip cover section could be removed and the contents withdrawn. Of course, it will readily be seen that the plastomer layer of polyethylene or the like, being in pressure friction adherence, would stay securely attached to the cover section and to the container proper and would not be in loose contact with the container or hamper the temporary storage operation. In this manner the container would be absolutely sealed and at the same time be

able to provide temporary storage for the goods upon opening of the seal.

Of course it will be seen in connection with this container that the goods will not be protected against the heaviest damage, but at the same time some amount of longitudinal movement of the container will not separate the slip cover section from the tubular container. The coating of polyethylene will provide a thin, resilient and tough section to give some elasticity to the goods in the event they are subjected to dropping, i.e., a section will stretch by the nature of the plastic material and permit the sections to separate slightly if this kind of action should take place, but the cover is sufficiently tough so that the seal will not break. A dropping blow on the container will provide this action and some cushioning is provided in this manner.

Although the present invention has been described in connection with a few preferred embodiments thereof, variations and modifications may be resorted to by those skilled in the art without departing from the principles of the invention. All of these variations and modifications are considered to be within the true spirit and scope of the present invention as disclosed in the foregoing description and defined by the appended claims.

We claim:

1. A reusable tubular container comprising a first section of paperboard having an outer layer of paperboard and an inner layer of paperboard extending axially above said outer layer, a slip cover section adapted to fit over said inner layer and to mate with said outer layer to form an end section slip cover therefor, shallow well metal end seams for said tubular container to seal the same, and an outer seamless layer of plastomer stretch-fitted over the outer layer, and in pressure friction adherence both circumferentially and longitudinally therewith, said plastomer layer being seamed to the metal end seam and against the paperboard layer to provide a liquid and air-tight seal for said container, whereby the container may be opened along the junction of the cover with the paperboard section by cutting that portion of the plastomer layer overlying the junction, and the plastomer layer will hold securely to the container by the pressure friction adherence thereto.

2. A tubular container, comprising a paperboard section and a slip cover section forming a junction therebetween shallow well metal end seams on the ends of the sections and seamless layers of plastomer stretched over and surrounding said container and slip cover section in pressure friction adherence with the container, said plastomer layer being clinched with the paperboard section in the metal end seam to provide a liquid and air-tight seam therebetween, pressure sensitive tape around said container at the junction between the paperboard section and the slip cover section, the tape having portions overlapping the paperboard and slip cover sections on either side of the junction in tight, moisture-impervious condition with the polyethylene, whereby the plastomer layer overlying the junction may be cut and the tape reapplied to provide a reusable container with a tight joint that will not leak between the seams and may be removed and reapplied as conditions warrant.

3. A reusable container comprising inner and outer tubular paperboard layers fitted one into the other to form a multiply wall structure, a junction extending around the outer layer intermediate the ends thereof and forming a line of separation therein, a bonding medium attaching the inner and outer layers to one another on one side of the junction, and a frictional contact only existing between the inner and outer layers on the other side of the junction to thereby provide a removable slip cover section, a tubular layer of seamless plastomer stretch fitted over the outer layer in circumferential and longitudinal pressure friction adherence therewith, transversely extending shallow well metal end closures at each end of the container with the marginal portion of each closure being provided with a peripherally extending axially inwardly opening groove within which the marginal edges of the plastomer layer and the outer paperboard layer are received and tightly clamped to provide a water-tight connection, each end of the inner paperboard layer being axially inwardly offset from each corresponding end of the outer paperboard layer an amount slightly greater than the depth of the groove in the corresponding end closure, and the inner layer at the opposite end thereof from the slip cover section being supported against the associated transverse end closure adjacent the groove therein.

4. A reusable container as defined in claim 3 in which a strip of pressure sensitive tape is wrapped around the plastomer layer in overlying relationship to said junction, whereby the container may be initially opened by removing the tape and cutting through the plastomer layer at the junction and subsequently resealed by a reapplication of the tape in overlapped relationship to the cut.

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