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[54] ROLLED PACKAGE OF FLEXIBLE CUSHIONING MATERIAL SECURED TO A BACKING MEMBER 3 Claims, 8 Drawing Figs.

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 161/160
 [51] Int. Cl. **B65d 85/00**
 [50] Field of Search 161/48,
 116, 190, 123, 130, 159—160, 131; 229/3.5, 14 C,
 93; 206/46 FCM; 217/35, 52, 53

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ABSTRACT: Container-forming material and containers formed thereby, the material being in a single sheet and including a layer of resilient, flexible cushioning material secured to a sheath or backing member which is flexible, so that a container is easily formed thereof e.g. manually by placing an article of substantially any shape on the cushioning material and rolling up the combined cushioning material with its backing or sheath, and then securing the edges together in a cylinderlike complete package; the cushioning material being compressed to some extent by this action, particularly in the area of the encompassed article; in addition end covers or caps may be applied to the rolled-up container aiding in maintaining the edges thereof together to form the complete package, with the sheath covering the entire outside of the package except for the ends; and in some cases applying cushioning material to the end caps themselves so as to prevent especially small heavy articles from shifting lengthwise of the package under impact to such an extent as to become damaged.

Urethane foam or other like resilient material and a single-faced corrugated board or the like, together make an ideal combination which can be rolled uniformly to form the package, somewhat in the nature of a mailing tube. Any profile or contour, including special article receiving cavities can be applied to the foam cushioning, or it may be coplanar, but in any case it is continuous across the sheet.

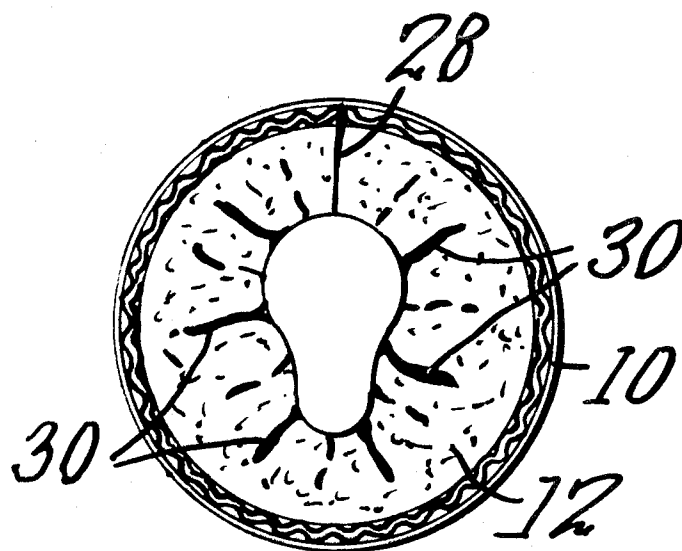


Fig. 1



Fig. 2

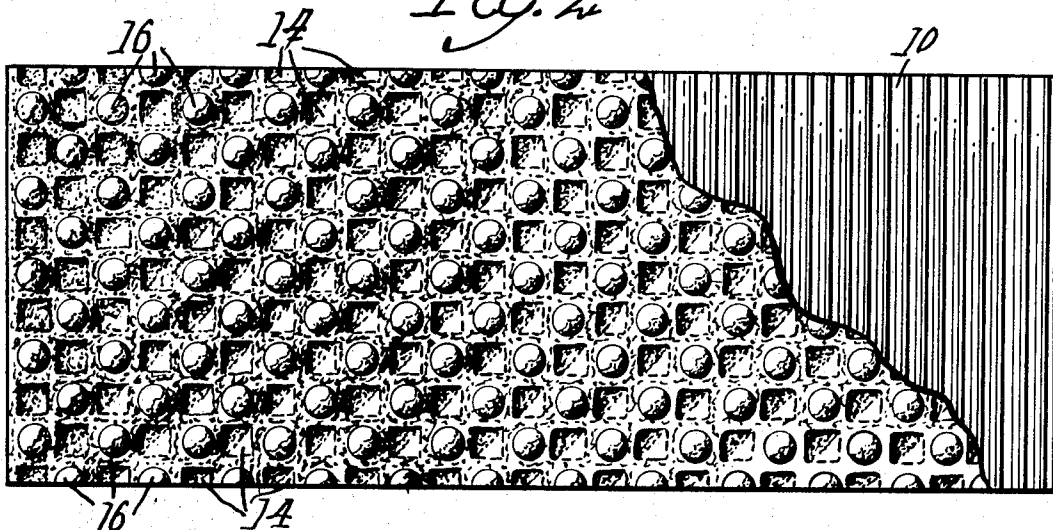


Fig. 3

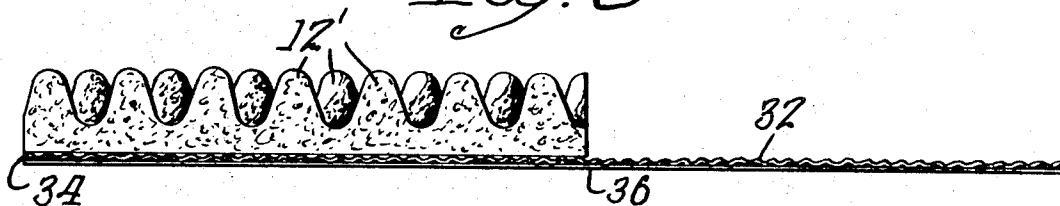


Fig. 4

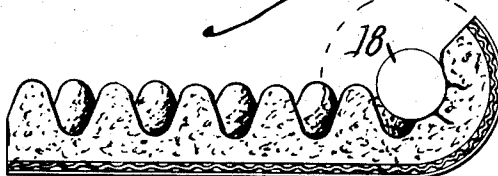
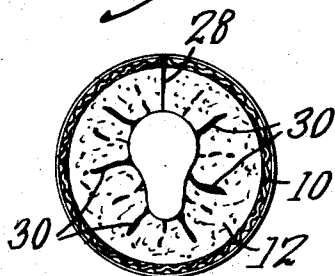


Fig. 5



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Fig. 6

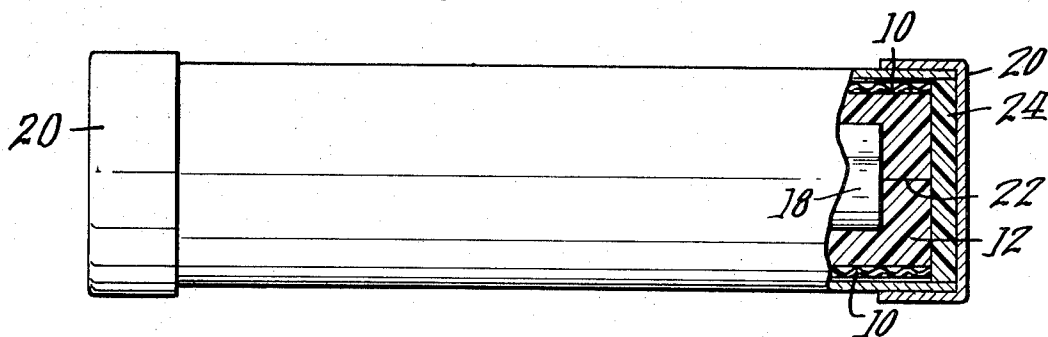


Fig. 7

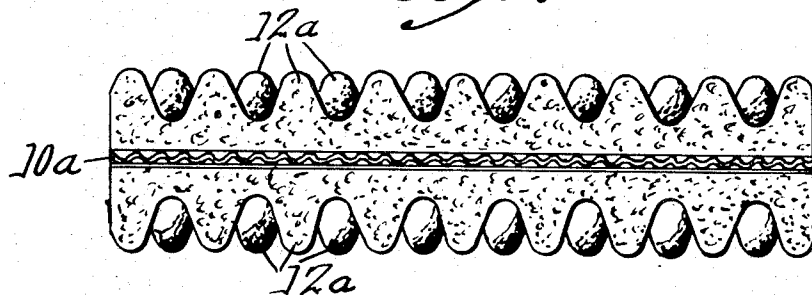
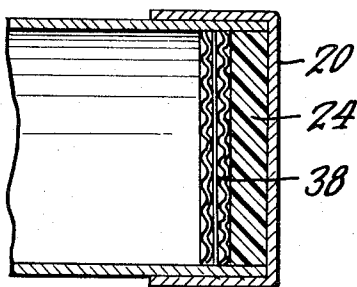


Fig. 8



ROLLED PACKAGE OF FLEXIBLE CUSHIONING MATERIAL SECURED TO A BACKING MEMBER

This invention relates to containers and container-forming material, and the principal object of the invention resides in the provision of a single sheet of material which is used to form a complete container with cushioning material therein to hold fragile articles to be transported, e.g. linear flash-tubes, glass jars, etc., the invention also contemplating the use of end caps for the container when the same is rolled up in a cylinder-like conformation. The shape of the container is not limited however, depending upon the shape of the article to be wrapped or containerized, as for instance a bricklike member can be wrapped in the material and assume generally the same shape as the brick with correspondingly shaped end caps, or an oval object may be so containerized also, etc.

The objects of the invention include the provision of a sheet of cushioning material e.g. urethane or polyurethane, cellular resilient material or the like, bonded to a backing sheet or sheathing which is flexible so that a package is easily formed by rolling the article to be packaged in the sheet with the cushioning material inside.

Among the advantages obtained by the present invention is the provision of a very economical method of packaging virtually eliminating the necessity for stocking varied size shipping boxes; rolls of the new packaging material can be kept on hand, either in different widths, or it can be cut. Flat sheets of the container-forming material of the present invention may be cut out ahead of time and stacked while awaiting use in the event that a series of similar objects are to be packaged.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings in which:

FIG. 1 is an elevational view of one form of the package forming material contemplated in the present invention;

FIG. 2 is a plan view of a sheet of the novel material showing one profile form, part being broken away;

FIG. 3 is an edge view illustrating a form of the invention in which the cushioning material does not extend throughout the entire area of the sheathing;

FIG. 4 illustrates the method of forming the container;

FIG. 5 is a view in section showing the completed container;

FIG. 6 is a view showing the complete container with end caps applied, parts being in section;

FIG. 7 illustrates a modification of the packaging sheet material, and

FIG. 8 is a section on an enlarged scale through a modified end cap.

One form of the invention is illustrated in FIG. 1 wherein the reference numeral 10 indicates a layer of single-faced corrugated material with the corrugations uppermost. This material per se is of course easily rolled up into cylindrical or similar form, depending upon the shape of the article that it is wrapped around. An example of such material is single face corrugated board.

The reference numeral 12 indicates a cushioning material which may be of any kind that is continuous across its width and length. An example of this cushioning material is foamed urethane or polyurethane, as is known in the art. Other usable cushioning materials may be rubberized steel wool, hair, fibers of various kinds or even springs, etc., and it will of course be recognized that the invention contemplates any such cushioning materials.

However, a resilient foamed material is of particular importance because of the fact that it may be provided with any desired profile such as regular or irregular indentations and projections as for instance illustrated in FIGS. 1, 2 and 3, or it may be provided with special cavities for special objects.

A preferred embodiment of the invention is shown in FIG. 2 where there are a plurality of depressions 14 and alternate projections 16 so that when the object 18 is to be packaged is placed in the center as illustrated in FIG. 3 and the sheet is

then rolled up with the cushioning material inside and the sheathing material on the outside, to a point where the edges of the sheathing material about as well as the edges of the cushioning material, see FIG. 5 and the dotted lines in FIG. 4.

A complete package is formed as soon as these edges are secured together by any means such as gummed paper, adhesive tape, etc. or by shipping labels or end caps and the cushioning material is compressed somewhat especially in the area of the article held.

The cushioning material in this case is tightly bound encompassing the object firmly but with an enhanced cushioning effect due to the projections. The article being gripped in position can be of substantially any shape and will not shift longitudinally of the package because even without an object therein, the cushioning material fills the entire package, and comes together at the ends of the article, as at 22 in FIG. 6.

Under conditions of relatively great weight of a small object, an impact blow on the package end such as it might receive upon being dropped a distance onto a floor or the like may require additional cushioning 24 in the end caps.

FIG. 5 shows the various projections e.g. those at 16, tightly squeezed together as at 28, the mating edges being shown at 30.

Referring to FIG. 3, there is an extension of the backing 10' indicated at 32 so that the article may be placed in the center of the cushioning material 12' and the package wrapped up so that the end edge of the sheathing at 34 connects to an intermediate point thereof as at 36 and then the excess backing or sheathing 32 can be used to wrap around the container, in effect overlapping the mating edges of the sheathing material.

Several cavities may be easily formed in the cushioning material to suit certain objects and multiple cavities of like or dissimilar configurations can be provided in a single sheet to accommodate multiple similar or dissimilar delicate items which have to be packaged in cushioning material.

Also as shown in FIG. 7, cushioning material 12a may be bonded at both sides of the sheathing material 10a to provide a cushion on the outside of the package; or of course the package may be rolled up with the sheathing material inside and the cushioning material outside, depending again upon the article and circumstances, etc.

End caps 20 assist in holding the rolled-up package together in the form of a mailing tube and if necessary or desirable cushioning material 24 may be set in the bottom of the end cap in order to prevent bottoming of an article. In addition other sheathing materials such as double-faced corrugated board or the like may be used in the end caps as indicated at 38 in FIG. 8 in order to make a stronger package and to ensure against shifting of heavy elongated delicate articles in the package.

It will be seen that essentially a one-piece container is quickly and easily made e.g. manually, to wrap delicate items; that in general articles of any size, shape or dimension may be so treated and that the package while usually cylindrical may assume any shape which may be necessary or desired to be provided. The invention also covers different forms, and the use of materials such as springs, rubber, and other types of resilient materials such as rubberized fiber, rubberized steel wool, and in general any material which is springy and resilient but light in weight, but is substantially continuous from edge to edge of the sheet from which the package is to be made, and can be compressed to conform to articles of substantially any shape, whether regular in outline as in FIG. 3, or irregular as in FIG. 8.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

1. A container comprising a sheet of material including a layer of yielding, deformable, foamed, cellular cushioning, and a layer of backing secured together in superposed relation,

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said cushioning having an exposed alternate, closely spaced conical projection and complementary depression contour,
 said container material being cylindrically rolled upon itself with the cushioning inside and the backing outside, opposite free edges of said sheet of material being substantially in contact with each other to form an enclosure, and the projections in general interfitting with the depressions,
 said cushioning substantially filling the enclosure in generally undeformed condition, and

means adapted to encompass the enclosure holding the sheet of material in enclosure forming condition.
 2. The combination with the container of claim 1 of an irregularly shaped object contained within said enclosure, the cushioning material thereof being deformed thereby and conforming to the outlines of said irregular object, substantially contacting the same throughout the areas thereof.
 3. The container of claim 1 wherein the means to encompass the enclosure comprises end caps, one at each end of the enclosure.

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