

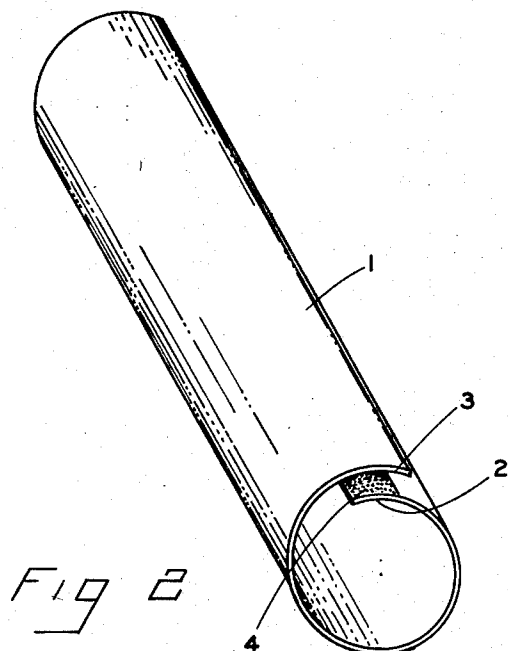
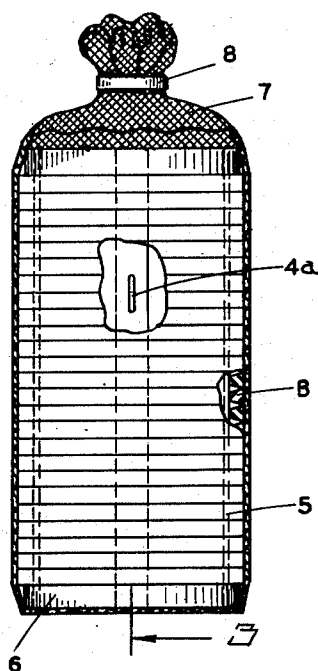
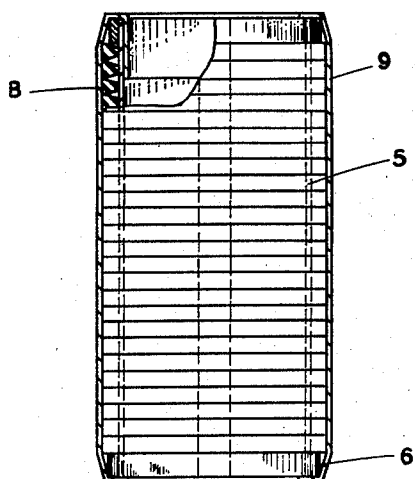
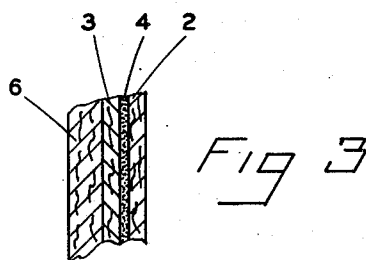
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2,802,568

PACKAGE FOR DEFORMABLE ANNULAR MEMBERS

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PACKAGE FOR DEFORMABLE ANNULAR MEMBERS

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4 Claims. (Cl. 206—65)

This invention relates to a new and improved cylindrical belt package which is effected in a novel manner. It is specifically directed to the packaging of power transmission and conveyor belts of a deformable nature, particularly those fabricated of elastomeric materials such as rubber, synthetic rubber, or the like.

The invention provides a solution to the ever recurring problems presented in packaging power transmission and conveyor belts of elastomeric material for storage and shipment thereof. Belts of this type of material depend for their strength on a longitudinal cord strength section embedded therein, usually at their flexural neutral axis. If in the storage or shipment of such belts they are twisted or crushed, their cord sections will be displaced, disaligned, damaged and weakened thereby. Accordingly, in the absence of packaging which is effective to lend strength and resistance to deformation to these belts during their storage and shipment prior to their use, the belts can be easily damaged and becomes defective before they are ever used.

Prior to the subject invention, packaging of these power drive and conveyor belts fabricated of elastomeric materials has been effected in many ways which have been mere compromises to meet a single particular situation. The package effected thereby have not consistently afforded the protection necessary to insure maintenance of belt strength and operating characteristics during shipping and storage thereof. The subject invention effects a simplicity of packaging of these belts of elastomeric material in a highly improved fashion which promotes a distinct advance in the art. The belt package resulting is not only compact and protective but it is simple and inexpensive in nature, lending itself to wide use and application. The improved package comprises a novel expansible core providing lateral and vertical strength to the belts thereon. The invention also contemplates the use of an external reinforcing sleeve in conjunction therewith for effecting further strength and protection to the belts in their packaged form.

An object of the invention is to provide a new and improved package particularly applicable to deformable annular members such as power transmission and conveyor belts fabricated of elastomeric materials.

Another object of the invention is to provide a new and improved cylindrical belt package providing an inherently expansible reinforcing core for belts mounted thereto whereby to prevent any undesirable twisting and permanent setting of the belts in transport or storage.

A further object of the invention is to provide a new and improved packaging for power transmission and conveyor belts of elastomeric material and the like to maintain their strength and configuration in transport and storage comprising a novel core element in conjunction with concentric sleeve means to contain and laterally and vertically strengthen the resistance of the belts to deformation.

An additional object of the invention is to provide a novel belt package particularly applicable for storage and

shipping of power transmission and conveyor belts of elastomeric materials consisting of a belt core formed of an expansible sheet element which effects a reinforcing inner wall for the belts which are placed thereabout, the core including end collars fixed thereto so as to contain the belts and maintain the predetermined configuration thereof.

Other objects and advantages of the invention will become readily apparent to those versed in the art from the following description of a practical embodiment thereof, particularly when taken in conjunction with the accompanying drawings wherein:

Figure 1 is a partially sectioned and partially broken away vertical view of a novel improved belt package effected by the invention.

Figure 2 is a detail perspective view of the expansible sheet element providing the core of the package illustrated in Figure 1.

Figure 3 is a fragmentary cross-sectional view of the core joint at one extremity thereof as taken along line 3—3 of Figure 1.

Figure 4 is a partially broken away and partially cross sectioned vertical view showing a modified sleeve to be employed as an external container for the belts as applied in conjunction with the core shown in the embodiment of Figure 1.

The invention can best be described with reference to the practical embodiments thereof as presented in the drawings. The improved belt package is effected as follows: A generally rectangular sheet 1 of boxboard, having an inherent resiliency to cause it to seek to maintain its sheet-like form, is rolled to effect a generally cylindrical configuration thereto. In this condition the lateral extremities 2 and 3 of the sheet 1 are in relatively overlapped relation to provide abutting surfaces thereby. Fixed to and coextensively with the underlying lateral extremity 3 of the sheet 1, on the abutting surface thereof, is a layer 4 of an adhesive such as glue, for example.

In its rolled generally cylindrical condition the sheet 1 provides an inherently expansible package core 5. The power transmission or drive belts B of elastomeric material are placed over and about the core 5. The core is then permitted to radially expand to the limits the encircling belts will allow, effecting a slightly tensed generally cylindrical configuration to the belts. The core thus effects an ideal storage configuration which effects no undesirable stress or strain on the belts. The required configuration of the core 5 having been thus effected, a positive connection is then made between the overlapping lateral extremities 2 and 3 of the core sheet 1 through the medium of the adhesive layer 4 therebetween. This connection may be completed in any suitable fashion, depending on the nature of the adhesive employed. Where the adhesive layer 4 is a glue which is soluble in water for example, the glue may be wetted whereupon it will become slippery and will allow the overlapped marginal portions 2 and 3 of the sheet to slide until the core 5 has expanded to the limits allowed by the encircling belts. As the glue dries the circumference of the core will become fixed and the desired radial support to the belts will be permanently established. In lieu of or supplementary to the use of such an adhesive, mechanical fasteners such as the staple 4a may be employed to hold the overlapped portions of the core 5 in place and to preserve the desired radially outwardly stressed condition of the belts. The core is fixed firmly in engagement with the inner periphery of the belts mounted thereon thereby.

In this manner a package unit is effected which provides an internally strengthened vertical stack of belts which are maintained in a condition free of undesirable stress and strain.

At opposed ends of the stacked belts, end collars 6

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provided by annular rings of cardboard or the like are fixed peripherally of the core 5 at the extremities thereof. This further consolidates the stacked belts in edge-contacting relation and reinforces the basic package provided by the core 5. The collars 6 may be applied by an adhesive such as glue. However, stapling may be utilized as the connecting means where feasible.

As shown in Figure 1 of the drawings, the whole package thus provided may be wrapped in an exterior burlap bag-like enclosure 7 which is closed about the top of the stack by a wire loop 8. This provides an external protective cover for the packaged belts.

For adding strength to the basic stacked packaging of the belts B on the core 5 reference is made to a preferred external cover 9 shown in Figure 4 of the drawings. As shown therein, rather than the bag-like enclosure of Figure 1 of the drawings, an outer sleeve 9 of the cardboard or paper is firmly applied about the belts as stacked on the core 5. In this fashion the belts are completely contained at their inner and at their outer periphery. Additional resistance to deformation is provided for the stacked belts thereby. This is particularly important where excessive handling of the package is contemplated.

Thus, the package provided by the invention insures a protection for power transmission and drive belts which is uniformly effective and relatively inexpensive. It will withstand maximum handling occasioned in storage and shipping. And it maintains each belt in an optimum condition.

An additional feature of the invention is that the improved package is corrective or remedial and may be utilized to straighten belts that are originally in a warped condition. By applying such a belt on an expansible core of the nature described and storing it, the belt will be caused to set to its required configuration.

From the above description it will be apparent that there is thus provided a device of the character described possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, detail construction and arrangement of parts without departing from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute the invention has been described in language more or less specific as to structural features, it is to be understood that the invention is not limited to the specific features shown, but that the means and construction herein disclosed comprise the preferred form of several modes of putting the invention into effect, and the invention is therefore claimed in any of its forms or modifications within the legitimate and valid scope of the appended claims.

I claim:

1. A protective package for storage and shipping of readily deformable belts comprising an expansible sheet element of paper-like material having the lateral ex-

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tremities thereof in overlapping relation effecting a resiliency thereto, continuous belt elements mounted on said sheet in vertically stacked relation, the resiliency of said sheet radially expanding the sheet to the limits the encircling belts will allow, means interposed between and connecting the lateral extremities of said sheet in its radially expanded condition whereby it firmly adheres to the inner periphery of the belts and effects a substantial reinforcement thereof, end elements about said sheet at the respective ends thereof formed of a paper-like material, containing the belts in their vertical stacked relation and effecting a compact deformation-resistant package thereby which will maintain said belts in an optimum condition during shipping and storage thereof.

2. The structure as set forth in claim 1, and said end elements consisting of cardboard rings adhesively fixed to and defining the vertical extremities of said package whereby a highly efficient yet inexpensive package obtains.

3. A protective package for storage and shipping of readily deformable belts fabricated of elastomeric materials and the like comprising an expansible sheet of paper-like material having the lateral extremities thereof in overlapping relation effecting an expansive condition thereto, continuous belt elements mounted on said sheet in vertically stacked relation, the sheet radially expanding to the limits the encircling belts will allow, means interposed between and connecting said lateral extremities of said sheet to fix the radially expanded condition thereof whereby it firmly engages and adheres to the inner periphery of said belts and effects a substantial reinforcement thereof, ring elements adhesively fixed to the respective vertical extremities of said sheet and vertically confining said belts in edge-contacting relation, and sleeve means laterally containing said belts on said core sheet whereby a package highly efficient to maintain the belts in optimum condition for storage and shipping thereof obtains.

4. The structure as set forth in claim 3, said sleeve means consisting of burlap tubing containing said belts in abrasion free condition during the storage and shipping thereof.

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