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CLOSURE MEANS FOR CYLINDRICAL CONTAINERS

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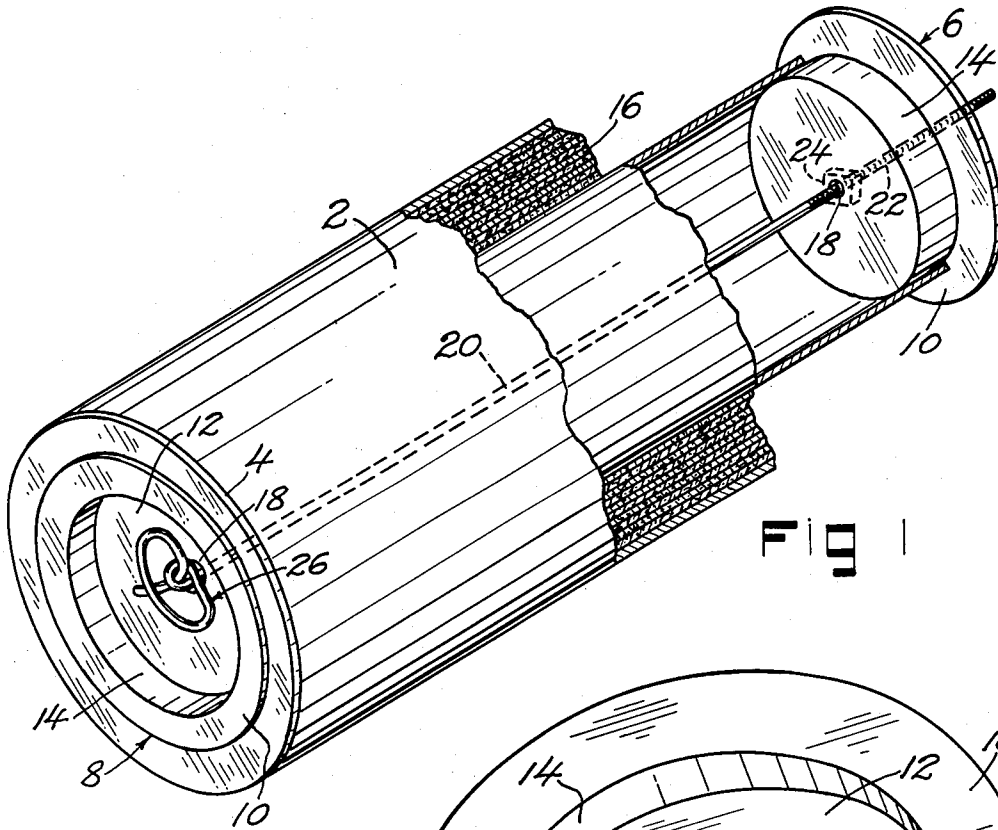


Fig. 1

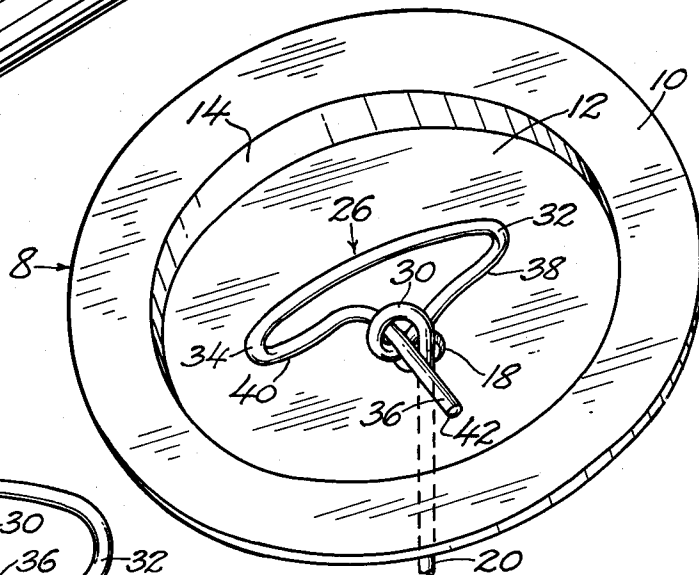


Fig. 2

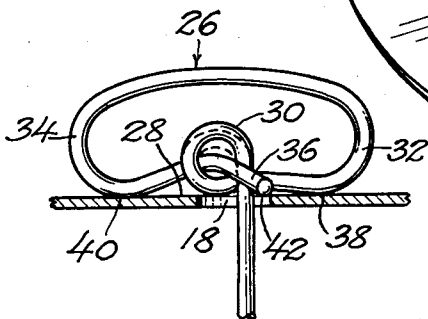


Fig. 3

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CLOSURE MEANS FOR CYLINDRICAL CONTAINERS

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3 Claims. (Cl. 206—52)

This invention relates to means for closing and protecting the ends of tubular containers and rolls of goods such as the rolls in which linoleum, floor coverings, roofing material and similar products are stored and shipped.

As pointed out in my co-pending application Serial No. 180,343, filed August 19, 1950, now abandoned, it is usual practice to provide rolls of goods with end members which are designed to protect the goods and to close the ends of the rolls or containers in which the goods are packaged. Such closure members are commonly provided with a central cup-shaped portion which projects into the center of the roll engaging the innermost turn of the goods so as to hold the goods in position within the container. An outwardly projecting flange surrounds the cup-shaped portion and engages the ends of the goods or an annular member bearing against the center of the container and through central openings in the cup-shaped portions of the end members for securing the end members in place. One end of the tie rod is provided with a head portion for engagement with the outer face of one end member while the opposite end of the tie rod is threaded to receive a nut for drawing the end members together to hold them securely in place.

The head portion of tie rods heretofore used has frequently been bent sideways so as to bear against the end member adjacent the opening through which it extends. However, in such constructions, the operation of tightening the nut tends to cause the laterally bent portion to straighten out, and in any event, there is a tendency for the tie rod to tear the metal or material of which the end member is formed adjacent the central opening through which the tie rod extends. Since the tie rods normally lack any appreciable resiliency the end members may be dangerously loosened in the event a heavy roll of goods is dropped on the end.

In accordance with the present invention these objections to constructions of the prior art are overcome and a novel type of tie rod is provided wherein the head portion is so formed that it engages the end member at a plurality of points spaced from the central opening through which the tie rod passes. In this way, the tendency for strains applied to the tie rod and the end member to cause tearing of the material adjacent the central opening is overcome. Moreover, the construction provided includes a loop portion which tends to tighten up on impact preventing straightening out of the laterally extending elements of the head and affording a measure of resiliency or stiffening of the head which is such that the end members will remain tight even though they may be subjected to severe impacts such as those incurred when the container is dropped on its end.

One of the objects of the present invention is to provide a novel construction whereby loosening and tearing of the end members applied to rolled goods is reduced to a minimum.

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Another object of the invention is to provide tie rods for securing end members to a container whereby tightening of the tie rod takes place upon impact.

A further object of the invention is to provide a tie rod for end closure members of a container wherein the head portion engages an end closure at points spaced from the central opening through which the tie rod passes.

These and other objects and features of the present invention will appear from the following description thereof in which reference is made to the figures of the accompanying drawing.

In the drawing:

Fig. 1 is a perspective of a typical form of packaged roll of goods embodying the present invention with a portion of the package broken away;

Fig. 2 is an enlarged perspective showing the head portion of the tie rod illustrated in Fig. 1; and

Fig. 3 is an enlarged sectional view of the end member and head portion of the tie rod illustrated in Fig. 1.

In that form of the invention chosen for purposes of illustration in the figures of the drawing, the outer tubular casing of the container is shown at 2 and may be formed of any suitable or preferred material such as spirally wound paper having the overlapping turns or layers thereof secured together by adhesive.

The assemblies at the opposite ends of the tubular casing 2 each include an annular element 4 formed of stiff fiber board, wood or other material. The end member 6 adjacent one end of the casing 2 and the end member 8 at the opposite end of the casing are each in the form of a cup-shaped member having a marginal flange 10 surrounding a central recessed portion 12. The flanges of the cup-shaped members lie substantially in the planes of the ends of the casing 2 whereas the recessed portions project inwardly from said ends. The side walls 14 of the recessed portion are thus positioned to engage the innermost turn of the roll of floor covering or other material 16 and serve to hold the material in position within the container.

Each of the end members 6 and 8 has a centrally located opening 18 through which a tie rod 20 extends. The end 22 of the tie rod which extends through the end member 6 is threaded to receive a nut 24, whereas the opposite end of the tie rod 20 is provided with a head 26 engageable with the outer face 28 of the opposite end member 8. The head 26 is drawn inward against the face 28 of end member 8 when the nut 24 is drawn up and thereby serves to tighten the end members in position.

The head 26 is preferably formed as an extension of the tie rod 20 so as to be integral therewith and for this purpose is shown as formed with a loop 30 adjacent the central opening 18 in the end member 8. From the loop 30 the tie rod extends laterally to form a bight 32 and then extends to the opposite side of opening 18 to provide a second bight 34. The end of the rod returns toward the center and passes through loop 30 projecting on to present an extremity 36 which is spaced from the bights 32 and 34.

With this construction, the axial pull exerted on the tie rod by nut 24 in tightening the end members in place and the impacts exerted on the end member 8 when the roll is dropped on its end are all applied to the head 26 in such a way that it is forced against the outer face 28 of the end member at points spaced from the central opening 18. Thus, the bights 32 and 34 contact face 28 at the points 38 and 40 respectively and the extremity 36 contacts face 28 at the point 42. While these portions of the end member may flatten somewhat under such forces, the loop 30 in turn tends to tighten about

the extremity 36 as shown in dotted lines in Fig. 3. Slippage or straightening out of the portion of the tie rod of which the head 26 is formed therefore cannot occur. In fact, the loop 30 tends to provide a measure of resiliency to the assembly and in any event urges all three elements of the head against the outer face of the end member so as to provide spaced points or diverging lines of contact about the central opening in a manner to distribute the forces substantially evenly about the end member.

The loop 30 is preferably smaller than the central opening 18 in the end member 8 and therefore is movable within the opening in such a way that it applies no force directly to the end member 8. Tearing of the end member adjacent the central opening 18 is thereby avoided and loosening of the end member cannot occur.

While the specific type of loop and bight formation shown has proven very satisfactory it will be apparent that the form and arrangement of the elements forming the head 26 may be varied considerably. In view thereof it should be understood that the particular construction shown is intended to be illustrative only and designed to indicate the nature of the present invention without intending to limit the scope thereof.

I claim:

1. A container for a rolled product comprising a tubular outer casing having at one end thereof a cup-shaped member provided with a marginal flange lying substantially in the plane of said end of the outer casing and having the recessed portion thereof projecting into the casing to engage and position a rolled product therein, said recessed portion having a central opening with a tie rod formed with a loop thereon adjacent and smaller than said central opening and a laterally extending bight engaging the outer face of said recessed portion at points spaced from the central opening and with the extremity of the tie rod passing through said loop.

2. A container for a rolled product comprising an outer tubular casing having an end assembly closing each end thereof, said end assemblies each including a stiff annular member having its outer edge in contact with an end

of said casing and having a cup-shaped member with a flange thereon engaging the outer face of the annular member and a recessed portion projecting inward therefrom in position to engage and support a rolled product in the container, each of said recessed portions having a central opening therein, a rod passing through said openings and threaded on one end with a nut thereon engaging the outer face of the depressed portion of one cup-shaped member, the opposite end of said rod being formed with a loop located adjacent said opening in the end member and extending therefrom in bights located on opposite sides of said opening with the extremity of the rod passing through said loop, said bights and extremity engaging the outer face of the depressed portion of the end member at points spaced from said opening, said loop being smaller than said adjacent opening to permit movement of said loop relative to said end member without tearing, deforming or displacing said end member.

3. An assembly for use in forming a cylindrical package comprising a tubular outer casing, a pair of end members bearing against opposite ends of said casing and each provided with a central opening, and a tie rod extending through said openings in the end members, one end of the tie rod being threaded and having a nut thereon engaging the end member adjacent thereto, the opposite end of the tie rod being formed with a loop from which a laterally projecting bight extends with the extremity of the rod extending through said loop, said bight and extremity engaging the end member adjacent thereto at points spaced from the central opening therein, said central opening being larger than said loop and permitting movement of the loop relative to the end member.

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