Dec. 10, 1929. B. CUSHING 1,739,291

END CAP FOR TUBULAR PACKAGES

Filed May 10, 1928

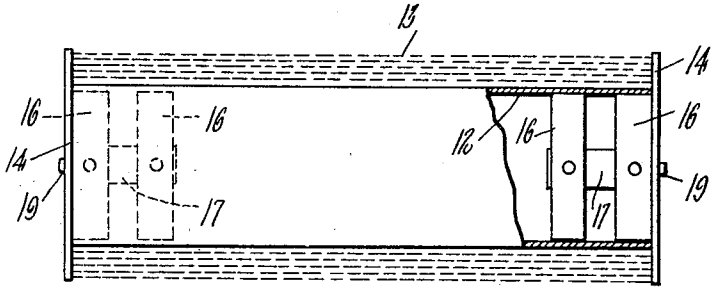


Fig. 1.

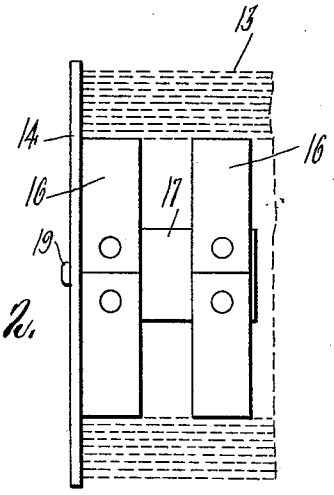


Fig. 2.

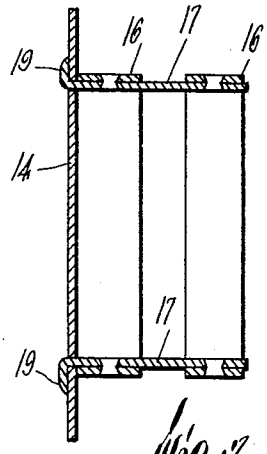


Fig. 3.

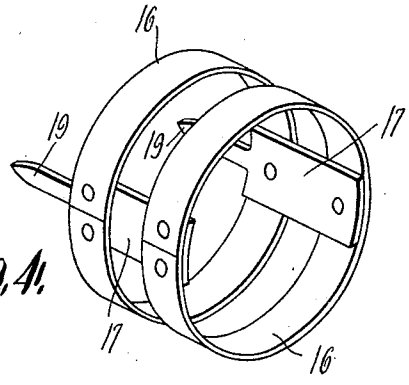


Fig. 4.

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UNITED STATES PATENT OFFICE

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END CAP FOR TUBULAR PACKAGES

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This invention relates to a package prepared for shipment, storage, and sale, and including sheet material, such as felt or paper roofing, or floor-covering, such as so-called oil cloth, known under various trade names, the sheet being of indeterminate length, and wound to form a tubular roll.

The package in some cases includes a tubular core on which the sheet material is wound, said core constituting a member of the package, and forming the internal surface thereof. In other cases the core is omitted, the inner convolution of the rolled sheet forming the internal surface of the package. The ends of the package are protected by end caps including heads, formed to cover the package ends, and plugs fixed to the heads and inserted in the end portions of the internal surface of the package, and engaged therewith to confine the heads against the ends of the package.

Heretofore, so far as I am aware, the core has been a short wooden cylinder to which the head is attached by nails, or otherwise, the periphery of the cylinder being intended to closely fit and frictionally engage the internal surface of the package.

Wood is liable to shrink, so that a wooden plug, intended to closely fit the internal surface of the package, may shrink and become loose, so that the cap drops out, unless nailed to the package, this liability being a serious objection.

The object of my invention is to provide a plug which is free from the objections to the use of wood.

The invention is embodied in an end cap which includes a metallic plug characterized as hereinafter stated.

Of the accompanying drawings forming a part of this specification,—

Figure 1 is a side view, showing a package which includes a pair of protective end caps embodying the invention, and a core shown partly in section, the rolled sheet being shown by broken lines.

Figure 2 shows one of the end caps on a larger scale, the plug being inserted in the interior of the rolled sheet shown by broken lines.

Figure 3 is a sectional view of one of the end caps.

Figure 4 is a perspective view of the plug as it appears before its attachment to the head.

The same reference characters indicate the same parts in all of the figures.

The package with which my improved end cap is used may include a tubular core 12 (Figure 1), usually of stiff paper board, and sheet material 13, wound in a roll on the core. The core and the end caps engaged with its ends, constitute a spool, the length of which depends on the width of the sheet material wound thereon. If a core is not employed, the internal surface of the package is formed by the inner convolution of the rolled sheet, as indicated by Figure 2. The rolled sheet is shown by broken lines in Figures 1 and 2.

My improved end cap includes a head 14, which is formed to cover an end of the package, and may be a disk of stiff paper board, or any other suitable material. The cap also includes a tubular metallic plug, fixed to the head and adapted to enter and frictionally engage an end portion of the internal surface of the package.

The plug is preferably composed of a plurality of metal rings 16, and metal holding members 17, bearing on the internal surfaces of the rings and fixed thereto in any suitable manner, as by rivets, or by electric welding, the rings being spaced apart by the holding members.

Each ring is preferably composed of a metal strip which is oblong in cross section, its edges being angular and adapted to slightly indent the somewhat compressible material of the package, whether the latter includes the core 12 or not.

The holding member may be fixed to the head 14 by any suitable means, and preferably by spurs 19, adapted to be forced through the head and clinched on the outer side thereof, as shown by Figure 3, so that the head is clamped firmly against the outer edge of the outer ring. The members 17 may be strips of any suitable malleable metal, the spurs 19 being integral with the strips and adapted to be clinched as shown.

It will be seen that the metallic plug cannot shrink like wood, and therefore has an unvarying predetermined diameter, enabling it to frictionally engage the internal surface of a package which has a predetermined internal diameter. It will also be seen that each plug is adapted to enter and frictionally engage only a limited end portion of the internal surface of the package, whether said surface be that of the core 12 or the inner convolution of the rolled sheet. The plugs are therefore engaged with the package independently of each other, so that the caps may be applied to the ends of a package of indeterminate length.

I claim:

1. A protective end cap comprising a head formed to cover an end of a tubular package, and a tubular metallic plug fixed to the head and adapted to enter and frictionally engage an end portion of the internal surface of the package, the plug being composed of a plurality of metal rings and metal holding members fixed within the rings and spacing the same apart, each ring having angular edges adapted to indent the said internal surface, the holding member having attaching means engaged with the head.

2. A protective end cap comprising a head formed to cover an end of a tubular package, and a tubular metallic plug fixed to the head and adapted to enter and frictionally engage an end portion of the internal surface of the package, the plug being composed of a plurality of metal rings and metal holding members fixed within the rings and spacing the same apart, each ring having angular edges adapted to indent the said internal surface, the holding member having prongs penetrating the head and clinched on the outer side thereof.

3. A plug for the purpose stated, composed of a plurality of metal rings and a pair of holding members, fixed to the rings within the same and spacing the rings apart, said members being provided with integral spurs adapted to penetrate a head piece and be clinched thereon.

In testimony whereof I have affixed my signature.

BENJAMIN CUSHING.