Dec. 13, 1949 J. J. ROBINSON, JR 2,491,213

TUBE CLOSURE

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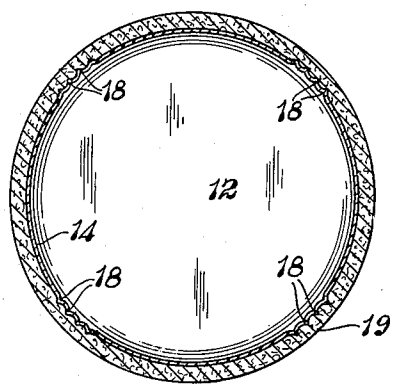


Fig. 5

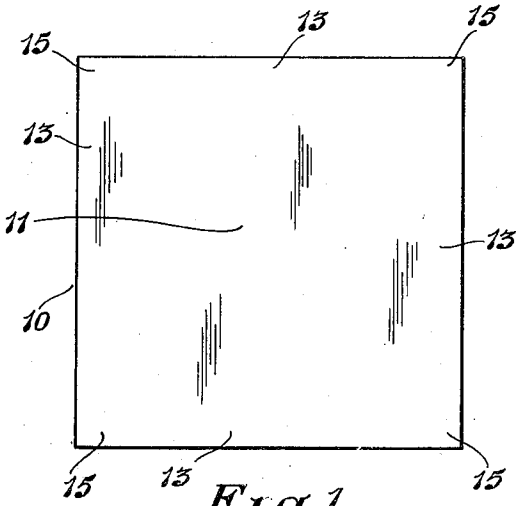


Fig. 1

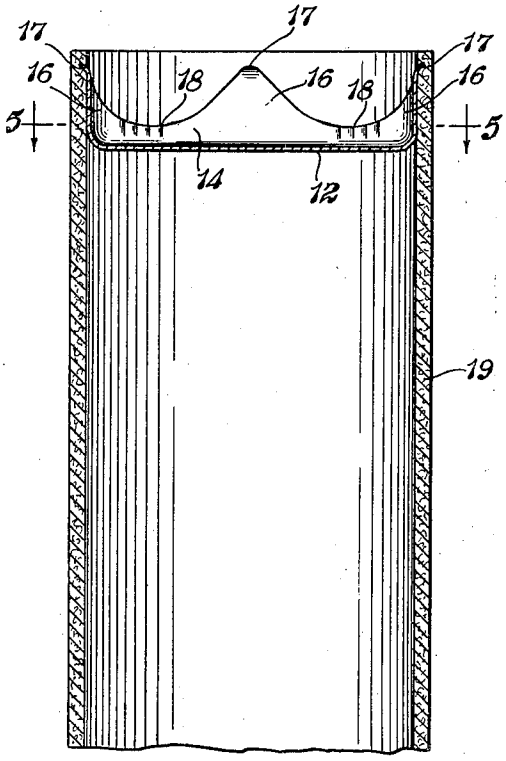


Fig. 4

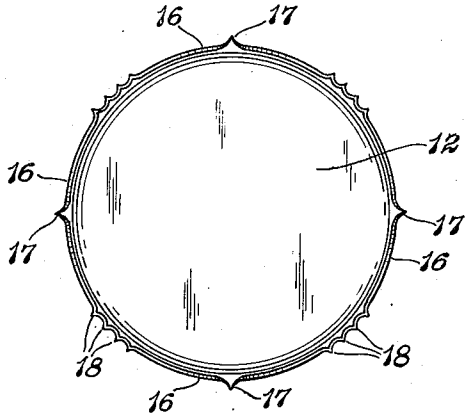


Fig. 2

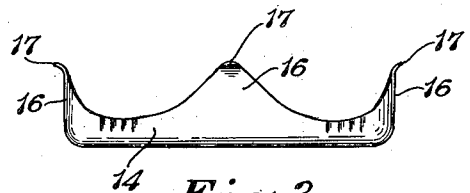


Fig. 3

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TUBE CLOSURE

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7 Claims. (Cl. 229—47)

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The invention relates to closures for shipping or mailing tubes and more particularly to a closure in the form of a sheet metal bung or plug.

It is customary to ship lengths of sheet metal strips, trim, molding and the like, enclosed in tubular containers formed of cardboard, fiber or similar material, these tubes being of a length somewhat longer than the strips contained therein and of suitable diameter to accommodate the desired number of the articles.

The ends of the tube must necessarily be tightly closed so as to prevent the metal strips, or other articles, therein from accidentally falling from the tubes during shipment. For this purpose it is common practice at present to close the ends of such tubes with wood plugs which are secured in place by nails.

This requires some considerable labor as four nails are usually driven into each plug and two plugs are required, one for each end of the tube. It frequently happens that these wood plugs crack or split when the nails are driven therein, requiring that the damaged plug be removed and replaced by a new one, requiring additional time and labor.

The object of the present invention is to provide a sheet metal plug or bung which requires no nails or other separate fastening means for securing it in place within the tube.

Another object is to provide a closure of this character so constructed that it may be forced into the end of the tube and secured in place in a single quick and easy operation.

A further object is to provide a tube closure of this character in the form of a cup-shaped sheet metal plug or bung of a diameter to snugly fit within the interior of the tube and provided with a spaced plurality of high points or extensions terminating in sharp prongs for engagement in the walls of the tube.

A still further object is to provide a sheet metal plug or bung of the character referred to which is provided with groups of sharp corrugations or teeth located between adjacent prongs for frictionally engaging the inner walls of the tube.

Another object of the invention is to provide a cup-shaped sheet metal tube closure of this character which is formed from a square sheet metal blank, the corners of the square blank forming the high points or extensions with sharpened prongs, upon the finished plug or bung.

The above objects together with others which will be apparent from the drawing and following description, or which may be later referred to, may be attained by constructing the improved

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sheet metal tube closure in the manner hereinafter described in detail and illustrated in the accompanying drawing in which;

Figure 1 is a plan view of the square sheet metal blank from which the finished plug or bung is formed;

Fig. 2 a top plan view of a sheet metal plug or bung embodying the invention;

Fig. 3 a side elevation of the plug or bung;

Fig. 4 a longitudinal, sectional view of one end portion of a shipping or mailing tube showing one of the improved plugs or bungs secured therein; and,

Fig. 5 a transverse section on the line 5—5, Fig. 4.

The improved tube closure to which the invention pertains may be formed from a square sheet metal blank as indicated generally at 10 in Fig. 1. This sheet metal blank may be placed in dies and in a single drawing and forming operation formed to the shape shown in Figs. 2 and 3, producing a slightly cup-shaped plug or bung.

The central portion 11 of the sheet metal blank forms the substantially flat bottom wall 12, while the edge portions 13 of the blank form the upturned peripheral flange 14, the corners 15 of the blank forming the spaced, upwardly disposed, triangular extensions or high points 16, terminating in the sharpened prongs or points 17 which are bent slightly outward beyond the periphery of the flange 14.

Intermediate these high points the peripheral flange 14 may be crimped to form groups or sharp corrugations or teeth 18 disposed outwardly from the flange 14 so as to frictionally engage the inner walls of the tube as will be later explained.

In Figs. 4 and 5 an end portion of a shipping or mailing tube of cardboard, fiber or similar material is indicated at 19. Such tubes are provided for shipping sheet metal strips, molding, trim and the like and when the articles have been placed in the tube the ends of the tube may be closed by forcing one of the improved sheet metal plugs or bungs into each end thereof.

This may be accomplished by placing the bung in the open end of the tube and forcing it inward by means of any suitable device such as a wooden plunger or the like operated by hand.

As the bung is forced into position in the end of the tube 19, the sharpened, outturned prongs 17 will embed themselves into the material of the tube in the manner shown in Fig. 4, holding the bung securely in place and preventing accidental removal thereof. At the same time the groups of sharpened corrugations or teeth 18 will

frictionally engage and bite into the inner walls of the tube further assisting in securely holding the bung in place within the end portion of the tube.

Sheet metal bungs of the character illustrated and described may be produced for a fraction of the cost of the wood plugs now commonly used for this purpose and may be secured in position in the ends of the tubes with considerably less time and labor than is required for the nailing of the conventional wood plugs in place.

In use the improved sheet metal closure will remain securely in position during transporting or shipping of the tubes and can not be removed except by inserting a tool between the exterior of the bung and the interior of the tube and forcing or prying the bung outward.

Attention is called to the construction of the bung whereby the out-turned prongs 17 are higher than the intervening corrugated spaces 18 thereby producing a much deeper bung which can not be easily tilted in the tube by an excess of pressure at any point around the inside of the bung. It will be seen that this method of forming a deeper bung is accomplished with no waste or scrap metal such as would be the case if the bung were the same height entirely around its periphery whereby a circular blank would be required resulting in a considerable amount of scrap metal.

I claim:

1. A closure for shipping tubes comprising a substantially cup shaped, sheet metal bung having a bottom wall with an upstanding peripheral flange thereon, spaced, upwardly disposed extensions upon the flange and out-turned prongs at the ends of said extensions, whereby the bung may be driven into the end of a tube to any desired extent, the peripheral flange and extensions thereon preventing tipping of the bung and the prongs engaging in the tube and preventing outward movement of the bung.

2. A closure for shipping tubes comprising a substantially cup shaped, sheet metal bung having a bottom wall with an upstanding peripheral flange thereon, spaced, upwardly disposed triangular extensions upon the flange and outturned prongs at the ends of said extensions, whereby the bung may be driven into the end of a tube to any desired extent, the peripheral flange and extensions thereon preventing tipping of the bung and the prongs engaging in the tube and preventing outward movement of the bung.

3. A closure for shipping tubes comprising a substantially cup shaped, sheet metal bung having a bottom wall with an upstanding peripheral flange thereon, spaced, upwardly disposed extensions upon the flange and out-turned prongs at the ends of said extensions and groups of outwardly disposed corrugations formed on the peripheral flange between adjacent extensions, whereby the bung may be driven into the end of a tube to any desired extent, the peripheral flange and extensions thereon preventing tipping of the bung and the prongs engaging in the tube and preventing outward movement of the bung.

4. A closure for shipping tubes comprising a substantially cup shaped, sheet metal bung having a bottom wall with an upstanding peripheral flange thereon, spaced, upwardly disposed triangular extensions upon the flange and outturned prongs at the ends of said extensions and groups of outwardly disposed corrugations formed on the peripheral flange between adjacent extensions, whereby the bung may be driven into the end of a tube to any desired extent, the peripheral flange and extensions thereon preventing tipping of the bung and the prongs engaging in the tube and preventing outward movement of the bung.

5. A closure for shipping tubes comprising a substantially cup-shaped sheet metal bung having a bottom wall with a relatively low upstanding peripheral flange thereon, spaced upwardly, disposed, relatively high, out-turned prongs upon said flange and outwardly disposed corrugations formed upon the intervening low portions of the peripheral flange, whereby the bung may be driven into the end of a tube to any desired extent, the peripheral flange and extensions thereon preventing tipping of the bung and the prongs engaging in the tube and preventing outward movement of the bung.

6. A closure for shipping tubes comprising a substantially cup shaped bung formed from a square sheet metal blank, said bung having a bottom wall formed from the central portion of the blank, an upstanding, peripheral flange formed from the edge portions of the blank and spaced upwardly disposed extensions upon said peripheral flange, provided with outturned prongs formed from the corners of the blank.

7. A closure for shipping tubes comprising a substantially cup shaped bung formed from a square sheet metal blank, said bung having a bottom wall formed from the central portion of the blank, an upstanding peripheral flange formed from the edge portions of the blank and spaced, upwardly disposed triangular extensions upon said peripheral flange, provided with outturned prongs formed from the corners of the blank.

JOSEPH J. ROBINSON, JR.

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The following references are of record in the file of this patent:

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