Jan. 6, 1959 P. E. JONES ET AL 2,867,319

STRAND PACKAGING METHOD AND MEANS

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FIG. 1

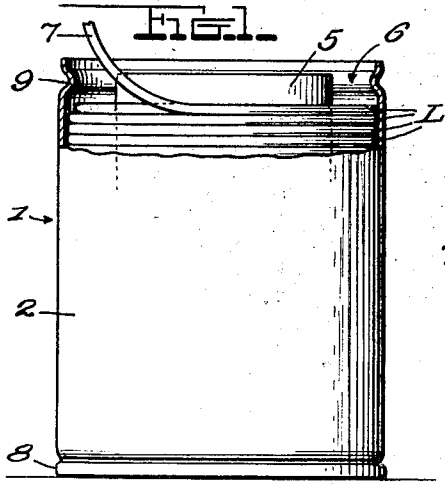


FIG. 3

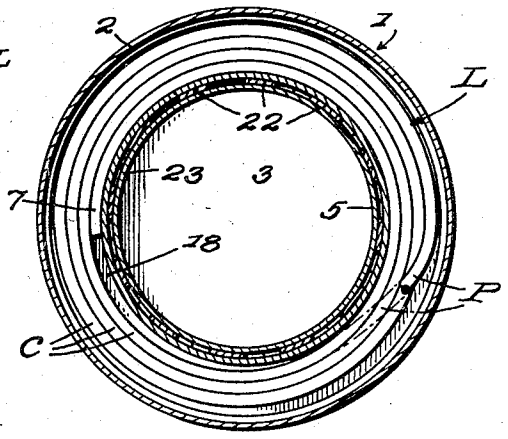


FIG. 2

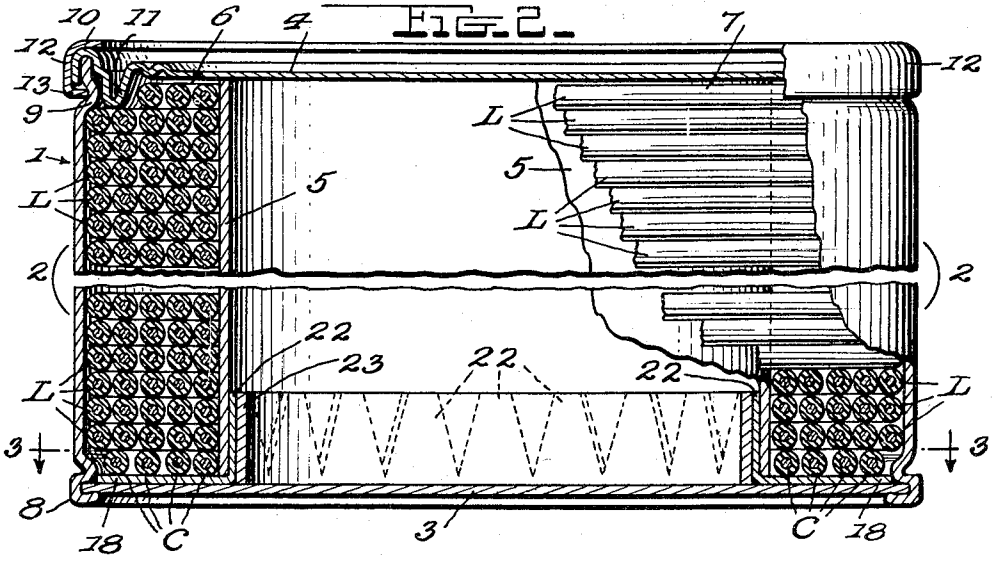
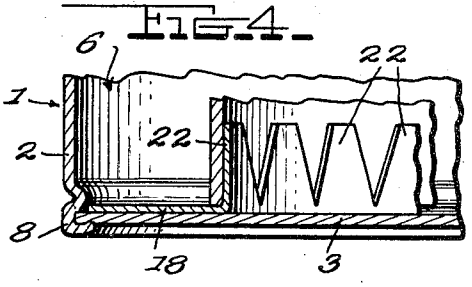


FIG. 4



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FIG. 5

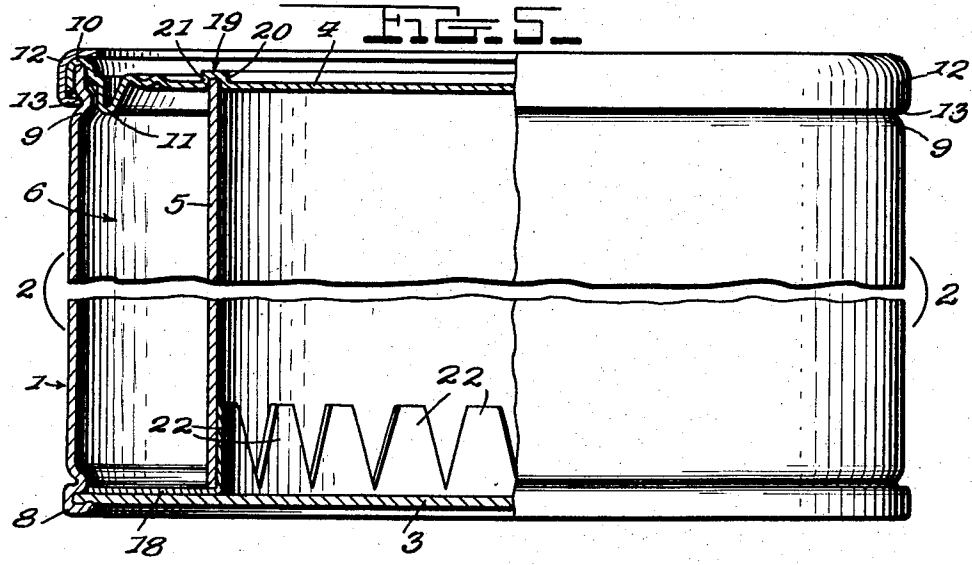


FIG. 6

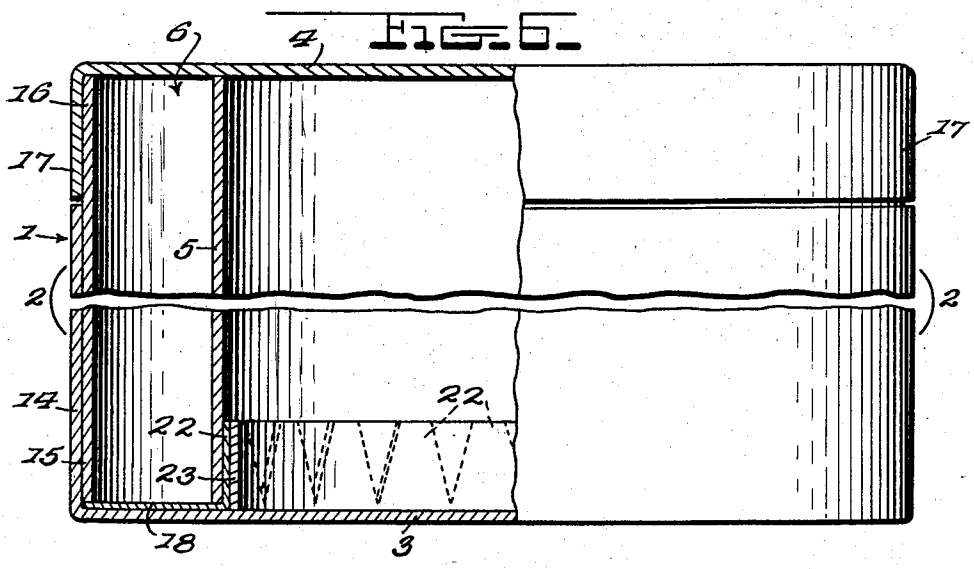
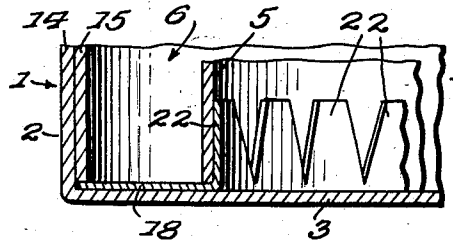


FIG. 7



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STRAND PACKAGING METHOD AND MEANS

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Application October 6, 1955, Serial No. 538,832

3 Claims. (Cl. 206—59)

This invention relates generally to the packaging of strand material for shipment. Specifically, it relates to a novel method of packaging strand material, to the completed package ready for shipment, and to a novel container well adapted to the method, capable of withstanding rough handling during shipment, and serving to facilitate dispensing of the strand material. The invention is of great advantage for shipping wire of various gauges but is equally as desirable for rope or other strand material.

Strand material has long been wound in concentric layers upon reels which must be rotatably supported when unwinding is to be effected; and in the case of rope or the like winding is often accomplished with or without a core, the winding being of such pattern that each successive layer is intended to hold the adjacent layer against slippage out of place. However, the layers frequently slip upon each other and result in breakdown of the roll with consequent snarls and general inconvenience.

The present invention provides for expeditious packaging of the strand material at the factory and for well protecting the material in a substantial container during shipment, and this same container is used to hold the material while it is being payed out in orderly manner for use or sale. General inconvenience, and particularly snarls are thus obviated.

One object of the invention has been to provide an improved method of packaging strand material, said method comprising the steps of providing a shipping container having a bottom, a side wall and a central core spaced from said side wall, coiling the strand material into the space between said side wall and core, and closing the open end of the container.

Another object has been to coil the strand material into the aforesaid space in superposed layers.

Still another object has been to give spiral form to each of the aforesaid layers.

Yet another object has been to spirally coil the aforesaid layers and to interpose an oblique portion of the strand between each two adjacent layers, preventing the spirals from possibly meshing with each other.

A further object of the invention has been to provide a novel assembly of coiled strand and shipping container, which assembly will well withstand rough handling during shipment.

A still further object has been to provide a novel shipping container which will facilitate filling with the strand material, will contribute largely to injury-free shipment and will facilitate paying out of the coiled strand.

Another object has been to provide a strong container having novel construction whereby a tubular core therein will be held centered and braced against collapse even under unusually rough handling conditions.

Yet another object has been to provide a novel containers are stacked for shipment and storage.

in preventing downward deforming when the loaded containers are stacked for shipment and sctorage.

Still another object has been to provide a container which may be constructed largely from fiber board, yet will have adequate strength.

With the above and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claims and the several views illustrated in the accompanying drawings.

In the drawings:

Figure 1 of the accompanying drawings is a side elevation, partly broken away, showing a strand during the act of coiling it into the container.

Figure 2 is an enlarged vertical sectional view, partly in elevation and with its mid portion broken out, showing a coiled strand packed in the container of Figure 1.

Figure 3 is a horizontal sectional view on line 3—3 of Figure 2, showing the lowermost layer of the coiled strand between the container side wall and core.

Figure 4 is a detail sectional view showing a slight variation over Figure 2.

Figure 5 is a view similar to Figure 2 showing a construction in which the cover is provided with shoulders to engage the upper end of the tubular core.

Figure 6 is a similar view showing a different form of container construction.

Figure 7 is a detail sectional view showing a slight variation over Figure 6.

In the drawings, a container **1** is shown having a cylindrical side wall **2**, a bottom **3**, a cover **4** and a tubular cylindrical core **5**, said core extending from said bottom to said cover. This core **5** is concentric with the side wall **2** and spaced therefrom to provide a space **6** into which to coil the strand material **7**.

In the construction of Figures 1 to 5, the side wall **2** and bottom **3** are suitably seamed together at **8** and said side wall is inwardly deformed at **9** near its upper end to provide it with an external circumferential groove. Also, in this construction, the peripheral portion of the cover **4** is upwardly deformed at **10** and downwardly deformed at **11**. The upward deformation **10** provides a downwardly open groove to receive the upper end of the side wall **2**, and the downward deformation **11** provides a rib to abut the deformation **9** of said side wall. A clamping band **12** is provided to secure the cover **4** to the container, and the lower portion **13** of said band engages the groove provided by the deformation **9**. All of this construction is conventional in fiber or metal drums and the like.

In the construction of Figures 6 and 7, the side wall **2** is composed of outer and inner walls **14** and **15**, the outermost of which is integral with the bottom **3**, and the innermost of which projects upwardly at **16**. Also, in this construction, the cover **4** is simply flanged at **17** to surround the upwardly projecting wall portion **16**. This construction is conventional in fiber drums and the like and an adhesive tape (not shown) is usually employed to secure the cover in place.

In all forms of the container structure herein shown, the tubular core **5** extends from bottom to top of the structure and a core centering member **18** extends from the lower end of said core to the side wall **2**. The upper end of the core **5** may simply abut the cover **4** horizontally as in Figures 2 and 6, or said cover may also be formed with means circumferentially abutting said upper end of said core to hold it centered. In Figure 5, for example, the cover **4** is upwardly deformed at **19**, providing it with concentric inner and outer shoulders **20**, **21** to abut the upper end of the core at its inner and outer peripheries, respectively.

The core centering member **18** is shown in the form

of a flat ring resting upon the bottom **3** and extending under the lower end of the tubular core **5**. At its inner edge, this ring is formed with integral upwardly bent tongues **22** which lie against the inner periphery of the tubular core **5**. These tongues **22** jointly provide an upstanding substantially continuous flange circumferentially abutting the core **5** and holding the lower end of the latter centered in a manner to resist inward distortion.

If desired, a back-up ring **23** (Figures 2 and 6) may be employed for the tongues **22**, to resist inward bending of said tongues but the construction shown in Figures 4, 5 and 7 omits such a ring.

The ring **18** is usually glued or otherwise secured to the bottom **3** and may be considered as glued in the present disclosure. Also, the tongues **22** may be suitably secured to the core **5** and may be considered as glued to the latter. When this manner of attachment is followed, and the back up ring **23** is employed, this ring holds the tongues **22** tightly in place while the glue is setting, and said back up ring is also preferably glued to said tongues.

While not essential, it is preferred that the side wall **2**, bottom **3**, cover **4**, core **5**, core-centering member **18** and back up ring **23** be formed from fiber board. However, metal or other suitable material could well be used in constructing any or all of these elements. It is also to be understood that the container may be manufactured in various heights and diameters and with different spacings between the side wall and core, according to the product to be packaged or the quantity thereof to be placed in the container.

The strand **7** is coiled into the space **6** as seen in Figures 1, 2 and 3 in any desired pattern. In the present disclosure, the coiling is performed in superposed horizontal layers L and in each layer the strand is spirally coiled as seen more particularly in Figure 3. After forming the first spiral layer (the layer shown in Figure 3) a portion P of the strand **7** is extended obliquely over the convolutions C of said first layer to prevent the convolutions of the two layers from completely meshing with each other, and then the next spiral layer is coiled. These operations are repetitiously performed until the space **6** is filled, leaving the free end of the strand **7** at the top of the roll. The successive oblique portions P of the strand are of course circumferentially spaced from each other during the coiling process to give uniform length to all portions of the roll. The free end of the strand may be tagged if desired or may be releasably attached to a "donut" or the like.

After filling the space **6** with the coiled strand, the cover **4** is secured in place and the assembly of coiled strand and container is then ready for shipment or storage, and no reasonable amount of even extremely rough handling and/or stacking will impart appreciable injury to container or contents.

When the container is opened, the free end of the strand is readily accessible for paying out the coiled strand with convenience and with no danger of snarling.

From the foregoing, it will be seen that novel and advantageous provision has been disclosed for attaining the desired ends. However, variations may of course be made within the scope of the invention.

We claim:

1. A container having a cylindrical side wall, a bottom and a readily removable cover, a cylindrical tubular core within said container in spaced concentric relation with said side wall, said tubular core extending from said bottom to an elevation for supporting contact with said cover, and a core centering means comprising a flat ring resting on said bottom and extending from said tubular core to said side wall and having an integral flange bent upwardly within the tubular core and secured thereto.

2. A container having a cylindrical side wall, a bottom and a readily removable cover, a cylindrical tubular core within said container in spaced concentric relation with said side wall, said tubular core extending from said bottom to an elevation for supporting contact with said cover, and a core centering means comprising a flat ring resting on said bottom and extending from said tubular core to said side wall and having an integral flange composed of spaced tongues bent upwardly within the tubular core and secured thereto, and a brace ring outwardly facing against said tongues and secured thereto to resist inward bending of said integral flange.

3. A container having a cylindrical side wall, a bottom and a readily removable cover, a cylindrical tubular core within said container in spaced concentric relation with said side wall, said tubular core extending from said bottom to an elevation for supporting contact with said cover, and a core centering means comprising a flat ring resting on said bottom and extending from said tubular core to said side wall and having an integral flange composed of spaced tongues bent upwardly within the tubular core and secured thereto, and a brace ring outwardly facing against said tongues and secured thereto to resist inward bending of said integral flange, said readily removable cover having thereon an annular shoulder fitting within and centering the otherwise free upper end extremity of said tubular core.

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