Dec. 18, 1956 D. B. PHILLIPS 2,774,474

PACKAGING DEVICE FOR CYLINDRICAL OBJECTS

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FIG. 1

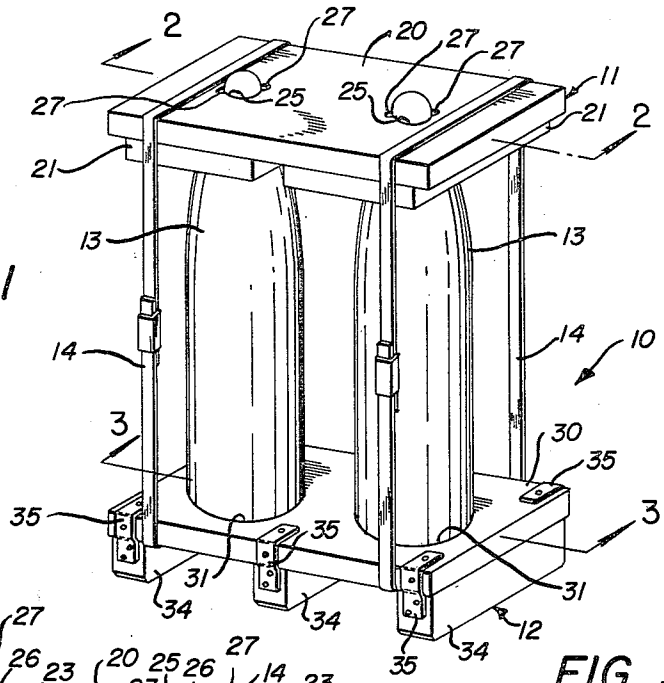


FIG. 2

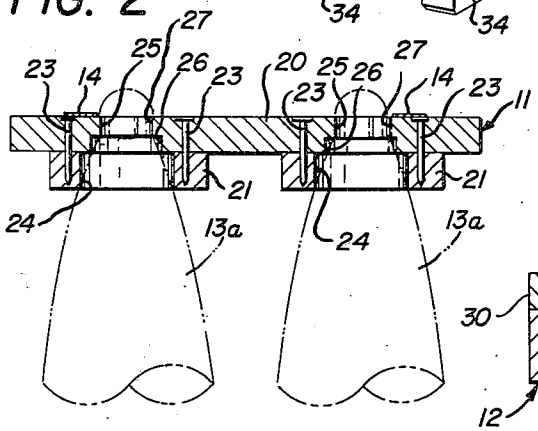


FIG. 3

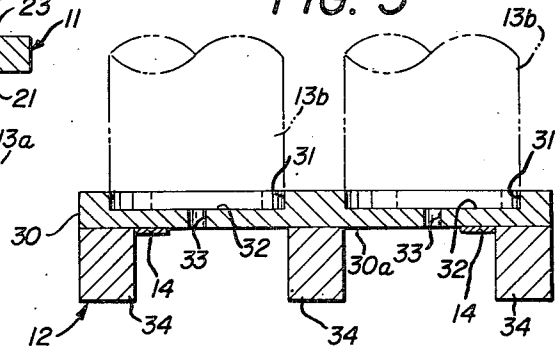
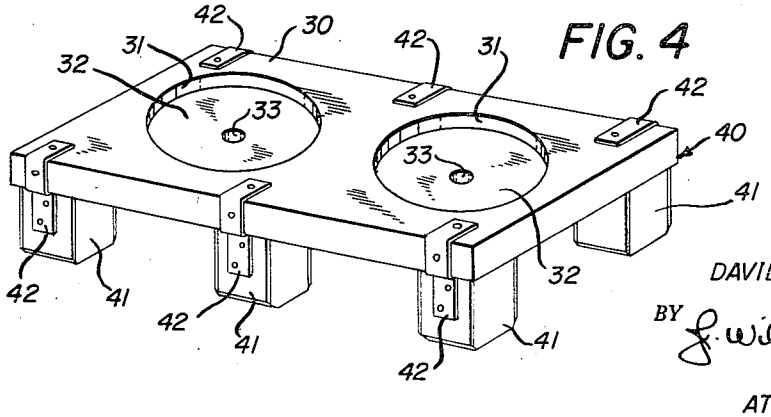


FIG. 4



INVENTOR.
DAVID B. PHILLIPS

BY J. William Freeman

ATTORNEY

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PACKAGING DEVICE FOR CYLINDRICAL OBJECTS

David B. Phillips, Berea, Ohio

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2 Claims. (Cl. 206—65)

This invention relates to packaging devices, and in particular relates to a packaging device designed to facilitate unit transportation of one or more objects of substantially cylindrical shape.

In the past, the transportation of cylindrical objects has generally been effectuated through the medium of the conventional six-sided box that is provided with spacer members on the interior side walls thereof for the purpose of spacing the cylindrical object with respect thereto.

While the above-referred to type of packaging device functioned properly from the standpoint of transporting the cylindrical objects as a unit, several disadvantages were apparent with respect to this known type of prior art. The first and foremost of these disadvantages relates to the relatively high cost of this type of packaging device, resulting from the necessity of employing the relatively large amount of wood or other packaging material during the construction of the box member per se. Further expense was caused by the necessity of providing the aforementioned spacer members of an exact and conforming configuration, whereby the same would be capable of exactly spacing the cylindrical object with respect to the side walls of the box member. A still further disadvantage of this type of packaging device was encountered with respect to certain difficulties that arose when the transportation was interrupted for the purpose of performing a further operation on the cylinder. Such a situation arises, for example, in the manufacture and transportation of artillery shells, wherein shells are made at one plant and loaded with explosive at a second plant. In use of the known prior art devices a great deal of lost time resulted from the mandatory packaging and re-packaging of the relatively complex prior art box.

It has been discovered that a greatly simplified packaging device can be provided if the inherent axial inflexibility of the cylindrical object is utilized to cooperate structurally with the elements of the packaging device per se.

Accordingly, it is one object of this invention to provide an inexpensive container adapted for the transportation of objects of substantially cylindrical configuration.

It is a further object of this invention to provide an inexpensive container for the transportation of one or more objects of substantially cylindrical configuration wherein the axial inflexibility of the cylindrical objects is structurally utilized in cooperation with the elements of the packaging unit to define an overall inflexible packaging structure.

It is a still further object of this invention to provide an inexpensive container for the transportation of one or more objects of substantially cylindrical configuration and being characterized by the extreme ease with which these cylindrical objects can be removed and repositioned with respect to packaging means.

It is a still further object of this invention to provide

a container for cylindrical objects that includes a pallet means thereon.

These and other objects of the invention will become more apparent upon a reading of the following brief specification considered and interpreted in the light of the accompanying drawings.

Of the drawings:

Figure 1 is a perspective view illustrating the improved packaging device in conjunction with the packaging of a pair of artillery shells.

Figures 2 and 3 are views taken on the lines 2—2 and 3—3 respectively, of Figure 1.

Figure 4 is a perspective view of a modified bottom support member incorporating an improved pallet design.

Referring now to the drawings, and in particular, to Figure 1 thereof, the improved packaging unit, generally designated as **10**, is shown as including an upper support member **11** and a lower pallet support member **12** that are shown secured to the opposed ends of artillery shells **13, 13**, by banding straps **14, 14**.

As is best shown in Figure 2 of the drawings, the upper support member **11** is defined by a rectangular block **20**, and furtther includes a pair of transversely extending block members **21, 21** secured thereto as by nails **23, 23**. For the purpose of receiving the upper tapered ends **13*a***, **13*a*** of the artillery shells **13, 13**, the transversely extending block members **21, 21** are each provided with an aperture **24**, the arrangement being such that these apertures **24, 24** are axially aligned with and concentric about a pair of apertures **25, 25** that are provided in the block **20** (see Figure 2). The apertures **25, 25** are shown radially undercut as at **26, 26** for the purpose of receiving a cooperating shoulder of the artillery shells **13, 13**. In addition each aperture **25** is shown slotted radially outwardly as at **27, 27** to provide drainage holes for water or other liquids accumulating on the top surface of the block **20**.

As has been previously indicated, the lower support member **12** is engaged about the opposite axial ends **13*b***, **13*b*** of the artillery shells **13, 13** in spaced relationship to the support **11**. To this end, the lower support member **12** is shown as including a rectangular plate **30** provided with a pair of cylindrical undercuts **31, 31** that define seats **32, 32** upon which the artillery shells **13, 13** may rest. As before, drainage of the lower support member **12** may be facilitated by providing apertures **33, 33** to communicate the seats **32, 32** with the surface **30*a*** of block **30**. (See Figure 3.) It is similarly manifest that the seats **32, 32** of the lower support member **12** may be somewhat inclined to cause drainage through apertures **33, 33**.

For the purpose of providing pallet means, the block **30** is shown in Figure 1 of the drawings as being supported with respect to the ground or other objects by a plurality of transversely extending spacer blocks **34, 34** that are secured with respect to the block **30** by a plurality of flange members **35, 35**, the arrangement being such that the fork lifts of a truck may be inserted into the spaces between the members **34, 34** for lifting engagement with the surface **30*a*** of the lower support member **12** in known manner. It is important to note with respect to the upper and lower support means **11** and **12**, that the apertures **25, 25** are axially aligned with the cylindrical undercuts **31, 31**, thus permitting upright reception of the artillery shells with respect to the top and bottom support members **11** and **12**.

In use or operation of the improved packaging device, the bottom portions **13*b***, **13*b*** of artillery shells **13, 13**, are first placed upon the cylindrical seats **32, 32** of the lower support member **12**, and in this position the same will assume an upright or vertical position with respect to the plane of the block **30**. In this position the upper

support member **11** may be positioned about the top tapered ends **13***a*, **13***a* of the artillery shells **13**, **13** by merely placing apertures **24**, **24**, undercuts **26**, **26** and apertures **25**, **25** over these respective end portions. In this partially assembled position the banding wires may be positioned around the upper and lower support members **11** and **12**, respectively, as is best shown in Figure 1, and the same may then be tightened and secured as by clamping in known manner. In the assembled condition of Figure 1, relative lateral displacement between the support members **11** and **12** is obviated by virtue of engagement of the artillery shells **13**, **13** with the cooperating recesses of the upper and lower support members **11** and **12**. For example, the lower ends **13***b*, **13***b* are engaged by the walls of the cylinder undercuts **31**, **31** of the lower support member **12**, while the upper ends **13***a*, **13***a* are generally engaged by the walls of apertures **24**, **24**, undercuts **26**, **26** and apertures **25**, **25** (see Figures 2 and 3).

As has been previously indicated, the objects that are being packaged or crated for subsequent transportation with the device of this invention, cooperate, by virtue of their axial inflexibility, with the packaging members per se, and thus define a rigid package or crate that is suitable for transportation as a unit. This aforementioned cooperation between the object being transported and the packaging elements per se dictates that the support member must, to some extent, be individually tailored to fit the requirements of the particular cylindrical object being transported. Accordingly, while the specification of this invention has described the transportation of artillery shells, it is manifest that other cylindrical objects could be transported upon slight modification of the support members **11** and **12**. For example, if a perfectly cylindrical drum were to be supported, the upper support member could be provided with a pair of cylindrical undercuts equivalent in size to the undercuts **31**, **31** of the lower support member and the same result could be obtained.

In Figure 4 of the drawings, there is shown a modified form of lower support member that is generally designated as **40**. The structure of this modified lower support is similar to the support member **12**, with the exception that a different form of pallet device is employed in conjunction with this modified form of the invention. Accordingly, where indicated, like numbers designate like parts.

The pallet means employed in conjunction with the

modification shown in Figure 4, includes a plurality of spacer blocks **41**, **41** that are provided on the corner and center edge portions of the plate **40**. As before, these block members **41**, **41** are secured with respect to the plate member **40** by a plurality of flange members **42**, **42**, the resulting arrangement being such that the usual fork lifts can be inserted from any side instead of being limited to insertion from the front and rear sides as is the case with the pallet means shown in Figures 1–3 of the drawings.

Other modifications may be resorted to without departing from the spirit thereof or the scope of the appended claims.

What is claimed is:

1. A shipping package of axially inflexible elongated articles having a flat base and a tapered nose section, comprising; a flat base plate having the upper flat surface thereof provided with at least one recessed horizontal seat against which the flat base of said inflexible article is seated; a flat cover plate of approximately equal dimensions to said base plate having at least one through aperture interconnecting the opposed flat faces thereof; and means for drawing said base and cover plates toward each other when positioned with respect to said article; said aperture being substantially concentrically disposed above said seat when said cover plate is superimposed over said base plate in vertically spaced relationship; said aperture having a plurality of radial dimensions along its axial length receiving the tapered nose section therein; said nose section projecting through and above the upper-most plane of said cover plate.

2. The device of claim 1, wherein the lowermost surface of said base plate includes pallet means operable to space said base plate vertically of a floor surface at a distance at least equal to the distance of projection of the nose section above said uppermost plane of said cover plate.

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