March 9, 1943. C. B. ARNOLD 2,313,309

PLYWOOD BARREL

Filed Aug. 2, 1940

Fig. 1

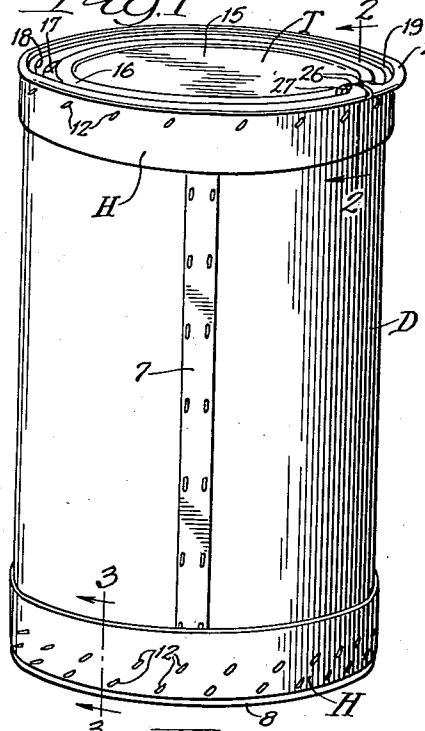


Fig. 2

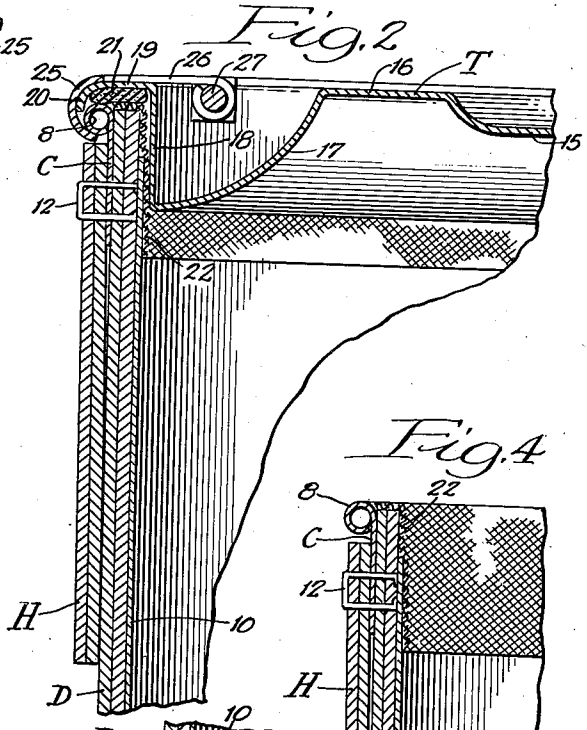


Fig. 4

Fig. 5

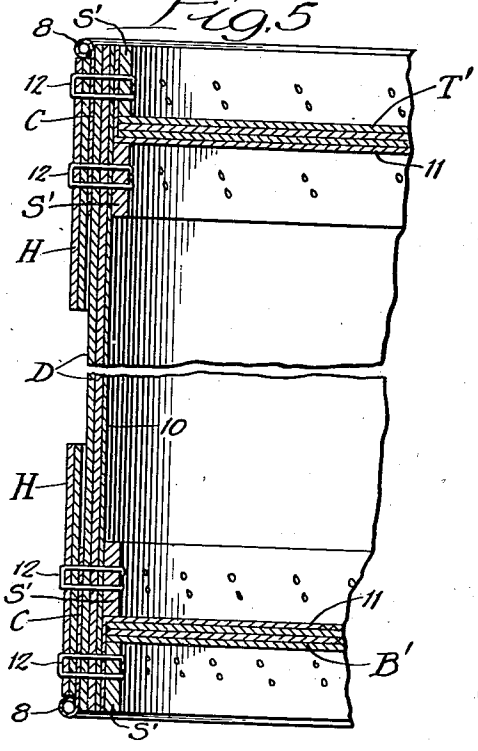
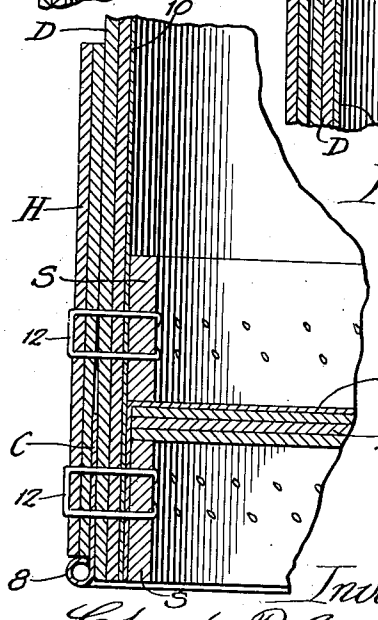


Fig. 3



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PLYWOOD BARREL

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Application August 2, 1940, Serial No. 349,586

6 Claims. (Cl. 217—72)

This invention, which relates to a container in the form of a barrel, comprises a plywood drum which may be equipped at one end with a removable metallic head. In the manufacture of plywood barrels, difficulty is frequently encountered in obtaining an exact fit of the heads. This is due, in part, to the fact that a plywood drum is almost never perfectly cylindrical. For one thing, the joint where the two ends of the plywood come together militates against perfect roundness. While it is easy to produce circular heads, the fit of any such head in a drum which is not perfectly circular is apt to result in slight leakage at such points, whereby the drum is ill adapted for the retention of fine, freely movable, granular particles.

The barrel of my present invention utilizes a plywood drum, thereby preserving all the advantages which inhere in such a construction. With such a drum I may also combine the advantages of a head which is produced from sheet metal. In addition, I employ a metallic collar which is fitted around the drum with one edge rolled into a bead. This bead, in the case of a metallic head, serves as one element in the connection for the head, and, where a wooden head is employed, the bead which is flush with the end of the drum provides a reinforcement therefor such as to protect the drum end and proximate hoops in the normal handling and use of the barrel.

It is with the construction of such a composite barrel that my present invention is concerned, the improvements being directed particularly to the assembly of the wood and metallic parts in a manner which is conducive to enhanced strength, a tight closure, and good appearance.

Certain suggestive embodiments of my invention are set forth in the accompanying drawing, wherein—

Figure 1 is a view in perspective of the plywood barrel in its entirety;

Figs. 2 and 3 are enlarged details in section taken, respectively, on lines 2—2 and 3—3 of Fig. 1;

Fig. 4, which is a view similar to Fig. 2, shows the head removed from the barrel; and

Fig. 5 is a fragmentary longitudinal sectional view showing a modified construction of heads at opposite ends of the barrel.

As shown, the container which is in the form of a barrel, comprises a cylindrical plywood drum D, whose meeting ends are suitably joined at a point beneath a covering strip 7 (see Fig. 1). Fitted around the barrel, adjacent opposite ends thereof, is a pair of reinforcing hoops H, also of plywood if desired. The top edge of the upper hoop is shown as terminating slightly below the corresponding end of the barrel, and in similar fashion the lower edge of the bottom hoop terminates a slight distance above the barrel end proximate thereto, the purpose of this arrangement being hereafter explained.

Extending around the drum between its outer surface and each reinforcing hoop is a circular metallic collar C. Each collar is extended outwardly beyond the proximate end of the barrel, the protruding exposed portion of the collar being outwardly curved through more than 180° to provide a rolled edge 8 whose surface at the point of maximum diameter is substantially aligned with the outer surface of the hoop. The rolled edge of each collar also is tangential to a plane which lies slightly beyond the proximate end of the drum. By this disposition and arrangement of the collar edges of the barrel, i. e. both the drum ends and hoops fitted thereto, are protected from contact with sufaces against which the barrel may be moved or placed.

As shown, in Fig. 3 a pair of spaced stays S are fitted to the interior of the drum adjacent its lower end, accommodating between them a head which forms a bottom B for the container. As shown, this bottom is of plywood and, if desired, the drum may have an interior lining 10 adapted to extend from end to end thereof. A disk 11, as of paper or fabric, is applied over the inner surface of the bottom and around its margins where it makes tight engagement with the lining 10. This lining in conjunction with the two head disks serves effectively to prevent leakage of small granular particles which may be contained within the drum.

Each collar is secured in place as by staples 12 which are extended through the associated hoop, passing through the collar and through the plywood body of the drum to lie, as by clinching, against the inner surface thereof. As many staples as are needed for securing each collar in place are used, with the staples arranged, for example, in two circular rows, one above the other around the lower hoop and in a single row around the upper hoop. In the case of the upper hoop, the single row of staples serves additionally to secure the collar in place, and with the lower hoop, the lower row of staples traverse the collar to effect its securement, these same staples passing through the stays to the inside of

the drum to be clinched against the inner surface thereof.

A barrel so constructed is reinforced at both ends by the presence of the metallic collars having outer edges which are rolled in the form of beads. In the case of the lower collar the rolled edge abuts the proximate end of the lower hoop whereby mutual reinforcement is provided. Such a barrel, when heavily loaded, may be dropped, rolled, or slid around with the rolled edge of the collar bearing the brunt of all contact. As shown in the several figures of the drawing, the lower end of the barrel is terminated slightly above the lowermost point of the rolled edge of the collar so that it is the collar, and not the barrel, which is in contact with the floor surface whereon the barrel is rested.

The head which forms the top T may be removably fitted to the upper end of the barrel, as clearly illustrated in Figs. 1 and 2. As shown, the top comprises a sheet metal plate 15 which rises to provide a flat annular ledge 16 beyond which is a downward slope 17 forming a channel which is defined on its outside by a vertical circular wall 18 that is adapted to fit snugly within the barrel adjacent its upper end. Continuing, this wall is outwardly turned to provide a wide upper edge 19 or outer circular ledge which terminates in a rounded depending rim 20 affording a downwardly facing channel wherein is received in part the rolled edge 8 of the upper collar which, as shown, is disposed in slightly spaced relation to the proximate circular edge of its associated hoop. When so positioned, with a compressible gasket 21 disposed within the rim channel, the top will provide for the barrel a closure which is substantially tight. If desired, a fabric tape 22 may be interposed between the inner surface of the barrel and the outer face of the circular wall 18; such a tape not only covers over the clinched ends of the staples but also protects the lining 10 and so assists in preventing any leakage of loose particles at this point.

To secure the top head in place, when assembled in the manner just described, I provide a clamping ring 25, whose cross section is in the form of an inwardly facing channel, adapted to engage the rolled edge 8 on its under side and also the rounded rim of the head upon its outer and/or upper sides. This clamping ring which is split carries adjacent its two ends a pair of radially extending lugs 26 (see Fig. 1), which at one end are provided with cylindrical passageways of sufficient size for the reception therethrough of a bolt 27 having at one end a head and along its shank screw threads whereon a nut is adjustably fitted. When the nut is advanced upon the bolt the two ends of the clamping ring are drawn together with pressure, thereby tightening the clamping ring upon the rounded rim of the head and the rolled edge of the collar. In this way the head is drawn down tightly against the gasket so as to be fixedly secured to the barrel, with the lugs which protrude from the clamping ring occupying positions over and within the annular channel that lies to the inside of the circular wall 18.

The present barrel is composite in character in that it comprises a plywood body with metallic reinforcing collars that are exposed only as to the outer edges thereof which are rolled and so disposed with respect to the proximate ends of the drum as to afford protection thereto. These collars, being confined for the most part to the inside of the reinforcing hoops, are exposed to view scarcely at all, and so permit the plywood material of the drum to be displayed to full advantage. This may be of importance, because it is often possible to finish the exterior of a plywood drum very attractively and the covering over of any appreciable part of its surface would diminish the effect to a corresponding extent.

Besides furnishing a reinforcement for opposite ends of the drum, the two metallic collars, which for the most part are concealed, tend to maintain an accurate circularity at the drum ends, thereby promoting a better fit of the heads therewithin. The top head, if made of metal as shown in Fig. 2, may be secured tightly in place with the aid of a clamping ring which utilizes the exposed rolled edge of the collar in so doing. As suggested in Fig. 5, however, the top head T' and bottom B' may be of plywood with stays S' fitted to the interior surface of the drum to afford a securement for these heads. A lining 10 with disks 11, one applied to the inner surface of each head, serves to render the container substantially tight against the leakage of small particles, as already explained. In this construction, as in the other already described, the metallic collars with their exposed rolled edges, provide protection for the two ends of the drum which desirably terminate just short of the outermost points of such edges.

In use of the present containers, particularly during storage or shipment, it is customary to stack one upon another, several high, in order to conserve on space. The steel heads herein disclosed are advantageous under such conditions because (1) they are lacking in protruding parts, (2) they afford increased bearing surfaces in their inner and outer co-planar annular flat ledges, and (3) they have ample strength to withstand all such handling.

I claim:

1. In a container, the combination of a cylindrical plywood drum, a sheet metal collar fitted exteriorly around the drum adjacent one end thereof, one edge of the collar being protruded beyond the proximate drum end and rolled in the form of a bead, a hoop fitted around and in engagement with both the drum and collar and so positioned relative thereto as to remain slightly spaced from the bead on the collar, means interconnecting the drum, collar and hoop extending circumferentially of the drum, a substantially flat circular sheet metal top head adapted to form a closure for the upper end of the drum, the head in its peripheral region being extended upwardly, then outwardly, and then downwardly to provide an upstanding wall having an outside diameter of such size as to fit closely within the drum to engage frictionally with the inner cylindrical surface thereof and to provide an outwardly extending rounded rim defining on its under side an open channel wherein the collar bead is partly receivable, a split circular clamping ring bent to form an inwardly facing channel whose opposed edges are spaced apart a distance requisite for embracing portions of both the rounded rim of the head and the beaded edge of the collar, and means for drawing together the two ends of the clamping ring to secure the head to the collar.

2. In a container, the combination of a cylindrical plywood drum, a sheet metal collar fitted exteriorly around the drum adjacent one end thereof, one edge of the collar being protruded beyond the proximate drum end and rolled in the form of an outwardly extending bead, a hoop

fitted around and in engagement with both the drum and collar and so positioned relative thereto as to remain slightly spaced from the bead on the collar and substantially flush with the outermost point of its surface, means interconnecting the drum, collar and hoop extending circumferentially of the drum, a substantially flat circular sheet metal head adapted to form a closure for the upper end of the drum, the head in its peripheral region being extended upwardly, then outwardly, and then downwardly to provide an upstanding wall having an outside diameter of such size as to fit closely within the drum to engage frictionally with the inner cylindrical surface thereof and to provide an outwardly extending rim defining on its under side an open channel wherein the collar bead is partly receivable, a split circular clamping ring bent to form an inwardly facing channel whose opposed edges are spaced apart a distance requisite for embracing portions of both the crowned rim of the head and the beaded edge of the collar, and means for drawing together the ends of the clamping ring to secure the head to the collar.

3. In a container, the combination of a cylindrical plywood drum, a sheet metal collar fitted exteriorly around the drum adjacent one end thereof, one edge of the collar being protruded beyond the proximate drum end and rolled in the form of a bead, a hoop fitting around and engaging with both the drum and the collar and so positioned relative thereto as to remain slightly spaced from the bead of the collar, means interconnecting the drum, collar and hoop at spaced points circumferentially of the drum, a metallic top head adapted to form a closure for the upper end of the drum, the head being provided with an outwardly extending rounded rim defining on its under side an open channel wherein the collar bead is partly receivable, a split circular clamping ring bent to form an inwardly facing channel whose opposed edges are spaced apart a distance requisite for embracing portions of both the rounded rim of the head and the beaded edge of the collar, and means for adjustably drawing together the two ends of the clamping ring to secure the head fixedly to the collar.

4. In a container, the combination of a cylindrical plywood drum, a sheet metal collar fitted exteriorly around the drum adjacent one end thereof, one edge of the collar being protruded beyond the proximate drum end and rolled in the form of a bead, a hoop fitting around and engaging with both the drum and the collar and so positioned relative thereto as to remain slightly spaced from the bead on the collar, means interconnecting the drum, collar and hoop at spaced points circumferentially of the drum, a metallic top head adapted to form a closure for the upper end of the drum, the head being provided with an outwardly extending rounded rim defining to the inner side thereof an upwardly facing open channel and on its under side an open channel wherein the collar bead is partly receivable, a split circular clamping ring bent to form an inwardly facing channel whose opposed edges are spaced apart a distance requisite for embracing portions of both the crowned rim of the head and the beaded edge of the collar, and means for drawing together the two ends of the clamping ring to secure the head to the collar comprising a pair of radially extended lugs secured to the clamping ring, one adjacent each end thereof, and each formed with a cylindrical passageway therethrough, and screw means extended through the passageways of the two lugs and lying within the upwardly facing open channel of the head, adapted to draw the split ends of the clamping ring adjustably toward each other.

5. In a container, the combination of a cylindrical plywood drum, a pair of metallic collars fitted exteriorly around the drum and secured thereto, one adjacent each end thereof, the outer circular edge of each collar being protruded beyond the proximate drum end and rolled in the form of an outwardly extending bead, a pair of hoops fitted exteriorly around and engaging with the drum, one hoop being in engagement with the outside of each collar and entirely covering the same and so positioned relative thereto as to present its outer circular edge in approximately abutting relation to the proximate collar bead, the proximate drum end terminating short of the plane touched by the endmost point on the collar bead whereby the latter protrudes therebeyond to afford protection to the drum at each of its opposite ends, and means extending through the hoops, collars and drum for holding the various parts together.

6. In a container, the combination of a cylindrical plywood drum, a pair of metallic collars fitted around the drum, one adjacent each end thereof, the outer circular edge of each collar being rolled in the form of an outwardly extending bead to provide a reinforcing rim therefor, a pair of hoops fitted around and engaging the collars, each hoop being extended beyond the inner circular edge of the associated collar to lie alongside and in engagement with a substantial portion of the outer surface of the drum, a head fitted into one end of the drum and occupying a position wholly within the confines of one of said hoops, a pair of stays applied to the drum, one on each side of said head, and means interconnecting the drum, collars, hoops and stays comprising circular rows of staples extended therethrough and secured fixedly thereto.

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