

CONTAINER

The present invention relates to a container, particularly a bung barrel.

The complete emptying of containers has taken on importance, with an increasing need and use of containers. The amount of residue remaining in containers after emptying represents an unacceptable waste, and with dangerous liquids can constitute considerable danger. It is therefore important to find a way of emptying containers as completely as possible.

Measures so far taken to solve the problem have proven unsatisfactory. Attempts have been made to empty the residual liquid through the filling and emptying bung opening by turning the container upside-down. In this case, the container has to be rocked to and fro in order to move the residual liquid into the bunghole. But even in this manner, it is not possible to achieve satisfactory emptying of residue.

A container has been developed with a specially designed lid by means of which the residual liquid is collected and guided to the bung opening. To this end, the central panel of the lid is depressed inwards, while an adjacent peripheral panel descends obliquely to the container casing.

When such a container is inverted, the residual liquid does in fact collect in the deepest part of the lid between the central panel and the peripheral panel and a considerable proportion of the residual liquid flows out through the bunghole.

However, such a container is not entirely satisfactory.

In the case of barrels, the problem of emptying residues is of particular significance. In this case, also, the central panel between the bung holes has been depressed inwards while the adjacent peripheral panel descends obliquely to the barrel casing.

An object is to achieve an optimum emptying of residue of containers whilst maintaining the stable position of equilibrium of the container on the container head by simple means. In this case, the further need of moving the container once it has been stood upside-down are to be avoided, especially as in this position it is no longer possible to determine the bung hole position and in the case of an inconvenient bung hole position, rocking movements have no effect.

The invention provides a container as claimed in claim 1.

In the case of a container inverted on the ground, the inverted funnel-shaped portion forms the deepest part of the container lid. The liquid residue, which collects and is conducted into the inverted funnel-shaped portion of the bung hole via the drainage

channel, escapes through the bunghole. The uniform increase in depth of the drainage channel ensures that this enforced flow of liquid functions reliably. The gradient of the drainage channel is determined by the depth of the inverted funnel shaped-portion.

In the case of a barrel with a filling and emptying bunghole and a ventilation bunghole, the ventilation bunghole is arranged in the funnel-shaped portion, and the apertures of the ventilation bung opening and the filling and emptying bung opening lie in the same horizontal plane.

This measure is designed to ensure that any residual liquid is conducted to the smaller ventilation bunghole, since this bunghole is generally not opened for extracting the contents. Only the opened ventilation bunghole indicates that the residue has been emptied, whereas a closed ventilation bunghole indicates that complete emptying has not yet taken place.

Since the actual barrel storage, filling, transporting and emptying are not changed the barrel dimensions known hitherto, as well as the bunghole positions in the barrel upper end wall and the vertical distance of the edge of the filling and emptying opening from the edge of the upper end wall of the barrel relative to the conventional filling apparatus, may be retained.

The gradient of the drainage channel is governed by the depth of the funnel-shaped portion, which is in turn

governed by the difference in height of the two bung sockets when the apertures of the bung socket and the filling and emptying bung socket are coplanar. The plane of the aperture of the filling and emptying bung socket is predetermined by the filling device to be used but must lie below the upper edge of the supporting rim.

Embodiments of the invention will now be described with reference to the accompanying drawings, wherein:

Fig. 1 shows in part vertical section the upper end of a barrel inverted on the ground and taken along the line A-B of Fig. 2,

Fig. 2 shows an underneath view of the barrel upper end wall of Fig. 1,

Fig. 3 shows in vertical section the bung socket of Fig. 1 enlarged,

Fig. 4 shows an underneath view of the bung sockets of Fig. 3,

Fig. 5 shows the top portion of a substantially rectangular container inverted on the ground taken along the line C-D of Fig. 6, and

Fig. 6 shows an underneath view of the lid of the container of Fig. 5.

In the drawings, the rim of an upper end wall 2 of a barrel is folded into a barrel casing or side wall 1. Annular portions of a filling and emptying bung socket 5 and of a smaller ventilation bung socket 6 (having a shorter height than the bung socket 5) are rolled into the upper end wall 2. Hexagonal flanges of the bung

sockets rest non-rotatably in correspondingly shaped bung pockets 7 and 9, respectively, of the upper end wall 2.

The upper end wall 2 has a circular central panel 4 and an annular peripheral panel 3. The circular central panel is depressed inwardly towards the barrel interior.

The annular peripheral panel 3 adjoins the outer edge of the central panel 4 and slopes downwardly towards the barrel side wall 1. Thus an annular depression is formed in the end wall 2, into which liquid residue flows in the direction of the arrows shown in Figs. 1, 5 and 6 when the barrel is inverted on the ground. For technical reasons relating to manufacture, the lid has a symmetrical construction.

The bung sockets 5 and 6 are located in the annular depression. While the filling and emptying bung socket 5 with the annular pocket 9 does not project above the transitional edge between the central panel 4 and the peripheral panel 3, the aperture edge of the ventilation bung socket 6 is raised to the horizontal aperture plane of the filling and emptying bung socket 5, thus forming a raised, inverted funnel-shaped portion 8 in the upper end wall. The depth of the funnel is determined by the difference in structural height of bung sockets 5 and 6.

The aperture plane of the filling and emptying bung socket 5, which lies below the supporting rim of the upper end wall, is indicated by broken line X in Fig. 3.

The position of the aperture of the bung socket 5 is

determined by the filling apparatus.

A drainage channel 10, which is raised on the outside of the barrel and is formed from two annular arcs, is formed in the upper end wall 2 in the transition between the central panel 4 and the peripheral panel 3. The annular arcs begin near to the bung pocket 9 of the filling and emptying bung socket 5 and extend in each case into the inverted funnel-shaped portion 8 of the ventilating bung socket. The depth of the drainage channels 10 increases uniformly towards the inverted funnel-shaped portion 8. The collecting liquid flows in the direction of the arrows into the funnel 8 and thence out of the barrel via the aperture of the bung socket 6.

The embodiment of Figs. 5 and 6 shows a rectangular container. The central panel 4 of the upper end wall 2 is depressed inwards towards the barrel interior in the form of a hip roof. The peripheral panel 3 adjoining the central panel 4 slopes obliquely towards the side wall 1. A drainage channel 10, which is raised on the outside of the barrel, is formed in the transition between the central and peripheral panels 3, 4. The drainage channel 10 opens into the funnel-shaped portion 8, and increases uniformly in depth. The gradient starts in the part of the channel 10 furthest from the bung socket 6. In the embodiment shown, this part lies diagonally opposite the bung socket 6.

CLAIMS

1. A container comprising a body having a side wall and an upper end wall with a bung opening therein, the end wall being surrounded by a supporting rim and having an inwardly depressed central panel and an adjoining peripheral panel sloping downwardly from the central panel towards the side wall of the body, wherein the junction of the central panel and the peripheral panel comprises an inverted funnel-shaped portion in which the bung opening is arranged, and a rib opening into the funnel-shaped portion, the rib forming a drainage channel increasing uniformly in depth towards the bung opening when the container is inverted and self-supported in an upright, inverted position on the supporting rim, the rib having a minimum depth at a location remote from the bung opening.

2. A container as claimed in Claim 1, wherein the upper end wall has a filling and emptying bung opening and a ventilation bung opening and the ventilation bung opening is arranged in the funnel-shaped portion of the lid, and the apertures of the ventilation bung opening and the filling and emptying bung opening lie in the same horizontal plane.

3. A container as claimed in Claim 1 or 2, wherein the container is substantially rectangular in cross-section.



4. A container substantially as herein described with reference to any one of the embodiments shown in the accompanying drawings.

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