

[54] **CONTAINER OF THE THROW-AWAY TYPE PROVIDED WITH A DRAINING DEVICE**

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321, 324; 137/386

[56]

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[57]

ABSTRACT

A container of the throw-away type having a draining device comprising a tubular housing in which a valve for closing or opening draining apertures in the housing is movable by means of a lift mechanism operable through the outlet of the housing. The housing outlet extends outwardly through the container wall and has a shoulder for clamping it to said wall. The container may be secured with its bottom to a pallet, the housing outlet shoulder then being clamped at the same time to the pallet and a rod for operating the lift mechanism being then pivoted to the pallet.

2 Claims, 2 Drawing Figures

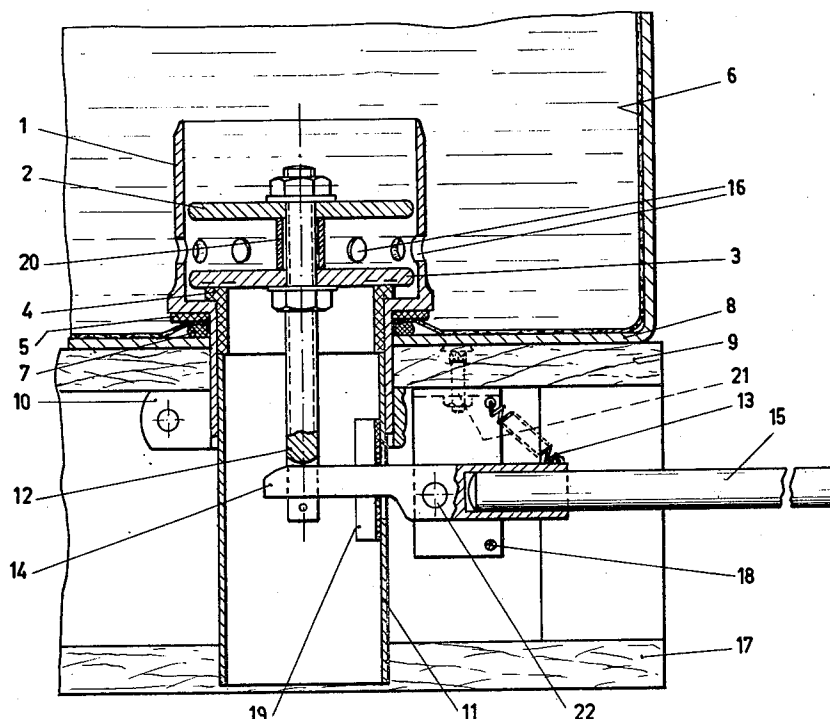


FIG. 1

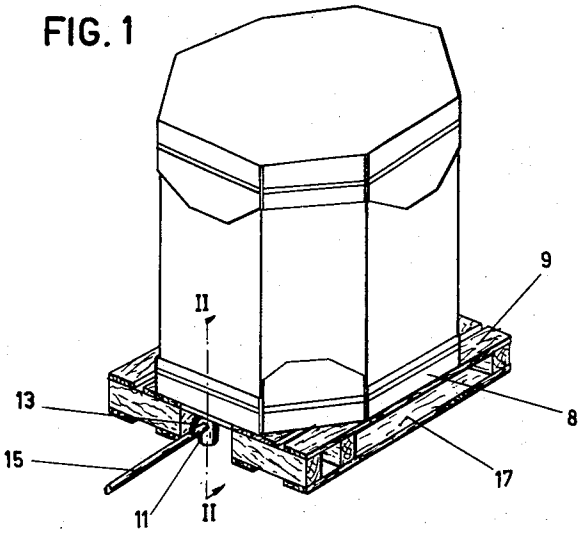
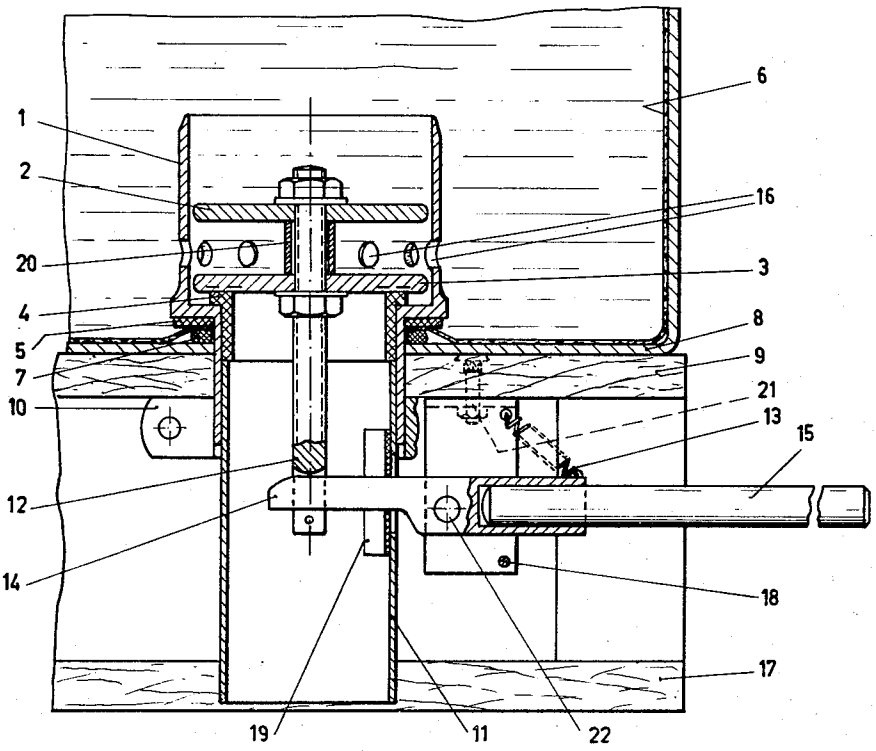


FIG. 2



CONTAINER OF THE THROW-AWAY TYPE PROVIDED WITH A DRAINING DEVICE

BACKGROUND OF THE INVENTION

The invention relates to containers of the throw-away type, comprising an outer reservoir and an inner sack of a flexible plastic foil.

Such containers are known and serve for the storage and transport of liquids and powders. They present the disadvantage that it is difficult to empty them because thereto a hole has to be made in the exterior reservoir and in the inner sack. If this hole is provided in the upper side or cover of the reservoir then the contents have to be taken out by scooping in any form. If the hole is provided in the lower part of the container then it empties itself substantially completely at a non-controllable flow velocity which often is not the idea since at a certain moment only a portion of the contents is wanted.

The invention therefore aims at providing such a throw-away container with a draining device which may be opened and closed at will.

It is true that containers having a draining device are known, but these are always containers adapted for repeated use. Such containers present the disadvantage relative to the throw-away containers of high investment costs, storage, transport and return costs (weight), cleaning and depreciation costs, as well as the costs for keeping an extensive packing material costs administration. The draining devices of said known containers in the form of stop valves, etc. are in consequence of their construction, weight and price not suitable to be used with throw-away containers which are often manufactured from card board and/or synthetic materials.

SUMMARY OF THE INVENTION

The above described aim of the invention is attained by providing a container of the above mentioned throw-away type with a draining device, comprising a tubular housing with lateral flow apertures, said housing being connected via a shoulder to a discharge spout of smaller diameter and containing a valve disc movable between a position above and a position below the flow apertures, cooperating with the inner shoulder surface as its seat, said disc being guided at its periphery by the inner housing wall and being connected together with an auxiliary disc guided by the housing to a spindle which may be actuated through the discharge spout, the valve housing extending from the interior of the sack together with the discharge spout through an opening in the sack wall and in the reservoir wall, the edge portion of the sack wall around the opening being sealingly pressed against the outer shoulder surface.

The draining device according to the invention not only permits draining in a simple way also the throw-away containers, but at the same time such draining to take place quickly and economically with a cheap device which is likewise adapted to one time use and connected to the containers such that it will be thrown away together with the container.

The draining device according to the invention also permits a controlled outflow out of the container by controlling the opening position of the valve disc of the device.

Throw-away containers of the type described are known to be sometimes fixed, e.g., by adhesive, to the upper side of a pallet enabling an easy transport of the filled container, e.g., by a fork truck.

With such a container the draining device is preferably fixed at the same time to the pallet, whereby the edge portion around the sack wall opening together with the edge portions around the corresponding openings in the reservoir wall and in the upper layer of the pallet are clamped against the shoulder of the valve housing, an actuating lever being pivotally secured to the pallet, said lever extending from the side into the discharge spout and being connected to the end of the valve spindle.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 shows a perspective view of a throw-away container provided with the draining device according to the invention.

FIG. 2 is a cross section through the draining mechanism along a vertical plane through the axis of an operating lever.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The cargo container shown in a throw-away container which comprises a cylindrical and particularly in this embodiment an octagon shaped body portion, a cover and a bottom, the under side of the bottom being secured to a transport pallet, e.g., by means of an adhesive. Within said outer container an inner sack has been provided, made of plastic foil.

The draining device comprises a valve housing 1 made of synthetic matter in which a valve closure means has been mounted which is movable up and down. The valve comprises a valve disc 3 and a seat 4. The housing 1 has been inserted through an aperture in the inner sack of the container, said housing having a lower portion of smaller diameter and therefore providing a shoulder which engages through the intermediary of a flat rubber ring 5, the inner side of the sack 6. Thereafter a rubber ring 7, e.g., with circular or elliptical cross section, such as an O-ring is slid onto the narrower portion of the valve housing whereby the valve housing is clamped to the sack. The inner sack 6, manufactured of plastic tube, is pressed to the bottom 8 of the container by the weight of the filling within the container, which bottom in its turn is supported by the upper side of the pallet 9.

The aperture in the sack has been provided by cutting out a circular portion of the sealed lower edge of the inner sack, as well as in the container bottom 8. By providing said apertures with a somewhat smaller diameter than the outer diameter of the draining device to be inserted, one obtains already a certain sealing effect which is increased by the rings 5 and 7 as well as by the fact that the valve housing is clamped to the pallet as will be described further below. The edge of the aperture in the sack is folded out around the upper portion of the smaller lower portion of the valve housing and thereafter the rubber ring 7 is slid around said folded sack portion, which has been inserted through the opening in the container bottom.

The valve seat 4 is formed by the upper side of a flange of a tube shaped part made of a resilient materi-

al. Said seat part is secured in the lower valve housing portion by means of adhesive or with a close fit and thereafter a plastic draining tube 11 is slid, if necessary, after providing adhesive thereon, into the valve housing. A clamping ring 10 known per se is then inserted around the lower portion of the smaller diameter part of the valve housing, whereby the valve housing is clamped to the pallet bottom by engaging the clamping ring with the under side of the pallet bottom. Said clamping ring at the same time brings the rubber ring 7 under pretension. Moreover, the valve housing is kept engaged with the pallet bottom by the weight of the container filling.

The valve comprises the disc 3 which has been secured to a bronze spindle 12 and for better guiding the valve within the valve housing a second disc 2 has been secured to the spindle spaced at a predetermined distance over the disc 3. Between the discs a spacing tube 20 may be provided. The tunnel 12 has been secured to the upper side of the guide disc 2 and to the lower side of the valve disc 3 by a bronze nut with a sealing ring laid between so that also here a good sealing is obtained.

In order to prevent blocking of the closing mechanism, e.g., by film forming with adhesives, lacquers etc., the under side of the valve closure disc 3 above the middle of the upper side of the seat 4 a recess has been provided which would in itself already break down any film forming, but at the same time the recess has been shaped such, that in its middle portion a tapering cutting ring is provided which, due to the pressure of the filling, cuts each film which may have formed.

To the under side of the bronze valve spindle 12 a lift mechanism 14 has been secured, which extends outwardly with the intermediary of a rubber seal 19 through the drain tube 11.

By means of a tension spring 13 there is prevented in the first place that in consequence of impacts or similar forces the lift mechanism 14 could open the closure valve 3 and in the second place care is taken thereby that after draining the closure valve 3 returns to its closed position as quickly as possible.

For draining a separate lever 15 may be inserted into the lift mechanism 14 whereby in a simple manner a sufficient force may be applied to bring the closure valve 3 in a position above the flow apertures 16 in the valve housing 1. A stop pin 18 prevents rocking the lever 15 excessively whereby at the same time the spring might be damaged. If the lever 15 is released it

automatically jumps upwardly due to the spring tension of tension spring 13.

During an experiment checking the tightness of the connection, using a filling of 1,000 liters water it appeared that after a rest period of 14 days no losses at all had taken place. After said check one of the experimentation containers was loaded onto a truck and transported for 40 kilometers along bad country roads and unpaved ground. It appeared also this time that an absolute tightness was maintained, the drain mechanism also functioning faultlessly.

It may be clear that the outflow velocity when draining the container may be controlled by moving the operating lever through a greater or less angle downwardly.

Variations and modifications of the present invention will be obvious to those skilled in the art and it is intended to cover in the appended claims all such modifications and equivalents as fall within the true spirit and scope of this invention.

What is claimed is:

1. A cargo container of the throw-away type, comprising an outer reservoir and a sack of flexible plastic foil, provided within it, further comprising a draining device having a tubular housing with lateral flow apertures, said housing being connected via a shoulder to a discharge spout of smaller diameter and containing a valve disc movable between a position above and a position below the flow apertures, cooperating with the inner shoulder surface as its seat, said disc being guided at its periphery by the inner housing wall and being connected together with an auxiliary disc guided by the housing to a spindle which may be actuated through the discharge spout, the valve housing extending from the interior of the sack together with the discharge spout through an opening in the sack wall and in the reservoir wall, the edge portion of the sack wall around the opening being sealingly pressed against the outer shoulder surface.

2. Cargo container according to claim 1, the outer reservoir being secured to a pallet, the edge portion around the sack wall opening together with the edge portions around the corresponding openings in the reservoir wall and in the upper layer of the pallet being clamped against the shoulder of the valve housing, wherein an actuating lever is pivotally secured to the pallet, said lever extending from the side into the discharge spout and being connected to the end of the valve spindle.

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