

[54] **DEVICE FOR COMPENSATING EXCESS PRESSURES IN CLOSED CONTAINERS**

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[51] Int. Cl. **B65d 25/00**

[58] Field of Search 220/85 SP, 85 B; 221/24, 221/23; 222/539

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[57] **ABSTRACT**

In a container designed to hold a volatile liquid is arranged a hollow body, preferably having the shape of a tube with a pleated or undulating wall of an elastic material. The hollow body is disposed in the filling and drainage opening of the container and is attached to a socket which may be screwed onto a mouth connecting piece located at the container opening, with the hollow body directed either inwards into the container or outwards.

At the end opposite the socket the hollow body may be closed by means of a lid.

An excess gas pressure arising in the container will be compensated for by compression of the hollow body bellow-like, thereby causing air to stream out through an opening in a container closure lid.

2 Claims, 2 Drawing Figures

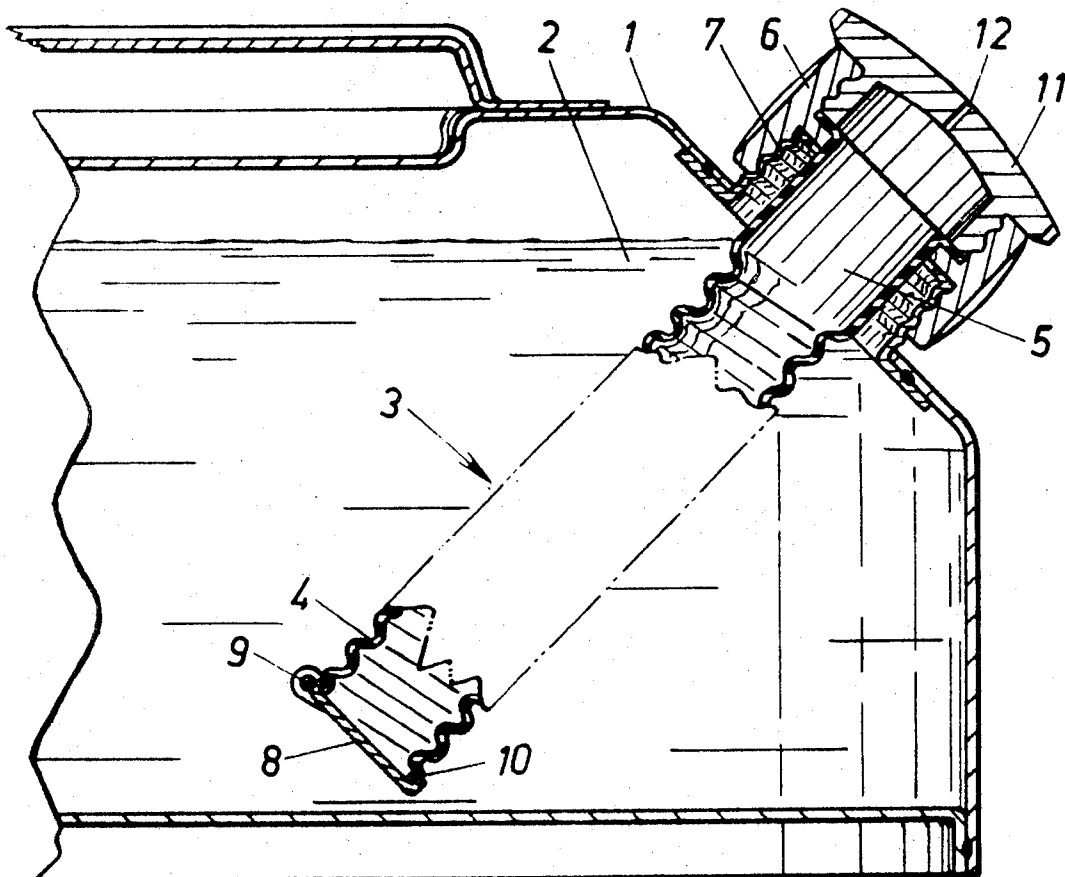


Fig.1

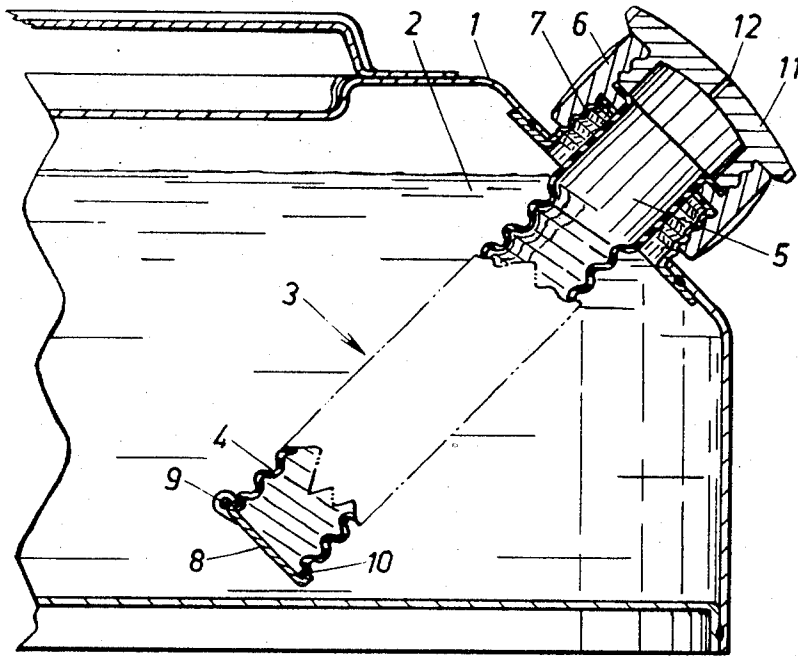
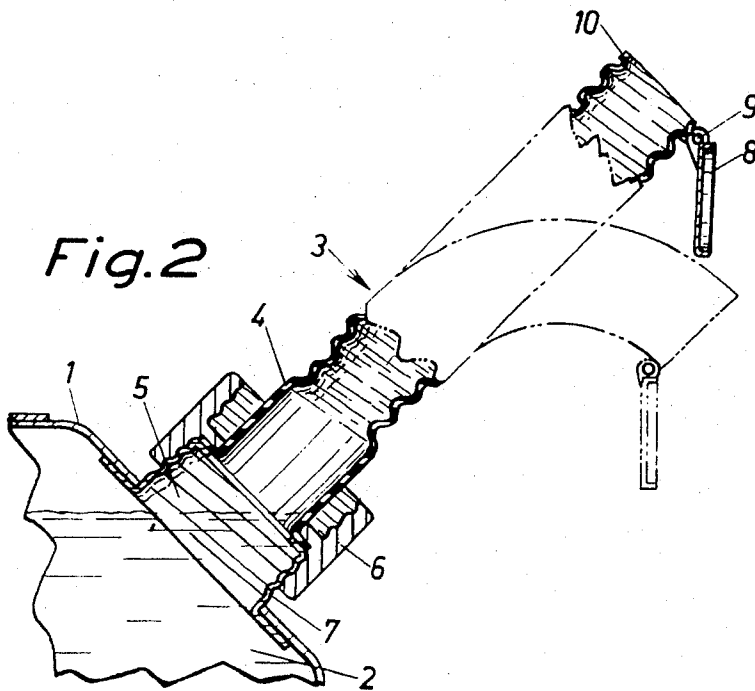


Fig.2



DEVICE FOR COMPENSATING EXCESS PRESSURES IN CLOSED CONTAINERS

BACKGROUND OF THE INVENTION

The present invention concerns arrangements for compensating excess pressures in closed containers designed to hold volatile liquids and the like. More precisely the invention concerns a device formed by a hollow, elongate body which from the outside of the container projects into the container and the interior of which communicates with the environment around the container by means of an aperture, the said hollow body being elastic and adapted, when influenced by an excess pressure generated inside the container, to be compressed while evacuating air present in the body through said aperture, the inherent resiliency of the body being such as to permit the body to rebound into original shape upon cease of said excess pressure of the gas.

A device of this kind is already known and it fulfills its functions well. One disadvantage is, however, that the container together with which the device is to be used must be arranged in a particular way in order to be able to receive the hollow body, i.e., it must be provided with a special opening in which the body is inserted and with additional securing means to retain the body.

SUMMARY OF THE INVENTION

The purpose of the present invention is to provide a simplified construction of a device of the above kind. In accordance with the invention this purpose is obtained in that the hollow body is disposed in the filling and drainage opening of the container and has the shape of a tube having a pleated or undulating wall and in that the inner end of the body may be closed by means of a lid disposed at said end.

In accordance with a further development of the invention the hollow body is secured to a socket which is removably attached over a mouth connecting piece positioned in the container opening, the body being disposed either so as to project into the container or out from the container. A hollow body arranged and designed in this manner replaces the rigid metal tube which normally is found in containers of this kind for the purpose of facilitating transfer of the liquid held in the container into a tank or similar vessel. A container provided with the device in accordance with the invention thus is cheaper in manufacture than the hitherto known arrangements referred to above.

BRIEF DESCRIPTION OF THE DRAWING

The invention will be described more in detail in the following with reference to the accompanying drawing wherein

FIG. 1 is a sectional view through a portion of a container incorporating the device in accordance with the invention, and

FIG. 2 illustrates the device in position outside the container.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

In a container 1 designed to hold a volatile liquid 2 is arranged a hollow body 3, preferably having the shape of a tube with a pleated or undulating wall 4 of an elastic material, such as butadiene rubber or poly-

ethylene plastics. The tube is disposed in the filling and drainage opening 5 of the container 1 and is attached to a socket 6 which may be screwed onto a mouth connecting piece 7 located at the container opening, with the tube directed either inwards so as to project into the container as illustrated in FIG. 1, or outwards in which case it is located outside the container, as illustrated in FIG. 2. At the end opposite the socket 6 the tube 5 may be closed by means of a lid 8. In accordance with the embodiment illustrated in the drawing the lid 8 is arranged so as to turn freely around a pin 9 and may be secured to a marginal flange 10 by interference fit. The closure lid 11 of the container may be screwed into the socket 6. The lid 11 is provided with a small diameter aperture 12 through which the interior of the hollow body or tube 3 communicates with the atmospheric air.

In case an excess gas pressure should arise inside the container under the conditions illustrated in FIG. 1, i.e., the container being filled, the lid 8 closed, and the lid 11 screwed on, the tube 3 will be compressed in the axial direction like bellows, air then streaming out through the opening 12 so as to compensate for the excess gas pressure inside the container 1. When the lid 11 together with the socket 6 are subsequently screwed off the inherent resiliency of the tube wall 4 will result in the tube gradually resuming its original shape while air is being sucked in through the opening 12 in the lid 11 into the interior of the tube. Consequently, there is no risk that liquid spurts out of the container when the lid 11 is screwed off.

As a secondary effect, a further advantage is also obtained by means of the device in accordance with the invention. If the socket 6 is unscrewed from the mouth connecting piece 7, turned over together with the tube 3 and again screwed on, in the position illustrated in FIG. 2, the tube 3 replaces the metal tube which commonly is used in a container of the kind in question to facilitate discharge of liquid from the container. An advantage inherent in the inventive object in this respect is that the tube 3 is flexible as illustrated in dash-and-dot lines in FIG. 2 which provides for even smoother and easier discharge of liquid from the container.

The invention is not limited to the embodiment as shown and described but modifications are possible within the scope of the appended claims. For instance, the lid 8 may be formed from a separate plug secured to the tube 3 by means of a chain or similar means.

I claim:

1. In an improved device for compensating for pressures inside a closed container designed to hold volatile fluids, said device comprising an elongate hollow body adapted to project from the outside of said container into the container interior, means defining an opening communicating the interior of said hollow body with the atmosphere surrounding said container, said hollow body being flexible and so constructed, under the influence of an excess gas pressure generated inside said container, to be compressed so as to allow air present in said body to be evacuated through said opening, the inherent resiliency of said body being such as to allow said body to resume its original shape upon cessation of said excess gas pressure, the improvement comprising:

said hollow body being disposed in the filling and drainage aperture of said container and having the

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shape of a tube with a pleated or undulating wall;
 and
 closure means being provided at the end of said hollow body which projects into the interior of the container to close said interior end.
 2. An improved device as claimed in claim 1, wherein the improvement further comprises:
 a mouth connecting piece arranged at the container filling and drainage aperture, a socket removably

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attachable to said connecting piece, said hollow body being arranged for attachment to said socket in a selected one of two positions, said two positions including a first position with said body projecting into the interior of said container and a second position with said body projecting out from said container.

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