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Description

This invention relates to liquid containers and in particular to a liquid container having an improved pouring neck and outlet which does not interfere with the rapid filling of the container and permits the contents of the container to be dispensed in an even stream without the gulping phenomena which occur in the dispensing of liquids from many containers currently in use.

The gulping phenomena is caused by the ingress of air into the container as the contents are dispensed therefrom. As the contents are dispensed from a container tilted to a pouring position there is a tendency to create a vacuum above the liquid level in the container, air is drawn into the container to progressively fill the vacuum. This ingress of air is opposite to the flow of contents from the container and causes a gurgling or gulping effect resulting in an uneven flow of the contents from the container.

In an attempt to overcome this problem it has been proposed to include a duct in the container which permits air to flow into the vacuum in the container as the contents are dispensed therefrom without passing through the liquid stream flowing from the container. Such arrangements have proved only partly successful and even with the provisions of the mentioned duct, the fluid flow sometimes occludes the inlet in the container and so gulping does occur.

US-A-3251514 discloses a container for liquid including a neck having a circular neck portion leading to a circular outlet, the cross-sectional area of said outlet being greater than the cross-sectional area of said neck portion, a duct forming a handle and communicating between said neck and the interior of the container, and a peripheral channel in the neck forming an area of increased cross-section relative to the cross-sectional area of the neck portion. The container disclosed in US-A-3251514 has the technical problem that the positional inter-relationship between the outlet and the neck portion can cause, particularly during initial pouring, liquid to be sucked into the inlet of the duct thereby blocking the duct and preventing smooth inflow of air into the container. In addition, the duct in the handle places the outlet of the container in communication with a lower portion of the container. This has the technical problem that liquid in the container can, during pouring, pass up the duct thereby also blocking the duct and preventing smooth inflow of air.

US-A-4412633 discloses a container in which a duct in a handle has a U-shaped passage of small cross-section which communicates with the outlet, the passage forming a restriction to enable liquid to be blown out of the passage by a Venturi effect.

This container suffers from the technical problem that airflow into the container is restricted which in turn causes a slow liquid pouring rate.

FR-A-2070979 discloses a container having a pouring nozzle located in the neck of the container and a passage for the ingress of air into the container.

The object of the present invention is to provide a container of the general type referred to, which includes an air inlet duct and which permits an even flow of fluid from the container in a liquid dispensing operation.

The invention provides a container for liquid according to claim 1.

Preferably, the container bottom has a finger recess therein.

The container may include a cap to close the container outlet.

Preferably, the outlet, the peripheral channel and the neck portion are substantially co-axial.

A preferred embodiment of the invention will now be described with reference to the accompanying drawings in which:

Fig. 1 is a perspective view of the container;

Fig. 2 is a side elevation;

Fig. 3 is a view of the container in a partially tilted position;

Fig. 4 is a view of the container in a fully tilted position.

Referring now to the drawings, the container 1 is of rectangular shape, it has a bottom 2, top 3, side walls 4 and end walls 6 and 7.

End walls 6 and 7 are angled inwardly towards the centre of the container and are so shaped as to form a neck 8 defined by inwardly directed walls 9 and 10. The neck 8 has a circular neck portion 30. A circular outlet 11 leads from the neck portion 30. Spaced to one side of the neck 8 is a hollow carry handle 12 having a duct 13 passing therethrough which communicates with the neck 8 above the liquid level in the container and with the interior of the container.

The neck is formed with a circular peripheral channel 14 above the walls 9 and 10 which communicate with the inlet end 15 of the duct 13 and positioned above the channel is the circular shaped outlet 11.

The bottom of the container is provided with a finger recess 16 to facilitate the tilting of the container in a liquid dispensing operation as will be explained hereafter.

As the liquid empties from the container in a pouring operation in the manner illustrated in Figs. 1, 3 and 4 the resulting pressure differential arising between the interior of the container 1 adjacent the entrance 15 of the duct 13 and the atmosphere draws air back into the container as illustrated by the arrows in Figs. 3 and 4 and into the container.

The air displaces the liquid flowing from the container also in the direction of the arrows illustrated in Figs 3 and 4. The wall 10 causes the out flowing liquid to separate from the wall of the outlet 11 adjacent the inlet 15 of the duct 13 and the peripheral channel 14 provides an enlarged opening leading into the inlet 15 of the duct 13 thereby permitting a free uninterrupted flow of air into the container in a pouring operation and thereby avoiding the gulping phenomena. This is particularly important in those cases where the container is to accommodate petroleum products or toxic liquids.

Claims

1. A container (1) for liquid including a neck (8) having a portion of diminishing cross-sectional area terminating at its narrow end in a circular neck portion (30) leading to a circular outlet (11), the cross-sectional area of said outlet (11) being greater than the cross-sectional area of said neck portion (30), a duct (13) forming a handle and communicating between said neck (8) and the interior of the container (1) and a peripheral channel (14) in the neck (8) forming an area of increased cross-section relative to the cross-sectional area of said neck portion (30), characterised in that the outlet (11) is axially aligned with the neck portion (30), the peripheral channel (14) is adjacent the neck portion (30) and extends circumferentially between the neck portion (30) and the outlet (11), and the duct (13) communicates between said channel (14) and an upper portion of the interior of the container (1), the arrangement being such that, in a pouring operation wherein an inlet (15) of the duct is disposed uppermost in said channel (14), liquid flowing from the container (1) is caused by a wall (10) of the container (1) which defines the neck (8) and by the peripheral channel (14) to separate from that portion of the outlet (11) adjacent the inlet (15) of the duct to maintain a free uninterrupted flow of air into the container (1) from the atmosphere so as to avoid a gulping effect.
2. A container as claimed in claim 1 wherein the container bottom (2) has a finger recess (16) therein.
3. A container as claimed in claim 1 or claim 2 including a cap (21) to close the container outlet (11).

Patentansprüche

1. Ein Behälter (1) für Flüssigkeit einschließlich einem Hals (8) mit einem Abschnitt abnehmen-

der Querschnittsfläche, der an seinem engen Ende in einem kreisförmigen, zu einem kreisförmigen Auslaß (11) führenden Halsteil (30) endigt, wobei die Querschnittsfläche dieses Auslasses (11) größer als die Querschnittsfläche dieses Halsteils (30) ist, eine Leitung (13) einen Griff bildet und eine Verbindung zwischen dem Hals (8) und dem Inneren des Behälters (1) herstellt, und ein Umfangskanal (14) im Hals (8) eine Fläche größeren Querschnitts relativ zur Querschnittsfläche des Halsteils (30) bildet,

dadurch gekennzeichnet,

daß der Auslaß (11) mit dem Halsteil (30) axial ausgerichtet ist, daß der Umfangskanal (14) an dem Halsteil (30) angrenzt und umfangsmäßig zwischen dem Halsteil (30) und dem Auslaß (11) verläuft, und daß die Leitung (13) zwischen dem Kanal (14) und einem oberen Teil des Inneren des Behälters (1) eine Verbindung vermittelt, wobei die Anordnung so ist, daß bei einem Gießvorgang, bei dem ein Einlaß (15) der Leitung im Kanal (14) zuoberst angeordnet wird, aus dem Behälter (1) ausströmende Flüssigkeit durch eine Wand (10) des Behälters (1), welche den Hals (8) bestimmt, und durch den Umfangskanal (14) veranlaßt wird, sich von dem Teil des Auslasses (11) neben dem Einlaß (15) der Leitung abzutrennen, um zur Vermeidung eines Gluckereffektes einen freien, ununterbrochenen Luftstrom aus der Atmosphäre in den Behälter (1) hinein aufrechtzuerhalten.

2. Ein Behälter nach Anspruch 1, bei dem das Behälterunterteil (2) eine Fingeraussparung (16) in sich aufweist.
3. Ein Behälter nach Anspruch 1 oder 2, der eine Kappe (21) zum Verschließen des Behälterauslasses (11) einschließt.

Revendications

1. Récipient (1) pour liquides muni d'un col (8) ayant une partie à section transversale décroissante se terminant à son extrémité étroite dans une partie de col circulaire (30) menant à une sortie circulaire (11), la section de la sortie (11) étant supérieure à la section de la partie de col (30), un conduit (13) formant une poignée et assurant une communication entre le col (8) et l'intérieur du récipient (1) et un canal périphérique (14) dans le col (8) formant une surface de section accrue par rapport à la section de la partie de col (30), caractérisé en ce que la sortie (11) est axialement alignée avec la partie de col (30), le canal périphérique (14) est adjacent à la partie de col (30) et

s'étend à la circonférence du passage entre la partie de col (30) et la sortie (11), et le conduit (13) assure la communication entre le canal (14) et une partie supérieure de l'intérieur du récipient (1), la configuration étant telle que, 5
lors d'une opération de déversement pendant laquelle une entrée (15) du conduit est disposée à la partie supérieure du canal (14), le liquide s'écoulant du récipient (1) est amené à se séparer, par une paroi (10) du récipient (1) 10
qui définit le col (8) et par le canal périphérique (14), de la partie de la sortie (11) qui est adjacente à l'entrée (15) du conduit pour établir un écoulement libre continu d'air dans le récipient (1) à partir de l'atmosphère pour éviter un déversement saccadé. 15

2. Récipient selon la revendication 1, dans lequel le fond (2) du récipient comprend un évidement pour les doigts (16). 20

3. Récipient selon la revendication 1 ou 2, comprenant un capuchon (21) pour fermer la sortie du récipient (11). 25

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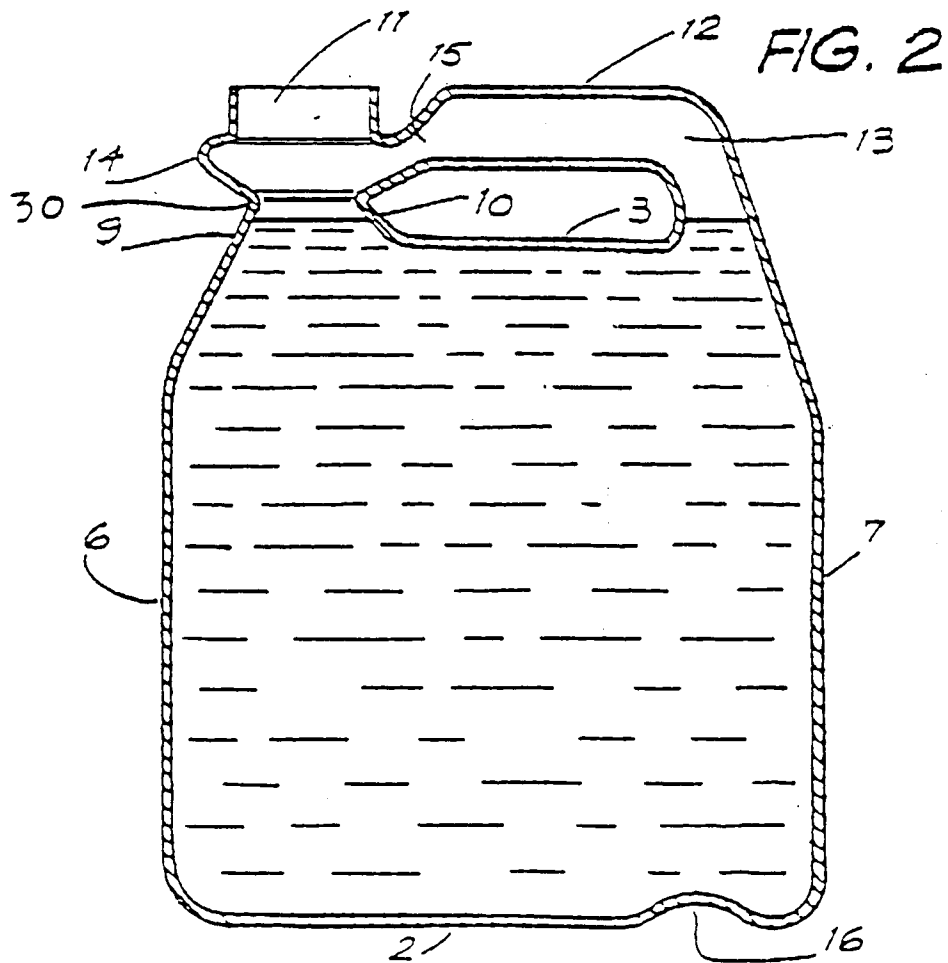
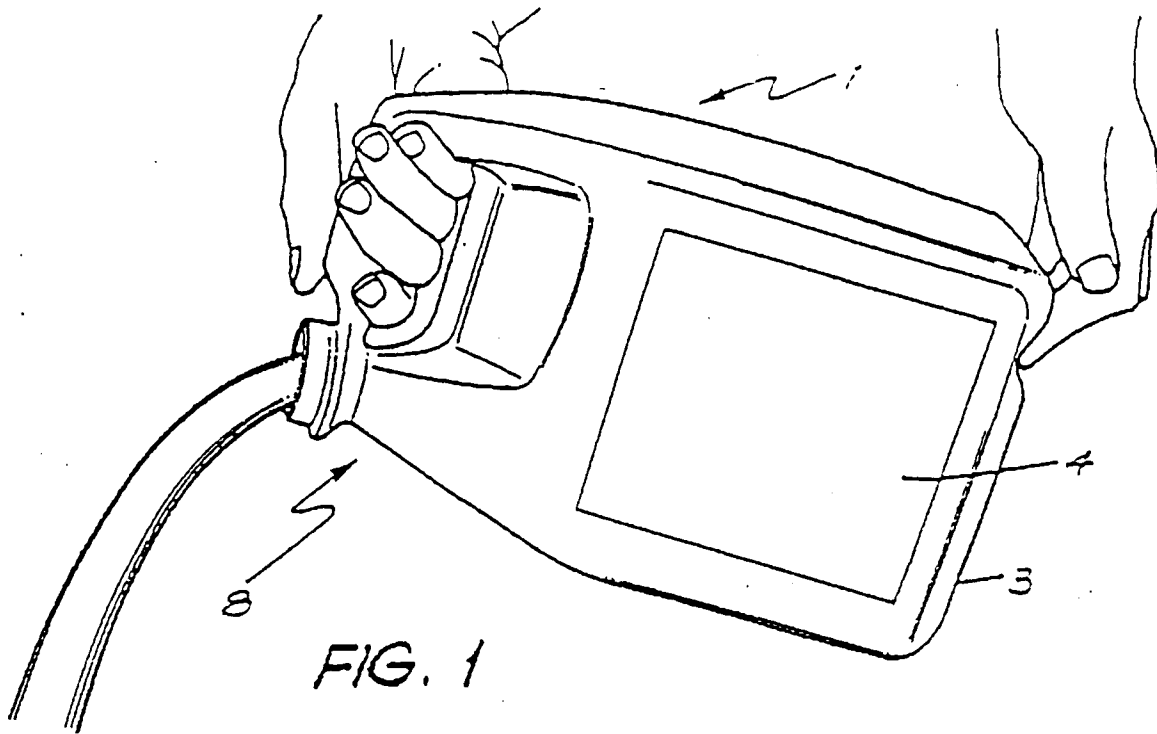
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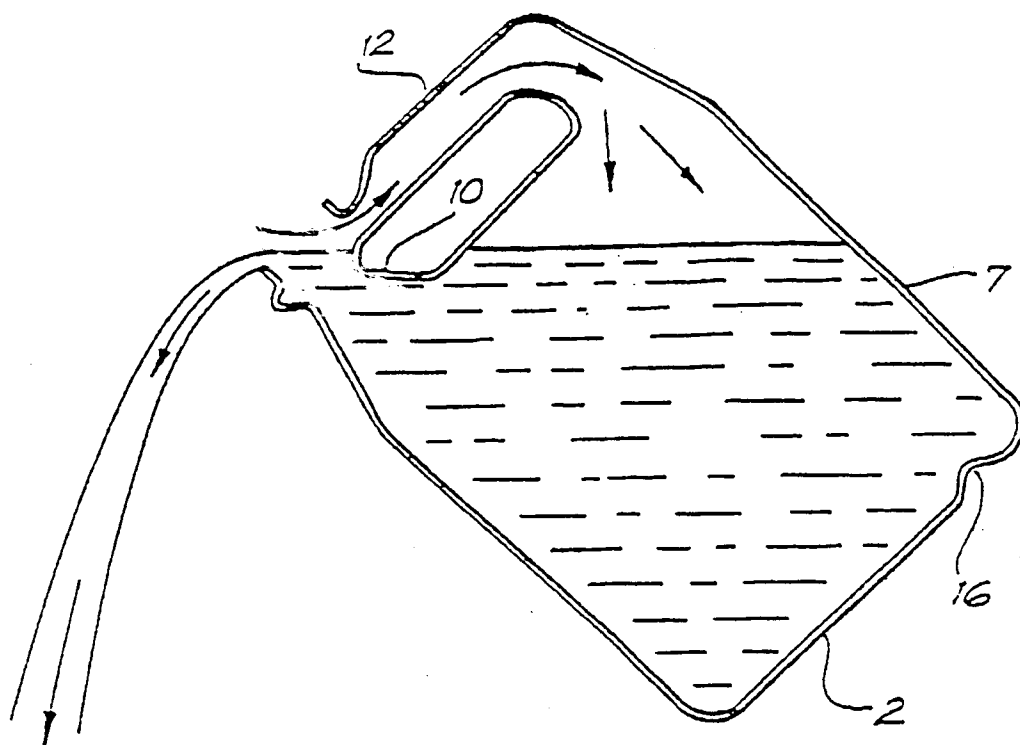


FIG. 3

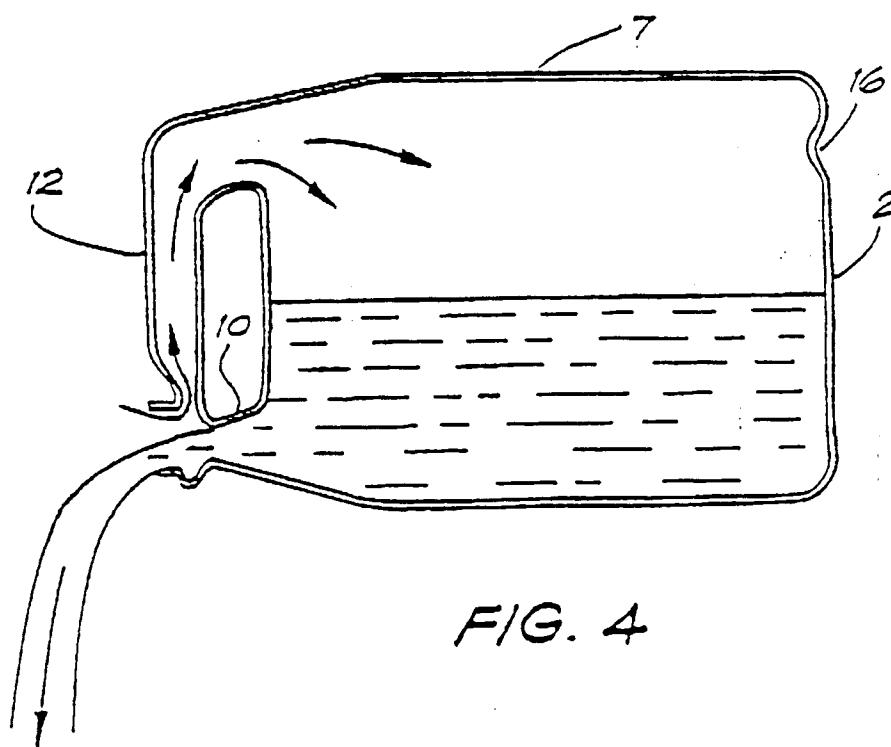


FIG. 4