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(54) **CONTAINER FOR LIQUID SUBSTANCES AND LID THEREFOR**

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(57) **ABSTRACT**

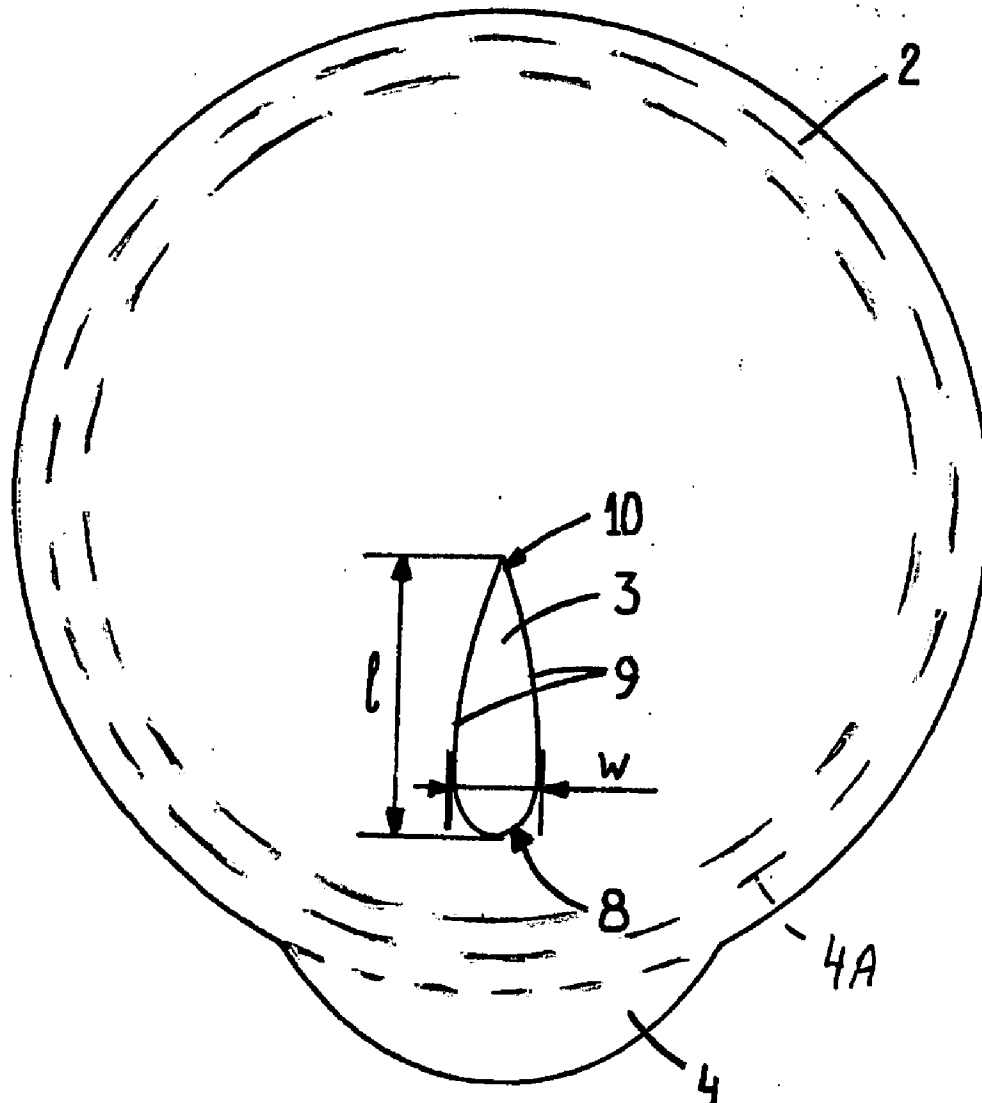
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A container for liquid substances comprises a pouring opening in a top wall. The pouring opening is teardrop shaped with its wider part closest to the circumference of the top wall and with its narrower part closest to the center of the top wall, wherein two side edges of the pouring opening connecting the wider part with the narrower part meet each other at the narrower part while enclosing an acute angle.

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**CONTAINER FOR LIQUID SUBSTANCES AND LID THEREFOR**

**BACKGROUND OF THE INVENTION**

[0001] The discussion below is merely provided for general background information and is not intended to be used as an aid in determining the scope of the claimed subject matter.

[0002] An aspect of the invention firstly relates to a container for liquid substances, such as paint, oil etc, comprising at least a top wall in which a pouring opening is provided.

[0003] The container is primarily intended for viscous substances, such as paint, mineral oil, olive oil etc. When considering, for example, a container for paint (a so-called paint can) problems may arise when pouring paint from the pouring opening. Because of its viscous nature, the paint will drip along a side wall of the container, thus smearing it with paint. Moreover, paint will fill the roundgoing or perimeter groove at the top of the side wall. In practise, it is very difficult to pour paint from the pouring opening without making a mess.

[0004] The state of the art shows numerous paint pouring arrangements used with containers for liquid substances, striving to eliminate the above problem. However, such paint pouring arrangements suffer from different drawbacks, among which a complicated structure and a complicated use, a bulky appearance and an inadequate operation.

**SUMMARY OF INVENTION**

[0005] This Summary and Abstract are provided to introduce some concepts in a simplified form that are further described below in the Detailed Description. This Summary and Abstract are not intended to identify key features or essential features of the claimed subject matter, nor are they intended to be used as an aid in determining the scope of the claimed subject matter. In addition, the description herein provided and the claimed subject matter should not be interpreted as being directed to addressing any of the shortcomings discussed in the Background.

[0006] A container for liquid substances, such as paint, oil etc., is provided comprising at least a top wall in which a pouring opening is provided. The pouring opening is teardrop shaped with its wider part closest to the circumference of the top wall and with its narrower part closest to the center of the top wall, wherein two side edges of the pouring opening connecting the wider part with the narrower part meet each other at the narrower part while enclosing an acute angle.

[0007] In a surprising manner it has been discovered, that using a pouring opening in accordance with that described above results in a jet of the liquid substance leaving the pouring opening in a well-defined, constrained manner. This jet is small in size and narrow and allows a very precise pouring. No adhering of the substance (especially a viscous substance) will occur to a side wall of the container, such that the container remains free of any smearing parts of the substance. The location where the two side edges meet each other contributes to this effect. It creates a sharp ridge on the liquid substance leaving the pouring opening, which seems to help constrain the liquid substance in an advantageous manner.

[0008] In preferred embodiments of the container in accordance with other aspects of the present invention the following measures can be taken, alone or in combination: the narrower part is rounded with a radius between 0 and 8 mm, and preferably the radius of the narrower part is 1 mm; the wider part has a width between 8 and 20 mm, and preferably the width of the wider part is 12 mm; the pouring opening has a length (measured between the wider part and the narrower part) between 25 and 50 mm, and preferably the length of the pouring opening is 36 mm; the ratio between the width of the wider part and the length of the pouring opening ranges from 1:2 to 1:4, and preferably said ratio is 1:3.

[0009] The container can be a container of the type in which the top wall is an integral part of the container or portions thereof. Such a container type can be used as a disposable container for single use.

[0010] However, it is also conceivable that the top wall defines a lid which is removably attached to the remainder of the container. Such a type of container is suitable for repeated use, or for containers which can be refillable.

[0011] Especially when the container is of a reusable type or a refillable type, it is advantageous that it is provided with removable cap means for closing the pouring opening.

[0012] In a still further embodiment of the container, the top wall comprises a lip extending radially outward of the pouring opening beyond the outer circumference of the top wall. Such a lip further reduces the chance of a viscous liquid dripping along a side wall of the container. The lip can extend in an inclined downwardly manner with the container in an upright or non-pouring position.

[0013] Finally, an embodiment of a container with such a lip is mentioned, comprising a tubular container body wherein the top wall is substantially circular and wherein the dimensions of the lip are such that it can be accommodated in a free space occurring between adjacent containers which are closely stacked in a staggered manner.

[0014] Generally, containers of such a type will be stacked in a staggered manner for transport or storage. Because, in such a stacked position of the containers, the lips can be accommodated in said free spaces, the required space for storing or transport will not increase.

[0015] Another aspect of the invention further relates to a lid for application in a container in accordance with the present invention.

**BRIEF DESCRIPTION OF THE DRAWINGS**

[0016] Hereinafter the invention will be elucidated while referring to the drawing, in which embodiments of the container according to the present invention are illustrated. Herein:

[0017] **FIG. 1** shows, partly and in a schematic perspective view a first embodiment of a container according to aspects of the present invention;

[0018] **FIG. 2** shows, partly in a side elevational view, a second embodiment of a container according aspects of the present invention;

[0019] **FIG. 3** shows, on a larger scale, a top plan view of an embodiment of a top wall;

[0020] FIG. 4 shows, still on a larger scale, details of a pouring opening, and

[0021] FIG. 5 shows, on a reduced scale, the stacking of three containers in accordance with an aspect of the present invention.

#### DETAILED DESCRIPTION OF THE ILLUSTRATIVE EMBODIMENTS

[0022] Firstly referring to FIG. 1, a container 1 for liquid substances (preferably viscous substances such as paint, oil etc.) comprises at least a top wall 2 in which a teardrop shaped pouring opening 3 is provided. Radially outward of the pouring opening 3 a lip 4 is provided which can extend radially outward of the pouring opening beyond the outer circumference 5 of the top wall 2.

[0023] The particularities of the pouring opening 3 will be elucidated later with respect to FIG. 3.

[0024] In FIG. 2 the top wall 2 is removably attached to the remainder of the container 1 such as to define a removable lid or cover. The manner in which the lid is removably secured to the container can take many well known forms such as but not limited to downwardly extending portions 4A adapted to engage a perimeter groove in the container (such as found in paint cans) and/or portions that engage the outwardly facing side wall surface of the container. A particular embodiment for such engaging portions can include that disclosed in EP 04104095.7, filed Aug. 26, 2004, entitled "Removable Lid", which is incorporated herein by reference in its entirety and included as Appendix A. The pouring opening 3 can cooperate with a removable and/or resealable cap or cap mechanism 6 for opening and closing the pouring opening 3. In a manner not shown in detail this cap mechanism 6 may be attached to the top wall 2 in a flexible manner such as to allow its movements (according to arrow 7).

[0025] In the embodiment illustrated in FIG. 2 the lip 4 extends in a slightly inclined downwardly manner. The lip 4 can extend over a sidewall of the container, or radially beyond portions of the lid that removably secure the lid to the container 1.

[0026] It is noted, that the top wall 2 also could be an integral part of the container 1 formed from a single unitary body that means that it cannot be removed therefrom.

[0027] Next reference is made to FIG. 3. The top wall 2 is illustrated as viewed in a pouring position of the container 1, that means that in such a pouring position the lip 4 substantially would point downwardly. In the pouring position considered, the pouring opening 3 comprises a lower wider part 8, an upper narrower part 10 and two side edges 9 connecting the wider part 8 and narrower part 10.

[0028] In the illustrated embodiment the wider part 8 has a width w between 8 and 20 mm, preferably 12 mm.

[0029] Further, the pouring opening 3 has a length 1 (measured between the wider part 8 and the narrower part 10) between 25 and 50 mm, preferably 36 mm.

[0030] The ratio between the width w of the wider part 8 and the length 1 of the pouring opening 3 ranges from 1:2 to 1:4, and preferably is 1:3.

[0031] In the embodiment illustrated in FIG. 3, the top wall 2 has a generally circular shape (less the lip 4) such as to fit in a tubular container body (for example as illustrated in FIG. 1).

[0032] In FIG. 4 part of the pouring opening 3 is shown on a larger scale, representing the narrower part 10 where the left and right side edges 9 meet. As represented these side edges 9 enclose an acute angle. Further the connection between both side edges 9 is rounded, with a radius of curvature r of between substantially 0 and 8 mm, preferably 1 mm.

[0033] Finally reference is made to FIG. 5. In a top plan view three containers 11, 21 and 31 are illustrated which in a staggered manner are stacked closely (as would be the case for storage or transport). Between adjacent containers 11, 21, 31 a free space 12 is defined. Now, the dimensions of the lip 4 are such, that it can be accommodated in such a free space 12, thus not having any influence on the storage or transport positions of the containers. It is noted, that the remaining containers 21 and 31 also could be provided with a lip 4, which then would be accommodated in corresponding free spaces.

[0034] Although the subject matter has been described in language directed to specific environments, structural features and/or methodological acts, it is to be understood that the subject matter defined in the appended claims is not limited to the environments, specific features or acts described above as has been held by the courts. Rather, the environments, specific features and acts described above are disclosed as example forms of implementing the claims.

1. Removable lid intended to be used with a container of the paint can type having an upper opening surrounded by an upwardly opening channel delimited by an inner peripheral wall and an outer peripheral wall, said lid comprising a substantially flat disc-shaped main body and an annular skirt extending substantially perpendicularly to the disc-shaped body and intended to be housed between the peripheral walls of the channel of the container, wherein the disc-shaped body further is provided with a pouring opening and a closure cap therefor,

characterized in that

the annular skirt has an outer diameter closely matching the inner diameter of the outer peripheral wall of the channel of the container for a clamping engagement therewith, and wherein the shape of the annular skirt further allows it to clampingly engage a downwardly extending ridge surrounding the bottom of the container.

2. Removable lid according to claim 1, wherein inwardly from the annular skirt at least one additional annular skirt is provided for sealingly engaging the inner peripheral wall of the channel of the container.

3. Removable lid according to claim 2, wherein the disc-shaped body comprises two additional annular skirts for sealingly engaging the opposite faces of the inner peripheral wall of the channel of the container.

4. Removable lid according to claim 1, 2 or 3, wherein the disc-shaped body comprises a lip extending radially outward of the pouring opening beyond the outer circumference of the disc-shaped body.

5. Removable lid according to claim 3, wherein the the lip extends inclined downwardly.

6. Removable lid according to any of the previous claims, wherein the diameter of the disc-shaped body at most equals the outer diameter of the container.

7. Removable lid according to any of the previous claims, wherein the disc-shaped body on its face opposite to the annular skirt is provided with elevations.

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