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(54) Paint container

(57) A paint container (1) comprising a receptacle (2) and a lid (4), wherein the lid (4) comprises a metal lid portion (22) and a plastic lid portion (20).The metal lid portion (22) being a central portion allowing the paint container (1) to be used in a punching type colorant dispenser punching the metal lid portion (22) prior to dispensing colorant into the paint. The plastic lid portion (20) being a peripheral portion encircling the metal lid portion (22). The plastic lid portion (20) comprises a lid sealing portion (46) sealing the lid (4) to a circumferential receptacle sealing portion (30) of the receptacle (2).

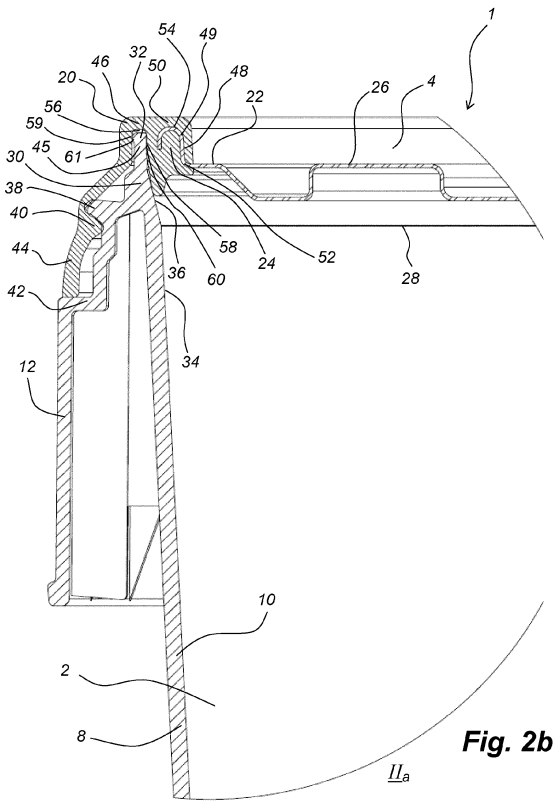

Fig. 2b

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Description

Field of the Invention

[0001] The present invention relates to a paint container comprising a receptacle and a lid, wherein the lid comprises a metal lid portion and a plastic lid portion. The metal lid portion is a central portion allowing the paint container to be used in a punching type colorant dispenser punching the metal lid portion prior to dispensing colorant into the paint. The plastic lid portion is a peripheral portion encircling the metal lid portion.

Background Art

[0002] In order to obtain a certain colour of paint it is known to provide colorant into neutral coloured paint using an automatic colorant dispenser apparatus. A colorant dispenser apparatus adapted for metal paint containers may punch a hole in the container, in the container lid, and provide the colorant into the container via the hole. Thereafter the hole is plugged and the container is shaken to obtain an even colour distribution of the paint. Such a punching type colorant dispenser apparatus is disclosed in EP 0 779 241.

[0003] Since a punching type colorant dispenser apparatus punches the container it is important that the container is rigid and designed to withstand the forces from the punch. The punch should cause a hole in the centre area of the lid but the remaining parts of the container must not be damaged. WO 2007/055651 discloses a metal paint container which may be used in such colorant dispenser apparatus.

[0004] A problem with metal paint containers, such as the metal paint container shown in WO 2007/055651, is that they are rather expensive to produce. Therefore, it is becoming more and more common for paint producers to abandon metal paint containers and instead use plastic paint containers. A plastic paint container may however not be used in a punching type colorant dispenser apparatus since a plastic container is not rigid enough to withstand the forces from the punching of the container. Instead, when colorant should be provided into basic coloured paint in a plastic paint container, the lid must be removed prior to inserting the paint container in a colorant dispenser apparatus. A disadvantage of using plastic paint containers is, thus, that removing the lid requires manual work.

[0005] One way of minimizing the costs, and in addition the weight, of a metal paint container is to make the container as thin as possible, but still thick enough to be able to withstand the forces from the punching type colorant dispenser apparatus. As is described in WO 2007/055651 the container may be made from a metal plate having an even thickness which is normally between 0.1 mm and 0.5 mm. Further, in order to reduce the amount of material required it is important to have good shape permanence, particularly at the edges of the container.

Summary of the Invention

[0006] It is an object of the present invention to provide a paint container which may be used in a punching type colorant dispenser apparatus and which is cheaper than the prior art paint containers. These and other objects are at least partly met by the appended independent claims. Preferred embodiments of the present invention are presented in the dependent claims.

[0007] The present invention relates to a paint container comprising a receptacle and a lid, wherein the lid comprises a metal lid portion and a plastic lid portion. The metal lid portion is a central portion allowing the paint container to be used in a punching type colorant dispenser punching the metal lid portion prior to dispensing colorant into the paint. The plastic lid portion is a peripheral portion encircling the metal lid portion. The plastic lid portion comprises a lid sealing portion sealing the lid to a circumferential receptacle sealing portion of the receptacle.

[0008] An advantage with the paint container is that the metal lid portion allows the container to be used in a punching type colorant dispenser. However the entire lid is not made of metal but only a portion of the lid, which may be punched, is made of metal. Since the portion of the lid which seals to the receptacle is made of plastic it becomes possible to have a larger portion of the lid made of plastic than in prior art paint containers, which saves cost.

[0009] Preferably, the plastic lid portion comprises a holding portion to hold the lid onto the receptacle. If the lid is held on the receptacle by means of, for instance, a circumferential flange of the receptacle the plastic lid portion may be shaped with a holding portion in the form of an edge to cooperate with the flange of the receptacle. Since plastic is flexible it may be easy to seal, open and re-seal such a paint container.

[0010] In one embodiment the plastic lid portion is made in one piece with the lid sealing portion. The lid sealing portion is integrated in the plastic lid portion. Thus, in this embodiment the plastic lid portion comprises one piece of plastic which includes the periphery of the lid as well as the lid sealing portion. Such an embodiment may be favourable from a manufacturing point of view since it contains few components. The lid sealing portion may seal directly onto the receptacle sealing portion or have a separate packing or other sealing body which is attached to the to the lid sealing portion to improve the sealing.

[0011] In one embodiment the receptacle sealing portion comprises a plastic receptacle sealing portion. In this embodiment the receptacle sealing portion, as well as the lid sealing portion, is made of plastic which allows the sealing of the paint container to take place directly between the receptacle and the lid without having to have an intermediate packing to assure a tight fit. In other

words the plastic portion of the lid may seal against a plastic portion of a receptacle.

[0012] Preferably, the receptacle is a plastic receptacle. Plastic paint receptacles are cheaper to manufacture than metal paint receptacles. Thus, by this embodiment it is possible to have a paint container which is, for the most part, made of plastic, i.e. the entire receptacle and a portion of the lid is made of plastic, but which is still possible to use in a punching type colorant dispenser.

[0013] Preferably, the lid comprises a joint portion along which a peripheral portion of the metal lid portion is joined to a fixing portion of the plastic lid portion. The peripheral portion of the metal lid portion may be embedded in the fixing portion of the plastic lid portion along said joint portion. Thus, the joint portion comprises a portion of the plastic lid portion, i.e. the fixing portion, and a portion of the metal lid portion, i.e. the peripheral portion of the metal lid portion. It may be preferred that the peripheral portion of the metal lid portion has the same circumferential shape as the lid and the receptacle, for instance circular. However it is also possible that the peripheral portion of the metal lid portion has a different circumferential shape than the lid and the receptacle. For instance the peripheral portion of the metal lid portion may have some protrusions which are embedded deeper into the fixing portion of the plastic lid portion to strengthen the joint between the metal and plastic portions of the lid at certain points.

[0014] In one embodiment the lid sealing portion encircles the joint portion. Thus, the joint portion is located closer to the centre of the lid than the lid sealing portion. Since the periphery of the metal lid portion is included in the joint portion this embodiment has the entire metal lid portion encircled by the lid sealing portion.

[0015] Preferably, the joint portion comprises between 1 mm and 50 mm of the periphery of the metal lid portion, more preferably between 2 mm and 30 mm of the periphery of the metal lid portion, most preferably between 4 mm and 15 mm of the periphery of the metal lid portion. In one embodiment the joint portion comprises between 1 mm and 50 mm of the periphery of the metal lid portion. In order for the joint to be leak proof the periphery of the metal lid portion, which is included in the joint portion, should have a certain size, however, in order to minimize the content of metal in the lid, and thus lowering the costs of the lid, the joint portion should not be too large.

[0016] In one embodiment the peripheral portion of the metal lid portion comprises a bent portion having at least one a bend. A bent metal portion may be joined in a more durable manner with a fixing portion of the plastic lid portion. In particular, when exposed to a force, such as the force from a punching type colorant dispenser, a bent metal portion may be less likely to slide out of the fixing portion since the bent metal portion is firmly held within the fixing portion and may transfer forces to the fixing portion rather than sliding out of the fixing portion.

[0017] In one embodiment the bent portion comprises at least two bends. A bent metal portion which is bent twice may stay even better within the fixing portion of the plastic lid portion. This may in particular be the case if the two bends are made in opposite directions. For instance, if a first bend of the peripheral portion of the metal lid portion is made upwards, with respect to the horizontal main direction of the lid, and a second bend is made downwards. The present invention further relates to a colour refraction method comprising arranging a paint container in a punching type colorant dispenser, wherein the paint container is sealed by a circumferential receptacle sealing portion of a receptacle in cooperation with a circumferential lid sealing portion of a plastic lid portion of a lid; punching an opening in a metal lid portion of the lid, the metal lid portion being a central portion of the lid and being encircled by the plastic lid portion; and dispensing colorant into the paint. The receptacle may be a plastic receptacle.

Brief description of the Drawings

[0018] The present invention will now be described in more detail, with reference to the appended drawings showing embodiments of the present invention, in which:

Fig. 1 is a perspective view of a paint container according to one embodiment of the invention;
Fig. 2a is a side view, in cross section, of the paint container of Fig 1;
Fig. 2b is a side view, in cross section, of a portion of the paint container;
Fig. 3a is a perspective view of two paint containers stacked on top of each other;
Fig. 3b is a side view, in cross section, of the two paint containers of Fig. 3a;
Fig. 3c is a side view, in cross section, of a portion of the two paint containers.

Description of Preferred Embodiments

[0019] The invention will now be described in more detail by means of examples and with reference to the accompanying drawings.

[0020] Fig. 1 shows a paint container 1 according to the invention. The paint container 1 includes a receptacle 2 and a lid 4. The receptacle 2 will from now on will be referred to as pail 2. The pail 2 has a circular bottom 6 and a circumferential wall 8. The pail 2 is made of a plastic material such as polypropylene. The lid 4 is circular and seals the pail 2 at an upper portion 10 of the circumferential wall 8. The sealing will be described in more detail with reference to Figs 2a-b below. The wall 8 is folded outwards at the upper portion 10 forming a circumferential fold 12. The fold 12 gives stability to the pail 2 and serves as a base for a handle 14. Further, the fold 12 serves as a support for the lid 4 and facilitates opening the container 1 by a recess 16 and a lug 18 arranged in the fold 12.

[0021] A peripheral portion 20 of the lid 4 is made of a

plastic material such as polypropylene and the remaining part of the lid 4, i.e. the central portion 22 of the lid 4 is made of a metal such as steel. Any suitable metal or metal alloy may be used in the central portion 22. For instance metals known from containers used in prior art punching type colorant dispenser apparatus may be used.

[0022] The peripheral plastic portion 20 of the lid 4 will hereinafter be referred to as "plastic lid portion 20" and the central metal portion 22 of the lid 4 will hereinafter be referred to as "metal lid portion 22". The plastic lid portion 20 encircles the metal lid portion 22. A junction 24 between the plastic lid portion 20 and the metal lid portion 22 is located rather close to the pail 2 wall 8, when the lid 4 is arranged on the pail 2. The junction 24, also referred to as "joint portion 24", will be described in more detail with reference to Figs 2a-b below.

[0023] The metal lid portion 22 allows the paint container 1 to be used in a punching type colorant dispenser punching a hole (not shown) in the metal lid portion 22 and dispensing colorant through the hole. In order for the lid 4 to withstand and distribute the forces well from such punching, the metal lid portion 22 has a circumferential elevation 26. The circumferential elevation 26 allows the forces from the colorant dispenser to be absorbed and contributes to an increasing structural strength of the lid 4.

[0024] Figs 2a and 2b show the paint container 1 of Fig. 1. Fig. 2b is a close up view of a portion, marked with a circle in Fig. 2a, of the sealing between the pail 2 and the lid 4. For clarity reasons the container 1 is illustrated empty, however having the lid 4 arranged on the pail 2 sealing the container 1. As is mentioned above, the upper portion 10 of the pail 2 wall 8 terminates in a fold 12. Thus, the pail opening 28, when the lid 4 is removed from the pail 2, is defined by the upper portion 30 of the pail 2 wall 8. Paint may be filled into the pail 2 through the opening 28 before the lid 4 is arranged on the pail 2.

[0025] The fold 12 is formed with a circumferential flange 38. A holding portion in the form of a circumferential edge 40, which is adapted to co-operate with the flange 38, is formed in the lid 4, in the plastic lid portion 20 thereof. When the lid 4 is arranged on the pail 2, the circumferential edge 40 is held below the circumferential flange 38 of the pail 2 to hold the lid 4 on the pail 2. In other words, co-operation of the flange 38 of the pail 2 and the edge 40 of the lid 4 holds the lid 4 on the pail 2. Further, the fold 12 of the pail 2 wall 8 is formed with a circumferential shoulder 42 onto which a circumferential rim 44 of the plastic lid portion 20 rests.

[0026] As described above, the lid 4 consists of a metal lid portion 22 which is surrounded by a plastic lid portion 20. The metal lid portion 22 occupies most of the lid 4 area covering the pail 2 opening 28. The periphery 48 of the metal lid portion 22 is embedded in a fixing portion 50 of the plastic lid portion 20. Thus, the joint portion 24, where the metal lid portion 22 is joined to the plastic lid portion 20, consist of a portion of the metal lid portion, i.e. the periphery 48 of the metal lid portion 22, and a portion of the plastic lid portion 20, i.e. the portion 50 of the plastic lid portion 20 which is closest to the centre of the lid 4. The periphery 48 of the metal lid portion 22 is shaped such as to avoid that the periphery 48 may slide out of the fixing portion 50 of the plastic lid portion 20 due to, for example, forces from a punching type of colorant dispenser. In the embodiment shown in the drawings the periphery 48 of the metal lid portion 22 comprises a locking portion 49 having the shape of a hook. The locking portion 49 has been formed by first bending the metal lid portion 22, at the periphery 48, upwards, to a first bend 52 being approximately 90° to a direction of the horizontal main plane of the lid 4, i.e. to a direction parallel to the bottom 6 of the container 1. Thereafter the metal lid portion 22 has, at the periphery 48, been bent in the opposite direction with reference to the first bend 52, to a second bend 54 being approximately 180° and with a radius of about 0.8 mm, giving the locking portion 49 of the metal lid portion 22 its hook-like shape. Thereafter the locking portion 49 of the metal lid portion 22 has been embedded in the fixing portion 50 of the plastic lid portion 20 to form a leak proof and durable two-component lid 4.

[0027] Sealing of the container 1 occurs mainly at the upper portion 30 of the pail 2 wall 8 why the upper portion 30 of the pail 2 wall 8 will hereinafter be referred to as "pail sealing portion" or "receptacle sealing portion". The pail sealing portion 30 cooperates with a lid sealing portion 46 of the lid 4 to seal the container 1. The lid sealing portion 46 is a portion of the plastic lid portion 20, thus, sealing of the lid 4 to the pail 2 takes place at the plastic lid portion 20. The entire lid sealing portion 46 is made of plastic. The lid sealing portion 46 is located outside of the joint portion 24 and comprises a recess 56 into which the pail sealing portion 30 is fitted when the lid 4 is arranged on the pail 2. The above mentioned circumferential edge 40 and circumferential rim 44 of the lid 4 surrounds the recess 56.

[0028] Interior of the pail sealing portion 30, i.e. at the right side of the pail sealing portion 30 as seen in Fig. 2b, an interior wall 34 of the pail 2 is somewhat inclined along an inclined portion 36 to allow a portion of the plastic lid portion 20 to be compressed to a tight fit onto the pail 2. Below the inclined portion 36 the interior wall 34 of the pail 2 is essentially vertical.

[0029] Interior of the lid sealing portion 46, i.e. on the right side of the lid sealing portion 46 as seen in Fig. 2b, the above mentioned joint portion 24 of the lid 4 is seated. The joint portion 24 of the lid 4 comprises the locking portion 49 of the metal lid portion 22. In the disclosed embodiment the locking portion 49 is shaped as an upwardly and outwardly bent hook. Further, the joint portion 24 of the lid 4 comprises the fixing portion 50 in which the locking portion 49 is embedded. The locking portion 49 is embedded in the fixing portion 50 of the plastic lid portion 20 along the entire joint portion 24.

[0030] Thus, the joint portion 24 of the lid 4 is defined as the portion of the lid 4 which comprises the locking portion 49 of the metal lid portion 22 embedded in the

fixing portion 50 of the plastic lid portion 20. In other words, the plastic lid portion 20 and the metal lid portion 22 are overlapping at the joint portion 24 of the lid 4. As is seen in Fig. 2b the entire joint portion 24 is located interior of the pail sealing portion 30. In other words, when the lid 4 is arranged on the pail 2, the pail sealing portion 30 encircles the joint portion 24 of the lid 4. As illustrated in Fig. 2b, the metal lid portion 22 will be arranged within the boundaries set by the pail sealing portion 30 and the lid sealing portion 46. The joint portion 24 is circumferential and extends along the entire periphery 48 of the metal lid portion 22.

[0031] There are pail sealing surfaces 58, 59 on both sides of a tip 32 of the pail sealing portion 30. The pail sealing surfaces 58, 59 cooperate with lid sealing surfaces 60, 61 of the lid sealing portion 46 to seal the container 1. Thus, sealing of the container 1 takes place at the pail sealing surfaces 58, 59 and the lid sealing surfaces 60, 61, respectively. The lid sealing surfaces 60, 61 are contained within the plastic lid portion 20. The entire metal lid portion 22 and the entire joint portion 24 are located closer to the centre of the lid 4 than anyone of the lid sealing surfaces 60, 61.

[0032] The thickness of the pail 2 wall 8 may be between 0.2 - 3 mm, for instance about 1.2 mm. The thickness of the plastic lid portion 20 of the lid 4 may be between 0.2 - 5 mm, for instance about 2 mm at the joint portion 24 and about 1.0 mm exterior of the joint portion 24, i.e., at the rim 44 of the lid 4. The thickness of the metal sheet constituting the metal lid portion 22 of the lid 4 may be between 0.1 - 2 mm, for instance about 0.35 mm.

[0033] If the paint is to be colour refracted at a later stage, e.g. at a paint dealer store, neutral coloured paint may be filled into the pail 2 at a paint factory, the lid 4 may be arranged on the pail 2 to seal the paint container 1, and the paint container 1 may be transported to the paint dealer store. A punching type colorant dispenser, such as that disclosed in EP 0 779 241, may be stationed at the paint dealer store and the desired colour is obtained by placing the paint container 1 in the colorant dispenser, without having to remove the container lid 4, and dispense colorant through a hole (not shown) punched in the lid 4 by the colorant dispenser. After the colour has been provided into the paint the hole may be sealed by a plug.

[0034] As mentioned above with reference to Fig. 1 there is a circumferential elevation 26 in the metal lid portion 22, rather close to the joint portion 24. One purpose the elevation 26 is to allow the forces from a punching type colorant dispenser to be distributed in a favourable manner at the metal lid portion 22.

[0035] Another purpose of the elevation 26 in the metal lid portion 22 is illustrated in Figs 3a-c which illustrate two paint containers 62, 63, each one similar to the paint container 1 described in connection to Fig. 1, stacked on top of each other. The elevation 26 in the lid 4 of the lower container 63 of the two stacked paint containers 62, 63 allows, which is best shown in Fig. 3c showing a close up view of the area in the circle in Fig. 3b, the upper container 62 to be stacked onto the lower container 63 in a stable manner. The elevation 26 in the lid 4 of the lower paint container 63 result in a recess 64, located exterior of the elevation 26 with respect to the centre of the lid 4. The recess 64 in the lid 4 of the lower container 63 cooperates with a circumferential edge 66 of the pail 2 of the upper paint container 62. The circumferential edge 66 is the lowest portion 66 the pail 2 wall 8 and projects downwards, past the pail 2 bottom 6 of the upper paint container 62. Moreover, the recess 64 in the lid 4 is encircled by an inclined surface 68 which facilitates placing one container 62 on the lid 4 of another container 63 by aligning the containers 1.

[0036] Moreover, the lid 4 is designed to be stackable onto another lid (not shown) to facilitate handling and save space if lids are transported or stored separate from the pails. An upper portion 70 of the plastic lid portion 20 is flat and may support the underside 72 of the joint portion 24, which is also flat along a portion. Thus several lids may be stacked onto each other in a stable manner.

[0037] It will be appreciated that numerous variants of the embodiments described above are possible within the scope of the appended claims. For example, in the disclosed exemplary embodiment of the invention the seal between the pail and the lid is a seal between two plastic components. It is however possible to integrate a rubber sealing packing or another sealing arrangements in the lid sealing portion and/or in the pail sealing portion, the seal between the pail and the lid taking place between such packing and the lid sealing portion, or the pail sealing portion, as the case may be.

[0038] It has been described above that the entire lid sealing portion 46 is made of plastic. However in another embodiment it may be possible that the paint container has a metal lid portion which serves as a sealing portion.

[0039] In the embodiments described inhere the pail is a plastic pail, however the lid may be adapted to suit also a pail which is partly or entirely made of another material such as metal.

[0040] The pail has been described refereeing to a receptacle having a circular opening. However the pail may be any suitable receptacle, and thus the lid, may have any suitable shape. For instance the receptacle may be oval or shaped with a rectangular bottom and opening and thus have a lid with a corresponding shape.

[0041] The locking portion 49 of the metal lid portion 22 has been shown as bent to a hook-shape which is embedded in the plastic lid portion 20 along the joint portion 24 of the lid 4. The hook-like shape of the locking portion 49 may have any suitable radius, for instance between 0.3-5 mm. Moreover, the locking portion 49 of the metal lid portion 22 may have any suitable shape assuring a tight fit between the plastic lid portion 20 and the metal lid portion 22 at the joint portion 24. For instance the locking portion 49 of the metal lid portion 22 may be L-shaped or V-shaped. It is also possible that the locking

portion 49 of the metal lid portion 22 is not smooth along the periphery 48. For instance, some portions of the locking portion 49 may project further into the plastic lid portion 20 than other portions of the locking portion 49 giving the locking portion 49 of the metal lid portion 22 an appearance of a toothed gear wheel.

[0042] The lid 4 may have more than one circumferential elevation 26 to increase the stability of the lid. The lid may have other arrangements to better withstand the forces from the punching type colorant dispenser.

Claims

1. A paint container (1) comprising a receptacle (2) and a lid (4), wherein the lid (4) comprises a metal lid portion (22) and a plastic lid portion (20), the metal lid portion (22) being a central portion allowing the paint container (1) to be used in a punching type colorant dispenser punching the metal lid portion (22) prior to dispensing colorant into the paint, the plastic lid portion (20) being a peripheral portion encircling the metal lid portion (22), c h a r a c t e r i z e d in that t the plastic lid portion (20) comprises a lid sealing portion (46) sealing the lid (4) to a circumferential receptacle sealing portion (30) of the receptacle (2).

2. Paint container (1) according to claim 1, wherein the plastic lid portion (20) comprises a holding portion (40) to hold the lid (4) onto the receptacle (2).

3. Paint container (1) according to anyone of the preceding claims, wherein the plastic lid portion (20) is made in one piece with the lid sealing portion (46).

4. Paint container (1) according to anyone of the preceding claims, wherein the receptacle sealing portion (30) comprises a plastic receptacle sealing portion (30).

5. Paint container (1) according to anyone of the preceding claims, wherein the receptacle (2) is a plastic receptacle (2).

6. Paint container (1) according to anyone of the preceding claims, wherein the lid (4) comprises a joint portion (24) along which a peripheral portion (48) of the metal lid portion (22) is joined to a fixing portion (50) of the plastic lid portion (20).

7. Paint container (1) according to claim 6, wherein the peripheral portion (48) of the metal lid portion (22) is embedded in the fixing portion (50) of the plastic lid portion (20) along said joint portion (24).

8. Paint container (1) according to claim 6 or 7, wherein the lid sealing portion (46) encircles the joint portion (24).

9. Paint container (1) according to anyone of claims 6-8, wherein the joint portion (24) comprises between 1 mm and 50 mm of the periphery of the metal lid portion (22), more preferably between 2 mm and 30 mm of the periphery of the metal lid portion (22), most preferably between 4 mm and 15 mm of the periphery of the metal lid portion (22).

10. Paint container (1) according to anyone of claims 6-9, wherein said peripheral portion (48) of the metal lid portion (22) comprises a bent portion (48) having at least one a bend (52, 54).

11. Paint container (1) according to claim 10, wherein said bent portion (48) comprises at least two bends (52, 54).

12. Colour refraction method comprising

    - arranging a paint container (1) in a punching type colorant dispenser, wherein the paint container (1) is sealed by a circumferential receptacle sealing portion (30) of a receptacle (2) in cooperation with a circumferential lid sealing portion (46) of a plastic lid portion (20) of a lid (4);
    - punching an opening in a metal lid portion (22) of the lid (4), the metal lid portion (22) being a central portion of the lid (4) and being encircled by the plastic lid portion (20); and
    - dispensing colorant into the paint.

13. Colour refraction method according to claim 12, wherein the receptacle (2) is a plastic receptacle (2).

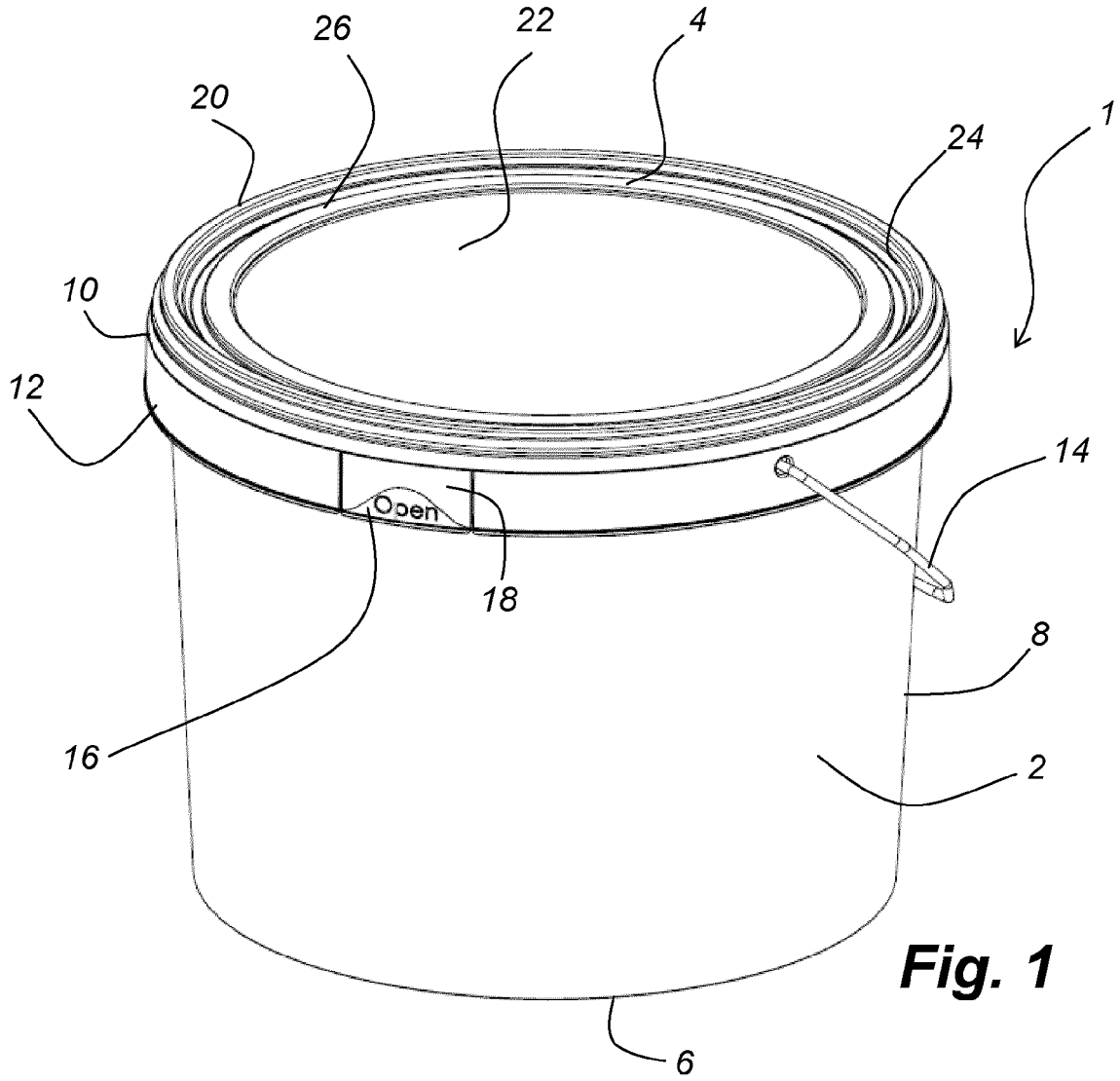

Fig. 1

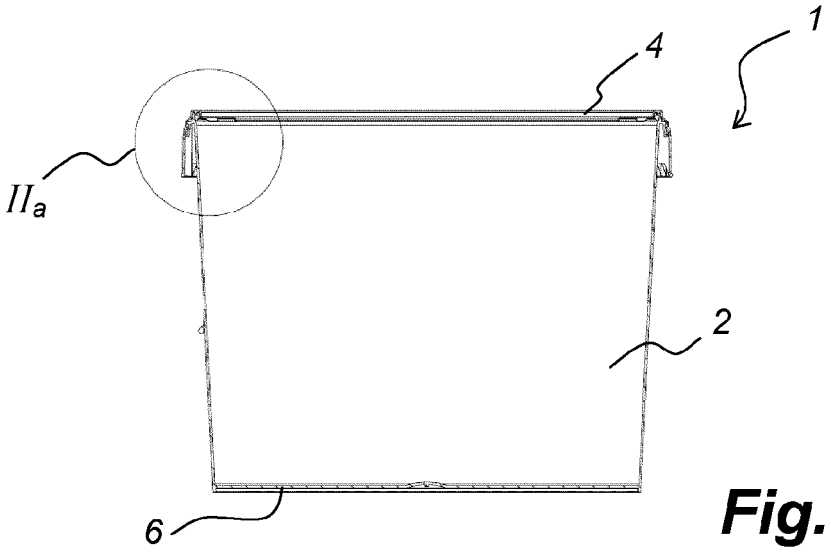

Fig. 2a

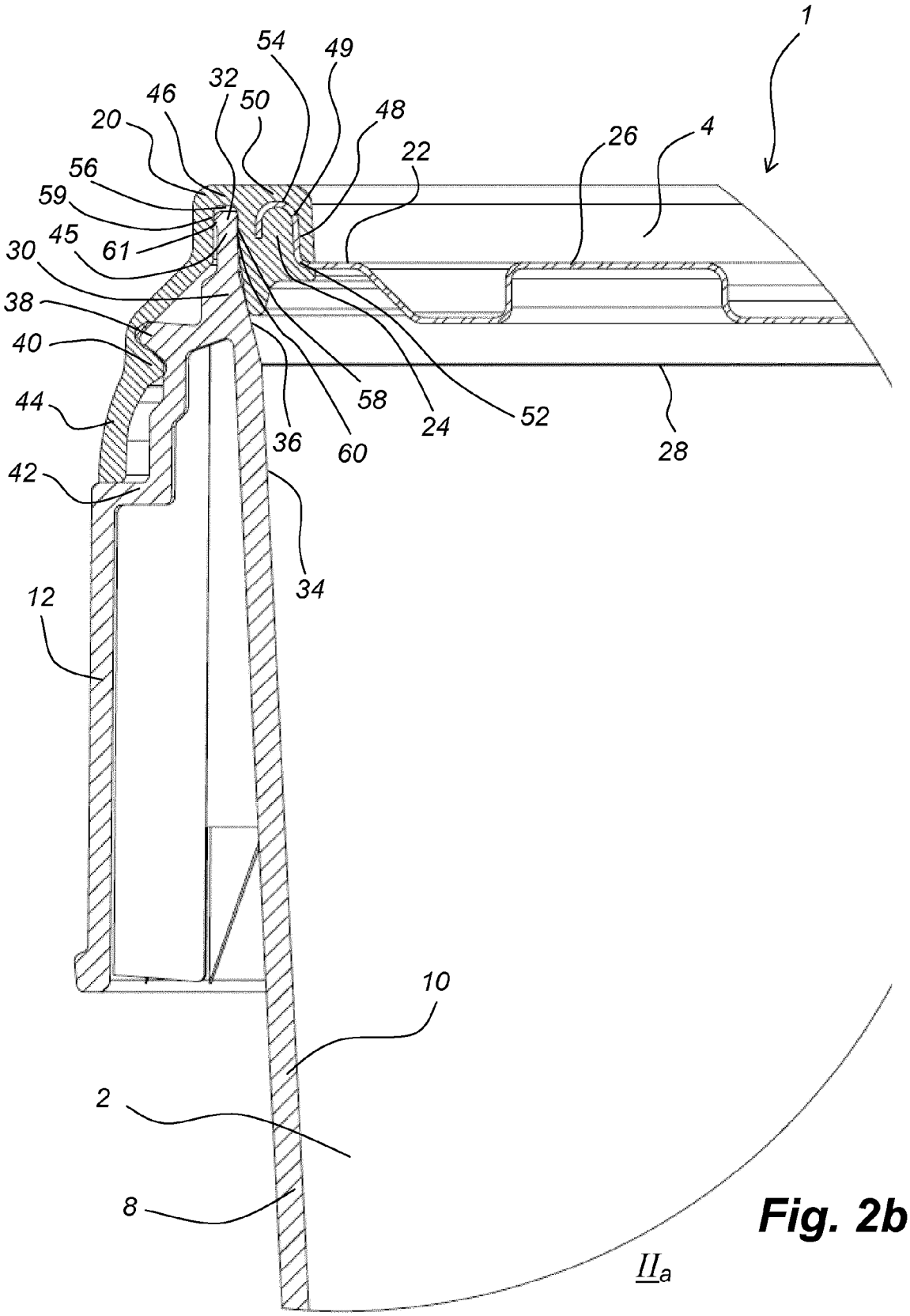
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Fig. 2b

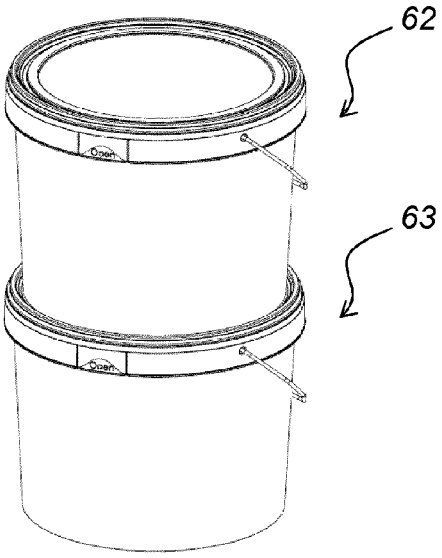

Fig. 3a

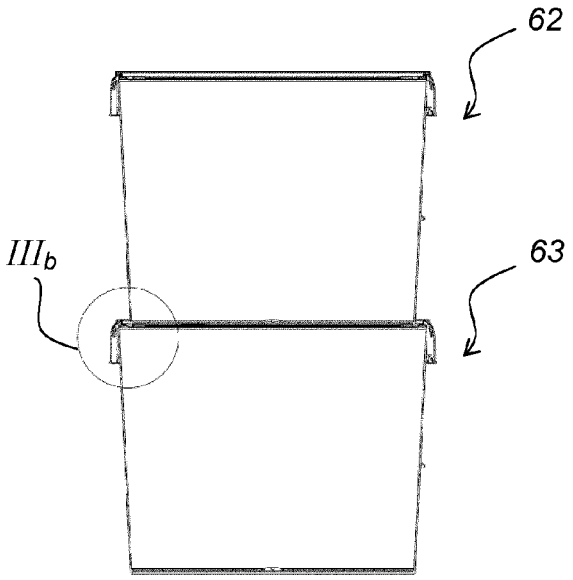

Fig. 3b

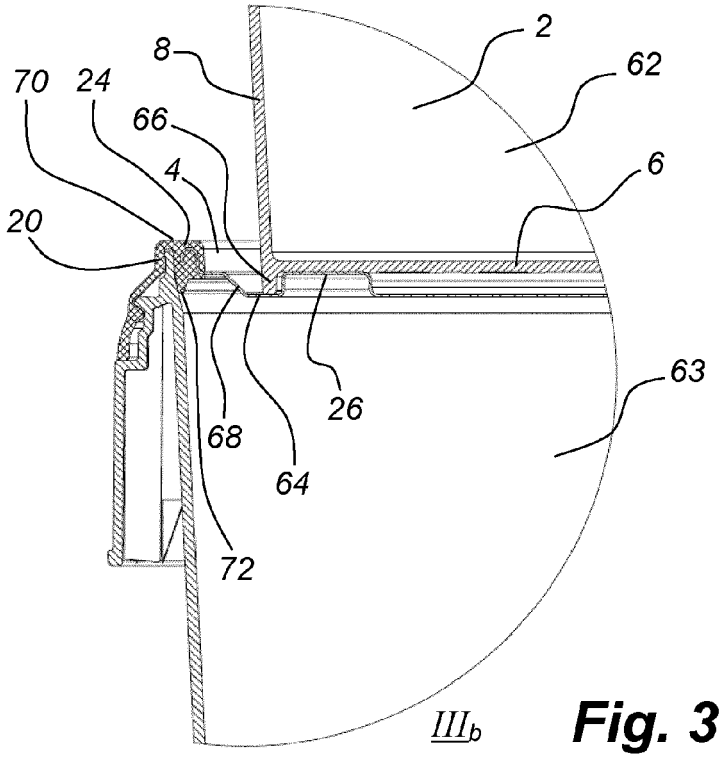

Fig. 3c

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 11 19 1680

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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