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(54) WASTE BIN WITH BAG-HOLDING HOOKS

(57) A waste bin (100) suitable for housing a bag for waste is disclosed; the waste bin (100) comprises a bottom wall (10), at least one side wall (1, 5) and a compartment defined by the bottom wall (10) and by said at least one side wall (1, 5); said waste bin (100) comprises at least one hook (2) that is fastened to the side wall (1, 5) and projects in the interior of the compartment (V) to hold the bag inside the compartment (V) of the waste bin (100).

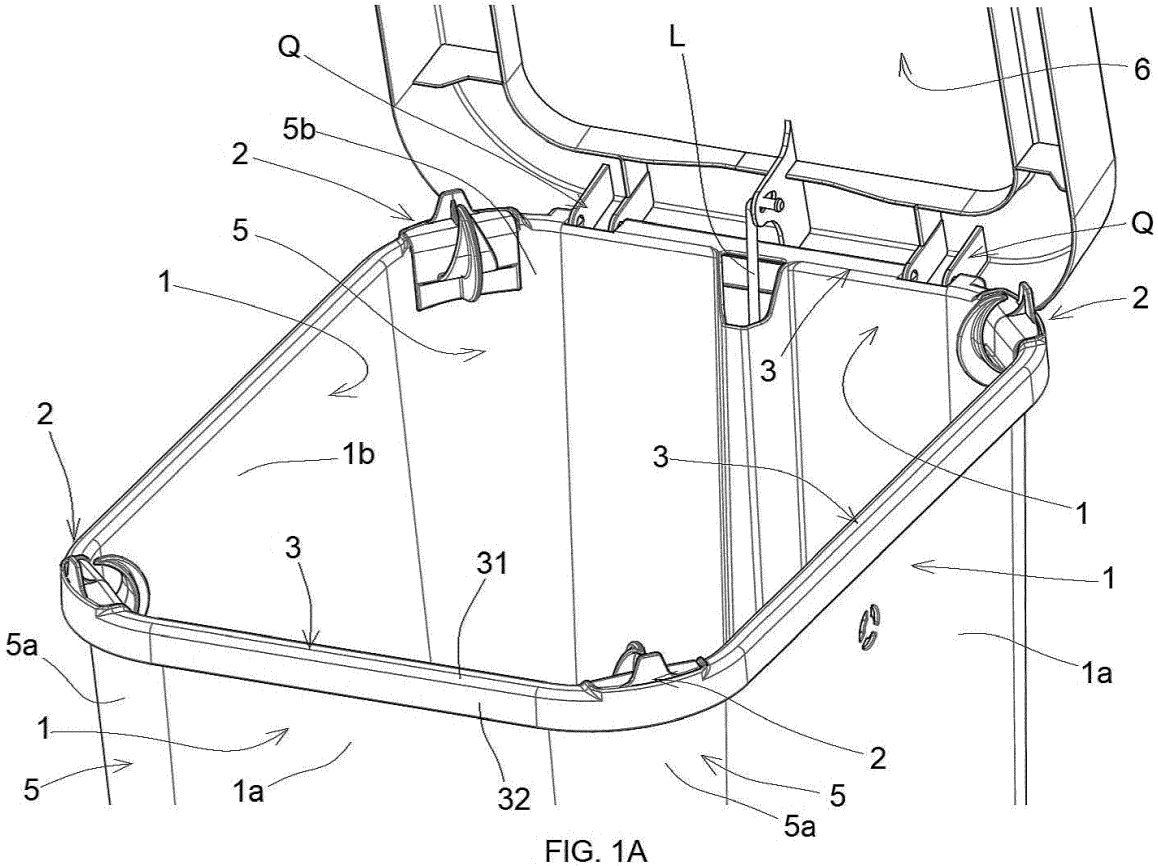

FIG. 1A

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Description

[0001] The present patent application for industrial invention relates to a waste bin with bag-holding hooks.

[0002] The field of reference of the present invention is the field of waste bins or, more generally, of containers that are suitable for containing waste. However, the advantages that are illustrated in the following description can be also obtained if the waste bin (container) according to the invention is used for different applications.

[0003] The advantages of the present invention will become manifest after a short description of the prior art and its drawbacks.

[0004] As it is known, an ordinary waste bin comprises a bottom wall and a lateral wall that define a compartment that is open on top.

[0005] The lateral wall comprises an upper border that defines an opening that provides access to the compartment.

[0006] The waste bin can be provided with a lid that, when in closing position, closes the opening that provides access to the compartment. When it is closed, the lid prevents the user from seeing the waste contained in the compartment and keeps the bad odors produced by the waste inside the compartment.

[0007] The lid can be hinged to the upper border of the wall and can be moved by means of moving means that are actuated by a pedal.

[0008] The moving means usually comprise a set of levers that are connected to the pedal in order to move the lid around a hinge between a first position, wherein the lid is raised and provides access to the compartment, and a second position, wherein the lid covers the opening that provides access to the compartment.

[0009] A bag is normally inserted in the compartment. When the bag is full with waste, the bag is closed and is extracted from the compartment. Finally, the bag is positioned in an ordinary trash container or is placed outside a house in such a way to be collected by a garbage collector and dumped in a garbage dump.

[0010] The bag inside the waste bin prevents the waste from being in direct contact with the wall of the waste bin. In view of the above, the waste bin stays clean and does not need to be washed every time it is emptied.

[0011] It must be noted that the term "bag" refers to any type of packaging, which is usually composed of a thin, flexible film.

[0012] Having a thin, flexible structure, the bags tend to collapse by gravity and to fold over if they are not held by a hook or the like.

[0013] Therefore, a "DIY" solution is normally used in order to keep the bags in a straight vertical position, with the opening upwards.

[0014] Such a "DIY" solution provides for folding an ending portion over the upper border of the waste bin, in proximal position to the border that defines the opening, in such a way that the bag remains in a straight vertical position because of the support provided by the upper border.

[0015] In spite of its large popularity, such a solution is impaired by some drawbacks.

[0016] In particular, if the opening of the bag is smaller than the opening of the waste bin, the ending portion of the bag will be excessively stretched along the upper border of the waste bin. Such an excessive stretching may tear off the bag, generating holes of different size in the bag.

[0017] In such a case, it would be necessary to remove the bag and replace it with a new bag.

[0018] On the contrary, if the opening of the bag is larger than the opening of the waste bin, the ending portion that is folded over around the upper border of the waste bin will be extremely loose.

[0019] In this case, while opening and closing the lid, or when introducing the waste in the bag, the ending portion may lose its position, being only partially supported on the upper border of the waste bin. Without the support of the upper border of the waste bin, the bag will collapse and fold over. In such a case, a user needs to put his/her hands inside the waste bin, grab the ending portion of the bag, lift and fold the ending portion of the bag over around the border of the waste bin. Evidently, the introduction of his/her hands inside the waste bin, in direct contact with the bag, can be unpleasant and disturbing for the user.

[0020] Moreover, such a problem also affects the waste bins provided with a lid that is hinged on the upper border. In fact, the presence of the hinge on the upper border of the waste bin hinders the folding of the ending portion of the bag over the upper border. Therefore, the bag will be loose, being the ending portion of the bag only partially folded over the support.

[0021] An additional drawback of a waste bin according to the prior art consists in the fact that the lid is configured in such a way to be perfectly matched with the upper border of the waste bin. In particular, the lid comprises an annular wall that is in contact with the external surface of the lateral wall in proximal position relative to the upper border, when the lid is lowered and covers the opening of the compartment. Therefore, when the lid is lowered, such an annular wall of the lid is in contact with the folded portion of the bag. If the lid is lifted rapidly, the annular wall will move the folded ending portion away. Without the support of the upper border of the waste bin, the bag will collapse and fold over inside the compartment of the waste bin.

[0022] Finally, a last drawback is an aesthetic drawback. In fact, the portion of the bag that is folded over along the upper border is visible, negatively affecting the aesthetics of the waste bin.

[0023] The purpose of the present invention is to remedy the drawbacks of the prior art by disclosing a waste bin capable of firmly holding the bag, preventing it from collapsing and folding over.

[0024] Another purpose of the present invention is to disclose a waste bin with a bag that is not visible from

outside.

[0025] An additional purpose is to disclose a waste bin that is inexpensive and easy to produce.

[0026] These purposes are achieved according to the invention with the characteristics of the appended independent claim 1.

[0027] Advantageous embodiments appear from the dependent claims.

[0028] The waste bin according to the invention is defined by claim 1.

[0029] For the sake of clarity, the description of the waste bin according to the invention continues with reference to the appended drawings, which have a merely illustrative, not limiting value, wherein:

- Fig. 1 is an axonometric view of the waste bin according to the invention, wherein the hooks are fastened to the waste bin;
- Fig. 1A is an axonometric view of a portion of the waste bin shown in Fig. 1;
- Fig. 2 is an axonometric view of a portion of the waste bin according to the invention, wherein the hooks are unfastened from the waste bin;
- Fig. 2A is an enlarged view of the detail enclosed in the circle J of Fig. 2;
- Fig. 3 is an axonometric view of the hook according to the invention;
- Fig. 3A is an axonometric view of the hook of Fig. 3, seen from a different angle;
- Fig. 3B is a side view of the hook according to the invention;
- Fig. 3C is a bottom view of the hook of the waste bin according to the invention;
- Fig. 4 is a top view of a hook that is fastened to the wall of the waste bin according to the invention;
- Fig. 5 is a side view that is sectioned along the axis A-A of Fig. 4;

[0030] With reference to Figs. 1 and 2, a waste bin according to the invention is disclosed, which is generally indicated with reference numeral (100).

[0031] The waste bin (100) is designed to house a bag suitable for containing waste and garbage in general.

[0032] It must be noted that the term "waste bin" (100) refers to any kind of container wherein a bag is inserted to contain items and/or foods of any type.

[0033] With reference to Figs. 1 and 2, the waste bin (100) of the invention comprises a bottom wall (10), and four planar side walls (1).

[0034] With reference to Figs. 1 and 2, the waste bin (100) comprises four joining portions (5), each of them joining two planar side walls (1) in adjacent position.

[0035] Preferably, the joining portions (5) have a curvilinear cross-section, in such a way that the waste bin (100) does not have any sharp corner.

[0036] Each side wall (1, 5) comprises an external surface (1a, 5a), an internal surface (1b, 5b) and an upper border (3).

[0037] The waste bin (100) comprises a compartment (V) defined by said lateral walls (1, 5) and by the bottom wall (10), and has an opening that provides access to said compartment (V), which is defined by said upper borders (3).

[0038] The upper borders (3) extend on the perimeter around the waste bin (100) and comprise a horizontal section (31) with a lower surface (31a) directed towards the bottom wall (10) of the waste bin (100), and an upper surface (31b) opposite to said lower surface (31a).

[0039] It must be noted that, although Figs. 1, 1A and 2 illustrate a waste bin (100) with four lateral planar walls (1) and four joining portions (5), the waste bin (100) may comprise four side walls that are joined by means of corners, or a single side wall with a circular or oval section.

[0040] The waste bin (100) comprises at least one hook (2) that is fixed to the side walls (1, 5) and projects inside the compartment (V).

[0041] Said at least one hook (2) is suitable for holding a bag that is disposed inside the compartment (V) of the waste bin (100).

[0042] According to the embodiment of Figs. 1, 1A and 2, the waste bin (100) comprises four hooks (2), each of them being disposed in a joining portion (5).

[0043] The number and the position of hooks (2) on the joining portions (5) are suitably chosen in such a way that the bag, which is held by the hooks (2), has a mouth that almost completely uses the opening that provides access to the compartment (V) of the waste bin (100).

[0044] Although, according to a preferred embodiment of the invention, the waste bin (100) comprises four hooks (2), the waste bin (100) may comprise a higher or lower number of said hooks (2) disposed along the side walls (1, 5).

[0045] As shown in Figs. 1, 1A and 5, the hooks (2) are preferably fixed to the joining portions (5) in a removable way and therefore the hooks (2) comprise fast coupling/uncoupling means (M) in order to be fastened to the joining portions (5). The fast coupling/uncoupling means (M) are configured in such a way to be fastened in fastening seats (S) obtained in the joining portions (5).

[0046] With reference to Figs. 3, 3A and 3B, each hook (2) has an arched shape with concavity directed towards the exterior of the compartment (V). More precisely, each hook (2) is shaped like a hook that extends from a base (201) towards a point (202) along a main direction (X). The hook (2) with a hook shape is tapered and has decreasing dimensions from the base (201) to the point (202).

[0047] With reference to Figs. 3, 3A, 3B and 3C, the hook (2) comprises a body (200) that supports the hook (2).

[0048] The body (200) comprises a first side (2a) with said hook (2) in projecting position, and a second side (2b) where said fast coupling/uncoupling means (M) are obtained.

[0049] The body (200) basically consists in a plate that is shaped like an overturned "L" and comprises a main

wing (21) provided in projecting position with said hook (2) and said fast coupling/uncoupling means (M), and a holding wing (22) that is connected to the main wing (21) and extends along a different direction that is advantageously opposite to the direction wherein the hook (2) projects from the main wing (21) of the body (200).

[0050] With reference to Figs. 2 and 4, the main wing (21) is disposed side-by side with the joining portion (5), whereas the holding wing (22) is supported on the horizontal section (31) of the upper border (3) of the joining portion (5).

[0051] With reference to Figs. 3, 3A and 3B, the base (201) of the hook (2) is integral with the main wing (21), whereas the point (202) of the hook (2) surmounts the holding wing (22).

[0052] With reference to Fig. 3C, the main wing (21) of the body (200) has a curvature with concavity directed towards the hook (2) and preferably configured in such a way to coincide with the curvature of the joining portion (5) where it is disposed.

[0053] According to the embodiment shown in the appended figures, the fast coupling/uncoupling means (M) comprise two parallel hooks (4) with an elongated shape along a substantially parallel direction relative to the main extension direction (X) of the hook (2).

[0054] Each hook (4) has a point (41) and a flexible end (42).

[0055] Each hook (4) is fastened to the main wing (21) of the body (200) by means of a stem (G) that projects orthogonally relative to the main wing (21) and comprises an end that is constrained to the support, and an end joined to the hook (4) in correspondence of an intermediate section of the hook (4) between said point (41) and said flexible end (42).

[0056] Each fastening seat (S) for the fast coupling/uncoupling means (M) comprises an opening that extends in the proximity of said horizontal section (31) of the upper border (3) and of said side wall (1, 5), wherein the two hooks (4) are inserted.

[0057] Preferably, the upper border (3) of the side wall (1, 5) of the waste bin (100) comprises a descending vertical section (32) that is joined and extends under the horizontal section (31) of the upper border (3). The vertical section (32) prevents the openings and the hooks (4) inserted in the openings from being seed from outside.

[0058] The hook (2) comprises a stop surface (43) in contact or in proximity with the external surface (1a) of the side wall (1).

[0059] In particular, the stop surface (43) is obtained on the point (41) of each hook (4).

[0060] The flexible end (42) of each hook (4) has a curvilinear shape with concavity directed towards the vertical section (32) of the upper border (3).

[0061] The curvilinear profile is configured in such a way that the flexible end (42) of the hook (4) has an ending portion (44) in the proximity of (see Fig. 5) or in contact with the lower surface (31a) of the horizontal section (31) of the upper border (3) when the hook (4) is inserted in the opening of the fastening seat (S).

[0062] With reference to Fig. 2A, the opening of each fastening seat (S) is tapered and has a decreasing width going from the upper border (3) towards the bottom wall (10) of the waste bin (100).

[0063] Specifically, the opening is defined by a perimeter border that comprises an upper section (81) obtained in the horizontal section (31) of the upper border (3), a lower section (82) obtained on the joining side wall (5) and two side sections (83) obtained in said horizontal section (31) of the upper border (3) and in said joining side wall (5). The distance between the two side sections (83) decreases from a maximum distance value, where the side sections (83) are joined with the upper section (81), to a minimum distance value, where the side sections (83) are joined with the lower section (82).

[0064] The hook (2) is fastened to the fastening seats (S) by inserting the two hooks (4) from up downwards inside the opening of the fastening seat (S) until the stems (G) are stopped against the lower section (82) of the perimeter edge of the opening.

[0065] During the insertion of the hooks (4), the flexible ends (42) of the two hooks (4) slide against the upper section (81) of the perimeter border of the opening and, being flexible, are bent towards the body (200) of the hook (2).

[0066] When the ending section (44) of the flexible end (42) of the hook (4) passes beyond the upper section (81) of the perimeter border of the opening, the flexible end (42) returns to its original shape, and the ending section (44) of the flexible end (42) is disposed under the horizontal section (31) of the upper border (3) and in the proximity of or in contact with the lower surface (31a) of the horizontal section (31) of the upper border (3).

[0067] When the two hooks (4) are inserted in the opening of the fastening seat (S), the hook (2) is firmly fastened to the joining side walls (5) of the waste bin (100).

[0068] The hook (2) cannot be moved away from the fastening seat (S) where it is inserted, along a horizontal trajectory, because of the provision of the stop surface (43) obtained in the point (41), which is in the proximity of and in contact with the external surface (5a) of the joining side wall (5).

[0069] Moreover, the hook (2) cannot be moved away from the fastening seat (S) where it is inserted, along a vertical trajectory, because of the ending section (44) of the flexible end (42) of the hook (4), which is in the proximity of and in contact with the lower surface (31a) of the horizontal section (31) of the upper border (3).

[0070] In order to unfasten the hook (2) from the joining side wall (5) and remove the hooks (4) from the opening of the fastening seat (S), the user must pull the hook (2) upwards, simultaneously compressing the flexible ends (42) of the hooks (4) towards the body (200) of the hook (2), in such a way that the ending section (44) of the flexible end (42) faces the opening of the fastening seat (S) and is not disposed under the lower surface (31a) of the horizontal section (31) of the upper border (3).

[0071] With reference to Figs. 1, 1A and 2, the waste bin (100) comprises a lid (6) that, when in closing position, covers the top of the opening that provides access to the compartment (V) and defines the compartment (V) on top.

[0072] As mentioned above, the hooks (2) are disposed inside the compartment (V) and, therefore, when the lid (6) is closed, they are concealed by the lid (6).

[0073] The lid (6) can be hinged by means of pivoting means (Q) to the upper border (3) of a side wall (1) of the waste bin (100).

[0074] In order to facilitate the opening of the lid (2) and the free access to the compartment (V), the waste bin (100) can comprise a pedal (7), which is shown in Fig. 1, disposed in the proximity of the bottom wall (10), and a set of levers (L) that join the pedal to the lid (6), in such a way that the lid (6) can be moved from a close position to an open position by simply pushing the pedal (7) with a foot.

[0075] In view of the preceding description, the advantages of the waste bin (100) with bag-holding hooks (2) are evident.

[0076] Said waste bin (100) can hold the bag by disposing said hooks (2) inside holes that are obtained in the proximity of the upper border of the bag.

[0077] Said holes can be obtained by means of two different solutions, of which a first "DIY" solution wherein the holes are obtained by pushing a portion of the bag on the point of the hook (2) in such a way that the hook (2) tears off the bag and generates said hole, and a second solution that provides for producing and marketing bags that are already provided with said holes.

[0078] Alternatively, the waste bin (100) can be used by placing the bag on the hooks (2) without perforating the bag. More precisely, the bag can be held by folding over an ending portion of the bag above said hooks (2).

[0079] Therefore, the hooks (2) firmly hold the bag from the interior of the compartment (V) without folding the bag over around the upper border. In view of the above, unlike the prior art, the bag cannot be seen from outside and therefore the aesthetics of the waste bin (100) is preserved.

[0080] Numerous equivalent variations and modifications, which are within the reach of an expert of the field and fall in any case within the scope of the invention as disclosed by the appended claims, can be made to the present embodiment of the invention.

[0081] For illustrative purposes, the fastening seat can be exclusively obtained on the side wall, instead of being obtained on the side wall and on the upper border.

[0082] Moreover, according to an additional embodiment, the hooks (2) can be disposed in the planar side walls (1) instead of being disposed in the joining portions (5).

[0083] Another modification that can be made to the present invention relates to the fast coupling/uncoupling means (M) that may comprise a single hook, instead of comprising two parallel hooks (4).

Claims

1. Waste bin (100) suitable for housing a bag for waste; said waste bin (100) comprising:

- a bottom wall (10);
- at least one side wall (1, 5) comprising an upper border (3), an external surface (1a, 5a) and an internal surface (1b, 5b);
- a compartment (V) defined by said bottom wall (10) and by said at least one side wall (1, 5);
- an opening that provides access to said compartment (V) defined by said upper border (3) of said at least one side wall (1, 5);
- at least one hook (2) that is joined to the side wall (1, 5) and protrudes in the interior of the compartment (V); said at least one hook (2) being suitable for holding the bag inside the compartment (V) of the waste bin (100);

wherein
said at least one hook (2) comprises fast coupling/uncoupling means (M) for fastening said at least one hook (2) to the side wall (1, 5); and
the side wall (1, 5) comprises fastening seats (S) suitable for housing said fast coupling/uncoupling means (M) and obtained in said at least one side wall (1, 5) in proximal position to said upper border (3) of the side wall (1, 5);
characterized in that
said at least one hook (2) comprises a body (200) shaped as an overturned-"L" plate, said body (200) comprising a first side (2a) with said at least one hook (2) in projecting position, and a second side (2b) with said fast coupling/uncoupling means (M); said body (200) comprising a main wing (21) with said at least one hook (2) and said fast coupling/uncoupling means (M) in projecting position, and a holding wing (22) that is joined to the main wing (21) and is supported on the upper border (3) of the side wall (1, 5) of the waste bin (100).

2. The waste bin (100) of claim 1, wherein said upper border (3) comprises a horizontal section (31) comprising an upper surface (31b) and a lower surface (31a); each fastening seat (S) comprises an opening that extends in the proximity of said horizontal section (31) of the upper border (3) and of said side wall (1, 5); said fast coupling/uncoupling means (M) comprising at least one hook (4), which comprises a point (41) and a flexible end (42); said at least a hook (2) comprising at least one stop surface (43) in contact with the external surface (1a, 5a) of the side wall (1, 5) where the opening is obtained.

3. The waste bin (100) of claim 2, wherein said at least one stop surface (43) is obtained in said point (41) of the hook (4).

4. The waste bin (100) of claim 2 or 3, wherein said flexible end (42) comprises an ending section (44) in the proximity or in contact with said lower surface (31a) of the horizontal section (31) of the upper border (3).

5. The waste bin (100) of any one of claims 2 to 4, wherein said opening of each fastening seat (S) has a decreasing width going from the upper border (3) towards the bottom wall (10) of the waste bin (100).

6. The waste bin (100) according to any one of claims 2 to 5, wherein said upper border (3) of said at least one side wall (1, 5) of the waste bin (100) comprises a vertical descending section (32) that is joined and extends under the horizontal section (31) of the upper border (3).

7. The waste bin (100) of any one of the preceding claims, wherein said hook (2) has a curved shape with concavity directed towards the exterior of the compartment (V).

8. The waste bin (100) of any one of the preceding claims, wherein said at least one side wall (1, 5) comprises four planar side walls (1) joined by means of joining portions (5) with curvilinear cross-section; said waste bin (100) comprising four hooks (2), each hook (2) being disposed on a joining portion (5) of the waste bin (100).

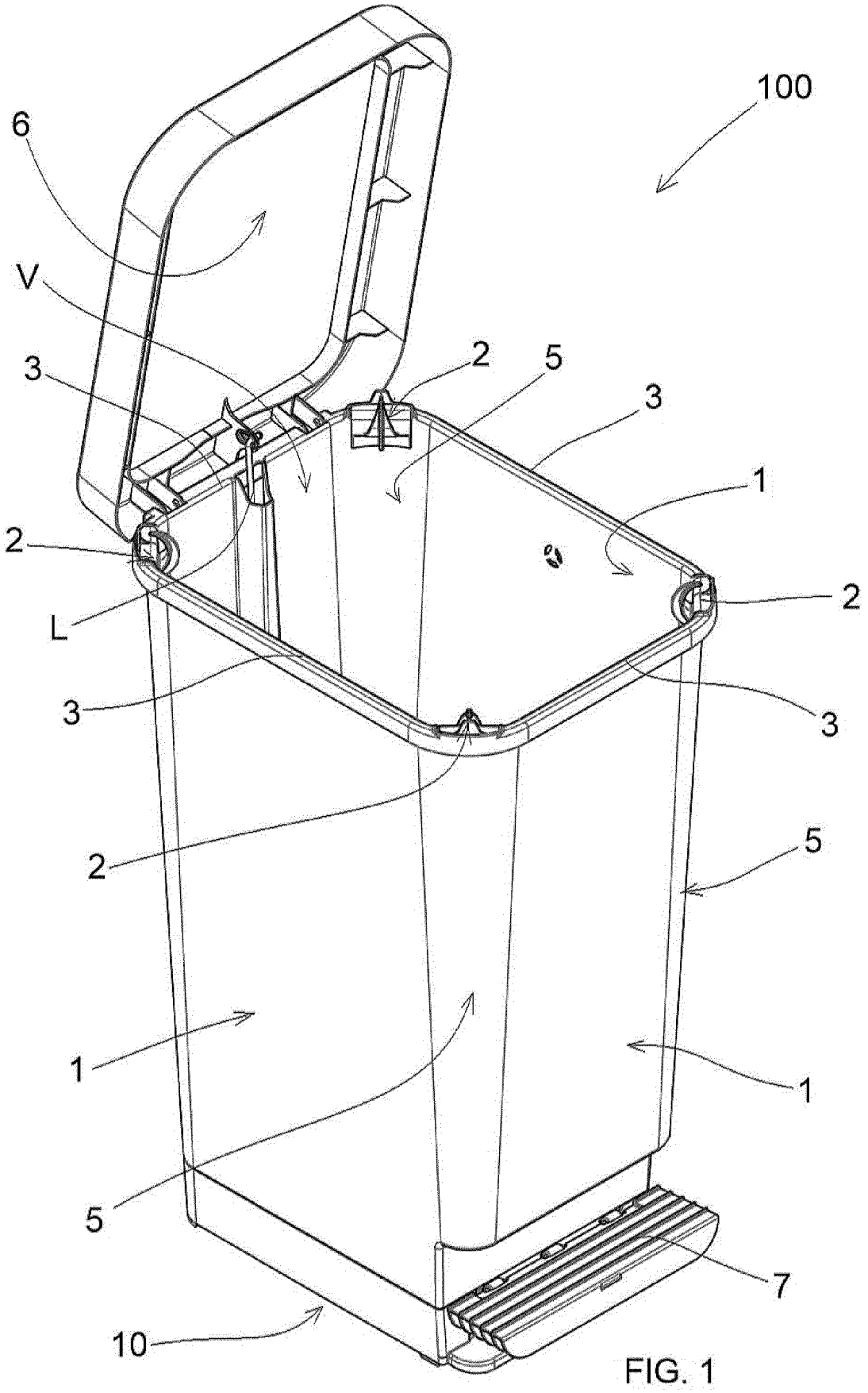

FIG. 1

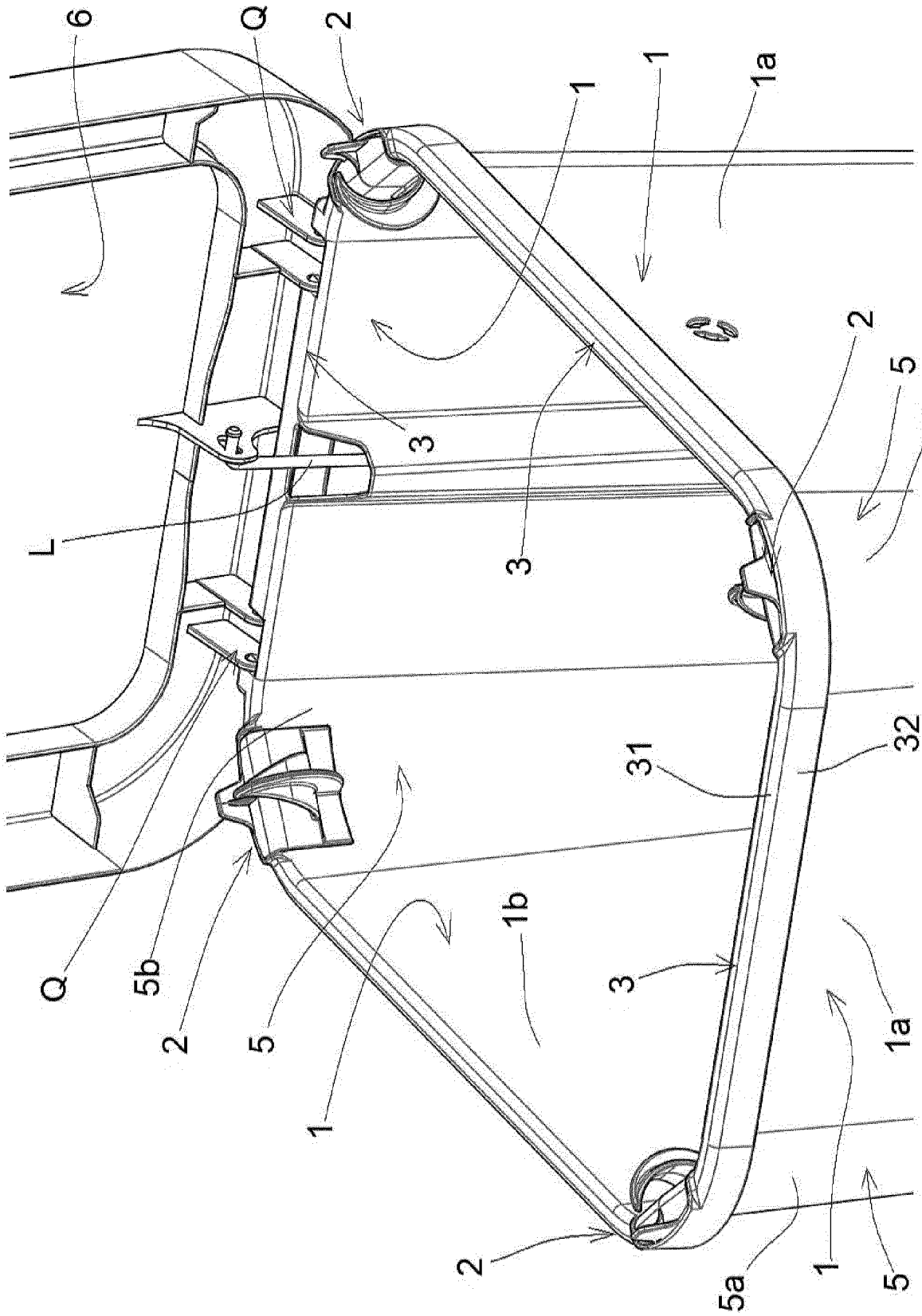

FIG. 1A

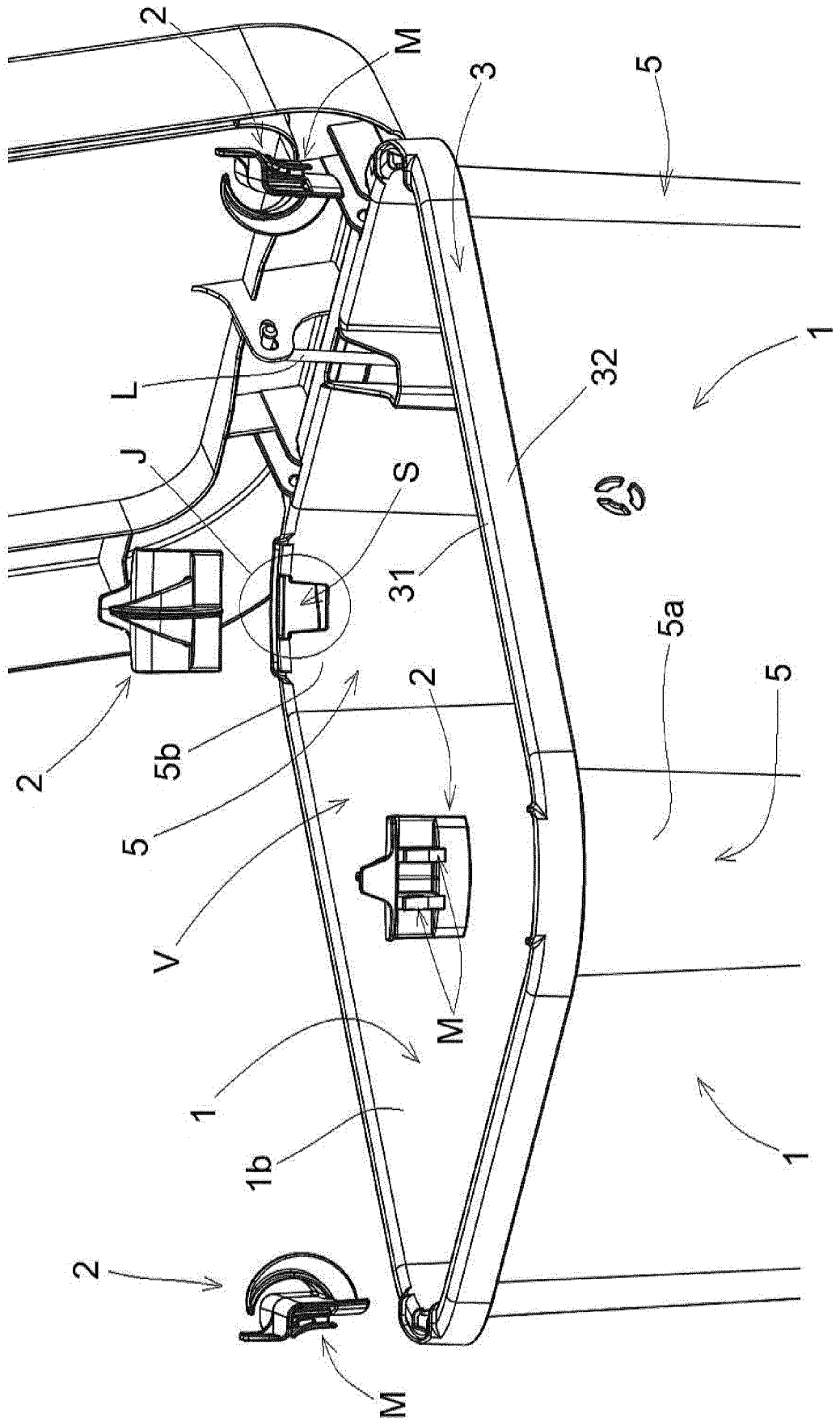

FIG. 2

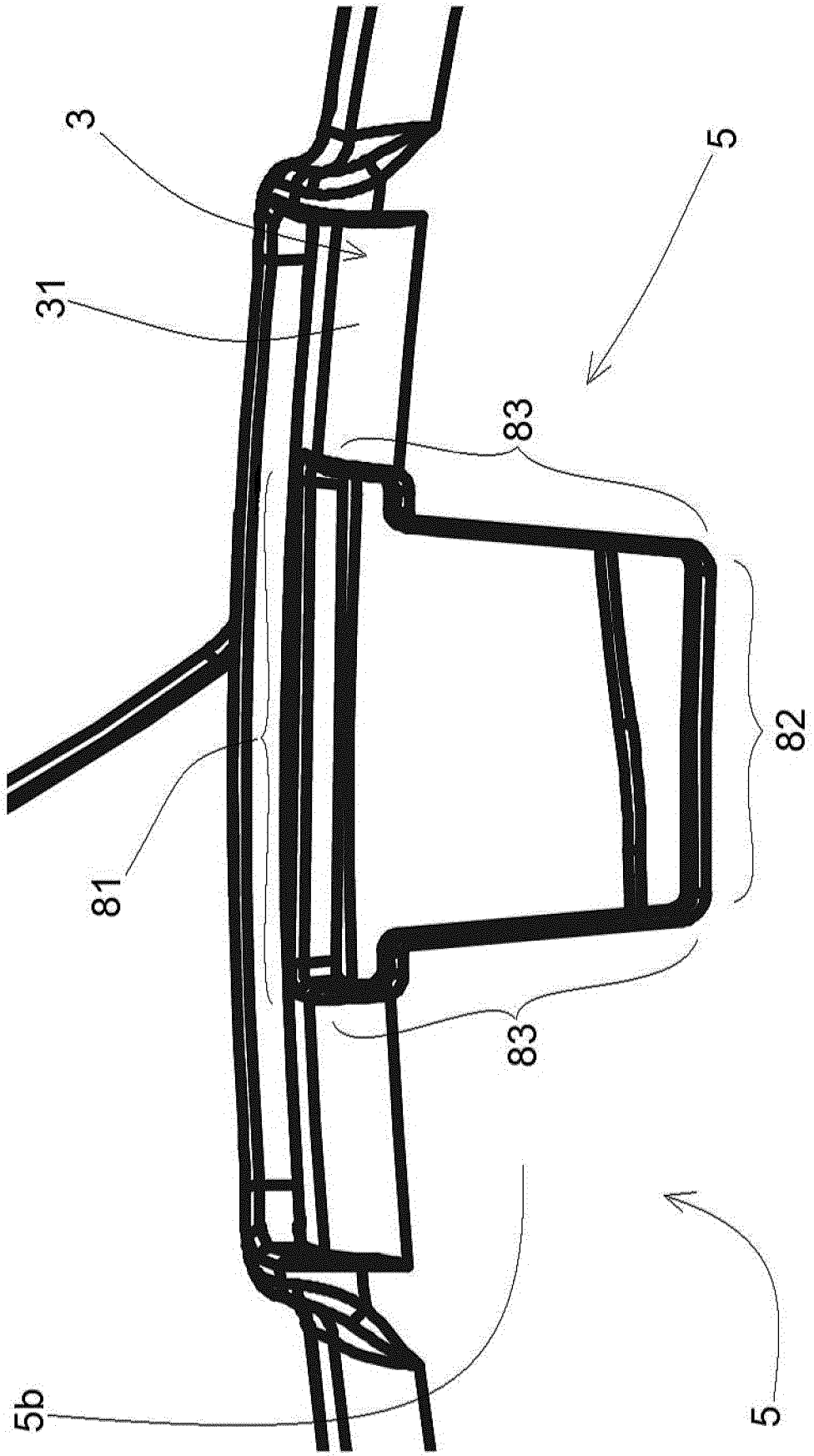

FIG. 2A

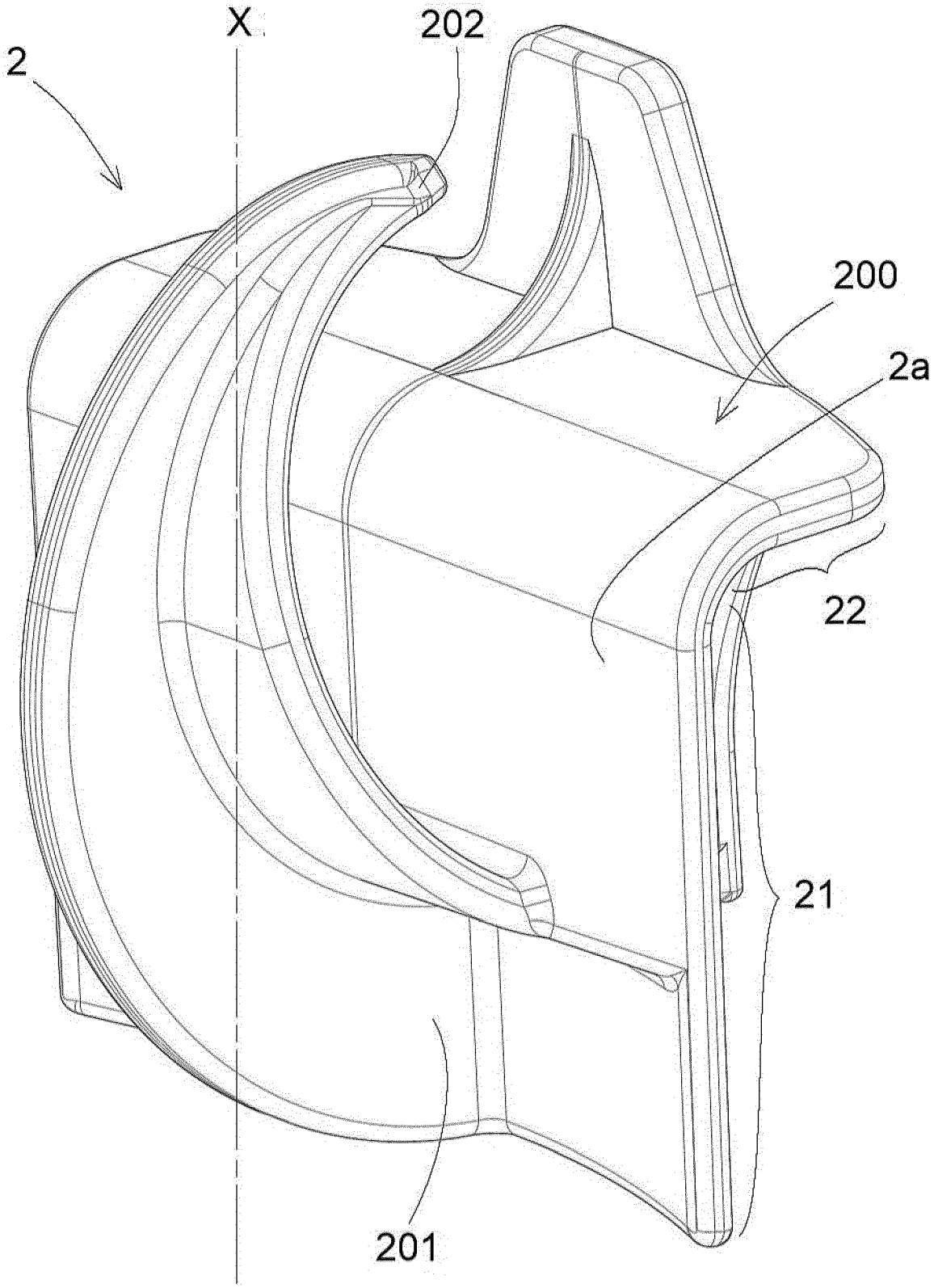

FIG. 3

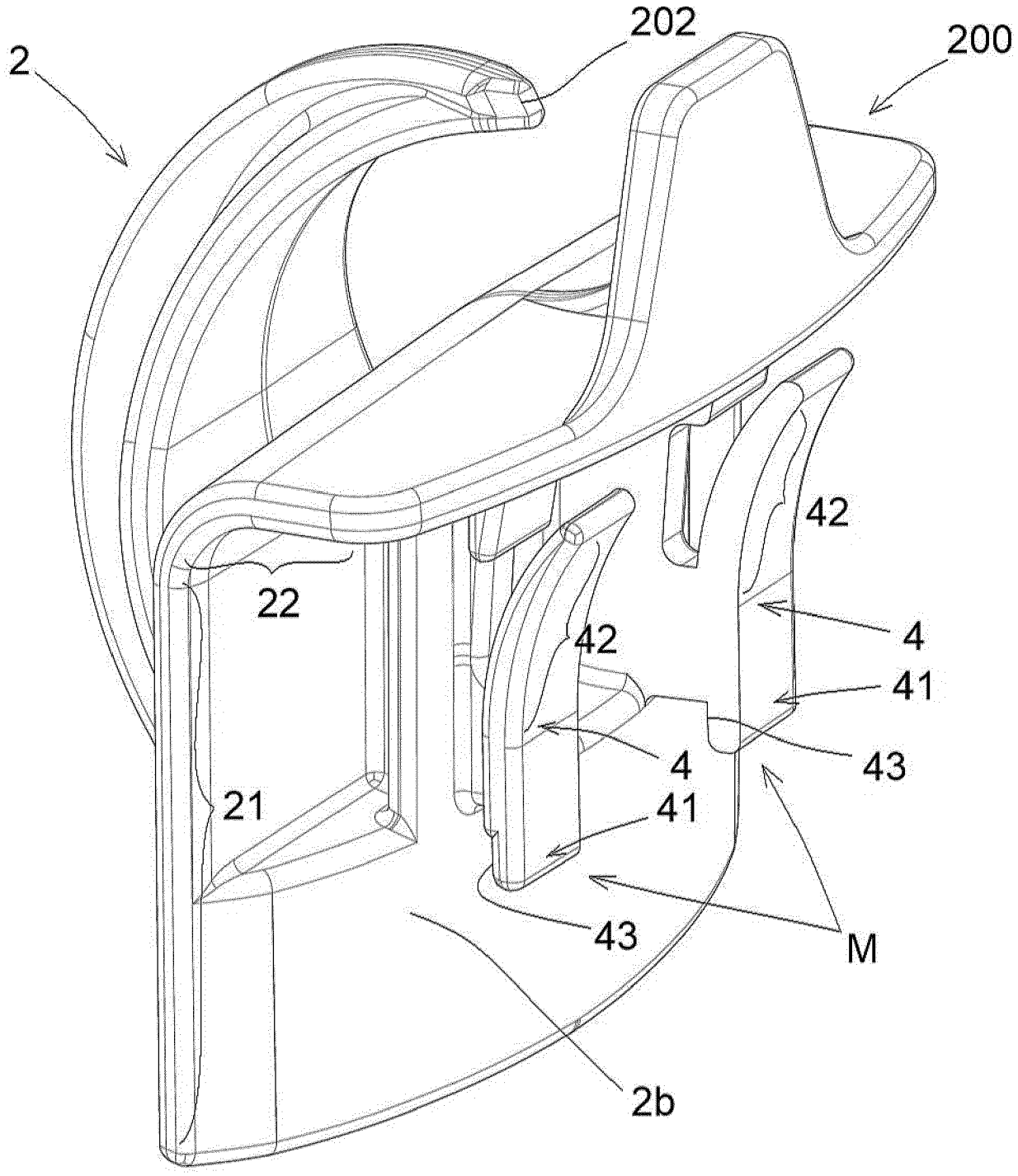

FIG. 3A

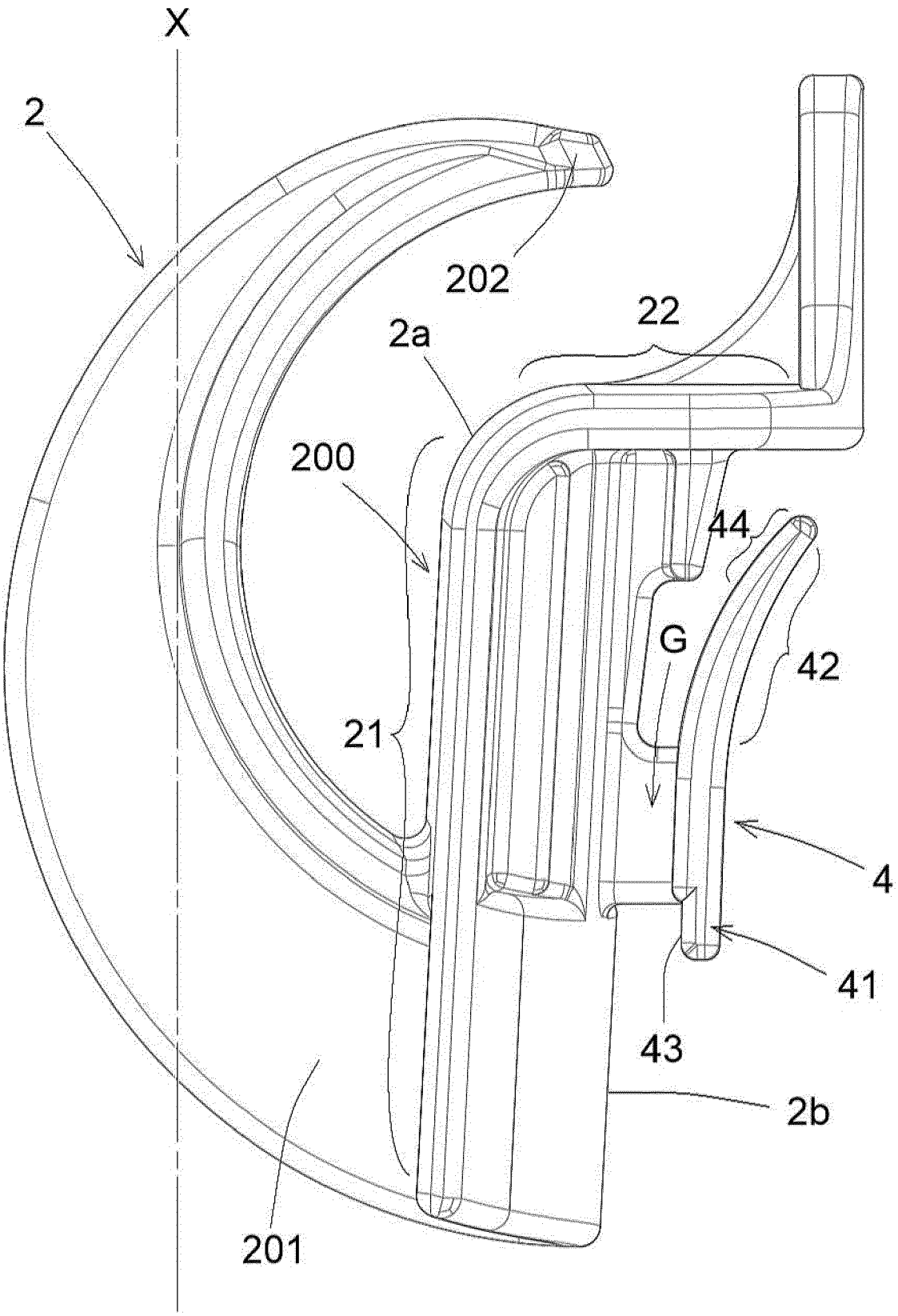

FIG. 3B

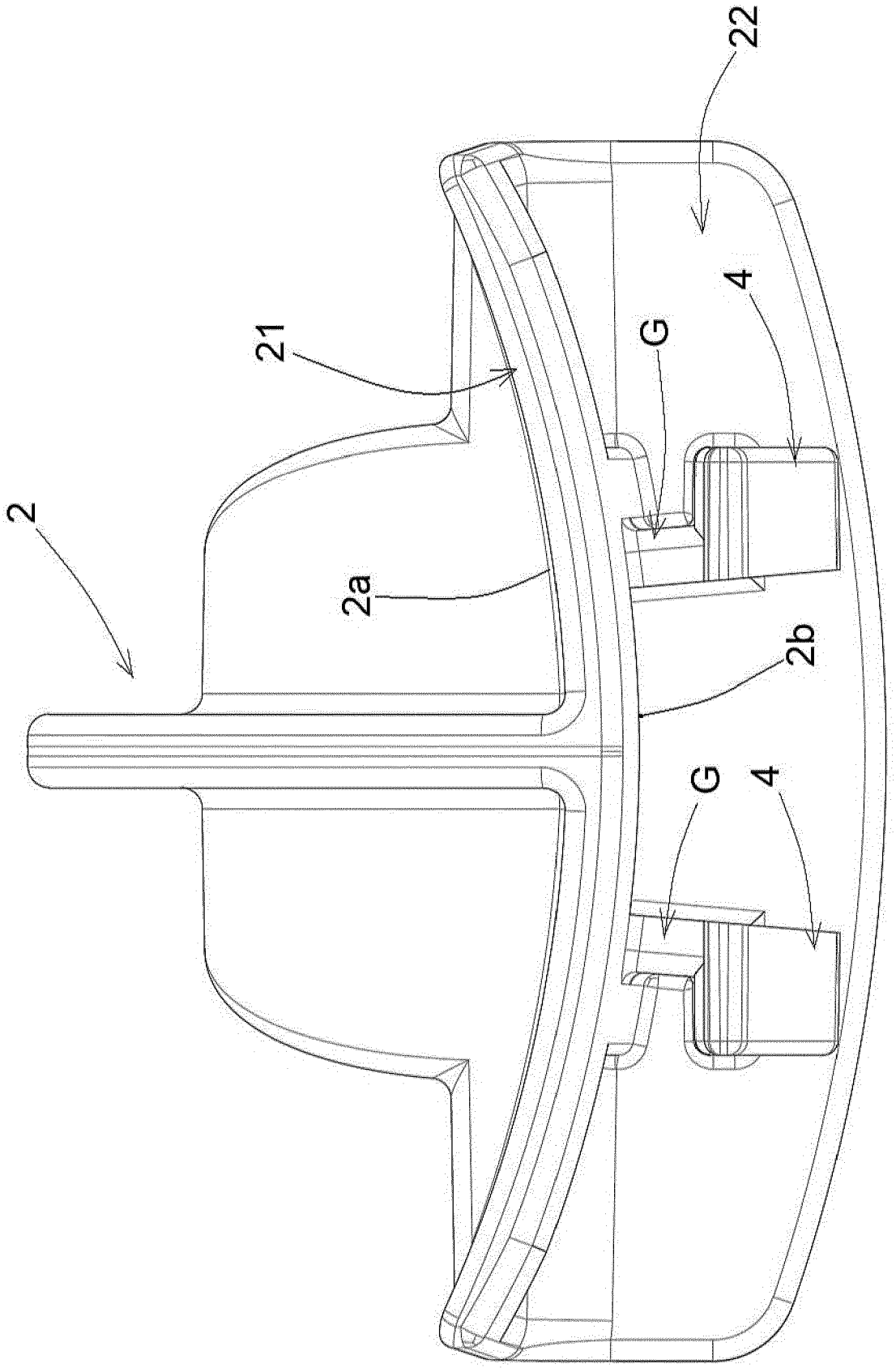

FIG. 3C

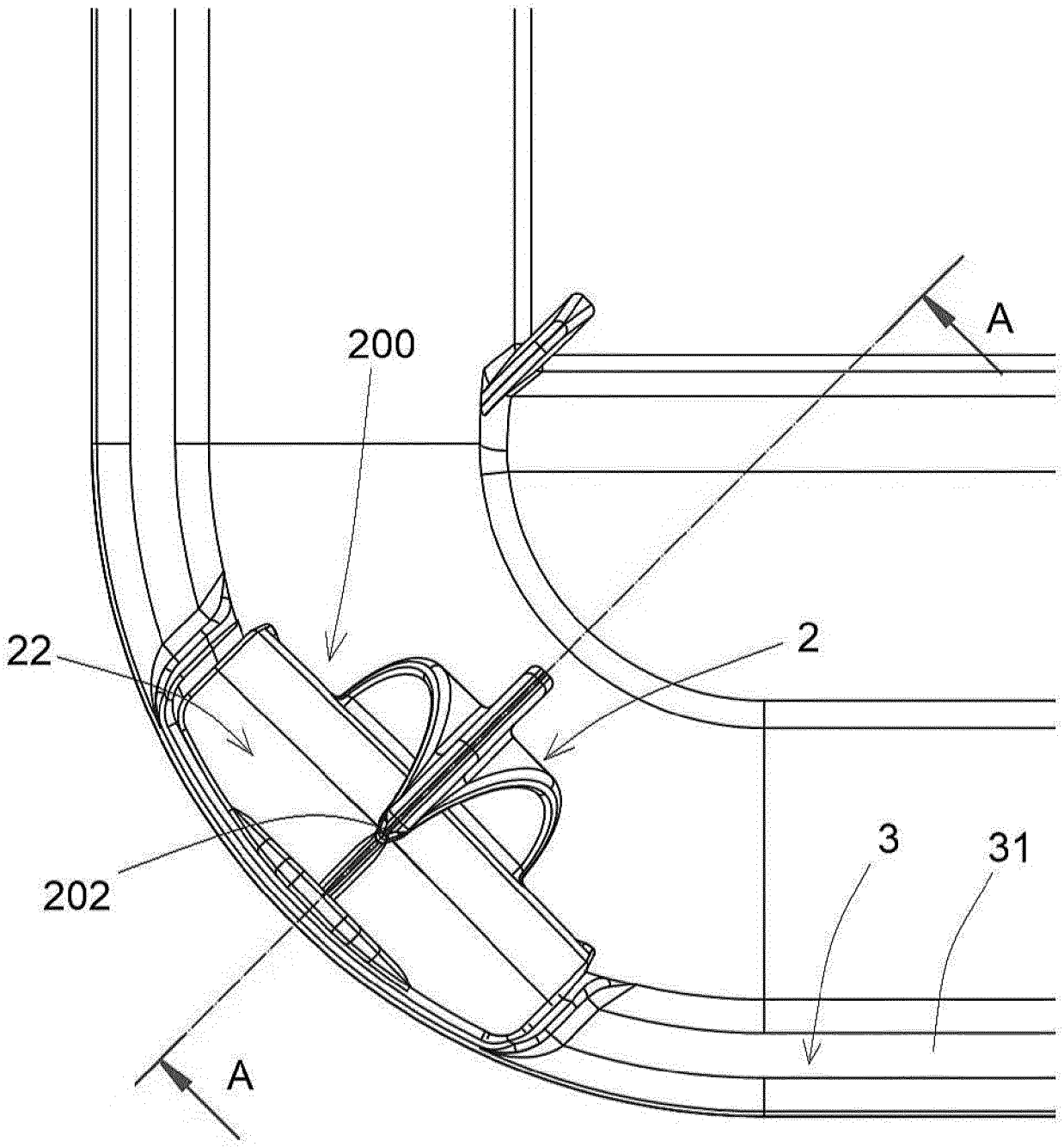

FIG. 4

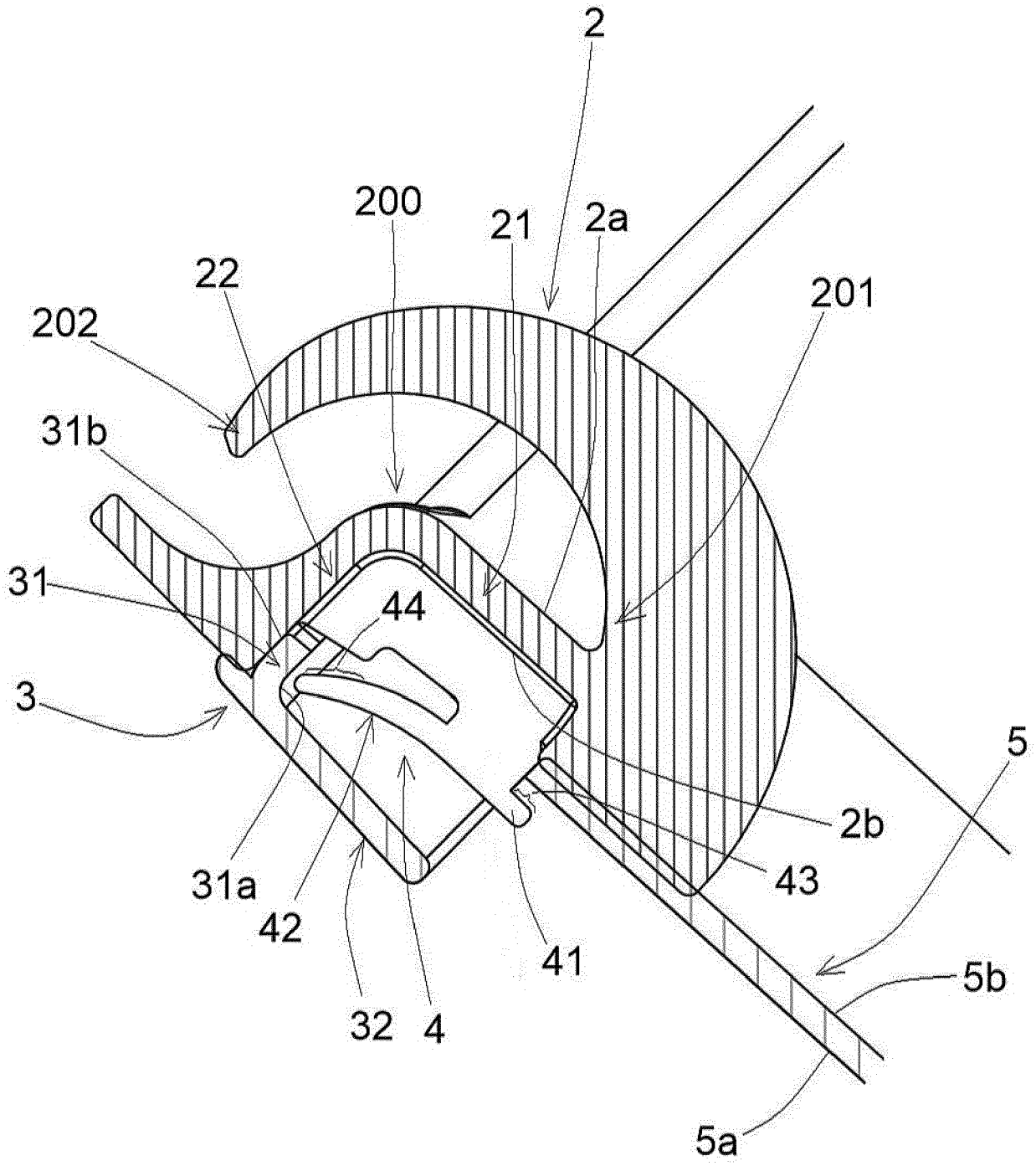

FIG. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 20 15 3049

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 4 728 070 A (ENGELBRECHT BILLY L [US]) 1 March 1988 (1988-03-01) * column 2, line 57 - column 3, line 48 *	1-8	INV. B65F1/06 ADD. B65F1/16
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Place of search	Date of completion of the search	Examiner
The Hague	23 March 2020	Pardo Torre, Ignacio

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