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(54) **ASSEMBLY COMPRISING A LIQUID DISPENSER AND A SUPPORT ELEMENT**

(71) Applicant: **M.G.L.F.**, Paris (FR)

(72) Inventor: **Laurent Marchand**, Paris (FR)

(73) Assignee: **M.G.L.F.**, Paris (FR)

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(52) **U.S. Cl.**

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(57) **ABSTRACT**

An assembly includes a dispenser. The dispenser includes a lower body, an upper body, and a pump. The upper body removably engages the lower body to define a cavity surrounded by the lower body and the upper body. The upper body includes a neck. The pump is removably mounted to the neck. The pump includes a first pump end and a dip tube. The dip tube includes a cutting element. The cutting element is configured to be introduced inside the upper body through an orifice of the neck and to pierce a bag received in the cavity when the pump is mounted to the neck of the upper body with the dip tube extending through the orifice of the neck.

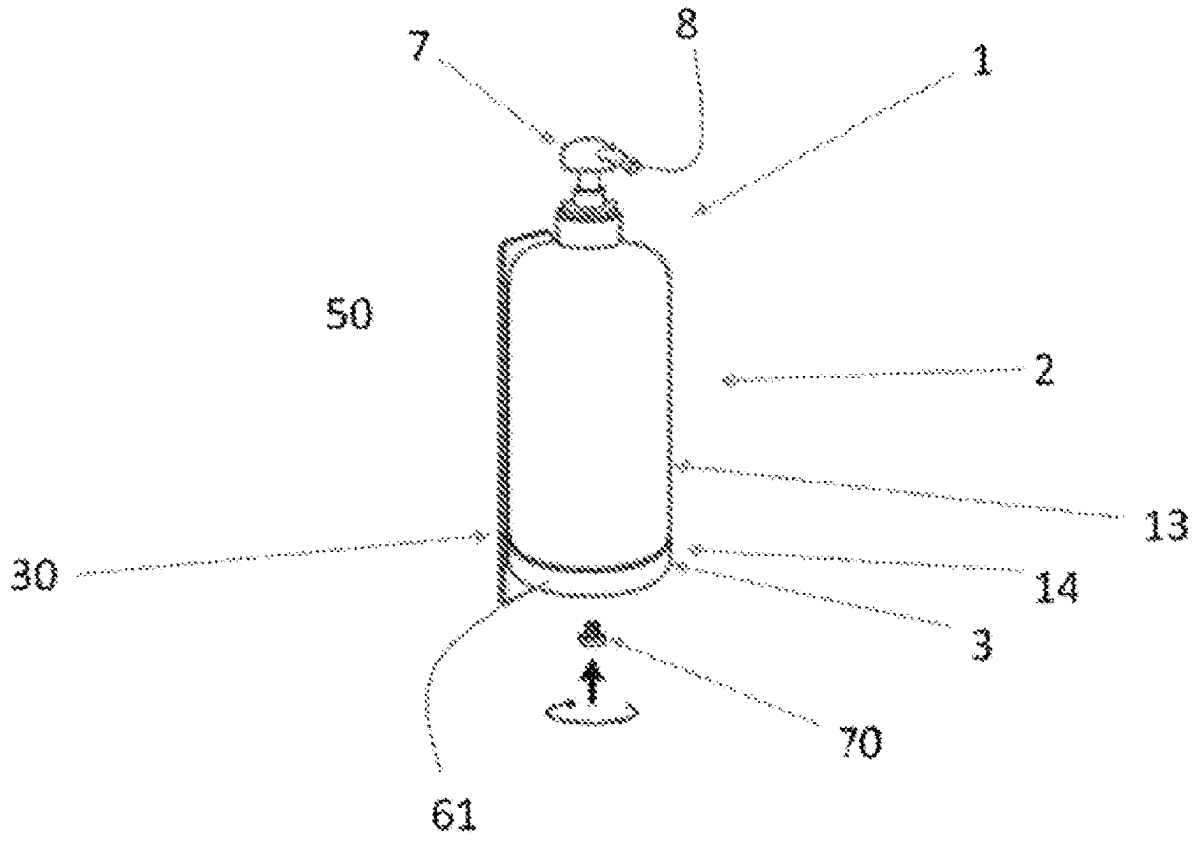


FIG. 1

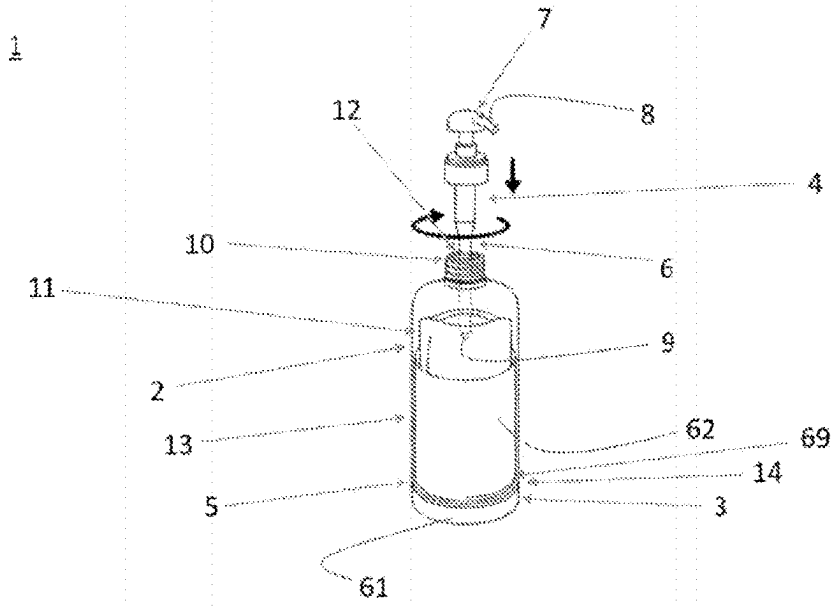


FIG. 2

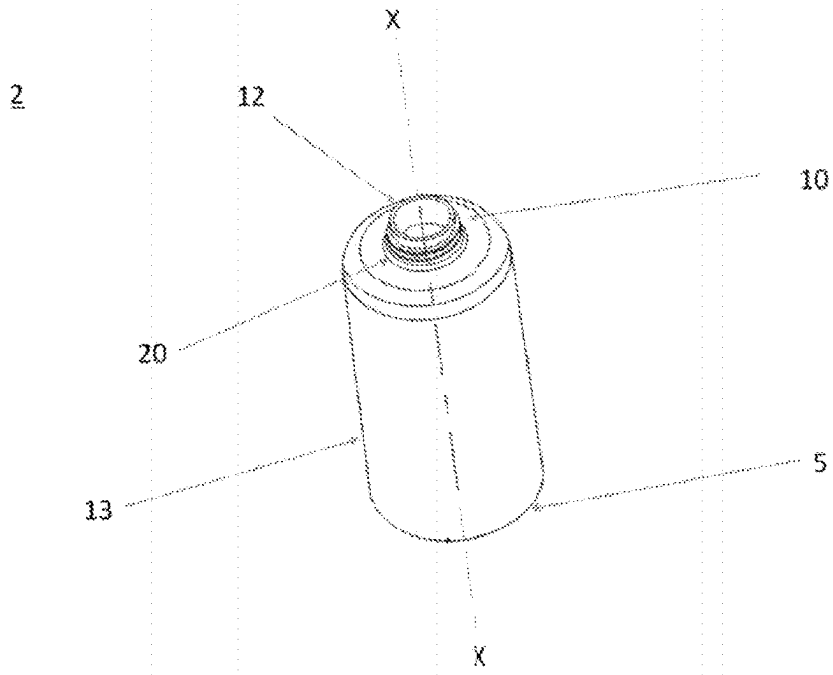


FIG. 3

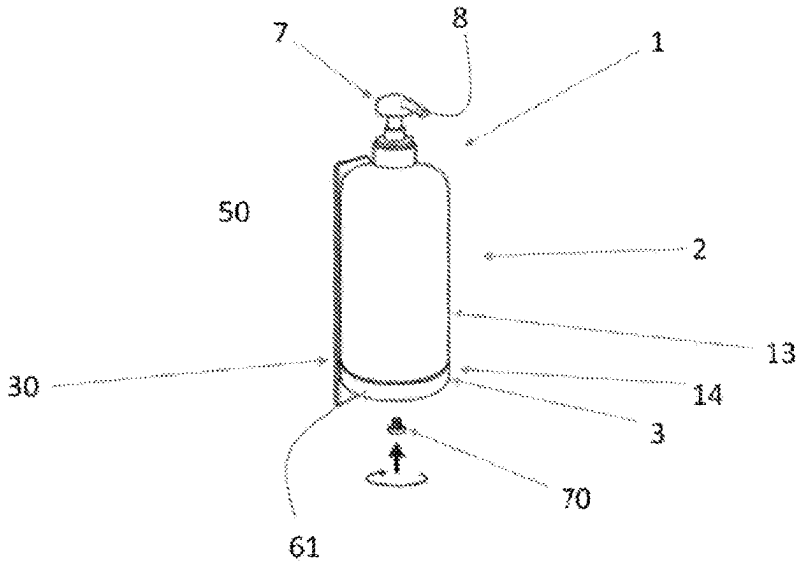


FIG. 4

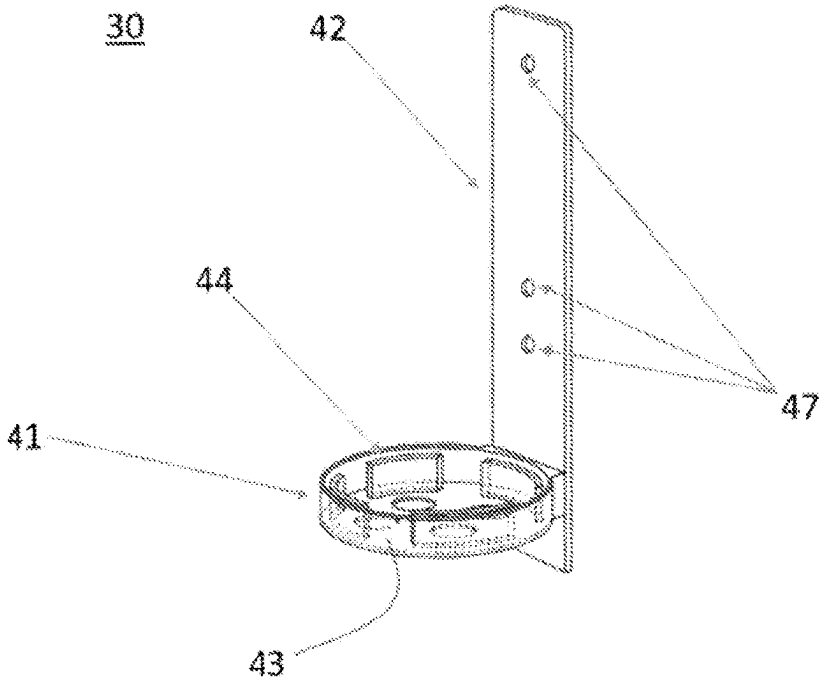


FIG. 5

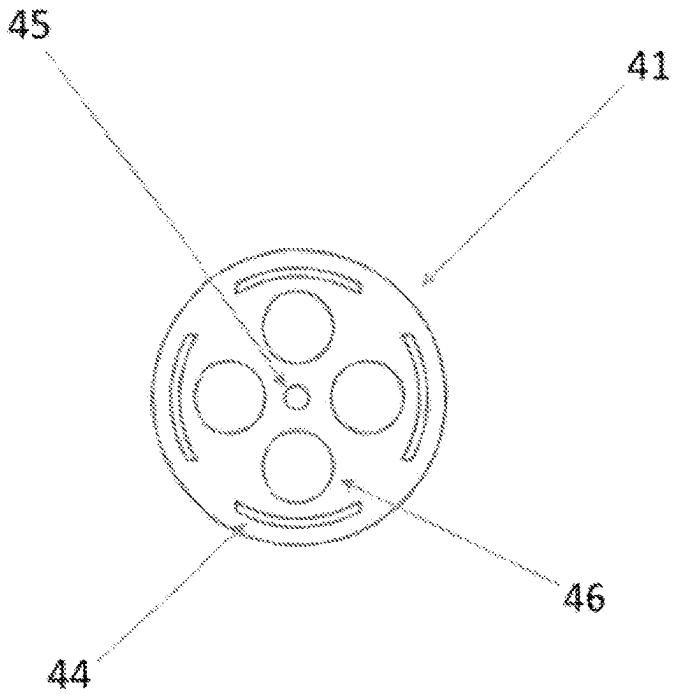


FIG. 6

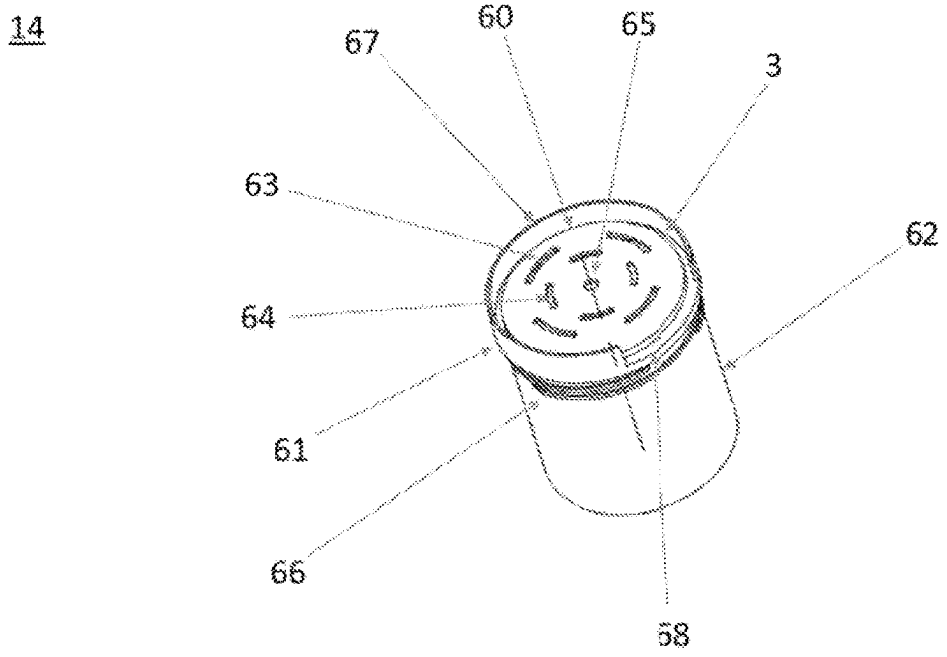


FIG. 7

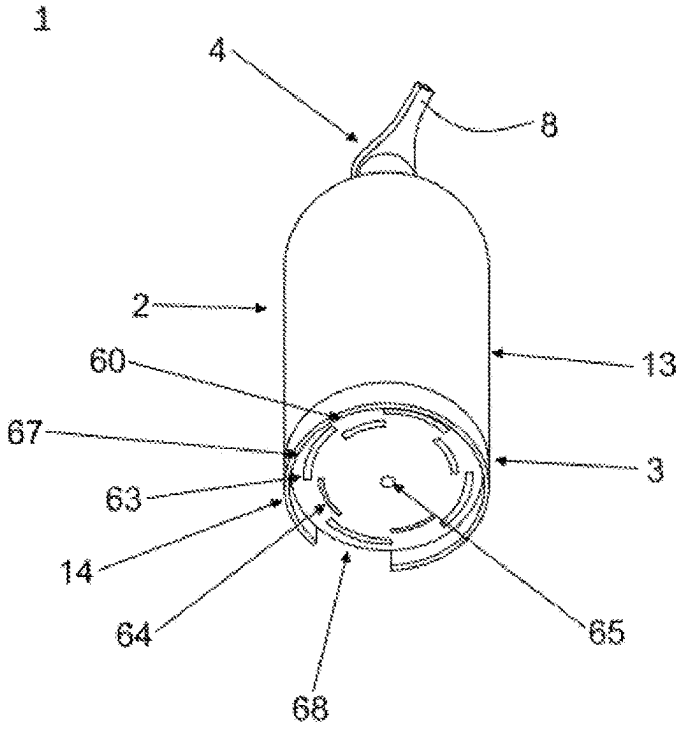


FIG. 8

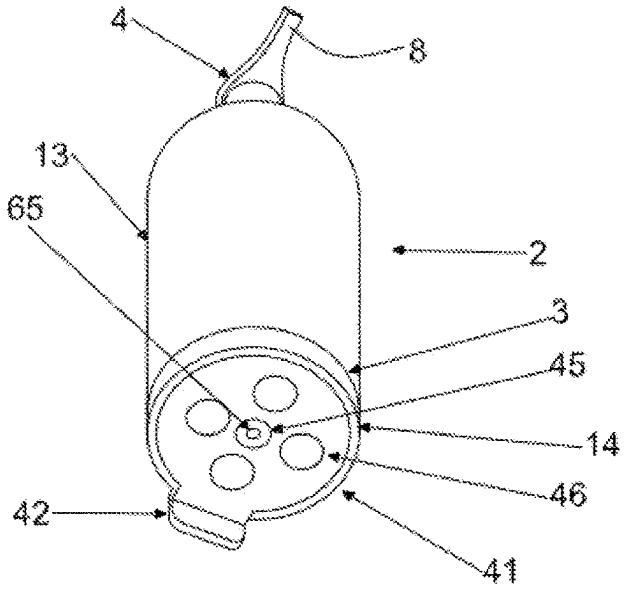
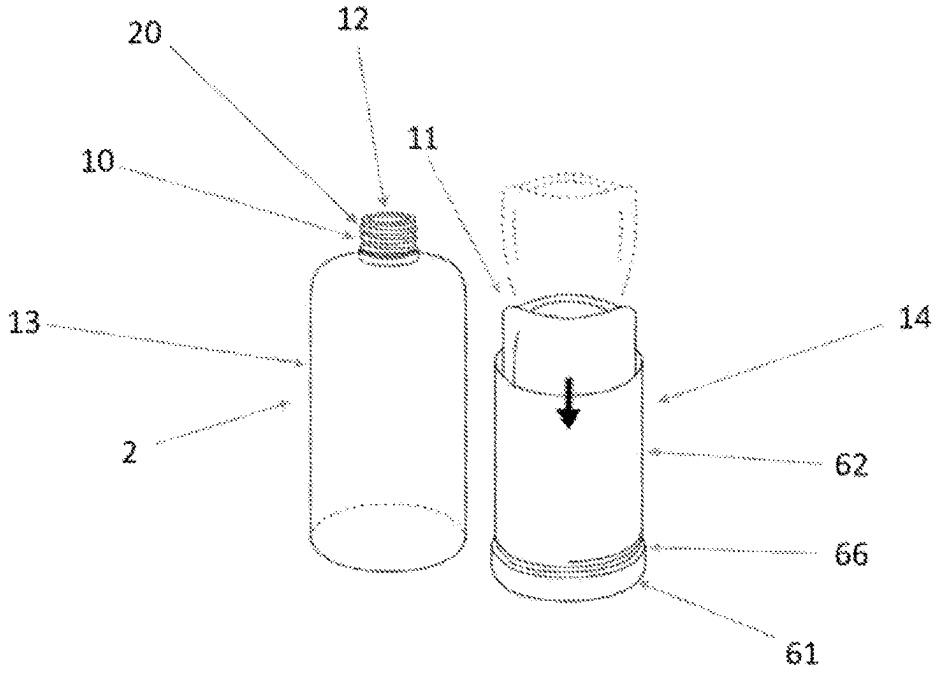


FIG. 9



ASSEMBLY COMPRISING A LIQUID DISPENSER AND A SUPPORT ELEMENT

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a divisional of U.S. patent application Ser. No. 18/078,651, filed Dec. 9, 2022, which is a continuation of International Application No. PCT/FR2021/051028, filed on Jun. 8, 2021, which claims the benefit of FR 20/06020, filed on Jun. 9, 2020. The disclosures of the above applications are incorporated herein by reference.

FIELD

[0002] The present disclosure relates to an assembly comprising a liquid dispenser and a support element.

BACKGROUND

[0003] The statements in this section merely provide background information related to the present disclosure and may not constitute prior art.

[0004] The liquid dispensers are well known from the prior art. Indeed, there are liquid dispensers in many rooms of public or private buildings, such as a kitchen, a bathroom or a toilet.

[0005] The liquid dispensers generally consist of a body containing the liquid or a bag of liquid and a dip tube allowing to pump the liquid contained in the body of the dispenser or in the bag of liquid.

[0006] These dispensers can be fixed on any surface, in one form on a wall, by means of a support element or not.

[0007] However, the dispensers of the prior art have drawbacks.

[0008] The known dispensers, when they are on their support element, offer an unharmonious aesthetic appearance.

[0009] Indeed, the support element remains very visible when the dispenser is installed and the cooperation between the support element and the dispenser clearly shows two distinct elements which are the support element and the dispenser.

[0010] As a result, such dispensers appear more cumbersome in the room in which they are installed.

[0011] In addition, when a user wishes to change the soap bag, difficulties are experienced in dismantling the dispenser.

[0012] Indeed, in the dispensers of the prior art, the support element must be uncoupled from the dispenser in order to be able to integrate a new bag of soap. In addition, the dispenser itself must be completely disassembled to integrate the replacement fluid bag.

[0013] The same applies to the support element when a user wishes to displace the dispenser.

[0014] This results in a waste of time for these users.

SUMMARY

[0015] This section provides a general summary of the disclosure and is not a comprehensive disclosure of its full scope or all of its features.

[0016] The present disclosure provides an assembly comprising a dispenser comprising a lower body comprising a bottom from which extends a lower skirt on which is engaged an upper body comprising a neck, a pump being adapted to be fixed in the neck, the neck of which extends an upper skirt adapted to be engaged on the lower skirt, the lower body and the upper body delimiting a cavity in which a bag of liquid can be placed, the assembly comprising a support element comprising a wall fixing plate to which is fixed a fixing base, the bottom comprising a bottom wall arranged on at least part of the periphery of the bottom and extending in the opposite direction to the lower skirt, forming an open housing, the bottom being provided with a means of connection to the support element.

[0017] According to an aspect, the present disclosure relates to an assembly characterized in that it comprises a dispenser comprising:

- **[0018]** (i) a lower body comprising a bottom from which extends a lower skirt, the lower body around which is engaged
- **[0019]** (ii) an upper body comprising a neck, a pump being adapted to be fixed in the neck, the neck of which extends an upper skirt adapted to engage the lower skirt so that the upper skirt surrounds the lower skirt of the lower body,
- **[0020]** the lower body and the upper body delimiting a cavity in which a bag of liquid can be placed,
- **[0021]** the assembly comprising a support element comprising a wall fixing plate to which is fixed a fixing base,
- **[0022]** the assembly comprising a bottom wall arranged on at least part of the periphery of the bottom and extending in projection from the bottom in the direction opposite to the lower skirt, the wall forming an open housing adapted to receive the fixing base, the bottom being provided with means of connection, as set forth herein, to the support element, and the bottom wall being arranged so as to surround the fixing base when the fixing base is inserted into the housing formed by the bottom wall.

[0023] It should be understood that the upper body is adapted to be engaged on the lower body so as to surround the lower body.

[0024] Thanks to the present disclosure, it is possible to quickly replace the bag of liquid. Indeed, when the dispenser is mounted on the support element via the fixing base which is introduced into the open housing, it suffices to remove the upper body which surrounds the lower body only to be able to have access to the bag of liquid.

[0025] Moreover, the aesthetics of the assembly is improved, in fact, the bottom wall makes it possible to camouflage the fixing base when the fixing base is introduced into the housing formed by the bottom wall.

[0026] According to one form, the housing is located on an outer surface of the bottom of the dispenser, the support element being configured to be introduced into the housing in a form form-fitting manner.

[0027] In one variation, the fixing base is configured to be introduced into the housing in a form-fitting manner.

[0028] According to one form, the fixing base is arranged transversely with respect to a longitudinal extension axis of the upper body, and the wall fixing plate extending parallel to the longitudinal extension axis of the upper body when the support element is introduced into the housing, the wall fixing plate comprising orifices configured to receive fixing elements.

[0029] In one variation, when the fixing base is introduced into the housing.

[0030] According to one form, the fixing base and the wall fixing plate of the support element are molded together.

[0031] According to one form, the fixing base and the wall fixing plate of the support element are welded together.

[0032] According to one form, a height formed by the fixing base of the support element is configured to correspond to a height formed by the housing via the lower skirt, so that the fixing base is superimposed with respect to the bottom.

[0033] According to one form, the fixing base of the support element comprises a central orifice configured to fix the fixing base of the support element to the bottom of the lower body by a fixing device, the bottom of the lower body of the dispenser also comprising a central orifice arranged opposite the central orifice of the fixing base of the support element when the dispenser cooperates with the support element.

[0034] According to one form, the outer surface comprises a first row of grooves uniformly distributed over the periphery of the surface, the fixing base of the support element comprising tenons configured to be inserted into the corresponding first row of grooves.

[0035] According to one form, the outer surface comprises a second row of grooves uniformly distributed so as to fill a space between each groove of the first row of grooves, the second row of grooves being arranged closer to the central orifice than the first row of grooves.

[0036] According to one form, the fixing base of the support element comprises lumens uniformly distributed between the central orifice of the fixing base and the tenons.

[0037] These lumens allow, during the cleaning of the dispenser, the evacuation of a liquid used for cleaning the dispenser.

[0038] According to one form, the lower body and the upper body have a reversible connecting device, in one form a reversible connection means allowing the upper body to be removed from the lower body to replace the bag of liquid, the reversible connecting means comprising a lower body thread formed in the lower body and a complementary thread formed in the upper body.

[0039] The present disclosure also concerns a liquid dispenser comprising a lower body comprising a bottom from which extends a lower skirt on which is engaged an upper body comprising a neck, a pump being adapted to be fixed in the neck, from which extends an upper skirt is adapted to be engaged on the lower skirt, the lower body and the upper body delimiting a cavity in which a bag of liquid can be placed, the bottom being provided with a connection device, in one form a connection means to a wall support element.

[0040] According to one form, the lower body and the upper body have the reversible connection device allowing the upper body to be removed from the lower body to replace the bag of liquid.

[0041] According to one form, the reversible connection device comprise a bottom thread formed in the lower body and a complementary thread formed in the upper body.

[0042] Further areas of applicability will become apparent from the description provided herein. It should be understood that the description and specific examples are intended for purposes of illustration only and are not intended to limit the scope of the present disclosure.

DRAWINGS

[0043] In order that the disclosure may be well understood, there will now be described various forms thereof, given by way of example, reference being made to the accompanying drawings, in which:

[0044] FIG. **1** shows a perspective view of the liquid dispenser, in accordance with the teachings of the present disclosure;

[0045] FIG. **2** shows a perspective view of the upper body of the dispenser, in accordance with the teachings of the present disclosure;

[0046] FIG. **3** shows a perspective view of the dispenser on a support element, in accordance with the teachings of the present disclosure;

[0047] FIG. **4** shows a perspective view of the support element of the dispenser, in accordance with the teachings of the present disclosure;

[0048] FIG. **5** shows a perspective top view of the fixing base of the support element, in accordance with the teachings of the present disclosure;

[0049] FIG. **6** shows a perspective view of the lower body of the dispenser, in accordance with the teachings of the present disclosure;

[0050] FIG. **7** shows a perspective bottom view of the dispenser, without its support element, in accordance with the teachings of the present disclosure;

[0051] FIG. **8** shows a perspective bottom view of the dispenser, cooperating with its support element, in accordance with the teachings of the present disclosure; and

[0052] FIG. **9** shows a partial perspective view of the dispenser illustrating a mode of introduction and/or extraction of a bag of liquid from the dispenser, in accordance with teachings of the present disclosure.

[0053] The drawings described herein are for illustration purposes only and are not intended to limit the scope of the present disclosure in any way.

DETAILED DESCRIPTION

[0054] The following description is merely exemplary in nature and is not intended to limit the present disclosure, application, or uses. It should be understood that throughout the drawings, corresponding reference numerals indicate like or corresponding parts and features.

[0055] FIG. **1** shows a dispenser of an assembly according to the present disclosure.

[0056] The liquid dispenser **1** comprising a lower body **14** comprising a first end comprising a bottom **3**, an upper body **2** and a pump **4**.

[0057] As illustrated in FIG. **9**, the upper body is configured to be engaged on the lower body. The upper body is configured to extend around the lower body when engaged on the lower body.

[0058] The upper body **2** is configured to be screwed onto the lower body **14**.

[0059] For this purpose, the upper body may comprise a thread arranged on an inner wall of the upper body. In one variation, the thread is arranged on an end portion of the upper body.

[0060] The lower body may comprise a thread, arranged on an outer wall of the lower body. In one variation, the thread is arranged on the portion of the first end of the lower body **14**, adjacent to the bottom **3** of the lower body **14**.

[0061] The upper body **2** comprising an upper skirt **13** extending along a longitudinal axis of extension XX, as shown in this figure and in FIG. **2**.

[0062] The upper body **2** and the lower body **14** are cylindrical in shape.

[0063] Of course, this cylindrical shape does not limit the present disclosure. Indeed, this shape can also be, for example, cubic, pyramidal or prismatic.

[0064] The pump **4** comprises, on a first pump end, a dip tube **6** and on a second pump end, opposite the first pump end, a push button **7**.

[0065] According to another form, the pump **4** comprises two parts, a first part comprising the dip tube **6** and a second part comprising the push button **7**, the first part and the second part being configured to clip onto one another.

[0066] In one variation of the pump **4**, the push button **7** comprises a spout **8**.

[0067] The dip tube **6** comprises a cutting element **9** configured to be introduced inside the upper body **2** through an orifice **12**.

[0068] Indeed, the pump **4** is configured to be screwed onto the upper body **2**, at the level of the orifice **12** arranged on a second end of the upper body, opposite to the first end of the upper body **5**, as illustrated in this figure.

[0069] A bag of liquid, here of soap **11**, is introduced into the lower body **14** of the dispenser **1**, delimited by the bottom **3** and the lower skirt **62**.

[0070] Of course, the soap bag **11** does not limit the present disclosure.

[0071] The soap bag **11** can be replaced by a bag containing any washing gel or emulsion for the body, the hair or the hands, for example a hydro-alcoholic solution or any other liquid for cleaning and/or moisturizing the parts of the body.

[0072] The bag can comprise a label including legal notices of cosmetic traceability of the bag and its container, such as the name of the liquid contained in the bag in different languages, the INCI formulas (ingredients of the cosmetic formula) and the manufacturing batch number.

[0073] The cutting element **9** of the dip tube **6** of the pump **4** is configured to pierce the soap bag **11**, when the bag **11** is introduced into the lower body **2** of the dispenser **1** and when the pump **4** is screwed at the level of the second end of the upper body **2**.

[0074] FIG. **2** shows the upper body **2** of the dispenser **1**.

[0075] The upper body **2** of the dispenser **1** comprises an upper skirt **13** extending along a longitudinal axis of extension XX as shown in this figure, whose first end of the upper body **5** is configured to receive the lower body **14**, and in one form the bottom **3** and the second end of the upper body, corresponding to a neck **10**, is configured to receive the pump **4**.

[0076] The neck **10** comprises the orifice **12**.

[0077] The neck **10** comprises on its periphery, a neck thread **20** allowing the pump **4** to be screwed onto the neck **10**, the dip tube **6** passing through the orifice **12**.

[0078] FIG. **3** shows the dispenser **1** on a support element **30**.

[0079] The support element **30** comprises two parts, as shown in FIG. **4**.

[0080] Referring to FIG. **4**, the support element **30** comprises a fixing base **41** and a wall fixing plate **42**.

[0081] The fixing base **41** is arranged along an axis transverse to the longitudinal axis XX of the upper body **2** when the support element **30** cooperates with the dispenser **1** and the wall fixing plate **42** is arranged parallel to the longitudinal axis XX when the support element **30** cooperates with the dispenser **1**.

[0082] The fixing base **41** and the wall fixing plate **42** of the support element **30** are secured to each other.

[0083] In one variation, the fixing base **41** and the wall fixing plate **42** of the support element **30** are molded to each other.

[0084] In form, the fixing base **41** and the wall fixing plate **42** of the support element **30** are welded to each other.

[0085] Of course, the securing of the fixing base **41** and the wall fixing plate **42** can be achieved by any known fixing elements.

[0086] The fixing base **41** is configured to cooperate with the lower body **14** and in one form with the bottom **3** of the dispenser **1**.

[0087] The spatial shape of the fixing base **41** is therefore dependent on the spatial shape of the bottom **3**.

[0088] In the one form, the fixing base **41** is circular in shape.

[0089] The fixing base **41** of the support element **30** comprises a base wall **43** extending parallel with respect to the longitudinal extension axis XX of the upper body **2**, on the periphery of the fixing base **41** of the support element **30**.

[0090] Tenons **44** are arranged at the periphery of the fixing base **41** of the support element **30**.

[0091] These tenons **44** extend, like the base wall **43**, parallel to the longitudinal axis of extension XX of the upper body **2**, when the support element **30** cooperates with the dispenser **1**.

[0092] The fixing base **41** comprises a central orifice **45** configured to fix the fixing base **41** of the support element **30** removably to the bottom **3** of the lower body **14**, as represented in FIG. **5**.

[0093] Lumens **46**, of circular shape in one variation, are arranged between the central orifice **45** and the tenons **44**.

[0094] Of course, this circular shape does not limit the present disclosure. Indeed, this shape can also be, for example, square or triangular.

[0095] As shown in FIG. **5**, the tenons **44** are distributed uniformly around the periphery of the fixing base **41** of the support element **30**.

[0096] More precisely, four tenons are distributed uniformly at the level of the periphery of the fixing base **41** of the support element **30**.

[0097] The lumens **46** are for their part distributed uniformly between the central orifice **45** and the tenons **44**.

[0098] More precisely, four lumens **46** are distributed uniformly between the central orifice **45** and the tenons **44**.

[0099] Returning to FIG. **4**, the wall mounting plate **42** of the support element **30**, arranged parallel to the longitudinal axis XX when the support element **30** cooperates with the dispenser **1**, is arranged as a flat rectangular bar, as shown in this figure.

[0100] Of course, this arrangement does not limit the present disclosure.

[0101] The wall fixing plate **42** comprises orifices **47** configured to receive fixing elements, the wall fixing plate **42** being configured to be fixed to a surface, in one variation a wall **50**, as represented in FIG. **3**. The fixing elements, not shown, may be of the screw type.

[0102] Of course, any other known fixing elements are not to be excluded.

[0103] FIG. **6** shows the lower body **14** configured to be screwed onto the first end of the body **5** of the upper body **2** and to cooperate with the fixing base **41** of the support element **30**.

[0104] The bottom **3** comprises an outer surface **60**, configured to cooperate with the fixing base **41** of the support element **30**.

[0105] The lower body of the dispenser comprises a bottom wall **61** which is arranged on at least part of the periphery of the bottom **3**.

[0106] The bottom wall extends from the bottom and protrudes from the bottom **3** in the opposite direction to the lower skirt **62**. The wall forms an open housing **67** are adapted to receive the fixing base **41**.

[0107] The lower body **14** comprises the bottom wall **61** arranged on at least part of the periphery of the bottom **3** and extending longitudinally along an axis parallel to the axis of longitudinal extension XX of the upper body **2** of the dispenser **1**, when the upper body **2** and the lower body **14** are screwed together.

[0108] More precisely, the bottom wall **61** extends longitudinally in a direction opposite to the introduction of the lower body **14** on the upper body **2** of the dispenser **1**.

[0109] The bottom **3** is provided with various connection devices (set forth in greater detail below) to the support element **30**, and the bottom wall is arranged so as to surround the fixing base when the fixing base is inserted into the housing formed by the bottom wall.

[0110] The configuration of the bottom wall makes it possible to conceal the fixing base when the fixing base is introduced into the housing formed by the bottom wall.

[0111] A lower skirt **62** also extends along a longitudinal axis parallel to the longitudinal extension axis XX of the upper body **2** of the dispenser **1**, when the upper body **2** and the lower body **14** are screwed together.

[0112] However, the lower skirt **62** extends longitudinally in the direction of insertion of the lower body **14** into the upper body **2** of the dispenser **1**.

[0113] The outer surface **60** of the bottom **3** comprises a connection device, here a first row of grooves **63** arranged on the periphery of this outer surface **60** of the bottom **3**.

[0114] More precisely, these grooves are distributed uniformly at the level of the periphery of the outer surface **60** and are four in number.

[0115] The outer surface **60** of the bottom **3** also comprises a second row of grooves **64**.

[0116] The outer surface **60** also comprises a central orifice **65**.

[0117] The second row of grooves **64** is evenly distributed so as to fill a space between each groove of the first row **63**, the second row of grooves **64** being disposed closer to the center of the bottom **3** than the first row of grooves **63**.

[0118] A reversible connection device is arranged at the level of the lower body **14** and at the level of the upper body **2**.

[0119] Indeed, the reversible connection device in this form comprises a lower body thread **66** arranged on the periphery of the lower body **14** and a complementary thread **69**, visible in FIG. **1**, is arranged on the periphery of the upper body **2**, and more precisely at the level of the first end of the body **5** of the upper body **2**, allowing the screwing of the upper body **2** on the lower body **14** of the dispenser **1**.

[0120] A housing **67** is defined and formed between the bottom wall **61** and the outer surface **60** of the bottom **3**.

[0121] A notch **68** is made on the bottom wall **61** of the lower body **14** so that the support element **30** can be introduced into the housing **67** of the lower body **14**.

[0122] As shown in FIG. **7**, the dispenser **1** does not rest on its support element **30**, unlike the illustration of FIG. **8** in which the dispenser **1** rests on its support element **30** and in one form on the fixing base **41** of the support element **30**.

[0123] The height of the fixing base **41** of the support element **30**, as shown in FIG. **8**, corresponds to the height of the housing **67**.

[0124] Indeed, the support element **30** is configured to be introduced into the housing **67** in a form-fitting manner.

[0125] More precisely, it is the fixing base **41** of the support element **30** which is configured to be introduced into the housing **67** in a form-fitting manner, the fixing base **41** being superimposed with the bottom **3** of the dispenser **1**

[0126] Furthermore, the fixing base **41** is flush with the bottom wall **61**.

[0127] The central orifice **45** of the fixing base **41** of the support element **30** is therefore facing the central orifice **65** of the bottom **3** when the fixing base **41** is inserted into its housing **67** so as to fix the support element **30** with the dispenser **1** by a fixing device **70**.

[0128] The fixing device **70** in one form can be of the screw type, as shown in FIG. **3**.

[0129] Of course, any other known fixing devices are not to be excluded.

[0130] In the following passages, the operation of the present disclosure is detailed.

[0131] It should be noted that the liquid bag, illustrated as a soap bag **11**, must be replaced once it is empty because it cannot be refilled, which guarantees anti-bacterial hygiene of the dispenser and traceability of the liquid bag, and provides compliance with the regulations inherent in the liquid contained in the bag.

[0132] When a user wishes, in one form, to replace the soap bag **11** of the dispenser **1** which is, in one variation, fixed to its support element **30** via the lower body **14** and the fixing base **41** of the support element **30**, the support element **30** being itself fixed to a wall **50** via the wall fixing plate **42**, the user simply has to unscrew the upper body **2** of the dispenser **1** from the lower body **14**.

[0133] The empty soap bag **11**, present in the lower body **14** of the dispenser **1**, as shown in FIG. **9**, is therefore replaced by a new soap bag **11**, introduced into the lower body **14** and supported by the upper skirt **62** and the bottom **3**.

[0134] The upper body **2** of the dispenser **1** can therefore be screwed back onto the lower body **14**, the cutting element **9** of the dip tube **6** of the pump **4** piercing the soap bag **11** so that when the user exerts a pressure force on the push button **7** of the pump **4**, the soap can be sucked up to come out through the spout **8**.

[0135] According to one form, the pump **4** must be unscrewed before screwing the upper body **2** back onto the lower body **14** of the dispenser **1** in order to then be screwed back **30** into the neck **10** of the upper body **2** so that the cutting element **9** can pierce the soap bag **11**, more precisely and more cleanly.

[0136] When a user wishes to uncouple the dispenser **1** from its support element **30**, the latter begins by removing the fixing device **70** fixing the fixing base **41** of the support element **30** to the bottom **3** of the dispenser **1**.

[0137] The user only has to take control of the dispenser **1** so that the tenons **44** of the fixing base **41** no longer cooperate with the corresponding first row of grooves **63**.

[0138] When a user wishes to displace the support element **30** of the dispenser **1**, to fix it to another wall **50** in one variation, the latter begins by removing the fixing elements from the orifices **47** arranged on the wall fixing plate **42** of the support element **30** to reinsert them through the same orifices **47** on another wall **50**.

[0139] The advantages conferred by this dispenser **1** and its support element **30** are therefore as follows:

[0140] The dispenser **1** can be fixed to a wall **50** without assembly difficulties and has a harmonious visual appearance as well as an improved layout, in one form in an interlocking manner between the dispenser **1** and its support element **30**.

[0141] In addition, recharging the dispenser **1** with a new soap bag **11** is quick and accessible to all users.

[0142] Unless otherwise expressly indicated herein, all numerical values indicating mechanical/thermal properties, compositional percentages, dimensions and/or tolerances, or other characteristics are to be understood as modified by the word "about" or "approximately" in describing the scope of the present disclosure. This modification is desired for various reasons including industrial practice, material, manufacturing, and assembly tolerances, and testing capability.

[0143] As used herein, the phrase at least one of A, B, and C should be construed to mean a logical (A OR B OR C), using a non-exclusive logical OR, and should not be construed to mean "at least one of A, at least one of B, and at least one of C."

[0144] The description of the disclosure is merely exemplary in nature and, thus, variations that do not depart from the substance of the disclosure are intended to be within the scope of the disclosure. Such variations are not to be regarded as a departure from the spirit and scope of the disclosure.

What is claimed is:

1. An assembly comprising:

a dispenser comprising:

a lower body;

an upper body removably engaging the lower body to define a cavity surrounded by the lower body and the upper body, the upper body comprising a neck; and

a pump removably mounted to the neck and comprising a first pump end and a dip tube, the dip tube comprising a cutting element configured to be introduced inside the upper body through an orifice of the neck,

wherein the cutting element is configured to pierce a bag received in the cavity when the pump is mounted to the neck of the upper body with the dip tube extending through the orifice of the neck.

2. The assembly according to claim **1**, wherein the pump is configured to be screwed onto the upper body, at a level of the orifice arranged on a second end of the upper body, opposite to a first end of the upper body.

3. The assembly according to claim **2**, wherein the neck comprises on its periphery, a neck thread allowing the pump to be screwed onto the neck, the dip tube (**6**) passing through the orifice.

4. The assembly according to claim **1**, wherein the pump comprises a second pump end opposing the first pump end, and a push button at the second pump end.

5. The assembly according to claim **4**, wherein the cutting element is configured to pierce the bag filled with soap so that when a user exerts a pressure force on the push button of the pump, the soap is sucked up to come out through a spout of the push button.

6. The assembly according to claim **1**, wherein that the lower body comprises a bottom from which extends a lower skirt.

7. The assembly according to claim **6**, wherein the neck from which extends an upper skirt of the upper body is adapted to be engaged on the lower skirt of the lower body so that the upper skirt surrounds the lower skirt of the lower body, the lower body and the upper body delimiting the cavity in which the bag of liquid of the assembly can be placed.

8. The assembly according to claim **6**, further comprising a support element comprising a fixing base and a wall fixing plate fixed to the fixing base, the dispenser further comprising a bottom wall arranged on at least part of a periphery of the bottom and extending in projection from the bottom in an opposite direction to the lower skirt, the bottom wall forming an open housing configured to receive the fixing base, the bottom being provided with connection means to said support element, and the bottom wall being arranged so as to surround the fixing base when the fixing base is inserted into the open housing.

9. The assembly according to claim **8**, wherein the open housing is located on an outer surface of the bottom of the dispenser, the fixing base being configured to be introduced into the open housing in a form-fitting manner.

10. The assembly according to claim **8**, wherein the fixing base is arranged transversely with respect to a longitudinal extension axis of the upper body, and the wall fixing plate extending parallel to the longitudinal extension axis of the upper body when the fixing base is introduced into the open housing, the wall fixing plate comprising orifices configured to receive fixing elements.

11. The assembly according to claim **8**, wherein the fixing base and the wall fixing plate of the support element are molded together.

12. The assembly according to claim **8**, wherein a height formed by the fixing base of the support element is configured to correspond to a height formed by the open housing via the lower skirt, so that the fixing base is superimposed with respect to the bottom.

13. The assembly according to claim **8**, wherein the fixing base of the support element comprises a central orifice configured to fix said fixing base of the support element on the bottom of the lower body by fixing means, the bottom of the lower body of the dispenser also comprising a central orifice arranged opposite the central orifice of the fixing base of the support element when the dispenser cooperates with the support element.

14. The assembly according to claim **9**, wherein the outer surface comprises a first row of grooves distributed uniformly over the periphery of the outer surface, the fixing base of the support element comprising tenons configured to fit into corresponding first row of grooves.

15. The assembly according to claim **14**, wherein the outer surface further comprises a second row of grooves uniformly distributed so as to fill a space between each groove

of the first row of grooves, the second row of grooves being arranged closer to a central orifice of the outer surface than the first row of grooves.

16. The assembly according to claim **14**, wherein the fixing base of the support element comprises lumens distributed uniformly between a central orifice of said fixing base and the tenons.

17. The assembly according to claim **1**, wherein the lower body and the upper body have reversible connection means allowing the upper body to be removed from the lower body to replace the bag, the reversible connection means comprising a lower body thread formed in the lower body and a complementary thread formed in the upper body.

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