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(54) **SHOWER WITH ANTI-DRIP SYSTEM**

NICHT TROPFENDER BRAUSEKOPF

DOUCHE AVEC SYSTEME ANTI-GOUTTES

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EP 2 554 271 B1

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Description

[0001] The present invention relates to a shower of a shower group, fitted with an anti-drip system.

[0002] As is known, after using a shower, the inner volume thereof remains mostly full of water which tends to come out, typically at the attachment between the shower and relative hose.

[0003] The dripping of the water, which often continues for quite some time, is notoriously annoying and contributes not little to the user's belief that the shower is poor quality. Some known showers are disclosed in US 2001/010342, WO 01/54822 and WO 98/02250.

[0004] The purpose of the present invention is to make a shower able to overcome the drawbacks of the prior art.

[0005] Such purpose is achieved by a shower according to claim 1.

[0006] The characteristics and advantages of the shower according to the present invention will be evident from the description below made by way of a non limiting example, according to the appended drawings, wherein:

- figure 1 shows a shower according to the present invention, according to one embodiment;
- figure 2 shows a ground view of the shower in figure 1;
- figure 3 shows a side view of the shower in figure 1;
- figure 4 shows a cross-section view of the shower in figure 1, obtained according to the section plane IV-IV in figure 2; and
- figure 5 shows a cross-section view of the shower in figure 1, obtained according to the section plane V-V in figure 3.

[0007] With reference to the appended drawings reference numeral 1 globally denotes a shower of a shower group, connectable to a hose and, for example, attachable to a rod, such as a sliding rod, or attachable to a tap, for example at the edge of the bath.

[0008] The shower 1 comprises a closed casing 2, comprising a head 4, provided with holes for dispensing the water, and a grip 6 for holding the shower and for hand-held use.

[0009] The grip 6 extends mainly along a grip axis X, between an attachment 8 for the connection of the hose and the connection portion to the head 4.

[0010] The head 4 is hollow on the inside and forms a head chamber 20, preferably delimited above by a separable cover 22, and below, by a head wall 24, with which the cover 22 couples so as to be tight, provided with a plurality of holes for dispensing the water.

[0011] Preferably, the shower 1 comprises a membrane 26, preferably in deformable material, provided with a plurality of hollow abutments, each insertable in the respective hole of the head wall 24, to form nozzles 30 projecting outwardly.

[0012] The grip 6 is internally at least partially hollow, presenting a grip chamber 40, delimited by a grip wall 42, which extends along said grip axis X, from the connection with the head 4 as far as the end at it is engaged with the attachment 8.

[0013] The grip chamber 40 is in fluidic communication with the outside environment through an air inlet.

[0014] In particular, preferably, the grip wall 42 is provided with a passage 44 which places the grip chamber 40 in communication with the outside environment.

[0015] Preferably, moreover, the shower 1 comprises a plug 46, engageable with the passage 44 so as to, in any case, maintain the fluidic connection between the grip chamber 40 and the outside environment.

[0016] According to a preferred embodiment, the shower 1 is of the "wide head" type, in that the volume of the head chamber 20 is greater than the volume of the grip chamber 40.

[0017] Moreover, the shower comprises a cannula 60 housed in the grip chamber 6, such as to form an interspace 62 with the grip wall 42 thereof.

[0018] By means of said air inlet, the interspace 62 is in fluidic communication with the outside environment.

[0019] The cannula 60 extends along the grip axis X, from the attachment 8 as far as the head chamber 20 and has a supply duct 64 fluidically connectable with the attachment 8 and with the head chamber 20, delimited by a cannula wall 66.

[0020] The cannula 60 further presents at least one portion permeable to the air to place the supply duct 64 in fluidic communication with the interspace 62 for the passage of the air inside the cannula 60.

[0021] Preferably, at the end of the cannula 60 next to the attachment 8, the cannula 60 has at least one slit 68 (or holes, slots or the like) for the passage of the air.

[0022] Preferably, moreover, the supply duct 64 has, at least partially, a divergent course from the attachment 8 towards the head chamber 20 (visible in Figure 5).

[0023] Moreover, the interspace 62 is sealed separate from the head chamber 20.

[0024] In particular, preferably, the shower 1 comprises a seal 70, positioned between the cannula 60 and the grip wall 42, which forms the fluidic separation between the interspace 62 and the head chamber 20.

[0025] The air inlet, that is to say the passage 44 between the interspace and the outside environment, is upstream of the seal 70 between the interspace 62 and the head chamber 20 in relation to the direction of advancement of the water towards the head chamber 20.

[0026] Preferably, moreover, the shower 1 comprises a further seal 80 which separates the interspace 62 from the outside environment at the point of the attachment 8.

[0027] The shower 1 further comprises non return valve means, housed in said grip, suitable for preventing the return of the water towards the attachment and suitable to permit the transit of water from the grip towards the head chamber 20.

[0028] In particular, said non return valve means are contained in the cannula 60 and are suitable for preventing the return of the water towards the attachment 8

through the supply duct 64 and suitable to permit the transit of water through the supply duct 64 towards the head chamber 20.

[0029] According to a preferred embodiment, said non return valve means comprise an annular abutment 90 of the cannula 60, projecting radially inwards into the supply duct 64 so as to form an obturator seat, and an obturator 100, such as a bead, moving in the supply duct 64 and suitable to position itself in the obturator seat to obstruct the opening.

[0030] According to a preferred embodiment, moreover, the shower 1 comprises an injector 110, housed in the attachment 8, having a water injection duct 112 therein, converging in the direction of advancement of the water, pointed towards the aperture of the cannula 60 and preferably terminating downstream of the slit 68.

[0031] During normal use of the shower, the water reaches the inside of the grip 6 from the attachment 8, enters the cannula 60, moves the obturator 100 from the obturator seat, and goes through the supply duct 64 towards the head chamber 20.

[0032] The flow of water inside the cannula 60 causes a Venturi effect which generates the suction of air through the slit 68, the interspace 62 and the air inlet.

[0033] The air sucked into the cannula 60 mixes with the water and the flow of water and air arrives at the head chamber 20, from which it is dispensed through the nozzles 30.

[0034] At the end of normal use, after hooking the shower to the rod or to the tap, the residual water contained in the head chamber flows into the supply duct and closes the non return valve means (that is the obturator 100 places itself in the obturator seat), thereby interrupting the communication between the supply duct 64 and the attachment 8, preventing the exit of water from the connection with the hose or, after filling of the interspace, from the air inlet.

[0035] In particular, the non return valve means prevent the return of water from the head chamber towards the slit 68 for the air inlet of the cannula.

[0036] Innovatively, the shower according to the invention makes it possible to overcome the drawbacks of the prior art in that it separates the space which the residual water is contained in at the end of the shower from the outside environment and in particular from the attachment with the hose or from the air inlet.

[0037] Advantageously, moreover, the shower is particularly efficient in the case of a wide head shower with air inlet, in that the return of the residual water from the head to the grip would cause the exit of water from the air inlet.

[0038] According to a further advantageous aspect, the suction of air into the cannula and its mixing with the water is particularly effective given the Venturi effect generated by the shape of the cannula.

[0039] It is clear that a person skilled in the art may make modifications to the shower described above so as to satisfy contingent requirements, while remaining within the scope of protection, as defined by the following claims.

Claims

1. Shower (1) comprising:

- a head (4) for dispensing water having a head chamber (20) inside it;
- a grip (6) having a grip chamber (40) inside it, wherein the grip comprises an air inlet (44);
- an attachment (8), at one end of the grip, for the connection of the shower to a water supply hose;
- non return valve (90, 100) contained in the grip (6), suitable to prevent the return of water from the head chamber (20) towards the attachment (8) and suitable to allow the transit of water from the attachment (8) towards the head chamber (20);

said shower being **characterized in that** it comprises

- a cannula (60) housed in the grip (6), forming an interspace (62) with a grip wall (42) of the grip (6);
- wherein the cannula has a supply duct (64) inside it, for the transit of water towards the head chamber (20); and
- wherein the non return valve means are contained in said cannula and are suitable to prevent the return of water from the head chamber (20) towards the attachment (8) through the supply duct (64) and suitable to allow the transit of water from the attachment (8) towards the head chamber (20) through said supply duct.

2. Shower according to claim 1, wherein the non return valve means comprise an annular abutment (90) of the cannula (60), projecting radially inwards into the supply duct (64) so as to form an obturator seat, and an obturator (100) such as a bead, moving in the supply duct (64) and suitable to position itself in the obturator seat to obstruct the opening.

3. Shower according to claim 1 or 2, wherein the head chamber (20) is sealed separate from the interspace (62).

4. Shower according to claim 3, wherein the interspace (62) is sealed separate from the outside environment at the point of the attachment (8).

5. Shower according to claim 3 or 4, wherein the air inlet is upstream of the seal between the head chamber (20) and the interspace (42).

6. Shower according to claim 5, wherein the supply duct (64) is in fluidic communication with the interspace (62) for the passage of air into the cannula.

7. Shower according to claim 6, wherein the cannula has a slit (68) for the passage of air from the interspace (62) to the supply duct.

8. Shower according to any of the previous claims, wherein the supply duct (64) has a divergent course in the direction of advancement of the water towards the head chamber (20).

9. Shower according to any of the previous claims, wherein the volume of the head chamber (20) is greater than the volume of the grip chamber (40).

10. Shower according to any of the previous claims, comprising an injector (110), housed in the attachment (8), having a water injection duct (112) inside it, converging in the direction of advancement of the water, pointed towards the aperture of the cannula (60) and preferably terminating downstream of the slit (68).

Patentansprüche

1. Dusche (1), umfassend:

   - einen Kopf (4) zum Abgeben von Wasser, welcher darin eine Kopfkammer (20) aufweist;
   - einen Griff (6), welcher darin eine Griffkammer (40) aufweist, wobei der Griff einen Lufteinlass (44) umfasst;
   - eine Halterung (8) an einem Ende des Griffs zur Verbindung der Dusche mit einem Wasser-Zufuhrschlauch;
   - ein in dem Griff (6) enthaltenes Rückschlagventil (90, 100), welches geeignet ist, den Rückfluss von Wasser von der Kopfkammer (20) in Richtung der Halterung (8) zu verhindern, und geeignet ist, den Durchfluss von Wasser von der Halterung (8) in Richtung der Kopfkammer (20) zu erlauben;

   wobei die Dusche **dadurch gekennzeichnet ist, dass** sie umfasst:

   - eine in dem Griff (6) aufgenommene Kanüle (60), welche mit einer Griffwand (42) des Griffs (6) einen Zwischenraum (62) bildet;
   - wobei die Kanüle darin eine Zufuhrleitung (64) für den Durchfluss von Wasser in Richtung der Kopfkammer (20) aufweist; und
   - wobei die Rückschlagventil-Mittel in der Kanüle enthalten und geeignet sind, den Rückfluss von Wasser von der Kopfkammer (20) in Richtung der Halterung (8) durch die Zufuhrleitung (64) zu verhindern, und geeignet sind, den Durchfluss von Wasser von der Halterung (8) in Richtung der Kopfkammer (20) durch die Zufuhrleitung zu erlauben.

2. Dusche nach Anspruch 1, wobei die Rückschlagventil-Mittel einen ringförmigen Anschlag (90) der Kanüle (60), welcher radial nach innen in die Zufuhrleitung (64) vorsteht, um so einen Sitz für ein Absperrelement zu bilden, und ein Absperrelement (100), wie beispielsweise eine Kugel, umfasst, welches sich in der Zufuhrleitung (64) bewegt und geeignet ist, sich in dem Sitz für das Absperrelement zu positionieren, um die Öffnung abzusperren.

3. Dusche nach Anspruch 1 oder 2, wobei die Kopfkammer (20) getrennt von dem Zwischenraum (62) abgedichtet ist.

4. Dusche nach Anspruch 3, wobei der Zwischenraum (62) getrennt von der äußeren Umgebung an der Stelle der Halterung (8) abgedichtet ist.

5. Dusche nach Anspruch 3 oder 4, wobei der Lufteinlass stromaufwärts der Dichtung zwischen Kopfkammer (20) und dem Zwischenraum (42) liegt.

6. Dusche nach Anspruch 5, wobei die Zufuhrleitung (64) für den Durchstrom von Luft in die Kanüle in Fluidverbindung mit dem Zwischenraum (62) steht.

7. Dusche nach Anspruch 6, wobei die Kanüle einen Schlitz (68) für den Durchstrom von Luft von dem Zwischenraum (62) zu der Zufuhrleitung aufweist.

8. Dusche nach einem der vorhergehenden Ansprüche, wobei die Zufuhrleitung (64) einen divergenten Verlauf in der Richtung des Vorströmens des Wassers in Richtung der Kopfkammer (20) aufweist.

9. Dusche nach einem der vorhergehenden Ansprüche, wobei das Volumen der Kopfkammer (20) größer als das Volumen der Griffkammer (40) ist.

10. Dusche nach einem der vorhergehenden Ansprüche, umfassend einen in der Halterung (8) aufgenommenen Injektor (110), welcher darin eine Wasser-Injektionsleitung (112) aufweist, welche in der Richtung des Vorströmens des Wassers konvergiert, zu der Öffnung der Kanüle (60) weist und vorzugsweise stromabwärts des Schlitzes (68) endet.

Revendications

1. Pommeau de douche (1) comprenant :

- une tête (4) servant à distribuer de l'eau, contenant une chambre de tête (20) ;
- un manche (6) contenant une chambre de manche (40), dans laquelle le manche comprend une entrée d'air (44) ;
- une attache (8), à une extrémité du manche, pour la connexion du pommeau de douche à un tuyau d'alimentation d'eau ;
- un clapet antiretour (90, 100) contenu dans le manche (6), adapté pour empêcher le retour de l'eau depuis la chambre de tête (20) vers l'attache (8) et adapté pour permettre le transit de l'eau depuis l'attache (8) vers la chambre de tête (20) ;

ledit pommeau de douche étant **caractérisée en ce qu'**elle comprend

- une canule (60) logée dans le manche (6) formant un espace (62) entre une paroi de manche (42) du manche (6) et la canule ;
- dans laquelle la canule contient un conduit d'alimentation (64), pour le transit d'eau vers la chambre de tête (20) ; et
- dans laquelle les moyens de clapet antiretour sont contenus dans ladite canule et sont adaptés pour empêcher le retour de l'eau depuis la chambre de tête (20) vers l'attache (8) par le conduit d'alimentation (64) et adaptés pour permettre le transit de l'eau de l'attache (8) vers la chambre de tête (20) par ledit conduit d'alimentation.

2. Pommeau de douche selon la revendication 1, dans laquelle les moyens de clapet antiretour comprennent une butée annulaire (90) de la canule (60), faisant saillie radialement vers l'intérieur dans le conduit d'alimentation (64) de sorte à former un siège obturateur, et un obturateur (100) tel qu'une perle, se déplaçant dans le conduit d'alimentation (64) et adaptée pour se positionner dans le siège obturateur pour obstruer l'ouverture.

3. Pommeau de douche selon la revendication 1 ou 2, dans laquelle la chambre de tête (20) est séparée de manière étanche de l'espace (62).

4. Pommeau de douche selon la revendication 3, dans laquelle l'espace (62) est séparée de manière étanche de l'environnement extérieur au niveau du point de l'attache (8).

5. Pommeau de douche selon la revendication 3 ou 4, dans laquelle l'entrée d'air est en amont du joint entre la chambre de tête (20) et l'espace (42).

6. Pommeau de douche selon la revendication 5, dans laquelle le conduit d'alimentation (64) est en communication fluidique avec l'espace (62) pour le passage de l'air dans la canule.

7. Pommeau de douche selon la revendication 6, dans laquelle la canule présente une fente (68) pour le passage de l'air depuis l'espace (62) vers le conduit d'alimentation.

8. Pommeau de douche selon l'une quelconque des revendications précédentes, dans laquelle le conduit d'alimentation (64) présente une trajectoire divergente dans la direction d'avancement de l'eau vers la chambre de tête (20).

9. Pommeau de douche selon l'une quelconque des revendications précédentes, dans laquelle le volume de la chambre de tête (20) est supérieur au volume de la chambre de manche (40).

10. Pommeau de douche selon l'une quelconque des revendications précédentes, comprenant un injecteur (110), logé dans l'attache (8), contenant un conduit d'injection d'eau (112), convergeant dans la direction d'avancement de l'eau, dirigé vers l'ouverture de la canule (60) et se terminant de préférence en aval de la fente (68).

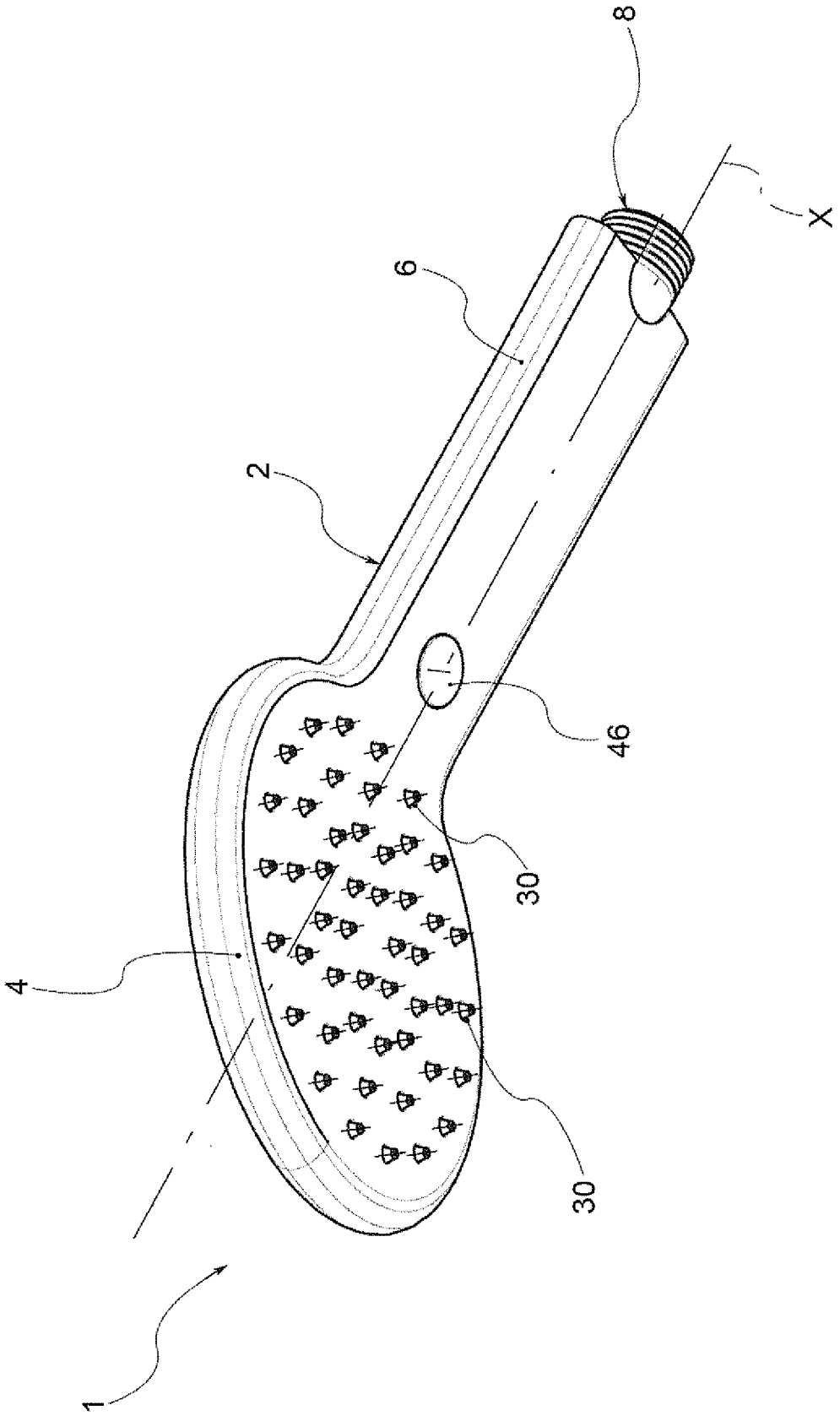


Fig. 1

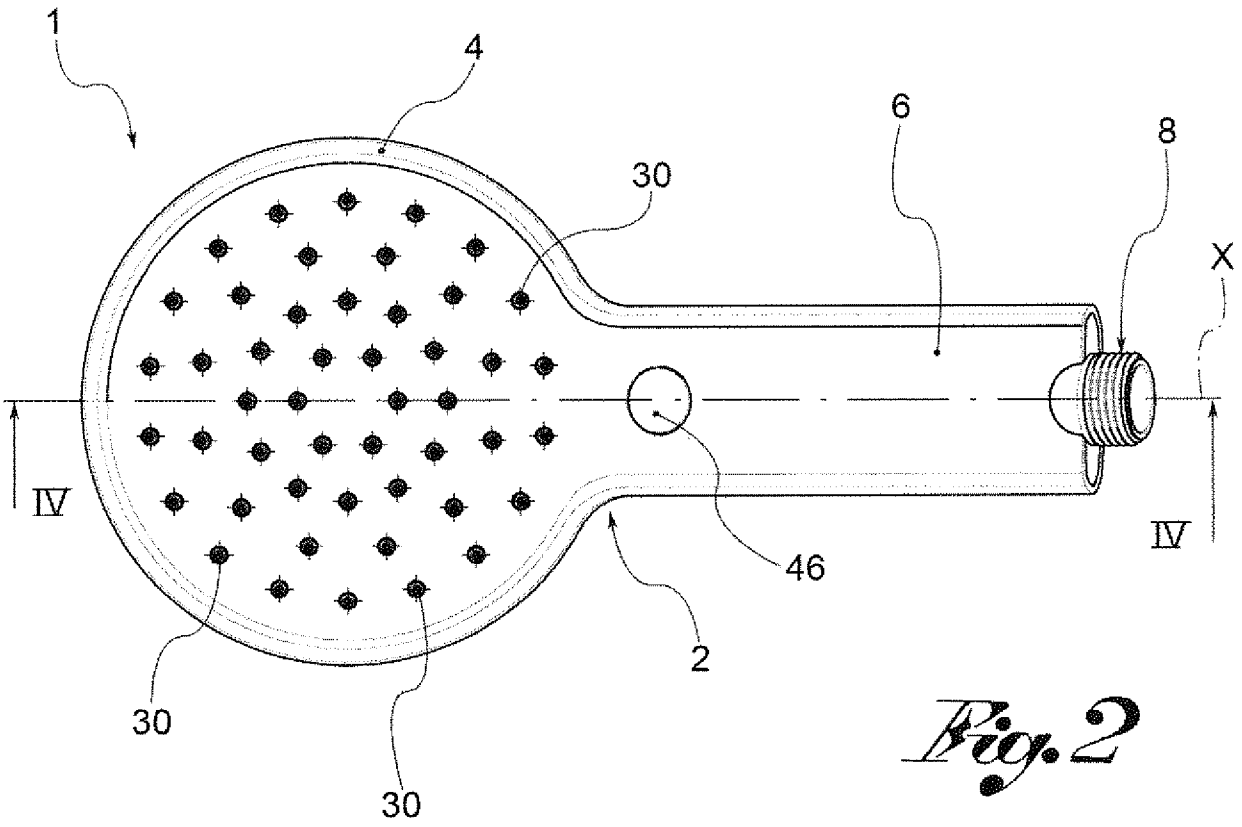


Fig. 2

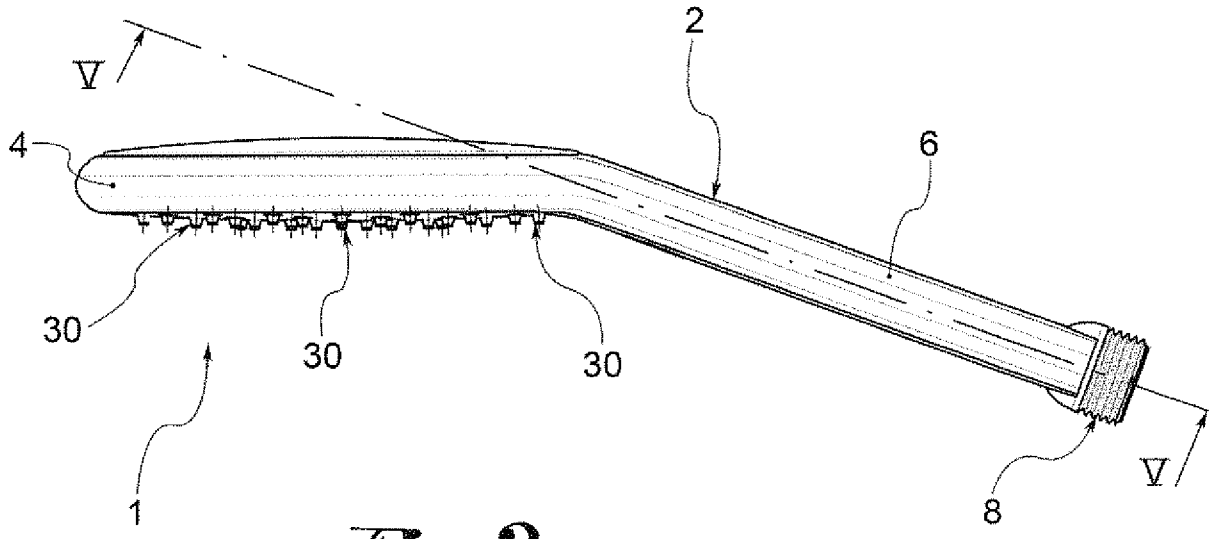


Fig. 3

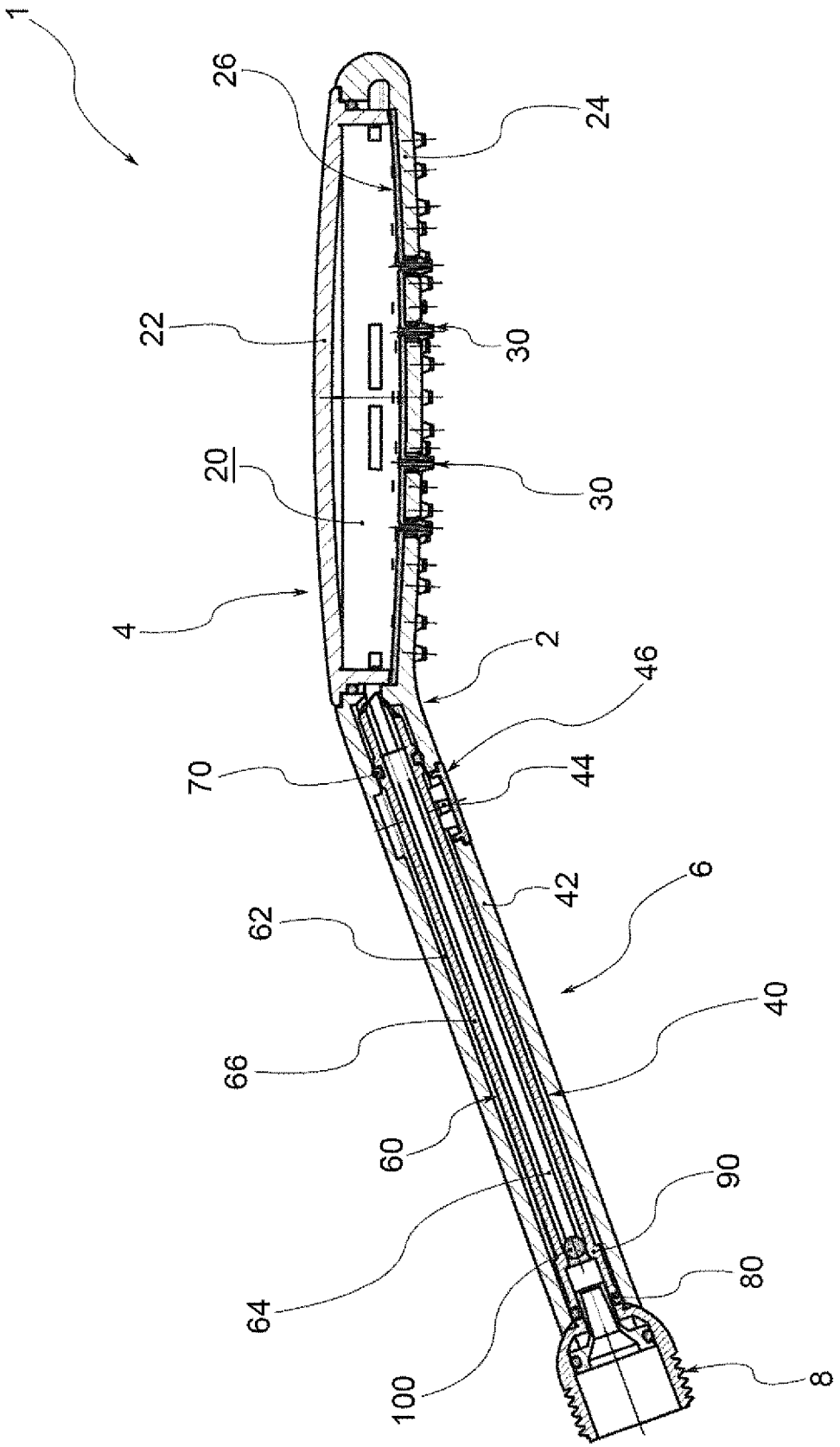


Fig. 4

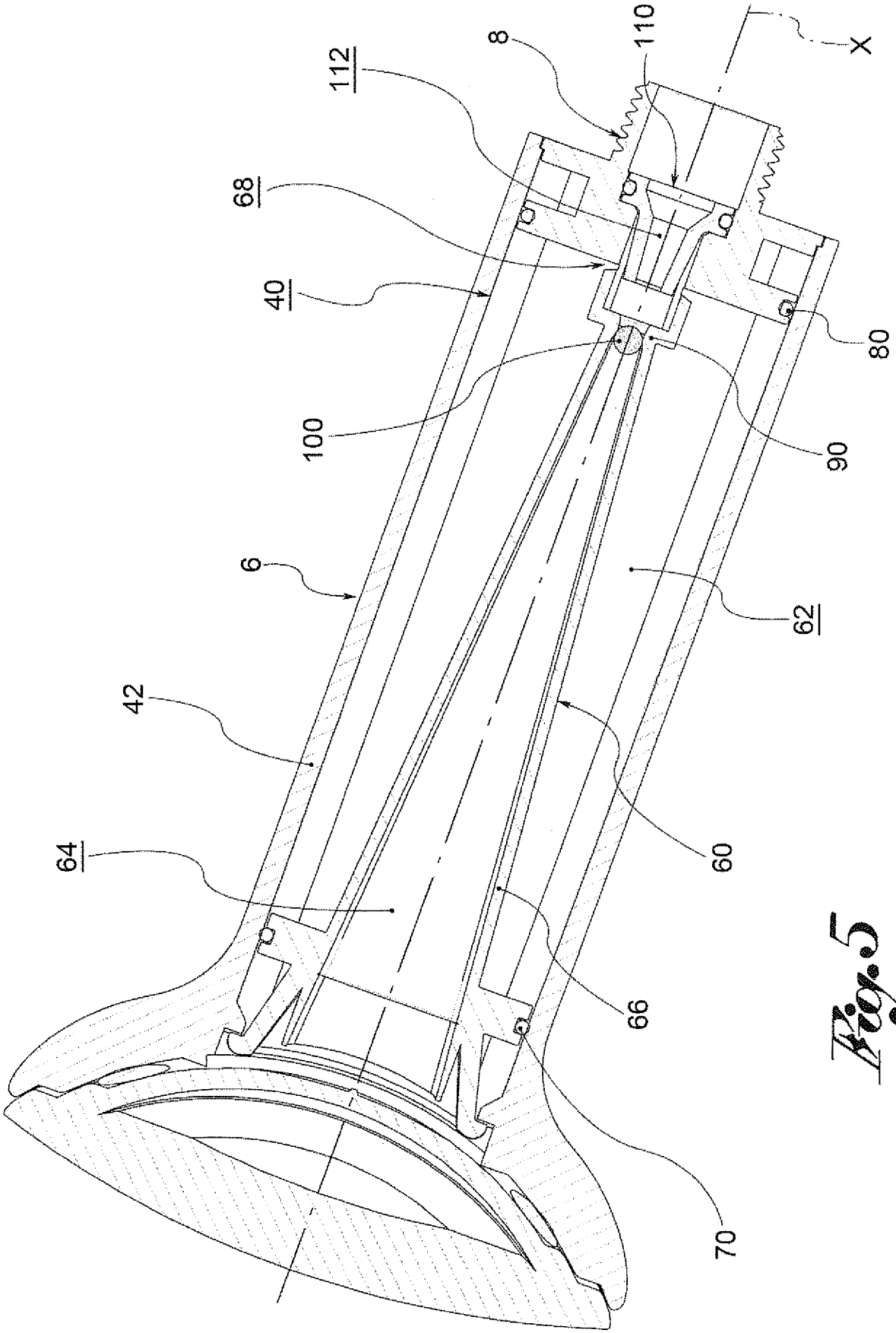


Fig.5

REFERENCES CITED IN THE DESCRIPTION

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