(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 2 853 846 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
01.04.2015 Bulletin 2015/14

(51) Int Cl.:
F25D 3/10 *(2006.01)* ***F25D 31/00*** *(2006.01)*

(21) Application number: **14167556.1**

(22) Date of filing: **08.05.2014**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(30) Priority: **08.05.2013 ES 201330549 U**

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(54) DEVICE FOR COATING CONTAINERS

(57) A device for the production of frost-type or similar coatings on containers is proposed; for this purpose a device is described having a container which in turn comprises at least one compartment intended to at least partially house the container, and a gas diffuser with a gas nozzle. The gas nozzle has an essentially solid body with a central blind bore in its interior and two threads on both sides of a lower section of the body which connect the exterior of the body with the central bore; these perforations, bore and threads, allow the passage of gas. Also the device may have a water diffuser with at least one water nozzle inside which at least two channels are defined, being respectively arranged in an angle relative to an axis starting from the upper part thereof and converging at a point of the lower part.

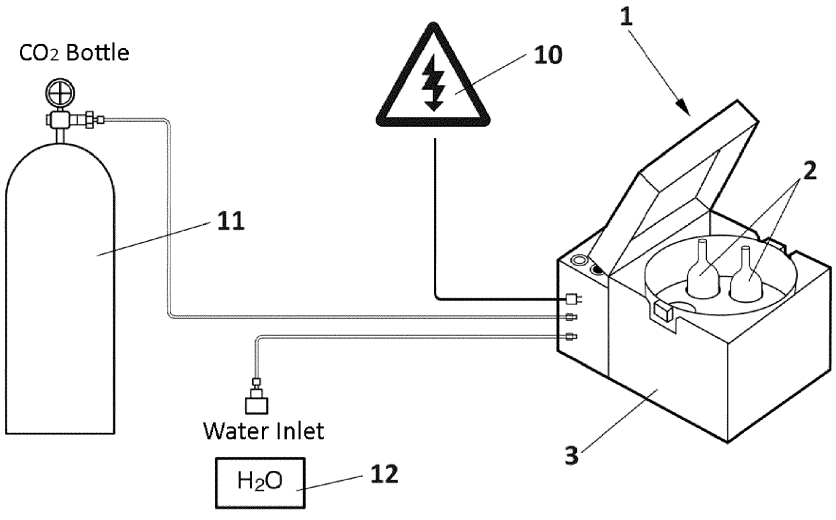

FIG. 1

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Description

OBJECT OF THE INVENTION

[0001] The present invention relates to the field of generating at least partially crystalline textured surfaces.

[0002] The object of the invention is a device that allows the deposition of a layer of ice or frost on the outer / inner surface of a container.

BACKGROUND OF THE INVENTION

[0003] Frosting is known in the presentation and preparation of containers as a technique for the generation of a thin layer of ice or frost on the surface thereof.

[0004] Such operations are commonly used in catering in which containers such as bottles are usually sprayed with water, then placing the bottles in a freezer so that the liquid layer which coats the outer bottle surface, upon coming into contact with a very low temperature, close to or beyond water solidification temperature, change its state whereby the layer of water becomes a thin layer of ice, generally uneven, namely frost.

[0005] This process is carried out manually and said change of state from water to frost takes a long time.

[0006] A solution to this problem appeared in the form of machines and methods that use various types of gases, having cryogenic characteristics and further not affecting humans as they are not harmful; this is an important issue given the destination of the container once the frost layer is applied on the outside.

[0007] Such machines and methods have an obvious disadvantage, due to the indiscriminate and uncontrolled use of the application of gas and water, so that both are wasted and in addition the production time of said layer of frost is increased.

DESCRIPTION OF THE INVENTION

[0008] To solve the above stated problem the device described herein is proposed, allowing for the deposition of a layer of ice or frost on the outer surface, inner surface or both of the container more efficiently.

[0009] For this purpose, the device described herein has a gas diffuser having a given gas nozzle whose configuration allows the generation of a more uniform frost of the containers to be frosted and in less time; also the coating process is carried out with a lower percentage of gas, about 40% less in the case of using CO2 since the nozzle has a series of conduits designed and arranged so as to achieve this more efficient result.

[0010] Likewise the device described herein makes use of a water diffuser having characteristics defined by a specific nozzle for spraying the water more efficiently; for this purpose, said nozzle is used having two joined holes at its end, thereby preventing the nozzle from clogging or from freezing decreasing its spraying capacity.

DESCRIPTION OF THE DRAWINGS

[0011] To complement the description being made and in order to aid a better understanding of the characteristics of the invention according to a preferred practical embodiment thereof, a set of drawings are included as an integral part of said description, which by way of illustration and without limiting the scope of the invention, represent the following:

Figure 1 -. Shows a schematic overall view of the device of the invention.

Figure 2 -. Shows a diagram wherein the arrangement of diffusers and their connections are shown.

Figures 3a, 3b, 3c and 3d -. Show different views of the water nozzle.

Figure 4a -. Shows a section of the lower part of the gas nozzle.

Figure 4b -. Show a section of the gas nozzle.

PREFERRED EMBODIMENT OF THE INVENTION

[0012] In view of the figures, a preferred embodiment of the device (1) which is shown in Figure 1 to produce a coating on a container (2) is described below.

[0013] For this purpose, the device (1) is connected, as detailed in Figure 2, to a supply module (10) as a power supply or is equipped with a battery to enable its operation, and both gas supply means (11) and water supply means (12).

[0014] Subsequently, the container (2) is introduced into a receptacle (3) of the device (1) which in turn comprises at least one compartment (4) intended to at least partially house the container (2), which is subjected to the action of a gas diffuser having at least one gas nozzle (7), a water diffuser with at least one water nozzle (5) and a control unit (6) which monitors the diffusers so that spray control means can be implemented by means of solenoid valves connected to said control unit (6), such that a first solenoid valve (13) connected to the gas diffuser and intended to control the flow of gas into said gas diffuser and / or a second solenoid valve (14) connected to the water diffuser and intended to control the flow of water into said water diffuser and its corresponding nozzles (5,7).

[0015] Upon operation of the gas supply means (11), the gas, preferably CO2, flows to the gas nozzle (7) shown in longitudinal section in Figure 4b. The gas is preferably pressurized; said pressurization can be carried out by the very gas supply means (11). Once the gas reaches the gas nozzle (7), it enters an essentially solid body (71) with a central blind bore within it through which the gas passes until exiting through two threads (72) which are two cuts 0.35mm in width defined forming 45° with respect to a central longitudinal axis of the body (71) on both sides of a lower section of the body (71) and connecting the outside of the body (71) with the centre bore as shown in Figure 4a, in a preferred embodiment

the gas also finds an outlet in the lower part of the body (71), as there is additionally a transverse groove of approximately 0.4mm which connects the outside of the body (71) with the central blind bore inside the body (71) allowing the exit of gas passing through the blind bore to the exterior. Thus it follows that the gas exits through the sides of the body (71) of the gas nozzle (7) and through the lower part thereof.

[0016] The gas supply is coordinated with a water supply being delivered from the water supply means (12); by acting on said water supply means (12), water at a given pressure preferably controlled via said water supply means (12) reaches the water diffuser and the water nozzle (5) where, in view of figures 3a, 3b, 3c and 3d , it is noted that the water enters a block (50) inside which at least two channels (51)are defined, being respectively arranged at an angle relative to a central longitudinal axis of the block (50) starting from an upper part thereof and converging at a point of the lower part of the block (50), channels through which water flows until exiting the block (50) of the water nozzle (5). This is the simplest embodiment thereof, however in a preferred embodiment of the invention wherein it is possible to optimize the coating generation operation described above, the water nozzle (5) has at least one hole (52) defined at the top of the block (50) connecting at least one channel (51) with the exterior of the block (50) such that water goes into said hole (52) before reaching the channels (51); channels (51) that meet at an inner point of the lower part of the body (50), a point from which in a possible embodiment of the invention an orifice (53) originates that reaches the exterior of the body (50), while in an alternative embodiment the channels (51) meet at a point of the body (50) connecting the exterior of the body (50) allowing a channel (51) outlet at their intersection.

[0017] Water may exit from the channel intersection to the exterior as in a possible preferred embodiment, both channels (51) intersect in an overlapping manner such that the intersection of the two channels (51) have a section in common with that of one of channels (51), i.e. two water flows coming respectively from each of the channels (51) converge at an outlet point whose dimensions are equal to those of one of said channels (51); another possibility is that the outlet point has other dimensions.

Claims

1. Device (1) for the production of container (2) coatings, device (1) comprising:

   • a receptacle (3) which in turn comprises at least one compartment (4) intended to at least partially house the container (2).

   characterized in that it comprises:

   • a gas diffuser having at least one gas nozzle (7), the gas nozzle (7) comprising an essentially solid body (71) with a central blind bore in its interior, body (71) in which two threads (72) are defined on both sides of a lower section of the body (71) connecting the exterior of the body (71) with the central bore.

2. Device according to claim 1 **characterized in that** the threads (72) are defined at 45 ° relative to a central longitudinal axis of the body (71)

3. Device according to claim 1 **characterized in that** the lower part of the body (71) further comprises a transverse groove connecting the exterior of the body (71) with a central blind bore inside the body (71).

4. Device according to claim 1 **characterized in that** the threads (72) are 0.35mm in width.

5. Device according to claim 3 **characterized in that** the transverse groove is 0.4mm in width.

6. Device (1) according to claim 1 or 3 **characterized in that** it comprises a water diffuser with at least one water nozzle (5).

7. Device (1) according to claim 6 **characterized in that** the water nozzle (5) comprises a block (50) inside which at least two channels (51) are defined, being respectively arranged at an angle relative to a central longitudinal axis of the block (50) starting from an upper part thereof and converging at a point of the lower part of the block (50).

8. Device according to claim 7 **characterized in that** the water nozzle (5) further comprises at least one hole (52) defined at the top of the block (50) and connecting at least one channel (51) with the exterior of the block (50).

9. Device according to claim 7 or 8 **characterized in that** the channels (51) meet at an interior point of the lower part of the body (50), point from where an orifice (53) originates that reaches the exterior of the body (50).

10. Device according to claim 7 or 8 **characterized in that** the channels (51) meet at a point of the body (50) connecting with the exterior of the body (50) allowing channel (51) outlet at their intersection.

11. Device according to one of claims 6 to 10 **characterized in that** the channels (51) intersect in an overlapping manner creating an intersection having a section in common with that of one of the channels (51).

12. Device (1) according to claim 1 or 6 **characterized in that** it comprises a monitoring unit (6) to at least control the diffuser.

13. Device (1) according to claim 1 or 6 **characterized in that** it comprises a supply module (10).

14. Device (1) according to claim 1 **characterized in that** it comprises gas supply means (11).

15. Device (1) according to claim 6 **characterized in that** it comprises water supply means (12).

16. Device (1) according to claim 1 **characterized in that** it comprises at least a first solenoid valve (13) connected to the gas diffuser and intended to control the flow of gas into said gas diffuser (7).

17. Device (1) according to claim 6 **characterized in that** it comprises at least a second solenoid valve (14) connected to the water diffuser and intended to control the flow of water into said water diffuser (5).

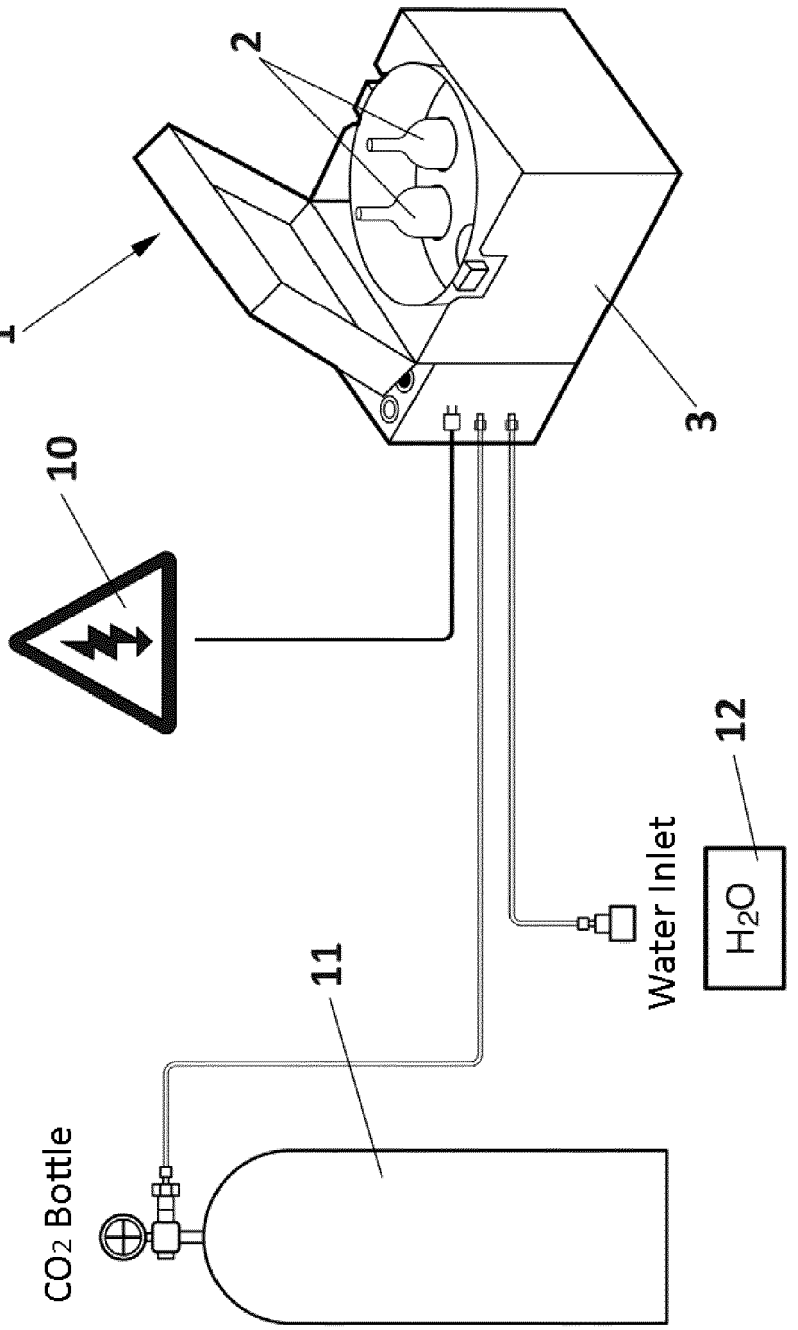

FIG. 1

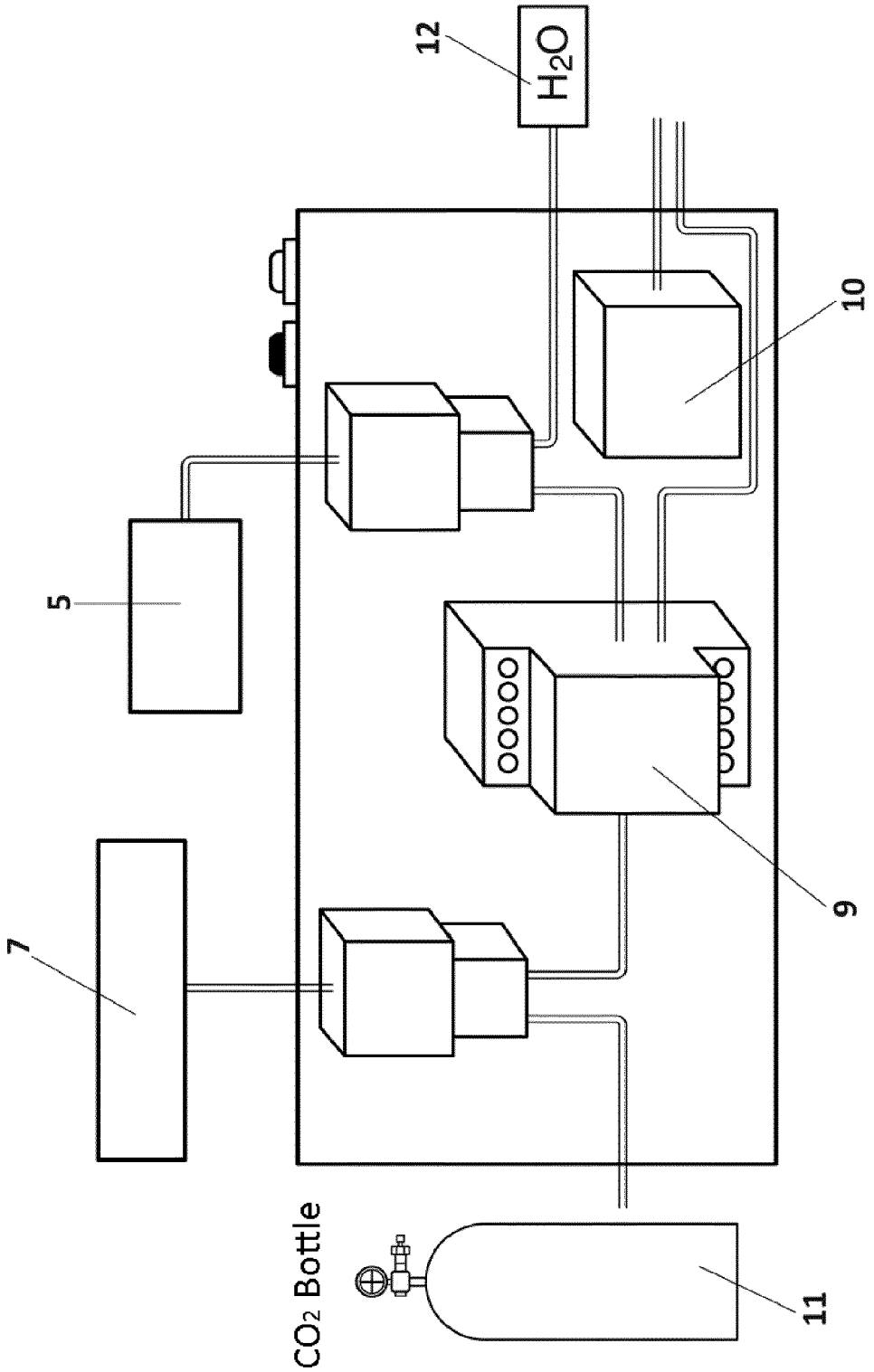

FIG. 2

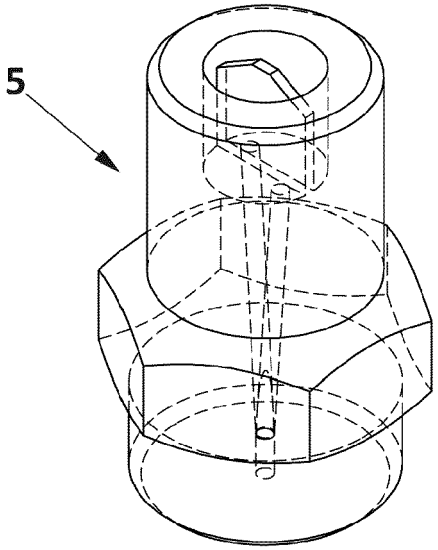

FIG. 3a

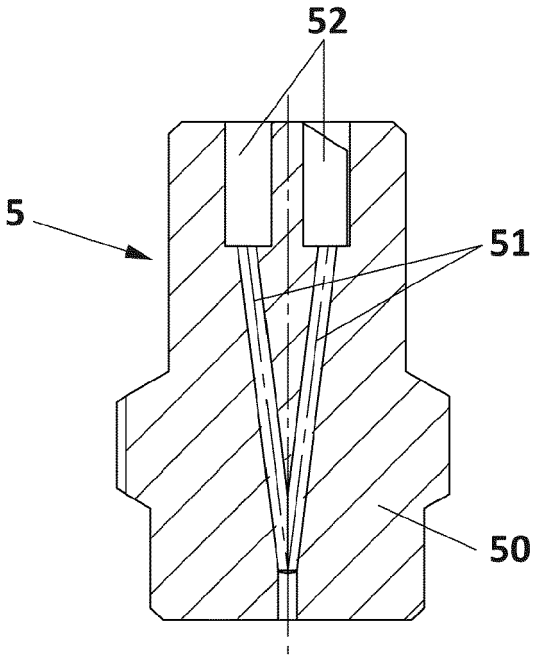

FIG. 3b

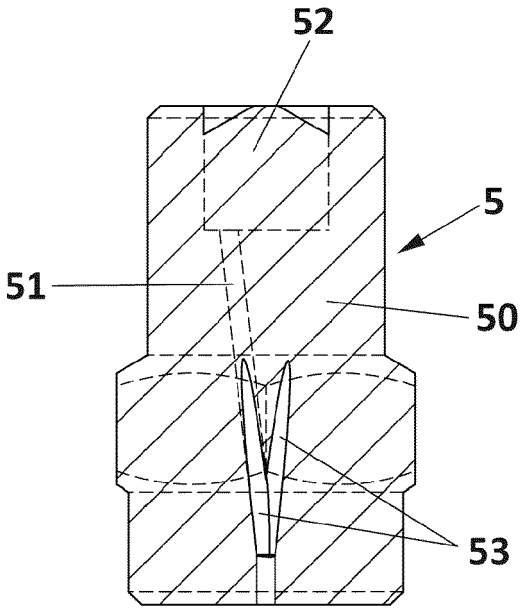

FIG. 3c

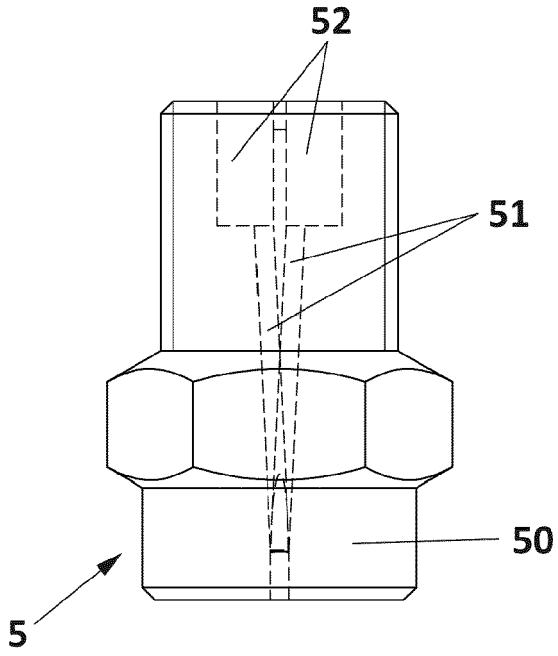

FIG. 3d

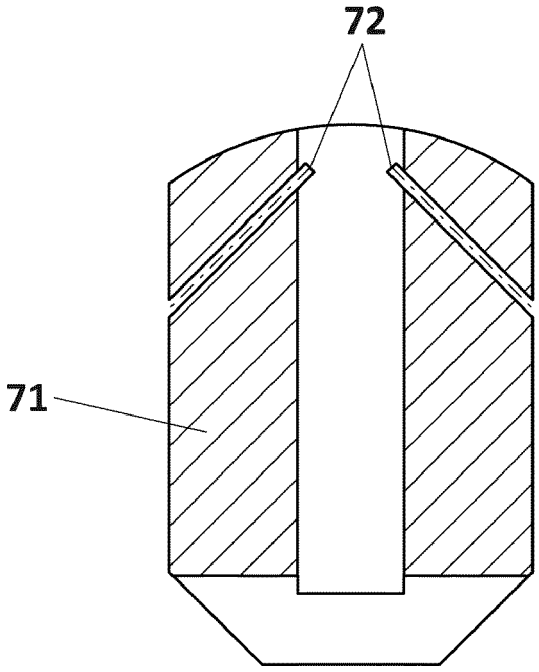

FIG. 4a

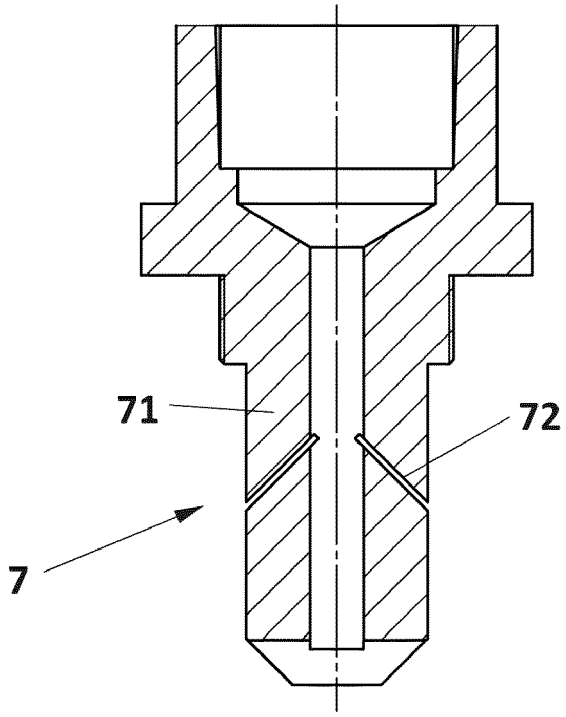

FIG. 4b