

Description

The present invention relates to a moveable valve assembly for liquid atomizers which mainly comprises a piston assembly and a moveable valve body including an upper solid rod and a lower hollow sleeve. The upper solid rod consists of three rod portions each having a different diameter from the other such that the intersection between any two of three rod portions may be respectively formed into a tapered shoulder, a recess or a socket with a flattened shoulder to serve as pressure concentrating points whereby the pressure generated by the pressurized liquid can be efficiently applied to those pressure concentrating points in order to overcome the compression force provided by a spring located under the moveable valve body and in turn to enable a valve head to disengage from a corresponding exhaust hole. The lower hollow sleeve is provided at the lower end of its vertical side with an outward projection and with an inclined extension below the projection end with an inclined extension below the projection such that the pressure generated by the pressurized liquid can be applied to the upper side of the projection to force the moveable valve body downward while the pressure applied to the inclined extension makes an inner arcuate flange of the inclined extension closely contact a valve hole so as to achieve a fluidtight effect, and in turn to expedite the formation of pressurized liquid in a compressed chamber.

In addition, the lower hollow sleeve may be provided with a thick solid portion wherein the top side of the thick solid portion is formed with a plurality of tooth-shaped annular portions to enforce the pressurizing effect applied thereto whereby the atomization of the liquid can be rapidly completed.

The present invention relates to a manual type miniature atomizer, and more particularly for an improved moveable valve assembly for liquid atomizers in which the moveable valve body can be promptly actuated to proceed with a reciprocating motion in response to a user's slight depressive operation.

Due to their complicated structures, conventional atomizers, especially those for being mounted to perfume bottles, require a user to apply significant force to the atomizer head thereof in order to press it downward. However, this will make user feel uncomfortable. Besides, owing to the complexity of the constituted components, not only the internal liquid pressure can not be efficiently produced, but also the resulting liquid pressure fails to be specifically applied to certain pressure concentrating points. Under such circumstances, the moveable valve body can not be promptly forced downward in response to a slight

depression of the atomizer head so that the related valve head can not simultaneously disengage from the corresponding valve hole to allow the liquid (such as perfume) contained in the bottle to be sprayed out through said valve hole.

Although US-A-4,369,900 and US-A-4,462,549 have disclosed certain valves possessing outward projecting shoulders. However, none of such projecting shoulders are designed to serve as pressure (generated by the pressurized liquid) concentrating points, rather said projecting shoulders are to provide an improved fluidtight effect for a pressurized chamber during the compressing operation.

Moreover, as shown in FIG. 1, it illustrates an atomizer manufactured by Coster Tecnologie Speciali S.P.A. wherein the shoulder of the moveable valve is designed to be inclined. However, such an arrangement fails to make the pressurized liquid contained in a compressed chamber effectively applied to the inclined shoulders. In other words, the moveable valve cannot efficiently overcome the opposite compression force created by a spring to make a valve head disengage from a corresponding exhaust hole.

US-A-4821928 relates to a moveable valve assembly for liquid atomizers comprising: a piston body; a moveable valve body consisting of an upper solid rod and a lower hollow sleeve being received in said piston body; and a spring disposed below said moveable valve body to compress said moveable valve body upward such that a triangular valve head of said moveable valve body can securely close an exhaust hole of said piston body.

Therefore, in operation, a user needs to apply a quite strong force to have the moveable valve moved downward and then to allow the pressurized liquid to be sprayed out of the atomizer.

Under such circumstances, the users will be most unlikely to appreciate such a product and may negate the quality thereof accordingly.

In view of the above, it is clear that the techniques above how to modify the shape of a moveable valve have not yet been disclosed in the related prior references.

The present invention relates to a moveable valve assembly for liquid atomizers comprising: a piston body; a moveable valve body consisting of an upper solid rod and a lower hollow sleeve being received in said piston body; and a spring disposed below said moveable valve body to compress said moveable valve body upward such that a triangular valve head of said moveable valve body can securely close an exhaust hole of said piston body, characterized in that the valve assembly comprises at least four pressure concentrating points and said upper solid rod comprises a plural-

ity of rod portions each having a different diameter from the other, at least two intersections between any two of said rod portions being respectively formed into a tapered shoulder, a recess or a socket with a flattened shoulder so as to form a pressure concentrating point to facilitate the pressure generated by the pressurized liquid being concentrated thereon.

The lower hollow sleeve is provided at the lower end of its vertical side with an outward projection such that the pressure generated by the pressurized liquid can be applied to the upper side of the projection to force the moveable valve body downward while the pressure applied to the inclined extension makes an inner arcuate flange of the inclined extension closely contact a valve hole so as to achieve a fluidtight effect, and in turn so expedite the formation of pressured liquid in a compressed chamber.

In addition the upper periphery of the sleeve may be provided with a thick solid portion, the top side of which is formed with a plurality of tooth-shaped annular portions whereby upon operation the thick solid portion can apply a larger compression force to the liquid contained in a compressed chamber and then the pressurized liquid will effectively force the moveable valve to move downward with the aid of the tooth-shaped annular portions as well as a corresponding inverted v-shaped groove and corresponding trumpet-shaped inner annular portion respectively formed in the lower side of the piston body such that a triangular valve body may simultaneously disengage from a corresponding exhaust hole to allow the pressurized liquid to be sprayed out of the atomizer through a hollow tubular portion.

It is an object of the present invention to provide an improved moveable valve assembly for liquid atomizers which makes the user feel comfortable upon depressing the atomizer head.

It is a further object of the present invention to provide an improved valve assembly for components and inexpensive constitution.

These and other features, objects and advantages of the present invention will become apparent upon reading the following description thereof with reference to the accompanying drawings which :

FIG. 1 is a longitudinal sectional view showing a prior art atomizer ;

FIG. 2 is a perspective view of the present invention ;

FIG. 3 is a longitudinal sectional view illustrating a first embodiment of the present invention ;

FIG. 4 is a local enlarged sectional view showing the relative positions of various components of a first embodiment of the present invention before the atomizer head is pressed ;

FIG. 5 is a local enlarged sectional view showing the relative positions of various components of a first embodiment of the present invention after the atomizer body is pressed ;

FIG. 6 is a longitudinal sectional view showing the relative positions of various components of a second embodiment of the present invention before the atomizer head is pressed ;

FIG. 7 is a longitudinal sections view showing the relative positions of various components of a second embodiment of the present invention after the atomizer head is pressed ; and

FIG. 8 is a local sectional view showing a second embodiment of the present invention .

Referring to FIGS. 2, 3 and 4, the moveable valve assembly for liquid atomizers of the first preferred embodiment of the present invention mainly comprises a piston body (B) and an moveable valve body (A) consisting of an upper solid rod (A1) and a lower cylindrical sleeve (A2). The upper solid rod (A1) is received into a piston body (B) in such a manner that a triangular exhaust valve head (A101) at the top of said rod (A1) closely contact an exhaust hole located at the bottom of a hollow tubular portion (B1) of the piston body (B) to restrict the liquid to flow into the lower space of the tubular portion (B1). In operation, upon pressing an atomized head downward, the piston body (B) together with the moveable valve body (A) are driven downward.

In this way, when an inner arcuate flange (A201) formed at the lower sleeve (A2) of the moveable valve body (A) contacts a corresponding valve hole, the liquid contained in the moveable valve body (A) will be enclosed therein in a fluidtight manner. At this instant, the moveable valve body (A) is continuously pressed downward thereby the liquid contained therein is compressed and the pressure generated by the pressurized liquid shall be applied to the moveable valve body (A). As soon as the liquid pressure overcomes the compression force provided by a spring (E) disposed in the sleeve (A2) the moveable valve body (A) will be simultaneously forced downward to disengage the valve head (A101) from the exhaust hole (B101) so that the pressurized liquid can be sprayed out from the piston body (B) through the hollow tubular portion (B1).

In view of the above, it is understood that the most important thing is to make the inner arcuate flange (A201) at the lower sleeve (A2) of the moveable valve body (A) smoothly contact the corresponding valve hole and to securely terminate the communication between the inside and the outside of the compressed chamber (C). This may facilitate the formation of the pressurized liquid contained the compressed chamber (C). In addition, the measure regarding how to make the pres-

sure generated by the pressurized liquid be concentrated to the moveable valve body (A) in turn to simultaneously open the exhaust hole (B101) is another important factor to be taken into consideration.

To achieve the aforesaid purposes, the upper solid rod (A1) of the moveable valve body (A) is designed in such a manner that said rod (A1) mainly consists of a first rod portion (A11), a second rod portion (A12) and a third rod portion (A13) is formed into a triangular valve head (A101) while the intersection between the first rod portion (A11) and the second rod portion (A12) is formed with a tapered shoulder (A102) acting as a first pressure concentrating point. The intersection between the second rod portion (A12) and the third rod portion (A13) also has a tapered shoulder (A103) and a projection shoulder (A104).

An inverted triangular recess (A105) is formed between said tapered shoulder (A103) and projection shoulder (A104) in order to both receive more liquid therein and serve as a second pressure concentrating point. The tapered shoulder (A103) can further direct the vertical force component of the force provided by the pressurized liquid to the recess (A105). The lower end of the third rod portion (A13) possesses a tapered shoulder (A106) similar to the tapered shoulder (A103) of the second rod portion (A12), and further forms with the upper end of a sleeve (A2) a flattened shoulder (A202) as well as a flange (A203) to serve as a third pressure concentrating point. The tapered shoulder (A106) of the third rod portion (A13), in addition to having the ability of directing the force as the aforesaid tapered shoulder (A103) does, is designed to cooperate with the upper end of the sleeve (A2) so as to provide a thicker portion (A204) which shall not be inwardly deformed when the sleeve (A2) of the moveable valve body (A) is compressed under high pressure. The lower end of the vertical side (A205) of the sleeve (A2) is provided with an outward projection (A206). The upper side of said projection (A206) is used to concentrate the pressure applied thereto and serve as a fourth pressure concentrating point. The lower side of said projection (A206) has an inwardly inclined extension (A207) which is provided at its interior with an inner arcuate flange (A201). In operation, the pressurized liquid will be concentrated on the upper side of the projection (A206) to force it downward. The inclined extension (A207) below said projection (A206) is inwardly compressed under the horizontal force applied to the inclined surface thereof. Due to such an inward compression action, the extension (A207) can closely contact a corresponding valve hole to prevent the liquid from leaking into the compressed chamber during the compression stroke.

Referring to FIG. 6, it shows a longitudinal sectional view of the second preferred embodiment of the present invention wherein a thick solid portion (A3) is formed on the upper periphery of the sleeve (A2). The thick solid portion (A3) is formed by extending outward from the vertical side (A21) of the sleeve (A2) a solid portion with a larger diameter in comparison with the diameter of the sleeve (A2). The lower side of the thick solid portion (A3) is formed into an inclined portion (A31) and the upper side thereof is provided with a plurality of concentric tooth-shaped annular portions, for example, a first annular portion (A34), a second annular portions (A33) and a third annular portion (A32) as shown in FIG. 6, to guide the liquid applied thereto. The piston body (B) is provided at its lower side with an inverted V-shaped groove (B2) and a trumpet-shaped inner annular portion (B3) respectively corresponding to the aforesaid annular portions of the thick solid portion (A3).

As shown in FIG. 7, as the piston body (B) is pressed downward, the moveable valve (A) will be driven to move downward accordingly.

In this way, when an outward extension (A22) of the sleeve (A2) closely contacts a cylinder (D) the space above the cylinder (D) will be formed into a closed compressed chamber (C). The liquid contained in the compressed chamber (C) will become more pressurized as the piston body (B) is further pressed downward.

The pressurizing effect will become more significant with the provision of the thick solid portion (A3). In this instant, the pressurized liquid below the thick solid portion (A3) will be forced to flow upward through the space formed between the thick solid portion (A3) and the wall (C1) of the compressed chamber (C). Referring to FIG. 4 the upward pressurized liquid will first contact the inverted V-shaped groove (B2) of the piston body (B) and be directed to the first annular portion (A34) of the thick solid portion (A3) to force the moveable valve (A) downward. Similarly, the pressurized liquid coming from the first annular portion (A34) will be directed to the inner annular groove (B3) of the piston body (B) and then be directed to the third annular portion (A32) of the thick solid portion (A3) to further force the moveable valve (A) downward. Finally the pressurized liquid will be directed upward through the space formed between the third rod portion (A13) and the inner wall of the piston body (B). Since the above mentioned various actions are completed simultaneously the pressure applied to the moveable valve (A) is both concentrative and effective such that the moveable valve (A) can easily overcome the opposite compression force generated by the spring (E) and then move downward.

The moveable valve (A) will continue to move downward to make the triangular valve head disengage from the exhaust hole (B101) so that the pressurized liquid can be sprayed out of the atomizer through the hollow tubular portion (B1). The special arrangement of the tooth-shaped annular portions also will prevent the liquid from easily sliding downward along the inclined portion so as to expedite the formation of the pressure concentration effect.

In view of the construction as described above, the present invention provides at least four pressure concentrating points respectively located at four different positions such that the pressure provided by the pressurized liquid can be efficiently applied to said four pressure concentrating points whereby the moveable valve (A) in turn is driven downward to disengage the valve head (A101) from the exhaust hole (B101) whereby the pressurized liquid can be sprayed out from the atomizer through the hollow tubular portion (B1) of the piston body (B). In addition, since the thick solid portion (A3) of the sleeve (A2) possesses a larger volume, the capability of pressurizing the liquid contained in the compressed chamber will be significantly increased. Furthermore, the improved structure achieved by the provision of the tooth-shaped annular portions (A32), (A33) and (A34), as well as the inverted V-shaped groove (B2) and the trumpet-shaped inner annular portion (B3) will facilitate the application of the pressurized liquid to the moveable valve (A) on a simultaneous and continuous manner so as to force the moveable valve (A) to overcome the opposite force generated by the spring (E) and then to disengage the valve head from the exhaust hole (B101). Accordingly it is believed that the present invention can effectively eliminate the drawbacks existing in the prior art and thus successfully provide an improved atomizer.

Claims

1. A moveable valve assembly for liquid atomizers comprising: a piston body (B); a moveable valve body (A) consisting of an upper solid rod (A1) and a lower hollow sleeve (A2) being received in said piston body (B); and a spring (E) disposed below said moveable valve body (A) to compress said moveable valve body (A) upward such that a triangular valve head (A101) of said moveable valve body (A) can securely close an exhaust hole (B101) of said piston body (A), characterised in that the valve assembly comprises at least four pressure concentrating points and said upper solid rod (A1) comprises a plurality of rod portions (A11, A12, A13) each having a different diameter

from the other, at least two intersections between any two of said rod portions being respectively formed into a tapered shoulder, a recess or a socket with a flattened shoulder so as to form a pressure concentrating point to facilitate the pressure generated by the pressurized liquid being concentrated thereon.

2. A moveable valve assembly for liquid atomizers as claimed in Claim 1, wherein said lower hollow sleeve (A2) of said moveable valve body (A) is provided at the lower end of its vertical side (A205) with an outward projection (A206) such that the downward force generated by the pressurized liquid can be applied to the upper side of said projection (A206), and where the lower side of said projection (A206) is formed with an inwardly inclined extension (A207) which is furnished at its interior with an inner arcuate flange (A201) so that said inner flange is arranged to closely contact a corresponding valve hole in order to terminate the communication between the inside and the outside of a compressed chamber (C) during the reciprocating motion of said moveable valve body (A).

3. A moveable valve assembly for liquid atomizers as claimed in Claim 1, wherein said lower hollow sleeve (A2) is provided with a thick solid portion (A3) with a larger diameter in comparison with the diameter of said lower hollow sleeve (A2) and said thick solid portion (A3) is provided at its lower side with an inclined portion (A31) and at its upper side with a plurality of concentric annular portions (A32, A33, A34) to guide the liquid applied thereto and wherein said piston body (B) is furnished at its lower side with an inverted V-shaped groove (B) and a trumpet-shaped inner annular portion (B3) respectively corresponding to said annular portions (A32, A33, A34) of said thick solid portion (A3).

4. A moveable valve assembly for liquid atomizers as claimed in any one of Claims 1 to 3, which assembly comprises a piston body (B) having an exhaust hole (B101), a moveable valve body (A) receivable in the piston body (B), comprising an upper rod (A3) having a valve head (A101) engageable with the exhaust hole (B101) and a lower hollow sleeve (A2), and urging means (E) for urging the valve body (A) toward the piston body (B) so that the valve head (A101) engages with the exhaust hole (B101).



The moveable valve (A) will continue to move downward to make the triangular valve head disengage from the exhaust hole (B101) so that the pressurized liquid can be sprayed out of the atomizer through the hollow tubular portion (B1). The special arrangement of the tooth-shaped annular portions also will prevent the liquid from easily sliding downward along the inclined portion so as to expedite the formation of the pressure concentration effect.

In view of the construction as described above, the present invention provides at least four pressure concentrating points respectively located at four different positions such that the pressure provided by the pressurized liquid can be efficiently applied to said four pressure concentrating points whereby the moveable valve (A) in turn is driven downward to disengage the valve head (A101) from the exhaust hole (B101) whereby the pressurized liquid can be sprayed out from the atomizer through the hollow tubular portion (B1) of the piston body (B). In addition, since the thick solid portion (A3) of the sleeve (A2) possesses a larger volume, the capability of pressurizing the liquid contained in the compressed chamber will be significantly increased. Furthermore, the improved structure achieved by the provision of the tooth-shaped annular portions (A32), (A33) and (A34), as well as the inverted V-shaped groove (B2) and the trumpet-shaped inner annular portion (B3) will facilitate the application of the pressurized liquid to the moveable valve (A) on a simultaneous and continuous manner so as to force the moveable valve (A) to overcome the opposite force generated by the spring (E) and then to disengage the valve head from the exhaust hole (B101). Accordingly it is believed that the present invention can effectively eliminate the drawbacks existing in the prior art and thus successfully provide an improved atomizer.

Claims

1. A moveable valve assembly for liquid atomizers comprising: a piston body (B); a moveable valve body (A) consisting of an upper solid rod (A1) and a lower hollow sleeve (A2) being received in said piston body (B); and a spring (E) disposed below said moveable valve body (A) to compress said moveable valve body (A) upward such that a triangular valve head (A101) of said moveable valve body (A) can securely close an exhaust hole (B101) of said piston body (A), characterised in that the valve assembly comprises at least four pressure concentrating points and said upper solid rod (A1) comprises a plurality of rod portions (A11, A12, A13) each having a different diameter from the other, at least two intersections between any two of said rod portions being respectively formed into a tapered shoulder, a recess or a socket with a flattened shoulder so as to form a pressure concentrating point to facilitate the pressure generated by the pressurized liquid being concentrated thereon.
2. A moveable valve assembly for liquid atomizers as claimed in Claim 1, wherein said lower hollow sleeve (A2) of said moveable valve body (A) is provided at the lower end of its vertical side (A205) with an outward projection (A206) such that the downward force generated by the pressurized liquid can be applied to the upper side of said projection (A206), and where the lower side of said projection (A206) is formed with an inwardly inclined extension (A207) which is furnished at its interior with an inner arcuate flange (A201) so that said inner flange is arranged to closely contact a corresponding valve hole in order to terminate the communication between the inside and the outside of a compressed chamber (C) during the reciprocating motion of said moveable valve body (A).
3. A moveable valve assembly for liquid atomizers as claimed in Claim 1, wherein said lower hollow sleeve (A2) is provided with a thick solid portion (A3) with a larger diameter in comparison with the diameter of said lower hollow sleeve (A2) and said thick solid portion (A3) is provided at its lower side with an inclined portion (A31) and at its upper side with a plurality of concentric annular portions (A32, A33, A34) to guide the liquid applied thereto and wherein said piston body (B) is furnished at its lower side with an inverted V-shaped groove (B) and a trumpet-shaped inner annular portion (B3) respectively corresponding to said annular portions (A32, A33, A34) of said thick solid portion (A3).
4. A moveable valve assembly for liquid atomizers as claimed in any one of Claims 1 to 3, which assembly comprises a piston body (B) having an exhaust hole (B101), a moveable valve body (A) receivable in the piston body (B), comprising an upper rod (A3) having a valve head (A101) engageable with the exhaust hole (B101) and a lower hollow sleeve (A2), and urging means (E) for urging the valve body (A) toward the piston body (B) so that the valve head (A101) engages with the exhaust hole (B101).



5. A moveable valve assembly for liquid atomizers as claimed in Claim 4, wherein the lower hollow sleeve (A2) comprises a wider portion (A3), having a greater external dimension than the remainder of the lower hollow sleeve, the wider portion (A3) having an inclined lower face (A31), the upper face of the wider portion (A3) comprising at least one annular projection or recess (A33) engageable with a corresponding annular recess or projection (B2) located on a lower face of the piston body (B).

Patentansprüche

1. Eine bewegliche Ventilanordnung für Flüssigkeitszerstäuber, welche umfaßt: einen Kolbenkörper (B); einen beweglichen Ventilkörper (A), der aus einem oberen massiven Stab (A1) und einer unteren hohlen Hülse (A2) besteht, aufgenommen in besagtem Kolbenkörper (B); und eine Feder (E), die unter besagtem beweglichen Ventilkörper (A) angeordnet ist, um besagten beweglichen Ventilkörper (A) nach oben zu drücken, so daß ein dreieckiger Ventilkopf (A101) von besagtem beweglichen Ventilkörper (A) ein Austrittsloch (B101) von besagtem Kolbenkörper (A) sicher verschließen kann, dadurch gekennzeichnet, daß die Ventilanordnung wenigstens vier Druckkonzentrationspunkte umfaßt und besagter oberer massiver Stab (A1) eine Mehrzahl von Stababschnitten (A11, A12, A13) umfaßt, die jeder einen von dem anderen unterschiedlichen Durchmesser besitzen, wobei wenigstens zwei Übergangsbereiche zwischen jeweils zwei von besagten Stababschnitten zu einer sich verjüngenden Schulter, einer Ausnehmung bzw. einem Sockel mit einer abgeflachten Schulter ausgebildet sind, um einen Druckkonzentrationspunkt zu bilden, um zu erleichtern, daß der durch die unter Druck gesetzte Flüssigkeit erzeugte Druck darauf konzentriert wird.
2. Eine bewegliche Ventilanordnung für Flüssigkeitszerstäuber nach Anspruch 1, wobei besagte untere hohle Hülse (A2) von besagtem beweglichen Ventilkörper (A) am unteren Ende ihrer vertikalen Seite (A205) mit einem nach außen gerichteten Vorsprung (A206) versehen ist, so daß die nach unten gerichtete Kraft, die von der unter Druck gesetzten Flüssigkeit erzeugt wird, auf die obere Seite von besagtem Vorsprung (A202) treffen kann, und wobei die untere Seite von besagtem Vorsprung (A206) mit einem nach innen abgeschrägten Ansatz (A207) ausgebildet ist, der an seiner Innenseite mit einem inneren gebogenen Flansch (A201) versehen ist, so daß besagter innerer Flansch so angeordnet ist, daß er in engem Kontakt mit einem entsprechenden Ventilloch kommt, um die Verbindung zwischen dem Inneren und dem Äußeren einer unter Druck stehenden Kammer (C) während der Hin- und Herbewegung von besagtem beweglichen Ventilkörper (A) zu beenden.
3. Eine bewegliche Ventilanordnung für Flüssigkeitszerstäuber nach Anspruch 1, wobei besagte untere hohle Hülse (A2) mit einem dicken massiven Abschnitt (A3) mit einem größeren Durchmesser im Vergleich mit dem Durchmesser besagter unteren hohlen Hülse (A2) versehen ist und besagter dicker massiver Abschnitt (A3) an seiner unteren Seite mit einem abgeschrägten Abschnitt (A31) und an seiner oberen Seite mit einer Mehrzahl von konzentrischen ringförmigen Abschnitten (A32, A33, A34) versehen ist, um die darauf auftreffende Flüssigkeit zu lenken, wobei besagter Kolbenkörper (B) an einer unteren Seite mit einer Nut in Form eines umgedrehten V(B) bzw. einem trompetenförmigen inneren ringförmigen Abschnitt (B3) versehen ist, entsprechend besagtem ringförmigen Abschnitt (A32, A33, A34) von besagtem dicken massiven Abschnitt (A3).
4. Eine bewegliche Ventilanordnung für Flüssigkeitszerstäuber nach einem der Ansprüche 1 bis 3, wobei die Anordnung einen Kolbenkörper (B) mit einem Austrittsloch (B101), einem beweglichen, im Kolbenkörper (B) aufnehmbaren Ventilkörper (A), der einen oberen Stab (A3) mit einem Ventilkopf (A1), der mit dem Austrittsloch (B101) in Eingriff bringbar ist, und eine untere hohle Hülse (A2) umfaßt, und Vortriebsmittel (E) zum Vortreiben des Ventilkörpers (A) auf den Kolbenkörper (B) zu umfaßt, so daß der Ventilkopf (A101) mit dem Austrittsloch (B101) in Eingriff kommt.
5. Eine bewegliche Ventilanordnung für Flüssigkeitszerstäuber nach Anspruch 4, wobei die untere hohle Hülse (A2) einen weiteren Bereich (A3) umfaßt, der eine größere Außenabmessung als der Rest der unteren hohlen Hülse aufweist, wobei der weitere Abschnitt (A3) eine abgeschrägte untere Fläche (A31) aufweist, wobei die obere Fläche des weiteren Abschnitts (A3) wenigstens einen ringförmigen Vorsprung oder Ausnehmung (A33) umfaßt, der (die) mit einer entsprechenden ringförmigen Ausnehmung oder Vorsprung (B2) in Eingriff bringbar ist, die (der) auf einer unteren Fläche des Kolbenkörpers (B) angeordnet ist.



Revendications

1. Assemblage de valve mobile pour atomiseurs de liquides comprenant :

- un corps de piston (B) ; 5
- un corps de valve mobile (A) constitué d'une tige supérieure solide (A1) et d'un manchon inférieur creux (A2) logé dans ledit corps de piston (B) ;
- un ressort (E) disposé sous le corps de valve mobile (A) pour le comprimer vers le haut de telle manière qu'une tête de valve triangulaire (A101) dudit corps de valve mobile (A) puisse fermer de façon sûre un trou d'évacuation (B101) du corps du piston (B), 10

caractérisé en ce que l'assemblage de valve comprend au moins quatre points de concentration de pression et la tige solide supérieure (A1) comprend plusieurs parties de tige (A11, A12, A13) ayant chacune un diamètre différent de l'autre, au moins deux intersections entre deux parties de tige quelconques, formées respectivement dans un épaulement effilé, et une cavité ou un renforcement présentant un épaulement aplati afin de former un point de concentration de pression pour faciliter la pression générée par le liquide sous pression étant concentré sur celui-ci. 15

2. Assemblage de valve mobile pour atomiseurs de liquides selon la revendication 1, dans lequel le manchon creux inférieur (A2) du corps de valve mobile (A) est muni à l'extrémité inférieure de sa face verticale (A205) d'une saillie externe (A206) telle que la force orientée vers le bas et générée par le liquide sous pression puisse être appliquée au côté supérieur de ladite saillie (A206), et dans lequel la face inférieure de la saillie (A206) est formée avec une protubérance inclinée vers l'intérieur (A207) dont l'intérieur est muni d'une collerette arquée interne (A201) afin que ladite collerette soit agencée pour entrer étroitement en contact avec un trou de valve correspondant dans le but de mettre fin à la communication entre l'intérieur et l'extérieur d'une chambre sous pression (C) pendant le mouvement de va-et-vient du corps de valve mobile (A). 20

3. Assemblage de valve mobile pour atomiseurs de liquides selon la revendication 1, dans lequel le manchon creux inférieur (A2) est muni d'une portion solide épaisse (A3) ayant un diamètre plus important comparé à celui dudit manchon creux (A2), la portion solide épaisse (A3) comprenant à son côté inférieur une partie inclinée (A31) et à son côté supérieur plu- 25

sieurs parties concentriques annulaires (A32, A33, A34) pour diriger le liquide étant appliqué à celui-ci et dans lequel le corps de piston (B) comprend à son côté inférieur une gorge (B2) en forme de V renversé et une partie annulaire interne (B3) en forme de pavillon correspondant respectivement aux parties annulaires (A32, A33, A34) de la portion solide épaisse (A3). 30

4. Assemblage de valve mobile pour atomiseurs de liquides selon l'une des revendications 1 à 3, comprenant :

- un corps de piston (B) ayant un trou d'évacuation (B101) ;
- un corps de valve mobile (A) apte à être inséré dans le corps de piston (B), comprenant une tige supérieure (A3) ayant une tête de valve (A101) pouvant s'engager dans le trou d'évacuation (B101) et un manchon creux inférieur (A2) ; et
- des moyens de sollicitation (E) pour solliciter le corps de valve (A) vers le corps de piston (B) afin que la tête de valve (A101) s'engage dans le trou d'évacuation (B101). 35

5. Assemblage de valve mobile pour atomiseurs de liquides selon la revendication 4, dans lequel le manchon creux inférieur (A2) comprend une portion élargie (A3) ayant une dimension externe supérieure à celle du reste du manchon creux inférieur, ladite portion élargie (A3) ayant une partie inclinée inférieure (A31), la face supérieure de la portion élargie (A3) comprenant au moins une saillie ou un renforcement annulaire (A33) pouvant s'engager avec un renforcement ou une saillie annulaire (B2) correspondante située sur une face inférieure du corps de piston (B). 40

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