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(54) **Single-mouth nozzle head**

Düsenkopf mit einzelnem Mundstück

Tête de buse à bouche unique

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Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a single-mouth nozzle head to receive a valve for inflation. The nozzle head can be operated smoothly with one hand to enhance its convenience greatly

2. Description of the Prior Art

[0002] Document EP 0690231 A1 discloses the preamble of independent claim 1.

[0003] Conventional dual nozzle heads are as disclosed in Taiwan application No. 095107665 and 097203517. However, the conventional dual nozzle heads have the following drawbacks.

1. When the conventional nozzle head is used to pump air, the user needs to hold the main body for controlling the valve to be inserted to a connection mouth with one hand and to push the wrench with the other hand, such that the interior press cylinder is moved downward to clamp the valve for pumping. This way with both hands to operate is inconvenient and wastes time and energy.
2. The connecting mouth of the conventional nozzle head is deformed axially through the press cylinder to be moved downward. The connecting mouth is indirectly deformed to clamp the valve. The radial deformation of the connecting mouth is quite limited, so the force for the connecting mouth to clamp the valve is also limited. When pumping, it is easy to have a leakage problem.
3. The entire structure of the conventional nozzle head is too complicated, so the manufacture cost and the assembly cost cannot be lowered.

[0004] Accordingly, the inventor of the present invention has devoted himself based on his many years of practical experiences to solve this problem.

SUMMARY OF THE INVENTION

[0005] The primary object of the present invention is to provide a nozzle head which can be operated smoothly with one hand for inflation and can be used for different types of valves to be inflated.

[0006] According to one aspect of the present invention, a single-mouth nozzle head is provided. The nozzle head comprises a main body, an annular first connecting mouth, and a valve plug.

[0007] The main body has a through valve hole and an air supply hole disposed between two ends of the valve hole.

[0008] The annular first connecting mouth has a first mouth hole for receiving a valve to be inflated.

[0009] The valve plug is disposed in the main body. The first connecting mouth is located in the valve plug. The valve plug is axially movable between a first position and a second position of the valve hole. One end of the valve plug is provided with a plurality of clamping claws. The other end of the valve plug is formed with a closed press portion. The interior of the valve plug is formed with a flow passage to communicate with an outer annular wall of the valve plug. A plurality of restraint grooves are formed in between the clamping claws and arranged in a circle to define a restraint hole. The restraint hole and the valve hole are coaxial. The restraint hole is able to contract radially. The outer wall of each clamping claw is formed with a curved portion which is enlarged radially. The restraint hole is for the first connecting mouth to be inserted axially. When the first valve is inserted into the first connecting mouth, the valve plug is moved to the first position and the press portion extends out of the valve hole. The valve hole compresses the clamping claws. Through the guide of the curved portions of the clamping claws, the restraint hole is to clamp the first connecting mouth radially. The air supply hole is in communication with the interior of the valve plug, the flow passage, and the first mouth hole, so that the first valve can be pumped.

[0010] Accordingly, the present invention has the following inventiveness.

1. When the present invention is used to pump air, the user can operate the main body with one hand easily. Compared to the prior art operated with both hands, the present invention can be operated more conveniently to save time and labor.

2. The clamping claws of the present invention directly compress the connecting mouth to deform radially so as to tighten the valve. During inflation, the circumstances of air leakage can be minimized.

3. The present invention is only composed of four parts, namely, the main body, the first connecting mouth, the second mouth, and the valve plug. The entire structure of the present invention is more simple that the prior art.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011]

Fig. 1 and Fig. 2 are perspective views showing a first valve; Fig. 3 is a sectional view of Fig. 2;

Fig. 4 is a sectional showing a second valve; Fig. 5 is an exploded view according to an embodiment of the present invention;

Fig. 6 is a perspective view of Fig. 5;

Fig. 7 and Fig. 8 are schematic views of the embodiment of the present invention when in use;

Fig. 9 and Fig. 10 are schematic views of the embodiment of the present invention in another use state.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0012] The present invention will now be described, by way of example only, with reference to the accompanying drawings.

[0013] Referring to Fig. 1 to Fig. 4, an automatic-switch nozzle head having two valve mouths is disclosed. The nozzle head comprises a main body 10, an annular first connecting mouth 20, an annular second connecting mouth 30, and a valve plug 40.

[0014] The main body 10 has a valve hole 11 penetrating upper and lowers of the main body 10 and an air supply hole 12 disposed between two ends of the valve hole 11. The air supply hole 12 is adapted to supply an air pressure source to the valve hole 11. The wall of the lower end edge of the valve hole 11 is concaved and formed with a first engaging portion 13. The wall of the lower end edge of the valve hole 11 is concaved and formed with a second engaging portion 14.

[0015] The annular first connecting mouth 20 has a first mouth hole 21 for receiving a first valve 91 to be inflated.

[0016] The annular second connecting mouth 30 has a second mouth hole 31 for receiving a second valve 92 to be inflated.

[0017] The valve plug 40 is coaxially moved in the valve hole 11 and has a length larger than that of the valve hole 11, such that two ends of the valve plug 40 protrude out of the valve hole 11. The valve plug 40 is formed with a first guide groove 411 and a second guide groove 412 which are not in communication with each other and located within the valve hole 11. The second guide groove 412 is disposed above the first guide groove 411. The outer wall of the valve plug 40 is provided with a first washer 421 under the first guide groove 411, a second washer 422 above the second guide groove 412, and a third washer 423 between the first guide groove 411 and the second guide groove 412. The first washer 421, the second washer 422 and the third washer 423 are against the valve hole 11, providing an airtight effect to the first guide groove 411 and the second guide groove 412. The outer wall of the valve plug 40 is further provided with a first buckle portion 431 to mate with the first engaging portion 13 and a second buckle portion 432 to mate with the second engaging portion 14. When the valve plug 40 is axially moved along the valve hole 11 to a first position, the first buckle portion 431 engages with the first engaging portion 13 and the second buckle portion 432 disengages from the second engaging portion 14. At this time, the first guide groove 411 communicates with the air supply hole 12, and the top end of the valve plug 40 protrudes out of the valve hole 11 for the user to press downward to disengage the first buckle portion 431 from the first engaging portion 13. When the valve plug 40 is axially moved along the valve hole 11 to a second position, the second buckle portion 432 engages with the second engaging portion 14 and the first buckle portion 431 disengages from the first engaging portion 13. At this time, the second guide groove 412 communicates with the air supply hole 12, and the bottom end of the valve plug 40 protrudes out of the valve hole 11 for the user to press upward to disengage the second buckle portion 432 from the second engaging portion 14. Thus, the valve plug 40 is able to move between the first position and the second position. The bottom of the valve plug 40 is provided with a plurality of first clamping claws 44 which are disposed axially. The top of the valve plug 40 is provided with a plurality of second clamping claws 45 which are disposed axially. A plurality of first restraint grooves 46 are formed in between the first clamping claws 44 and arranged in a circle to define a first restraint hole 47 at the inner sides of the first clamping claws 44. The first restraint hole 47 and the valve hole 11 are coaxial, and the first restraint hole 47 is able to contract radially. The outer side of each first clamping claw 44 is formed with a first curved portion for pressing the valve hole 11 radially. The first buckle portion 431 is disposed on the first curved portion. The first restraint hole 47 is adapted for the first connecting mouth 20 to be inserted coaxially, so that the first mouth hole 21 communicates with the first guide groove 411. A plurality of second restraint grooves 48 are formed in between the second clamping claws 45 and arranged in a circle to define a second restraint hole 49 at the inner sides of the second clamping claws 45. The second restraint hole 49 and the valve hole 11 are coaxial, and the second restraint hole 49 is able to contract radially. The outer side of each second clamping claw 45 is formed with a second curved portion for pressing the valve hole 11 radially. The second buckle portion 432 is disposed on the second curved portion. The second restraint hole 49 is adapted for the second connecting mouth 30 to be inserted coaxially, so that the second mouth hole 31 communicates with the second guide groove 412.

[0018] Referring to Fig. 2 and Fig. 3, when the user operates the main body 10 with one hand to insert the first valve 91 into the first mouth hole 21 of the first connecting mouth 20, the valve plug 40 will be moved to the first position. The first buckle portion 431 engages with the first engaging portion 13 to position the valve plug 40 in the valve hole 11. This moment, the outer walls of the second clamping claws 45 are released from the valve hole 11 to compress the first curved portion formed on the outer wall of each first clamping claw 44, such that the first restraint hole 47 radially tighten the outer wall of the first connecting mouth 20 with the first mouth hole 21 to restrain and fix the first valve 91 directly and radially. After that, through the air supply hole 12 to provide the air pressure source, the first valve 91 is pumped for in-

flation. After inflation, the top end of the valve plug 40 is pressed downward for the first buckle portion 431 to disengage from the first engaging portion 13, such that the first curved portions formed on the outer walls of the first clamping claws 44 are released from the valve hole 11 to release connection of the first connecting mouth 20 and the first valve 91.

[0019] Referring to Fig. 4, when the user operates the main body 10 with one hand to insert the second valve 92 into the second mouth hole 31 of the second connecting mouth 30, the valve plug 40 will be moved to the second position. The second buckle portion 432 engages with the second engaging portion 14 to position the valve plug 40 in the valve hole 11. This moment, the outer walls of the first clamping claws 44 are released from the valve hole 11 to compress the second curved portion formed on the outer wall of each second clamping claw 45, such that the second restraint hole 49 radially tighten the outer wall of the second connecting mouth 30 with the second mouth hole 31 to restrain and fix the second valve 92 directly and radially. After that, through the air supply hole 12 to provide the air pressure source, the second valve 92 is pumped for inflation. After inflation, the bottom end of the valve plug 40 is pressed upward for the second buckle portion 432 to disengage from the second engaging portion 14, such that the second curved portions formed on the outer walls of the second clamping claws 45 are released from the valve hole 11 to release connection of the second connecting mouth 30 and the second valve 92.

[0020] For a stable structure of the present invention, the bottom end of each first clamping claw 44 has a first stop portion 441. The outer edge of the first stop portion 441 is located out of the valve hole 11 to form a diameter larger than that of the valve hole 11. The inner edge of the first stop portion 441 leans against the bottom end of the first connecting mouth 20. The top end of each second clamping claw 45 has a second stop portion 451. The outer edge of the second stop portion 451 is located out of the valve hole 11 to form a diameter larger than that of the valve hole 11. The inner edge of the second stop portion 451 leans against the top end of the second connecting mouth 30. Thus, the valve plug 40 won't disengage from the valve hole 11, the first connecting mouth 20 won't disengage from the first clamping claws 44, and the second connecting mouth 30 won't disengage from the second clamping claws 45. The first stop portion 441 and the second stop portion 451 are adapted to clamp the first valve 91 and the second valve 92, respectively, to prevent the first and second valves 91, 92 from disconnection during inflation.

[0021] According to the aforesaid illustration, the present invention has the following inventiveness.

1. The main body of present invention can be operated with one hand to insert the valve into one of the connecting mouths, and the plug valve is moved to a certain position for the valve hole to move the corresponding clamping claws and the connecting mouth to restrain the valve automatically. Compared to the prior art operated with both hands, the present invention can be operated conveniently.

2. Through the coaxial moment of the valve hole and the clamping claws, the connecting mouth of the present invention can be directly and radially deformed to restrain the valve, so that the force for the connecting mouth to clamp and restrain the valve is increased. During inflation, the circumstances of air leakage can be minimized. Besides, the clamping claws can clamp the valve to prevent the valve from disengaging from the main body during inflation.

[0022] Referring to Fig. 5 to Fig. 8, an embodiment of the present invention discloses a single-mouth nozzle head 50. The single-mouth nozzle head 50 comprises a main body 51, a valve plug 52, and a first connecting mouth 55.

[0023] The main body 51 has a valve hole 511 which is an axial through hole, a pipe head 515 formed on an outer wall thereof, an air supply hole 514 for the pipe head 515 to communicate with the valve hole 511, and an annular flange 512 formed at a top end thereof. The annular flange 512 is reduced radially. The outer wall of the bottom end of the main body 51 is formed with outer threads 513 for a holding ring 57 to be locked thereon. The holding ring 57 has an axial through hole 571. The inner wall of the through hole 571 is formed with inner threads 572. The bottom end of the holding ring 57 is formed with an annular holding edge 573 which is reduced radially.

[0024] The valve plug 52 has a closed top end. The valve plug 52 has an annular shoulder portion 522 close to the top end and a press portion 521 above the annular shoulder portion 522. The diameter of the press portion 521 is smaller than that of the annular shoulder portion 522. The bottom of the valve plug 52 is coupled with a press ring 56. The outer wall of the valve plug 52 is formed with two spaced annular grooves 523, 526. A first washer 53 and a second washer 54 are respectively fitted in the annular grooves 523, 526. A concave guide groove 524 is formed between the annular grooves 523, 526. A portion of the guide groove 524 is formed with a vent 525 which extends to the interior of the valve plug 52. The valve plug 52 has a connecting portion 528 extending from the interior to the bottom end of the valve plug 52. The connecting portion 528 is a flow passage extending to the bottom end and communicating with the vent 525. The outer wall is formed with outer threads 527 for the press ring 56 to be locked thereon. The press ring 56 has a restraint hole 561 which is an axial through hole. The inner wall of the restraint hole 561 is formed with inner threads 562. The bottom end of the press ring 56 is formed with a plurality of clamping claws 563. A plurality of restraint grooves 564 are formed in between the clamping claws 563 and arranged in a circle to define a restraint

hole 561. The restraint hole 561 and the valve hole 511 are coaxial, and the restraint hole 561 can contract radially. The bottom end of each clamping claw 563 is formed with a hook portion 5631 extending radially. The outer wall of each clamping claw 563 is formed with a curved portion 565 which is enlarged radially. The clamping claws 563 can be retracted radially by applying a force. When the force is released, the clamping claws 563 will slightly expand and restore to the original state.

[0025] The first connecting mouth 55 has a first mouth hole 551 which is an axial through hole. The inner wall of the first mouth hole 551 is formed with an annular wedge edge 552 which is reduced radially. The first connecting mouth 55 is coaxially inserted into the restraint hole 561. The first connecting mouth 55 is held by the hook portion 5631 at the bottom end of each clamping claw 563.

[0026] Referring to Fig. 7 and Fig. 8, when the single-mouth nozzle head 50 of this embodiment is to pump, the pipe head 515 is connected with an air pressure source (not shown in the drawings) in advance. When the first valve 91 is inserted into the first mouth hole 551 of the first connecting mouth 55, the valve plug 52 is moved upward for the press portion 521 to extend out of the valve hole 511 until the annular shoulder portion 522 is against the annular flange 512 (the first position) to stop moving. When moved upward, the curved portions 565 of the clamping claws 563 are pushed by the annular holding edge 573 at the bottom edge of the valve hole 511. Through the guide of the curved portions 565 of the clamping claws 563, the restraint hole 561 is to clamp the first connecting mouth 55 radially, so that the first connecting mouth 55 is compressed to clamp the first valve 91 tightly. The air supply hole 514 is in communication with the guide groove 524, the connecting portion 528, and the first mouth hole 551 so that the first valve 92 can be pumped. The first valve 91 is an American valve.

[0027] Referring to Fig. 9 and Fig. 10, a single-mouth nozzle head is applied to the second valve 92. The second valve 92 is a French valve 92. The shape of the connecting portion 528A of the valve plug 52A is slightly different from the second connecting mouth 55A, and the other parts are identical to the aforesaid embodiment. The connecting portion 528A of the valve plug 52A is formed with a larger flow passage for insertion of the French valve. The inner annular surface of the second connecting mouth 55A is formed with an annular flange 552A for clamping the French valve tightly. The use and working principle are same as the aforesaid.

[0028] Although a particular embodiment of the present invention has been described in detail for purposes of illustration, various modifications and enhancements may be made without departing from the spirit and scope of the present invention. Accordingly, the present invention is not to be limited except as by the appended claims.

Claims

1. A single-mouth nozzle head, comprising:

   a main body (51) having a through valve hole (511) and an air supply hole (514) disposed between two ends of the valve hole (511);
   an annular first connecting mouth (55) having a first mouth hole (551) for receiving a valve (91) to be inflated; and
   a valve plug (52) disposed in the main body (51), the first connecting mouth (55) being located in the valve plug (52), the valve plug (52) being axially movable between a first position and a second position of the valve hole (511), one end of the valve plug (52) being provided with a plurality of clamping claws (563), the interior of the valve plug (52) being formed with a flow passage to communicate with an outer annular wall of the valve plug (52), a plurality of restraint grooves (564) being formed in between the clamping claws (563) and arranged in a circle to define a restraint hole (561), the restraint hole (561) and the valve hole (511) being coaxial, the restraint hole (561) being able to contract radially, **characterized in that** another end of the valve plug (52) is closed, the valve plug (52) has an annular shoulder portion (522) close to the closed end and a press portion (521) above the annular shoulder portion (522), wherein the diameter of the press portion (521) is smaller than that of the annular shoulder portion (522), and wherein the main body (51) has an annular flange (512) formed at an end thereof in such a way, that when the first valve (91) is inserted into the first mouth hole (551) of the first connecting mouth (55), the valve plug (52) can be moved upward for the press portion (521) in the first position to extend out of the valve hole (511) until the annular shoulder portion (522) is against the annular flange (512) to stop moving.

2. The single-mouth nozzle head as claimed in claim 1, **wherein** a bottom end of each clamping claw (563) is formed with a hook portion (5631) extending radially, and the first connecting mouth (55) is held by the hook portion (5631) at the bottom end of each clamping claw (563).

3. The single-mouth nozzle head as claimed in claim 1, **wherein** an outer wall of each clamping claw (563) is formed with a curved portion (565) which is enlarged radially.

4. The single-mouth nozzle head as claimed in claim 1, **wherein** an outer wall of the valve plug (52) is formed with two spaced annular grooves (523, 526), a first washer (53) and a second washer (54) are

respectively fitted in the annular grooves (523, 526), a concave guide groove (524) is formed between the annular grooves (523, 526), the guide groove (524) is formed with a vent (525) to communicate with the flow passage inside the valve plug (52), when the valve plug (52) is moved to the first position, the guide groove (524) is in communication with the air supply hole (514).

Patentansprüche

1. Einzelmündungs-Düsenkopf, aufweisend:

einen Hauptkörper (51), der eine Durchgangsventilöffnung (511) und eine Luftzuführöffnung (514) aufweist, die zwischen zwei Enden der Ventilöffnung (511) angeordnet ist;
eine ringförmige erste Verbindungsmündung (55), die eine erste Mündungsöffnung (551) zum Aufnehmen eines aufzupumpenden Ventils (91) aufweist; und
einen Ventilstopfen (52), der in dem Hauptkörper (51) angeordnet ist, wobei die erste Verbindungsmündung (55) in dem Ventilstopfen (52) angeordnet ist, wobei der Ventilstopfen (52) axial zwischen einer ersten Position und einer zweiten Position der Ventilöffnung (511) bewegbar ist, wobei ein Ende des Ventilstopfens (52) mit einer Mehrzahl von Spannklauen (563) versehen ist, wobei im Inneren des Ventilstopfens (52) einer Strömungspassage ausgebildet ist, um mit einer äußeren Ringwand des Ventilstopfens (52) in Verbindung zu stehen, wobei eine Mehrzahl von Rückhaltenuten (564) zwischen den Spannklauen (563) ausgebildet sind und in einem Kreis angeordnet sind, um eine Rückhalteöffnung (561) zu definieren, wobei die Rückhalteöffnung (561) und die Ventilöffnung (511) koaxial sind, wobei die Rückhalteöffnung (561) geeignet ist, radial kontrahiert zu werden, **dadurch gekennzeichnet, dass** ein anderes Ende des Ventilstopfens (52) geschlossen ist, der Ventilstopfen (52) einen Ringschulterabschnitt (522) nahe dem geschlossenen Ende und einen Pressabschnitt (521) über dem Ringschulterabschnitt (522) aufweist, wobei der Durchmesser des Pressabschnitts (521) kleiner als der des Ringschulterabschnitts (522) ist, und wobei der Hauptkörper (51) einen Ringflansch (512) aufweist, der an einem Ende davon derart ausgebildet ist, dass, wenn das erste Ventil (91) in die erste Mündungsöffnung (551) der ersten Verbindungsmündung (55) eingesetzt wird, der Ventilstopfen (52) aufwärts bewegt werden kann, um den Pressabschnitt (521) in der ersten Position aus der Ventilöffnung (511) herauszustrecken, bis der Ringschulterabschnitt (522) an dem Ringflansch (512) ist, um die Bewegung zu stoppen.

2. Einzelmündungs-Düsenkopf nach Anspruch 1, wobei ein unteres Ende jeder Spannklaue (563) mit einem Hakenabschnitt (5631) versehen ist, der sich radial erstreckt, und die erste Verbindungsmündung (55) durch den Hakenabschnitt (5631) an dem unteren Ende jeder Spannklaue (563) gehalten wird.

3. Einzelmündungs-Düsenkopf nach Anspruch 1, wobei eine Außenwand jeder Spannklaue (563) mit einem gekrümmten Abschnitt (565) ausgebildet ist, welcher radial erweitert ist.

4. Einzelmündungs-Düsenkopf nach Anspruch 1, wobei eine Außenwand des Ventilstopfens (52) mit zwei im Abstand voneinander angeordneten Ringnuten (523, 526) ausgebildet ist, ein erster Dichtungsring (53) und ein zweiter Dichtungsring (54) jeweils in den Ringnuten (523, 526) eingesetzt sind, eine konkave Führungsnut (524) zwischen den Ringnuten (523, 526) ausgebildet ist, die Führungsnut (524) mit einer Öffnung (525) ausgebildet ist, um mit der Strömungspassage in dem Ventilstopfen (52) in Verbindung zu stehen, und wenn der Ventilstopfen (52) in die erste Position bewegt wird, die Führungsnut (524) mit der Luftzuführöffnung (514) in Verbindung steht.

Revendications

1. Tête de buse à simple embouchure comprenant :

un corps principal (51) ayant un trou de soupape traversant (511) et un trou d'alimentation en air (514) disposé entre deux extrémités du trou de soupape (511) ;
une première embouchure annulaire de connexion (55) ayant un premier trou d'embouchure (551) pour recevoir une soupape (91) à gonfler ; et
un clapet de soupape (52) disposé dans le corps principal (51), la première embouchure de connexion (55) étant située dans le clapet de soupape (52), le clapet de soupape (52) étant mobile axialement entre une première position et une deuxième position du trou de soupape (511), une extrémité du clapet de soupape (52) étant munie d'une pluralité de mâchoires de serrage (563), l'intérieur du clapet de soupape (52) étant formé avec un passage d'écoulement pour communiquer avec une paroi annulaire externe du clapet de soupape (52), une pluralité de gorges de retenue (564) étant formée entre les mâchoires de serrage (563) et disposées dans un cercle afin de définir un trou de retenue (561),

le trou de retenue (561) et le trou de soupape (511) étant coaxiaux, le trou de retenue (561) étant capable de se contracter radialement, **caractérisée en ce qu'**une autre extrémité du clapet de soupape (52) est fermée, le clapet de soupape (52) comprend une portion d'épaulement annulaire (522) proche de l'extrémité fermée et une portion de compression (521) au-dessus de la portion d'épaulement annulaire (522), le diamètre de la portion de compression (521) étant inférieur à celui de la portion d'épaulement annulaire (522) et le corps principal (51) comprenant une bride annulaire (512) formée à une extrémité de celui-ci de façon à ce que, lorsque la première soupape (91) est insérée dans le premier trou d'embouchure (551) de la première embouchure de connexion (55), le clapet de soupape (52) puisse être déplacé vers le haut afin que la portion de compression (521) dans la première position s'étende hors du trou de soupape (511) jusqu'à ce que la portion d'épaulement annulaire (522) soit contre la bride annulaire (512) pour arrêter le déplacement.

2. Tête de buse à simple embouchure selon la revendication 1, dans laquelle une extrémité inférieure de chaque mâchoire de serrage (563) est formée avec une portion de crochet (5631) s'étendant radialement et la première embouchure de connexion (55) est maintenue par la portion de crochet (5631) au niveau de l'extrémité inférieure de chaque mâchoire de serrage (563).

3. Tête de buse à simple embouchure selon la revendication 1, dans laquelle une paroi externe de chaque mâchoire de serrage (563) est formée avec une portion incurvée (565) qui est élargie radialement.

4. Tête de buse à simple embouchure selon la revendication 1, dans laquelle une paroi externe du clapet de soupape (52) est formée avec deux gorges annulaires espacées (523, 526), une première rondelle (53) et une deuxième rondelle (54) sont insérées respectivement dans les gorges annulaires (523, 526), un gorge de guidage concave (524) est formée entre les gorges annulaires (523, 526), la gorge de guidage (524) est formée avec une ventilation (525) pour communiquer avec le passage d'écoulement à l'intérieur du clapet de soupape (52), lorsque le clapet de soupape (52) est déplacé vers la première position, la gorge de guidage (524) est en communication avec le trou d'alimentation en air (514).

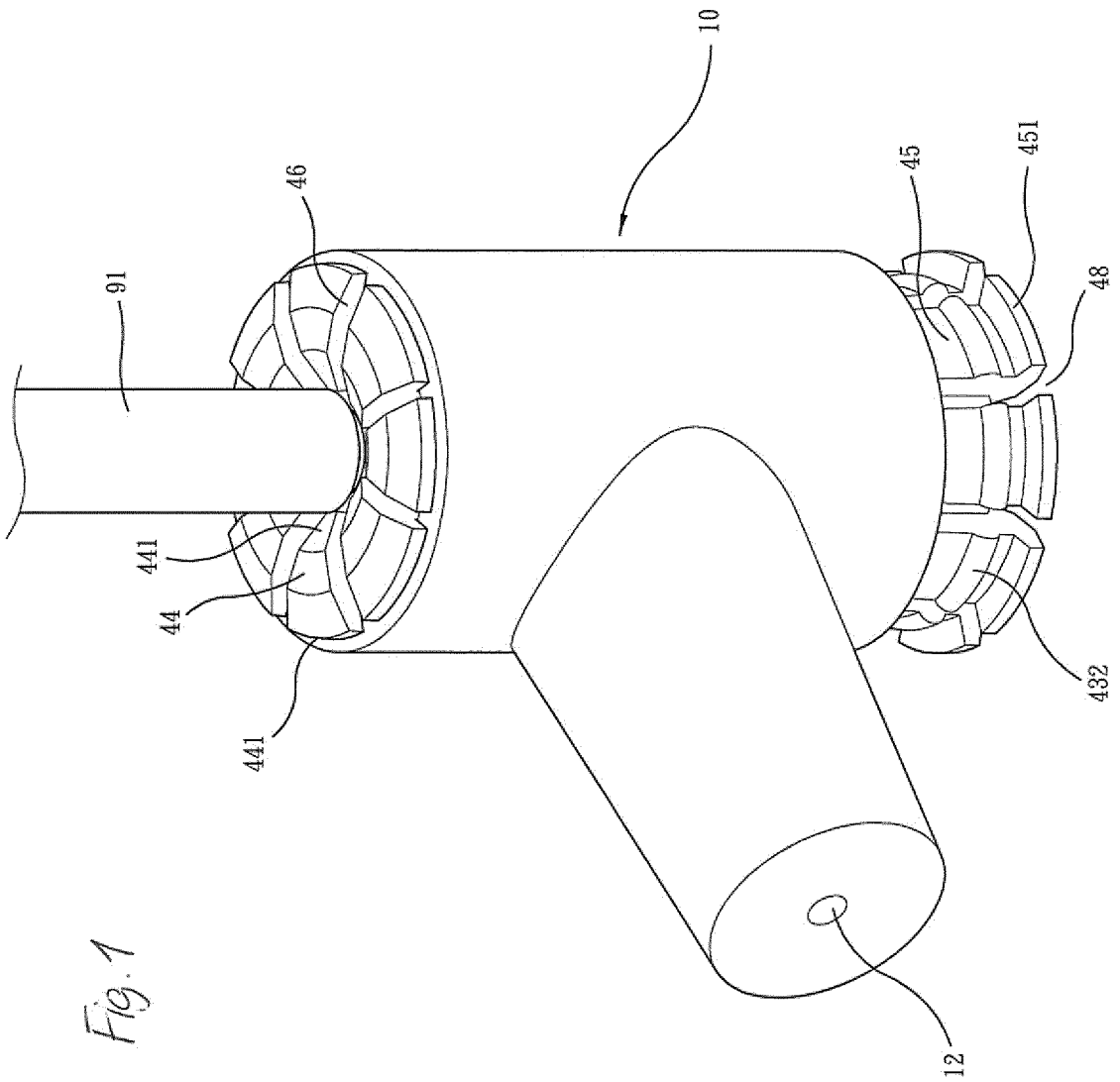

Fig. 1

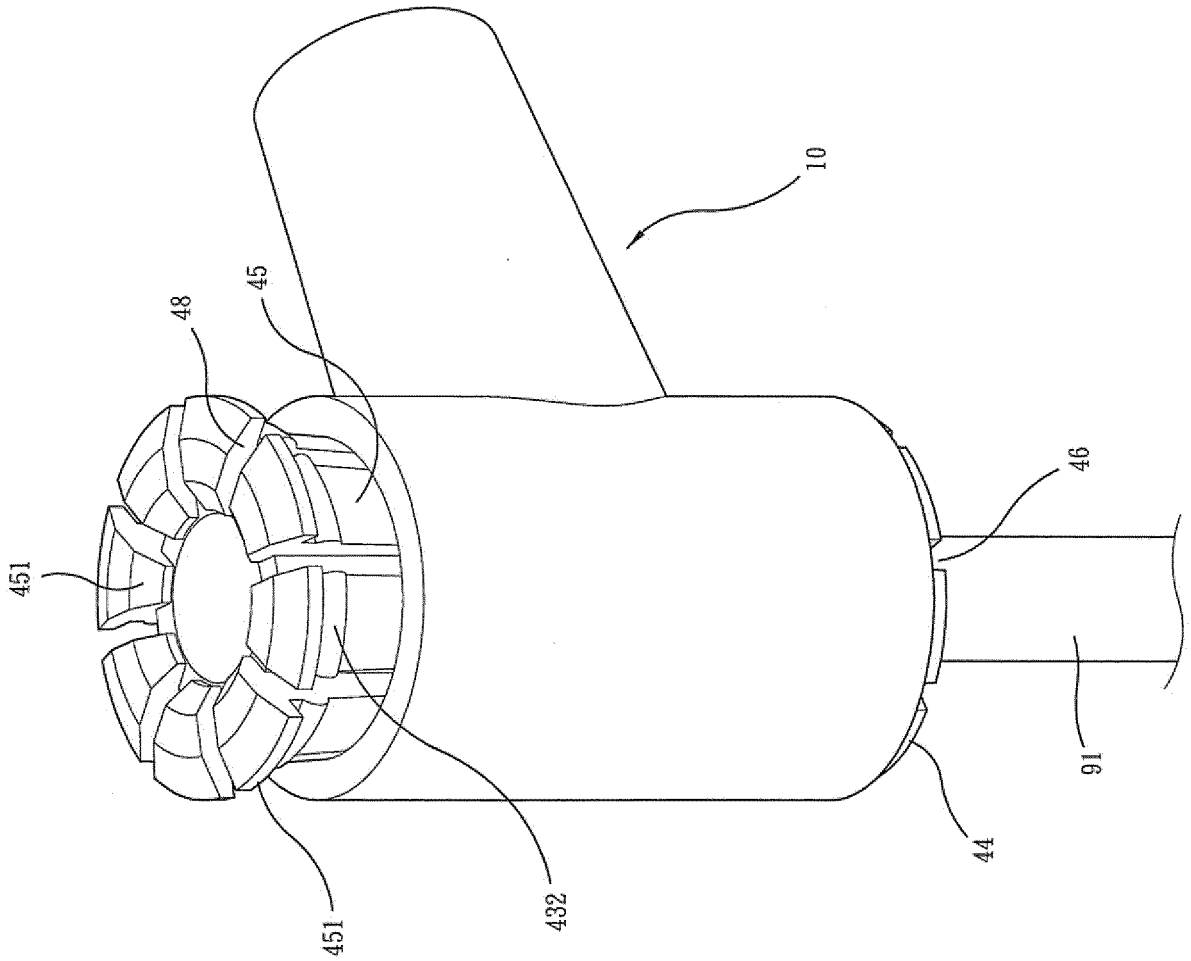

Fig. 2

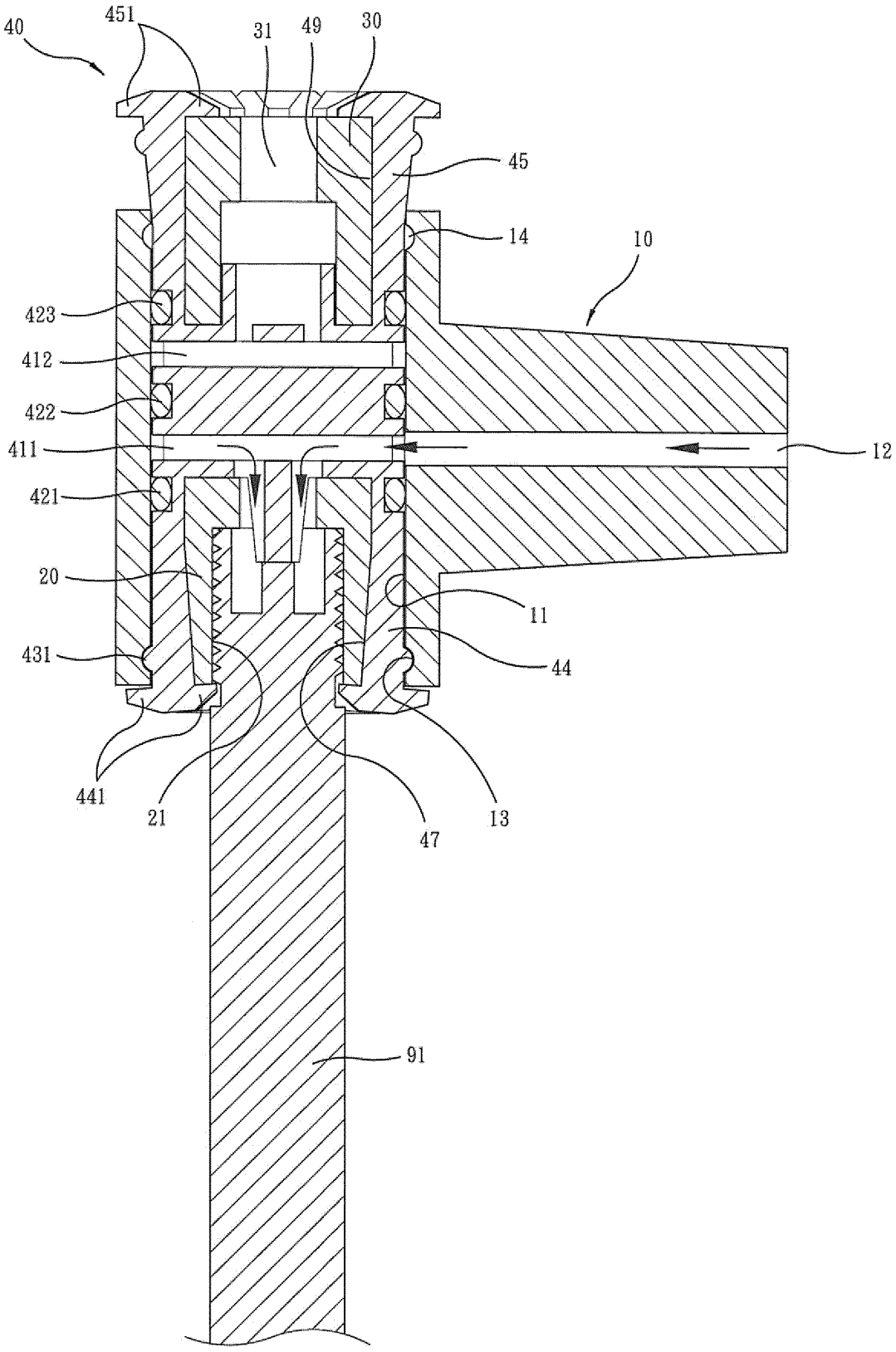
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Fig. 3

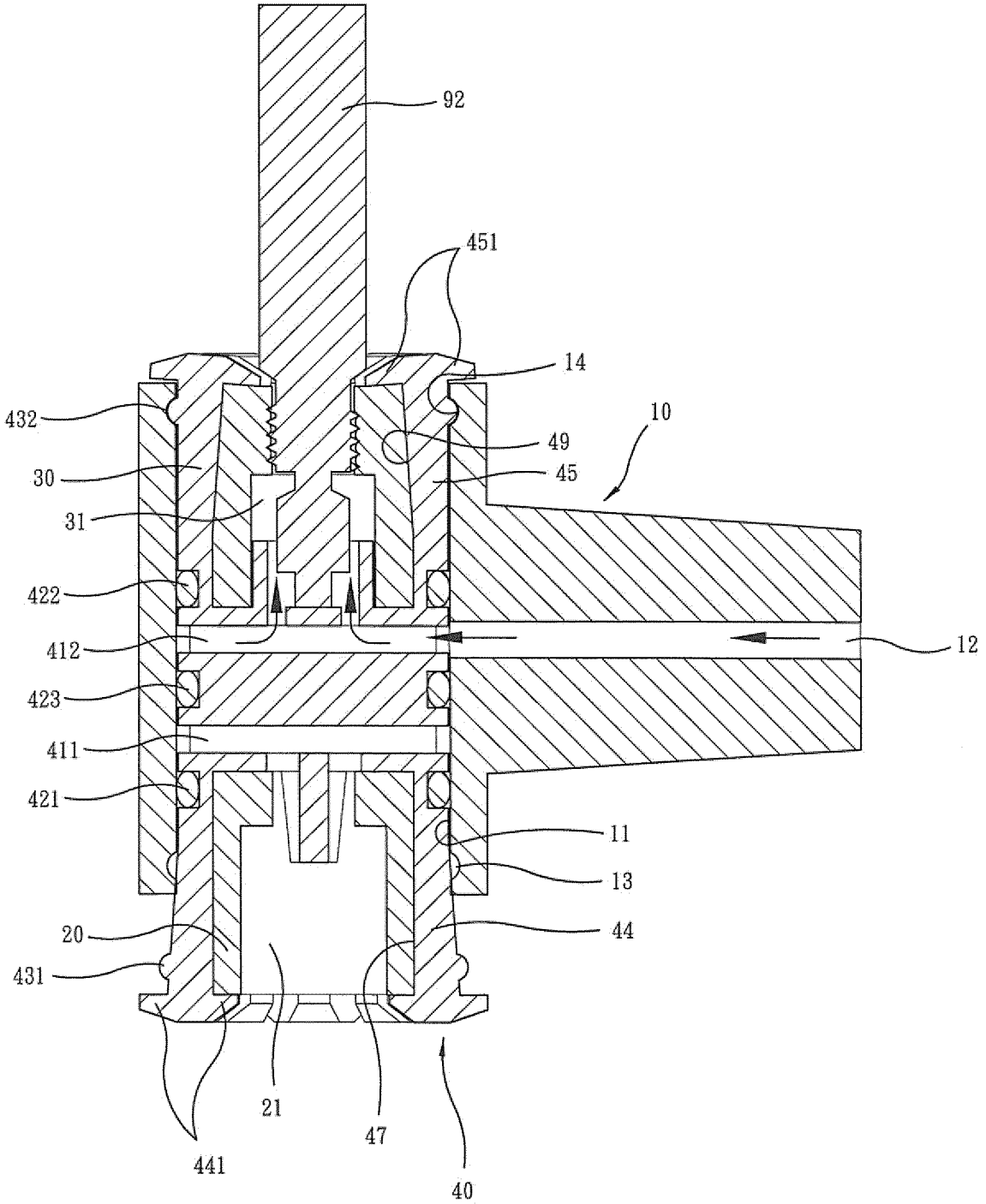
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Fig. 4

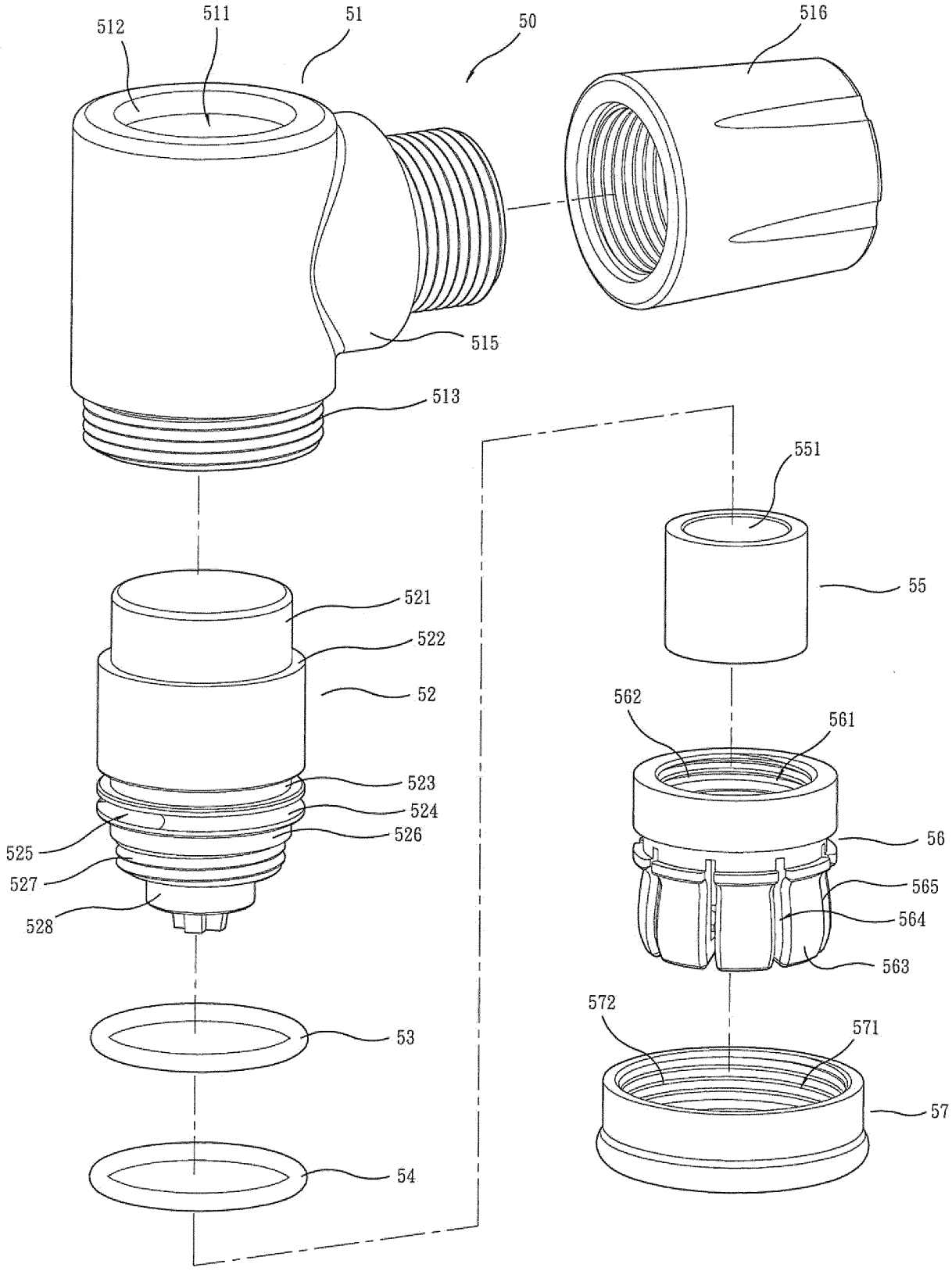
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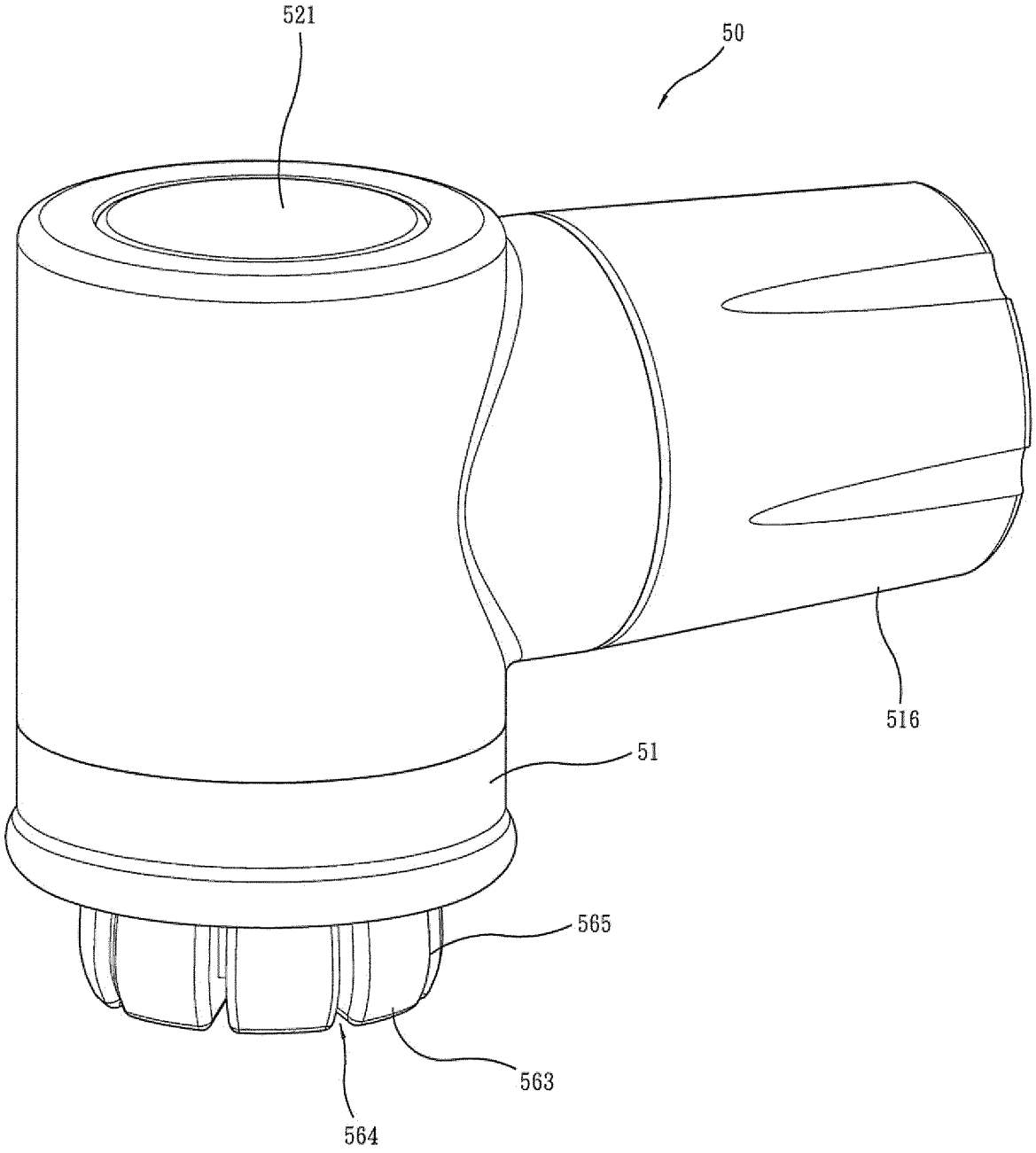
Fig. 5



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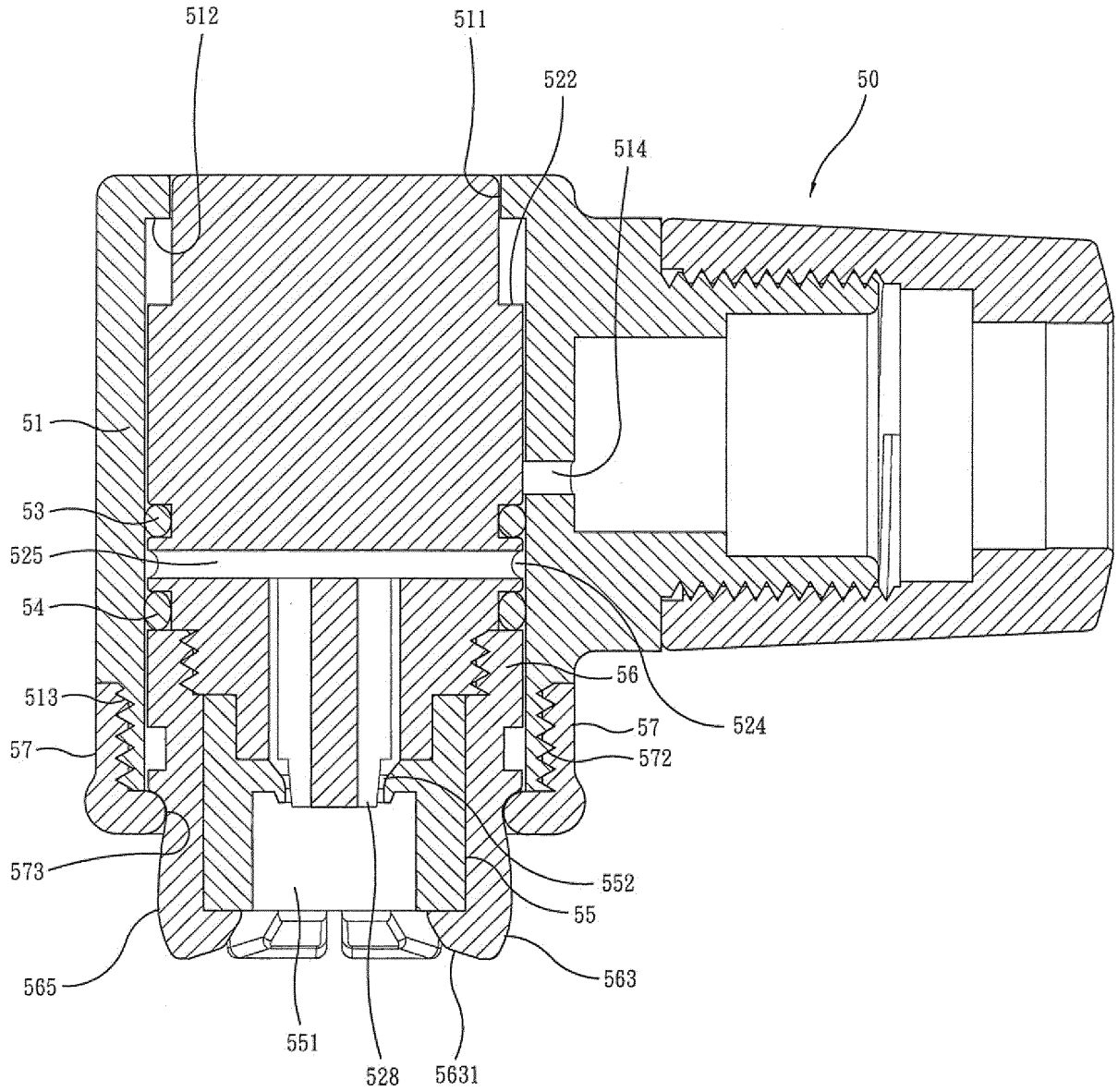
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Fig. 7

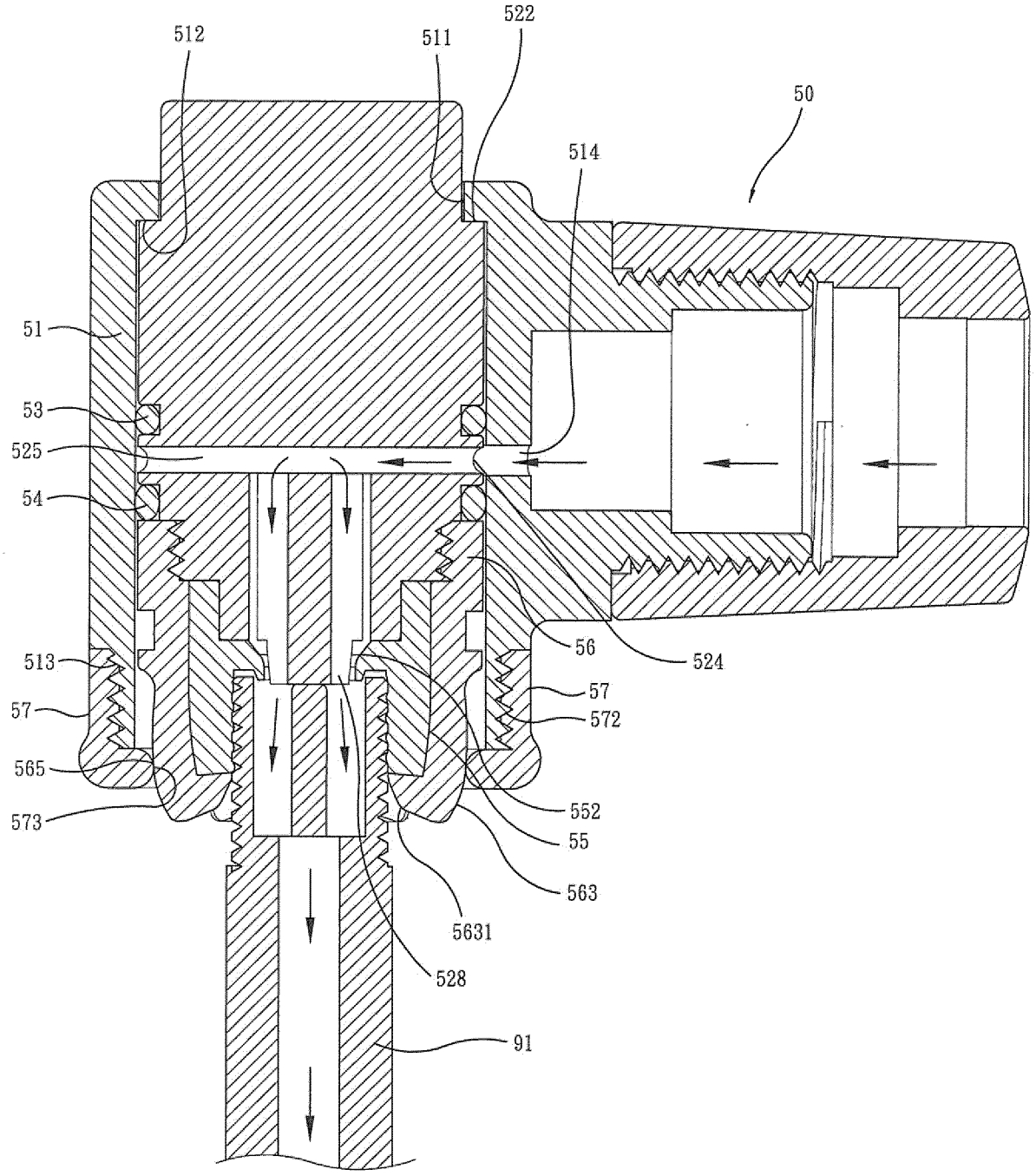
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Fig. 8

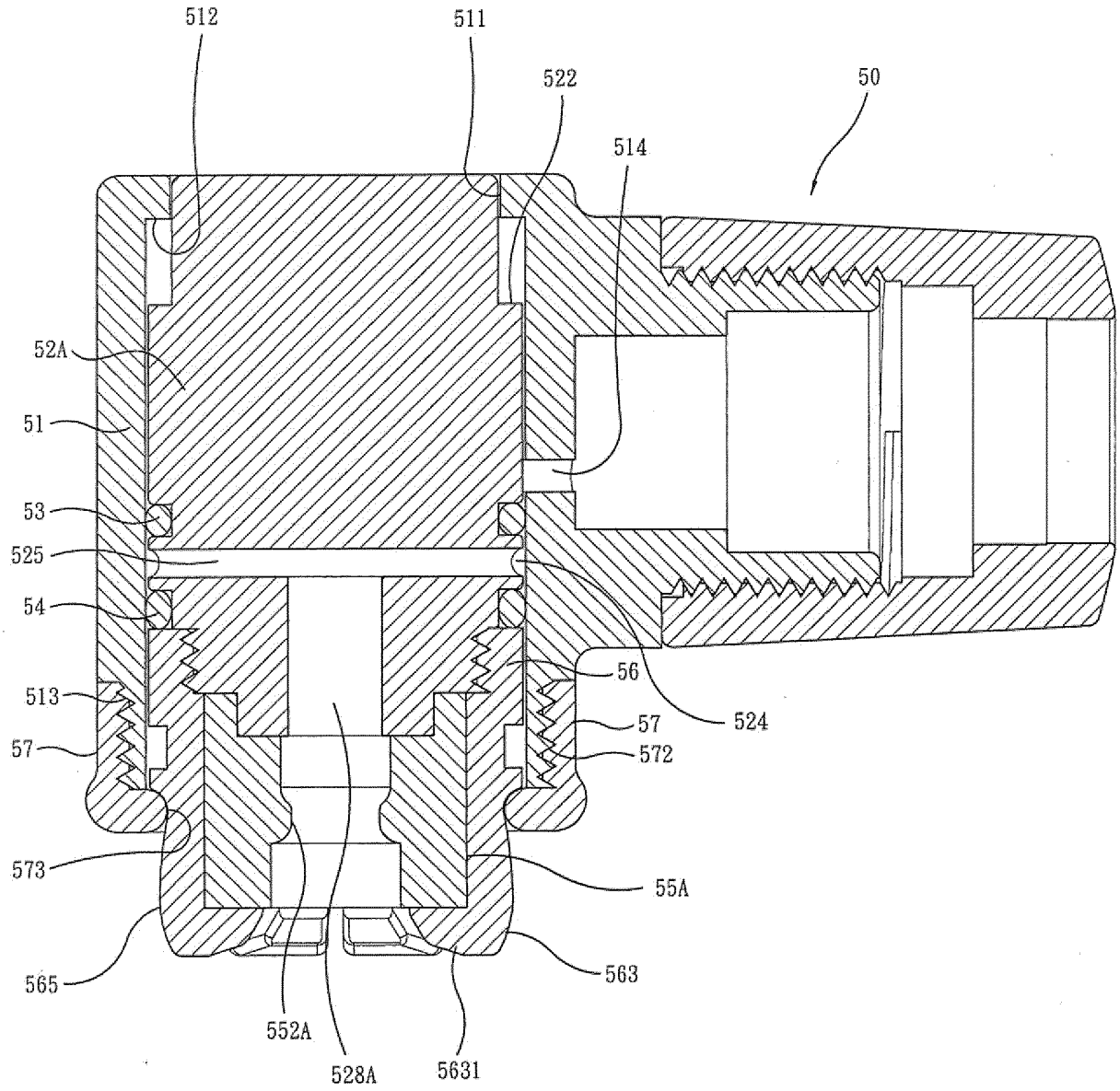
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Fig. 9

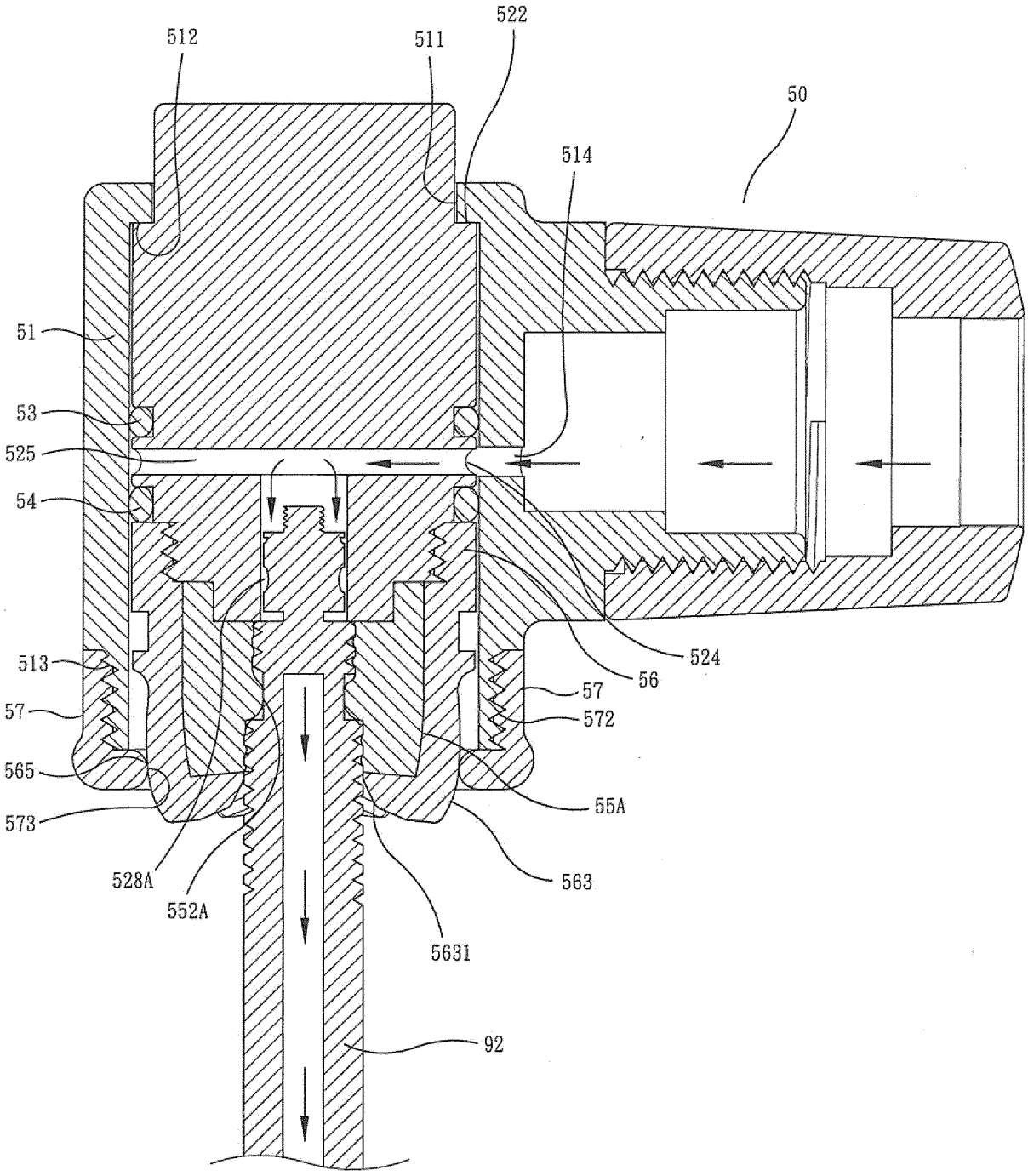
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Fig. 10

REFERENCES CITED IN THE DESCRIPTION

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- TW 095107665 **[0003]**
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