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(54) Assembly comprising a gas valve and a gas/air mixer

Anordnung mit einem Gasventil und einem Gas-/Luftmischer

Ensemble comprenant une soupape de gaz et un mélangeur gaz/air

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Description

[0001] The present patent application relates to an assembly comprising a gas valve and a gas/air mixer.

[0002] DE 10 2004 007 123 B3 shows a prior art assembly comprising a gas valve and a gas/air mixer. The gas valve comprises a gas valve housing providing a gas inlet through which the gas valve is connectable to a gas pipe, and further providing a gas outlet through which the gas valve is connectable to the gas/air mixer. The gas/air mixer comprises a gas/air mixer housing providing a gas inlet through which the gas/air mixer is connectable to the gas outlet of the gas valve, providing an air inlet, and providing a gas/air mixture outlet. The gas outlet of the gas valve and the gas inlet of the gas/air mixer are connected together in such a way that a male-like section of the gas outlet of the gas valve is plugged into a female-like section of the gas inlet of the gas/air mixer, wherein the gas outlet of the gas valve and the gas inlet of the gas/air mixer are fixed together in the plugged-in configuration by a clip or a clamp. According to the prior art, the connection between the gas outlet of the gas valve and the gas inlet of the gas/air mixer allows a relative rotation between the gas valve and the gas/air mixer. Against this background, a novel assembly comprising a gas valve and a gas/air mixer is provided.

[0003] Other prior art is disclosed by EP 2 336 638 A1, EP 2 927 584 A1 and by WO 2015/001438 A1.

[0004] The assembly according to the present invention is defined in claim 1.

[0005] The claimed invention provides a fixed relative orientation between the gas valve and the gas/air mixer in the plugged-in configuration of the same. Preferably, the anti-rotation element of the gas outlet of the gas valve and the anti-rotation element of the gas inlet of the gas/air mixer act together in a form-fit manner when the gas outlet of the gas valve and the gas inlet of the gas/air mixer are plugged together. This provides a simple and reliable anti-rotation feature to prevent a rotation between the gas valve and the gas/air mixer when the same are plugged together.

[0006] Preferably, the gas outlet of the gas valve comprises a male-like section with the anti-rotation element of the gas outlet being provided by a geometrical shape of said male-like section; wherein the gas inlet of the gas/air mixer comprises a female-like section with the anti-rotation element of the gas inlet being provided by a geometrical shape of said female-like section; and wherein said anti-rotation element of the gas outlet of the gas valve engages said anti-rotation element of the gas inlet of the gas/air mixer in a form-fit manner when the male-like section of the gas valve is plugged into the female-like section of the gas/air mixer thereby preventing a rotation between the gas valve and the gas/air mixer when the same are plugged together. This provides a simple and reliable anti-rotation feature to prevent a rotation between the gas valve and the gas/air mixer when the same are plugged together.

[0007] Preferred developments of the invention are provided by the dependent claims and the description which follows. Exemplary embodiments are explained in more detail on the basis of the drawing, in which:

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- Figure 1 shows a perspective view of an assembly according to the present invention comprising a gas valve and a gas/air mixer and a clip or clamp;
 - Figure 2 shows a partial exploded view of the assembly of Figure 1;
 - Figure 3 shows a partial cross section through the assembly of Figure 1;
 - Figure 4 shows a first detail of the assembly of Figure 1;
 - Figure 5 shows a second detail of the assembly of Figure 1;
 - Figure 6 shows a perspective view of the detail of Figure 3 with the clip or clamp being released;
 - Figure 7 shows a first detail of the detail of Figure 3 with the clip or clamp being mounted to a gas inlet of the gas/air mixer;
 - Figure 8 shows a second detail of the detail of Figure 3 with the clip or clamp being mounted to a gas outlet of the gas valve;
 - Figure 9 shows an alternative for the detail of Figure 4; and
 - Figure 10 shows an alternative for the detail of Figure 5.

[0008] The invention relates to an assembly comprising a gas valve 10 and a gas/air mixer 11. Such an assembly is used to provide gas and air in a proper ratio, to mix the gas and the air thereby providing a gas/air mixture for a gas burner combusting the gas/air mixture within a burner chamber of the same.

[0009] The gas valve 10 comprises a gas valve housing 12. The gas valve housing 12 provides a gas inlet 13 through which the gas valve 10 is connectable to a gas pipe (not shown). The gas valve housing 12 further provides a gas outlet 14 through which the gas valve 10 is connectable to the gas/air mixer 11. The gas valve 10 comprises control elements to control the gas flow through the same. The gas/air mixer 11 comprises a gas/air mixer housing 15. The gas/air mixer housing 15 provides a gas inlet 16 through which the gas/air mixer 11 is connectable to the gas outlet 14 of the gas valve 10. The gas/air mixer housing 15 further provides an air inlet 17, a gas/air mixture outlet 18.

[0010] In the shown embodiment, the gas/air mixer 11 is an integral part of a gas/air train system comprising the gas/air mixer 11 and a fan housing 39 of a fan. The gas/air mixture outlet 18 is in the shown embodiment provided by a mounting socket 19 of the fan housing 39. The assembly is mountable to a burner or heat exchanger by said mounting socket 19. The fan adjusts the air flow.

[0011] The gas outlet 14 of the gas valve 10 and the

gas inlet 16 of the gas/air mixer 11 are connected together.

[0012] The gas outlet 14 of the gas valve 10 and the gas inlet 16 of the gas/air mixer 11 are connected together in such a way that the gas outlet 14 of the gas valve 10 and the gas inlet 16 of the gas/air mixer 11 are plugged together and fixed together in the plugged-in configuration by a clip or a clamp 20.

[0013] In the shown preferred embodiment the gas outlet 14 of the gas valve 10 comprises a male-like section 21 like a protrusion and the gas inlet 16 of the gas/air mixer 11 comprises a female-like section 22 like an opening, wherein the male-like section 21 of the gas outlet 14 of the gas valve 10 is plugged into the female-like section 22 of the gas inlet 16 of the gas/air mixer 11. In the plugged-in configuration the gas outlet 14 of the gas valve 10 and the gas inlet 16 of the gas/air mixer 11 become sealed against each other by a sealing element 23 positioned between the same.

[0014] The gas outlet 14 of the gas valve 10 and the gas inlet 16 of the gas/air mixer 11 both comprise anti-rotation elements 24, 25 preventing a rotation between the gas valve 10 and the gas/air mixer 11 when the same are plugged together. The anti-rotation element 24 of the gas outlet 14 of the gas valve 10 and the anti-rotation element 25 of the gas inlet 16 of the gas/air mixer 11 act together in a form-fit manner when the gas outlet 14 of the gas valve 10 and the gas inlet 16 of the gas/air mixer 11 are plugged together. This provides a simple and reliable anti-rotation feature to prevent a rotation between the gas valve 10 and the gas/air mixer 11 when the same are plugged together.

[0015] The anti-rotation element 24 of the gas outlet 14 of the gas valve 10 is provided by a geometrical shape of the male-like section 21 of the gas outlet 14 of the gas valve 10. The anti-rotation element 25 of the gas inlet 16 of the gas/air mixer 11 is provided by a geometrical shape of the female-like section 22 of the gas inlet 16 of the gas/air mixer 11.

[0016] As can be best seen in Figures 4 and 5, the anti-rotation element 24 of the gas outlet 14 of the gas valve 10 is provided by an angular, preferably hexagonal, geometrical shape of an outer surface of the male-like section 21 of the gas outlet 14 of the gas valve 10. The anti-rotation element 25 of the gas inlet 16 of the gas/air mixer 11 is provided by an angular, for example hexagonal, geometrical shape of an inner surface of the female-like section 22 of the gas inlet 16 of the gas/air mixer 11.

[0017] The angular geometrical shape provided at the male-like section 21 of the gas outlet 14 of the gas valve 10 engages with the angular geometrical shape provided at the female-like section 22 of the gas inlet 16 of the gas/air mixer 11 when the gas outlet 14 of the gas valve 10 and the gas inlet 16 of the gas/air mixer 11 are plugged together.

[0018] Such anti-rotation elements 24 and 25 provided by said angular, preferably hexagonal, geometrical shapes withstand high holding torques as these are re-

quired for the assembly of a gas pipe to the gas inlet 13 of the gas valve 10. Figures 9 and 10 show an alternative design of the anti-rotation elements 24 and 25. According to Figures 9 and 10, the anti-rotation element 24 of the male-like section 21 of the gas outlet 14 of the gas valve 10 is provided by a crown-like geometrical shape having several protrusions 26 and several recesses 27 positioned side-by-side in circumferential direction of the gas outlet 14.

[0019] The anti-rotation element 25 of the female-like section 22 of the gas inlet 16 of the gas/air mixer 11 is provided by a crown-like geometrical shape having several protrusions 28 and recesses 29 positioned side-by-side in circumferential direction of the gas inlet 16.

[0020] The protrusions 26 of the crown-like geometrical shape of the anti-rotation element 24 of the gas valve 10 engage with the recesses 29 of the crown-like geometrical shape of the anti-rotation element 25 of the gas/air mixer 11 and the protrusions 28 of the crown-like geometrical shape of the anti-rotation element 25 of the gas/air mixer 11 engage with the recesses 27 of the crown-like geometrical shape of the anti-rotation element 24 of the gas valve 10 when the gas outlet 14 of the gas valve 10 and the gas inlet 16 of the gas/air mixer 11 are plugged together. Such anti-rotation elements 24 and 25 provided by said crown-like geometrical shapes provide less clearance in the connection.

[0021] As mentioned above, the gas outlet 14 of the gas valve 10 and the gas inlet 16 of the gas/air mixer 11 are fixed together in the plugged-in configuration by a clip or a clamp 20.

[0022] The gas inlet 16 of the gas/air mixer 11 comprises a rotation-limitation element 30 limiting or preventing a rotation of the clip or the clamp 20 when the gas valve 10 and the gas/air mixer 11 are fixed together by the clip or the clamp 20. Said rotation-limitation element 30 of the gas inlet 16 of the gas/air mixer 11 is provided by a protrusion 31 of an outer surface of the gas inlet 16 of the gas/air mixer 11.

[0023] The clip or the clamp 20 comprises two halves 32, 33 (see Figures 2, 6, 7 and 8) that are attached to each other at first ends of the same providing an elastically deformable clip or the clamp 20.

[0024] Each half 32, 33 comprises a first clamping leg 34 engaging an outer section of the gas outlet 14 of the gas valve 10 and second clamping leg 25 engaging an outer section of the gas inlet 16 of the gas/air mixer 11. The first clamping leg 34 and the second clamping leg 35 of each half 32, 33 are at least partially separated by a slot 36. Each slot 36 engages with a protrusion 37 provided at an outer surface of the gas inlet 16 of the gas/air mixer 11; wherein said protrusion 37 is provided opposite to the protrusion 31 providing the rotation-limitation element 30.

[0025] The protrusion 37 acting together with the slots 36 of the clamp 20 has a circumferential expanse of approximately 180° and the protrusion 31 providing the rotation-limitation element 30 for the clamp 20 has a cir-

cumferential expanse of approximately 80°.

[0026] The second clamping leg 35 of each half 32, 33 is guided within a groove 38 provided at the outer surface of the gas inlet 16 of the gas/air mixer 11. The groove 38 is at one side partially confined by the protrusion 37. The rotation-limitation element 30 serves as stop element for second, free ends of the halves 32, 33 being opposite to the first ends of the same, namely as stop elements for the free ends of the second clamping legs 35 of the halves 32, 33.

[0027] The free ends of the halves 32, 33 of the clip or the clamp 20 confine an angle of approximately 100°. The protrusion 31 providing the rotation-limitation element 30 for the clamp 20 is positioned between said free ends when the clamp 20 is in the mounting position. A slight rotation of the clamp 20 in the mounting position of the same is possible, wherein the protrusion 31 providing the rotation-limitation element 30 acts as stop element limiting said rotation.

[0028] The present invention provides at least a fixed relative orientation between the gas valve 10 and the gas/air mixer 11 in the plugged-in configuration of the same. Preferably, the present invention further provides a fixed relative orientation between the clip 20 and the gas valve 11 as well as between the clip 20 and the gas/air mixer 11 when the gas valve 10 and the gas/air mixer 11 are fixed together by the clip 20 in the plugged-in configuration of the same.

List of reference signs

[0029]

10	gas valve
11	gas/air mixer
12	gas valve housing
13	gas inlet
14	gas outlet
15	gas/air mixer housing
16	gas inlet
17	air inlet
18	gas/air mixture outlet
19	mounting socket
20	clamp
21	male-like section
22	female-like section
23	sealing element
24	anti-rotation element
25	anti-rotation element
26	protrusion
27	recess
28	protrusion
29	recess
30	rotation-limitation element
31	protrusion
32	half
33	half
34	clamping leg

35	clamping leg
36	slot
37	protrusion
38	groove
39	fan housing

Claims

- 10 **1.** Assembly comprising a gas valve (10) and a gas/air mixer (11),

15 wherein the gas valve (10) comprises a gas valve housing (12) providing a gas inlet (13) through which the gas valve (10) is connectable to a gas pipe, and further providing a gas outlet (14) through which the gas valve (10) is connectable to the gas/air mixer (11);

20 wherein the gas/air mixer (11) comprises a gas/air mixer housing (15) providing a gas inlet (16) through which the gas/air mixer (11) is connectable to the gas outlet (14) of the gas valve (10), providing an air inlet (17), and further providing an gas/air mixture outlet (18);

25 wherein the gas outlet (14) of the gas valve (10) and the gas inlet (16) of the gas/air mixer (11) are connected together in such a way that the gas outlet (14) of the gas valve (10) and the gas inlet (16) of the gas/air mixer (11) are plugged together and in the plugged-in configuration fixed together by a clip or a clamp (20);

characterized in that

35 the gas outlet (14) of the gas valve (10) and the gas inlet (16) of the gas/air mixer (11) comprise anti-rotation elements (24, 25) preventing a rotation between the gas valve (10) and the gas/air mixer (11) when the same are plugged together; the gas inlet (16) of the gas/air mixer (11) comprises a rotation-limitation element (30) limiting or preventing a rotation of the clip or the clamp (20) when the gas valve (10) and the gas/air mixer (11) are fixed together by the clip or the clamp (20).

- 40 **2.** Assembly as claimed in claim 1, **characterized in that** the anti-rotation element (24) of the gas outlet (14) of the gas valve (10) and the anti-rotation element (15) of the gas inlet (16) of the gas/air mixer (11) act together in a form-fit manner when the gas outlet (14) of the gas valve (10) and the gas inlet (16) of the gas/air mixer (11) are plugged together.

- 50 **3.** Assembly as claimed in claim 1 or 2, **characterized in that**

the gas outlet (14) of the gas valve (10) com-

prises a male-like section (21) with the anti-rotation element (24) of the gas outlet (14) being provided by a geometrical shape of said male-like section (21);

the gas inlet (16) of the gas/air mixer (11) comprises a female-like section (22) with the anti-rotation element (25) of the gas inlet (16) being provided by a geometrical shape of said female-like section (22);

said anti-rotation element (24) of the gas outlet (14) of the gas valve (10) engages said anti-rotation element (25) of the gas inlet (16) of the gas/air mixer (11) in a form-fit manner when the male-like section (21) of the gas valve (10) is plugged into the female-like section (22) of the gas/air mixer (11) thereby preventing a rotation between the gas valve and the gas/air mixer when the same are plugged together.

4. Assembly as claimed in one of claims 1 to 3, characterized in that

the anti-rotation element (24) of the gas outlet (14) of the gas valve (10) is provided by a crown-like geometrical shape having several protrusions (26) and several recesses (27) positioned side-by-side in circumferential direction of the gas outlet (14);

the anti-rotation element (25) of the gas inlet (16) of the gas/air mixer (11) is provided by a crown-like geometrical shape having several protrusions (28) and recesses (29) positioned side-by-side in circumferential direction of the gas inlet (16);

the protrusions (26) of the crown-like geometrical shape of the anti-rotation element (24) of the gas valve (10) engage with the recesses (29) of the crown-like geometrical shape of the anti-rotation element (25) of the gas/air mixer (11) and that the protrusions (28) of the crown-like geometrical shape of the anti-rotation element (25) of the gas/air mixer (11) engage with the recesses (27) of the crown-like geometrical shape of the anti-rotation element (24) of the gas valve (10) when the gas outlet (14) of the gas valve (10) and the gas inlet (16) of the gas/air mixer (11) are plugged together.

5. Assembly as claimed in one of claims 1 to 3, characterized in that

the anti-rotation element (24) of the gas outlet (14) of the gas valve (10) is provided by an angular, preferably hexagonal, geometrical shape of an outer surface of the gas outlet (14) of the gas valve (10);

the anti-rotation element (25) of the gas inlet (16) of the gas/air mixer (11) is provided by an an-

gular, preferably hexagonal, geometrical shape of an inner surface of the gas inlet (16) of the gas/air mixer (11);

the angular geometrical shape of the gas valve (10) engages with the angular geometrical shape of the gas/air mixer (11) when the gas outlet (14) of the gas valve (10) and the gas inlet (16) of the gas/air mixer (11) are plugged together.

6. Assembly as claimed in one of claims 1 to 5, characterized in that the rotation-limitation element (30) of the gas inlet (16) of the gas/air mixer (11) is provided by a protrusion (31) of an outer surface of the gas inlet (16) of the gas/air mixer (11).

7. Assembly as claimed in one of claims 1 to 6, characterized in that

the clip or the clamp (20) comprises two halves (32, 33) that are attached to each other at first ends of the same providing an elastically deformable clip or the clamp (20);

each half (32, 33) comprises a first clamping leg (34) engaging a section of the gas outlet (14) of the gas valve (10) and second clamping leg (35) engaging a section of the gas inlet (16) of the gas/air mixer (11);

the first clamping leg (34) and the second clamping leg (35) of each half (32, 33) are at least partially separated by a slot (36);

each slot (36) engages with a protrusion (37) provided at an outer surface of the gas inlet (16) of the gas/air mixer (11), wherein said protrusion (37) is provided opposite to the rotation-limitation element (30);

the rotation-limitation element (30) serves as stop element for second, free ends of the halves (32, 33) being opposite to the first ends of the same.

8. Assembly as claimed in one of claims 1 to 7, characterized in that

the gas/air mixer (11) is an integral part of a gas/air train system comprising the gas/air mixer (11) and a fan housing (39) of a fan.

50 Patentansprüche

1. Anordnung, umfassend ein Gasventil (10) und einen Gas-Luft-Mischer (11), wobei das Gasventil (10) ein Gasventilgehäuse (12) umfasst, das einen Gaseinlass (13) bereitstellt, durch den das Gasventil (10) an eine Gasleitung anschließbar ist, und das ferner einen Gasauslass (14) bereitstellt, durch den das Gasventil (10) an den

Gas-Luft-Mischer (11) anschließbar ist, wobei der Gas-Luft-Mischer (11) ein Gas-Luft-Mischergehäuse (15) umfasst, das einen Gaseinlass (16) bereitstellt, durch den der Gas-Luft-Mischer (11) an den Gasauslass (14) des Gasventils (10) anschließbar ist, das einen Lufteinlass (17) bereitstellt und das ferner einen Gas-Luft-Mischungsauslass (18) bereitstellt,

wobei der Gasauslass (14) des Gasventils (10) und der Gaseinlass (16) des Gas-Luft-Mischers (11) auf eine solche Weise miteinander verbunden sind, dass der Gasauslass (14) des Gasventils (10) und der Gaseinlass (16) des Gas-Luft-Mischers (11) zusammengesteckt sind und in der eingesteckten Anordnung durch eine Klemme oder eine Klammer (20) aneinander befestigt sind,

dadurch gekennzeichnet, dass

der Gasauslass (14) des Gasventils (10) und der Gaseinlass (16) des Gas-Luft-Mischers (11) Drehsicherungselemente (24, 25) umfassen, die eine Drehung zwischen dem Gasventil (10) und dem Gas-Luft-Mischer (11) verhindern, wenn diese zusammengesteckt sind,

der Gaseinlass (16) des Gas-Luft-Mischers (11) ein Drehungsbegrenzungselement (30) umfasst, das eine Drehung der Klemme oder der Klammer (20) begrenzt oder verhindert, wenn das Gasventil (10) und der Gas-Luft-Mischer (11) durch die Klemme oder die Klammer (20) aneinander befestigt sind.

2. Anordnung nach Anspruch 1, **dadurch gekennzeichnet, dass** das Drehsicherungselement (24) des Gasauslasses (14) des Gasventils (10) und das Drehsicherungselement (25) des Gaseinlasses (16) des Gas-Luft-Mischers (11) auf eine formschlüssige Weise zusammenwirken, wenn der Gasauslass (14) des Gasventils (10) und der Gaseinlass (16) des Gas-Luft-Mischers (11) zusammengesteckt sind.

3. Anordnung nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass**

der Gasauslass (14) des Gasventils (10) einen steckerartigen Abschnitt (21) umfasst, wobei das Drehsicherungselement (24) des Gasauslasses (14) durch eine geometrische Form des steckerartigen Abschnitts (21) bereitgestellt ist,

der Gaseinlass (16) des Gas-Luft-Mischers (11) einen buchsenartigen Abschnitt (22) umfasst, wobei das Drehsicherungselement (25) des Gaseinlasses (16) durch eine geometrische Form des buchsenartigen Abschnitts (22) bereitgestellt ist,

das Drehsicherungselement (24) des Gasauslasses (14) des Gasventils (10) mit dem Drehsicherungselement (25) des Gaseinlasses (16) des Gas-Luft-Mischers (11) auf eine formschlüssige Weise eingreift, wenn der steckerartige Abschnitt (21) des Gasventils (10) in den buchsenartigen Abschnitt (22) des Gas-Luft-Mischers (11) gesteckt ist, und da-

durch eine Drehung zwischen dem Gasventil und dem Gas-Luft-Mischer verhindert, wenn diese zusammengesteckt sind.

4. Anordnung nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass**

das Drehsicherungselement (24) des Gasauslasses (14) des Gasventils (10) durch eine kronenartige geometrische Form bereitgestellt ist, die mehrere Vorsprünge (26) und mehrere Ausnehmungen (27) aufweist, die in der Umfangsrichtung des Gasauslasses (14) nebeneinander positioniert sind,

das Drehsicherungselement (25) des Gaseinlasses (16) des Gas-Luft-Mischers (11) durch eine kronenartige geometrische Form bereitgestellt ist, die mehrere Vorsprünge (28) und Ausnehmungen (29) aufweist, die in der Umfangsrichtung des Gaseinlasses (16) nebeneinander positioniert sind,

die Vorsprünge (26) der kronenartigen geometrischen Form des Drehsicherungselements (24) des Gasventils (10) mit den Ausnehmungen (29) der kronenartigen geometrischen Form des Drehsicherungselements (25) des Gas-Luft-Mischers (11) eingreifen und dass die Vorsprünge (28) der kronenartigen geometrischen Form des Drehsicherungselements (25) des Gas-Luft-Mischers (11) mit den Ausnehmungen (27) der kronenartigen geometrischen Form des Drehsicherungselements (24) des Gasventils (10) eingreifen, wenn der Gasauslass (14) des Gasventils (10) und der Gaseinlass (16) des Gas-Luft-Mischers (11) zusammengesteckt sind.

5. Anordnung nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass**

das Drehsicherungselement (24) des Gasauslasses (14) des Gasventils (10) durch eine eckige, vorzugsweise sechseckige, geometrische Form einer Außenfläche des Gasauslasses (14) des Gasventils (10) bereitgestellt ist,

das Drehsicherungselement (25) des Gaseinlasses (16) des Gas-Luft-Mischers (11) durch eine eckige, vorzugsweise sechseckige, geometrische Form einer Innenfläche des Gaseinlasses (16) des Gas-Luft-Mischers (11) bereitgestellt ist,

die eckige geometrische Form des Gasventils (10) mit der eckigen geometrischen Form des Gas-Luft-Mischers (11) eingreift, wenn der Gasauslass (14) des Gasventils (10) und der Gaseinlass (16) des Gas-Luft-Mischers (11) zusammengesteckt sind.

6. Anordnung nach einem der Ansprüche 1 bis 5, **dadurch gekennzeichnet, dass**

das Drehbegrenzungselement (30) des Gaseinlasses (16) des Gas-Luft-Mischers (11) durch einen Vorsprung (31) einer Außenfläche des Gaseinlasses (16) des Gas-Luft-Mischers (11) bereitgestellt ist.

7. Anordnung nach einem der Ansprüche 1 bis 6, **da-**

durch gekennzeichnet, dass

die Klemme oder die Klammer (20) zwei Hälften (32, 33) umfasst, die an ersten Enden derselben aneinander angebracht sind, wodurch eine elastische verformbare Klemme oder die Klammer (20) bereitgestellt wird,

jede Hälfte (32, 33) einen ersten Klemmschenkel (34), der mit einem Abschnitt des Gasauslasses (14) des Gasventil (10) eingreift, und einen zweiten Klemmschenkel (35), der mit einem Abschnitt des Gaseinlasses (16) des Gas-Luft-Mischers (11) eingreift, umfasst,

der erste Klemmschenkel (34) und der zweite Klemmschenkel (35) jeder Hälfte (32, 33) wenigstens zum Teil durch einen Schlitz (36) getrennt sind, jeder Schlitz (36) mit einem Vorsprung (37) eingreift, der an einer Außenfläche des Gaseinlasses (16) des Gas-Luft-Mischers (11) bereitgestellt ist, wobei der Vorsprung (37) gegenüber von dem Drehbegrenzungselement (30) bereitgestellt ist,

das Drehbegrenzungselement (30) als Anschlagenelement für zweite, freie Enden der Hälften (32, 33) dient, die den ersten Enden derselben gegenüberliegen.

8. Anordnung nach einem der Ansprüche 1 bis 7, dadurch gekennzeichnet, dass

der Gas-Luft-Mischer (11) ein integraler Bestandteil eines Gas-Luft-Zugsystems ist, das den Gas-Luft-Mischer (11) und ein Lüftergehäuse (39) eines Lüfters umfasst.

Revendications

1. Ensemble comprenant une soupape de gaz (10) et un mélangeur gaz/air (11),

la soupape de gaz (10) comprenant un boîtier de soupape de gaz (12) fournissant une entrée de gaz (13) à travers laquelle la soupape de gaz (10) peut être raccordée à une conduite de gaz, et fournissant en outre une sortie de gaz (14) à travers laquelle la soupape de gaz (10) peut être raccordée au mélangeur gaz/air (11) ;

le mélangeur gaz/air (11) comprenant un boîtier de mélangeur gaz/air (15) fournissant une entrée de gaz (16) à travers laquelle le mélangeur gaz/air (11) peut être connecté à la sortie de gaz (14) de la soupape de gaz (10), fournissant une entrée d'air (17), et fournissant en outre une sortie de mélange gaz/air (18) ;

la sortie de gaz (14) de la soupape de gaz (10) et l'entrée de gaz (16) du mélangeur gaz/air (11) étant raccordées ensemble de sorte que la sortie de gaz (14) de la soupape de gaz (10) et l'entrée de gaz (16) du mélangeur gaz/air (11) soient branchées ensemble et dans la configuration branchée fixées ensemble par une pince ou une agrafe (20) ;

caractérisé en ce que

la sortie de gaz (14) de la soupape de gaz (10) et l'entrée de gaz (16) du mélangeur gaz/air (11) comprennent des éléments anti-rotation (24, 25) empêchant une rotation entre la soupape de gaz (10) et le mélangeur gaz/air (11) lorsqu'ils sont branchés ensemble ;

l'entrée de gaz (16) du mélangeur gaz/air (11) comprend un élément de limitation de rotation (30) limitant ou empêchant une rotation de la pince ou de l'agrafe (20) lorsque la soupape de gaz (10) et le mélangeur gaz/air (11) sont fixés ensemble par la pince ou l'agrafe (20).

2. Ensemble selon la revendication 1, caractérisé en ce que l'élément anti-rotation (24) de la sortie de gaz (14) de la soupape de gaz (10) et l'élément anti-rotation (15) de l'entrée de gaz (16) du mélangeur gaz/air (11) agissent ensemble en complémentarité de forme lorsque la sortie de gaz (14) de la soupape de gaz (10) et l'entrée de gaz (16) du mélangeur gaz/air (11) sont branchées ensemble.

3. Ensemble selon la revendication 1 ou 2, caractérisé en ce que

la sortie de gaz (14) de la soupape de gaz (10) comprend une section de type mâle (21), l'élément anti-rotation (24) de la sortie de gaz (14) étant fourni par une forme géométrique de ladite section de type mâle (21) ;

l'entrée de gaz (16) du mélangeur gaz/air (11) comprend une section de type femelle (22), l'élément anti-rotation (25) de l'entrée de gaz (16) étant fourni par une forme géométrique de ladite section de type femelle (22) ;

ledit élément anti-rotation (24) de la sortie de gaz (14) de la soupape de gaz (10) vient en prise avec ledit élément anti-rotation (25) de l'entrée de gaz (16) du mélangeur gaz/air (11) par complémentarité de forme lorsque la section de type mâle (21) de la soupape de gaz (10) est branchée dans la section en forme de femelle (22) du mélangeur gaz/air (11) empêchant ainsi une rotation entre la soupape de gaz et le mélangeur gaz/air lorsque ceux-ci sont branchés ensemble.

4. Ensemble selon l'une des revendications 1 à 3, caractérisé en ce que

l'élément anti-rotation (24) de la sortie de gaz (14) de la soupape de gaz (10) est fourni par une forme géométrique de type couronne ayant plusieurs saillies (26) et plusieurs évidements (27) positionnés côte à côte dans la direction circonférentielle de la sortie de gaz (14) ;

l'élément anti-rotation (25) de l'entrée de gaz (16) du mélangeur gaz/air (11) est fourni par une forme géométrique de type couronne ayant plusieurs saillies (28) et évidements (29) positionnés côte à

côte dans la direction circonférentielle de l'entrée de gaz (16) ;

les saillies (26) de la forme géométrique de type couronne de l'élément anti-rotation (24) de la soupape de gaz (10) viennent en prise avec les évidements (29) de la forme géométrique de type couronne de l'élément anti-rotation (25) du mélangeur gaz/air (11) et les saillies (28) de la forme géométrique de type couronne de l'élément anti-rotation (25) du mélangeur gaz/air (11) viennent en prise avec les évidements (27) de la forme géométrique de type couronne de l'élément anti-rotation (24) de la soupape de gaz (10) lorsque la sortie de gaz (14) de la soupape de gaz (10) et l'entrée de gaz (16) du mélangeur gaz/air (11) sont branchées ensemble.

5. Ensemble selon l'une des revendications 1 à 3, caractérisé en ce que

l'élément anti-rotation (24) de la sortie de gaz (14) de la soupape de gaz (10) est fourni par une forme géométrique angulaire, de préférence hexagonale, d'une surface extérieure de la sortie de gaz (14) de la soupape de gaz (10) ;

l'élément anti-rotation (25) de l'entrée de gaz (16) du mélangeur gaz/air (11) est fourni par une forme géométrique angulaire, de préférence hexagonale, d'une surface intérieure de l'entrée de gaz (16) du mélangeur gaz/air (11) ;

la forme géométrique angulaire de la soupape de gaz (10) vient en prise avec la forme géométrique angulaire du mélangeur gaz/air (11) lorsque la sortie de gaz (14) de la soupape de gaz (10) et l'entrée de gaz (16) du mélangeur gaz/air (11) sont branchées ensemble.

6. Ensemble selon l'une des revendications 1 à 5, caractérisé en ce que l'élément de limitation de rotation (30) de l'entrée de gaz (16) du mélangeur gaz/air (11) est fourni par une saillie (31) d'une surface extérieure de l'entrée de gaz (16) du mélangeur gaz/air (11).

7. Ensemble selon l'une des revendications 1 à 6, caractérisé en ce que

la pince ou l'agrafe (20) comprend deux moitiés (32, 33) qui sont attachées l'une à l'autre au niveau de ses premières extrémités, fournissant une pince ou agrafe élastiquement déformable (20) ;

chaque moitié (32, 33) comprend une première patte de serrage (34) venant en prise avec une section de la sortie de gaz (14) de la soupape de gaz (10) et une seconde patte de serrage (35) venant en prise avec une section de l'entrée de gaz (16) du mélangeur gaz/air (11) ;

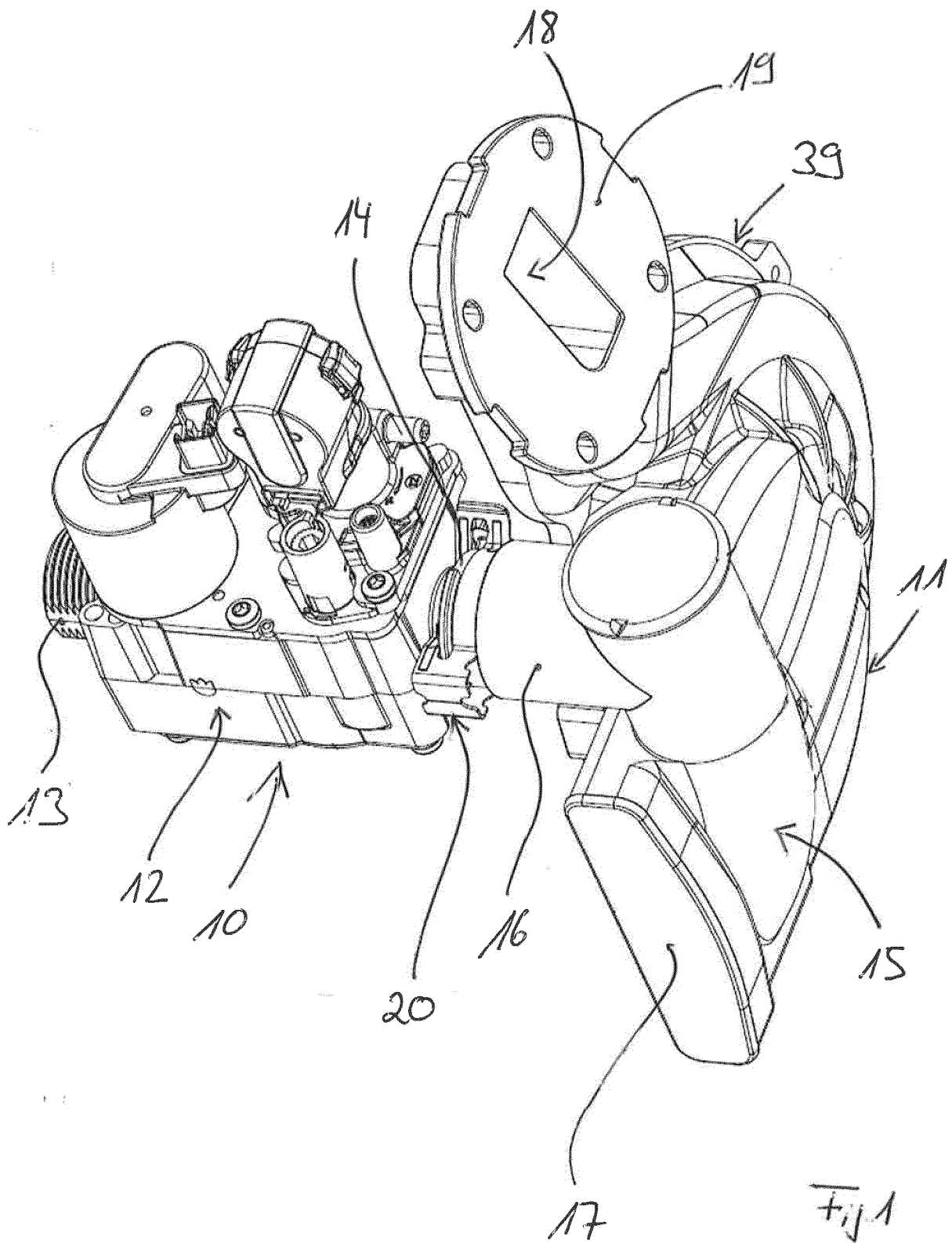
la première patte de serrage (34) et la seconde patte de serrage (35) de chaque moitié (32, 33) sont au moins partiellement séparées par une fente (36) ; chaque fente (36) vient en prise avec une saillie (37)

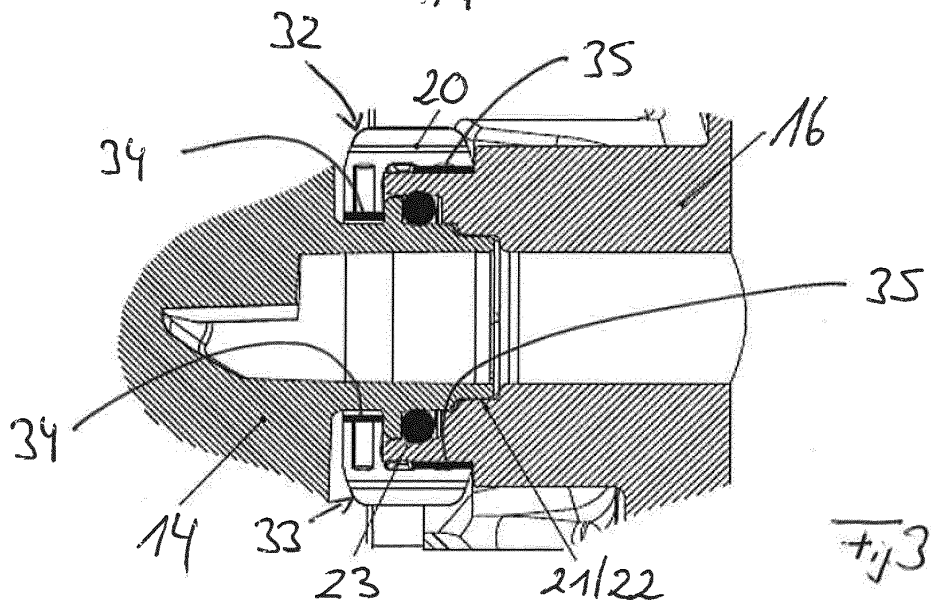
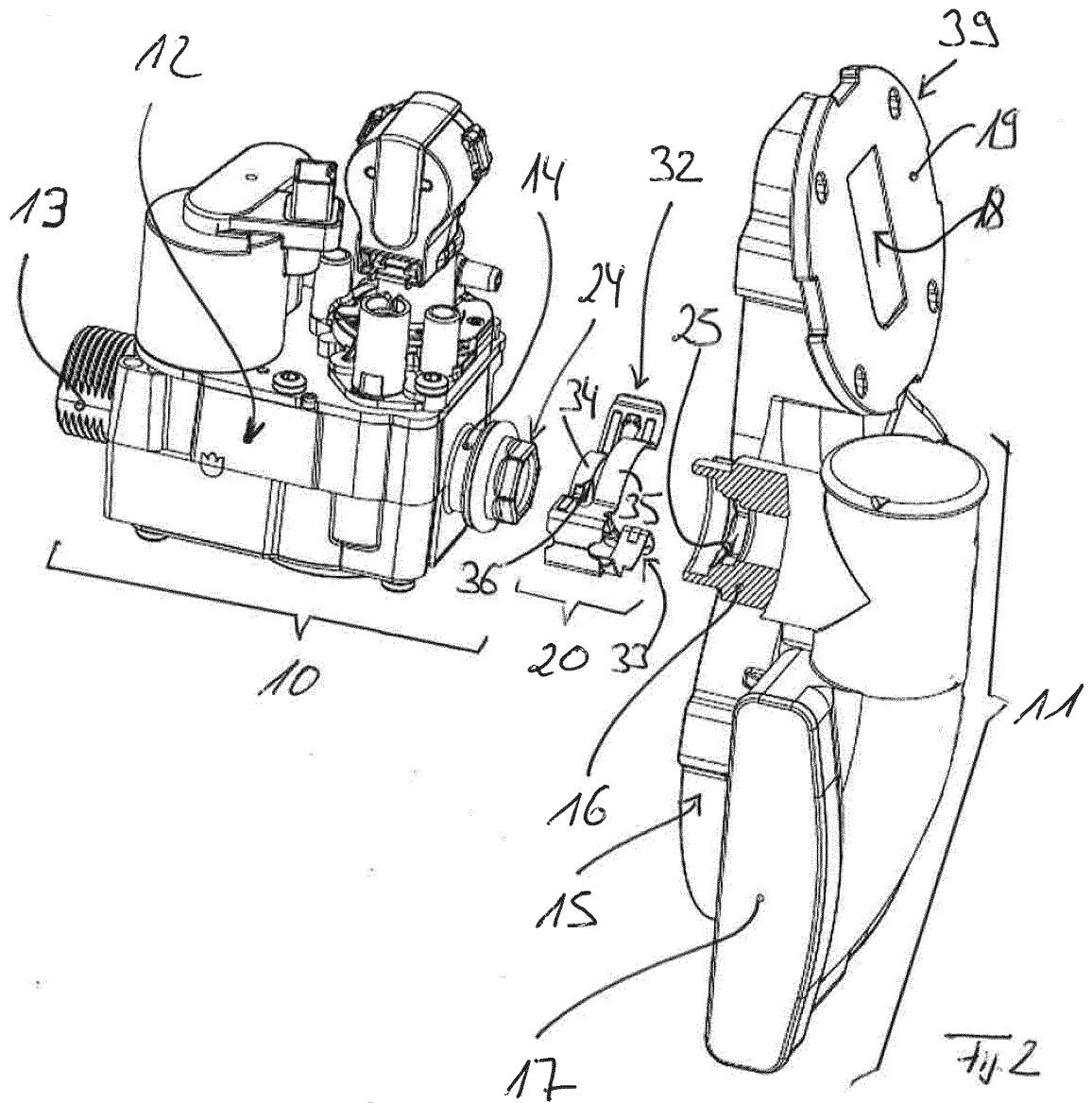
disposée au niveau d'une surface extérieure de l'entrée de gaz (16) du mélangeur gaz/air (11), ladite saillie (37) étant disposée à l'opposé de l'élément de limitation de rotation (30) ;

l'élément de limitation de rotation (30) sert d'élément de butée pour les secondes extrémités libres des moitiés (32, 33) opposées à leurs premières extrémités.

8. Ensemble selon l'une des revendications 1 à 7, caractérisé en ce que

le mélangeur gaz/air (11) fait partie intégrante d'un système de train gaz/air comprenant le mélangeur gaz/air (11) et un boîtier de ventilateur (39) d'un ventilateur.





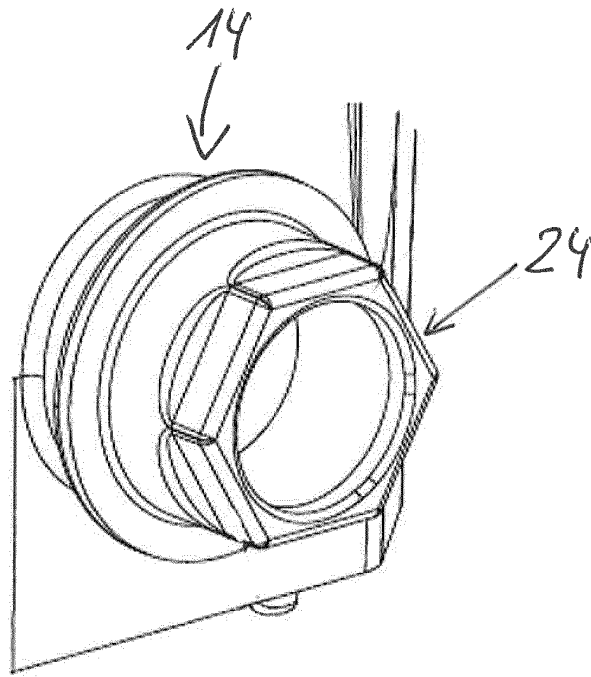


Fig. 4

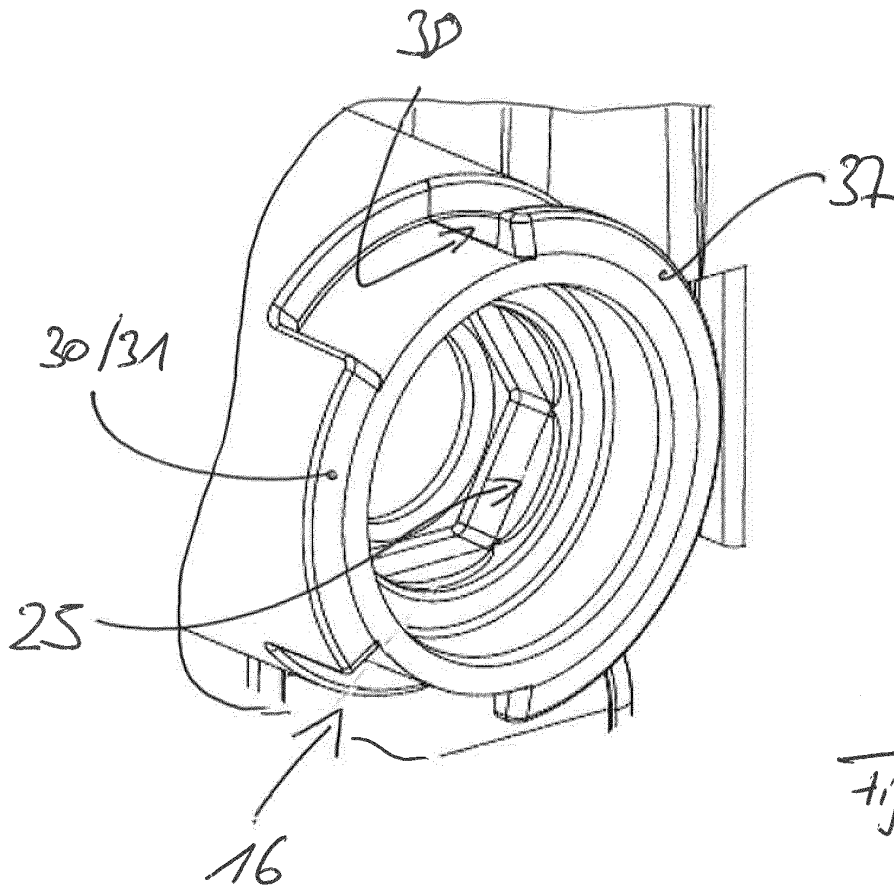
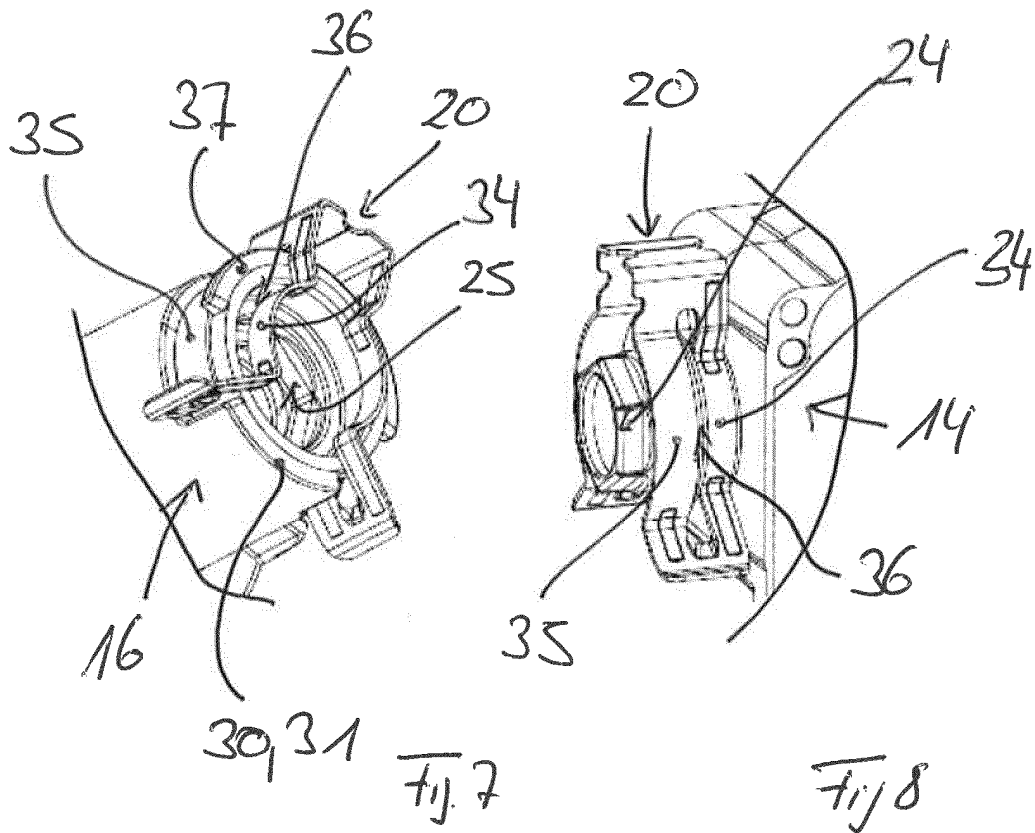
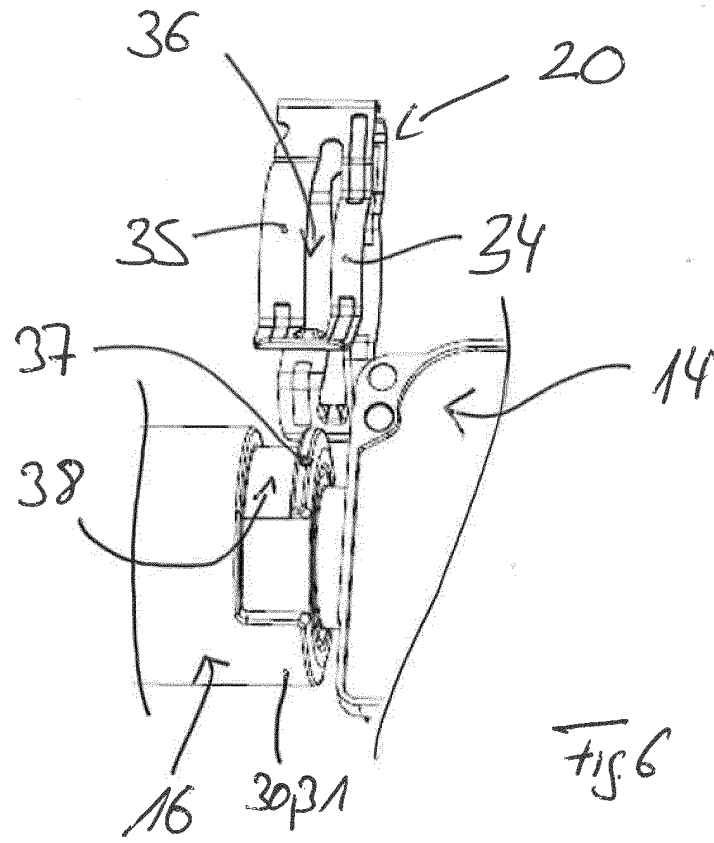
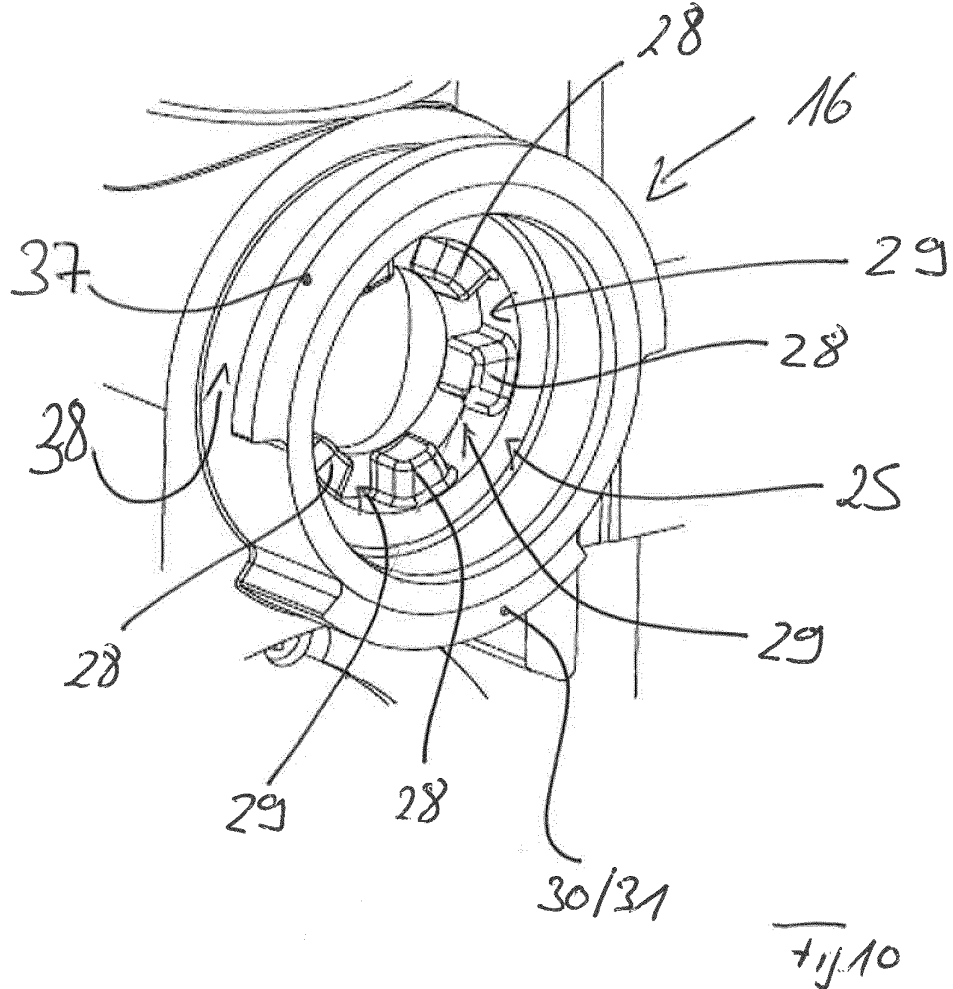
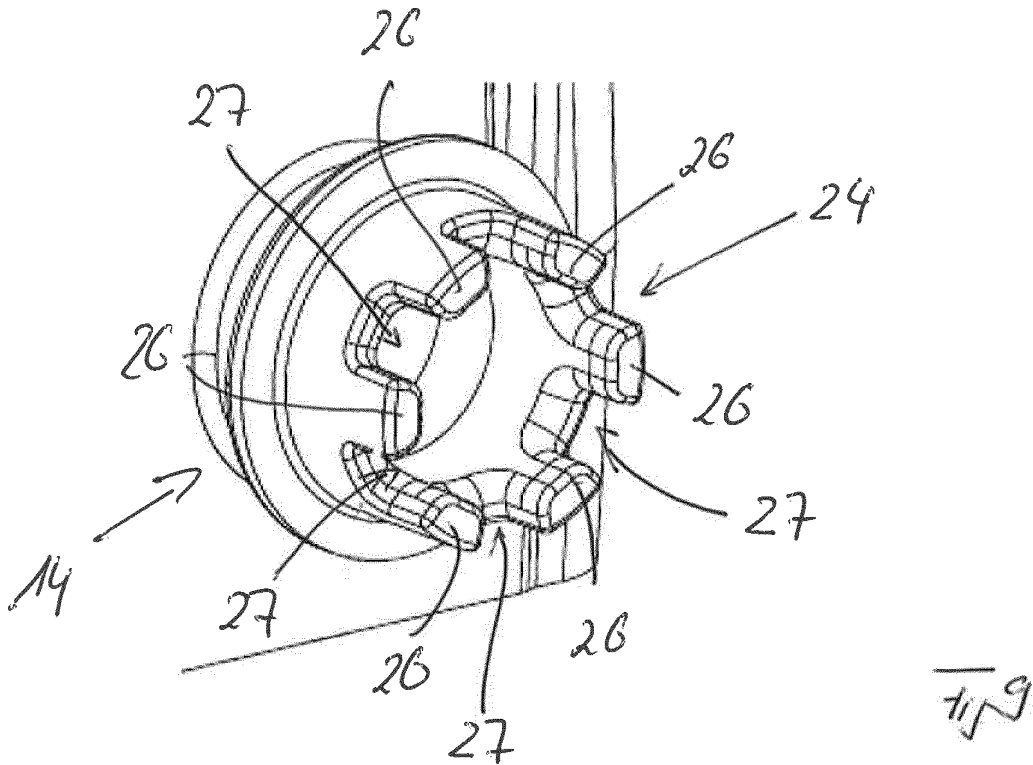


Fig. 5





REFERENCES CITED IN THE DESCRIPTION

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