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(54) **NUT FOR MAGNET UNITS**

(57) The invention relates to a coaxial safety valve that has been developed for safety gas taps used in domestic cooking appliances, the primary characteristics of which is that it comprises a thread allowing it to be directly mounted in the gas tap and a wrench head allowing it to be screwed into the gas tap. Thus, the need in the state of the art for the unions that are used for securing safety valves to gas taps and preventing thereof from being displaced has been eliminated. In this manner, not only the number of parts in safety gas taps is reduced, but also mounting steps of gas taps are facilitated. Accordingly, the invention is capable of replacing the existing coaxial magnets, wherein the basic difference is the manner in which the magnet is secured in the gas tap. Moreover, the invention according to the application is also different in that the coaxial (thermocouple connector), otherwise secured in the union in the state of the art, is connected directly to the magnet.

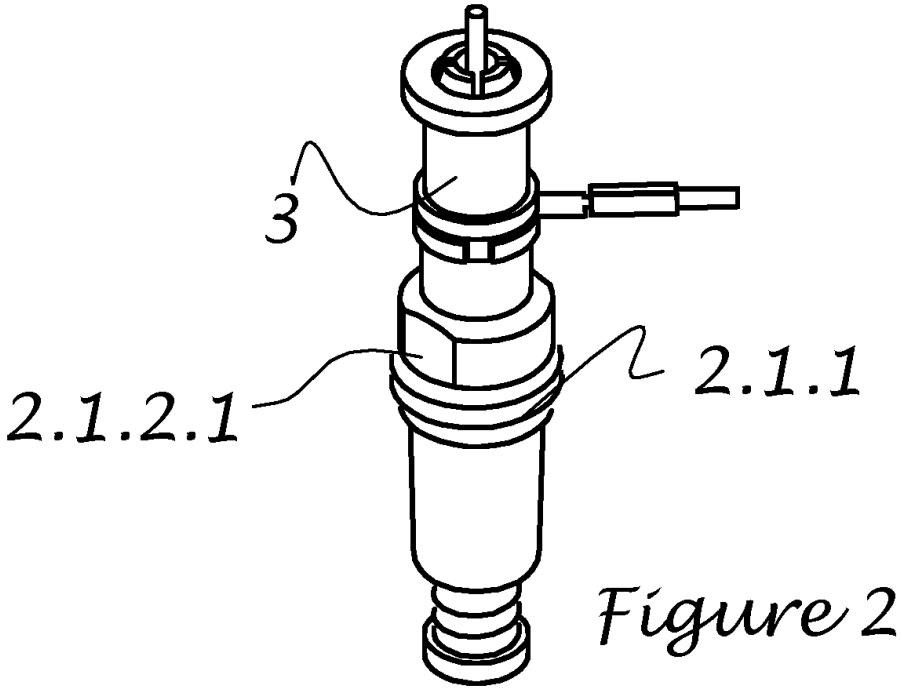

Figure 2

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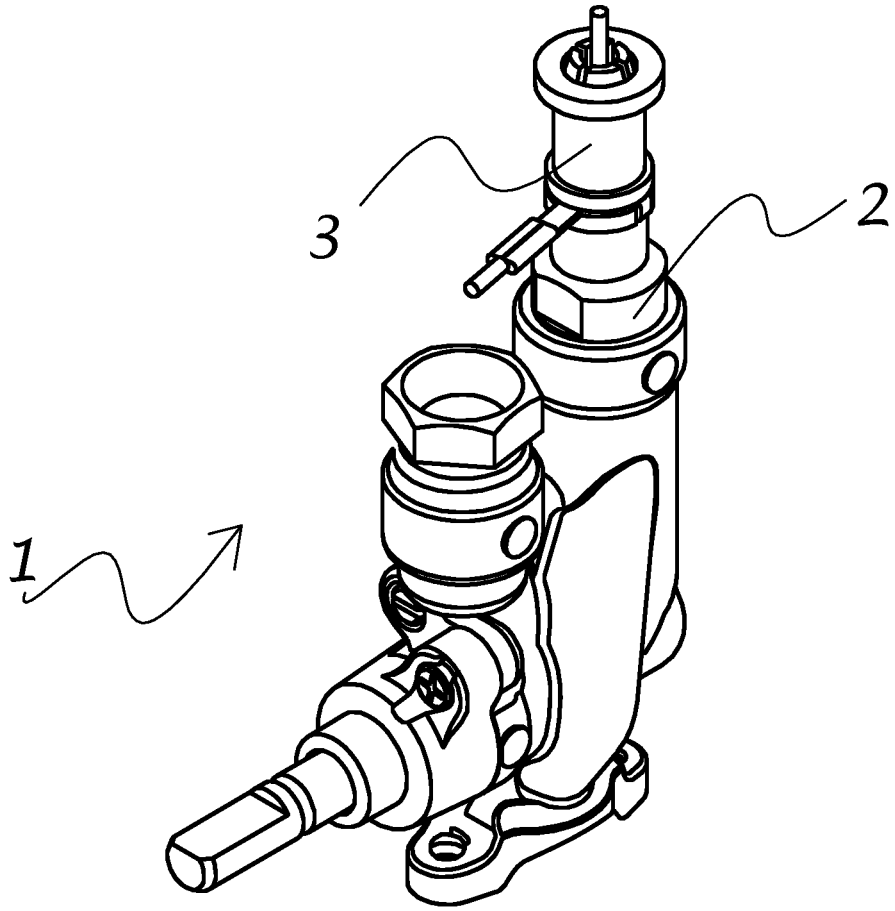


Figure 7

Description

TECHNICAL FIELD

[0001] The invention relates to a coaxial safety valve that has been developed for safety gas taps used in domestic cooking appliances, the primary characteristic of which is that it comprises a thread allowing it to be directly mounted in the gas tap and a wrench head allowing it to be screwed into the gas tap. Thus, the need in the state of the art for the unions that are used for securing safety valves to gas taps and preventing thereof from being displaced has been eliminated. In this manner, not only the number of parts in safety gas taps is reduced, but also mounting steps of gas taps are facilitated.

[0002] Today, unions are used in order to secure the magnet, which is used in safety gas taps and enables opening and closing gas passage way, into the corresponding bearing inside the tap and unions with different designs are needed depending on the magnet to be used. Most commonly used among them is the coaxial magnet union and the basic characteristics of the unions is that they are internally threaded while the gas tap body is externally threaded. Hence, subsequent to placing the magnet in the gas tap, the union is tightened into the tap body, thereby providing sealing. However, the coaxial magnet union according to the invention comprises a body having threads outside, by means of which direct mounting to the tap is achieved without any need for unions, and at the same time sealing is achieved by way of the wrench head consisting of two or more slots by screwing the same into the tap.

[0003] Accordingly, the invention is capable of replacing the existing coaxial magnets, wherein the basic difference is the manner in which the magnet is secured in the gas tap. Moreover, the invention according to the application is also different in that the coaxial (thermocouple connector), otherwise secured in the union in the state of the art, is connected directly to the magnet.

STATE OF THE ART

[0004] In the application No. EP 0805310 owned by the firm Copreci, dated 05.11.1997, a gas tap for domestic cookers is disclosed. In the tap mentioned in this application, an electromagnet is used; wherein a union is used for releasing said electromagnet in case it is pushed. However, although said union, referred with 7, mentioned in this application is designed as such, it is difficult to be produced; moreover, it is impossible to be mounted in gas taps. In addition, the system will easily cause gas leakage in case the union or magnet gets back in the system. With the invention according to the application, on the other hand, the need for using unions is totally eliminated owing to providing threads thereon.

[0005] In the European Patent Application No. EP0619460 made by ORKLI S.COOP. LTDA on 03.03.1994, the main principle which initially established the modern form is disclosed. This invention mainly consists of a female terminal, insulating material, and in the outermost section, a grounding terminal, as understood by the patent application. For principal implementation of the invention, it has also been compulsory to develop a union referred with 12 in the context of the invention. Furthermore, this connector is not capable of locking the thermocouple (4) to the safety magnet (2) group. Upon examining this invention, it will observed that there exists no mechanical tightening that will prevent the part numbered 4 from being displaced. Our invention according to the application, unlike the aforementioned application, comprises coaxial connection and it can be secured to the magnet and coaxial gas tap without requiring the use of a union.

[0006] As understood from the examples above, unions are used for allowing the magnet to be secured to the corresponding bearing in the tap body and coaxial connections are also achieved by said unions in the state of the art. In light of the state of the art mentioned above, it is an innovative approach to dispose a coaxial connection, as well as threads, in the magnet union body within safety gas taps used in domestic cooking appliances, and thus to eliminate the need for a union.

[0007] The present invention exceeds the state of the art since it solves the problems in the art; and it can be easily applied in gas taps having a safety valve which are used for domestic cooking appliances in the related industry. There exist many patent applications in literature regarding gas taps having a safety valve. Therefore, it is possible to give further examples in this regard. Nevertheless, it is thought that the above examples will be enough for providing an understanding of the invention.

OBJECTS OF THE INVENTION

[0008] The object of the invention is to design a coaxial threaded magnet union for safety gas taps used in domestic cooking appliances.

[0009] Another object of the invention is to provide a wrench head consisting of two or more slots for tightening the coaxial magnet union.

[0010] Another object of the invention is to dispose a gasket and a fixing element in the body thereof.

[0011] Yet another object of the invention is to provide the body with a coaxial (thermocouple connector) for connection.

[0012] And another object of the invention is to comprise, within the body, a fixing element bearing, a gasket bearing, and a coaxial lug bearing.

[0013] The structural and characteristic features and all advantages of the invention will be understood more clearly with the detailed description written by referring to the following figures; therefore, the evaluation needs to be done by taking these figures and the detailed description into consideration.

BRIEF DESCRIPTION OF THE FIGURES

[0014]

Fig. 1 is the perspective view of the coaxial magnet union according to the invention,

Fig. 2 is the perspective view of the coaxial magnet union according to the invention when coaxial is connected,

Fig. 3 is the cross-sectional view of the coaxial magnet union according to the invention,

Fig. 4 is the cross-sectional view showing the bearings in the coaxial magnet union according to the invention,

Fig. 5 is the perspective view of the fixing element used in the coaxial magnet union according to the invention,

Fig. 6 is the top view of the fixing element used in the coaxial magnet union according to the invention,

Fig. 7 is the perspective view of the coaxial magnet union according to the invention when mounted in the tap,

Fig. 8 is the cross-sectional view of the coaxial magnet union according to the invention when mounted in the tap,

Fig. 9 is the cross-sectional view showing the connection of coaxial to the coaxial magnet union according to the invention mounted in the tap,

Fig. 10 is the cross-sectional view showing the connection of the coaxial and the union to the tap in which the magnet of the prior art is mounted,

Fig. 11 is the perspective view of magnet and union of the prior art when mounted in the tap,

Fig. 12 is the perspective view showing the mounting of the coaxial in the tap, to which the magnet and union of the prior art are connected, and

Fig. 13 is the cross-sectional view of magnet and union of the prior art when mounted in the tap.

REFERENCE NUMERALS

[0015]

1. Safety gas tap
2. Coaxial magnet union according to the invention
    - 2.1. Body
        - 2.1.1. Thread
        - 2.1.2. Wrench head
            - 2.1.2.1. Slots
        - 2.1.3. Pin
        - 2.1.4. Coaxial lug bearing
        - 2.1.5. Gasket bearing
        - 2.1.6. Fixing element bearing
            - 2.1.6.1. Diameter
            - 2.1.6.2. Lug housing
        - 2.1.7. Fixation piece
            - 2.1.7.1. Channel
            - 2.1.7.2. Slots
            - 2.1.7.3. Lug
                - 2.1.7.3.1. Diameter
        - 2.1.8. Gasket
3. Coaxial (thermocouple connector)
    - 3.1. Phase terminal
    - 3.2. Grounding terminal
    - 3.3. Lugs
4. Magnet used in the prior art
5. Union used in the prior art

DETAILED DESCRIPTION OF THE INVENTION

[0016] Today, gas is automatically stopped in case of the burner going out due to external factors, thanks to the magnet (4), the so-called safety valve, inside safety gas taps (1) used in domestic cooking appliances. This system is basically formed with a thermocouple connected to the burner group. Accordingly, the thermocouple converts the heat that it obtains from the burner group, to a very small electrical current. Said current is transferred, thanks to the coaxial (3) also called as thermocouple connector, to the phase terminal (3.1), and from the phase terminal (3.1) to the magnet (4); and with the magnetization occurring within the magnet (4), the flowing path of the gas is made open or close by pulling or pushing the metal part, which is used for opening/closing gas passage direction. In case the flame goes out for any reason, electrical current is cut and gas passage way is closed with the magnet (4).

[0017] Three methods are essentially utilized for connecting the thermocouple to magnets (4). These are socket connection, screw connection, and coaxial connection. Among these types of connection, the invention comprises coaxial connection. In the state of the art, how-

ever, securing and coaxial connection of the magnet (4) to the gas tap (1) are achieved by means of a union (5); and yet the need for using a union (5) has been eliminated by the present invention since threads (2.1.1) are disposed in the magnet union (2) and coaxial (3) connection can be performed.

[0018] The coaxial magnet union (2) according to the invention consists of a body (2.1) comprising a pin (2.1.3) contacting with the phase terminal (3.1) in coaxial (3), a coaxial lug bearing (2.1.4), a gasket (2.1.8) for sealing purposes, a gasket bearing (2.1.5) where the gasket (2.1.8) is located, a fixing element (2.1.7) and a fixing element bearing (2.1.6) which apply pressure in order to secure the gasket (2.1.8) and provide sealing, a thread (2.1.1) compatible with the gas tap (1) body in a way to enable mounting in the gas tap (1) without requiring a union (5), and a wrench head (2.1.2) allowing tightening the same to the gas tap (1); wherein said wrench head (2.1.1) consists of two or more slots (2.1.2.1).

[0019] The coaxial lug bearing (2.1.4) in the coaxial magnet union (2) according to the invention is the section to which the lugs (3.3) in the end portion of the coaxial (3) are introduced, thereby preventing displacement of the coaxial (3) by tightening thereto. Provided in said coaxial (3) are a phase terminal (3.1) which contacts with the pin (2.1.3), and thus transfers the current coming from the thermocouple to the pin (2.1.3), and therefrom to the magnets, and a grounding terminal (3.2) which provides grounding. In order to provide grounding, the grounding terminal (3.2) in the coaxial (3) has to contact with the inner portion of the body (2.1) of the coaxial magnet union (2) according to the invention.

[0020] Moreover, the fixing element (2.1.7) disposed in the body (2.1) of the coaxial magnet union (2) according to the invention is provided with a channel (2.1.7.1) allowing the pin (2.1.3) to pass therethrough, two or more slots (2.1.7.2) providing flexibility, and a lug (2.1.7.3) preventing displacement after fitting in the fixing element bearing (2.1.6), and thus enabling the gasket (2.1.8) to be secured as well; wherein the diameter (2.1.7.3.1) of said lug (2.1.7.3) is bigger than the diameter (2.1.6.1) of the fixing element bearing (2.1.6). The diameter (2.1.6.1) of said fixing element bearing (2.1.6) is 3 to 9 mm and the diameter (2.1.7.3.1) of the lug (2.1.7.3) itself is 3 to 9 mm. Said diameters are given in Figs. 4 and 6, respectively. Apart from that, the fixing element bearing (2.1.6) is provided with a lug housing (2.1.6.2) to which the fixing element lug (2.1.7.3) is introduced.

[0021] The protection scope of this application is stated under the claims and cannot be restricted to the descriptions given only for illustrative purposes. It is because it is clear that any person skilled in the art can produce the novelty provided by the invention without drifting apart from the main subject of the invention and/or s/he can apply this novelty to other fields used in the related technique for similar purposes.

Claims

1. A coaxial magnet union (2) consisting of a body (2.1) comprising a pin (2.1.3) contacting with the phase terminal (3.1) in coaxial (3), a coaxial lug bearing (2.1.4), a gasket (2.1.8) for sealing purposes, a gasket bearing (2.1.5) where the gasket (2.1.8) is located, a fixing element (2.1.7) and a fixing element bearing (2.1.6) which apply pressure in order to secure the gasket (2.1.8) and provide sealing, a thread (2.1.1) compatible with the gas tap (1) body in a way to enable mounting in the gas tap without requiring a union (5), and a wrench head (2.1.2) allowing tightening the same to the gas tap (1); **characterized in that**

   - said wrench head (2.1.2) consists of two or more slots (2.1.2.1),
   - said fixing element (2.1.7) is provided with a channel (2.1.7.1) allowing the pin (2.1.3) to pass therethrough, two or more slots (2.1.7.2), and a lug (2.1.7.3) preventing displacement after fitting in the fixing element bearing (2.1.6), and
   - said fixing element bearing (2.1.6) is provided with a lug housing (2.1.6.2) to which the fixing element lug (2.1.7.3) is introduced.

2. The fixing element (2.1.7) as in Claim 1, **characterized in that** the lug (2.1.7.3) diameter (2.1.7.3.1) thereof is between 3 to 9 mm.

3. The fixing element bearing (2.1.6) as in Claim 1, **characterized in that** its diameter (2.1.6.1) is between 3 to 9 mm.

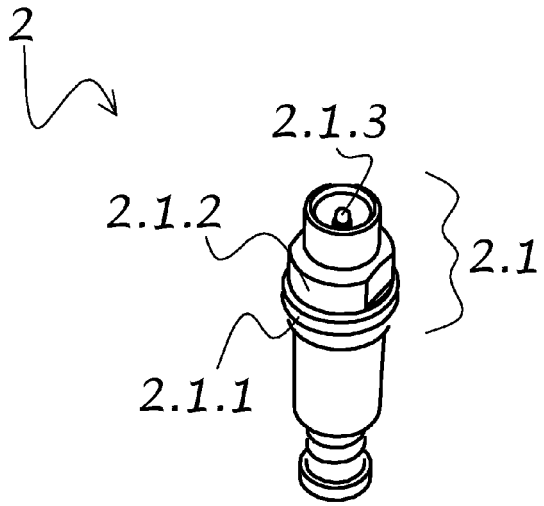


Figure 1

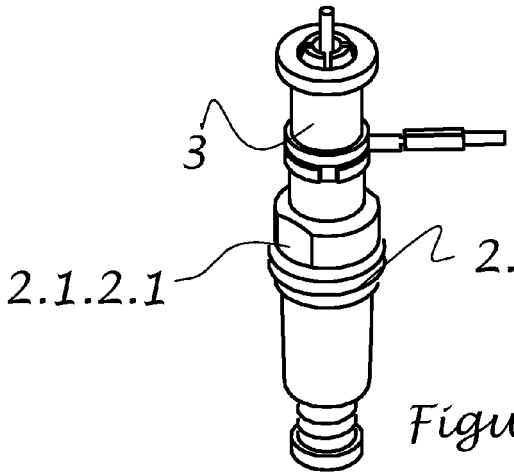


Figure 2

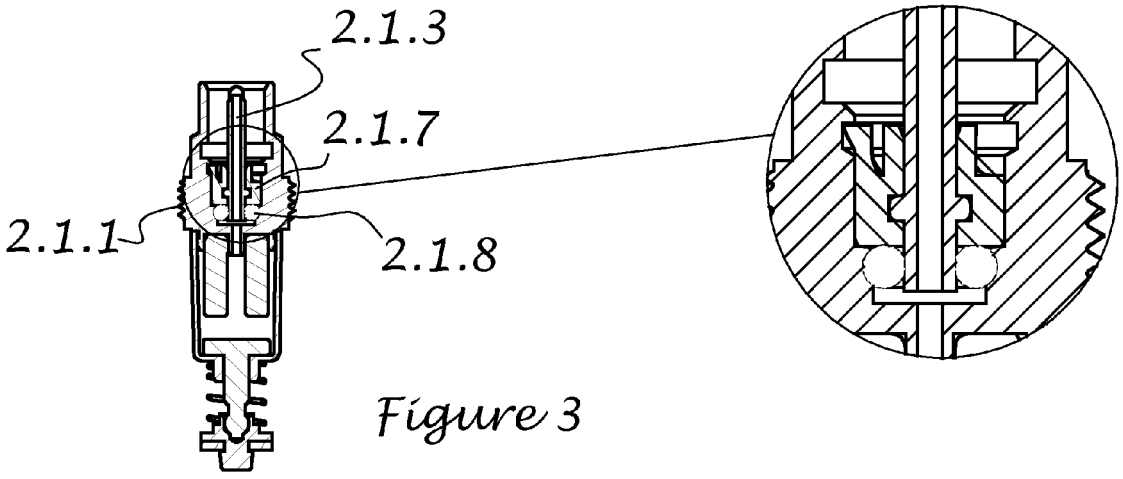


Figure 3

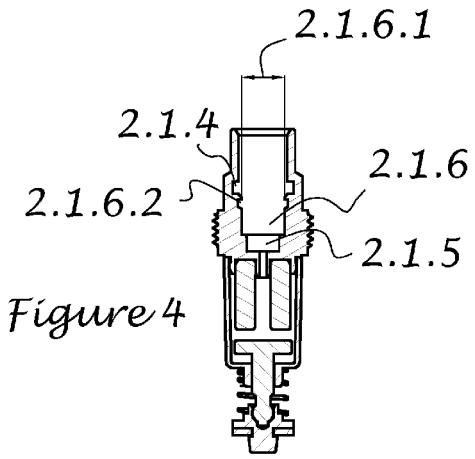


Figure 4

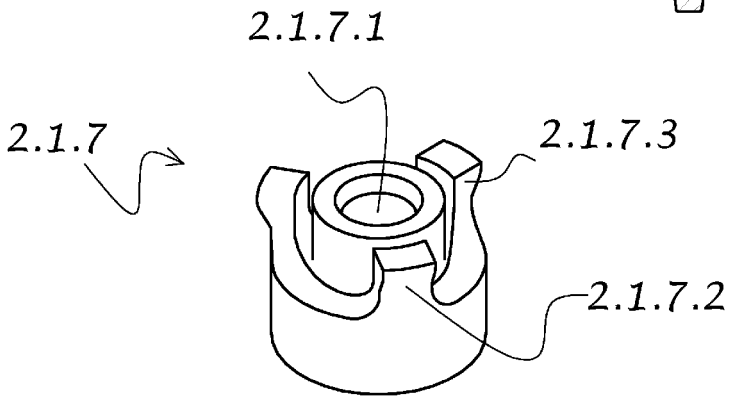
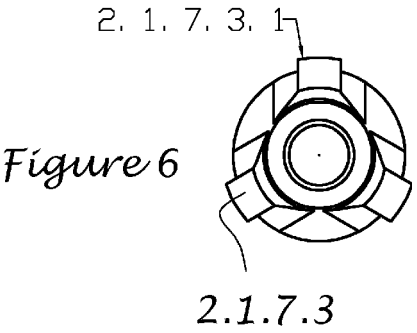


Figure 5



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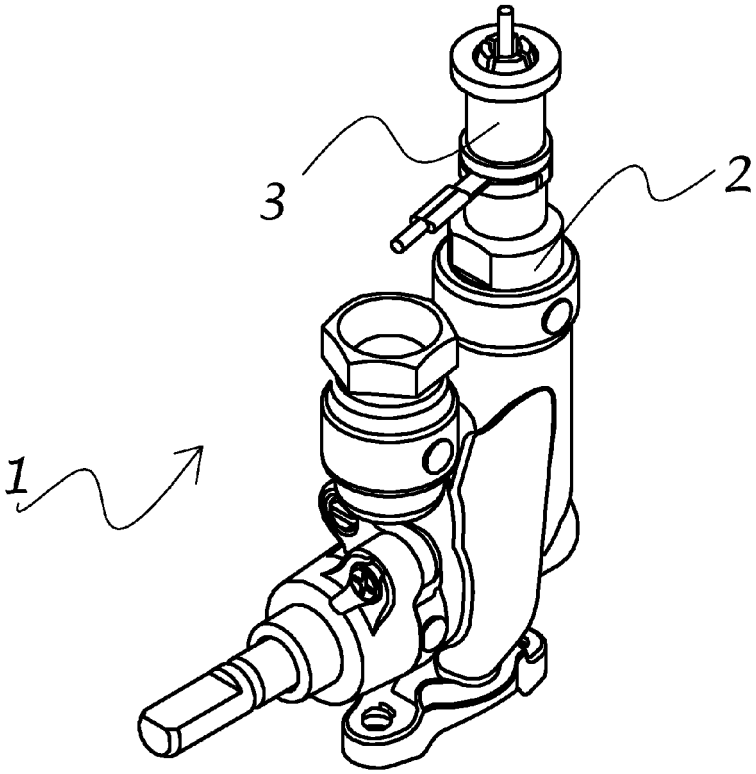


Figure 7

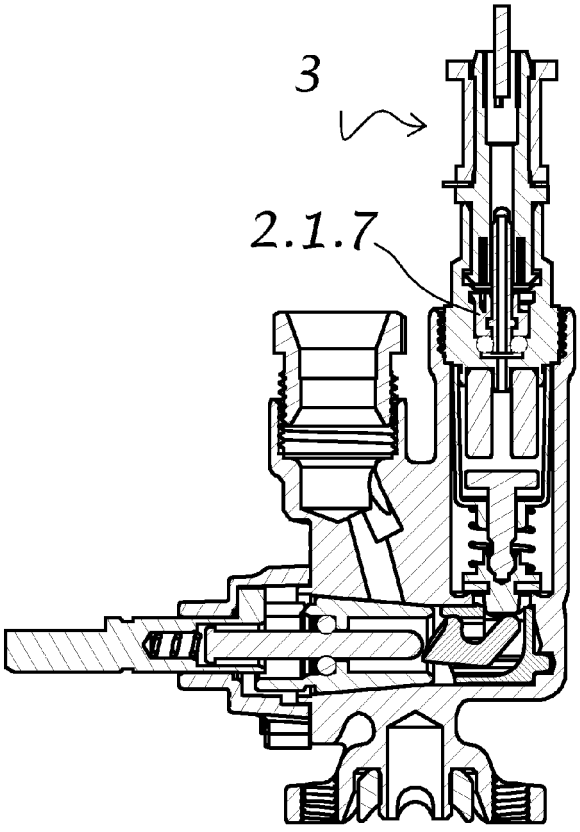
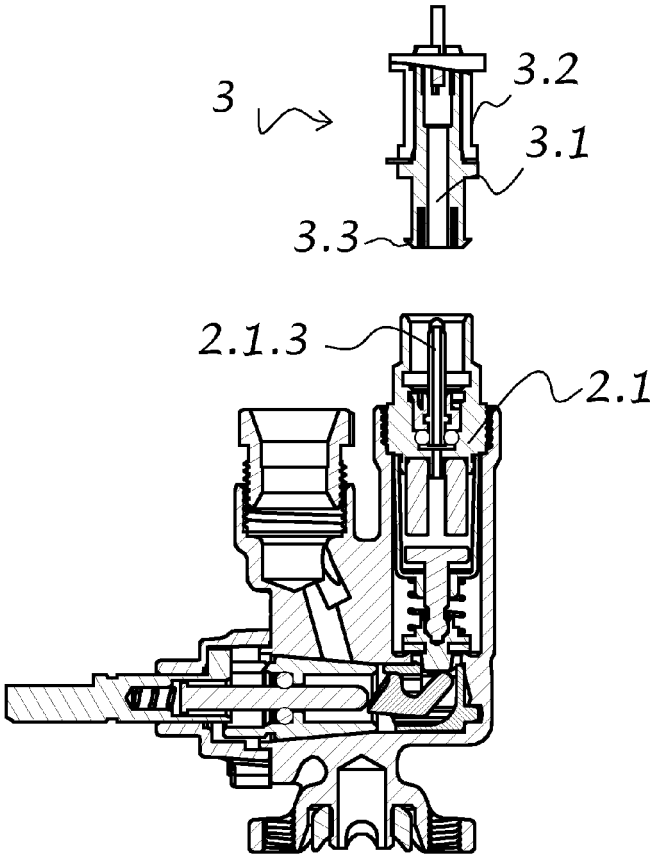


Figure 8



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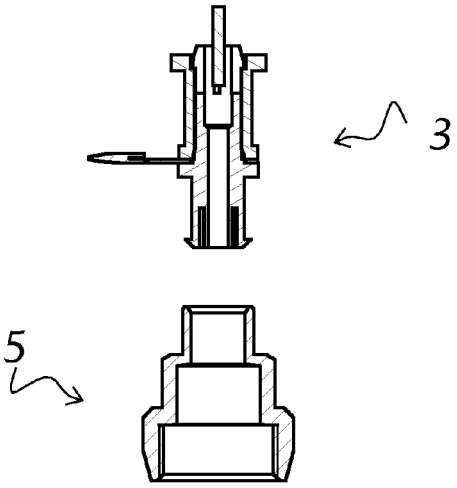

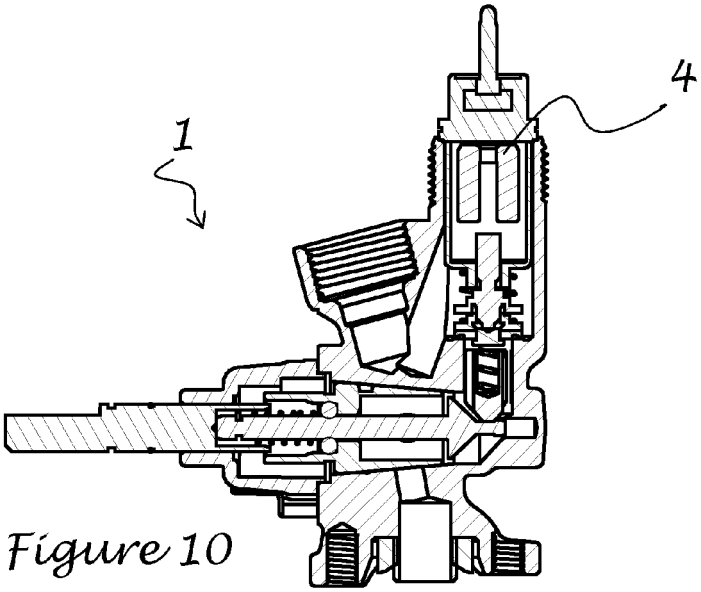

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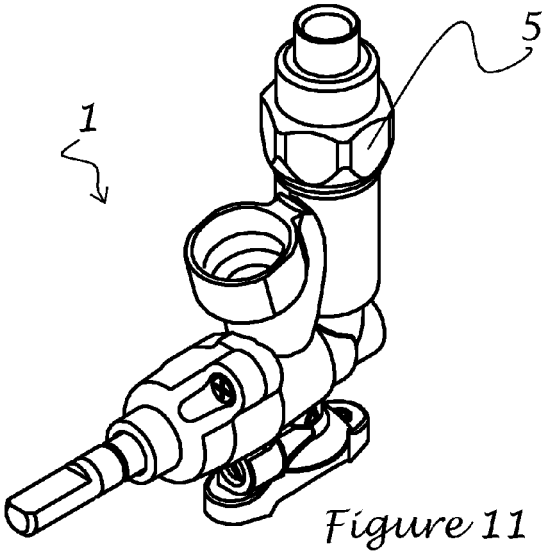

Figure 11

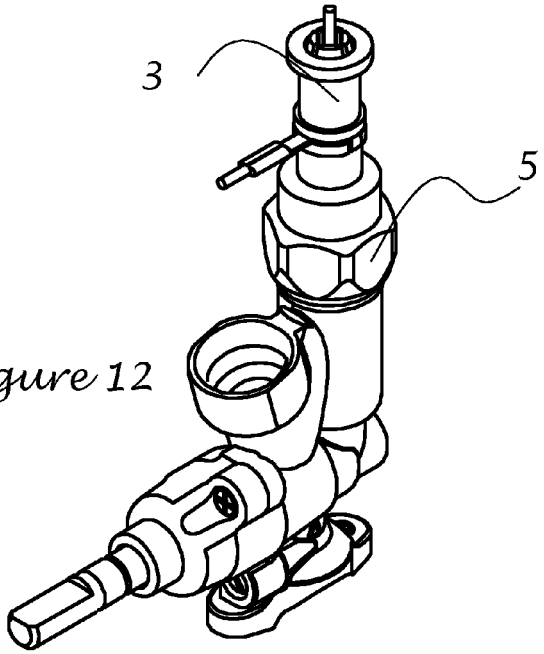

Figure 12

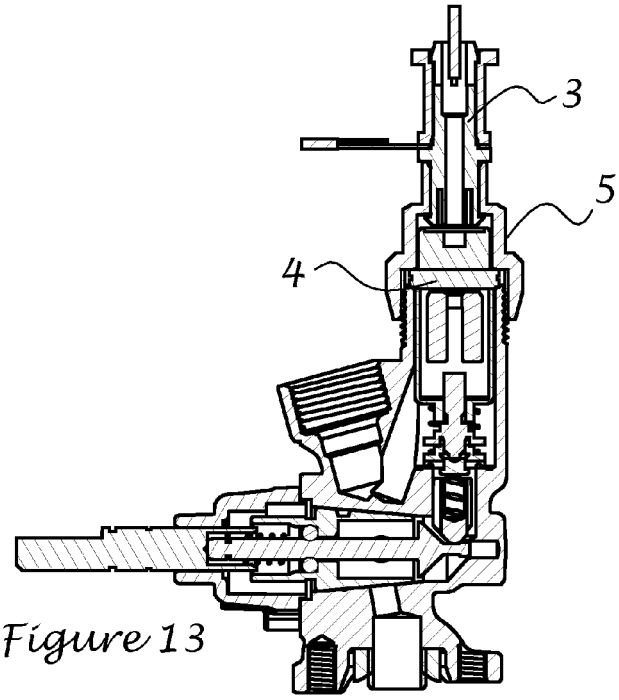

Figure 13

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EUROPEAN SEARCH REPORT

Application Number
EP 16 16 0972

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	CN 204 387 454 U (ORKLI S COOP LTDA) 10 June 2015 (2015-06-10) * the whole document *	1-3	INV. F23N5/10 H01R24/38 F23N5/24
X	DE 20 2014 105639 U1 (ORKLI S COOP LTDA [ES]) 5 December 2014 (2014-12-05) * paragraph [0015] - paragraph [0031]; figures 1-4 *	1-3	
Y	US 2010/117014 A1 (PABLO CURTO MARCOS [ES] ET AL) 13 May 2010 (2010-05-13) * abstract *	1-3	
Y	WO 2007/019885 A1 (CASTFUTURA SPA [IT]; OFFREDI GIORGIO [IT]) 22 February 2007 (2007-02-22) * abstract *	1-3	

TECHNICAL FIELDS SEARCHED (IPC)

F23N
H01R

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	21 March 2017	Munteh, Louis

CATEGORY OF CITED DOCUMENTS

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21-03-2017

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