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(54) **An electromagnet with impact-absorbing spring**

(57) The invention relates to an electromagnet comprising an impact-absorbing spring (1.10) which prevents contractions likely to occur in case the user applies too much force on the handle within gas taps having an electromagnet assembly which are used in domestic cooking appliances, wherein said spring can be located in different areas in the electromagnet. Gas taps having an electromagnet assembly which are used today generally consist of a body having gas passageways; a male regulating said gas passageways; a handle enabling the user to close said gas passageways; an electromagnet for opening/closing said gas passageway; together with a pin

(1.7) transferring the movement from the handle to the electromagnet; a union fixing the electromagnet in the housing thereof within the tap; and a cover protecting the tap against external factors. Since there is no part which will absorb the force applied by the user within these taps, the system cannot be fully protected and contractions may occur in the tap in case of excessive load. According to the invention the system will be protected against excessive load thanks to the spring located at the end portion of the electromagnet or located in the housing thereof at the end portion of the electromagnet.

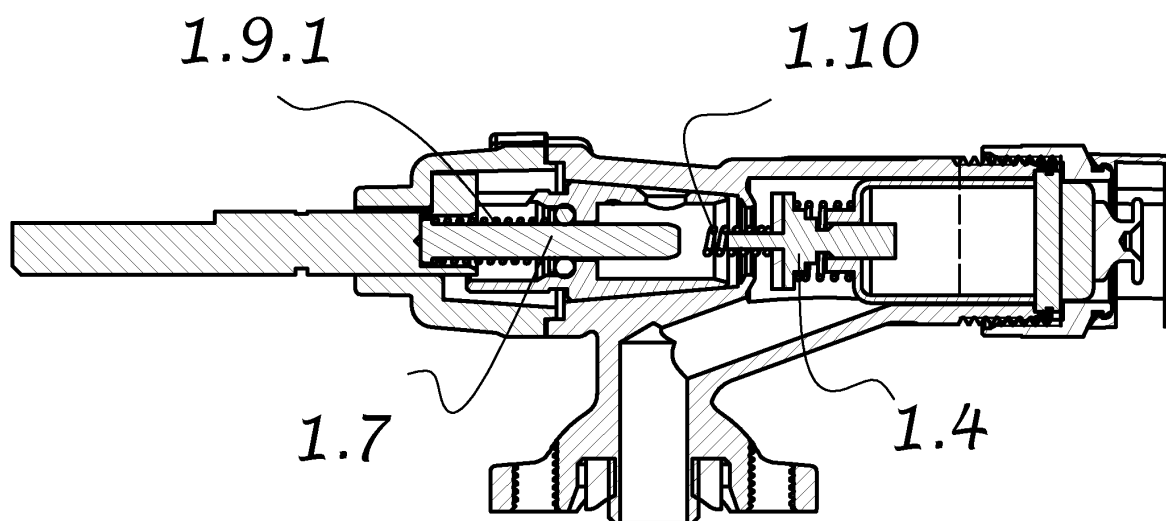


Figure 8

Description

TECHNICAL FIELD

[0001] The invention relates to an electromagnet comprising an impact-absorbing spring which prevents contractions likely to occur in case the user applies too much force on the handle within gas taps having an electromagnet assembly which are used in domestic cooking appliances; wherein said spring can be located in different areas in the electromagnet according to the invention; therefore, the design of the electromagnet changes. Gas taps having an electromagnet assembly which are used today generally consist of a body having gas passageways; a male adjusting gas passageways; a handle enabling the user to locate gas passageways; an electromagnet for opening/closing gas passageway; together with a pin transferring the movement from the handle to the electromagnet; a union fixing the electromagnet in the housing thereof within the tap; and a cover protecting the tap against external factors. However, since there is no part which will absorb the force applied by the user within these taps, the system cannot be fully protected and contractions may occur in the tap in case of excessive load. The system will be protected against excessive load thanks to the spring located at the end portion of the electromagnet according to the invention, or to the alternative spring located in the housing thereof at the end portion of the alternative electromagnet according to the invention.

STATE OF THE ART

[0002] 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 cause gas leakage easily in case the union or magnet gets back in the system.

[0003] In another application No. ES2359975 by the firm Copreci, a gas flow tap which is made of an electromagnet comprising a shaft moveable axially in a first direction and a regulation element moveable in a second direction, and which is used for gas burners, is disclosed. However, said tap is designed for built-in cookers; wherein mechanical problems may be experienced depending on the pressing force applied by the user on the handle due to the angle between the handle and electromagnet; and also the contractions likely to occur in the tap cannot be prevented since there is no absorbing part provided therein for lowering the effect of excessive load applied by the user on the system.

[0004] In light of the state of the art mentioned above,

using a third spring in safety gas taps used in domestic cooking appliances is an innovative approach. 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 an electromagnet which are used for domestic cooking appliances in the related industry. There exist many patent applications in literature regarding gas taps having an electromagnet. It is therefore possible to give many examples in this regard. Nevertheless, it is thought that the above examples will be enough for providing an understanding of the invention.

OBJECT OF THE INVENTION

[0005] The object of the invention is to use an electromagnet having an impact-absorbing spring for protecting the system against the excessive load by the user within gas taps having an electromagnet which are used in domestic cooking appliances.

[0006] In the preferred embodiment of the invention, said impact-absorbing spring can be located at the end portion of the electromagnet disposed in the body, or in the housing provided at the end portion of the alternative electromagnet such that it will be concentric to the other springs; wherein the design of the spring and electromagnet used within the system can be changed in accordance with the location of said spring.

[0007] The structural and the 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

[0008]

Fig. 1 is the overall perspective view of the gas taps having an electromagnet,

Fig. 2 is the cross-sectional view of the gas tap having an electromagnet within the state of the art,

Fig. 3 is the view of the conventional electromagnet in gas taps within the state of the art,

Fig. 4 is the view of the electromagnet according to the invention,

Fig. 5 is the view of the alternative electromagnet according to the invention,

Fig. 6 is the view of the impact-absorbing spring,

Fig. 7 is the view of the alternative impact-absorbing spring,

Fig. 8 is the view showing the location of the impact-absorbing spring at the end portion of the electromagnet according to the invention,

Fig. 9 is the view showing the location of the impact-absorbing spring in the housing provided in the electromagnet according to the invention.

REFERENCE NUMERALS

[0009]

1. Gas tap

1.1. Body

1.1.1. Gas inlet

1.1.2. Gas outlet

1.2. Male

1.3. Conventional electromagnet

1.4. Electromagnet according to the invention

1.4.1. End portion

1.5. Alternative electromagnet according to the invention

1.5.1. Housing

1.6. Pin

1.7. Handle

1.8. Gasket

1.8.1. Gasket (1.10) spring

1.9. O-ring

1.9.1. O-ring fixing spring

1.10. Impact-absorbing spring

1.11. Alternative impact-absorbing spring

1.12. Union

1.13. Cover

1.14. Segment

2. Gas

DETAILED DESCRIPTION OF THE INVENTION

[0010] In Fig. 1, the overall perspective view of the gas taps (1) having an electromagnet (1.3) assembly within the state of the art is given, while the cross-sectional view thereof is given in Fig. 2. Accordingly, the gas (2) getting in the system from the gas inlet (1.1.1) way in the body (1.1) reaches to the area where the electromagnet (1.3) is provided, and upon rotation of the handle (1.7) by the user, the pin (1.6) inside the male (1.2) moves and the

electromagnet (1.3) is pushed, and thus enabling the gas (2) to reach to the burner. However, in these systems, pressure is applied when the user presses the handle (1.7) too hard, which, in turn, creates impact effect in the electromagnet (1.3) and may prevent the system from operating safety. The electromagnet (1.4) according to the invention, on the other hand, provides impact-absorbing effect thanks to the spring (1.10) at the end portion (1.4.1) thereof, or to the alternative spring (1.11) located in the corresponding housing (1.5.1) in the alternative electromagnet (1.5), and in any case, it is suitable for being used in any tap (1) having an electromagnet to be used in domestic cooking appliances. While the views of said electromagnet (1.4) and alternative electromagnet (1.5) are given in Figs. 4 and 5, the views of the impact-absorbing spring (1.10) and the alternative impact-absorbing spring (1.11) are shown in Figs. 6 and 7; and the views showing the locations of said springs (1.10, 1.11) and electromagnets (1.4, 1.5) within the tap (1) are seen in Figs. 8 and 9.

[0011] The protection scope of this application is stated under the claims and cannot be restricted to the descriptions given only for illustrative purposes 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 he/she can apply this novelty to other fields used in the related technique with similar purposes. Therefore, it is obvious that such embodiments will lack novelty, and especially will lack the criteria of exceeding the prior art, i.e. comprising inventive step.

Claims

1. The electromagnet (1.4) to be used within gas taps (1) having an electromagnet (1.3) assembly which are used in domestic cooking appliances, said electromagnet comprising an impact-absorbing spring (1.10) which prevents excessive load and impacts by the user, or an alternative electromagnet (1.5) comprising an alternative impact-absorbing spring (1.11), in addition to comprising a body (1.1) having gas (2) passageways; a male (1.2) regulating gas passageways (1.1.1, 1.1.2); a handle (1.7) which transfers the pressing force applied by the user; a pin (1.6) transferring the movement from the handle (1.7); and a cover (1.3) protecting the tap (1) against external factors, **characterized in that** the impact-absorbing spring (1.10) is located at the end portion (1.4.1) of the electromagnet (1.4) according to the invention; or the alternative impact-absorbing spring (1.11) is located in the corresponding housing (1.5.1) of the alternative electromagnet (1.5) according to the invention.
2. The spring (1.10, 1.11) according to Claim 1, **characterized in that** it is located concentric to the other

springs (1.8.1, 1.9.1) within the system.

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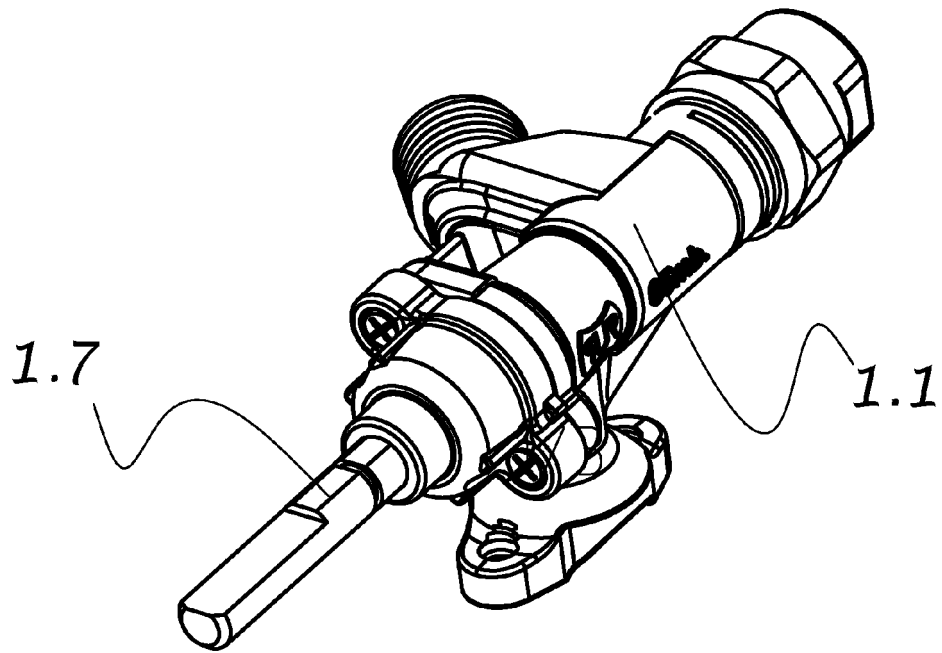


Figure 1

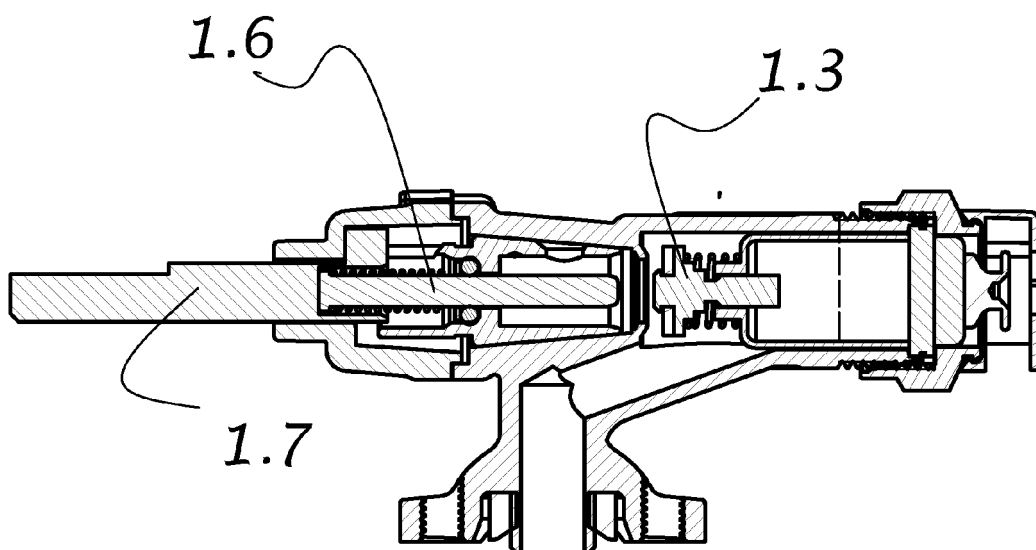


Figure 2

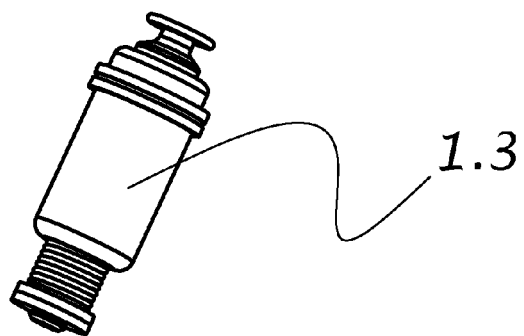


Figure 3

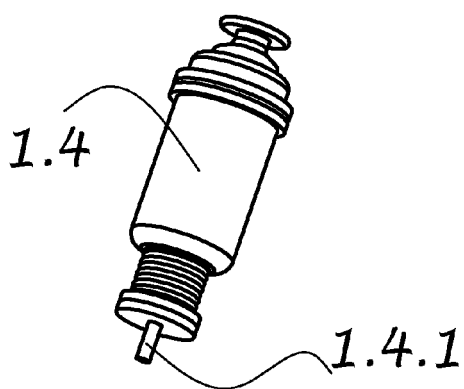


Figure 4

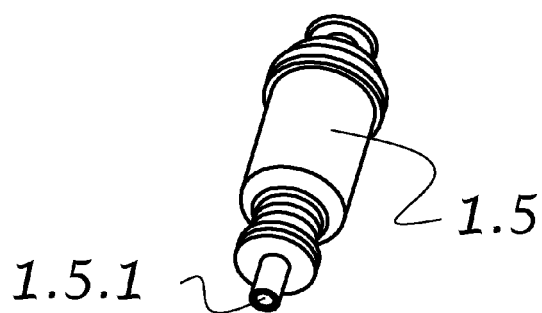


Figure 5

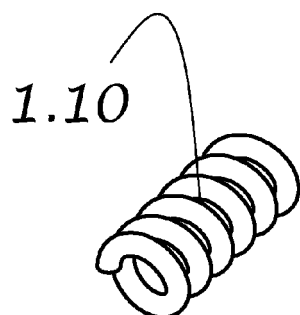


Figure 6

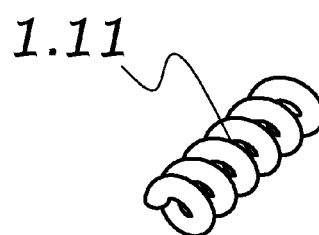


Figure 7

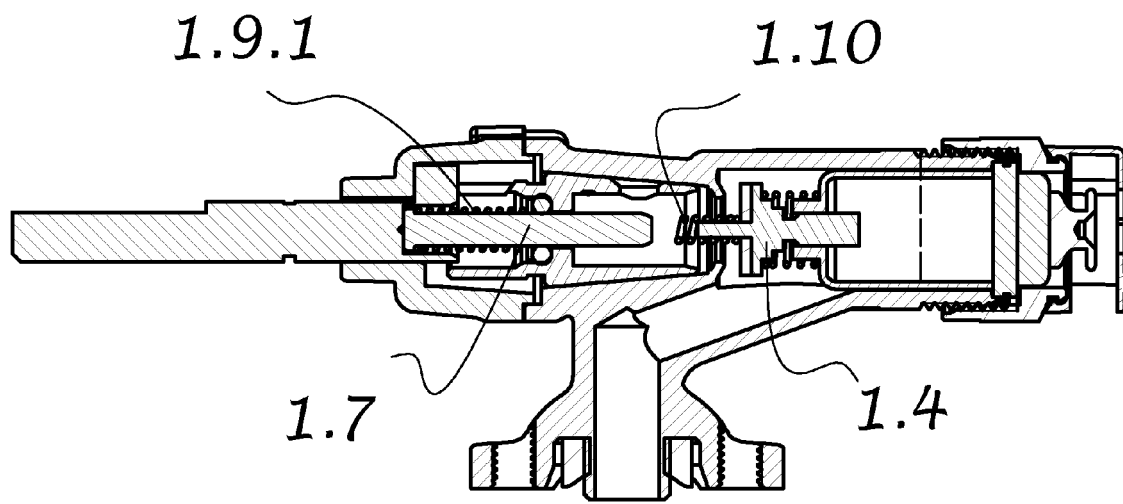


Figure 8

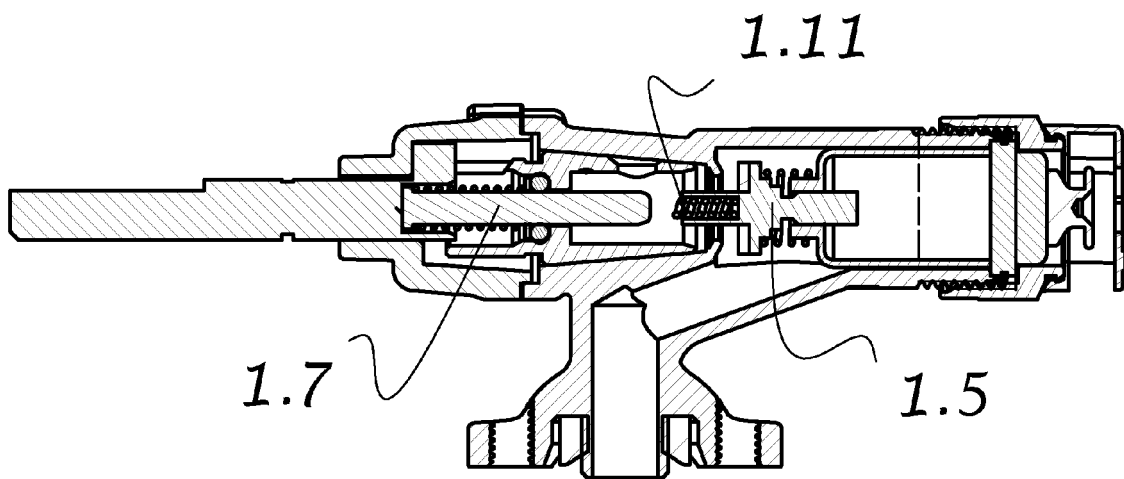


Figure 9



EUROPEAN SEARCH REPORT

Application Number
EP 14 16 4326

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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			F23N F23K
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		1 April 2015	Coli, Enrico
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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