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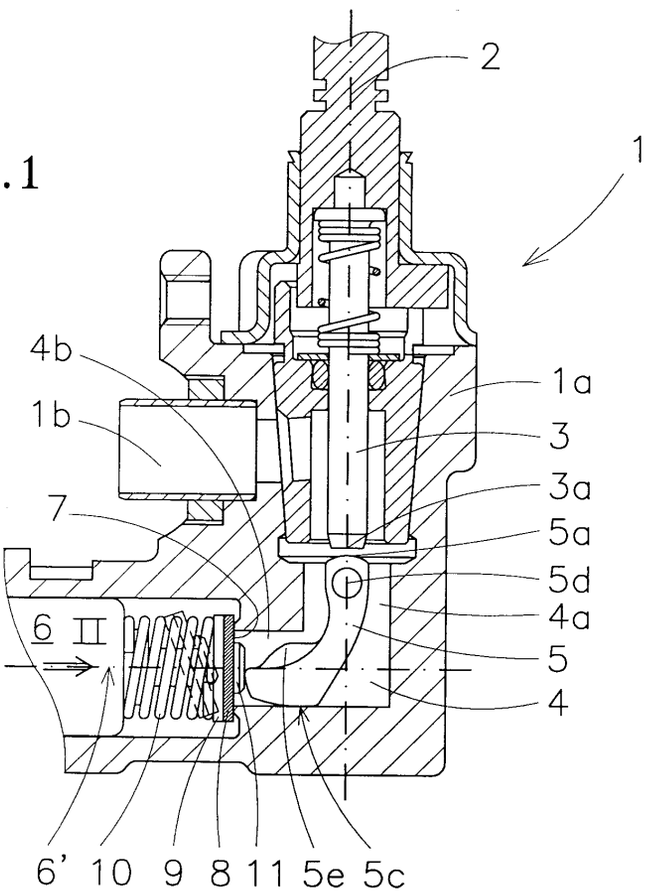
(71) Applicant: **FAGOR, S.Coop**
20500 Mondragon (Guipuzcoa) (ES)

(72) Inventor: **Ayastuy Aretxaga, Inaki**
20570 Bergara (Guipuzcoa) (ES)

(54) **Gas tap for cooker with a safety valve actuation**

(57) The gas tap (1) for cookers with a safety valve (6) actuation, comprises a tap body (1a) a tap actuating shaft (2) vertically oriented in respect of the surface of the cooker hob, and a thrust transmission mechanism (3,4,5) from the actuating shaft to the safety valve (6). The valve closing member (8) is opened by manual actuation, and is horizontally oriented. An interior tap cavity (4a) is square-shaped, and comprises a vertical part (4a) in communication with a pushrod (3) of the actuating shaft (2), and a horizontal part (4b) in communication with the safety valve (6), for housing the thrust transmission member, which is a bow-shaped rocker (5).

FIG. 1



EP 1 013 996 A1

Description

TECHNICAL FIELD OF THE INVENTION

[0001] The present invention relates to a gas tap which has a rotary actuating shaft, a frustoconical flow regulator and, furthermore, an operating mechanism for the prior opening of the safety valve by thrust of the actuating shaft.

PRIOR ART

[0002] Extra-flat cooker hobs having have their taps and regulating knobs located on the top of the hob, adjacent to a side edge of the cooker surface, have their actuating shafts vertical in relation to the surface of the cooker, while the set of thin tap bodies are installed by means of being fixed to a general gas supply rail. The gas tap inlet and outlet conduits and the safety valve housing pipe, all cylindrical, should be oriented in a horizontal direction. The safety valve shaft lies on the same plane as the actuating shaft. For previous opening of the flow of gas during ignition of the corresponding burner, pressure is exerted on the safety valve armature by means of the axial movement of the actuating shaft, by way of an intermediate transmission mechanism, overcoming the reaction of the armature return spring.

[0003] ES-U259954 discloses a gas tap fitted with a thermoelectric valve, which has a rotary flow regulating shaft and a rod coupled that follows up the initial axial movement of the actuating shaft to exert pressure on the safety valve armature. The intermediate transmission mechanism also has a flat-shaped rocker, which pivots under the pressure of this axial displacement rod and resets the safety valve electromagnet. The rocker shaft is linked to one end of the pushrod, while the opposite end of the rocker pivots, exerting pressure on the safety valve armature, in order to open up the flow of gas. This operating mechanisms has its drawbacks, such as the rigidity of the rocker connection to the pushrod, as well as the fact that the reaction of the return spring is transmitted to the rocker pivot shaft in a direction that is not parallel to the latter.

[0004] FR-2565667-A1 discloses a gas tap with a cylindrical safety valve, which has a shaft that extends perpendicular to the tap actuating shaft, while both axles lie on the same plane. The mechanism for transmitting axial thrust to the safety valve armature comprises a pushrod coaxial to the tap actuating shaft and an intermediate ball housed in a square-shaped cavity. The pushrod has one conical-shaped thrust end and moves the ball up against the armature of the valve to force this back. On this familiar tap the link between the pushrod and the intermediate drive element is mere contact with no attachments, but the ball travel is restricted by the length and angle of this conical thrust end.

DISCLOSURE OF THE INVENTION

[0005] The object of the present invention is a gas tap with a built-in safety valve and with a mechanism for transmitting the thrust from the tap actuating shaft to the safety valve armature to keep the flow of gas open to the tap, as is defined in claim 1.

[0006] On the gas tap according to the invention the intermediate member of the thrust transmission mechanism is a bow-shaped rocker housed in a cylindrical section cavity between the rod and the safety valve armature housings, and the end of the rocker in contact with the pushrod has freedom of movement and is not carried by the end of the pushrod, while its rocking axle slides axially in the housing cavity. Following the thrust of the rod, the rocker shaft slides linearly between two guide slots and this linear movement gives rise to the pivoting movement of the opposite end of the rocker. Both the axial and angular movement of the rocker are guided by the square-shaped walls of their housing, so that, in this way, the attraction force on the armature is applied parallel to the valve shaft. In the opposite direction, for the closing of the safety valve, the return force of the armature spring is distributed in two respective orthogonal components, the horizontal is applied on the tap body by way of the guide slots, not on the rod, and the vertical component pushes the rod in a direction parallel to its axis.

[0007] The thrust transmission mechanism is of simple construction, as the end of the pushrod has no special shape and is used for any tap model. The rocker is a one-piece moulding, including the integrated rocking axle, and the housing cavities and the guide slots are cylindrical and are machined by means of drilling.

DESCRIPTION OF THE DRAWINGS

[0008] Fig. 1 is a sectional view of the gas tap with a safety valve for cookers according to the invention.

[0009] Fig. 2 is a close view of the thrust transmission mechanism for opening the safety valve, as per a lateral direction of fig. 1.

[0010] Fig. 3 is a sectional view of the thrust transmission mechanism, from line III-III in figure 2.

DETAILED DESCRIPTION OF THE INVENTION.

[0011] With reference to figures 1 to 3, the preferred embodiment of the gas tap for cooker hobs according to the invention comprises the tap body la and its gas supply inlet 1b, the tap actuating shaft 2 oriented vertically in respect of the surface of the cooker hob, the axle of the safety valve 6 oriented horizontally, and a thrust transmission mechanism 3, 4, 5, which includes the pushrod 3, pushed in turn coaxially by the actuating shaft 2, a square-shaped housing 4 with a first vertical cavity 4a in communication with the pushrod and with a second horizontal cavity 4b in communication with the

safety valve 6, and a bow-shaped transmission rocker arm 5 which crosses the square-shaped housing 4.

[0012] The cylindrical safety valve 6 is housed in a coaxial tube and has its shaft 6' perpendicular to the actuating shaft 2 and lying on the same plane as it, these being prerequisite conditions for the construction of the tap body according to the invention. The safety valve 6 comprises a valve hole 7, the retractable armature 9, on which a flexible valve closing member 8 is attached, an armature return coil spring, and a thrust button 11, which projects from the sealing member and is placed in contact with the rocker 5.

[0013] The pushrod 3 is uniform diameter and its bottom end 3a has a thrust surface which is flat. The transmission rocker 5 is formed of a one-piece moulding, of aluminium for instance, with smooth contact surfaces. On the bow-shaped rocker 5 which crosses the whole square-shaped housing, we may observe the two ends 5a and 5b, a central elbow 5c, and a pivot axle 5d. The first end 5c of the rocker is in contact with the end 3a of the rod, while the second end 5b of the rocker is in contact with the thrust button 11 of the valve 6, and the elbow 5c rests on the horizontal wall of the housing cavity 4b. The pivot axle 5d has freedom of movement in the vertical axial thrust direction 12 (fig. 2), guided between two diametrically counterpoised guide slots, which are machined all the way up the vertical cavity 4a.

[0014] In the safety valve 6 actuating cycle the rocker 5 moves down and the reaction of its central elbow 5c against the lower wall of the cavity 4b forces the end 5b of the rocker to pivot towards the valve button 11 and to push it against the force of the spring 10 in order to open up the valve hole 7.

[0015] The end 5a, the elbow 5c and the shaft 5d of the rocker have smooth rounded surfaces to assist their sliding in contact respectively with the surfaces of the rod 3 and of the housing 4, and also of the guide slots 13. A rib 5e on the rocker prevents the end 5b from encroaching on the seat of the valve hole in the event of there being deviations in alignment between the latter and the sealing member 8.

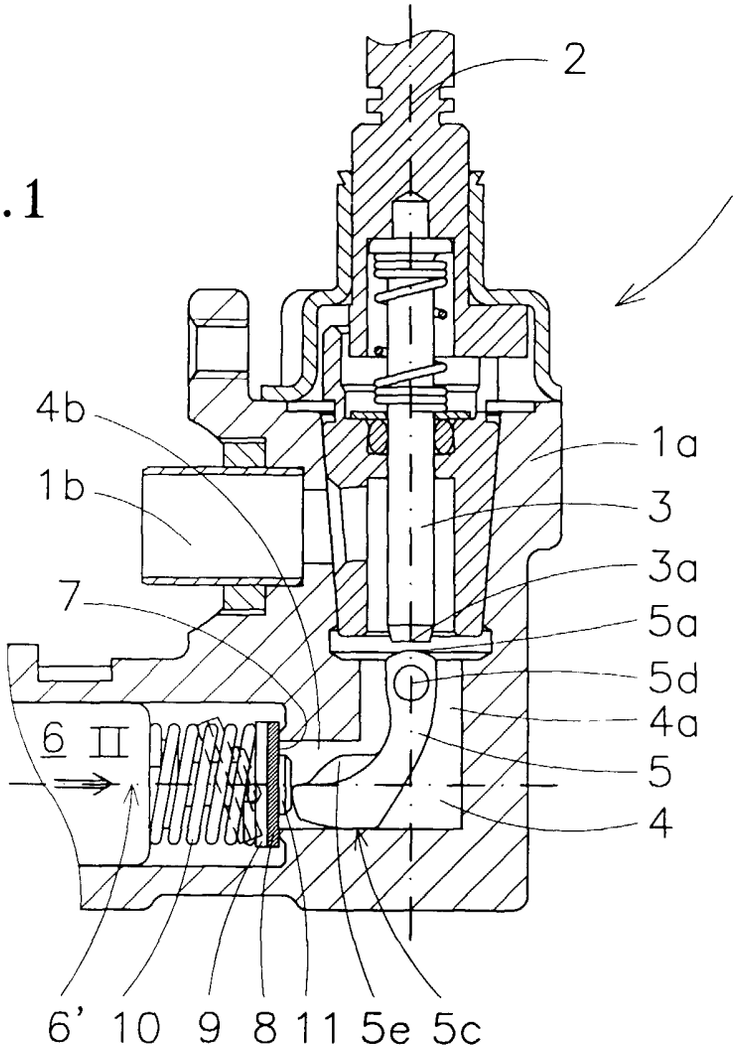
[0016] In the opposite actuating direction, for closing the valve 6, the spring 10 pushes the sealing member 6 against the valve hole 7 and the valve button 11 forces the rocker 5 to pivot in the opposite direction.

Claims

1. Gas tap for cookers with a built-in safety valve (6), which comprises a tap body la, a tap actuating shaft 2 oriented vertically in respect of the cooker hob, the safety valve 6 having an horizontally actuating closing member (8) and its shaft (6') on the same plane as the former, and a mechanism (3, 5) which transmits the axial thrust of the actuating shaft (2) to a moving safety valve armature (9) to keep the flow of gas open in the latter, wherein the transmission mechanism (3,5) includes an intermediate member (5) housed in a square-shaped cavity (4a), characterised in that said intermediate transmission member (5) comprises a bow-shaped rocker (5), which crosses said housing cavity (4) and is movable in the axial direction of the actuating shaft (2).

2. The gas tap of claim 1, wherein said rocker has an integral pivot axle (5d) which slides axially in two guide slots (13) machined in the vertical wall of the housing cavity (4a), and it has an elbow (5c) against which a reciprocating reaction is applied to push the rocker arm towards the armature (9) of the safety valve (6).

FIG.1



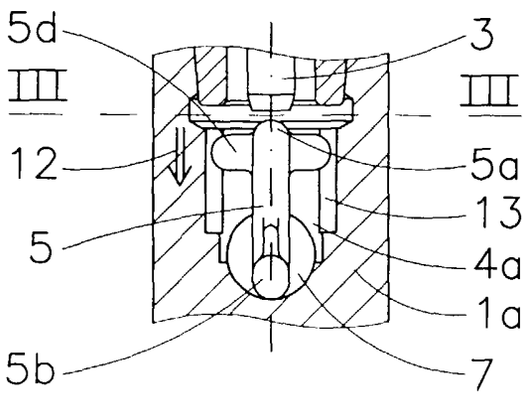


FIG.2

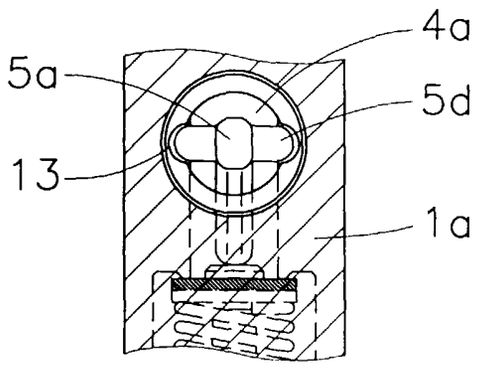


FIG.3

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EUROPEAN SEARCH REPORT

Application Number
EP 99 50 0237

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	13 March 2000	Mougey, M

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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