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(54) Flame safety thermocouple and thermocouple body

(57) The flame safety thermocouple (10) is adapted to a cooker gas burner (BU) with both a long flame (F1) and a short flame (F2). The sensing head (11,12) encloses a hot junction (HJ1) at an upper end (1) of small mass, and it comprises a frustoconical portion (12) which has a flame reception wall of a given axial length L2 and an angle of divergence alpha-2 ($\alpha 2$) adapted to the form of the short flame (F2), wherefore the temperature gradient is low between said flame reception wall (12) and the hot junction (HJ1). The outer sleeve (13) is connected to a larger diameter tubular base (14) for the cold junction (CJ2), a low thermal resistance from the sensing head (11-12) being obtained through said tubular base (14), and thereby a rapid deactivation of the actuator after the flame is extinguished. One embodiment of the thermocouple (10) has a secondary hot junction (HJ2) of opposite polarity, welded on the inner thermoelectric rod (15) and positioned under the sleeve segment L3 exposed to the ambient air.

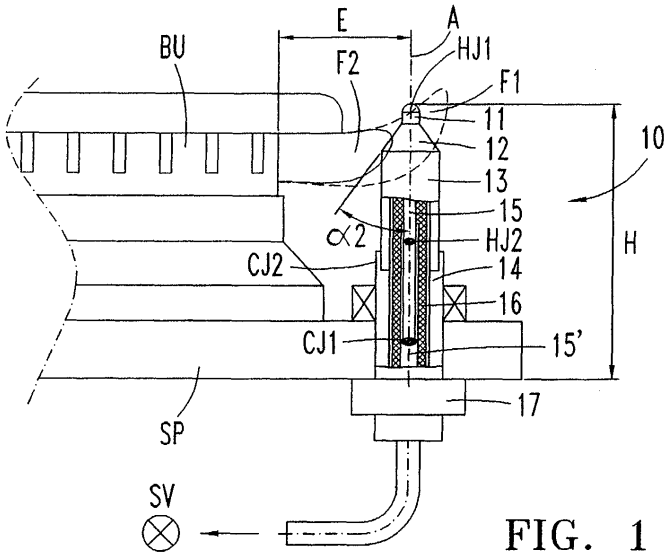

FIG. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 05 38 0106

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 Y	JP H11 101432 A (HARMAN CO LTD) 13 April 1999 (1999-04-13) * the whole document *	1,2 3-7	INV. F23N5/10 F23N5/24 F24C3/10 F23D14/06 F23D14/72
X Y	GB 939 123 A (KROMSCHROEDER AG G) 9 October 1963 (1963-10-09) * the whole document *	1,2 3-7	
X Y	GB 2 249 383 A (UNION GAS APPLIANCES TRADING L [HK]) 6 May 1992 (1992-05-06) * the whole document *	1,2 3-7	
Y	US 3 556 864 A (WAGNER EDMOND M) 19 January 1971 (1971-01-19) * the whole document *	1-7	
X Y	EP 0 552 135 A2 (SMEG SPA [IT] SMEG SPA [US]) 21 July 1993 (1993-07-21) * the whole document *	1,2 3-7	
Y	EP 0 282 216 A2 (SCHLUMBERGER ELECTRONICS UK [GB]) 14 September 1988 (1988-09-14) * the whole document *	1-7	TECHNICAL FIELDS SEARCHED (IPC) F23D F23N F24C G01K

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	22 January 2014	Munteh, Louis

CATEGORY OF CITED DOCUMENTS

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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22-01-2014

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP H11101432 A	13-04-1999	JP 3143418 B2	07-03-2001
		JP H11101432 A	13-04-1999
GB 939123 A	09-10-1963	AT 228978 B	12-08-1963
		CH 416994 A	15-07-1966
		GB 939123 A	09-10-1963
GB 2249383 A	06-05-1992	CN 1061271 A	20-05-1992
		GB 2249383 A	06-05-1992
		HK 159996 A	06-09-1996
US 3556864 A	19-01-1971	NONE	
EP 0552135 A2	21-07-1993	DE 69315233 D1	02-01-1998
		DE 69315233 T2	19-03-1998
		EP 0552135 A2	21-07-1993
		ES 2110588 T3	16-02-1998
		IT 1258754 B	27-02-1996
EP 0282216 A2	14-09-1988	CA 1273127 A1	21-08-1990
		DE 3875635 D1	10-12-1992
		DE 3875635 T2	25-03-1993
		EP 0282216 A2	14-09-1988
		GB 2202083 A	14-09-1988
		US 4865462 A	12-09-1989

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82