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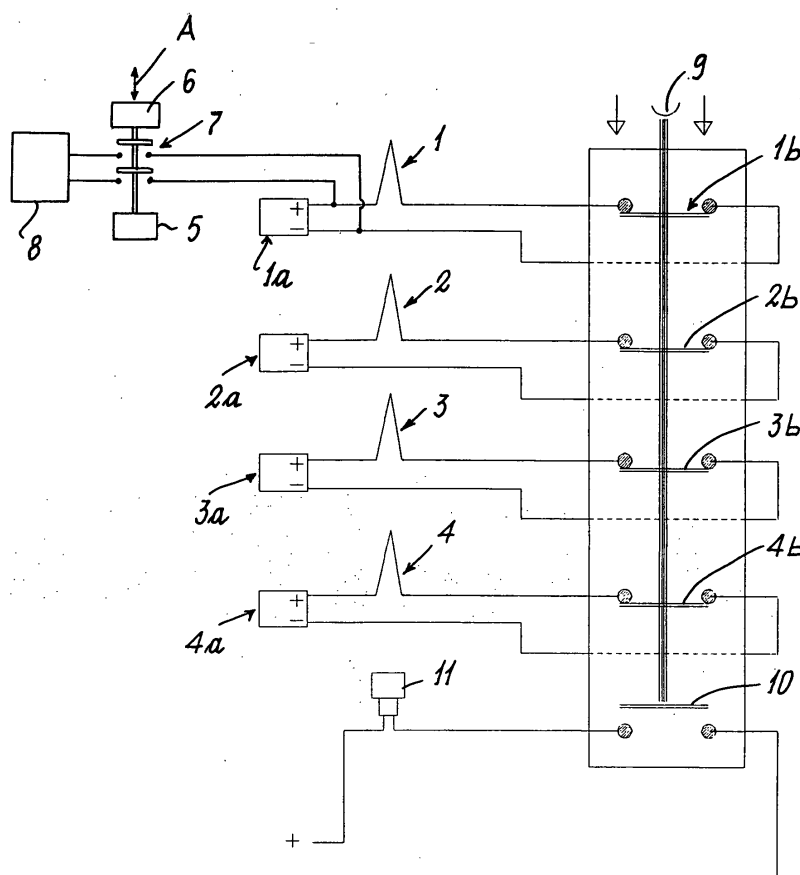
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(54) **Safety device for domestic gas cooking appliances**

(57) A safety device for domestic gas cooking appliances, comprising at least one burner, a thermocouple (1, 2, 3, 4) for sensing the burner flame, and a safety solenoid valve (1a, 2a, 3a, 4a) positioned within the gas flow to the burner and electrically connected to the ther-

mocouple, in which within the electrical connection between the thermocouple and safety solenoid valve there is located a normally closed contactor (1b, 2b, 3b, 4b) which can be manually opened to interrupt said connection and hence extinguish the burner flame.



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Description

[0001] The present invention relates to a safety device for domestic gas cooking appliances comprising at least one cooking point which comprises a burner, a thermocouple arranged to sense the presence of flame at the burner, and an electromagnetic safety valve connected to said thermocouple and which, on opening, enables gas to flow to the burner when the thermocouple senses the presence of flame at the burner.

[0002] It is not infrequently the case that through carelessness or inexperience a person (for example a child) moves dangerously close to a burner to the extent of being struck by the flame, with the serious consequences which can derive therefrom.

[0003] Also not infrequent is the case of fire danger where contact can occur between the flame and flammable materials, with combustion facilitated by the flame of the gas burner.

[0004] It is certainly true that action can be taken in these situations by closing the valve member (taps) which regulate the gas flow to the burners, but it is also true that in these situations panic is such that the presence of mind to positively act in the stated manner can be lacking.

[0005] The main object of the present invention is to provide a safety device of easy access, of immediate and direct intervention, structurally simple and economical, by which the flame from the burner or burners is extinguished in cases of panic such as those deriving from the foregoing dangerous situations given by way of example.

[0006] This and further objects which will be apparent from the ensuing detailed description are attained by a safety device in accordance with the teachings of the accompanying claims.

[0007] The invention will be more apparent from the detailed description given hereinafter by way of example with reference to the accompanying drawing, the single figure of which schematically shows an embodiment of the invention.

[0008] With reference to the figure, which shows schematically an embodiment relative to a gas cooking appliance with four burners, the invention being however also suitable for a different number of burners, for each burner there is provided a thermocouple (here indicated respectively by 1, 2, 3 and 4). When the flame has been lit, the thermocouple concerned activates a relative safety solenoid valve (here indicated respectively by 1a, 2a, 3a and 4a) to which it is electrically connected. The solenoid valves open to enable the gas to flow to the burner (not shown).

[0009] The solenoid valves are positioned downstream of a respective valve 5 (only one is shown in the figure for simplicity of representation) with which the user adjusts the power of the flame at the burner by rotating a knob. These knobs are also axially movable (see arrow A) against a spring (not shown), and when

pressed and rotated they close contacts 7 which connect a generic supply source 8 to the circuit in which the thermocouple and safety valve are located, to cause the safety valve (1a in the example) to open. In this manner the gas passes through the two valves 5 and 1a to reach the burner where a conventional spark ignition device (not shown) ignites the gas with consequent activation of the thermocouple 1, which then maintains the safety valve 1a open even after the user has released the knob 6.

[0010] The invention makes it possible for the user, if the danger situations described in the introduction occur, to act rapidly to extinguish the lighted flame or flames by interrupting the electrical connection between the thermocouples and the respective safety valves. More specifically, with regard to the specific case shown in the figure, each electrical connection comprises a normally closed contactor (1b, 2b, 3b, 4b), all the contactors being joined together and hence operable by a single pusher 9 which is dimensioned and colour-personalized in such a manner as to be immediately locatable and operable.

[0011] Moreover, as shown, a normally open contactor 10 can also be provided which when the pusher 9 is operated closes a circuit comprising an LED (or other light source) or an audible alarm to hence activate it.

[0012] On abandoning the pusher 9, the contactors 1b, 2b, 3b, 4b and 10 can either return by the action of a reaction spring into the position shown in the figure, or can remain in the pusher-operated state and return to the position of the figure by operating (pressing) the common pusher 9 a second time.

[0013] The opening of the contactors 1b, 2b, 3b, 4b breaks the connection between the thermocouple and the safety valve, so that this latter closes to intercept the gas flow to the burners, the flame of which is hence extinguished without being able to be reactivated without repeating the normal burner ignition procedure.

[0014] Embodiments comprising one or more burners, each provided with safety valves and thermocouples, evidently fall within the scope of the invention.

Claims

1. A safety device for domestic gas cooking appliances, comprising at least one burner, a thermocouple (1, 2, 3, 4) for sensing the burner flame, and a safety solenoid valve (1a, 2a, 3a, 4a) positioned within the gas flow to the burner and electrically connected to the thermocouple, **characterised in that** within the electrical connection between the thermocouple and safety solenoid valve there is located a normally closed contactor (1b, 2b, 3b, 4b) which can be manually opened to interrupt said connection and hence extinguish the burner flame.
2. A safety device as claimed in claim 1, wherein, in

the case of more than one burner, all the normally closed contactors (1b, 2b, 3b, 4b) are operable together by means of a single pusher (9).

3. A safety device as claimed in the preceding claims, wherein a display device (11) is provided to display the open state of the normally closed solenoids, said display device being controlled by a normally open contactor (10) connected to, and operable together with, the normally closed contactors (1b, 2b, 3b, 4b).

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