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(54) **Title**: TIMER OF A HOUSEHOLD GAS BURNER

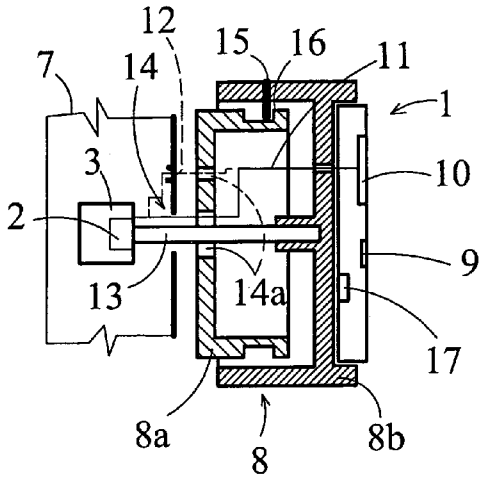

Fig. 2

(57) **Abstract**: A timer (1) of a household gas burner (3) intended to be installed into a gas cooker, in which a thermal element (6) is foreseen as a safety element against gas leaking with the valve open and the flame extinguished, said thermal element (6) automatically actuating a valve (2). The timer (1) is series connected to a circuit (4) comprising a thermal element (6) and a coil (5) of the valve (2) of the gas burner (3). The timer (1) of the invention is characterized in that it is arranged outside a housing (7) of the cooker, preferably within a two-part control knob (8) of a household apparatus in a way that a conduit (11) reaches the control valve (2) through a bore (12) in the housing (7) of a household apparatus or in the gap between a shaft (13) of the valve (2) and bores (14 and 14a) therefor.

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TIMER OF A HOUSEHOLD GAS BURNER

Subject of Invention

The subject of the invention is a timer of a household gas burner offering a possibility of setting the duration of burning of a gas burner without impaired function of a built-in gas burner safety element against gas leakage once the flame is off and the valve still open.

Technical Problem

A technical problem solved by the invention is how to conceive such timer of a household gas burner fitted in an optional kitchen element e.g. a cooker with several gas and/or electric hot plates that will automatically shut off gas supply to the burner after a manually set interval. At the same time all safety elements of the burner preventing leakage of gas with the valve open and with the flame extinguished will remain unchanged, wherein the timer should be adapted for the primary and secondary installation without any modifications of a burner as such both for the cookers connected to electricity network voltage and those foreseen to be connected to it and as far as a user's point of view is concerned, it will be the same as a timer of other electric household heating elements. The timer of the invention should also be subjected to safety and temperature conditions of a household apparatus and relevant regulations and norms.

Prior Art

Gas burners of household cookers are equipped only with a safety device against gas leakage with a gas valve open and the flame extinguished.

An invention of this type is known, SI-**21860** (Lazovski, Tase). A disadvantage of this solution lies in that all or at least part of the electronic elements used to manage the apparatus are arranged within the household apparatus and are

therefore under the burden of temperature and for this reason said electronic elements must be specially adapted to increased temperatures. So there exists a reasonable requirement for doing away with this technical requirement in order for standard electronic elements to be used, said elements being foreseen to function at ambient temperature. Such design simplifies the construction of the device and makes the manufacturing of the objects of the invention cheaper.

Solution to the Technical Problem

The described technical problem is solved by a timer of the invention, the electric wiring diagram of which includes also a connection with a gas valve and is the same as with the above-mentioned patent SI-**21860**. A novelty lies in that all electronic elements are embedded in a knob foreseen for the control of each gas valve. Only a pair of wires - conductors lead to a safety thermal element embedded in a gas valve. A control knob consists of two parts to perform a function of mechanical control of the valve on the one hand and of an electronic timer on the other.

The essence of the invention will now be described in more detail in the continuation of the description by way of both embodiments and enclosed figures, representing in

Fig. 1 an electric wiring diagram of a timer of the invention, included in an electric circuit with a gas burner;
Fig. 2 an axial cross-section of a timer of the invention arranged within a knob for the control of a gas burner valve.

A timer **1** of a control valve **2** of a gas burner **3** is electronically designed as a time controlled switch manually settable by a user. Said timer **1** may have further control functions embedded, which is not the subject of the present invention. Said timer **1** is electrically connected in series to a circuit **4** together with a coil **5**

in the valve **2** and a thermal element **6**. At a certain point in time or after a certain time interval manually settable by a user, the timer **1** simulates extinguishing of a flame by interrupting the electric circuit between the safety thermal element **6** and the coil **5** in the valve **2**.

A characteristic of said timer **1** lies in that it is arranged outside a housing **7** of a household apparatus or on a part of a household apparatus not exposed to heat. The timer **1** is preferably arranged within a control knob **8** of a household apparatus in a way that control switches **9** and a display **10** of the timer 1 are user accessible. A conduit **11** connecting the timer **1** and the valve **2** passes through a bore **12** that needs to be previously made on a housing **3** of a household apparatus. A distance between a shaft **13** of the valve **2** and a bore **14** in most cases suffices to receive the conduit **11**. As the pivoting of the shaft **13** of the control valve **2** is always smaller than the full angle, a sufficiently long section of the conduit **11** within the knob **8** is enough for a knob 8 to pivot unobstructedly.

The control valve 2 is adapted to co-operate with the timer 1 of the invention in a way as described in the patent specification SI-**21860**.

The knob **8** consists of two parts in a preferred embodiment. A base **8a** of the knob **8** is fastened to the housing **3** of the apparatus and it comprises a bore **14a** for the conduit **11** to allow the latter to unobstructedly run from the timer **1** to the coil **5** of the valve **2**. Through the base **8a** the shaft **13** runs coaxially and a rotating part **8b** of the knob **8** is arranged thereon in a known way. Said knob is secured against falling out by a radially oriented pin **15** engaging within an edge **16** on the base **8a**. Of course, the pivotable mutual connection of the base **8a** and the pivotable part **8b** may be arranged in any other known way.

The timer **1** may be of any optional known embodiment either electric or electronic with its own electricity source. The timer **1** may have several functions

that are programmed within it in a simple known way, yet they are not part of the present invention.

As the timer **1** is arranged outside the housing **3** of a household apparatus, it is not under the burden of temperature and no special temperature resistant electronic parts are needed therefor, which contributes to a lower price. Due to its construction the knob **8** can simply receive the timer **1**, wherein the function of manual switch-on, continuous operation of the gas valve and switch-off of same remains unchanged.

The knob **8** can be taken off the shaft **13** in a known way to replace a source **17** of electricity, e.g. a battery for the supply of the timer **1**.

The knob **8** is designed in a way to allow an industrial designer numerous design options.

The timer of the invention as described hereinbefore is foreseen for a first installation or an upgrade only with additional boring of a bore for a conduit between the timer and the valve. The remaining work is assembly only.

No special skill is needed to manage the timer, it is only used to set the time of valve closing or a time interval, after which the valve closes.

It is understandable that a man skilled in the art can conceive other embodiments based on the description of the invention and the embodiments without circumventing the characteristics of the invention described in the appended patent claims.

Claims

1. A timer **(1)** of a household gas burner **(3)** intended to be installed into a gas cooker, in which a thermal element **(6)** is foreseen as a safety element against gas leaking with the valve open and the flame extinguished, said thermal element **(6)** automatically actuating a valve **(2)**, wherein said timer **(1)** is series connected to a circuit **(4)** comprising a thermal element **(6)** and a coil **(5)** of the valve **(2)** of the gas burner **(3)**, **characterized in that** it is arranged outside a housing **(7)** of the cooker, preferably within a control knob **(8)** of a household apparatus in a way that a conduit **(11)** reaches the control valve **(2)** through a bore **(12)** or **(14)** in the housing **(7)** of a household apparatus or in the gap between a shaft **(13)** of the valve **(2)** and a bore **(10)** therefor.

2. Timer **(1)** as claimed in Claim 1, **characterized in that** it is preferably made of two parts, of which a base **(8a)** is fastened to the housing **(7)** of the apparatus and comprises a bore **(12)** for the conduit **(11)**, wherein through the base **(8a)** the shaft **(13)** of the valve **(2)** runs coaxially and a rotating part **(8b)** of the knob **(8)** is arranged thereon and the knob **(8)** is at the same time secured against falling out of the base **(8a)**, preferably by means of a radially oriented pin **(15)** engaging within an edge **(16)** on the base **(8a)**.

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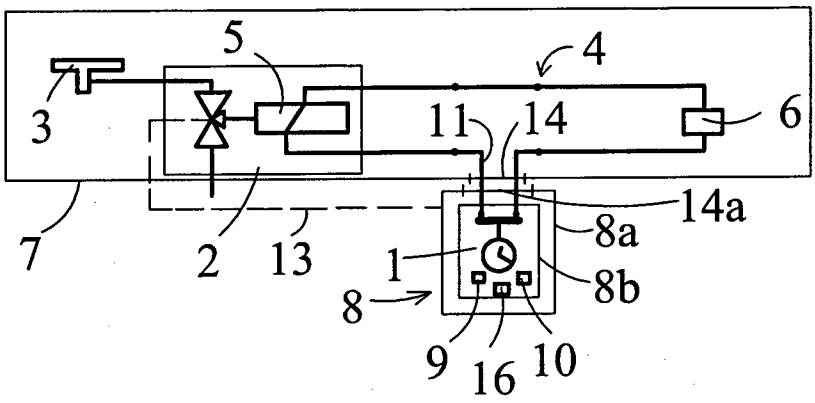
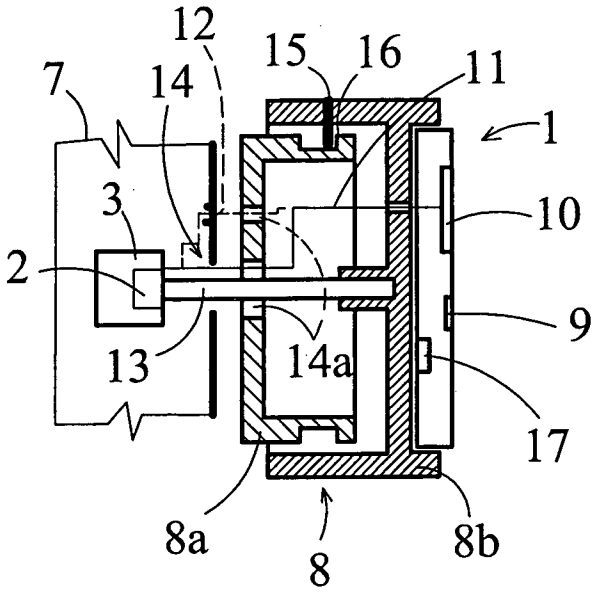

5
4
3
11
14
6
14a
8a
7
2
13
1
8b
8
9
16
10

Fig. 1


12
15
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14a
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8b

Fig. 2