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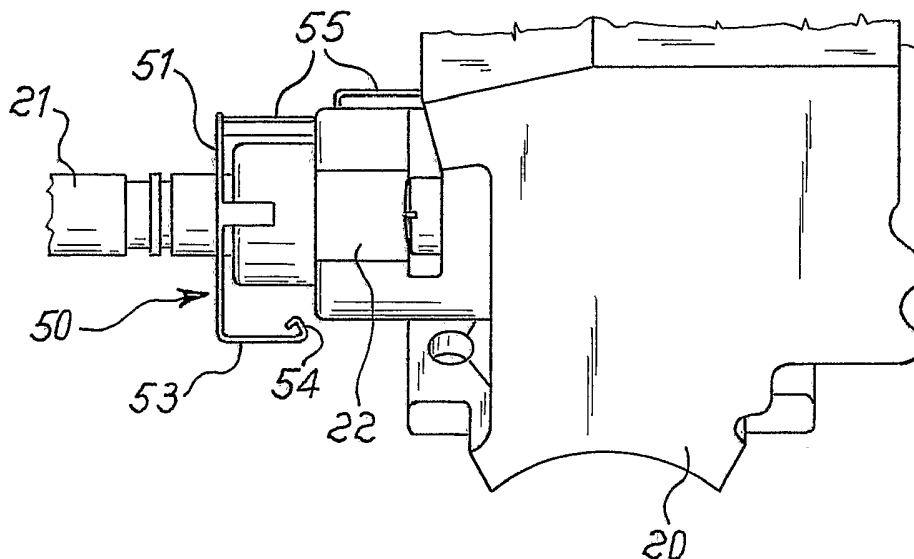
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(54) Title: FLAME IGNITION DEVICE FOR GAS BURNERS



(57) Abstract: A flame ignition device for a gas burner is described, comprising at least one ignition circuit and electric switching means that are associated with the gas tap for the respective burner. The electric switching means include at least one electric contact member which is integral, at least in translation, with the control rod of said gas tap.

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## "FLAME IGNITION DEVICE FOR GAS BURNERS"

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### Field of the Invention

The present invention relates to a flame ignition device for gas burners.

- 5 A device according to the invention is applied, for example, to obtain flame ignition in kitchen burners.

### Background of the Invention

- In kitchen gas burners, such as burners arranged on the kitchen cooktops, each burner is controlled by means of a gas tap and a spark plug is arranged proximate to each burner to obtain the gas ignition when a determined action is performed on the control rod of the corresponding tap.

- The spark plugs are supplied by a suitable ignition circuit, such as an electronic circuit, which is capable of energizing the spark plugs in order to cause a series of electric discharges with a preset frequency in proximity of each burner.

- A switching means is associated with each tap, which generally consists of a micro-switch allowing to activate or deactivate the ignition circuit.

- 20 However, complications may occur when the micro-switches are mounted on the gas taps both in the design step and during manufacture.

- It is a general object of the present invention to propose a flame ignition device in gas taps which is particularly easy and cost-effective to provide.

### Summary of the Invention

This object is achieved according to the invention due to a flame ignition device for a gas burner, comprising at least one ignition circuit to electrically supply at least one spark plug that is associated with the

burner and electrical switching means associated with the gas tap for the respective burner and electrically connected to the ignition circuit to selectively activate or deactivate the power supply to the spark plug, characterized in that the electric switching means include at least one electric contact member which is integral, at least in translation, with the gas tap control rod.

The electric contact member includes at least one portion made of electrically conductive material, which is suitable to be selectively contacted with at least one portion made of electrically conductive material integral with the tap.

According to an advantageous aspect of the invention, the electric contact member is totally made of an electrically conductive material and is fixed on a support member that is made of electrically insulating material. Furthermore, the portion made of electrically conductive material that is integral with the gas tap may advantageously consist of a part of the tap.

The device according to the invention thus results to be particularly easy and inexpensive to manufacture and does not require the use of micro-switches to be assembled to the tap.

#### Brief Description of the Drawings

Further characteristics and advantages of the invention will be more apparent from the following description, which is given by way of example with reference to the annexed schematic drawings, in which:

- Fig. 1 is a perspective view of a possible embodiment of an electric contact member for an ignition device according to the invention;

- Fig. 2 is a perspective view of a possible embodiment of an electric contact member being mounted to an insulating support for an ignition device according to the invention;

- Fig. 3A is a side elevation view showing a gas tap provided with electric switching means according to the invention with the control rod being at rest;

5 - Fig. 3B is a side elevation view showing a gas tap provided with electric switching means according to the invention with the control rod being pressed;

- Fig. 4A is a perspective view of a gas tap with some details being omitted in order to better illustrate the electric contact member in the open circuit condition; and

10 - Fig. 4B is a perspective view of gas tap with some details being omitted in order to better illustrate the electric contact member in the closed circuit condition.

#### Modes for Carrying Out the Invention

15 In Fig. 1 there is detailed a possible embodiment of an electric contact 50 which is one of the switching means associated with a determined gas tap.

The electric contact 50 as depicted in Fig. 1 is totally made of an electrically conductive material in the form of a suitably shaped and folded sheet metal. Particularly, the electric contact 50 comprises an annular portion 51 and a pair of tongues 52 protruding therefrom which facilitate securing and holding the latter in position within a support member 60 (Fig. 2) which is made of an electrically insulating material.

25 The electric contact 50 further includes a first tab 53 with a suitably shaped end 54 to provide a sliding contact with a portion made of electrically conductive material of the tap to which the electric contact 50 is associated.

A second tab 55 of the electric contact 50 is provided, on the other hand, with a shaped end 56 to engageably receive an electric

connection member of a preset type (not shown), such as a Faston™ contact or the like.

In Fig. 2 there is illustrated a support member 60, an electric contact 50 such as that illustrated in Fig. 1 being fittingly mounted thereon. The electric contact 50 is inserted within the support member 60 and locked in position by means of teeth 62 against which the locking tongues 52 are abutted, which have been elastically deformed while being inserted.

A shaped portion 65 of the support member 60 isolates the tab 55 and leaves only the connection end 56 uncovered, whereas the end 54 intended to be contacted to a conductive portion of the tap is housed at a shaped portion 64.

The support member 60 further comprises a central hole, in which projections 63 are faced that are suitable to allow the support/contact assembly to be mounted on a tap control rod and made integral thereto, at least in translation.

A tap provided with a switching means according to the invention is illustrated in Fig. 3A and 3B, respectively, in a rest condition (Fig. 3A) and in a pressed condition due to a pressure being applied on the tap control rod (Fig. 3B).

In these figures, in fact, a gas tap 20 is illustrated as being provided with a control rod 21 to which there is mounted a support member 60 together with a contact member 50. However, only some parts of the latter can be seen. On the control rod 21 there may be provided an elastic return means, such as a helical spring 25 to ensure that the support/contact assembly returns in position when the axial pressure on the control rod 21 is interrupted.

From the comparison between Figs. 3A and 3B it may be seen that the entire support/contact assembly moves integrally with the control rod

21 in the axial direction relative to the tap body 20.

The operation of the contact member 50 being associated with a tap 20 is better seen in the illustration of Figs. 4A and 4B, in which the electric contact 50 is illustrated without support member and any  
5 return spring 25.

In Fig. 4A, the control rod 21 is in the rest position, at which the electric contact member 50 remains open and deactivates the contact with a portion of the tap 20 that is made of electrically conductive material. A sliding contact (Fig. 4B) is provided on the cap 22 of the tap 20 by  
10 applying an axial pressure on the tap control rod 20.

In the embodiment as illustrated by way of example, the cap 22 and the tap body 20 to which it is attached are made of electrically conductive material. Alternatively, it may also be envisaged that the current passage is provided between the electric contact 50 and a  
15 portion made of electrically conductive material being associated with the tap 20 though isolated therefrom.

In the position in Fig. 4B, the electric contact 50 closes the circuit on the tap 20 thus enabling in this position the power supply to the spark plugs through the ignition circuit thereof.

20 A contact member according to the invention is particularly versatile and can be used for opening or closing a low voltage circuit, either included or associated with the ignition circuit, or may also be used for selectively applying or excluding a particular low voltage signal to/from a particular section of the ignition circuit.

## CLAIMS

1. A flame ignition device for a gas burner, comprising at least one ignition circuit to electrically supply at least one spark plug that is associated with said burner and electrical switching means associated  
5 with a gas tap for the respective burner and electrically connected to said ignition circuit to selectively activate or deactivate the power supply to said at least one spark plug, characterized in that said electric switching means include at least one electric contact member which is integral, at least in translation, with the control rod of  
10 said gas tap.
2. The device according to claim 1, wherein said electric contact member includes at least one portion made of electrically conductive material which is suitable to be selectively contacted with at least one portion made of electrically conductive material integral with said  
15 tap.
3. The device according to claim 1, wherein said electric contact member is totally made of an electrically conductive material.
4. The device according to claim 1, wherein at least one support member is made of electrically insulating material, said electric  
20 contact member being attached thereto.
5. The device according to claim 1, wherein said electric contact member comprises at least one electrically conductive portion suitable to engageably receive an electric connection member of a preset type.
- 25 6. The device according to any of the preceding claim, further comprising return elastic means acting on said support member to move away and separate said electric contact member from said at least one portion made of electrically conductive material which is integral with said gas tap when the control rod of said tap is brought

back to said first position.

7. The device according to any of the preceding claims, wherein said at least one portion made of electrically conductive material which is integral with said gas tap consists of a part of said tap.

- 5 8. The device according to any of the preceding claim, wherein the control rod of said tap is movable in translation between at least one first position, at which said electric contact member deactivates the operation of said ignition circuit, and one or more positions in which said electric contact member activates the operation of said  
10 ignition circuit.

Fig. 1

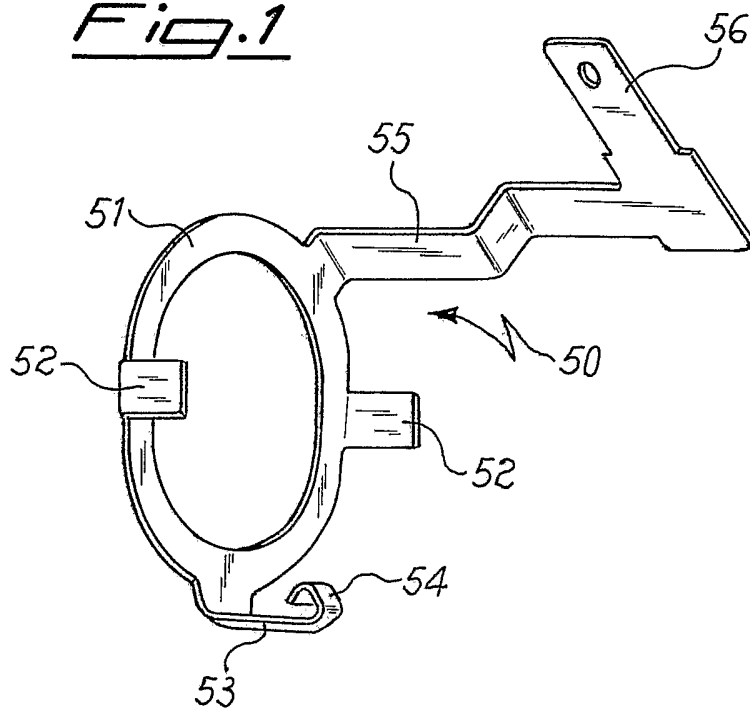


Fig. 2

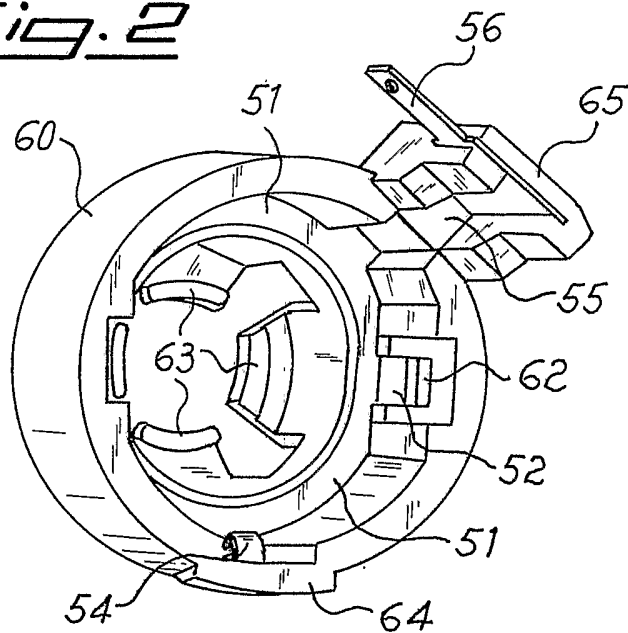


Fig. 3A

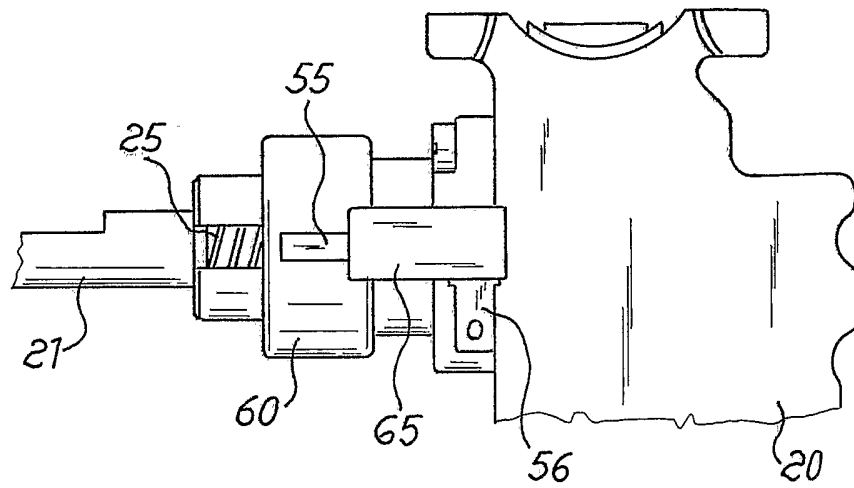


Fig. 3B

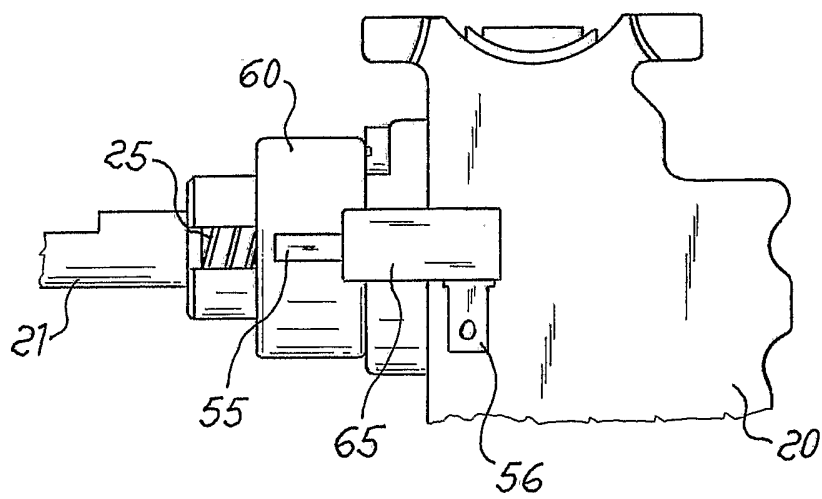


Fig. 4A

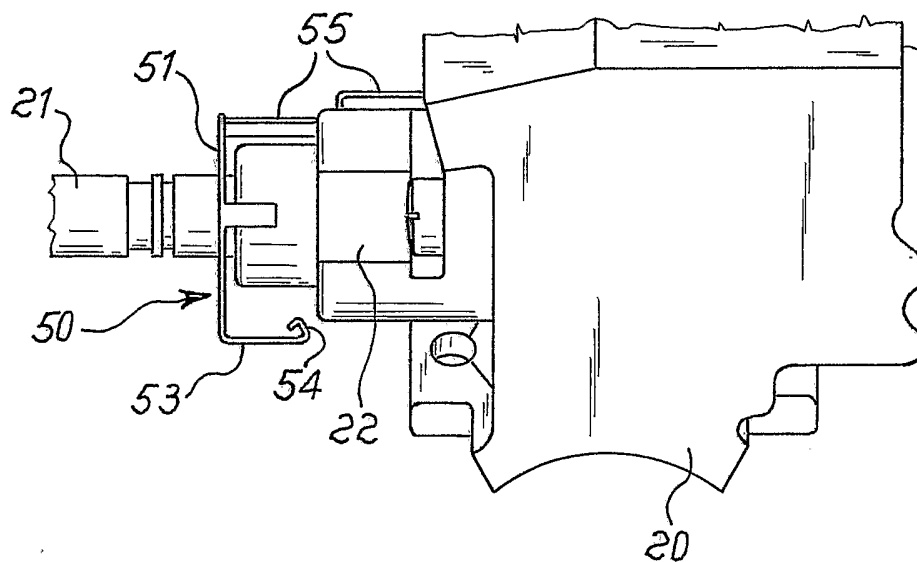


Fig. 4B

