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(54) Radiant body for fireplaces.

(57) Radiant body (10) for fireplaces which comprises a combustion chamber (11), at least one air intake (12), at least one burner (13), a pilot flame (15), ceramic logs, a valve (17) to regulate and control gas, ceramic panels (18) to close the front and sides of the combustion chamber (11), the radiant body (10) including in its upper portion a fume collection chamber (21) connected (22) to the combustion chamber (11) and connected by a conduit (23) to a delivery of air of combustion for the pilot flame (15).

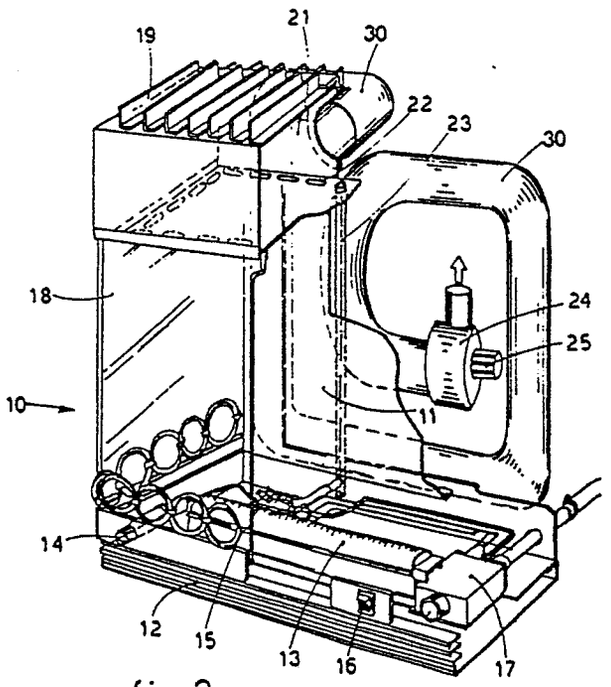

fig.3

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"RADIANT BODY FOR FIREPLACES"

This invention concerns a radiant body for fireplaces. To be more exact, the invention concerns a combustion chamber subjected to negative pressure for use in dummy fireplaces in which gas is burnt in cooperation with ceramic logs.

On being heated, these ceramic logs become red-hot and, in cooperation with the flames of the gas, give the impression that wood is burning.

Radiant bodies of this type are known and comprise a lower burner, regulation means and a radiant chamber with at least one glass side wall.

An air intake is normally located at the bottom of the body; discharge of burnt gases takes place into the atmosphere and the draught system is normal.

Control is provided with normal systems connected to a gas regulation valve.

However, these radiant bodies entail a plurality of drawbacks; they are dangerous since the draught system is natural and backward draughts may therefore occur and send the burnt gases into the inhabited environment. They are also dangerous because the control of combustion is left to the normal electrical systems such as thermostats, thermocouples, etc.

The present applicant has set himself the problem of embodying a radiant body for fireplaces with a gas burner cooperating with ceramic logs; such body should obviate the above drawbacks and be safe.

According to the invention a chamber to collect fumes is provided above a chamber in which the ceramic logs are located. This fume collection chamber cooperates with a pilot control flame by means of a pipe that feeds combustion air.

If the carbon dioxide content exceeds given values in the fume collection chamber, the gases in that chamber descend along the pipe feeding combustion air and saturate the pilot flame with air devoid of oxygen, so that the pilot flame is extinguished and the delivery of gas is shut off.

According to a variant the fume collection chamber comprises an explosion-proof safety door which opens automatically when dangerous conditions occur in the radiant body.

According to a variant a mechanical fume extractor is included in association with the fume collection chamber; the motor of the extractor governs electrically a valve which delivers and controls the gas.

Failure of the extractor to function not only clogs the fume collection chamber with unburnt gases but also stops the working of the valve that delivers and controls the gas.

Such extractor may be associated with a pipe which extracts burnt gases and provides a cooling path for the burnt gases, such path being able to improve the efficiency of the radiant body.

The invention is therefore embodied according to the contents of Claim 1 and of the dependent claims.

The attached figures, which are given as a non-restrictive example, show the following:-

Fig. 1 gives a three-dimensional view of a radiant body according to the invention;

Figs. 2 and 3 show variants of the embodiment of Fig. 1.

A radiant body 10 of a known type comprises a combustion chamber 11, an intake 12 of outside air, a burner 13, a pilot flame 15, a possible system of ignition 14 by a piezoelectric lighter, ceramic logs (not shown here) placed on the burner 13, an on/off switch 16, a valve 17 to deliver and control gas, ceramic panels 18 that close the front part and possibly the side portions of the chamber 11, possible elements 19 located in the upper part of the combustion chamber 11 in a position not usually visible so as to enhance the spreading of heat and a discharge flue 20.

According to the invention a fume collection chamber 21 is included and is connected by slits 22 to the combustion chamber 11.

A conduit 23 which communicates with the feed of combustion air to the pilot flame 15 starts from the fume collection chamber 21.

When the content of carbon dioxide in the fume collection chamber 21 exceeds determined levels, the gases descending through the conduit 23 are no longer able to keep the pilot flame 15 alight and the latter is extinguished.

When the pilot flame 15 is extinguished, the delivery valve 17 closes the delivery of gas.

According to a variant the fume collection chamber 21 comprises in its upper part an opening 27 that cooperates with a safety door 28 hinged at 29.

Rotation of the safety door 28 about the hinges 29 may be suitably graduated according to the conditions of pressure inside the radiant body 10.

According to another variant a mechanical fume extractor 24 actuated by an electric motor 25 is associated with the flue 20. If the electric motor 25 does not work, the extractor 24 does not aspirate fumes and an elbow 26 in the flue 20 enhances the build-up of gases, and of carbon dioxide contained in the gases, in the fume collection chamber 21, the pilot flame 15 being thus extinguished.

A pipe 30 to extract burnt gases may be associated with the mechanical fume extractor 24; it will be advantageously spiral in form and will extend on a plane parallel to the end wall of the radiant body 10 within the overall size defined by that end wall.

Any anomaly in the combustion conditions due, for instance, to external factors such as wrong assembly or wrong connections will cause, likewise, the extinguishing of the pilot flame 15.

Moreover, the combustion chamber 11 is always kept under negative pressure so as to obviate the dangers of leakage of burnt gases through cracks or other faults.

Claims

1 - Radiant body (10) for fireplaces which comprises a combustion chamber (11), at least one air intake (12), at least one burner (13), a pilot flame (15), ceramic logs, a valve (17) to regulate and control gas, ceramic panels (18) to close the front and sides of the combustion chamber (11), the radiant body (10) being characterized in that it includes in its upper portion a fume collection chamber (21) connected (22) to the combustion chamber (11) and connected by a conduit (23) to a delivery of air of combustion for the pilot flame (15).

2 - Radiant body (10) as claimed in Claim 1, in which a flue (20) includes a mechanical fume extractor (24) driven by an electric motor (25) and a downwardly sloping elbow (26).

3 - Radiant body (10) as claimed in Claim 1, which comprises a mechanical fume extractor (24) driven by an electric motor (25) and connected to a pipe (30) substantially of a spiral form for the extraction of burnt gases, such pipe (30) lying on a plane parallel to the end wall of the radiant body (10).

4 - Radiant body (10) as claimed in any claim hereinbefore, in which a valve (17) for the delivery and control of gas is conditioned by the electric motor (25) electrically.

5 - Radiant body (10) as claimed in any claim hereinbefore, in which the fume collection chamber (21) comprises in its upper portion an opening (27) cooperating with a safety door (28) which can be opened.

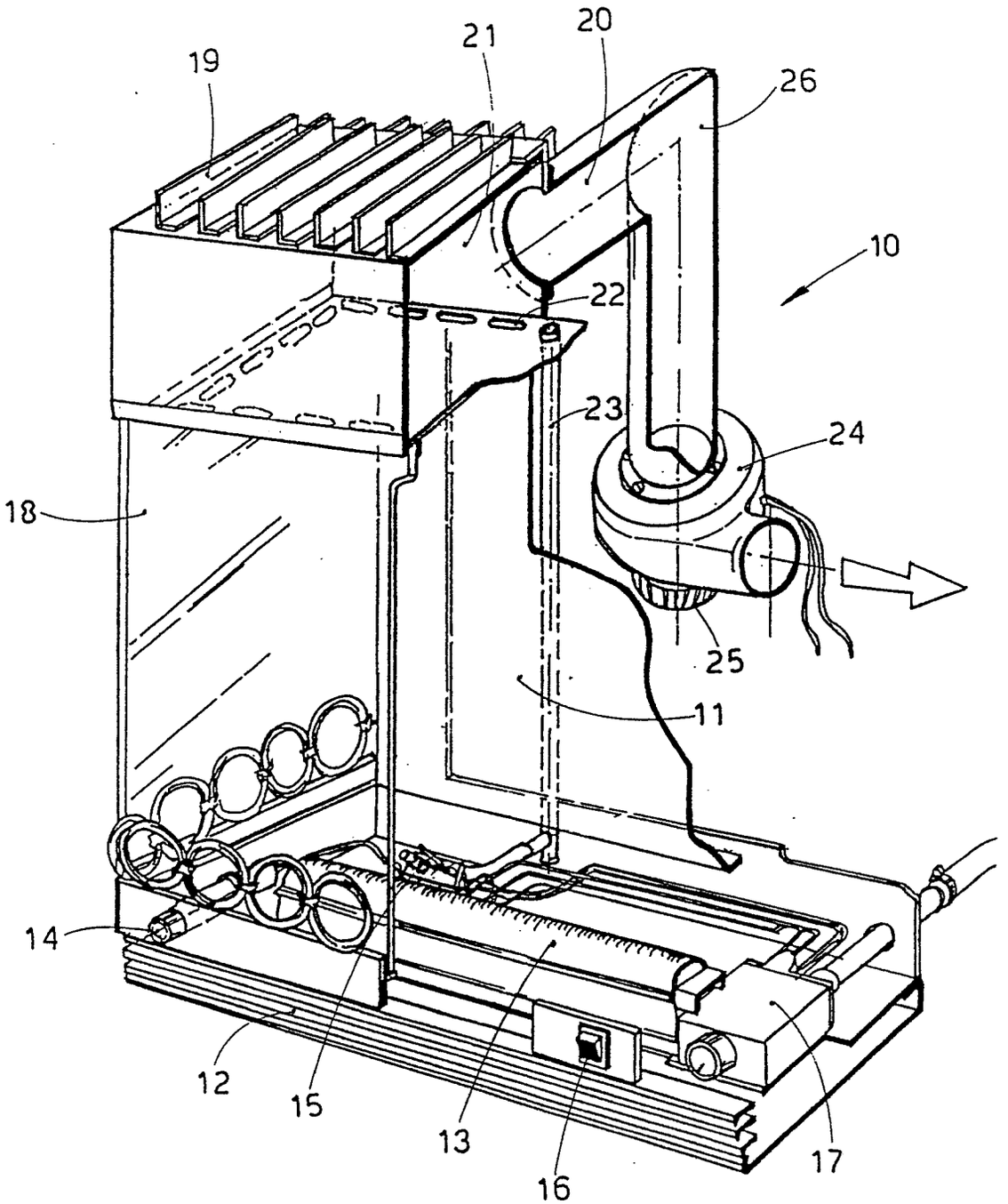

fig. 1

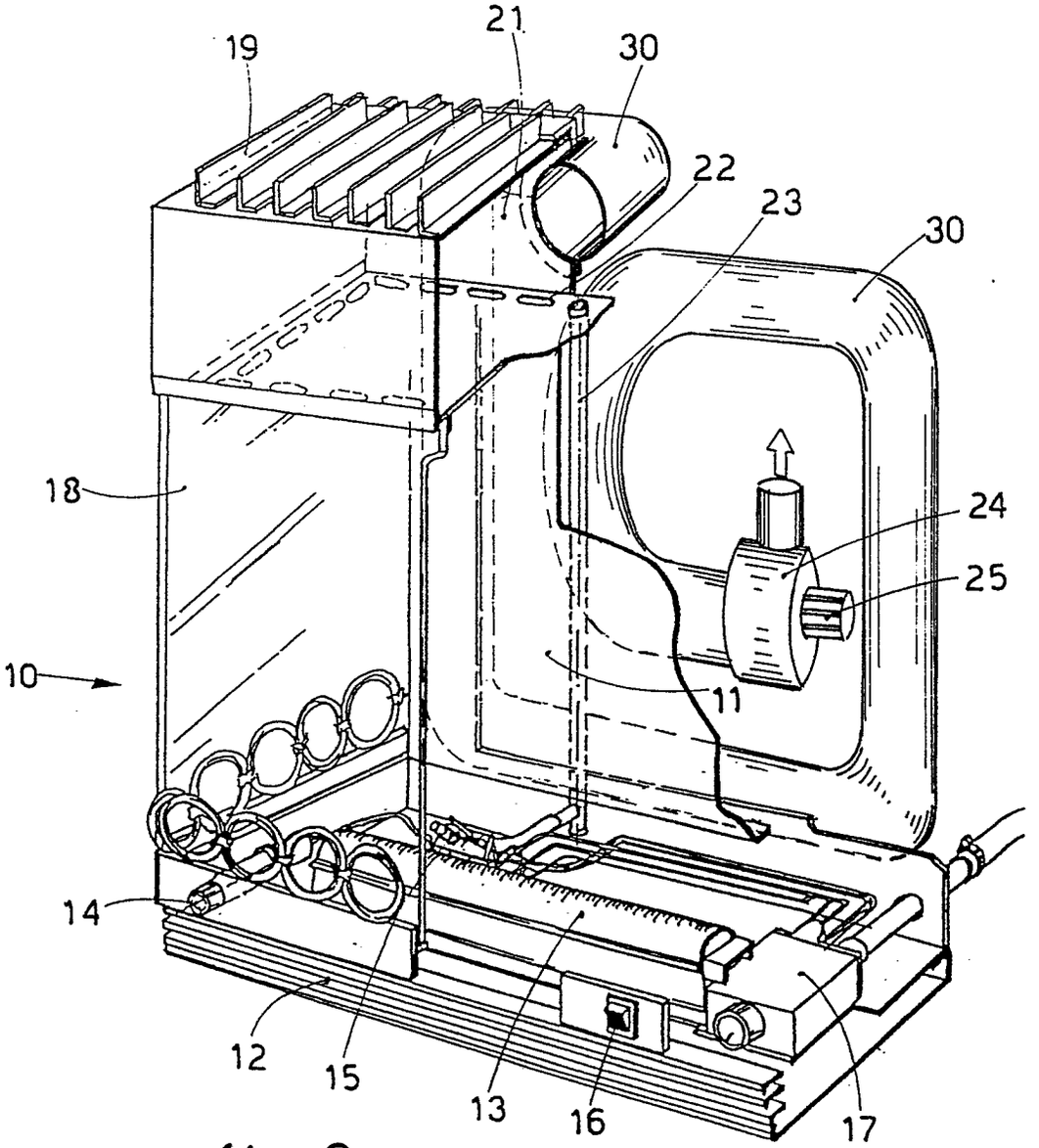
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fig.3

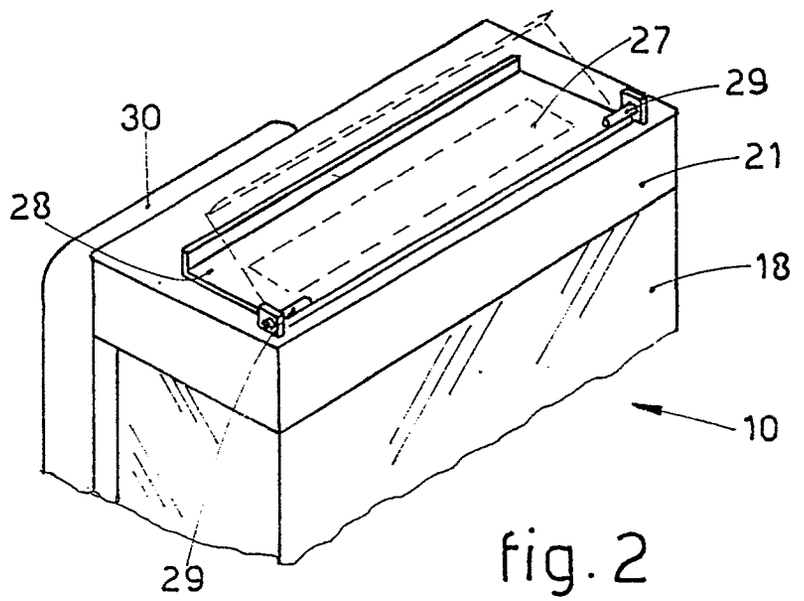
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fig.2