March 12, 1963 L. DESGAGNE 3,080,862

CHIMNEYLESS FIREPLACE UNIT WITH MECHANICAL DRAFT

Filed June 20, 1960

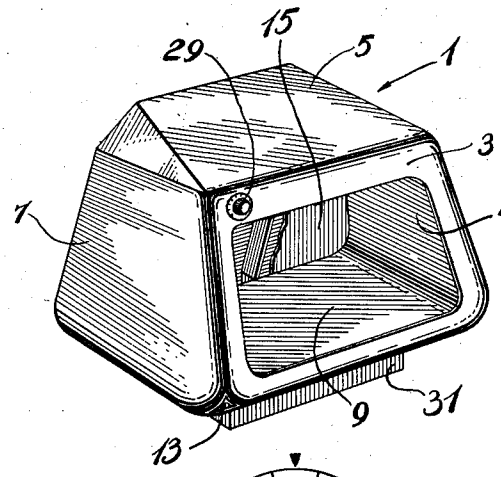


Fig. 1

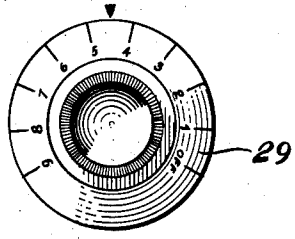


Fig. 4

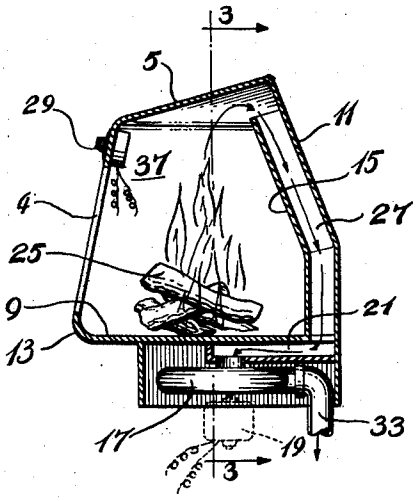


Fig. 2

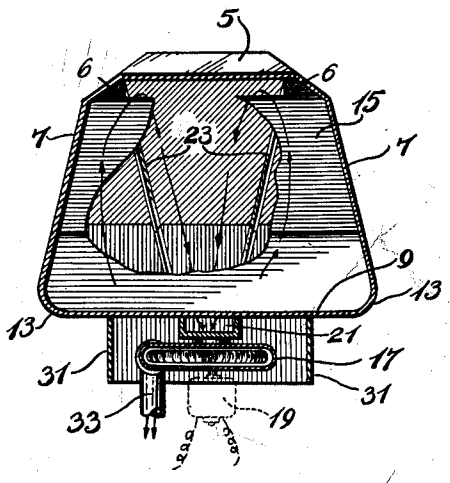


Fig. 3

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CHIMNEYLESS FIREPLACE UNIT WITH MECHANICAL DRAFT

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1 Claim. (Cl. 126—62)

This invention pertains to a fireplace unit, more particularly, of the compact type made as a single unitary piece. It further pertains to a fireplace using mechanical draft.

The common type of fireplace is quite expensive because the skill of an experienced man is required in order to obtain one which will give satisfactory results with good control over draft and, hence, proper combustion.

My invention contemplates the production of a fireplace which will eliminate the hazards of natural draft and the difficulty of building a fireplace with good draft control.

One distinctive feature of my invention is that it is made of metal, preferably sheet metal, and as such is easy to manufacture, and is much less expensive than brick fireplaces. Also, another distinctive feature is that it is made in one piece so that it can be very easily set in place, or even set in masonery to imitate a real fireplace.

A further distinction is in the incorporation of mechanical draft with the subsequent elimination of a costly brick chimney. With the fireplace unit of my invention, a stack only is necessary to carry the flue gases to the atmosphere.

Furthermore, the unit, which is a metallic casing having one open front wall, is provided with a duct for carrying the gases from the combustion chamber onto the inlet of an exhaust means, such as a fan. This duct is actually part of the casing and is hidden from sight. It opens at the top of the combustion chamber, in the rear thereof, and runs along the back wall of the casing to the underside thereof where it enters the inlet of the fan.

A better understanding of the invention will be had by the following description having reference to the annexed drawings, wherein:

FIG. 1 is a perspective view in elevation of the fireplace unit of my invention.

FIG. 2 is a transverse cross-sectional view taken along the mid-portion of the unit.

FIG. 3 illustrates a longitudinal cross-sectional view of the unit taken along the mid-portion thereof, and,

FIG. 4 shows the front face of a nine-speed switch controller used to vary the speed of the fan, and, thus, the draft.

Casing 1, shown in FIG. 1, is somewhat cubical in shape, although it may be an elongated shape. In both cases of course, the principle of the invention is the same.

Generally, the fireplace unit comprises a casing having a front wall 3, through which is cut a substantially, or otherwise, square opening 4. For appearance purposes, and also for convenience, front wall 3 may be inclined rearwardly until it reaches top wall 5. Similarly, side walls 7 may be inclined towards one another and joined to front wall 3 and bottom wall 9 by arcuate bends 13.

Located slightly forwardly of rear wall 11 is a plate or combustion chamber back wall 15 extending from bottom wall 9 and terminating short of top wall 5. As better shown in FIG. 2, plate or back wall 15 is bent slightly inwardly about its lower portion and becomes a deflector

plate which will create greater disturbance, and thus better combustion of the flue gases.

For appearance purposes, deflector plate 15 extends the full width of the unit.

As will be apparent from a study of FIGS. 2 and 3, deflector plate 5 and rear wall 11 form part of a flue gas duct which carry the gases to an exhaust means such as centrifugal exhaust fan 17, driven by an electric motor 19. This fan is mounted below bottom wall 9 with its inlet slightly spaced therefrom. A short duct 21 joins said inlet to the space between said plate 5 and rear wall 11.

For greater efficiency, flue gases are directed to the inlet of the fan by means of a somewhat L-shaped duct, the vertical part of which is trapezoidal in form, as clearly seen from FIG. 3. The trapezoid has a wide base at the top and is created by side strips 23 leaving the top of plate 15 and being inclined towards each other until it joins short duct 21 which leads into the inlet of the fan. Of course, the lateral space between the top of each strip 23 and the walls 7 is closed, as by plate 6, to prevent the formation of an unnecessary gas pocket between strips 23 and walls 7.

It will be noted that top wall 5 rises as it leaves front wall 3 and is upwardly inclined on its way to rear wall 11. This inclination towards the rear, conveniently directs flue gases from the burning wood logs 25 towards the inlet of duct 27.

For better control over draft, the unit may include a speed control circuit varying the speed of the motor and fan, and operated by a control knob such as the nine-speed switch controller 29 shown in details in FIG. 4.

In order to make a complete unit, fan 17 and motor 19 should be protected by a mounting shield which would be made up by four walls 31 (FIG. 3) completely enclosing the fan and motor and which would also serve as a support for the unit.

Fan outlet 33 is shown here as directed downwardly but it will be understood that it can also be directed horizontally, if necessary to suit particular conditions.

As will readily be understood by perusal of FIGS. 2 and 3, flue gases are drawn from combustion chamber 37 into ducts 27 and 21, go through centrifugal fan 17 and finally move out to the outlet duct 33 connected to a vent (not shown), to atmosphere.

I claim:

A prefabricated fireplace unit comprising: a casing completely closed-in except for an open front wall and having top, bottom and rear walls; a combustion chamber within said casing having a back wall, forwardly of said rear wall and facing said open front wall; said back wall projecting from said bottom wall, extending the full width of said casing and terminating short of said top wall; two metal strips angularly and upwardly disposed between said back and rear walls from the bottom wall to the top of said back wall; said strips being upwardly divergent from said bottom wall away from one another; a short duct mounted beneath said casing and extending rearwardly of the combustion chamber; said short duct having a frontward and a rearward extremity; said strips thus forming, with said back and rear walls, a duct having a wide end opening into said combustion chamber and a narrow end opening into, and connected to the rearward extremity of said short duct; a fan and a motor for driving said fan mounted beneath said casing with the inlet of the fan connected to the frontward extremity of said

short duct; an upstanding shielding wall fixed to the bottom wall of said casing, enclosing said short duct, fan and motor and serving as a support for said fireplace unit.

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