March 15, 1927. 1,621,135

T. A. SALA

FIREPLACE HEATER

Filed July 21, 1925

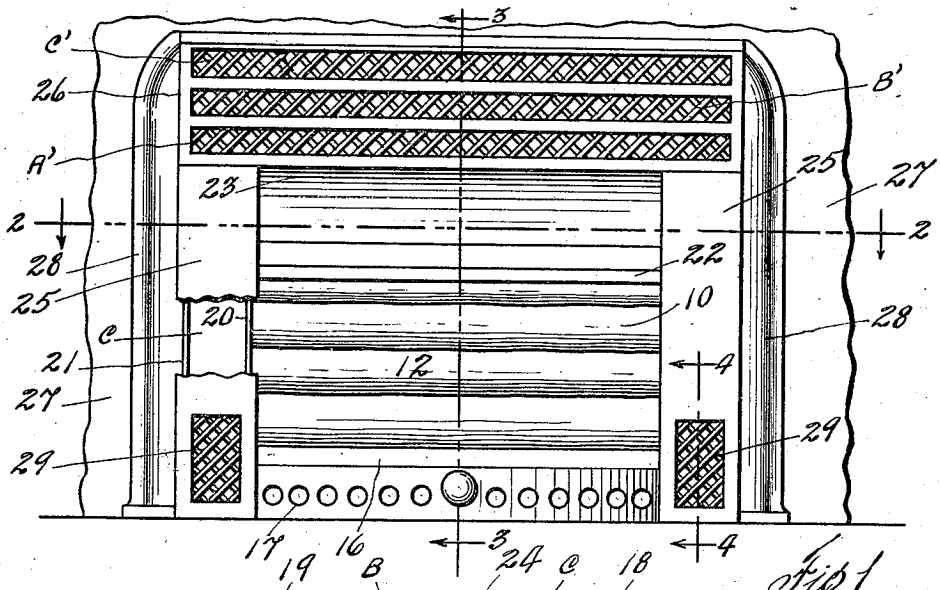

Fig. 1.

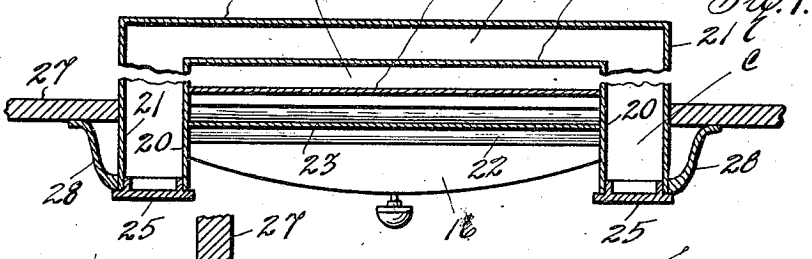

Fig. 2.

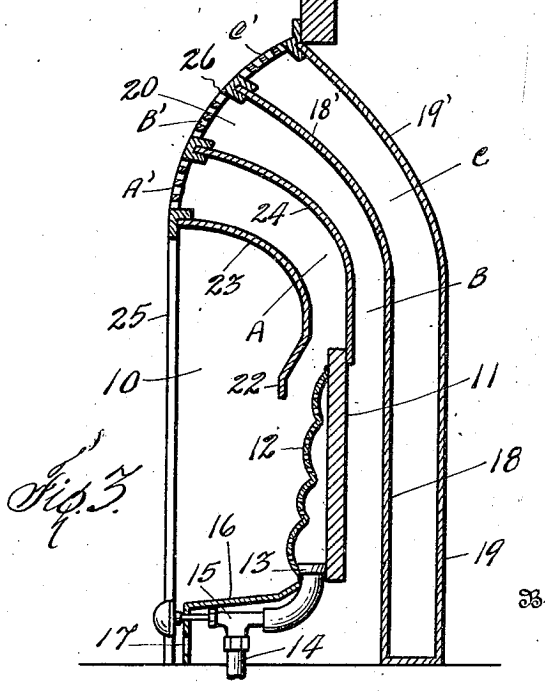

Fig. 3.

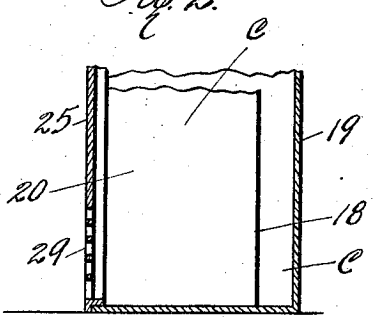

Fig. 4.

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UNITED STATES PATENT OFFICE.

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FIREPLACE HEATER.

Application filed July 21, 1925. Serial No. 45,010.

This invention relates to new and useful improvements in fire place heaters.

As a rule a fire place heater does not heat a room as efficiently as a stove because the air is not circulated through the heater and returned to the room after being heated.

Fire place heaters equipped to circulate heated air currents have been developed and my invention has to do with this class of heaters.

The object of the invention is to promote and accelerate circulation of heated air currents to a very high degree of efficiency, whereby full benefit is had from the fuel consumed.

A further object of the invention is to circulate air currents through a fire place heater and to heat said currents to different degrees of heat Fahrenheit, in separate channels, whereby some of the air currents are caused to move faster than others thus increasing circulation and heating efficiency.

Another object is to combine these features in a single unit adapted to be installed in a fire place and forming no part of the mantel or chimney, thus making a unit which may be inserted in the usual fire place opening or in the side of a wall.

A construction designed to carry out the invention will be hereinafter described, together with other features of the invention.

The invention will be more readily understood from a reading of the following specification and by reference to the accompanying drawings, in which an example of the invention is shown, and wherein:

Fig. 1 is a front elevation of a heater constructed in accordance with my invention,

Fig. 2 is a horizontal cross-sectional view taken on the line 2—2 of Fig. 1,

Fig. 3 is a transverse vertical sectional view taken on the line 3—3 of Fig. 1, and

Fig. 4 is a vertical sectional view taken on the line 4—4 of Fig. 1.

In the drawings the numeral 10 designates an open front fire box having a back plate 11. A gas log 12 or other heat radiating element is secured to the face of the back plate and conceals the latter. A suitable gas burner 13 is connected with a supply pipe 14 and includes a valve 15. The type of fuel or fire is immaterial, gas being referred to merely as a convenience. A shield 16 having air admitting parts 17, is disposed on the floor of the fire box and extends to the burners as well as covering the valve and supply pipe.

Spaced from the back wall 11 is an upright flue wall 18 and spaced from the wall is an upright back flue wall 19. The flue wall 18 is connected at its sides with the rear edges of the side walls 20 of the fire box 10. The back flue wall 19 is connected at its sides with the rear edges of said flue walls 21 spaced from the side walls 20. By this arrangement an upright intermediate flue B is formed in the fire box and extends transversely in rear of the back wall 11. This flue is supplied with air through the ports 17.

A deflector 22 overhangs the upper end of the gas log 12 and is bent outwardly from the log. This deflector depends from the lower end of a transversely extending and upwardly curved flue wall 23, forming the top of the fire box and the bottom of a flue A into which the products of combustion are delivered. The flue A is separated from the upper portion of the flue B by a curved flue wall 24 and the walls 18 and 19 are curved upwardly and forwardly respectively, at 18′ and 19′ to form a continuation of the flue B, as well as providing a flue C in connection with the walls 20 and 21. The flue C is U-shaped in plan (Fig. 2) so as to extend across the back and along each side of the fire box, but is not connected therewith.

The unit has a front which is composed of upright side panels 25 and a transverse grille 26 curved from the upper ends of the panel upwardly and rearwardly to breast 27 of the chimney. Side plates 28 may be installed to cover the flue walls 21 which extend from the breast. The grille 26 has foraminous panels A′, B′ and C′ connected respectively with the flues A, B and C. Small grilles 29 are provided at the lower ends of the panels 25 for admitting air to the flue C. It will be seen that the grilles and the forward portions of the fire box and flues extend outwardly from the chimney breast 27. This has two advantages, one that more radiating surface is exposed in the room and the other, that a comparatively free upward passage is provided for the heated air currents discharged from each flue, thus promoting circulation.

It will be seen that when the heating unit is in operation, the products of combustion

from the gas log 12 together with the air currents which enter behind the deflector 22, will pass up the flue A and be discharged from the panel A′ of the grille 26. Air entering through the ports 17 under the shield 16 will pass into the bottom of the flue B. These latter air currents rising in the flue B will be heated by radiation from the back wall 11 and from contact with the generally hot walls 18, 18′ and 24, passing out through the panel B′ of the grille 26.

Air will also enter the flue C through the grilles 29 and will be heated by contact with a radiation from the walls 20, 18 and 18′. These heated air currents will be discharged from the panel C′ of the grille 26. It is pointed out that each flue admits its air at an undivided point and discharges it likewise. The currents discharged from the flue A will be the hottest and will tend to travel faster than the currents discharged from the flue B, which in turn being hotter than the currents discharged from the flue C, will travel faster than the latter. The air currents from the flue A will tend to pull the currents from the flue B and the latter currents will tend to pull the currents from the flue C. These differences will accelerate the circulation of air and will displace the air from the room and conduct it through the heater in a much more rapid manner than can be had with the usual fire place heater. Each flue has its individual function and it is important that there be no obstruction above the discharge panels of the grille 26, immediately thereat.

Various changes in the size and shape of the different parts, as well as modifications and alterations may be made within the scope of the appended claims.

What I claim, is:

1. In a fire place heater, the combination of an open fire box, a heating element therein, an individual flue having an intake communicating with the rear upper portion of the fire box and discharging into the room, a second flue contiguous to the first flue and having an individual air intake and discharge communicating with the room, and a third flue contiguous to the other flues and having individual air entrance and discharge communicating with the room.

2. In a fire place heating device, the combination of an open fire box, a heating element in the fire box, an individual flue overhanging said element at the top of the fire box and discharging into the room for conducting heated air currents from said element, a second individual flue contiguous to the first flue having an individual air entrance and an individual air discharge into the room and above the discharge of the first flue, and a third individual flue surrounding the fire box and other flues and overhanging them, said third flue having air admitting openings on each side of the fire box and an individual discharge into the room above the discharge of the other flues.

3. In a fire place heating device, the combination of an open front fire box, a heating element in the box, a curved flue wall forming the top of the box, a deflector depending from the curved flue wall and spaced from the heating element to form an intake to the flue, a shield at the bottom of the fire box having air admitting openings, a back wall at the rear of the fire box, an upright flue wall spaced from the back wall to form a vertical flue receiving air from under the shield, a division flue wall extending from the back wall and overhanging the curved flue wall to form flues above the fire box, and an upwardly opening grille through which said flues discharge.

4. In a fire place heater, an open front fire box, a first flue extending upwardly with an intake opening at the top of the fire box, a second flue extending upwardly in back of the box, a third flue extending upwardly on each side of the fire box and in rear of the second flue, the upper end of the third flue overhanging the upper end of the second flue, the upper end of the second flue overhanging the upper end of the first flue, and an unobstructed upwardly curved grille covering the upper ends of the flues.

In testimony whereof I affix my signature.

THEODORE A. SALA.