

June 1, 1926.

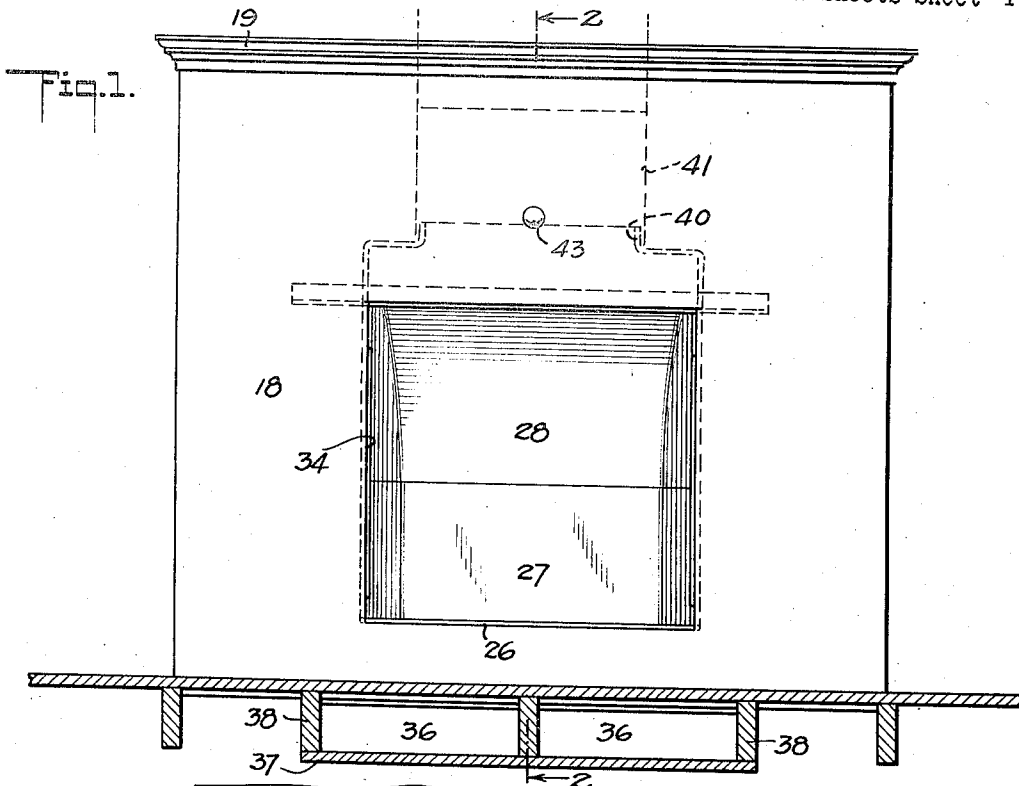
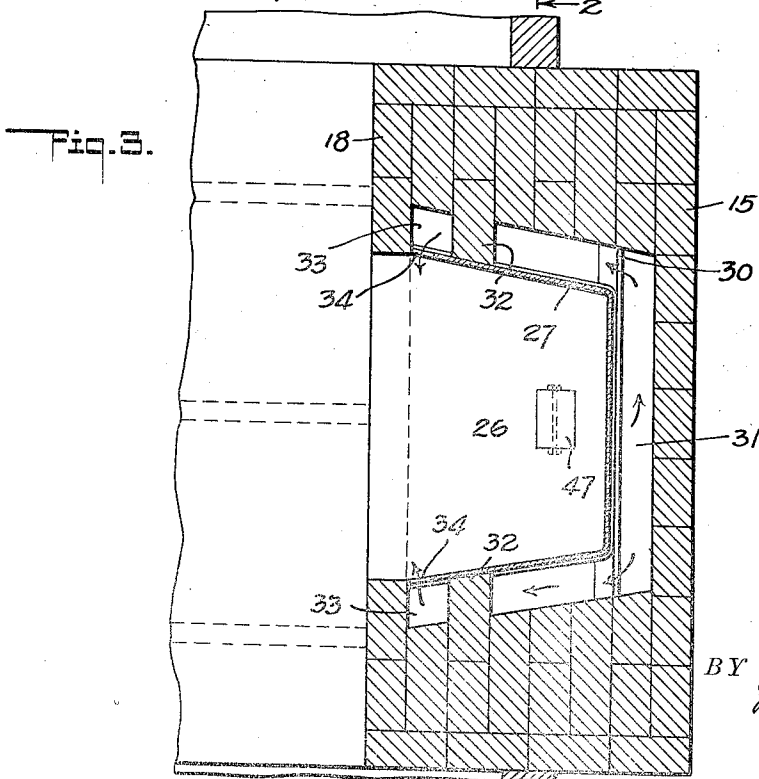
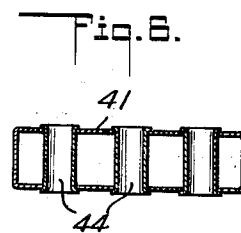
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1,587,227

FIREPLACE

Filed May 2, 1925

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 2.

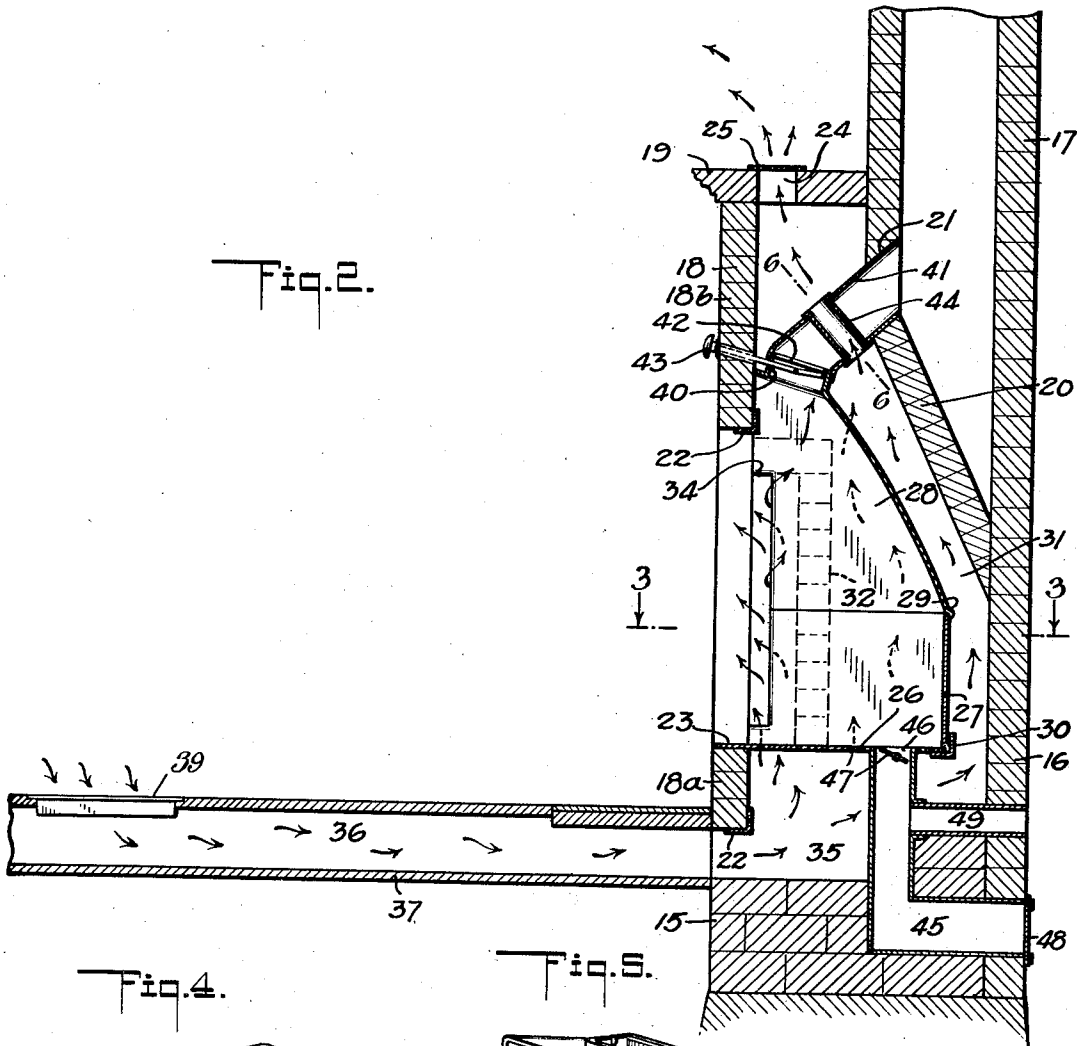


Fig. 4.

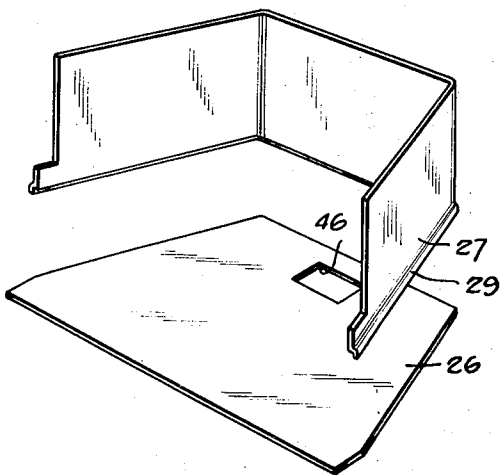
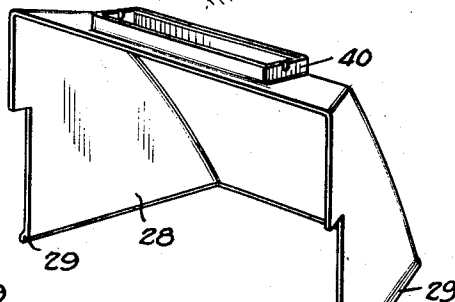


Fig. 5.



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FIREPLACE.

Application filed May 2, 1925. Serial No. 27,608.

My invention relates to fireplaces, and the purpose of my invention is the provision of a fireplace by which the effective and economical heating of rooms can be obtained and in such manner that air both from the room and outside atmosphere is continuously circulated through the fireplace so as to be heated during transit and finally discharged into the room, the circulation of air being such that it is continuously supplied to the firebox in quantities sufficient to promote perfect combustion and check the indraft of air directly to the firebox.

It is also a purpose of my invention to provide a fireplace formed of sections capable of being readily assembled and disassembled to facilitate application and removal to or from a fireplace, and which in its association with the fireplace embodying my invention provides means for directing currents of air from the fireplace into the firebox so that part of the air operates to promote perfect combustion while the remainder of the air is discharged into the room. I will describe only one form of fireplace embodying my invention, and will then point out the novel features thereof in claims.

In the accompanying drawings—
Figure 1 is a view showing in front elevation and partly in section one form of fireplace embodying my invention.

Figure 2 is a vertical sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a horizontal sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a detail perspective view of intermediate and base sections of the firebox embodied in the fireplace shown in the preceding views.

Figure 5 is a detail perspective view of the top section of the firebox.

Figure 6 is a sectional view taken on the line 6—6 of Figure 2.

Similar reference characters refer to similar parts in each of the several views.

Referring specifically to the drawings, my invention in its present embodiment comprises a fireplace constructed of brick or other suitable material including a base of rectangular form as shown in Figure 3, and from the rear of which a rear wall extends upwardly to form the rear of a chimney designated at 17. A front wall extends upwardly from the front side of the base, and in advance of the front wall of the

chimney 17, is a horizontal wall 19 connecting the two to provide a mantel within the room. An inclined wall 20 constitutes the bottom of the chimney 17 and is provided with an opening 21 through which gases from the fireplace are discharged into the chimney.

The front wall 18 is made up of a lower section 18^a and an upper section 18^b, the sections being supported on transverse angle irons 22 secured at their ends in the side walls of the fireplace and supporting the wall sections in spaced relation to provide an opening 23. The top or horizontal wall 19 is likewise provided with a relatively small opening 24 spanned by a screen 25 so as to provide a register through which heated air from the fireplace is discharged into the room.

Within the fireplace is arranged a firebox constructed of metal or other suitable material and in the present instance embodying three sections capable of being readily assembled and disassembled to facilitate manufacture and application thereof to the fireplace. As shown in Figures 4 and 5 the firebox comprises a flat base section 26, a three sided intermediate section 27 supported on the base section, and a top section 28 supported on the intermediate section and having its forward vertical edges of irregular form for a purpose which will be described hereinafter. The intermediate and top sections are constructed to provide overlapping joints as indicated at 29 in order that the several sections can be readily supported one upon the other when in applied position within the fireplace, and to provide substantially air tight joints between the sections.

In the applied position of the firebox within the fireplace as illustrated in Figure 2, the base section 26 is supported at its forward edge upon the lower front wall section 18^a, and at its lower edge upon an angle bar 30 secured within and extending transversely of the fireplace. With the base section supported in this manner, it will be clear that the intermediate and top sections can be superimposed thereon with their front vertical edges lying contiguous to the front wall 18 of the fireplace. In this position the firebox is spaced from the rear and bottom walls of the chimney so as to provide therebetween an air duct 31 which is in communication with the opening 24 of the hori-

zontal wall 19. The sides of the firebox are maintained in spaced relation to the sides of the fireplace by means of vertical L-shaped partitions 32 which extend from the inner sides of the fireplace as clearly shown in Figures 2 and 3 and in spaced relation to the front wall 18 so as to provide therebetween vertical ducts 33 closed at their upper ends but open at their lower ends so that air is free to pass upwardly of the ducts and into the firebox through openings 34 formed by the association of the irregular vertical edges of the firebox sections 27 and 28 with the front wall 18. The lower ends of the ducts 33 are in communication with a chamber 35 below the fireplace, and to which chamber air is supplied through a horizontal air duct 36 formed beneath the floor of the room by extending a partition 37 across the lower edges of a plurality of joists 38 of the floor. Air from the room in which the fireplace is located is supplied to the air duct 36 through a floor register 39 as clearly shown in Figure 2.

As shown in Figures 2 and 5, the upper firebox section 28 is formed with a collar 40 to which is secured the lower end of a pipe 41, the latter being inclined upwardly across the air duct 31 and having its upper ends secured within the opening 21 thus placing the top of the firebox in communication with the chimney. This pipe 41 is provided with a damper 42 operable by a rod 43 extending through the front wall 18, the damper controlling the passage of air and products of combustion through the pipe, and into the chimney as will be understood. The pipe 41 is constructed to partly bridge or block the air duct 31, and is provided with transverse pipe sections 44 as clearly shown in Figure 6 through which the air traversing the duct 31 can pass upwardly for final discharge through the opening 21. In forcing the air to traverse the pipe sections 44, it will be clear that the heated air and products of combustion traversing the pipe 41 will operate to heat the pipe sections 44 and thus heat the air traversing the sections so that the air as finally discharged into the room through the opening 21 is heated.

As shown in Figure 2, the base and rear wall of the fireplace is constructed to accommodate an L-shaped pipe 45, the vertical portion of which is in communication with the bottom of the firebox through an opening 46 and a damper 47, disposed within the opening to control the influx of air into the firebox or the dumping of ashes therefrom. The horizontal portion of the pipe 45 extends to the outer side of the building and is provided with a door 48 so that in the event that wood or coal are being burnt in the firebox the ashes therefrom can be discharged into the pipe and removed therefrom

through the door 48. A branch pipe 49 extends through the rear wall of the fireplace and constitutes an air inlet through which fresh air can be supplied to the bottom of the firebox to promote combustion, as will be understood.

In practice, the source of heat (not shown) in the firebox effects a reduction in the temperature of the surrounding air which operates to generate currents of air which traverses the several ducts in the following manner:

As indicated by the arrows in Figure 2, fresh air from atmosphere enters the bottom of the firebox through the branch pipe 49, the passage of air into the box being controlled by the damper 47. A current of air also enters the air duct 36 through the register 39 passing into the chamber 35 and then upwardly to the sides and back of the firebox. A portion of this air enters the air ducts 33 passing into the firebox with a portion thereof mingling with the products of combustion from the source of heat to promote combustion in a manner to prevent a draft of air being created inwardly of the firebox through the opening 23. The remainder of the air is free to pass through the opening 23 into the room. The air traversing the sides of the firebox and the duct 31 is heated during transit and further heated by passing through the pipe sections 44 from whence it is finally discharged through the opening 24 into the room.

By this operation, it will be seen that a constant circulation of air is effected from the room downwardly through the air duct in the floor, upwardly around the firebox and outwardly from the mantel back into the room, this current of air being repeatedly heated so as to effect a thorough and uniform heating of the room. As previously mentioned the outdraft from the firebox through the openings in the side walls thereof prevents an indraft into the firebox thus permitting a constant circulation of air through the fireplace. Thus the products of combustion emanating from the source of heat in the firebox are forced to pass upwardly through the pipe 41 and into the chimney 17.

Although I have herein shown and described only one form of fireplace embodying my invention, it is to be understood that various changes and modifications may be made therein without departing from the spirit of the invention and the spirit and scope of the appended claims.

What I claim is:

1. In combination, a fireplace having air inlets at the bottom and air discharges at the top and front thereof, L-shaped partitions extending inwardly from the sides thereof and in spaced relation to the front thereof to provide air ducts having open

lower ends, a chimney, a firebox in the fireplace having openings in the sides thereof registering with said air ducts, said firebox being spaced from the inner walls of the fireplace to provide air ducts at the sides, bottom and back thereof, a pipe connecting the firebox and chimney in a manner to bridge the air ducts at the back and sides of the firebox, pipe sections extending transversely through the pipe to provide communication between the air discharge at the top of the fireplace and the side and back air ducts, and dampers controlling the passage of air through said pipes and air inlets.

2. A combination as embodied in claim 1 wherein a floor air duct is in communication with one of the air inlets and in communication with the top air discharge.

3. In combination, a fireplace having air inlets at the bottom and air discharges at the top and front thereof, L-shaped partitions extending inwardly from the sides thereof and in spaced relation to the front thereof to provide air ducts having open lower ends, and a firebox in the fireplace having openings in the sides thereof registering with said air

ducts in the manner and for the purpose described.

4. In combination, a fireplace having a sectional front wall, transverse bars for supporting the sections of the front wall to provide openings at the front of the fireplace, air discharges at the top of the fireplace, a firebox in the fireplace so as to be in communication with one of said openings, said firebox having irregular vertical edges co-operating with the front wall of the fireplace to form openings, and means in the fireplace for directing air through said openings into the firebox.

5. In combination, a fireplace, a firebox in the fireplace, and means by which currents of air are directed inwardly of the firebox from the fireplace to prevent an indraft of air inwardly of the firebox from the front of the fireplace.

6. In combination, a fireplace having air inlets at the bottom and air outlets at the top, and a fire box in the fireplace having openings arranged to deliver currents of air into and forwardly of the fireplace.

WILLIAM HALLBERG.