Oct. 31, 1950

H. C. HOWREY

2,527,930

AIR HEATING FIREPLACE

Filed June 28, 1946

2 Sheets-Sheet 1

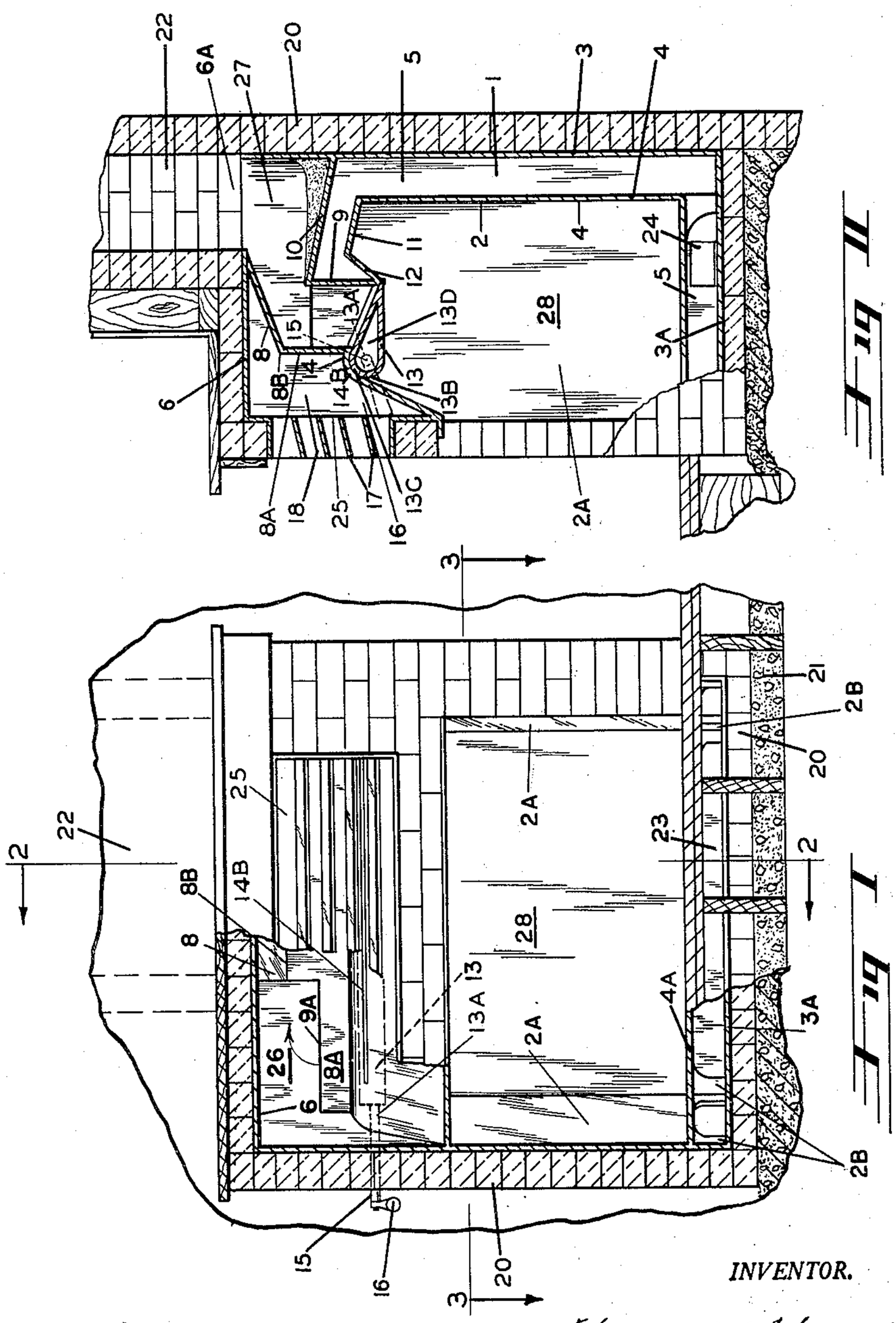

FIG. 1

INVENTOR.

Harold C. Howrey

Oct. 31, 1950

H. C. HOWREY

2,527,930

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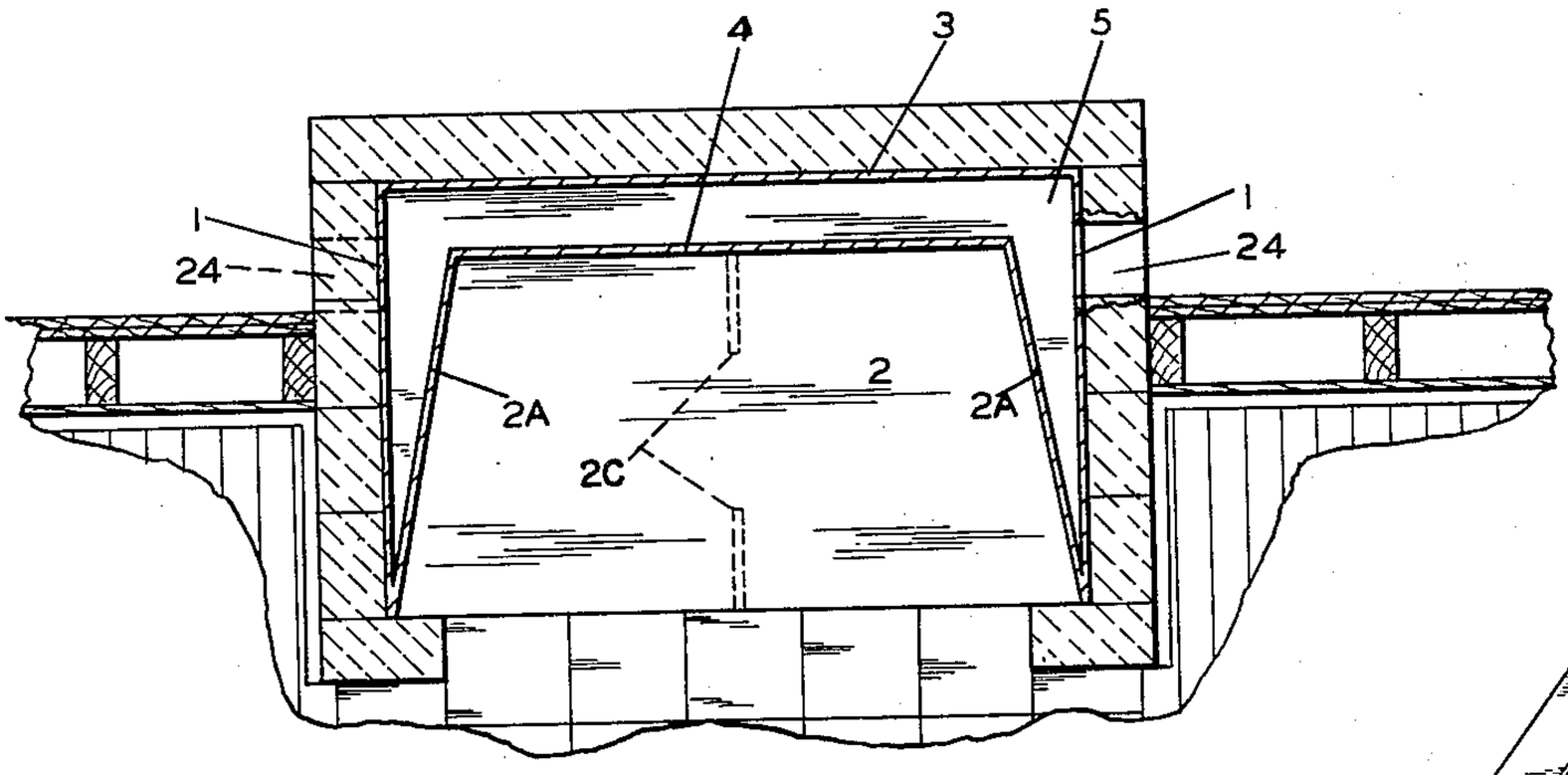

Fig III

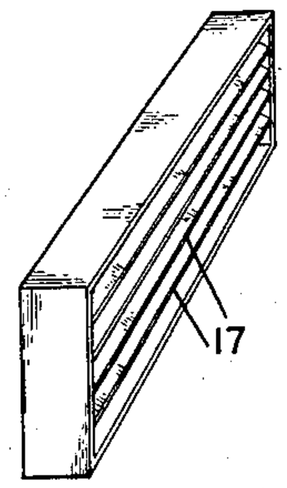

Fig V

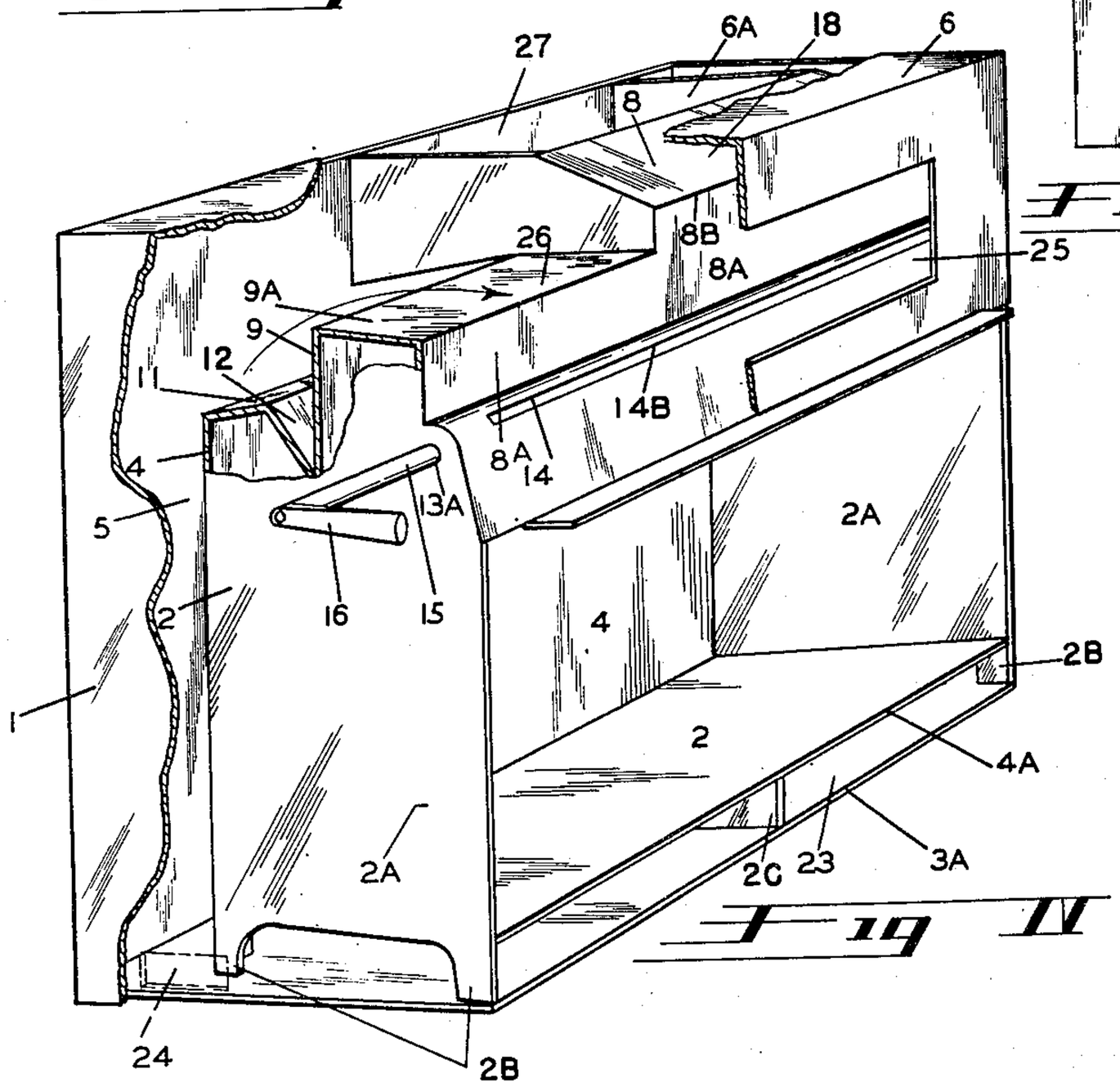

Fig IV

INVENTOR.

Harold C. Howrey

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UNITED STATES PATENT OFFICE

2,527,930

AIR-HEATING FIREPLACE

Harold C. Howrey, Estacada, Oreg., assignor to Samuel P. Howrey, Estacada, Oreg.

Application June 28, 1946, Serial No. 680,233

1 Claim. (Cl. 126—121)

1

This invention relates to improvements in fireplaces and the primary object of the invention is to provide a fireplace that will not only warm the air in the room where it is located, but that will recondition the air. This is accomplished by utilizing the air within the room for combustion purposes and by bringing in fresh air from outside the room which is heated and circulated within the room.

A further object of my invention is to so design the fireplace as to extract the greatest amount of heat units from the fuel possible by so designing the interior of the fireplace as to expose a large area of heat radiating surfaces to the fire.

A still further object of the invention is to direct the combustion around these heat radiating surfaces completely before discharging the same into the chimney.

These and other incidental objects will be apparent in the drawings, specifications and claim.

Referring to the drawings:

Figure 1 is a front view of my new and improved fireplace, parts broken away for convenience of illustration.

Figure 2 is an end sectional view on line 2—2 of Figure 1.

Figure 3 is a plan sectional view, on line 3—3 of Figure 1, of the fireplace illustrating its relative position in regards to the building and especially illustrating the intake ports for bringing in fresh air.

Figure 4 is a perspective view partly broken away of the fireplace before installation.

Figure 5 is a perspective view of the heat radiating grill.

In the drawings:

My new and improved fireplace consists of a metal body or shell 1, having an inner shell 2 spaced away from the outer shell 1 by the air space 5 on both ends and the back 3. The inner shell consists of the end walls 2A and rear wall 4, having a bottom 4A spaced above the bottom 3A of the outer shell 1 by feet 2B and spacers 2C. The outer shell 1 has a front top wall 6 and rear top wall 10 with an opening 6A therebetween for registering with the chimney flue. The inner shell has a horizontal top 9A at one end and at the other end a sloping top 8 intersecting with the front wall 8A at 8B. At the bottom portion of the front wall 8A is formed an inclined section 14 that is curved at its top transversely of the fireplace.

A damper 13 is pivotally mounted to the end walls 2A of the inner shell at 13A by the shaft 15. This shaft extends through the side of the

2

fireplace best illustrated in Figure 1, terminating in a handle 16. This handle will be approximately the same weight as the damper 13 thereby balancing the damper about the shaft 15 so that when the handle 16 is moved to any desired position its weight will counter-balance the damper.

The damper 13 is formed in cross sectional area in the shape of a V having its broad edge 13B rounded so that it will fit into the curved top of the section 14 of the inner shell 2. Running longitudinally of the damper is a slot 13C, said slot registering with a slot 14B in the top of the section 14. The object of these slots is to allow the heated air developed within the space 13D to escape into the heated air space 18 from where it will be delivered out through the radiator grille 17 into the room to be heated. The radiator grille 17 is best illustrated in Figure 5. This grille is built into the brick work of the fireplace when the same is constructed, registering with the opening 25 in the front of the outer shell 1.

Fresh air may enter into the air space 5 surrounding the inner shell from the outside of the building through the ports 24. This air may pass under the bottom 4A of the inner shell and up around through the spaces surrounding the end walls 2A and the rear wall 4, top 11 and around the inclined top 12 and upper rear wall 9, directing the heat from these walls developed within the fireplace 28 up through the space 26, indicated by the arrow (Figure 4), and out through the opening 25 and through the grille 17 into the room.

The smoke passes out past the damper 13 through the space 27 and into the chimney flue 22, but due to the great area of the inner shell that is exposed to the passage of fresh air a high efficiency is derived from burning of the fuel. Fresh air may also be admitted through the opening 23 in the front of the fireplace, which is located underneath the floor of the building, but the fresh air is taken either from outside of the building or the basement of the building. This air is fresh and separate from that within the room and when it is heated and delivered into the room it is fresh air, and since it is warmed it rises replacing the old or stale air in the room, the latter going into the fireplace where it would be used for combustion purposes and discharged out through the chimney, thereby providing a fireplace with an air condition feature, which is one of the primary objects of my invention.

It is still true that considerable heat will be radiated from the front of the fireplace, but due to

the great heat exposed area surrounding the fire which delivers heat, which is normally lost, into a fresh air stream there will be, as stated above, a considerable amount of fresh air heated and delivered to the room, which of course will absorb considerable heat that would ordinarily be reflected out through the front of the fireplace into the room.

I do not wish to be limited to the exact mechanical structure as other modifications may be substituted still coming within the scope of my claim.

What I claim is:

A fireplace, comprising an outer shell open in the front, and formed in its lower portion with air inlet openings, an inner shell within and spaced from the front, back and top of the outer shell, the major part of the front of the inner shell being open, the upper portion of the inner shell above the open front extending upwardly at an incline and thence vertically and then rearwardly to form a top, and then downwardly and again rearwardly to the rear wall of said inner shell, the vertical portions, top and side walls of the inner shell forming a reduced hollow extension at the upper end of said inner shell, an opening formed in the top portion of the inner

shell, a flue communicating with said opening, the side walls and bottom wall of said flue extending to the rear wall of the outer shell, the rear portion of the top of the flue being open to communicate with a chimney, and a damper pivoted in the inner shell at the upper part of the inclined wall and extending under the bottom open end of the reduced hollow extension to regulate the flue opening, and a grill at the front of the outer shell above the open front of the inner shell in front of and spaced from the flue.

HAROLD C. HOWREY.

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