May 19, 1942. D. L. CAGE 2,283,790

FIREPLACE CONSTRUCTION

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Fig. 1.

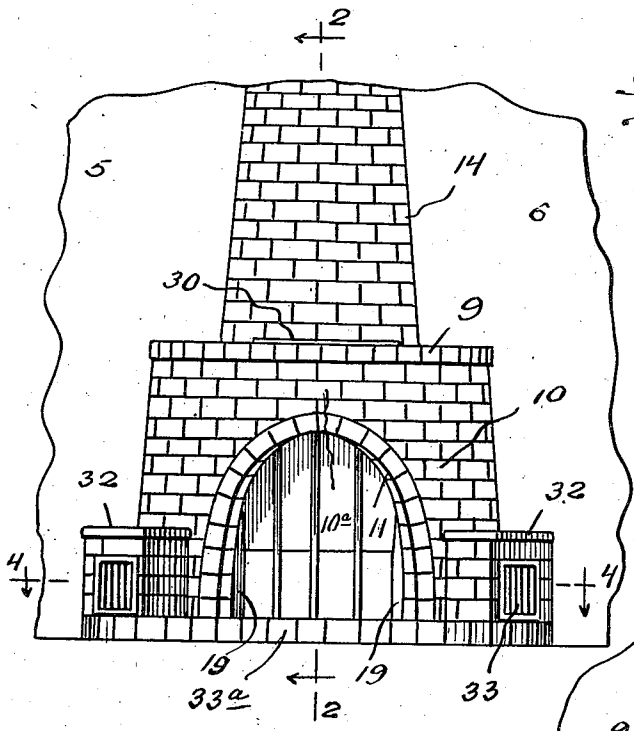


Fig. 2.

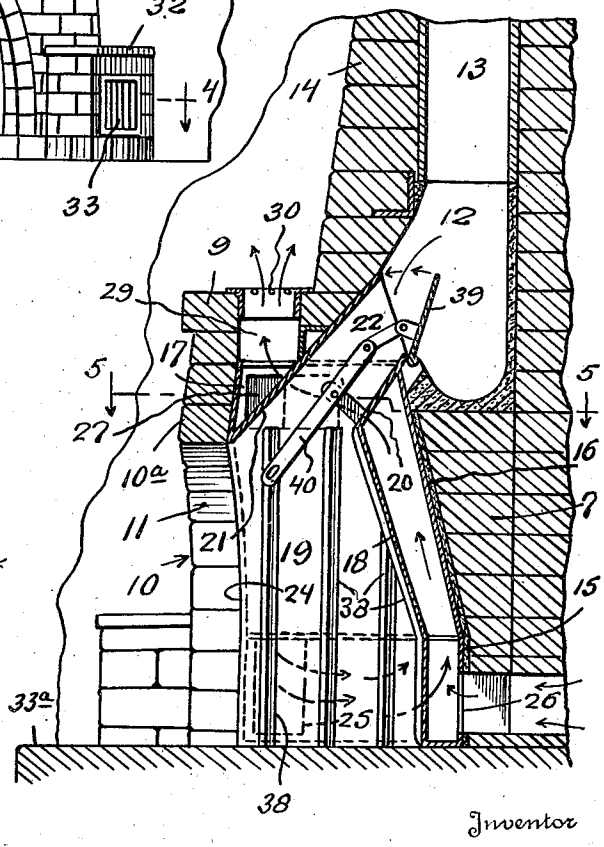
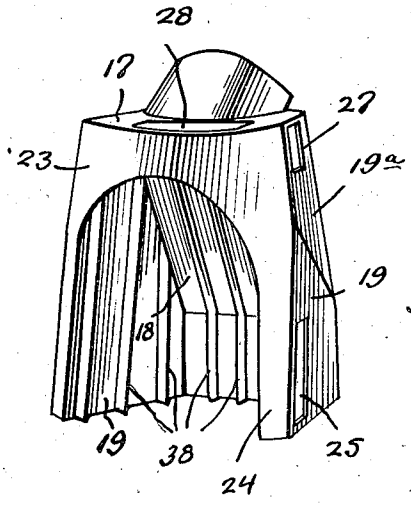


Fig. 3.



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Fig. 4.

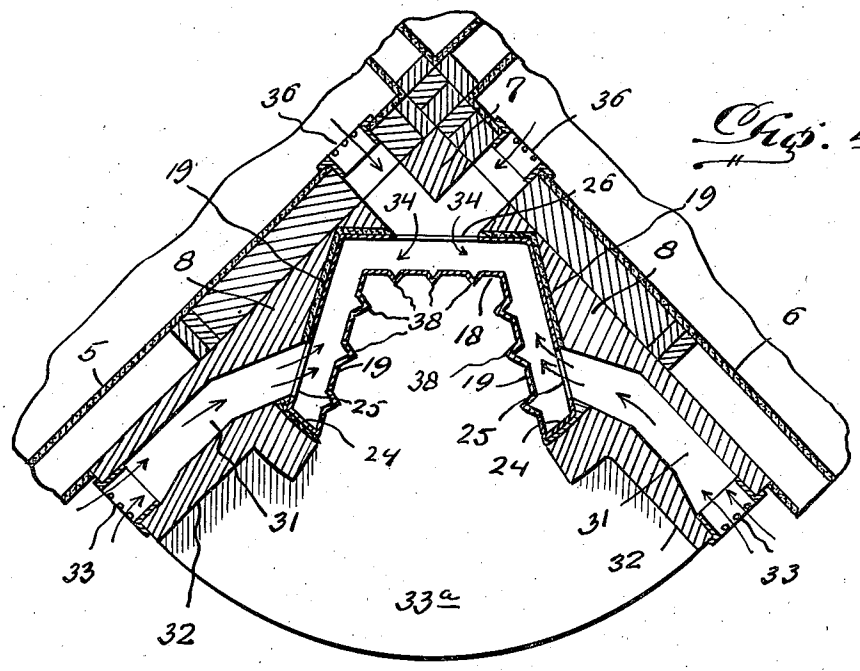
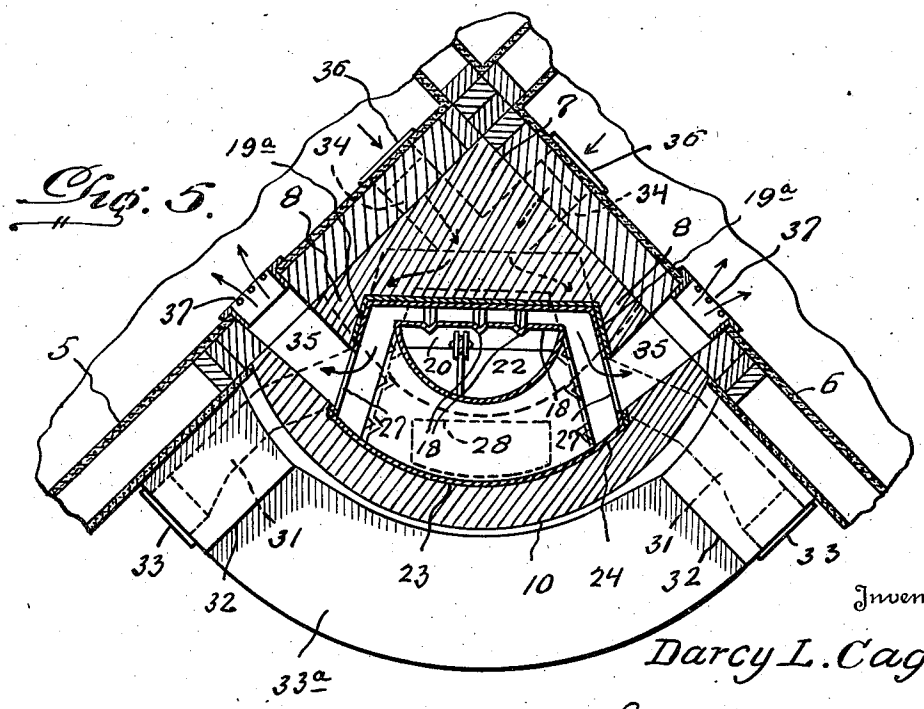


Fig. 5.



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Patented May 19, 1942 2,283,790

UNITED STATES PATENT OFFICE

2,283,790

FIREPLACE CONSTRUCTION

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Application September 30, 1940, Serial No. 359,147

2 Claims. (Cl. 126—121)

This invention relates to fireplace construction, and has more particular reference to a fireplace provided with air heating means.

The primary object of the present invention is to provide a fireplace construction, the front of which is of forwardly curved form in plan, and wherein the air heating device is so constructed and shaped as to provide for its ready adaptation to a fireplace proper whose front is so curved.

Another object of the present invention is to provide an improved air heating device for use in providing a fireplace construction in which the front of the fireplace proper is of forwardly curved form in plan, said air heating device being of extremely simple and durable construction and providing for efficient heating of air.

Still another object of the present invention is to provide an air heating device of the above kind having hollow rear and side members whose inner walls are provided with vertical inwardly pressed V-shaped ribs connected by relatively wide flat portions, said ribs being adapted for allowing lateral contraction and expansion of said inner walls so as to prevent buckling of the same, as well as to maintain the fire spaced from said walls and allow maximum circulation of air between the same and the fire for preventing excessive overheating of said walls.

Other objects and features of the present invention will become apparent from the following description when considered in connection with the accompanying drawings, in which:

Figure 1 is a front elevational view of a fireplace construction embodying the present invention.

Figure 2 is a vertical section on line 2—2 of Figure 1.

Figure 3 is a perspective view of the air heating device forming part of the fireplace construction shown in Figure 1.

Figure 4 is a horizontal section on line 4—4 of Figure 1; and

Figure 5 is a horizontal section on line 5—5 of Figure 2.

While the present fireplace construction may be built in a straight wall, it has been illustrated as built in the corner of a room at the juncture of two partition walls 5 and 6 separating said room from two adjoining rooms. The fireplace proper includes a rear wall 7 of suitable form and thickness, side walls 8, a top wall 9, and a front wall 10 which is of forwardly curved form in plan. This provides the usual fireplace or recess in the lower portion of the fireplace structure, the front wall 10 having an opening at its lower central portion to provide an open front or entrance 11 for this recess or fire space. The partial portion 10a of the front wall 10 above this opening 11 closes the front of the recess or fire space at the top of the latter, and a passage 12, extending upwardly and rearwardly, affords communication between the rear upper portion of the fire space or recess and the lower end of the vertical flue 13 provided in chimney 14. The lower portion of the rear wall 7 has a vertical front surface 15, while the upper portion of said rear wall has a front surface 16 which slants upwardly and forwardly.

Fitted within the fire space or recess of this fireplace proper is an air heating device comprising a unitary metallic structure having a hollow horizontal transverse upper front portion 17 which fits within the upper front portion of the fire space or recess directly beneath the top wall 9 and behind the partial portion 10a of the front wall 10, a lower portion which is open at the top, bottom and front and composed of a hollow rear member 18, and hollow side members 19. The members 18 and 19 are closed at the bottom and communicate with each other, the hollow side members 19 communicating at their upper ends with the ends of the hollow upper front portion 17 through the upwardly converging upper portion 19a of the side members 19. The back member 18 is closed at the top by means of an upwardly and rearwardly inclined wall 20, and the bottom of the upper front portion 17 is formed by an upwardly and rearwardly inclined wall 21 which is spaced from the wall 20 so as to provide an upwardly and rearwardly inclined throat 22 for the passage of smoke from the top of the fire space to the flue 13 of the chimney. The wall 21 is of forwardly curved form in plan or transversely curved with its side edges joined to the side edges of the wall 20. The hollow upper front portion 17 and the front of the side members 19 are closed by a wall 23 of inverted U-shape whose intermediate portion is forwardly curved to conform to the curvature of the front wall 10 as shown clearly in Figures 3 and 5. Also, the side or leg portions of the wall 23, indicated at 24 are disposed in outwardly and rearwardly diverging relation so that they lie at an angle substantially conforming to the curvature of the front wall 10 of the fireplace proper. Thus, the air heating device lends itself admirably to installation in a fireplace proper whose front is forwardly curved as described. At the same

time, the air heating device is of extremely simple and durable construction and provides for efficient heating of air.

Formed in the lower portions of the side members 19 near the fronts of the latter are cold air inlet openings 25, and another cold air inlet 26 may be formed in the lower portion of the rear member 18. Hot air outlet openings 27 are formed in the upper portions of the side members 19, while a further hot air outlet opening 28 is provided in the top wall of the upper front portion 17. The front edge of this opening 28 is preferably curved concentric with the curvature of the front wall 23, and a hot air outlet passage 29 may be formed vertically in the top wall 9 of the fireplace proper to receive a grill 30 of similar shape where the passage 29 opens through the top of wall 9. As the top of wall 9 is horizontal and flat, it forms an admirable shelf or mantlepiece curving about the curved wall of chimney 14. The cold air inlet openings 25 may communicate with passages 31 extending through the front wall 10 of the fireplace proper at opposite sides of the opening 11, as well as through low-built extensions 32 provided at opposite sides of the fireplace opening 11 upon a hearth 33*a* which extends in front of the fireplace proper at the bottom of the same. The passages 31 preferably open through the extensions 32 where they are provided with suitable grills 33, and the tops of the extensions 32 are preferably flat so as to provide suitable stands for flowers or ornaments. Other passages 34 may be provided in the back wall 6 and the partitions 5 and 6 for conducting cold air from the adjoining rooms to the cold air inlet 26, and the hot air outlet 27 may communicate with further passages 35 provided through the side walls 8 of the fireplace proper and the partitions 5 and 6 for conducting hot air into the adjoining rooms from the heating device installed in the room separated from such adjoining rooms by the partitions 5 and 6. It will of course be understood, however, that in some installations, the openings 26 and 27 need not be utilized, in which case the passages 34 and 35 need not be provided. When the latter passages are provided, they are provided at their inlet and outlet ends respectively, with the grills 36 and 37.

The inner walls of the hollow rear member 18 and the side members 19 are provided with a series of spaced vertical ribs 38 which are of V-shape in cross section and pressed inwardly as shown clearly in the several views. These ribs provide for lateral or horizontal expansion and contraction of the inner walls of said members 18 and 19 so that buckling of the same is effectively prevented. In addition, these ribs are connected by relatively wide flat portions and maintain most of the fire in spaced relation to the inner walls of members 18 and 19 so that air may circulate between the fire and such walls to prevent excessive overheating of the latter.

A suitable damper 39 is provided at the outlet end of throat 22 for controlling the draft from the fire space to the chimney, which damper has suitable operating means, such as a lever 40.

It will of course be understood that a suitable fire is built within the lower portion of the air heating device, and cold air entering the heater through the openings 25 and 26 will be effectively heated in flowing to the outlet openings 27 and 28. This heated air will be discharged into the rooms and effective heating of the rooms thereby will be had. It will be seen that I have provided a very efficient air heating fireplace of attractive form and design, and it will be apparent that minor changes may be made in specific details of the invention illustrated and described, without departing from the spirit and scope of the invention as claimed.

What I claim as new is:

1. A fireplace construction comprising a fireplace proper composed of a rear wall, side walls, a bottom wall, a top wall, and a front wall of forwardly curved form in plan, said walls forming a central fire space, said front wall having a central opening forming an entrance to said fireplace and providing a partial wall closing the top of said fire space directly above said opening, said top wall having a flat top provided with a hot air outlet passage, cold air inlet passages being provided through the side and front walls at opposite sides of said fire space, an air heating device including a unitary metallic structure fitted in said fire space and composed of hollow transverse upper front and lower portions communicating with each other, the top of said hollow transverse upper front portion having a hot air outlet opening communicating with the hot air outlet passage in the top wall of said fireplace proper, said hollow lower portion having side air inlet openings near the bottom thereof communicating with said cold air inlet passages, and low-built extensions on the front wall of the fireplace proper at opposite sides of the fire space and through which said cold air inlet passages extend.

2. In combination, a fireplace proper built at the juncture of two walls of a room and including rear and side walls having outer surfaces disposed at right angles to each other, a top wall, and a front wall of forwardly curved form in plan, providing a fire space in the lower portion of the fireplace proper, said front wall having an opening at its lower central portion to provide an entrance to said fire space, and an air heating device fitted within said fire space and comprising a hollow horizontal upper front portion fitting within the upper part of said fire space behind and curved forwardly to contact the upper portion of said front wall of the fireplace proper, and a lower portion composed of a hollow rear member and hollow side members closed at the bottom and communicating with each other, said hollow upper front portion and the side members of the lower portion having a front wall of inverted U-shape and curved forwardly to conform to the curvature of the front wall of the fireplace proper.

DARCY L. CAGE.