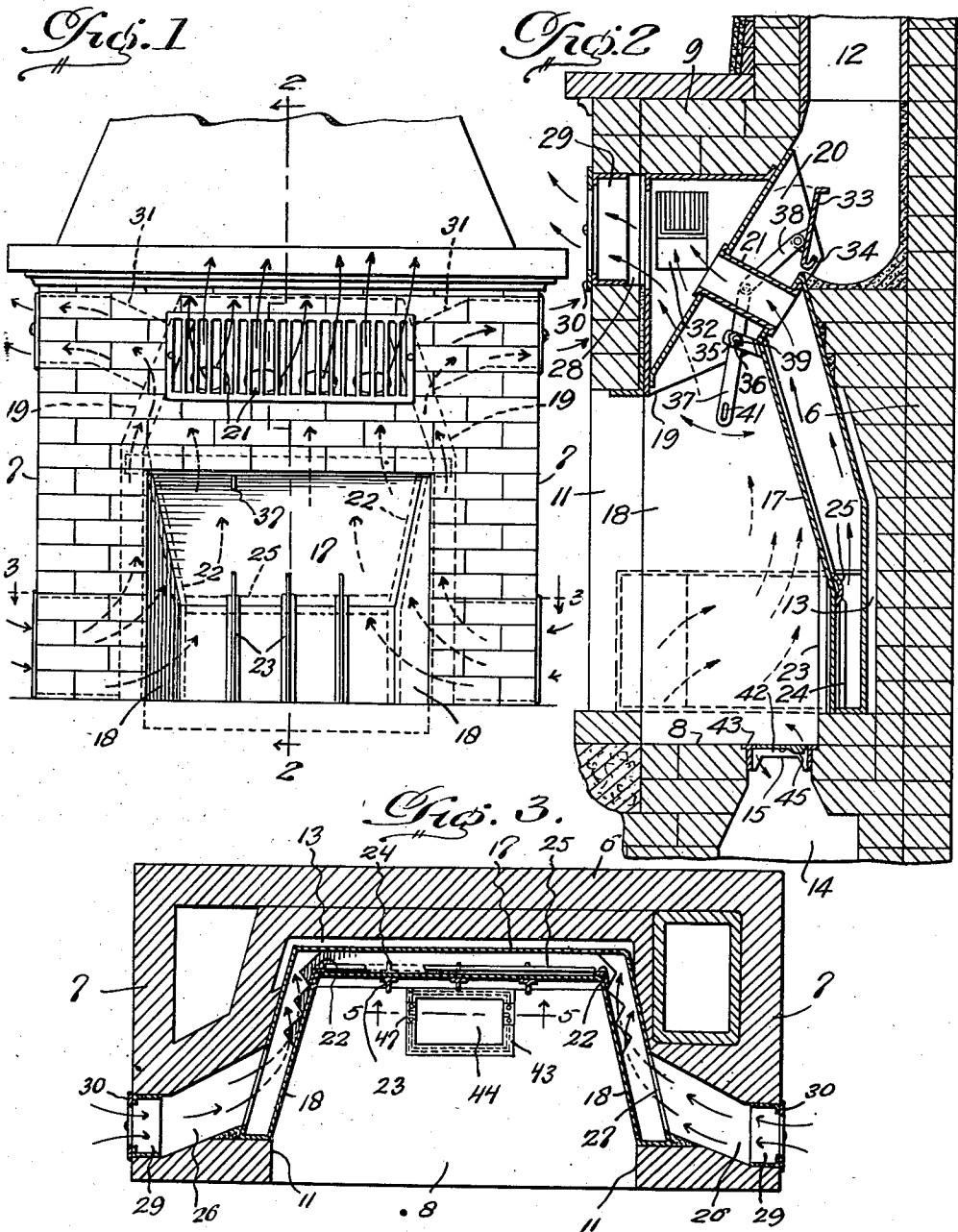


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FIREPLACE CONSTRUCTION
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FIREPLACE CONSTRUCTION

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2 Claims. (Cl. 126—121)

This invention relates to fireplace constructions, and an important object of the invention is to provide an improved air heating device for fireplaces which is simple and durable in construction and exceedingly efficient in use.

With the above general object in view, and others that will become apparent as the nature of the invention is better understood, the present invention consists in the novel features and construction hereinafter more fully described, shown in the accompanying drawing and claimed.

In the drawing:

Figure 1 is a front elevational view of a fireplace construction provided with an air heater constructed in accordance with the present invention.

Figure 2 is an enlarged vertical section on line 2—2 of Figure 1.

Figure 3 is an enlarged horizontal section on line 3—3 of Figure 1.

Referring in detail to Figures 1 to 3 inclusive, there is shown a brick fireplace including a rear wall 6, relatively thick sides 7, a bottom 8, a top 9, and a partial front wall 10 depending for a short distance from the top 9 so as to form the usual fire space or open front recess 11 in the lower portion of the fireplace structure and a chamber at the top of the fireplace structure which is closed at the front and affords communication between the fire space and the lower end of the vertical chimney 12. The lower portion of the rear wall 6 has the usual vertical front surface, while the upper portion of said rear wall has a front surface which slants upwardly and forwardly in the usual way as shown clearly in Figure 2. A shallow recess 13 is provided in the front surfaces of the lower and upper portions of the rear wall 6 and in the inner surfaces of the side walls 7 as shown in Figures 2 and 3 to provide an expansion space for a purpose which will later become apparent. An ash pit 14 is constructed beneath the bottom of the fireplace, and the bottom wall of the latter is provided with an opening 15 affording communication between the bottom of the fireplace and such ash pit. This opening 15 is controlled by a suitable ash dump device.

The present invention includes an air heater consisting of a unitary sheet metal structure having a hollow horizontal or transverse upper front portion 16 adapted to fit within the front portion of the upper chamber or space of the fireplace directly beneath the top 9 and behind the partial front wall 10, a lower portion which is open at the top, bottom and front and com-

posed of hollow rear and side members 17 and 18 respectively which are closed at the bottom and communicate with each other, the hollow side members 18 communicating at their upper ends with the ends of the hollow upper front portion 16 through upwardly converging hollow side connecting portions 19. The top of the back member 17 terminates below and in spaced relation to the inclined bottom wall of the upper front portion 16 to provide a throat 20 between the top of the rear member 17, the rear of the upper front portion 16 and the side connecting portions 19, for the passage of smoke from the fire space 11 to the chimney 12. The rear wall of the upper front portion 16 and the top of the rear member 17 are parallel and inclined rearwardly and upwardly so that the throat is correspondingly inclined for unobstructed passage of the smoke from the fire space to the chimney. The unitary sheet metal heater structure further embodies a plurality of spaced upwardly and forwardly inclined flues 21 providing communication between the top of the hollow rear member 17 and the rear of the hollow upper front portion 16, and between which the smoke and products of combustion from the fire space are adapted to pass in flowing to the chimney. As shown clearly in Figure 3, the sides 7 of the fireplace are recessed to receive the side members 18 of the air heater and afford a finished construction at the front of the fireplace, and the rear member 17 is adapted to fit against the front surface of the rear wall 6 of the fireplace above the recess 13. The recess 13 thus forms an expansion space which permits rearward expansion of the outer walls of the major portions of the rear and side heater members 17 and 18 when they become highly heated. This effectively avoids serious rupture of the masonry and distortion of the heater.

The present invention provides means for preventing distortion and forward buckling of the inner walls of the hollow rear and side members 17 and 18 of the heater. For this purpose, angle irons 22 are welded along the corners formed at the junctures of the inner walls of said rear and side members 17 and 18, and suitable spaced parallel reinforcing bars 23 and 24 are welded to the front and rear surfaces of the vertical lower portion of the inner wall of rear member 17. Also, the inner wall of the rear member 17 is reinforced at the juncture of its vertical lower portion with its forwardly and upwardly inclined upper portion by means of a transversely arranged elongated strip 25 which is transversely arched rearwardly as shown in Figure 2 so as to only

contact the inner wall of rear member 17 at spaced points and at the longitudinal edges of said strip 25, which longitudinal edges are welded to the inner wall of rear member 17. By the combination of these three reinforcing means, the inner walls of the rear and side members 17 and 18 are effectively braced against distortion and forward buckling under the influence of heat.

As illustrated, cold air inlet flues 26 may be formed in the sides 7 of the fireplace near the front of the latter, for the purpose of permitting passage of cold air from the lower portion of the room into the lower portion of the heater, the hollow side members 18 of the lower portion of the heater being provided with openings 27 registering with the flues 26. Also, a suitable horizontally elongated hot air outlet opening 28 may be provided in the partial front wall 10 of the fireplace in registry with a similar opening in the front wall of the upper front portion 16 of the heater, for direct passage of heated air into the room. The cold air inlet flues 26 and the hot air outlet flue 28 may be provided with suitable registers including frames 29 set in the flues and covered by ornamental gratings 30 in the form of face plates fastened to the flanged outer sides of the frames 29 by bolting or the like. If desired, the sides 7 of the fireplace may be provided near the top with lateral hot air outlet flues as indicated by dotted lines at 31 in Figure 1, opening through the side surfaces of the sides 7 of the fireplace and registered with hot air outlet openings 32 in the outer walls of the upper front portion 16 of the heater.

A damper is provided for the smoke flue or throat 20 of the heater, said damper comprising a closure plate 33 hinged in the sides of the upper rear portion of flue or throat 20 at 34 and adapted to extend across and completely close said flue or throat 20 when swung forwardly and downwardly. Welded to a part of the heater at the bottom of the flue or throat 20 are a pair of spaced parallel arms 35 having a bolt 36 extending through aligned apertures in the free ends thereof. Pivoted upon the bolt 36 between the arms 35 is a lever 37 having its upper end operatively connected to the damper plate 33 by means of a link 38. A nut 39 is threaded on the bolt 36 and affords means whereby frictional engagement may be set up between the sides of lever 37 and the adjacent sides of washers placed between the arms 35 and lever 37 on bolt 36. In

this way, the lever 37 will be frictionally maintained in any position to which it is swung or adjusted about the pivot bolt 36, thus insuring retention of damper 33 in any desired adjusted position. The lower end of lever 37 has an aperture 41 in which a poker or the like may be engaged for conveniently actuating and regulating the damper 33.

From the foregoing description, it is believed that the construction and advantages of the present invention will be readily understood and appreciated by those skilled in the art.

What I claim as new is:

1. An air heater for fireplaces including a sheet metal hollow rear member having a vertical lower portion and a forwardly inclined upper portion, a transversely arranged elongated reinforcing strip arranged rearwardly of and at the juncture of the vertical lower portion and the forwardly inclined upper portion of the inner wall of said hollow rear member, said reinforcing strip being transversely arched rearwardly to only contact said inner wall of the rear member at spaced points and at opposite sides of said juncture along the longitudinal edges of said strip, said longitudinal edges of the strip being secured to said inner wall of the rear member, and vertical reinforcing angle bars secured at corresponding points and in spaced parallel relation to the front and rear surfaces of the vertical lower portion of the inner wall of said rear member.

2. An air heater for fireplaces including a sheet metal hollow rear member having a vertical lower portion and a forwardly inclined upper portion, a transversely arranged elongated reinforcing strip arranged rearwardly of and at the juncture of the vertical lower portion and the forwardly inclined upper portion of the inner wall of said hollow rear member, said reinforcing strip being transversely arched rearwardly to only contact said inner wall of the rear member at spaced points and at opposite sides of said juncture along the longitudinal edges of said strip, said longitudinal edges of the strip being secured to said inner wall of the rear member, and vertical reinforcing angle bars secured in spaced parallel relation to the front surface of the vertical lower portion of the inner wall of said rear member.

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