Aug. 28, 1928. 1,681,995

E. P. MILES

HEATER

Filed Dec. 10, 1927 3 Sheets-Sheet 1

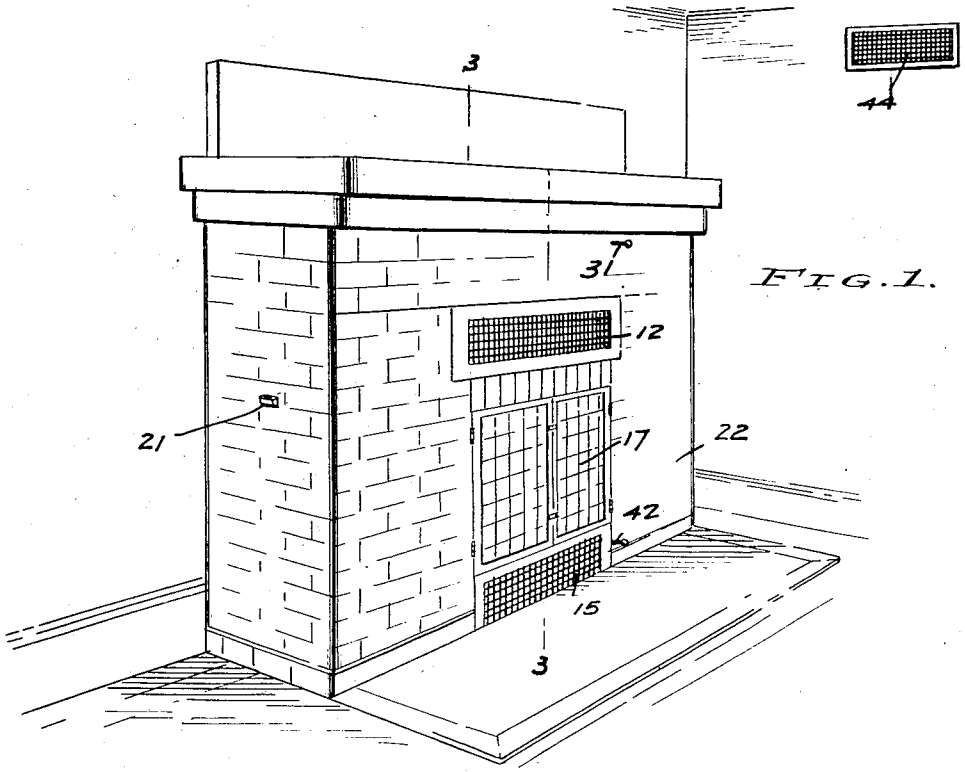


FIG. 1.

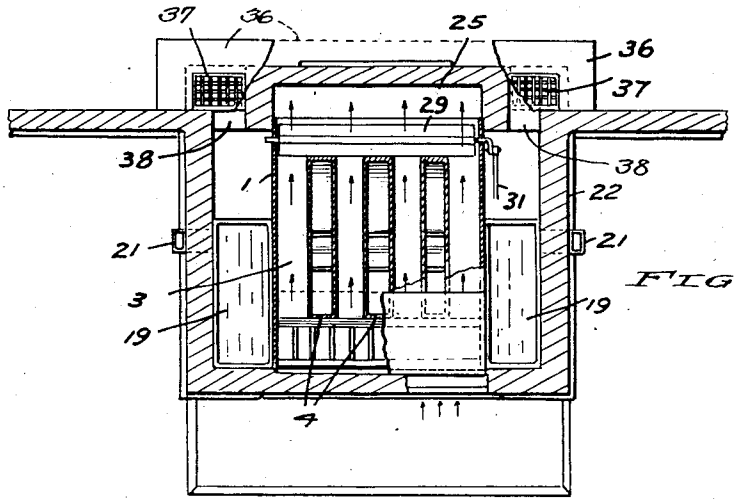


FIG. 2.

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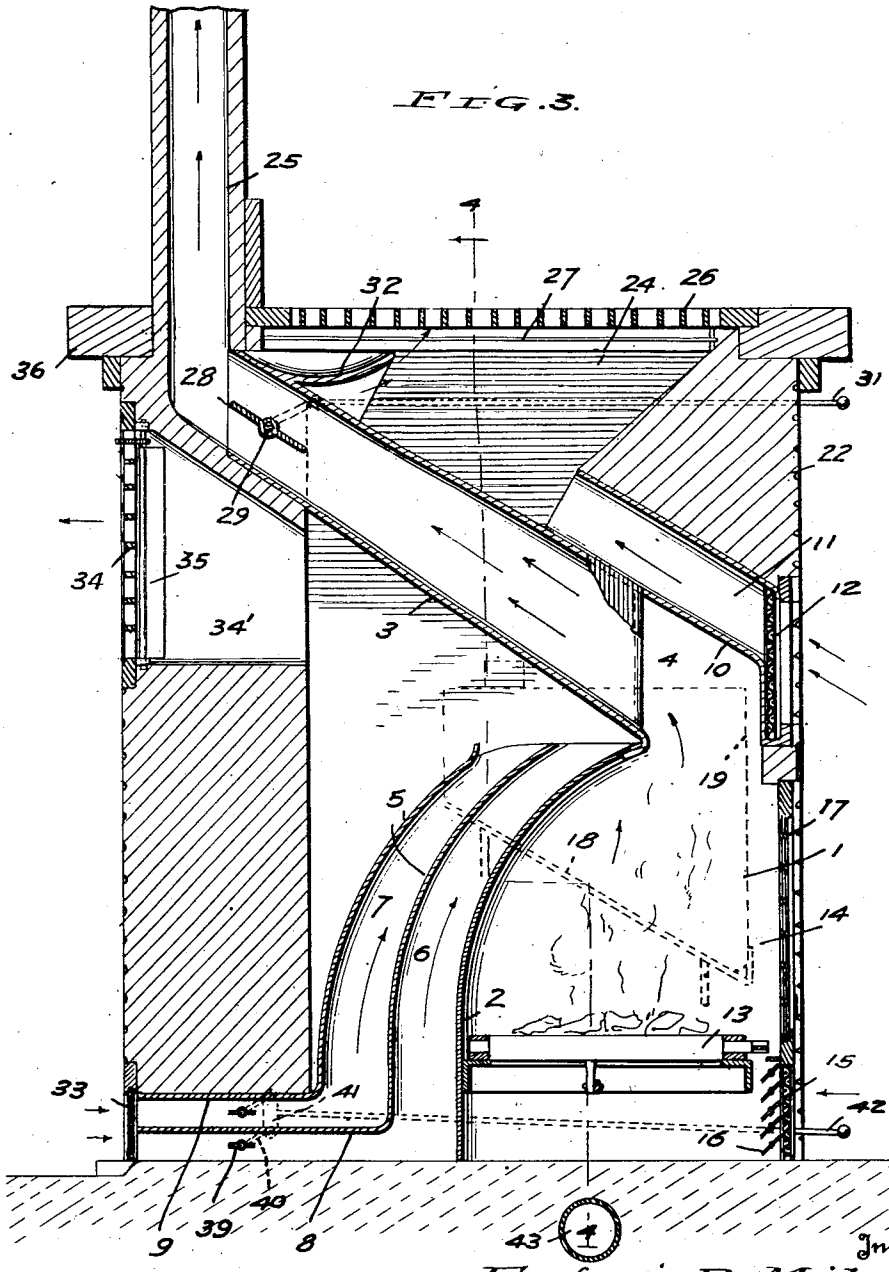
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HEATER

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FIG. 3.



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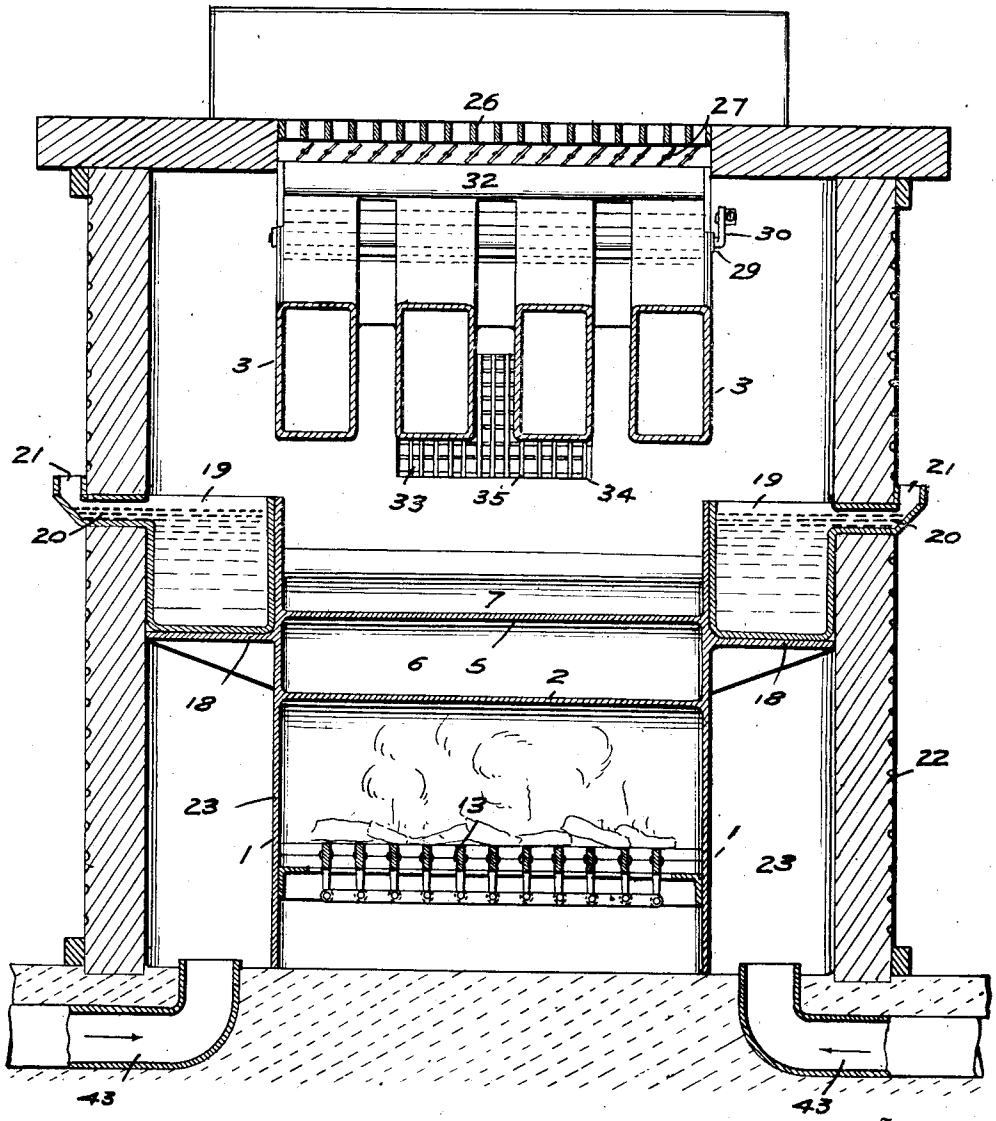
Aug. 28, 1928. 1,681,995

E. P. MILES

HEATER

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FIG. 4.



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Patented Aug. 28, 1928. 1,681,995

UNITED STATES PATENT OFFICE.

EUGENE P. MILES, OF HOBART, OKLAHOMA.

HEATER.

Application filed December 10, 1927. Serial No. 239,229.

This invention relates to a heater of the fireplace type and is designed more particularly as an improvement upon the structure disclosed in my Patent No. 1,649,037 issued to me on November 15, 1927.

One of the objects is to provide a structure of this character adapted to be built into a mantel and chimney and provided with means whereby the combustion chamber can be shut off from the room being heated thereby to prevent the admission of products of composition to the room.

A further object is to provide means for taking air from the room at different elevations, heating it and then delivering it upwardly into the room.

A further object is to provide a novel arrangement of water pans which can be filled readily and supply moisture constantly to the air being heated.

Another object is to provide a heater of the class described which can be utilized for heating two or more rooms.

Another object is to provide a heater which does not detract from the appearance of the room in which it is installed but, on the contrary, constitutes an attractive addition.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings, the preferred form of the invention has been shown.

In said drawings,

Figure 1 is a perspective view of a mantel in which is arranged the heating apparatus constituting the present invention.

Figure 2 is a horizontal section, parts being shown in plan.

Figure 3 is an enlarged section on line 3—3, Figure 1.

Figure 4 is a section on line 4—4, Figure 3.

Referring to the figures by characters of reference 1 designates the metal side walls of the casing of the heater, these walls being connected by a back plate 2 which extends upwardly and is curved forwardly as is shown particularly in Figure 3 there being upwardly and backwardly inclined flues 3 above this plate 2 to provide outlets for products of combustion. These flues are connected at their front ends as shown at 4 so that products of combustion rising above the plate 2 cannot pass between the flues but can only escape through the flues. Connecting the side plates 1 back of the plate 2 are additional plates 5 which cooperate with each other and with the plate 2 to form upwardly and forwardly curved fresh air flues 6 and 7 respectively. The flue 6 is extended rearwardly away from the lower portion of plate 2 under the partition plate 8 while flue 7 is extended rearwardly above the lower portion of flue 6 between partition 8 and a flue plate 9.

A top plate 10 is inclined downwardly and forwardly from the tops of the flues 3 and constitutes means for deflecting the products of combustion into said flues. This top plate or deflector 10 constitutes the bottom of an upwardly and rearwardly inclined fresh air flue 11, extending throughout the width of the space between the plates 1 and is provided, at its front end, with a foraminous shield 12 which can be made of any suitable metal and can be in the form of an ornamental grille if desired.

A grate 13 is arranged within the lower portion of the combustion chamber 14 formed between the plates 1 and in front of the plate 2, it being understood that this grate can be of any preferred construction. For example, and as shown in the drawings, it can be made up of rotatable bars. Arranged within the front portion of the space between the plates 1 below the level of the grate bars is a foraminous shield 15 which can be in the form of an ornamental grille and back of this grille may be arranged a damper in the form of parallel pivoted slats 16 which can be operated by any suitable means, not shown, for the purpose of controlling the draft through the grille 15.

Above the grille 15 are doors 17 which can be made with panels of fire resisting transparent or translucent material, such as mica. These doors, when closed will prevent the escape of products of combustion into the room in which the apparatus is installed.

Extending laterally from the plates 1 are shelves 18 on which are mounted water pans or containers 19 having laterally extending filling boxes 20 the free ends of which have upwardly extending inlet portions 21.

In installing the apparatus herein described a mantel 22 of masonry is erected about that portion formed of metal, the side

walls being spaced from the plates 1 so as to provide fresh air compartments 23. These fresh air compartments open upwardly into the spaces between the flues 3 and rearwardly back of the containers 19 and shelves 18 and into the space above the flues 3 communicating with the fresh air flue 11. This space has been indicated at 24 in Figure 3. The mantel is erected around the flues 6 and 7 where they are extended rearwardly at their lower ends and the chimney is built around the outlet ends of the flues 3 so that the products of combustion escaping through these flues will flow directly into the chimney flue 25. The top of the mantel 22 is formed with a grating 26 and under this grating there may be arranged a damper 27 in the form of parallel slats pivotally mounted. This damper can be operated by any suitable mechanism not shown. Another damper 28 is arranged in the outlet end of each flue 3 and the damper 28 is secured to a transverse rod 29 having a crank arm 30. An operating rod 31 is extended from the crank arm through the front portion of the mantel and obviously by manipulating this rod the damper 28 can be shifted to control the flow of the products of combustion into the chimney.

A deflecting plate 32 can be arranged above the upper ends of the flues 3 and extend partly under the grating 26 for the purpose of deflecting heat from the flues toward the grating as indicated by arrows in Figure 3.

If the heating apparatus is to be used for heating one room only, it will be installed in an outside wall of the room and the chimney will be built up from the ground outside of the wall and over the opening 34′ so as to close it. The back ends of the flues 6 and 7 will be exposed through the wall so that by opening the dampers 39 fresh air can be brought into the apparatus from outside. This fresh air will be heated within the apparatus and flow upwardly into the room through the grating 26. After flowing through the room the heated fresh air will escape through the grille 15, upwardly through the combustion chamber and out the chimney. Thus the room will be kept supplied with fresh warmed air. When desired the dampers 39 can be closed to shut off the supply of fresh air.

Obviously with the device constructed as described a room can be kept supplied with fresh air either warmed or cool and as this air is delivered upwardly through the grating 26 there will be no draft in the room. Furthermore the vitiated air will be carried off through the grille 15, thus leaving the air within the room pure and of the desired temperature.

Should it be desired to heat a room located back of the mantel the lower back ends of the flues 6 and 7 would be provided with a grille 33 located in the next adjoining room and into which air can flow so as to enter the heating apparatus below the flues 3. A grille 34 can be provided in the wall of the room across an opening 34′ communicating with the interior of the heating apparatus and back of this grille there may be provided a damper 35 made up of parallel slats pivotally mounted and adapted to be operated by any suitable mechanism provided for that purpose. Furthermore, if desired, a small manel 36 can be erected in the said adjoining room and this mantel may have air outlet gratings 37 communicating through openings 38 with the space within the heating apparatus. Dampers 39 are located in the lower portions of the flues 6 and 7 and have crank arms 40 connected by a cross strip 41. This cross strip has a rod 42 extending therefrom through the front of the mantel 22 and by actuating said rod the dampers 39 can be simultaneously opened or closed. When the dampers 39 are open air will enter the flues 6 and 7 from the adjoining room and flow into the fresh air spaces within the heating apparatus. Thereafter heat can escape through the grille 34 and the grating 37 or, by closing the damper 35 the air can escape solely through the grating 37.

Other rooms can be heated by providing flues for cold air extending from the lower portions of said room into the bottoms of the air compartments 23. Two of these flues have been shown at 43. Where such flues are used gratings can be employed in the partitions between the rooms close to the ceiling so as to allow warm air to pass from the room in which the apparatus is located to the adjoining room so that it can return by way of the flue 43 to the heating apparatus. One of these wall gratings has been indicated at 44 in Figure 1.

Attention is directed to the fact that in the present structure it is not necessary to use a veneer of brick or the like upon a metal casing. Veneers have heretofore been found objectionable because they soon work loose and fall. In the present instance the mantel built of solid masonry walls and the apparatus constituting the metal portion of the heater is installed between the walls of the mantel although cooperating therewith to form the necessary air chambers. Obviously various modifications in the arrangement of the flues, etc. can be used without departing from the present invention as claimed.

What is claimed is:

1. The combination with a mantel formed of masonry, of heating apparatus therein including side plates spaced from the side walls of the mantel to provide fresh air chambers, a back plate connecting the side plates and cooperating therewith to provide a combustion chamber between the plates, upwardly and backwardly inclined flues for receiving products of combustion from between the

plates, a fresh air flue above the combustion chamber having a fresh air inlet opening through one wall of the mantel, there being an air inlet in the bottom portion of the mantel opening between the plates adjacent the lower ends thereof, there being a fresh air space between the flues of the combustion chamber and above and below said flues, and a grating in the top of the mantel communicating with said space.

2. The combination with a mantel formed of masonry, of heating apparatus therein including side plates spaced from the side walls of the mantel to provide fresh air chambers, a back plate connecting the side plates and cooperating therewith to provide a combustion chamber between the plates, upwardly and backwardly inclined flues for receiving products of combustion from between the plates, a fresh air flue above the combustion chamber having a fresh air inlet opening through one wall of the mantel, there being an air inlet in the bottom portion of the mantel opening between the plates adjacent the lower ends thereof, there being a fresh air space between the flues of the combustion chamber and above and below said flue, a grating in the top of the mantel communicating with said space, a water container in each of the air chambers, and a filling spout extending from each container through one wall of the mantel, each spout having an inlet at its exposed end.

3. The combination with a mantel formed of masonry, of heating apparatus therein including side plates spaced from the side walls of the mantel to provide fresh air chambers, a back plate connecting the side plates and cooperating therewith to provide a combustion chamber between the plates, upwardly and backwardly inclined flues for receiving products of combustion from between the plates, a fresh air flue above the combustion chamber having a fresh air inlet opening through one wall of the mantel, there being an air inlet in the bottom portion of the mantel, opening between the plates adjacent the lower ends thereof, there being a fresh air space between the flues of the combustion chamber and above and below said flues, a grating in the top of the mantel communicating with said spaces, air flues back of the back plates having rearwardly extended inlet portions at their lower ends, dampers for controlling the admission of air through the inlets, and fresh air outlets back of the mantel communicating with the air space within the mantel.

4. The combination with a mantel formed of masonry, of heating apparatus therein including side plates spaced from the side walls of the mantel to provide fresh air chambers, a back plate connecting the side plates and cooperating therewith to provide a combustion chamber between the plates, upwardly and backwardly inclined flues for receiving products of combustion from between the plates, a fresh air flue above the combustion chamber having a fresh air inlet opening through one wall of the mantel, there being an air outlet in the bottom portion of the mantel opening between the plates adjacent the lower ends thereof, there being a fresh air space between the flues of the combustion chamber and above and below said flues, a grating in the top of the mantel communicating with said space, air flues back of the back plate having rearwardly extending lower portions, dampers for controlling the flow of air through said flues, the said air flues opening into the fresh air spaces within the mantel, separate openings at the back of the mantel opening into the fresh air spaces therein, said openings being superposed, and means for controlling the flow of air through the lower of said openings.

5. The combination with a mantel formed of masonry, of heating apparatus therein including side plates spaced from the side walls of the mantel to provide fresh air chambers, a back plate connecting the side plates and cooperating therewith to provide a combustion chamber between the plates, upwardly and backwardly inclined flues for receiving products of combustion from between the plates, a fresh air flue above the combustion chamber having a fresh air inlet opening through one wall of the mantel, there being an air outlet in the bottom portion of the mantel opening between the plates adjacent the lower ends thereof, there being a fresh air space between the flues of the combustion chamber and above and below said flues, a grating in the top of the mantel communicating with said space, and a translucent closure mounted in the mantel for closing communication between the combustion chamber and the room in which the mantel is located.

6. The combination with a mantel formed of masonry, of heating apparatus therein including side plates spaced from the side walls of the mantel to provide fresh air chambers, a back plate connecting the side plates and cooperating therewith to provide a combustion chamber between the plates, upwardly and backwardly inclined flues for receiving products of combustion from between the plates, a fresh air flue above the combustion chamber having a fresh air inlet opening through one wall of the mantel, there being an air outlet in the bottom portion of the mantel, opening between the plate adjacent the lower ends thereof, there being a fresh air space between the flues of the combustion chamber and above and below said flues, a grating in the top of the mantel communicating with said space, and means for conducting air to said chamber from points remote from the mantel.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

EUGENE P. MILES.