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C. G. TERRY

WALL HEATER

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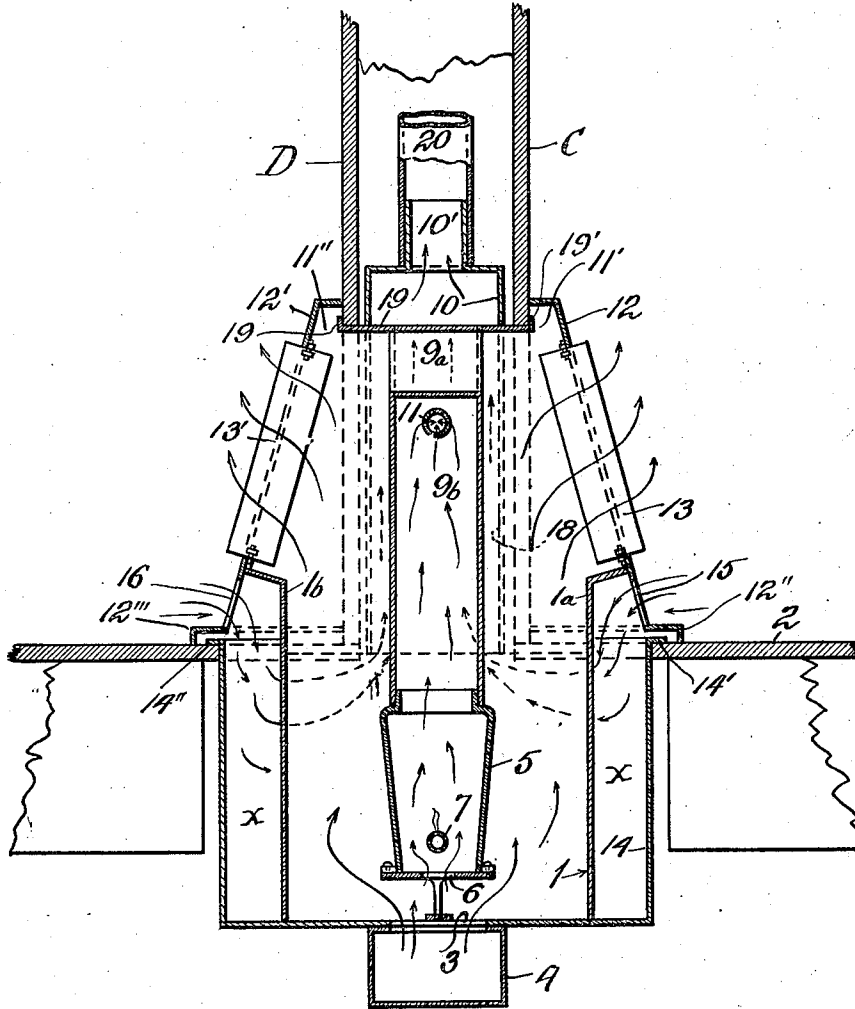


Fig. 2.

INVENTOR.

CLEVELAND G. TERRY.

BY

John H. Terry
ATTORNEY

UNITED STATES PATENT OFFICE.

CLEVELAND G. TERRY, OF TUCUMCUI, CALIFORNIA.

WALL HEATER.

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My invention relates to a device for heating and circulating air in closed chambers and ventilating such closed chambers continuously whereby heated fresh air may be continuously delivered into said closed chambers and used or stale air may be continuously educted from said chambers.

This invention relates to that type of heater more specifically disclosed and claimed in my co-pending application for patent, Serial Number 59,284, filed Sept. 29, 1925, and comprising a structure for carrying out a heating and ventilating principle, namely, of heating the outside air, leading it into a closed chamber that is to be heated and simultaneously withdrawing from such closed chamber the used, stale or foul air. The present invention involves the identical principle of heating and ventilation set out in my said aforesaid application, and includes structural features whereby either one or two rooms or closed chambers may be heated and ventilated simultaneously or separately.

The invention consists of a heating and ventilating device adapted to be placed in a wall dividing two rooms or chambers whereby both may be heated simultaneously or either may be heated independently of the other, the heating and ventilating device having a direct connection with the outside air, and a stack for carrying off the gases of combustion from fuel used in heating the incoming air and also for carrying off from the rooms or chambers the used or foul air.

A preferred form of embodiment of the invention is shown in the accompanying drawings in which

Fig. 1 is a front view, partly sectioned to illustrate interior construction, and

Fig. 2 is a vertical section on line 2-2 Fig. 1 showing my improved heating device as applied in a partition wall which divides two chambers or rooms.

Referring particularly to the form of embodiment of the invention illustrated, 1 designates a substantially rectangular heating chamber which is arranged to extend below the floor 2 of a building, and which is provided with openings 3 for leading thereinto the outside air, preferably through a conduit 4 which is open to the outside. Within said heating chamber 1 and spaced from the walls and bottom thereof is a combustion chamber 5, which is open at the bottom as at 6 for the passage therein of a portion of

the outside air. Within said combustion chamber 5 is a burner 7 for a gaseous fuel, which is supplied thereto through pipe 8. Heated combustion gases pass from the combustion chamber 5 into a plurality of flues 9^a and 9^b, which are spaced from each other and which are upstanding and rise above the floor level. The outer flues, to wit 9^a are, as shown, larger than the intermediate flues 9^b and are in open communication and connected with a horizontal flue 10, presently to be described. The shorter flues 9^b are closed at their upper ends, and are connected with each other and with the longer flues 9^a by short pipes 11, through which communication with all the flues 9^a and 9^b is established and through which the hot gases of combustion freely circulate. The shorter tubes or flues 9^b terminate underneath and in line with the horizontal flue 10. The heating chamber 1 is formed with opposed upstanding side walls 11' and 11'', the edges of which are at an angle to the vertical and these walls co-operate with covers 12 and 12' to form an enclosure in the upper part of the heating chamber 1 above the floor level around the tubes 9. The air heated by contact with the heated flues 9 is directed to one side or the other of said heating chamber or to both sides thereof, and consequently to one room or another or to both rooms or chambers between which the heating device is installed, through the instrumentality of shutters 13 and 13' pivotally carried in said respective covers 12 and 12', which at the top are arranged to lie against the respective walls C and D of adjoining chambers, and at the bottom are outwardly and downwardly turned, as at 12'' and 12''' to provide vertical shoulders to prevent sweepings and other foreign matters from entering the foul or stale air chamber or passageway. These shutters are controllable as desired to regulate the temperature of the chambers in which the heating device is disposed, and obviously all the heat may be diverted to one room or the other, or both chambers may receive heat from the device in quantity as needed.

The substantially rectangular heating chamber 1, as stated, extends below the floor level 2 and the upper front walls 1^a and 1^b are outwardly bent and terminate on a line substantially coincident with the angularly disposed walls 11 and 11', and above the floor level 2, for a short distance, as shown

in Fig. 2. The substantially rectangular heating chamber 1 is entirely surrounded by a substantially rectangular enclosure 14, which is spaced from said heating chamber 1, and which is provided at the respective fronts thereof with outwardly extended flanges 14' and 14'' for engaging the floor 2 of a building, whereby such enclosure 14, and the heating chamber 1, contained therein, with its complementary parts hereinbefore described, may be supported. The enclosure 14, which, as stated, is spaced from the heating chamber 1, provides all around said heating chamber 1, at the bottom a passageway X, for used, stale or foul air, which under stack energy is drawn thereinto through openings 15 and 16 respectively provided in said covers 12 and 12'. Flues 17 and 18 communicate directly with said enclosure 14 and rise vertically on each side of said heating chamber 1. At the top, these flues 17 and 18 are connected to the horizontal flues 10, the bottom of which flue 10 is provided by a plate 19 of greater width than said horizontal flue 10 and vertical flues 17 and 18, and which plate 19 is upturned at the edges as at 19' to provide a tight alinement for the respective wall faces C and D, between which the heating device is arranged to be disposed. The horizontal flue 10 is provided in the top thereof with a gas and air outlet 10', and upon said flue 10 is arranged to be placed a stack 20, preferably for interfitting engagement therewith and arranged to lead gases and air to the outside. The horizontal flue 10 is in direct communication with said vertical flues 17 and 18 leading from the enclosure 14, and also with the flues 9^a and 9^b leading from the combustion chamber 5, and hence the combustion gases and used or stale air are removed simultaneously from the chamber or chambers, while the incoming air heated by contact with the combustion chamber 5 and the flues 9^a and 9^b are controllably directed by manipulation of the shutters 13 to either one chamber or another, or to both chambers. Thereby a constant replacement of heated fresh air, and a constant removal of used or stale air and combustion gases is continuously effected.

What I claim is:

1. A heating device comprising a heating chamber and an enclosure surrounding and spaced from said heating chamber at the bottom thereof, said enclosure arranged to be inset in a partition and said heating chamber having openings arranged for communication with chambers on opposite sides of said partition, and having communication with the outside, a combustion chamber within and spaced from said heating chamber, a plurality of vertical tubes connected with said combustion chamber, a horizontal flue to which said vertical flues are connected, a

stack mounted on said vertical flue and communicating therewith, a plurality of flues communicating with said enclosure and said horizontal flue, and means to control the passage of heated air to said chambers on opposite sides of said partition.

2. A heating device comprising a heating chamber and an enclosure surrounding and spaced from said heating chamber at the bottom thereof, said enclosure arranged to be inset in a partition and having communication with chambers at both sides of said partition, and said heating chamber being open at the top and arranged for communication with said chambers on opposite sides of said partition, a conduit connecting the bottom of said heating chamber with the outside, a combustion chamber within and spaced from said heating chamber, a plurality of upstanding flues for leading upwardly the heated gases of combustion, a horizontal flue connected and communicating with said upstanding flues, a stack leading to the outside and communicating with said horizontal flue, a plurality of vertical flues leading from said enclosure and connected directly with said horizontal flue at the ends thereof, and covers fitting over the openings of said heating chamber, said covers provided with means to control the passage of heated air from said heating chamber to said chambers on opposite sides of said partition, and also with an opening which communicates with said enclosure.

3. A heating device comprising a heating chamber and an enclosure surrounding and spaced from said heating chamber at the lower part thereof, said enclosure arranged to be inset in a partition below the floor level of a building and having communication with chambers at both sides of said partition, and said heating chamber being open at the top and arranged for communication with chambers on both sides of said partition, covers for the top of said heating chamber, said covers provided with means to control the passage of air therefrom to chambers on both sides of said partition, and having openings therein which communicate directly with said enclosure, a conduit for directly connecting said heating chamber with the outside, a combustion chamber within and spaced from said heating chamber, a plurality of upstanding flues leading from said combustion chamber, a horizontal flue with which said upstanding flues are in communication, a stack communicating with said horizontal flue, and flues leading from said enclosure at the sides thereof and communicating directly with said horizontal flue to convey used air from said chambers directly into said stack.

4. A heating device comprising a heating chamber and an enclosure surrounding and spaced from said heating chamber at the

lower part thereof, said enclosure arranged to be inset in a partition below the floor level of a building and having communication with chambers at both sides of said partition, said heating chamber being open at the upper part for communication with said chambers and provided with opposed walls at each side thereof, covers co-operating with said walls to form an enclosure, said covers provided with means for admitting heated air from said heating chamber to said chambers on opposite sides of said partition, and having openings therein communicating with said enclosure for leading into said enclosure the used air in said chambers, a conduit for connecting said heating chamber directly with the outside, a combustion chamber within and free of said heating chamber, a plurality of upstanding flues leading from said combustion chamber, a horizontal flue with which said upstanding flues are in communication, a stack within said partition and connected to said horizontal flue, and flues leading from said enclosure and in direct communication with said horizontal flue to remove used air from said chambers and convey same directly into said stack.

5. A heating device comprising an enclosure arranged to be inset in a partition and below the floor level of a building, a heating chamber within and spaced from said enclosure at the lower part thereof, said heating chamber having free communication with the outside and at the top arranged for communication with chambers on opposite sides of said partition, a combustion chamber within said heating chamber, and provided with a plurality of upstanding intercommunicating flues, a horizontal flue with which the outside upstanding flues are in communication, a stack connected to said horizontal flue, flues rising vertically from said enclosure and communicating therewith, said flues being connected to said horizontal flue, and covers for the upper part of said heating chamber, said covers provided with means for controlling the passage of heat therefrom to said chambers on opposite sides of said partition, and also with openings which lead into said enclosure through which used air is removed from said chambers and conveyed directly to said stack.

In testimony whereof I have set my hand.
CLEVELAND G. TERRY.