

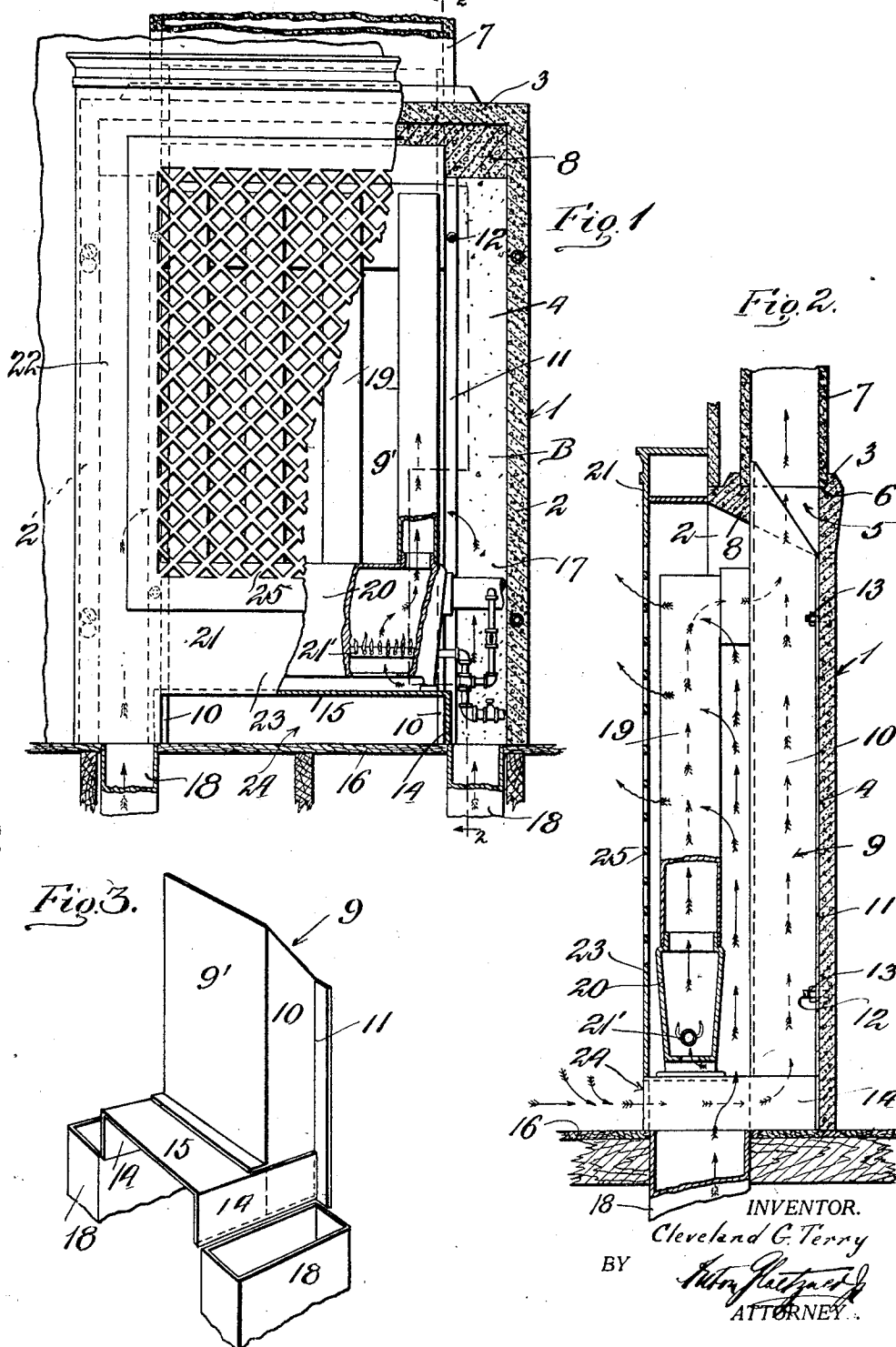
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STOVE

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UNITED STATES PATENT OFFICE.

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STOVE.

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My invention relates to a heating device, and has particular reference to a stove using a gaseous fuel, of the type disclosed and claimed in my co-pending application for patent filed Sept. 29, 1925, Serial Number 59,284, in which I have described a structure having a communication with the atmosphere for leading into a closed area the outside air, and another communication with the atmosphere separated from said first named communication for continuously carrying out the air from the closed area, with a means for heating the incoming outside air. The present invention, involving the same aims and purposes as explained in my said above referred to application, is an improvement over the heater therein disclosed and it has for its chief object to provide a heater in which a part thereof constitutes an integral part of a structure or building in which the heater is to be placed, and in which such integral part of the heater constitutes a foundation or base for a flue or stack.

My invention is shown in preferred form the accompanying drawing, in which

Fig. 1 is a front view partly broken.

Fig. 2 is a section on line 2-2—Fig. 1, and

Fig. 3 is a perspective detail of the conduit.

In a general sense my invention comprises a heating unit in combination with a case, of concrete, clay or other suitable fireproof material, which is arranged to be set in and form an integral part of a composite wall structure.

The case of concrete or other suitable material, forms an essential and integral part of the heater, to effect the objects mentioned, namely, to introduce the outside air into a room or other closed area, to heat the introduced air and continuously to draw out the used air, thus providing for continual circulation and ventilation, which is modified only by the temperature of the heat employed.

By combining with the metallic heater structure a concrete or other fire resisting case which is nonconductive of heat, I obtain a complete insulation from the wooden

parts of a building in which the heater is incorporated, eliminate fire hazards, conserve the heat, and provide a substantial support for the stack. In addition, the metallic structure of the heater may be readily detached from and attached to the case.

In the drawing, the heater is shown as comprising a case 1 of concrete, clay or other fireproof material, open at the front and bottom and having side walls 2, a top 3 and a back 4. An opening 5 is provided through the top 3 of the case 1, which in the upper face thereof is formed with a seat 6 embracing the opening 5 and arranged to receive and support a flue or stack 7. The top 3 of the case 1, as seen in Fig. 2, is preferably thickened in order to sustain the weight of the flue or stack 7, and at the respective sides thereof, tapers inwardly from the front, providing thereby inclined faces 8 on each side of the case which are integral with the side walls 2 and which serve to deflect the heated air into a room or other closed space.

As illustrated in Fig. 2, the case is of a depth generally equal to the thickness of the walls in which it is to be placed, the front edge of the top conforming and arranged preferably to be on a line parallel with the finished wall. The heater structure which co-operates with the case 1, is a unit which, as seen in Fig. 1, is narrower than the case 1, and comprises a conduit 9, which is shown formed by a plate 9' having side walls 10, which may be formed by bending the sides of the plate at substantially right angles thereto. These side walls 10 are preferably flanged, as seen at 11 and the flanges are provided with holes, through which bolts 12 projecting from and embedded in the back 4 of the case 1 are arranged to extend, nuts 13 being employed to associate the conduit 9 in permanent relation with the case 1. The plate 9', as described, co-operates with the back 4 of the case 1 to form a closed passageway or the conduit 9 which communicates at the top directly with the stack 7 and at the bottom is in open communication with a closed area or room to be heated and ventilated or both, the plate 9' for this latter purpose terminating a short distance above the bottom and providing a free en-

trance of the used heated air into the passageway, but the side walls 10 extending to the bottom. To the lower portions of the side walls 10 are secured wings 14 which
 5 extend transversely and for the full depth of the device. These wings are conjoined on the top and at the forward ends thereof by a plate 15, which, with the wings 14 and floor 16 constitutes substantially a passageway which is continuous with the passageway in the conduit 9, and serves to direct the used air in a closed area or room into the passageway in the conduit 9. In addition, these side wings 14 co-operate with the
 10 side walls 2 of the concrete case 1 to form lateral ducts 17 which are arranged to communicate with the atmosphere through passageways 18, which may be provided in the floor of a dwelling, room or other enclosure, as shown, to carry into the closed area the outside air, and they (the wings 14) also prevent the outside air from passing into the conduit 9, without first having been heated and circulated in the closed area. As
 15 seen, between the conduit 9 and the side walls 2 of the case 1, is provided a space B, which is in direct communication with the ducts 17. The incoming outside air passes through the passageways 18, and through the lateral ducts 17 into the spaces B, from which it is drawn and heated by any suitable means, such as shown, and comprising a plurality of flues 19 at their upper ends in free communication with the conduit 9
 20 near the top of same, and at their lower ends connected in any suitable manner with a combustion chamber 20, disposed above the plate 15 and containing a gas burner 21, supplied with a gaseous fuel from any desirable source. The flues 19 as shown, are spaced from the conduit 9 and from each other thereby permitting the incoming atmospheric air to circulate freely about said flues and be heated thereby before passing into the closed area. A cover 21 is provided to co-operate at the front of and with the concrete case 1, in causing incoming outside air to pass within the heat zone, and into contact with the flues. This cover 21 is provided
 25 with side panels 22, which close the front of the spaces B between the conduit 9 and the side walls 2 of the case 1 thereby to cause the incoming air to be diverted between the flues. This cover 21 is also formed with a lower, horizontal panel 23, which prevents outside air passing through the passageways 18 into the ducts 17 from entering directly into a closed area to be heated, without first having been heated by contact with the flues
 30 19. The panel 23 is open at the bottom, as seen, at 24, to provide for free and unimpeded passage of the used air from a closed area into the conduit 9 and from where it eventually passes in the stack 7. A suitable

grating or screen 25 is provided in the case to permit the heated air to pass through same into a room.

In operation, the outside air enters through the ducts 17 and passes into a room or other closed space, after being heated by contact with the combustion chamber 20 and the flues 19. The conduit 9 being open at the bottom and in free communication with the closed area, and also communicating directly with the stack 7, the used air is
 70 educted from the room through this conduit 9, and the displacement of air in such room is aided by the flue energy into which the products of combustion enter. In this manner no stale air remains in a closed area, no drafts are created and ventilation may be had whether the incoming air is heated or not.

What I claim is:

1. A stove for heating a closed chamber comprising a concrete case arranged to form an integral part of a composite wall, and open at the front and bottom, the top of the case having a seat for receiving and supporting a stack, a conduit attached to the back
 85 of said case and co-operating with the sides of the case to provide lateral air passages arranged for communication directly with the outside, a plurality of heating flues connected with said conduit near the top thereof, means to heat said flues, a cover co-operating with said case to enclose said lateral air passages and deflect the incoming air about said heating flues, said conduit open at the bottom and in direct communication with said closed chamber.

2. A stove for heating a closed chamber comprising a concrete case open at the front and bottom and arranged to be inset in and form a part of a composite wall, said case
 105 having an opening through the top and provided with a seat for supporting a stack, a conduit attached to the back of the case and spaced from the sides of the case to provide air passages, for leading in the outside air, a plurality of heating flues connected with said conduit near the top thereof, means to heat said flues, a front cover co-operating with said case to enclose said air passages and deflect the air about said flues, said cover having an opening for the passage of heated air into the closed chamber, said conduit being open at the bottom and provided with means for conducting the used air in the closed area into said conduit.

3. A stove for heating and ventilating a closed chamber comprising a case of fire-proof material open at the front and bottom and arranged to be inset in and form a part of a composite wall, said case having an opening extending through the top and provided with a seat for supporting a stack, a conduit within and attached to the back of,

the case and spaced from the side walls thereof to provide air passages for leading into the closed chamber the outside air, said conduit communicating at the top with the stack and at the bottom being in open communication with the closed chamber, flues 5 connected to the top of and communicating with said conduit, means to heat said flues, and a cover attachable to the front of said conduit to deflect the air flowing in from 10 the outside about said flues, and having an opening for the passage of the heated air.

In testimony whereof I have set my hand.

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