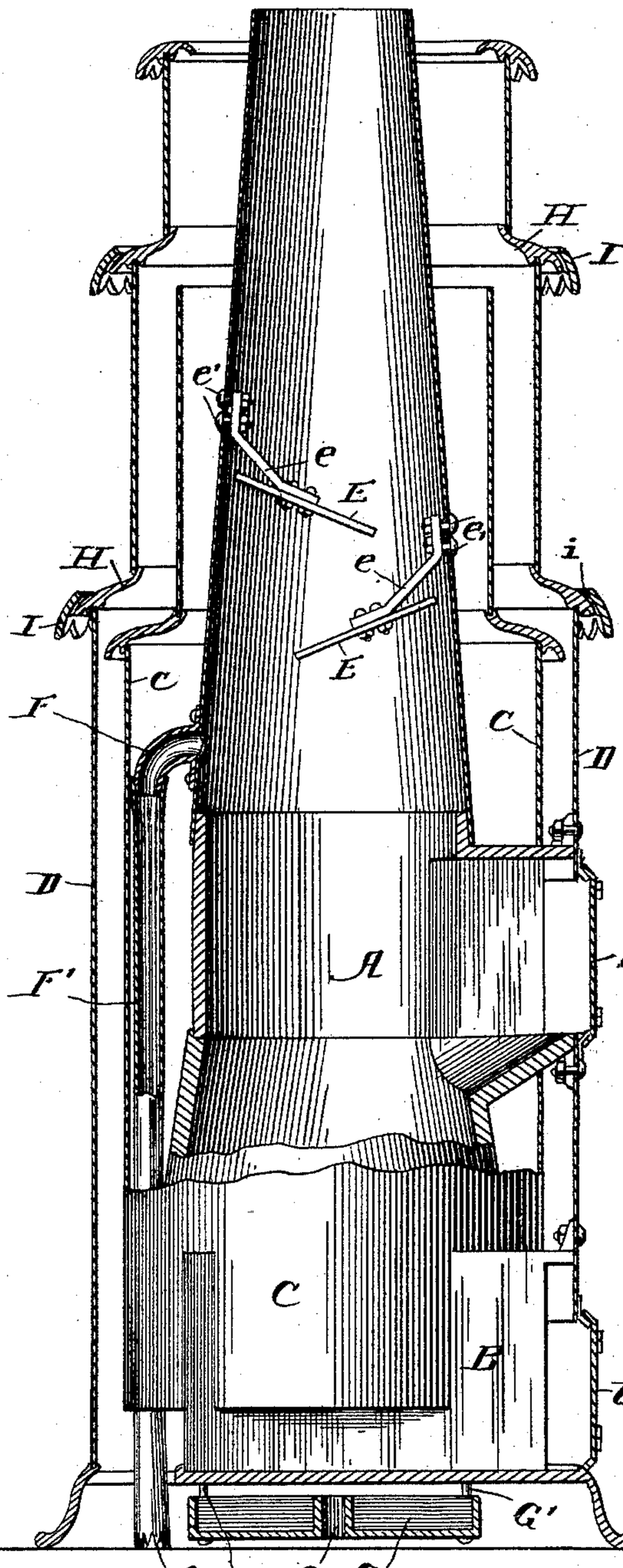
(No Model.) 2 Sheets—Sheet 1.

W. H. TURNER.

STOVE OR WARM AIR FURNACE.

No. 483,187. Patented Sept. 27, 1892.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

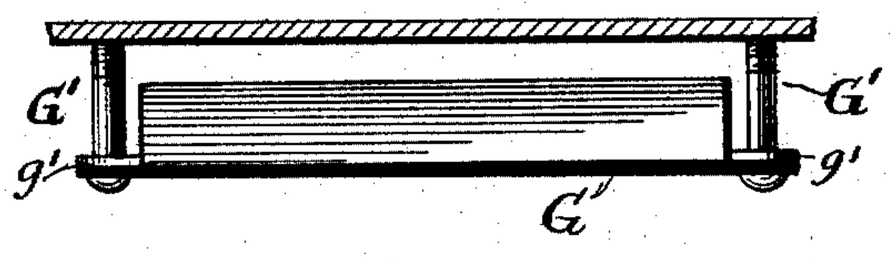


Fig. 3.

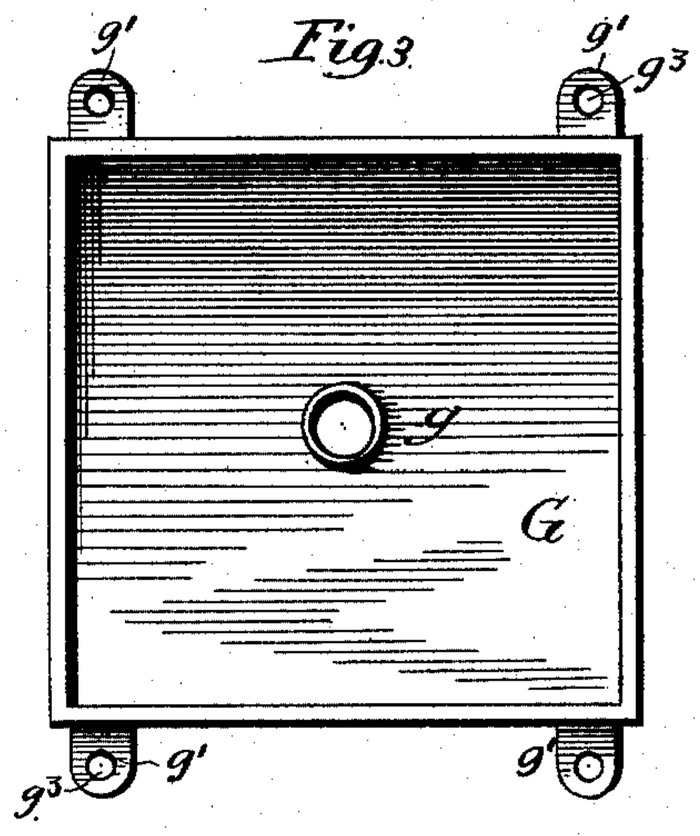


Fig. 4.

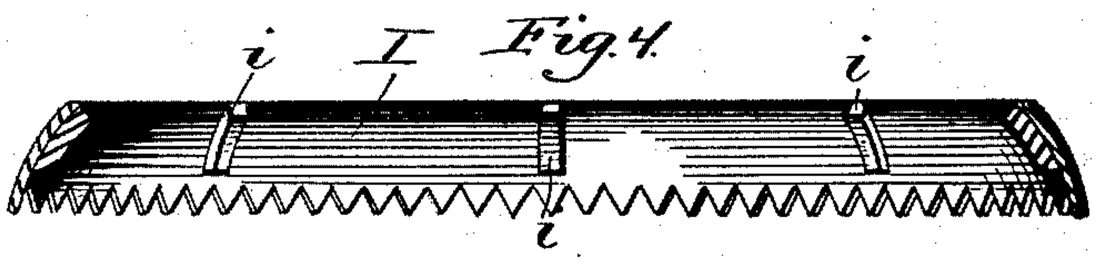
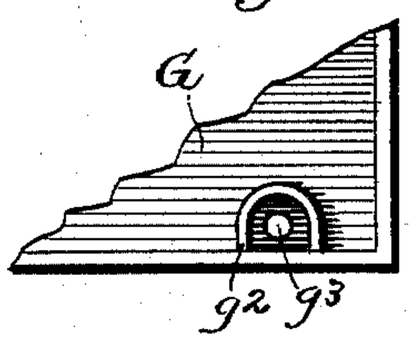


Fig. 5.



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Inventor;

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By Charles T. Brown, Atty.

UNITED STATES PATENT OFFICE.

WILLIAM HENRY TURNER, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO JENNIE ANNIS TURNER, OF SAME PLACE.

STOVE OR WARM-AIR FURNACE.

SPECIFICATION forming part of Letters Patent No. 483,187, dated September 27, 1892.

Application filed November 23, 1889. Serial No. 331,302. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENRY TURNER, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Stoves or Warm-Air Furnaces, of which the following is a full and complete description.

My invention relates to that class of stoves and warm-air furnaces wherein a fire-pot is surrounded by mantles or casings, between which and the fire-pot the air heated by the combustion of fuel in the fire-pot ascends; and this invention is an improvement on the invention made by me and set out and described in Letters Patent of the United States, No. 349,825, dated September 28, 1886, for a warm-air furnace; and it consists in mechanism whereby the heated contents of the fire-pot are retained and held therein for a longer time than has heretofore been possible, and thereby the currents of heated air ascending between the mantles or casings and the fire-pot are raised to a higher temperature than has heretofore been done; mechanism whereby currents of heated air so ascending between the mantles or casings and the fire-pot may be properly vaporized and not too heavily charged with vapor, whereby, although such ascending air may be raised to a higher temperature than heretofore, it will be none the less adapted to the requirements of any person or thing immersed therein or surrounded thereby in a room warmed by such furnace; a new way of constructing the ventilator-pipe attached to and forming a part of my invention, whereby the room in which the furnace or stove is placed is ventilated, and a slightly-different manner of supporting the inner mantle or casing in place.

In the invention heretofore made by me, and fully set out in the Letters Patent referred to, the inner mantle or casing extended down to and rested upon the bottom of the ash-box, this bottom being extended beyond the sides of the ash-box a suitable distance therefor and having holes therein through which air might pass into the space between the inner casing and the fire-pot and into the space between the inner casing and the outer casing.

In this invention the bottom of the ash-box extends beyond the sides of the ash-chamber in the same manner, having also holes therein through which ascending air may pass. The inner casing or mantle does not, however, extend downward to the bottom of the ash-box; but instead thereof this inner mantle or casing has cut out therefrom parts thereof, whereby it is adapted to be supported on the top of the ash-box, across the front and rear corners thereof, a portion of the mantle or casing extending below the top of the ash-box any desired distance toward the bottom of such ash-box, producing substantially the same results and in the same way substantially as in the invention referred to, and I make no claim to that feature of my invention.

I have illustrated my invention by the drawings accompanying and forming a part hereof, wherein, in—

Figure 1, the ash-box is shown in elevation with the inner mantle or casing resting thereon, being partly in elevation and partly in section, the outer mantle and the fire-pot and contents thereof being also shown in section, and the evaporating-pan. In Fig. 2 the evaporating-pan is shown in end elevation, exposing to view the ears thereon by which it is supported. In Fig. 3 a plan of such evaporating-pan is shown, and in Fig. 4 a cross-sectional view of the deflecting-ring forming a part of the device is shown, exposing to view the lugs thereon by which the ring is supported. In Fig. 5 is shown a modification of the evaporating-pan, whereby the bolt passes through the pan instead of through ears on the pan.

Like letters refer to like parts throughout the several views.

A is the fire-pot, and *a* the fuel-door therein.

B is the ash-box, and *b* the door therein.

C is the inner mantle or casing.

D is the outer mantle or casing.

E E are deflector-plates secured rigidly in position in fire-pot A above fuel-door *a*. Any number of deflectors E may be used in addition to the two illustrated. These deflector-plates E are secured in position by arms *e*, extending therefrom to the wall of the fire-pot, where bolts *e'*, passing through said

arms and through the wall of the fire-pot, are properly secured. Deflectors E consist of flat plates of cast or wrought metal, slate, or other suitable material, and the purpose in connecting them to the walls of the fire-pot by arms secured to the upper face or side thereof and extending upward to said walls or by like arms secured to the under side thereof extending downward and to the walls of the fire-pot is to obtain a construction adapted to withstand the burning out thereof by the combustion taking place in the fire-pot. For this reason, too, I deem it advisable to maintain substantially the angle illustrated at which such deflectors are placed. The holes in the walls of the fire-pot, through which bolts *e'* are placed to secure the deflectors in position, have projecting edges extending inward, and when the upper section of the fire-pot is of wrought-iron these holes are punched inward, creating a raised jagged edge on the inner surface of the fire-pot around the holes. The end of arm *e*, through which bolts *e'* pass, is thus held off from the wall of the fire-pot, and however the projection around the hole is made the effect of thus raising or holding the arm off the wall of the fire-pot is to prevent the burning out of the arm. The placing of the deflectors at the angle or at about the angle indicated is for the purpose of preventing the lodgment thereon of a heavy coating of ashes.

F is a wrought-metal elbow, and F' is a pipe having fringe of scallops *f f* at the lower end thereof. The pipe F is placed between the inner casing and the fire-pot and ash-box and extends nearly to the floor and may rest upon the floor, and this form of construction of pipe F is adopted by me for the express purpose of allowing said pipe to so rest on the floor.

I am aware that pipes having the lower ends thereof secured in an opening in the bottom of the stove and the upper ends passing into the fire-pot above the fuel therein have been heretofore used, and I make no claim for a pipe having these characteristics. I have found, however, in practice that in order to effectually ventilate a room by a stove or furnace of the kind herein referred to it is necessary to extend the ventilating-pipe thereof to or nearly to the floor of the chamber or room within which the stove or furnace is placed and which is to be ventilated thereby in order to abstract from such chamber or room the strata of air or gas within a very short distance of the floor and only such strata, and hence the pipes heretofore placed, as described, in stoves and extending from the bottom of the stove upward into the fire-pot have not been intended for and have not served effectually the purpose of ventilating pipes or flues.

G is an evaporating-pan formed of cast metal, having opening *g* through the center thereof, secured to the bottom of the ash-box by rods or bolts G'. These bolts extend through holes g^3 g^3 in the bottom of the evaporating-pan G or through holes g^3 g^3 in ears *g' g'*, respectively, extending out therefrom.

g^2, Fig. 5, is a wall extending around the hole g^3 when such hole is placed in the bottom of the evaporating-pan G to prevent the liquid contents of the evaporating-pan running out of such hole g^3. The upper edge of the sides of the evaporating-pan and of the inner walls surrounding opening *g* is a short distance below the under surface of the bottom of the ash-box, and the only way in which this evaporating-pan is warmed by conduction of heat from the stove or furnace is through the rods G' G' attaching it thereto. Water is placed in this evaporating-pan, and in the use of the stove or furnace a current of air passes upward through hole *g* in the evaporating-pan and over the edges thereof and ascends between the mantles or casings and the fire-pot. This current of air passing over the water in the evaporating-pan is but slightly heated while over the water, and too rapid evaporation of the contents of the evaporating-pan will not occur, however great the heat produced by combustion in the fire-pot may be, and I thus avoid too much vaporization of the heated air secured by my device.

H H are diminishing-rings.

I I are rings having on the under side thereof lugs or projecting points *i i*. Rings I are placed on diminishing-rings H and secured thereto with the lugs *i i* in contact with the diminishing-rings, leaving a space except where said lugs are between the rings I and the diminishing-rings H. The purpose of this invention being to heat a room or chamber by ascending currents of air passing between the mantles or casings and the fire-pot and delivered from out of the top of the mantles or casings into the room or chamber, the device is so arranged that but little heat is given off from the outer casing by radiation into the room or chamber. An ascending current of heated air outside of the casing D is, however, formed, and the rings I, turned down, as illustrated, serve as collectors, which tend to deflect in toward the stove all air passing upward underneath the rings I and passing through the space between such rings and rings H. Rings I I are thus, also, maintained at a low temperature, and the nickel-plating which I prefer to and do put on rings I I for the purpose of ornamentation is not tarnished or its luster diminished by rings I I being raised to a high temperature, as would be the case were such rings highly heated.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a warm-air furnace, the combination of an ash-box adapted to support a fire-pot and to have suspended therefrom an evaporating-pan, an evaporating-pan, an opening

in the center of the evaporating-pan, and a wall surrounding such opening, and means for suspending the evaporating-pan from the ash-box so that the upper edges thereof are near to but not in contact with the bottom of the ash-box, whereby liquid may be contained in the evaporating-pan and air may ascend through the central opening of such pan and pass over the contents thereof and between such evaporating-pan and the bottom of the ash-box, substantially as described.

2. Deflectors consisting of a metal plate having arms thereon, in combination with a fire-pot, to the walls of which such arms are rigidly secured, holes in the fire-pot, having projecting rims on the inner edge thereof, and bolts passing through the walls of the fire-pot and through one end of the arms of the deflectors, all substantially as described.

3. In a stove or furnace having outer mantles or casings surrounding the fire-pot thereof, the combination of such outer mantles or casings with rings flaring outward and downward and projecting lugs on the under side thereof secured thereto and adapted to rest on the diminishing-rings of the outer mantle or casing, whereby ascending currents of air are deflected inward by the rings and pass between them and the outer mantle or casing, all substantially as described.

WILLIAM HENRY TURNER.

Witnesses:
FLORA L. BROWN,
CHARLES T. BROWN.