C. E. EPWORTH.

GAS HEATER.

APPLICATION FILED AUG. 19, 1920.

1,390,518. Patented Sept. 13, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

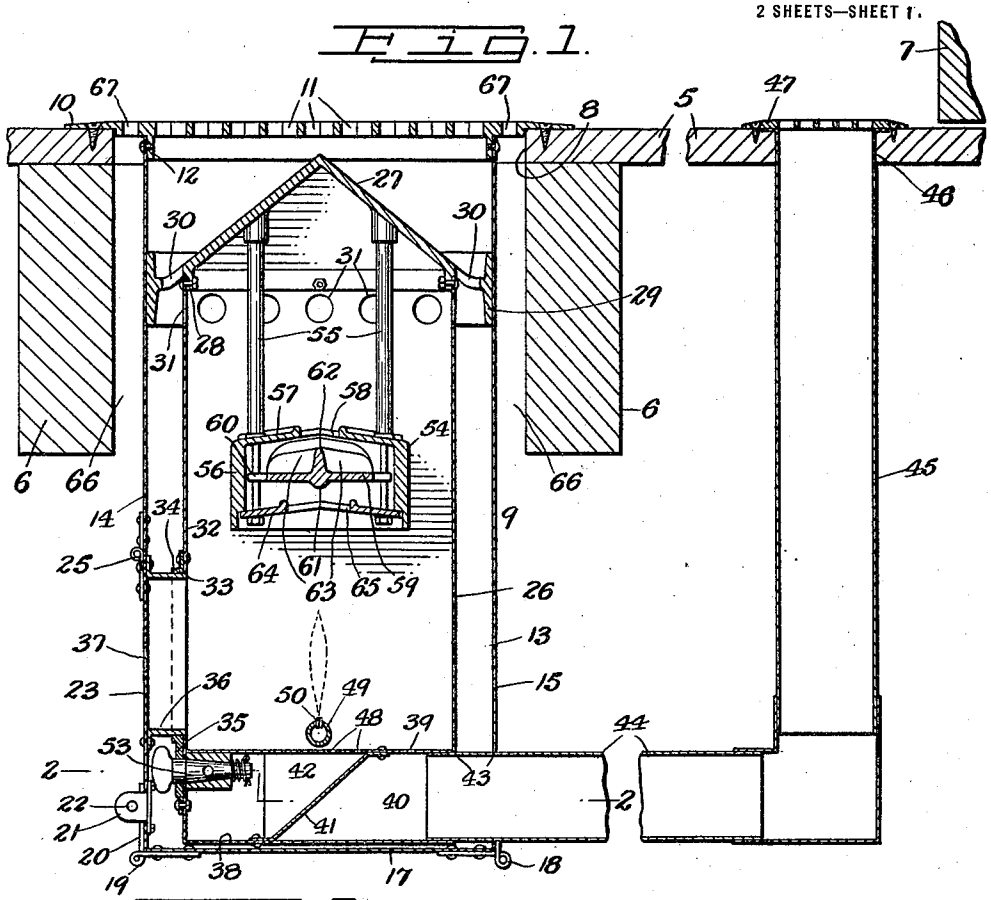
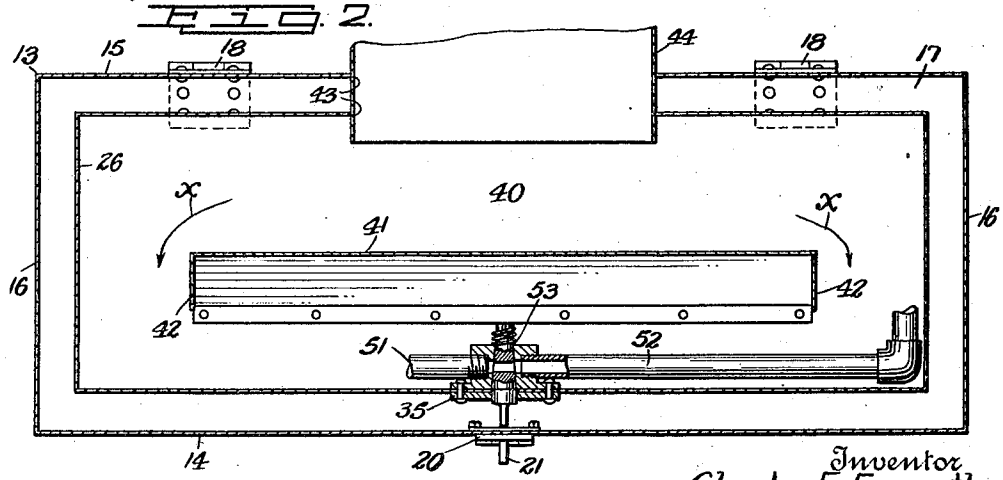


Fig. 2.



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2 SHEETS—SHEET 2.

FIG. 3.

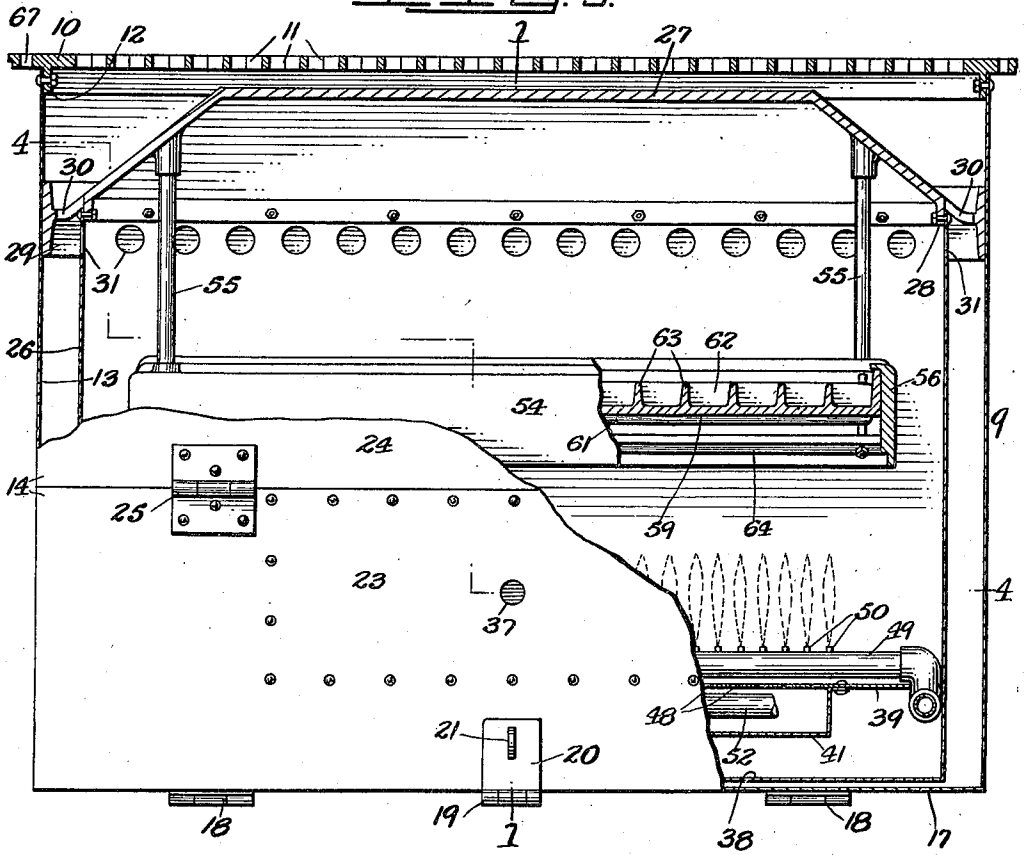
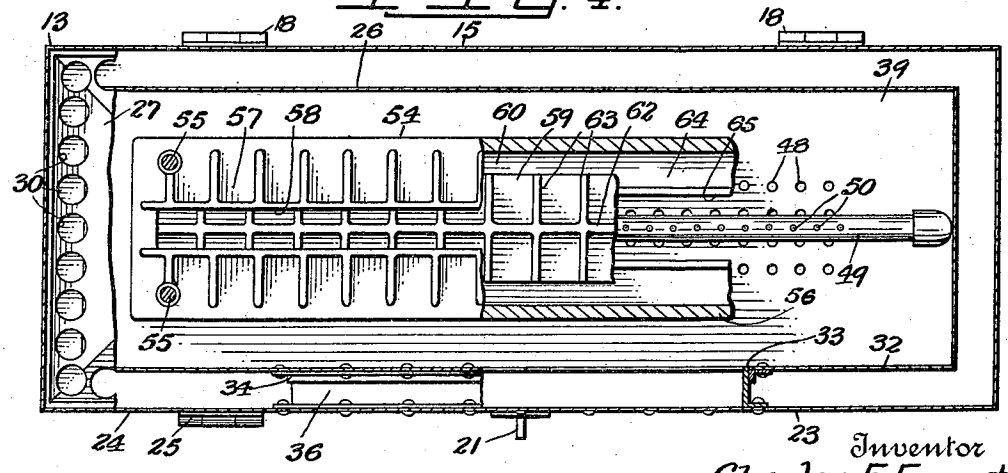


FIG. 4.



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UNITED STATES PATENT OFFICE.

CHARLES E. EPWORTH, OF BROOKLYN, NEW YORK.

GAS-HEATER.

1,390,518. Specification of Letters Patent. Patented Sept. 13, 1921.

Application filed August 19, 1920. Serial No. 404,531.

To all whom it may concern:

Be it known that I, CHARLES E. EPWORTH, a citizen of the United States, and residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Gas-Heaters, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to gas heaters and particularly to heaters of this class designed to be mounted within and beneath the floor of a room or compartment to be heated and preferably mounted within the cellar of a building but which may be located in any desired compartment, and the object of this invention is to provide a heater of the class specified with improved means for supplying and circulating fresh air to the burner or burners of the heater; a further object being to provide means for automatically disposing of debris or other matter which may pass down through the grating of the heater; a still further object being to provide means for circulating air around the heater within the compartment below the floor of the room which is to be heated; and with these and other objects in view the invention consists in a heater of the class specified which is simple in construction and operation and efficient in use, and which is constructed and operated as hereinafter described and claimed.

Heretofore it has been customary to place heaters of the class under consideration on the floor of a room or compartment to be heated, and these heaters are in extensive use in the home as well as in stores and other business places and particularly the retail chain stores, but in this use of heaters it has been found by reason of the location thereof that numerous accidents have been experienced to those in the room in which the heater is located as well as to food products, and the like stored in such room. With my improvement it will be apparent that a room or compartment of a home, store or other business place may be effectively heated with my concealed heater and the above objections eliminated as well as a great saving in the space of the room or compartment to be heated, effected.

The invention described and claimed herein is an improvement on that shown and described in a prior application filed by me Apr. 8, 1920, Ser. No. 372,142, and is fully disclosed in the following specification and accompanying drawings, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Figure 1 is a transverse sectional view of my improved heater and indicating the method of its use, the section being on the line 1—1 of Fig. 3;

Fig. 2 a partial section on the line 2—2 of Fig. 1;

Fig. 3 a front view of my improved heater with parts of the construction broken away and in section; and,

Fig. 4 a partial section on the line 4—4 of Fig. 3.

In Fig. 1 of the drawings, I have indicated at 5 the floor of a room or compartment which is to be heated, at 6 the floor beams and at 7 a part of a door which forms an exit to a building in which the room to be heated is located.

In practice, the floor 5 is provided with an aperture or opening 8 and my improved heater 9 is mounted in connection with and suspended from the floor 5 within the opening 8 thereof. The heater comprises a top grate plate 10 having a plurality of apertures 11 and a downwardly directed flange 12. Secured to the flange 12 is a main heater casing 13 preferably composed of sheet metal and which is oblong and rectangular in form, in the construction shown, and comprises a front wall 14, a back wall 15 and side walls 16. A bottom 17 is hinged to the back wall 15 as shown at 18 and provided centrally of the front edge portion thereof with a hinge member 19, one part of which extends upwardly as shown at 20 and is provided with an aperture through which an apertured lug 21 secured to the front wall 14 is adapted to pass, and this construction serves to support the bottom 17 of the casing 13 and may be locked against movement by a lock or other device passed through the aperture 22 in the lug 21. The bottom portion 23 of the front wall 14 is hinged to the upper portion 24 thereof as shown at 25 to permit of the forward and upward movement of the bottom portion 23 to give access to the heater, or the burner thereof.

Mounted within and spaced from the main heater casing 13 is a supplemental casing 26, which is of the same general form

as the casing 13 and the upper end of which is secured to a head member 27 as shown at 28. The head member 27 forms a top or closure for the supplemental casing 26 and the walls thereof converge upwardly as clearly shown in Figs. 1 and 3. The head member 27 is provided about the periphery thereof with a rim portion 29 which is secured to the inner face of the main casing 13 and by means of which the supplemental casing 26 is suspended within said main casing and adjacent to the rim portion 29. The head member 27 is provided with a plurality of apertures 30, and the top portion of the casing 23 is provided with a plurality of apertures 31.

The front wall 32 of the supplemental casing 26 is provided with an aperture or opening 33 about which is a reinforcing strip 34 having a downwardly directed extension 35, and secured to the bottom portion 23 of the front wall of the main casing is an inwardly directed elongated box-shaped portion 36, the inner end of which is adapted to fit within the aperture 33, as clearly shown in Fig. 1 of the drawing, and the bottom portion 23 is provided with a small central aperture 37 through which the burner of the heater may be seen without raising the bottom portion 23.

The supplemental casing 26 is provided above the bottom 39 between which and the bottom 38 is an air box or chamber 40 centrally of which is arranged an upwardly inclined deflector plate 41 having side walls 42.

The back wall of the main and supplemental casings 13 and 26 is provided centrally of the bottom portion thereof with an aperture 43 adapted to receive an air pipe 44. The pipe 44 may be of any desired length and formation and is connected with a vertically arranged pipe 45 which passes upwardly through an aperture 46 in the floor 5 in the room or compartment to be heated, or the floor of any other room of the building which has a door, such as indicated at 7, which opens to the street or which forms an exit to such building, and secured to the top of the pipe 45 and to the floor is a grate plate 47.

The supplemental bottom 39 is provided centrally thereof with a plurality of apertures 48 through which air from the air-box 40 is adapted to pass to the burner 49 of the heater. The burner 49 comprises a tube provided with a plurality of burner tips 50 which are mounted therein and spaced longitudinally thereof and said burner tube is located centrally and longitudinally of the bottom portion of the supplemental casing 26 above the supplemental bottom 39 thereof. A fuel supply pipe 51 is placed in communication with the burner 49 through a pipe 52 and a suitable valve device 53 is mounted between the pipes 51 and 52 and is adapted to control the supply of fuel to the burner. The valve device 53 is secured to the supplemental casing 26 and passes through the downwardly directed extension 35 of the reinforcing strip 34 as clearly shown in Figs. 1 and 2 of the drawings.

The baffling device 54 is suspended within and independent of the walls of the supplemental casing 26, said device being suspended from rods or bolts 55 secured to the head member 27 and which pass through the baffling device 54. The baffling device comprises an outer casing 56 having an inwardly directed top wall 57 provided centrally thereof with an elongated opening 58 which extends approximately the full length thereof. Mounted within the casing 56 is a central baffling plate 59 which is of less transverse width than the inside dimensions of the casing 56 thus forming passages 60 at the opposite sides of said plate. The plate 59 is provided centrally with a downwardly directed longitudinal rib 61 and with an upwardly directed longitudinal rib 62 at the opposite sides of which are fins or ribs 63. The baffling device is also provided with a bottom plate 64 having a central elongated aperture 65, and the plates 59 and 64 are held within the casing 56 by the rods or bolts 55, as clearly illustrated in Fig. 1 of the drawing.

In the use of my improved heater it will be seen that fresh air may pass downwardly through the grate 47 and pipe 45 at each time that the door 7 is opened, and said air will pass into the air box or chamber 40 through the pipe 44 and be deflected to the opposite sides of the deflector 41, as indicated by the arrow x in Fig. 2, and then passed forwardly around the side walls 42 of said deflector and upwardly through the apertures 48 to the burner 49, and the heated air from the burner will pass upwardly through the baffling device 54 and out through the apertures 31 in the top of the supplemental casing and then upwardly through the apertures 30 in the head member 27 and out through the apertures 11 in the grate 10 and thus into the room or compartment which is to be heated. It will also be apparent that some of the heated air will pass around the periphery of the baffling device 54 and thus out through the apertures 31.

The construction of the heater will be such that the transverse dimensions thereof will be less than the distance between the faces of the floor beams 6 to provide air chambers 66 at the opposite sides of the heater so that air may pass upwardly around the walls of the heater and out through apertures 67 arranged around the edge portion of the grate 10. This circulation of air will render the heater fireproof in that it will

prevent any possibility of the igniting of the floor beams 6.

In the operation of igniting the burner 49 when it is desired to use the heater, the upwardly directed part 20 of the hinge member 19 is passed over the projecting lug 21 and the bottom 17 of the main casing 13 will then drop by gravity and the bottom portion 23 of the front wall 14 of said casing raised on the hinges 25 and the valve device 53 may then be opened and the burner ignited through the aperture 33 in the supplemental casing 26. After which the parts 17, 20 and 23 may be returned to their normal position. The above operation of igniting the burner will automatically clear out the heater of any debris that may have collected in the bottom thereof which debris will pass downwardly over the head member 27 by reason of this formation through the apertures 30 and thus downwardly into the bottom of the main casing 13, and in this way it will be apparent that the heater is kept clean at all times and such result accomplished automatically by the dropping of the bottom 17 in the manipulation of the apparatus.

It will be apparent that I am not necessarily limited to any specific use of my improved heater nor to the detail of construction herein shown and described, and various changes therein and modifications thereof may be made, within the scope of the appended claims, without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A heater adapted to be mounted in and suspended from the floor of a room or compartment, said heater comprising a grate plate secured to said floor, a casing suspended from said plate, a burner device within said casing, means for supplying fresh air to the burner device of said casing, a conical head forming a closure for the top portion of said casing, and means whereby the heated air may pass upwardly and laterally through said casing around said conical head and outwardly through said grate plate.

2. A heater adapted to be mounted in and suspended from the floor of a room or compartment, said heater comprising a grate plate secured to said floor, a casing suspended from said plate, a burner device within said casing, means for supplying fresh air to the burner device of said casing, a conical head forming a closure for the top portion of said casing, means whereby the heated air may pass upwardly and laterally through said casing around said conical head and outwardly through said grate plate, and a baffling device suspended from said conical head within and independent of the walls of said casing and into and through which the heated air is adapted to pass.

3. A heater of the class described comprising a grate plate, a main casing suspended from said plate, a conical head mounted in the upper end portion of and forming a closure for said casing, a supplemental casing within said first named casing and separated therefrom to form a chamber therearound, a burner mounted in the lower end portion of said supplemental casing, a baffling device suspended from said conical head and mounted within said supplemental casing and into and through which the heated air is adapted to pass, the upper end portion of said supplemental casing and the periphery portion of said conical head being provided with apertures through which the heated air is adapted to pass from said supplemental casing outwardly through said grate plate.

4. A heater of the class described comprising a grate plate, a main casing suspended from said plate, a conical head mounted in the upper end portion of and forming a closure for said casing, a supplemental casing within said first named casing and separated therefrom to form a chamber therearound, a burner mounted in the lower end portion of said supplemental casing, a baffling device suspended from said conical head and mounted within said supplemental casing and into and through which the heated air is adapted to pass, the upper end portion of said supplemental casing and the periphery portion of said conical head being provided with apertures through which the heated air is adapted to pass from said supplemental casing outwardly through said grate plate, the apertures in said conical head communicating with the chamber around said supplemental casing to permit of the passage of debris downwardly into the bottom portion of said main casing, and means for discharging the debris from said casing.

5. A heater of the class described comprising a grate plate, a main casing suspended from said plate, a conical head mounted in the upper end portion of said casing, a supplemental casing within said first named casing and separated therefrom to form a chamber therearound, a burner mounted in the lower end portion of said supplemental casing, a baffling device suspended from said conical head and mounted within said supplemental casing and into and through which the heated air is adapted to pass, the upper end portion of said supplemental casing and the periphery portion of said conical head being provided with apertures through which the heated air is adapted to pass from said supplemental casing outwardly through said grate plate, the apertures in said conical head communicating with the chamber

around said supplemental casing to permit of the passage of debris downwardly into the bottom portion of said main casing, a plurality of hinged sections for discharging the debris from said casing and for giving access to the burner, and means for holding said sections normally in position.

In testimony that I claim the foregoing as my invention I have signed my name in presence of the subscribing witnesses this 16th day of August, 1920.

CHARLES E. EPWORTH.

Witnesses:
C. E. MULREANY,
H. E. THOMPSON.