T. C. WALKER.

HEATER ATTACHMENT FOR GRATES AND STOVES.

APPLICATION FILED OCT. 17, 1910.

1,026,007.

Patented May 14, 1912.

2 SHEETS—SHEET 1.

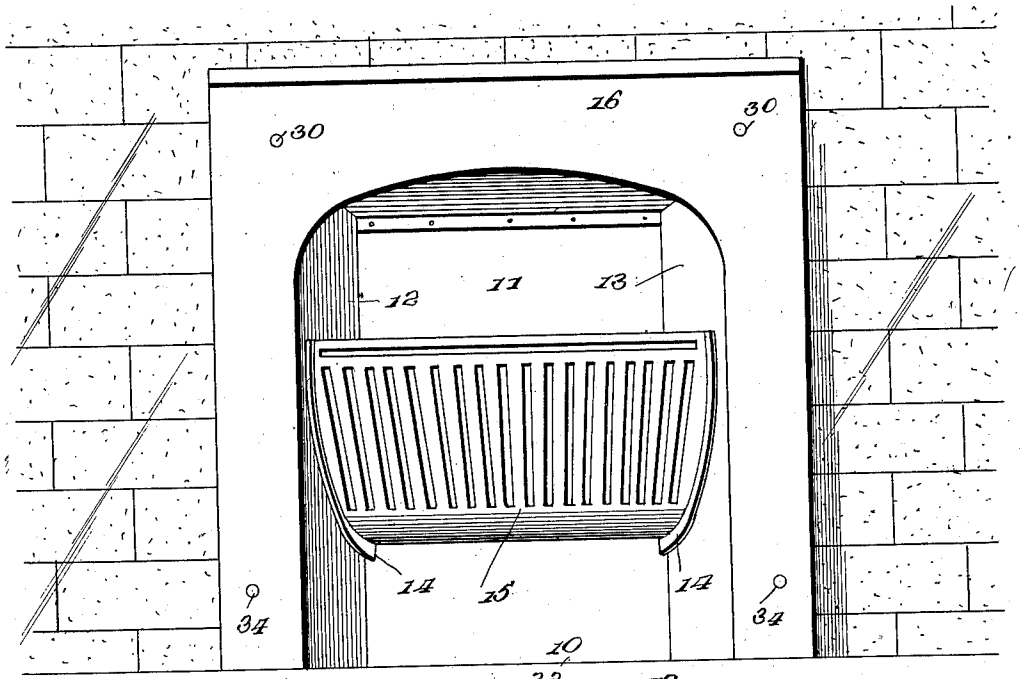

Fig. 1.

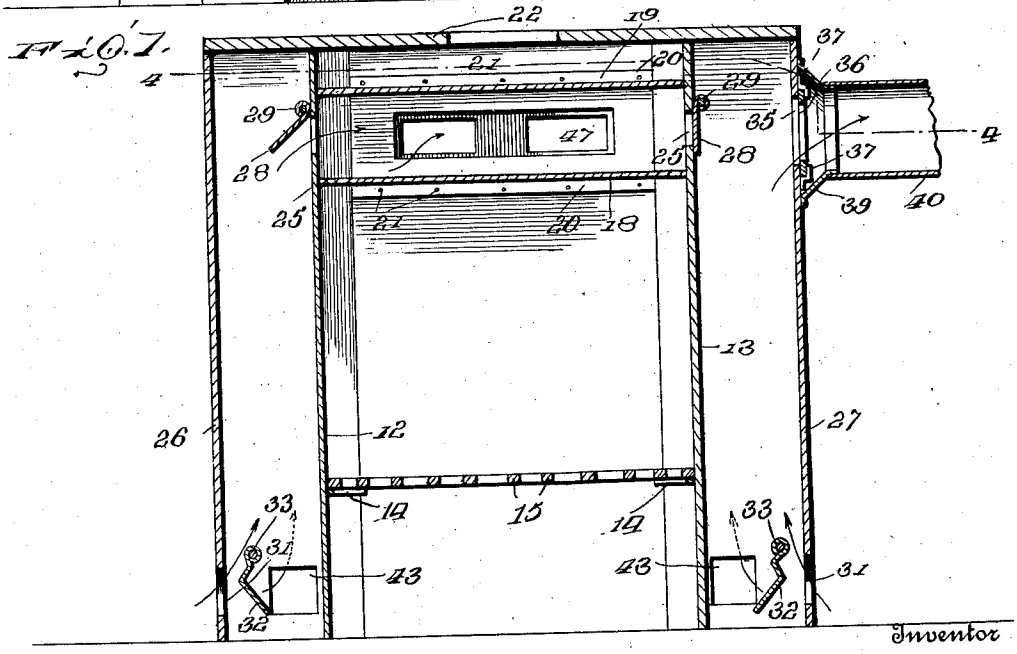

Fig. 3.

Witnesses

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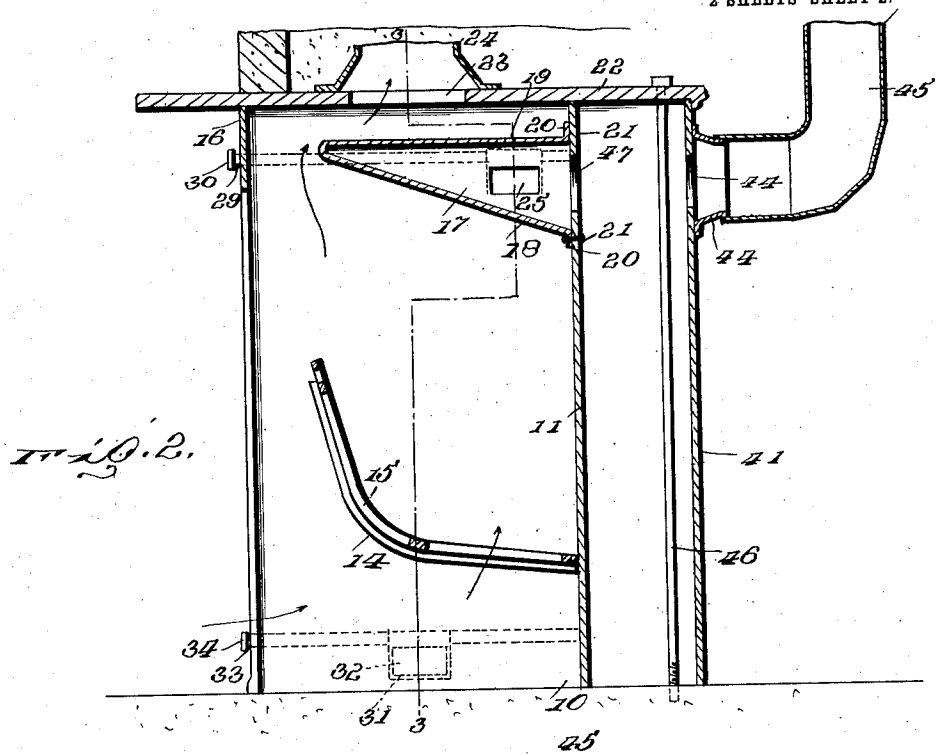

Fig. 2.

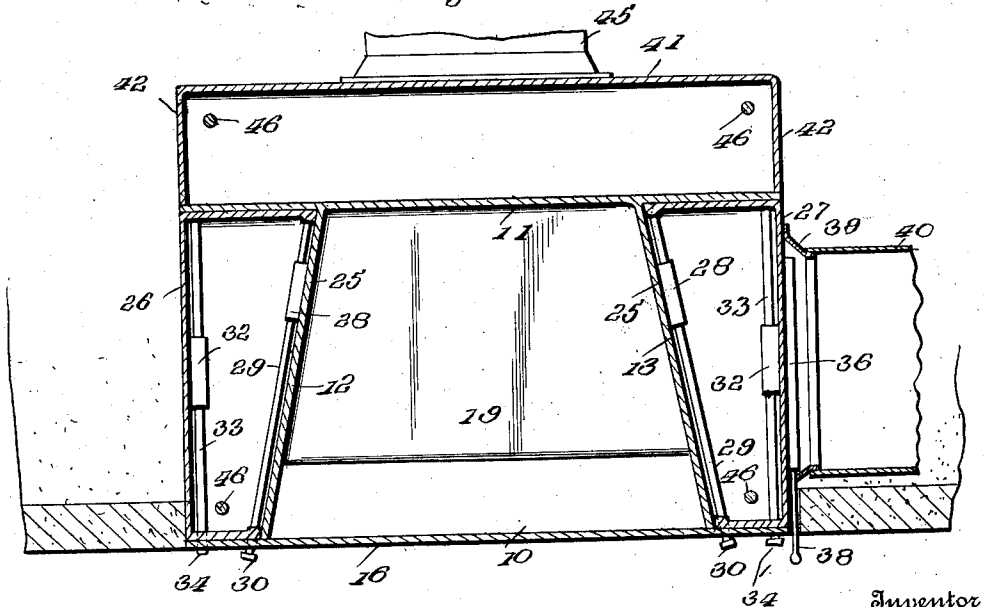

Fig. 4.

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UNITED STATES PATENT OFFICE.

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HEATER ATTACHMENT FOR GRATES AND STOVES.

1,026,007. Specification of Letters Patent. Patented May 14, 1912.

Application filed October 17, 1910. Serial No. 587,544.

To all whom it may concern:

Be it known that I, THOMAS C. WALKER, citizen of the United States, residing at Morristown, in the county of Belmont and State of Ohio, have invented certain new and useful Improvements in Heater Attachments for Grates and Stoves, of which the following is a specification.

This invention relates to an improved heater, and has for an object to utilize the waste heat from grates, and the like, to increase their efficiency and to protect the same.

Another object of this invention is to protect the walls of the fireplace from warping and burning out incident to excessive heating by providing an air chamber or flue having the walls of the fireplace as the inner walls of the flues. This arrangement is adapted to maintain a circulation of air passing against the outer sides of the walls of the fireplace to carry off the radiating heat therefrom and to thereby cool the same.

The invention further contemplates a peculiar arrangement of intercommunicating flues or chambers which are provided with dampers for controlling and directing the air currents about the fireplace and through outlets provided therefor.

For a full understanding of the invention reference is to be had to the following description and accompanying drawing in which:—

Figure 1 is a front elevation of the improved heater. Fig. 2 is a transverse central section through the same. Fig. 3 is a longitudinal section on the line 3—3 of Fig. 2. Fig. 4 is a horizontal section through the heater upon the line 4—4 of Fig. 3.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring to the drawings the numeral 10 designates the base of the heater which is of substantially rectangular form and provided with a rear wall 11 forming the back of the fire-place. The base 10 is provided with converging side-walls 12 and 13 extending forwardly from the back-plate or partition 11 and diverging outwardly therefrom. The inner faces of the side-walls 12 and 13 carry cleats 14 on their inner faces to support a grate 15. The cleats 14 are of substantially L-form, as can be seen particularly from Fig. 2, and support the ends of the grate 15.

A front plate 16 is extended across the forward edges of the sides 12 and 13 and rests upon the upper face of the base 10. The plate 16 is cut away at its central portion, the opening extending to the lower edge thereof to form the front of the heater. The back-wall or plate 11 is provided with a baffle 17 in the form of a metal casing having a lower inclined wall 18 and upper horizontal wall 19. The inner edges of the walls 18 and 19 are flanged at 20 so as to lie snugly against the exposed face of the back 11 and to receive rivets 21 which latter passes through the back 11 and the flanges 20 to support the baffle. The lower wall 18 extends outwardly and upwardly to a point above the marginal edge of the arch formed through the front-plate 16 where it meets the forward edge of the upper wall 19. The outer end of the baffle 17 is spaced inwardly from the front plate 16 to provide a passage therebetween for the products of combustion from the grate 15. A top 22 fits over the heater and is provided with an opening 23 directly above the baffle 17 for the passage of the heated gases therethrough. A suitable collar 24 encircles the opening 23 to which a length of pipe is secured. The opposite ends of the baffle 17 terminate against the sides 12 and 13, the sides being provided with openings 25.

The back-plate 11 and the front-plate 16 extend beyond the sides 12 and 13 and are connected to outer side walls 26 and 27 which are spaced from the sides 12 and 13 so as to form lateral flues or chambers for the fire-place.

The openings 25 admit the passage of air between the lateral flues and the baffle 17, the passage of air being regulated by the dampers 28. The dampers 28 are preferably formed of metallic plates depending from transverse rods 29 journaled at their inner ends within the back-plate 11 and extending outwardly through the front-plate 16. Suitable hand-holds 30 are disposed upon the outer ends of the rods 29 for the purpose of rotating the same. The outer side-walls 26 and 27 are provided with inlet openings 31 at their lower ends, the passage through the openings 31 being regulated by dampers 32 mounted upon rods 33 and formed of metallic plates depending from the rods 33 which are journaled in the walls 11 and 16. The rods 33 extend forwardly from the wall 16 and are provided with handles 34 by which the rods are

turned. The outer side-wall 27 is provided with a plurality of openings 35, passage through which is regulated by means of a slide 36 which is provided with spaced openings adapted for registration with the openings 35. The slide 36 is mounted in vertically spaced guides 37 secured against the outer face of the wall 27 adjacent to the openings 35. A handle 38 projects forwardly from the slide 36 and extends beyond the wall 16 to admit of the movement of the slide. A collar 39 encircles the openings 35 and has connection with a pipe 40 adapted to conduct heated air from the adjacent lateral chamber.

The base 10 carries an outer rear wall 41 spaced from the wall 11 and forming in conjunction therewith a rear flue or chamber which is closed by the end-walls 42. The back 11 is provided at its lower end with openings 43 between the lateral chambers and the rear flue. The rear wall 41 is provided with an outlet opening 44 adjacent to its upper end about which is disposed the outlet pipe 45. The heater is held together mainly by the provision of threaded rods 46 engaging downwardly through the top 22 and into the base 10.

When the fire is formed upon the grate 15 the adjacent walls are heated and raise the temperature of the air in the surrounding lateral and rear chambers. The heating of the air produces a circulation of the same and air flows through the openings 31 of the side-walls 26 and 27 into the lateral chambers. The air passes from the lateral chambers through the openings 43 into the rear chamber, passing upwardly therethrough and out of the pipe 45. A portion of the air passes into the upper ends of the lateral chambers and, when the dampers 28 are opened, passes into the baffle 17. The baffle 17 communicates with the rear chamber 41 by the provision of openings 47 formed through the upper end of the rear wall 11. The heated air passes from the baffle 17 into the rear chamber and outwardly through the flue 45. When it is desired to convey heated air to the flue 40, the slide 36 is moved to register the openings therethrough with the openings 35, whereupon the heated air from the adjacent lateral chamber passes outwardly into the pipe 40. This adjustment of the dampers is disclosed to advantage in Fig. 3, wherein the damper 28 is closed so as to cut off communication between the lateral chamber and the baffle.

Having thus described the invention what is claimed as new is:—

1. A heater including a casing having an open front and provided with a perforated top plate, a draft pipe secured to the top plate at the perforation therein, a vertically disposed partition spaced from the rear wall of the casing to form a hot air chamber, spaced walls arranged within the casing and converging in the direction of and secured to the partition, said converging walls being spaced from the side walls of the casing to form auxiliary hot air chambers, there being openings in the rear walls of the auxiliary chambers and in the partition and forming a source of communication between said auxiliary hot air chambers and rear hot air chamber, a grate interposed between the converging walls, a hollow baffle secured to the partition and having its free end tapered and spaced from the front of the casing to form a passage communicating with the perforation in the top of said casing, a conductor communicating with the rear hot air chamber, and a second conductor communicating with one of the auxiliary hot air chambers, there being openings in the converging walls and partition and forming a source of communication between the interior of the baffle and the adjacent hot air chambers.

2. A heater including a casing, a partition disposed within the casing and spaced from the rear thereof to form a hot air chamber, vertical walls disposed within the casing and secured to said partition, said vertical walls being spaced from the side walls of the casing to form auxiliary hot air chambers communicating at their lower ends with the hot air chamber at the rear of said casing, a grate interposed between the vertical walls of the casing, a hollow baffle secured to the partition and having its reduced end spaced from the front of the casing to form a passage, a plate forming a closure for the top of the casing and having an opening therein communicating with the passage, a draft pipe surrounding said opening, a hot air flue communicating with the rear hot air chamber, a second hot air flue communicating with one of the auxiliary hot air chambers, and means for cutting off communication between the main and auxiliary hot air chambers, there being openings in the vertical walls and partition and forming a source of communication between the interior of the hollow baffle and the adjacent hot air chambers.

In testimony whereof, I affix my signature in presence of two witnesses.

THOMAS C. WALKER. [L. S.]

Witnesses:
MARTIN WILLISTON,
JOHN R. KAYS.