

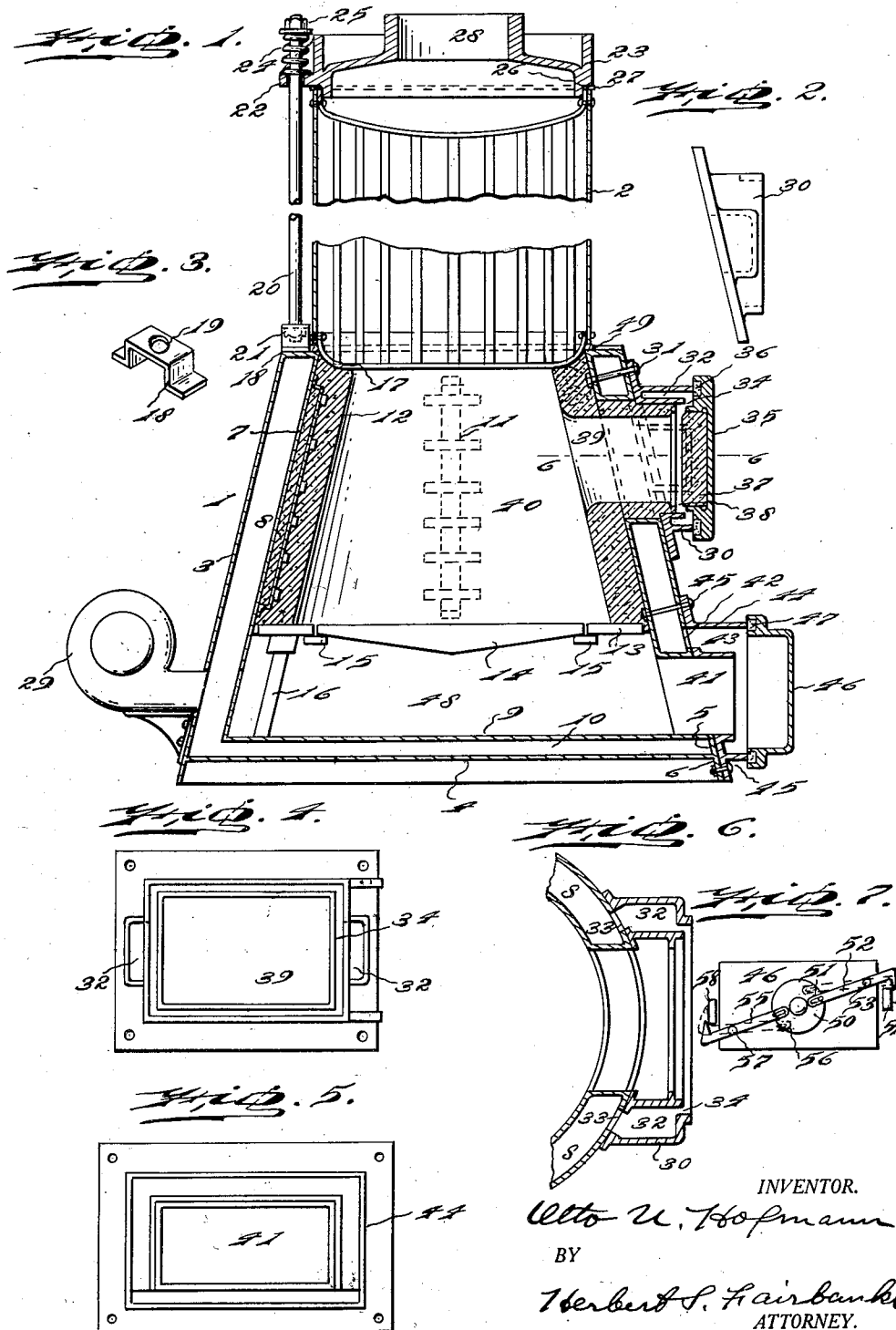
July 24, 1934.

O. U. HOFMANN

1,967,883

COAL BASE FOR BOILERS

Filed May 14, 1932



INVENTOR.

Otto U. Hofmann

BY

Herbert S. Fairbanks
ATTORNEY.

UNITED STATES PATENT OFFICE

1,967,883

COAL BASE FOR BOILERS

Otto U. Hofmann, Philadelphia, Pa., assignor to
Hauck Manufacturing Company, Brooklyn,
N. Y., a corporation of New York

Application May 14, 1932, Serial No. 611,280

3 Claims. (Cl. 110—56)

The boilers usually employed in connection with pressing machines such as used by tailors are ordinarily gas fired. The invention has for an object to mount the boiler on a coal base so that cheap grades of coal may be employed, and an automatically controlled blower is employed to produce the primary draft for combustion which enters the base beneath the grate. In such construction, the ashes and gases from the ash pit and also the gases and ashes in the combustion chamber above the grate, blow out through the joints of the doors, and as these steam generating devices are ordinarily placed in the tailor shop the operator is affected by the injurious gases contained within the room, and the ashes and dust cover the clothes which have been pressed and are ready for delivery to the customer.

One of the objects of my present invention is to devise a novel construction and arrangement of a coal base whereby the ash pit door and the filling door will be air sealed and in case any gases escape into the room it will be only the fresh, pure air which will have no deleterious effect on the operator.

A further object of the invention is to devise a novel construction of a coal base wherein the air introduced for both primary and secondary combustion may, if desired, substantially surround the fire pot and the ash pit also, if desired, so that the air will be heated prior to its introduction into the ash pit for primary combustion or into the combustion chamber above the grates for secondary combustion.

It further comprehends a novel coal base wherein means are provided to supply air under pressure against the joints between the doors and their frames to form air seals and prevent ashes or gaseous products of combustion from passing into the room where the base and boiler are installed.

For the purpose of illustrating the invention I have shown in the accompanying drawing a typical embodiment of it, which, in practice, will give reliable and satisfactory results. It is, however, to be understood that this embodiment is typical only and that the various instrumentalities of which my invention consists can be variously arranged and organized, and the invention is not limited to the precise arrangement and organization of these instrumentalities.

Figure 1 is a sectional elevation of a coal base and boiler embodying my invention.

Figure 2 is a side elevation of a portion of the coal base.

Figure 3 is a perspective view of a bracket employed.

Figure 4 is a front elevation of the filling door frame.

Figure 5 is a front elevation of the ash pit door frame.

Figure 6 is a section on line 6—6 of Figure 1.

Figure 7 is a front elevation, on a reduced scale, of a door and its locking means.

Referring to the drawing:—

1 designates the coal base and 2 the boiler above said base embodying my invention. The coal base 1 is provided with an outer shell or casing 3, the bottom of which is closed by means of a flanged plate 4 welded thereto, said plate having an upwardly directed flange 5 and a downwardly directed flange 6. Within the outer shell 3 is an inner shell 7 which forms with the outer shell an air chamber 8 which also extends beneath the bottom 9 of the inner shell as shown at 10. The inner face of the inner shell 7 has steel reinforcing members 11, the free ends of which are welded to the shell and serve to carry the lining 12 which extends downwardly to a grate 13 having a movable section 14 carried by the bars 15, secured to the inner shell. I also provide a supporting post 16 extending upwardly from the bottom 9 into contact with the grate 13. The lining at its upper end is provided with a curved recess 17 to receive the rounded bottom of the boiler 2. The outer shell 3, at its upper end, is deflected laterally and joined to the inner shell, thereby forming a support for the brackets 18 which are welded thereto and provided with apertures 19 to receive the rods 20 provided with the nuts 21 placed within the brackets. These rods pass through the apertured lugs 22 of the top head 23 and are provided with springs 24 and nuts 25. The head 23 is angularly recessed around its periphery as at 26 to receive an asbestos gasket 27 so that the head is sealed with respect to the upper end of the boiler 2. This head is provided with an exit passage 28.

A blower 29 is provided, which is automatically controlled in the conventional manner. The inner shell and the outer shell preferably taper upwardly, and a door frame 30 has its flanges secured to the base by means of fastening devices 31. The door frame 30 is provided with an annular chamber 32 which, as illustrated, is in free communication by means of the ports 33 with the chamber 8, and it is also provided with an annular port 34 thus terminating in a double wall, the outer wall of which is engaged by the door 35 having a gasket 36 to engage the outer wall, and

also provided with an insulated lining 37. By such construction, a port 38 is provided which permits the air to pass through the filling opening 39 into the combustion chamber 40 above the grate to provide air for secondary combustion and to cool the walls of the filling opening. The door 35 is hinged in any desired or conventional manner.

The air intake opening 41 for introducing air beneath the grates for primary combustion, receives, as illustrated, its air from the chamber 8, the air passing therefrom through the port 42 into the chamber 43 of the flanged ash pit door frame 44 which is secured to the shells by means of the fastening devices 45. The ash pit door 46 is recessed on its inner face to receive a gasket 47 which contacts with the outer wall of the door frame 44. The air passes through the air inlet opening 41 into the ash pit 48 beneath the grate to provide air for primary combustion. The doors are each preferably provided with clamping means shown in Figure 7, which has been omitted from the other figures for the sake of clearness of illustration. The doors, for example, the door 46, carry a manually rotatable member 50 to which is eccentrically pivoted at 51, one end of a lever 52 pivoted to the door at 53 and having a hook shaped end to engage a lug 54 on the door frame. In a similar manner, one end of a lever 55 has one end eccentrically pivoted at 56 to the member 50 and pivoted at 57 to the door, the hook shaped end being adapted to engage a lug 58 on the door frame. When the member 50 is turned in one direction the door is unclamped and when turned in the opposite direction the door is clamped and the gasket compressed to seal the joint between the door and its frame.

In the operation, it will be apparent that the introduction of air is automatically controlled in the conventional manner by controlling the blower 29, so that the air passes into the chambers 8 and 10 to surround the fire pot and the ash pit. The air then passes into the chamber 43 of the door frame 44 exerting a pressure against the gasket 47 to seal the joint between the ash pit door and its frame and if any air should escape it would be the fresh air and not the gases produced by combustion. The air then passes through the air inlet 41 into the ash pit 48 to provide air for primary combustion. The air also passes from the air chamber 8 into the chamber 32 of the door frame 30 of the filling door opening. If any air escapes it will be the fresh air introduced by the blower and not the ashes or the gases produced by combustion. The air then passes through the port 34 and the port 38 through the filling opening 39 into the combustion chamber 40 above the bed of fuel to provide air for secondary combustion.

In accordance with my present invention, the air for both primary and secondary combustion may be heated and permits only fresh air to pass the joints between the doors and their frames, and the direction of the flow of the air for combustion is toward the ash pit and toward the combustion chamber, thus tending to carry any ashes, dirt or products of combustion away from the doors, and also cooling the doors to prevent their buckling or warping.

The top head of the boiler is sealed by the gasket 27. The bottom of the boiler is sealed by the gasket 49 and the boiler is resiliently secured to the base. By such construction, I effectively prevent any escape of the gases pro-

duced by the products of combustion between the top head and the boiler and between the boiler and the base into the room in which the boiler is installed.

My present type of coal base can use coke as a fuel instead of the cheaper grades of coal, such as, buckwheat, rice or barley coal, and very little ash will be produced.

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

1. In a stove: a casing forming a fire pot with combustion chamber, ash pit and intermediate grate, there being provided in said casing a fuel opening into the combustion chamber and an opening into the ash pit, each of said openings including a hollow open-ended member projecting radially outwardly from the casing, a casing about the sides and bottom of the first-named casing to afford therewith a surrounding air chamber and through which the radially projecting members extend, a pair of door frames provided on the second-named casing and alined respectively with the fuel opening and the opening into the combustion chamber, doors movably secured to the respective door frames to seal the frame openings and displaced from the outer ends of the outwardly projecting members to provide air pockets thereat communicating with the said air chamber and the outwardly projecting members.

2. In a stove: a casing forming a fire pot with combustion chamber, ash pit and intermediate grate, there being provided in said casing a fuel opening into the combustion chamber and an opening into the ash pit, each of said openings including a hollow open-ended member projecting radially outwardly from the casing, a casing about the sides and bottom of the first-named casing to afford therewith a surrounding air chamber and through which the radially projecting members extend, the member projecting from the fuel opening being of refractory material, a pair of door frames provided on the second-named casing and alined respectively with the fuel opening and the opening into the combustion chamber, doors movably secured to the respective door frames to seal the frame openings and displaced from the outer ends of the outwardly projecting members to provide air pockets thereat communicating with the said air chamber and the outwardly projecting members.

3. In a stove: a casing forming a fire pot with combustion chamber, ash pit and intermediate grate, there being provided in said casing a fuel opening into the combustion chamber and an opening into the ash pit, each of said openings including a hollow open-ended member projecting radially outwardly from the casing, a casing about the sides and bottom of the first-named casing to afford therewith a surrounding air chamber and through which the radially projecting members extend, a pair of door frames provided on the second-named casing and alined respectively with the fuel opening and the opening into the combustion chamber, doors movably secured to the respective door frames to seal the frame openings and displaced from the outer ends of the outwardly projecting members to provide air pockets thereat, there being provided about each of the outwardly projecting members means affording an annular chamber communicating with the said air chamber and the said air pockets at the respective doors.