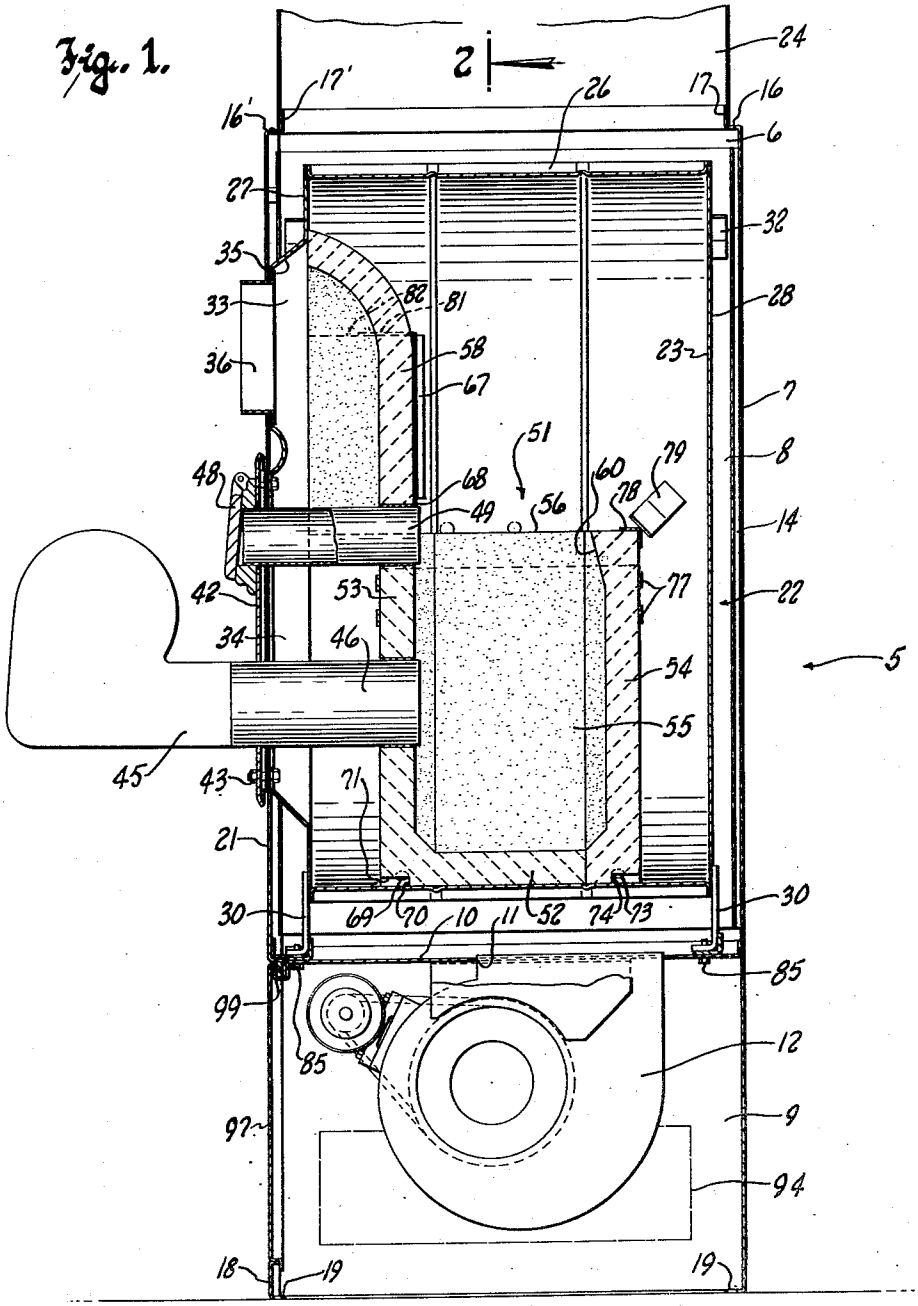
Oct. 1, 1957 R. C. JAYE 2,808,046

HOT AIR FURNACE

Filed May 9, 1956 5 Sheets-Sheet 1

Fig. 1.




Inventor
Richard C. Jaye
By Goodwillie & Jones
Attorney

Oct. 1, 1957 R. C. JAYE 2,808,046

HOT AIR FURNACE

Filed May 9, 1956 5 Sheets-Sheet 2

Fig. 2.

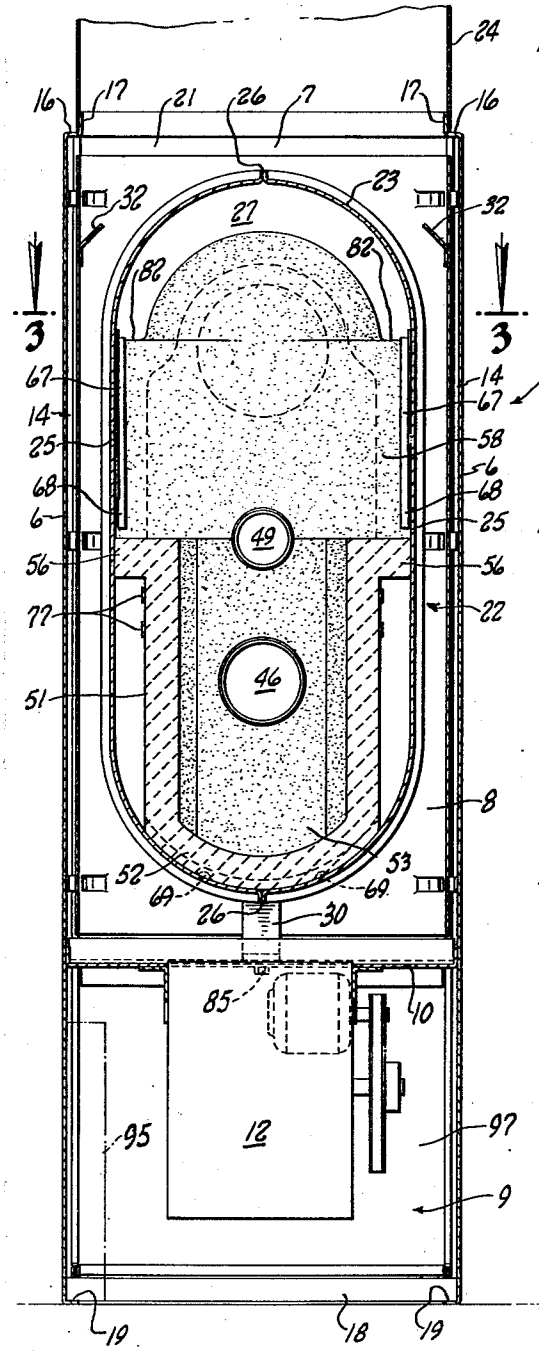
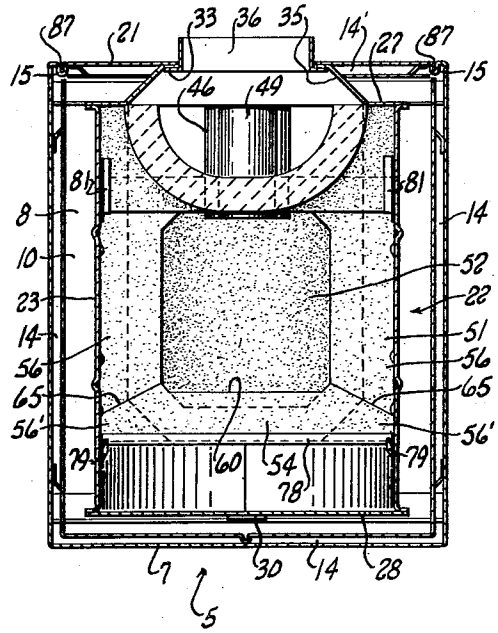



Fig. 3.



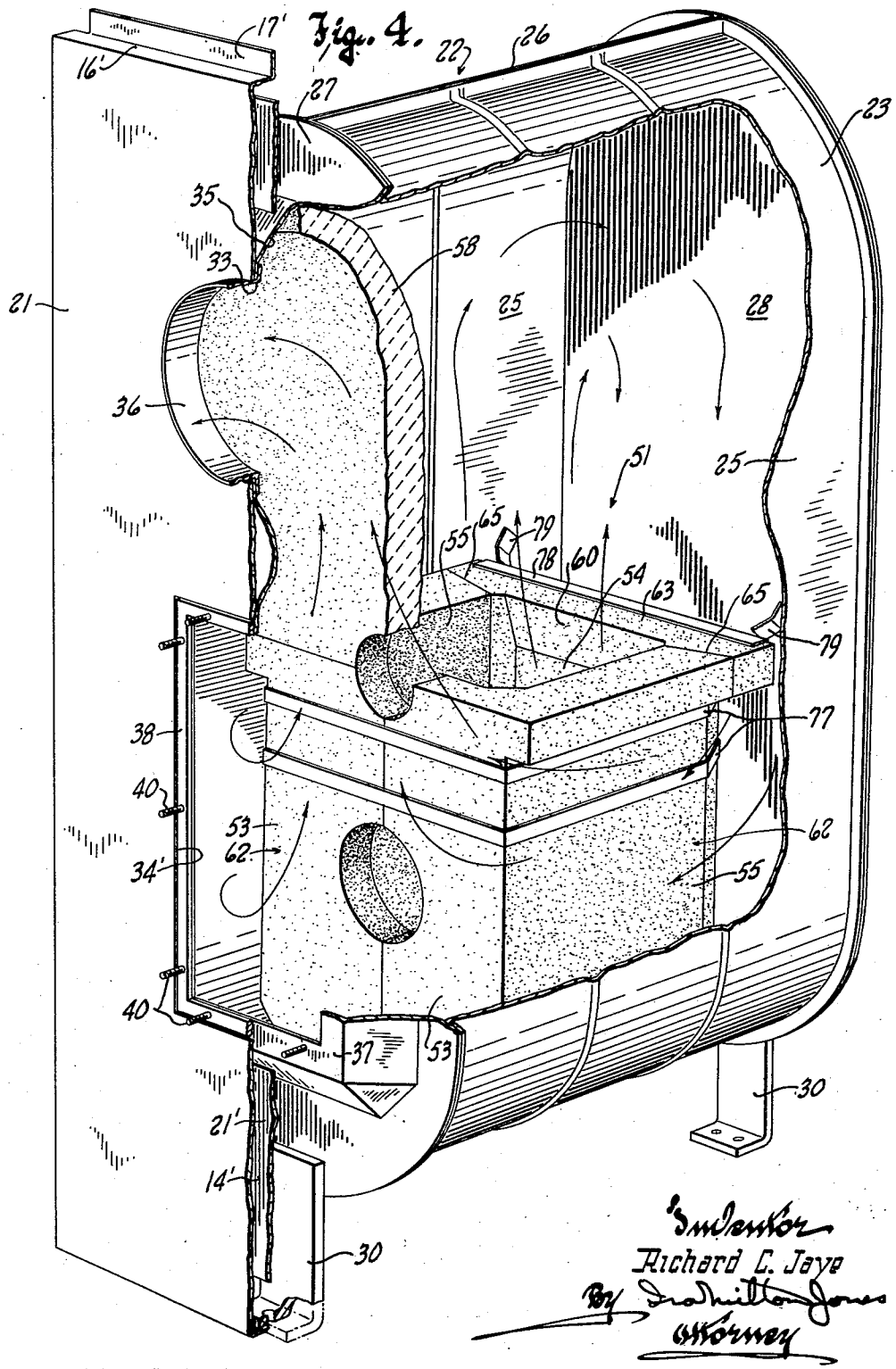

Inventor
Richard C. Jaye
By Ira Hilton Jones
Attorney

Oct. 1, 1957 R. C. JAYE 2,808,046

HOT AIR FURNACE

Filed May 9, 1956 5 Sheets-Sheet 3

Fig. 4.



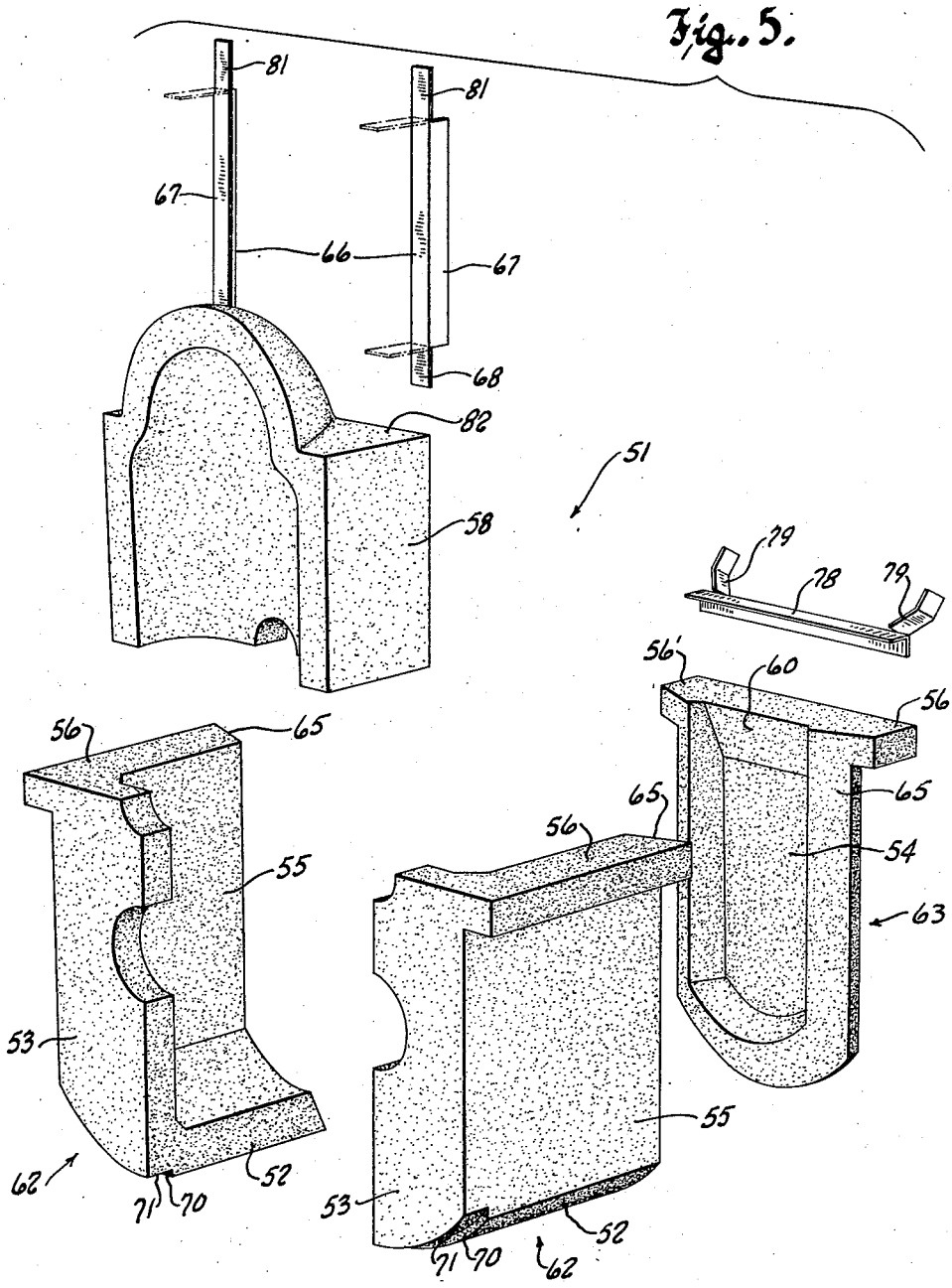

Inventor
Richard C. Jaye
By Drahuillon Jones
Attorney

Oct. 1, 1957 R. C. JAYE 2,808,046

HOT AIR FURNACE

Filed May 9, 1956 5 Sheets-Sheet 4

Fig. 5.




Inventor
Richard C. Jaye
By Drahuitte Jones
Attorney

Oct. 1, 1957 R. C. JAYE 2,808,046

HOT AIR FURNACE

Filed May 9, 1956 5 Sheets-Sheet 5

Fig. 6.

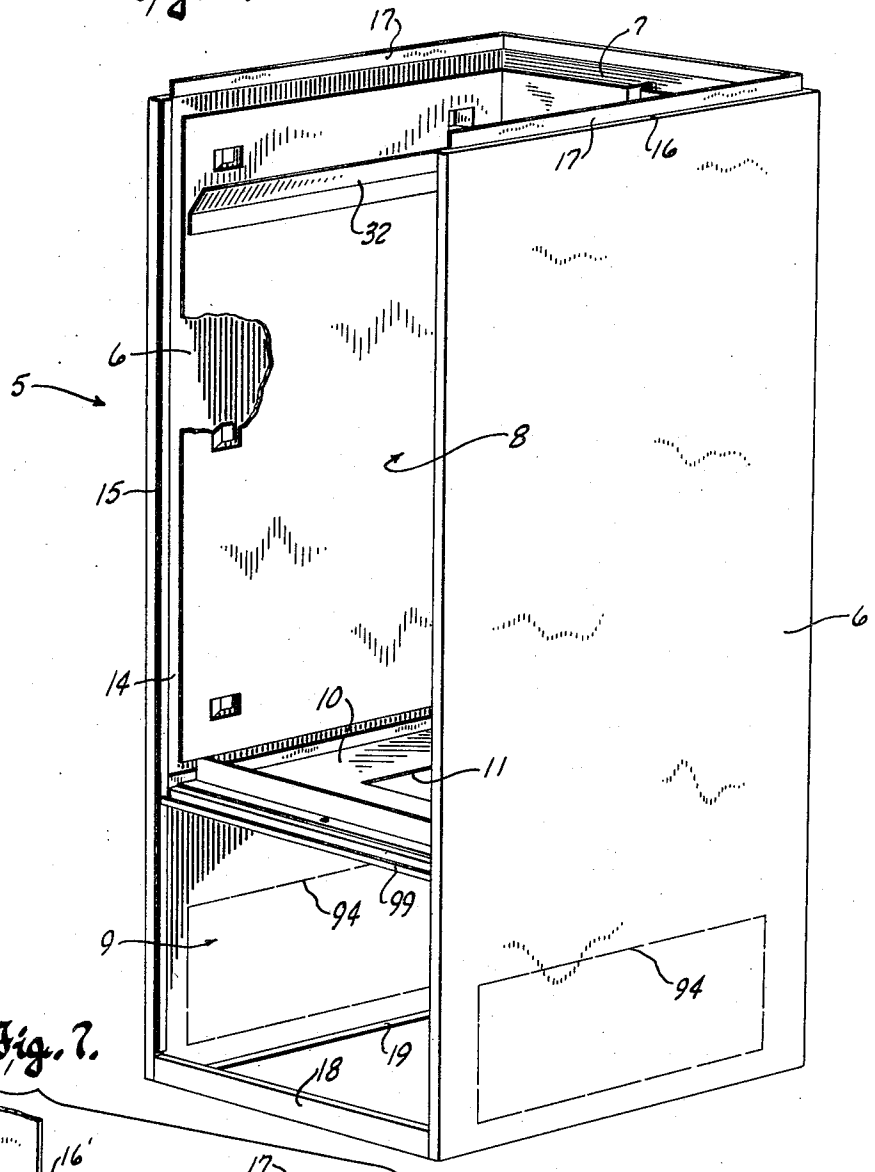
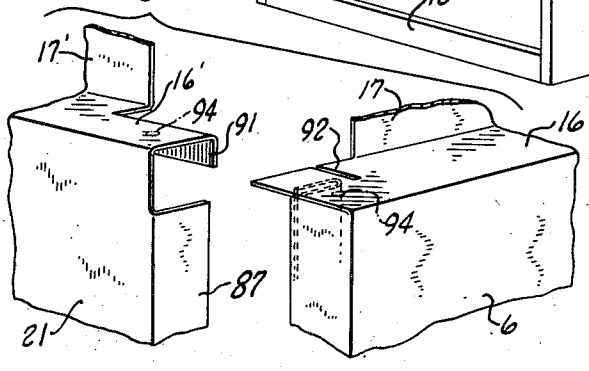



Fig. 7.




Inventor
Richard C. Jaye
By Dodge Hutton Jones
Attorney

United States Patent Office 2,808,046 Patented Oct. 1, 1957



2,808,046

# HOT AIR FURNACE

Richard C. Jaye, Watertown, Wis., assignor to Syncromatic Corporation, Watertown, Wis., a corporation of Wisconsin

Application May 9, 1956, Serial No. 583,833

5 Claims. (Cl. 126—116)

This invention relates to furnaces and has more particular reference to hot air furnaces of the type designed primarily for home heating.

In general, it is an object of this invention to provide an exceptionally compact hot air furnace which features simplicity and low cost of construction as well as improved efficiency.

More specifically, it is an object of this invention to provide a hot air furnace of the type comprising a casing having upright sheet metal walls defining a heating compartment open at its front, and featuring a novel heating unit adapted to be installed in the heating compartment as a unit and to close the open front thereof.

Another object of the invention resides in the provision of a heating unit, for hot air furnaces, which comprises a combustion gas chamber of sheet metal construction, and a fire pot of refractory material mounted in and occupying the lower portion of the combustion gas chamber and so shaped and constructed as to cooperate with the walls of the combustion gas chamber in assuring passage of combustion gases over all of the interior wall surfaces of the combustion gas chamber which are remote from the zone in the upper portion of the chamber at which maximum heating is adapted to take place, before discharge of the combustion gases from the heating unit, whereby the heat of said combustion gases is most efficiently transferred to the air to be heated through the walls of the combustion gas chamber.

Still another object of this invention resides in the provision of a novel heating unit for a hot air furnace of the character described, wherein a refractory partition extending transversely across the upper front portion of the combustion gas chamber cooperates with the front wall of the fire pot and with ledges on the opposite sides of the fire pot at its top, to constrain combustion gases accumulating in the upper portion of the combustion chamber above the fire pot to flow downwardly over the combustion gas chamber wall rearwardly of the fire pot, then forwardly along the opposite side walls of the combustion gas chamber, and finally, upwardly along the front wall of the combustion chamber in order to reach a flue gas discharge port in the upper front portion of the combustion chamber.

With the above and other objects in view which will appear as the description proceeds, this invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the hereindisclosed invention may be made as come within the scope of the claims.

The accompanying drawings illustrate one complete example of the physical embodiment of the invention constructed according to the best mode so far devised for the practical application of the principles thereof, and in which:



Figure 1 is a vertical cross sectional view through the furnace of this invention;

Figure 2 is a vertical sectional view taken through Figure 1 along the plane of the line 2—2;

Figure 3 is a cross sectional view taken through Figure 2 along the plane of the line 3—3;

Figure 4 is a perspective view of the heating unit, before installation into the heating compartment of the furnace casing, with portions of the heating unit broken away and shown in section;

Figure 5 is a separated perspective view of the various sections of refractory material which comprise the fire pot for the furnace;

Figure 6 is a perspective view of the casing per se of the furnace; and

Figure 7 is a fragmentary detail perspective view illustrating the manner in which the front panel on the heating unit is connected to the side walls of the casing at one front corner thereof, with the panel and casing portions shown separated from one another.

Referring now more particularly to the accompanying drawings in which like numerals designate like parts throughout the several views, the numeral 5 generally designates an upright casing of a type suitable for the furnace of this invention. The casing comprises a pair of substantially flat upright sheet metal side walls 6 and a back wall 7, defining a heating compartment 8 which opens to the top and front of the casing. While not essential to the invention, the casing may have sufficient height as to provide space for a blower compartment 9 in its bottom portion, the blower compartment also being open at the front of the casing. A horizontal shelf 10 fixed in the casing separates the blower and heating compartments and has a substantially large aperture 11 in its central portion through which air to be heated flows as it discharges from the mouth of a blower 12 secured to the underside of the shelf.

Following more or less conventional design, the upright walls 6 and 7 of the casing are of the double panel type so as to provide a substantially shallow air space 14 therebetween through which air may be circulated to prevent the exterior wall surfaces of the casing from becoming excessively hot during operation of the furnace. This air space, of course, is open at the upper and lower portions of the heating compartment.

At the front of the casing the outer side wall panels are bent inwardly a short distance toward one another and are shaped to provide narrow upright U-shaped channels 15 having their bight portions closely adjacent to the forward edges of the inner side wall panels, and providing narrow outwardly opening slots which extend continuously along the front edges of the casing side walls.

At the top of the casing, the outer panels thereof are bent inwardly a short distance to define a narrow horizontal ledge 16 and then upwardly to define a short upstanding flange 17 extending continuously around the three sides of the casing. An angle-shaped strip 18 is fixed across the front edges of the side walls at the bottom of the casing and cooperates with inturned flanges 19 on the side and back walls of the casing to provide a rigid frame upon which the casing seats.

As stated, the front of the heating compartment 8 is open, and according to this invention, it is adapted to be closed by a front wall or panel 21 upon installation of the heating unit 22 into the heating compartment. For this purpose, the panel 21 is permanently secured to the front of the heating unit 22 so as to form a sub-assembly therewith. The front wall 21 for the heating compartment is also of double panel construction, as seen best in Figures 3 and 4, to similarly provide a shallow air space 14' therein through which air may be circulated

to prevent the front of the furnace from becoming excessively hot.

At its upper end, the outer panel of the front wall **21** is also bent inwardly and upwardly to provide a narrow horizontal ledge **16'** and a short upstanding flange **17'** which cooperates with the upstanding flanges **17** on the side and back walls of the casing to provide a continuous short neck around the entire upper end of the casing. With the casing construction shown for illustration, this neck provides for connection of a heating duct **24** to the top of the furnace. As will be apparent from Figure 1, the front wall **21** has a height substantially equal to the height of the heating compartment so that its lower end terminates at the level of the shelf **10** at the bottom of the heating compartment.

The heating unit **22** is unique in that it comprises an upright sheet metal drum **23** of welded construction, providing a combustion gas chamber having opposite upright side walls **25** curved inwardly toward one another at the top and bottom of the chamber where they are joined together by a fore and aft welded seam **26**. Spaced substantially parallel front and rear walls **27** and **28**, respectively, are welded to the front and rear edges of the side walls.

The combustion gas chamber **23** is supported in the heating compartment **9** by front and rear legs **30** secured to and depending from the lower end of the chamber. The legs rest on and are secured to the front and rear portions of the shelf **10**, and mount the combustion gas chamber with its bottom in spaced relation to the shelf. The horizontal dimensions of the combustion gas chamber are such that the front, back and side walls thereof are spaced from the adjacent walls of the heating compartment and cooperate therewith to provide vertical passages through which air to be heated entering the bottom of the heating compartment may be circulated in heat transfer relation with all of the exterior wall surfaces of the combustion gas chamber. Air flowing upwardly through these passages is directed over the curved upper end of the chamber by deflectors **32** mounted on the opposite side walls of the heating compartment in the upper portion thereof.

The combustion gas chamber **23** is entirely closed except for upper and lower openings **33** and **34**, respectively, in the front wall **27** of the chamber. The upper opening **33** comprises the mouth of a short frustoconical duct **35** which is formed as a forward protrusion of the upper portion of the front wall leading to and registering with a flu gas discharge port **36** in the outer panel of the front wall **21**. At its mouth, this short duct has an inwardly directed annular flange seating flatwise against the outer panel, all around the edge of the port **36**, and welded thereto with a continuous gastight seam. The inner panel **21'** of the front wall, of course, is apertured to accommodate the duct **35** which, it will be appreciated, provides a flue gas discharge passage communicating the upper front portion of the combustion gas chamber with the flue gas discharge port in the front wall **21**.

The lower opening **34** in the front of the combustion gas chamber is much larger than the mouth of the flue gas duct **35** and is substantially rectangular in outline, having its greater dimension vertically. This opening is likewise formed at the mouth of a forwardly dished or protruding portion of the front wall of the combustion gas chamber, and which protrusion similarly terminates in an inwardly directed flange **37** flatwise abutting the rear of the outer panel **21** on the combustion gas chamber and welded thereto continuously along the marginal edge portions of a rectangular hole **34'** therein. The hole **34'**, however, is somewhat larger than the opening **34** so as to accommodate a sealing gasket **38** on the exterior of the flange **37**, in the space bounded by the hole **34'**, and a series of bolts **40** having their heads welded to the inner surfaces of the flange **37** and their stems passing forwardly through the flange and the sealing gasket **38** provide studs by which a rectangular closure **42** may be detachably secured in position covering these larger openings in the front of the heating unit and sealing the same against the escape of combustion gases therethrough. The closure **42**, of course, is provided with suitable holes to receive the threaded extremities of the bolts **40**, and the closure may be drawn tightly against the gasket by nuts **43** on the outer ends of the studs.

The closure **42** carries a burner unit **45** on its exterior which, in the present case, is illustrated as an oil burner assembly having a tubular nozzle **46** passing rearwardly through the closure and into the interior of the combustion gas chamber to supply an air-fuel mixture thereto. A short distance above the oil burner unit, the closure also has a hinged door **48** fixed on its exterior to provide access to an inspection tube **49** fixed on the closure and likewise projecting rearwardly into the interior of the combustion chamber so as to enable inspection of the combustion characteristics of the burner.

Both the inspection and burner tubes, of course, are secured in holes in the closure **42**, in gas tight relationship thereto, so as to prevent the escape of combustion gases from the heating unit.

The heating unit **22** also includes an upright refractory fire pot **51** of novel construction. The fire pot is mounted in the bottom portion of the combustion gas chamber to occupy substantially the lower half of the latter, and has a bottom wall **52** which conforms to the curvature of the bottom of the combustion gas chamber and seats directly thereupon. The entire outer surfaces of the substantially flat upright front and rear walls **53** and **54**, respectively, and the opposite side walls **55** of the fire pot are spaced from the adjacent lower wall portions of the combustion gas chamber except for substantially narrow fore and aft ledges **56** along the upper edges of the side walls which have their outer edges in engagement with the side walls **25** of the combustion gas chamber. The fire pot walls cooperate with the walls of the combustion chamber, therefore, to provide combustion gas passages around all four side of the fire pot.

Also mounted in the upper front portion of the combustion gas chamber and, in effect, forming a part of the fire pot, is a transverse partition member **58** of refractory material. This partition member seats on and provides an upward continuation of the front wall **53** of the fire pot, and it cooperates with the ledges **56** on the fire pot side walls to constrain combustion gases accumulating in the upper portion of the chamber above the fire pot to flow downwardly through the space between the back walls of the fire pot and combustion gas chamber, then forwardly through the spaces between both sides of the fire pot and the opposing combustion gas chamber walls and, finally, upwardly through the space between the front walls of the fire pot and the gas chamber in order to reach the flue gas duct **35** from whence the gases may issue through the flue gas discharge port **36** in the upper portion of the wall **21**. In order to assure such flow of combustion gases, the partition member **58** must be wide enough to span the entire transverse dimension of the combustion gas chamber, at least across a zone directly above the front wall of the fire pot upon which the partition seats. Also, the upper portions of the partition member must either extend upwardly in engagement with the side and top walls of the combustion gas chamber or its side and top portions must curve forwardly, as seen in section in Figures 1 and 3, to lie against the front of the combustion gas chamber around the junction of the flue gas duct **35** with the front wall **27** of the combustion gas chamber, so as to preclude direct communication between the flue gas duct and the space in the upper portion of the chamber above the fire pot.

As seen best in Figure 1, the inspection tube **49** passes inwardly through a hole in the front of the fire pot formed partly in the upper portion of its front wall **53** and the lower edge portion of the partition **58**. The nozzle **46**

of the burner unit also extends rearwardly through a hole in the front wall of the fire pot, in order that the flame which issues from its discharge end may be directed rearwardly into the interior of the fire pot. The flame impinges the rear wall **54** of the fire pot, and is deflected upwardly and forwardly out of the open top of the pot by means of a deflecting ledge **60** along the top inner surface of the rear wall **54**.

In the operation of the furnace, the flame issuing from the open top of the fire pot effects direct heating of the upper wall portions of the combustion gas chamber **23** so that the wall portions thereof above the fire pot become the most highly heated portion of the heating unit. In order to reach the flue gas discharge port **36**, the combustion gases accumulating in the upper portion of the combustion gas chamber, above the fire pot, must travel along tortuous paths which lead them across the surfaces of all the lower wall portions of the combustion gas chamber to most efficiently transfer their heat thereto. These hot gases are initially constrained to travel downwardly behind the fire pot, then forwardly along both sides of the fire pot, and finally upwardly along the front of the fire pot to the flue gas discharge port in the upper front portion of the heating unit.

The air to be heated enters the lower portion of the heating compartment **9** from the blower **12**, and flows upwardly over all of the exterior wall surfaces of the combustion gas chamber, and the heated air discharges from the top of the furnace into the heating duct **24**. It will be appreciated, of course, that the air to be heated may instead be directed downwardly over the combustion gas chamber in some installations, but the most advantageous temperature differential for efficient heat transfer is obtained when the air is first directed over the cooler lower wall portions of the chamber and then over the more highly heated upper wall portions of the combustion gas chamber.

One of the important features of this invention resides in the fact that the fire pot is made in sections, and that these sections, together with the partition **58**, may be assembled into the heating unit after fabrication thereof, through the large openings **34** and **34'** at its front. As shown best in Figures 4 and 5, the fire pot comprises two opposite side sections **62** and a back section **63**. Each of the side sections comprises a side wall **55**, one upright half of the front wall **53**, and one lateral half of the bottom wall **52**. Consequently, when the two side sections are brought together, the front and bottom wall portions of each complement one another to provide the front wall **53** and the bottom wall **52** of the fire pot.

The back section **63** abuts the rear edges of the side walls to complete the fire pot, and the abutting edges of the side and back sections are preferably angled, as at **65**, to provide a mitered corner joint shown best in Figure 3. The extreme rear portions of the ledges **56** are also provided by lateral extensions **56'** on the upper end of the back section **63**.

As stated, each of the sections of the fire pot is of a size to readily pass through the openings **34** and **34'** in the front of the heating unit. When the fire pot is assembled in the combustion gas chamber, the partition member **58** is first inserted through the opening **34** and is then lifted upwardly to a position in the top of the combustion gas chamber ahead of the inwardly projecting legs **66** of upright angle-shaped strips **67** secured to the side walls of the chamber. These strips hold the partition member against the front wall of the chamber, and it is held in a temporary elevated position by bending tabs **68** on the lower ends of the strips upwardly and forwardly beneath the bottom of the partition member.

With the partition member **58** thus temporarily installed in the combustion gas chamber, the rear section **63** of the fire pot is next passed through the hole **34** in the front of the heating unit and temporarily placed in an upright position on the bottom wall of the chamber,



with its back **54** closely adjacent to or leaning against the rear wall **28** of the chamber. The two side sections **62** of the fire pot are next separately inserted through the opening **34** and placed in their proper mating positions seating on the bottom of the chamber, but with their fore and aft positions accurately defined by the engagement of indentations **69** in the bottom wall of the chamber with a forwardly facing abutment **70** on the lower edge of the front wall **53** of the fire pot. A recess **71** in the bottom of the front wall **53**, opening forwardly and downwardly, provides the abutment **70**.

The back section **63** is then moved forwardly into position closing the rear of the fire pot, and this position of the rear section is defined by the engagement of indentations **73** in the bottom wall of the chamber with a rearwardly facing abutment **74** on the bottom of the rear wall **54**.

Not only are the cooperating sections of the fire pot held in their proper positions frictionally by the engagement of detent-like indentations **75** and **76** on the side walls of the combustion gas chamber with the upper edges of the ledges **56**, but a more permanent securement for the sections is afforded by banding them together, as at **77**, after they are in place in the combustion gas chamber. Cooperating with the detents **75** and **76** to hold the fire pot against displacement and vibration, is an angle iron **78** which is nested over the upper rear edge of the rear wall **54** of the fire pot, and this angle iron is clamped in place against the back section to exert downward and forward pressure upon the same by means of tabs **79** welded to the opposite side walls of the combustion gas chamber and having their free end portions bent over against the back corner of the angle iron, as seen best in Figures 1 and 5.

After the fire pot has been installed as described, the partition member **58** is next released from its temporary elevated position by bending back the tabs **68** and lowering the partition member **58** down upon the front of the fire pot so that the rear wall of the partition member in effect forms an upward continuation of the front wall of the fire pot. When the partition member has thus been properly located, tabs **81** on the upper ends of the strips **67** are bent forwardly and downwardly over horizontal shoulders **82** on the opposite side portions of the partition member to maintain the latter against displacement.

The assembly of the fire pot in the combustion gas chamber, of course, is effected with the front wall **21** in place and permanently secured to the front of the heating unit, but before the closure **42** is secured to the front of the heating unit in position closing the openings **34** and **34'** therein. The closure **42** may also be a sub-assembly having the burner assembly **45** and the inspection tube **49** with its door **48** secured thereto at the time it is applied to the front of the heating unit and fastened by means of the studs **40** and nuts **43**.

When the entire heating unit consisting of the combustion gas chamber, the fire pot and the closure assembly **42** has been subassembled, it is inserted into the heating compartment **8** in the casing from the front thereof, as a unit. The legs **30** on the combustion gas chamber support the unit on the shelf **10**, and the front wall **21** cooperates with the front edges of the casing side walls **6** to close the front of the heating compartment.

The heating unit is secured in its proper position within the heating compartment by cap screws **85** passing upwardly through suitable holes in the shelf **10** and received in threaded apertures in the horizontal flanges of the legs **30**. Also, in the assembled position of the heating unit, a rearwardly bent flange **87** along the entire length of each side edge of the front wall **21** is snugly received in the narrow outwardly opening slot provided by the channel **15** on the front edge portion of the adjacent side wall **6**, to provide an interlocking connection between the front wall **21** and the casing.

As shown best in Figure 7, the upper edge portion of the front wall **21** has a narrow horizontal ledge **16'** at

the base of its short upstanding flange **17'**, which rests upon the horizontal ledges **16** on the tops of the casing side walls near their fronts, to help support the heating unit on the casing. As the opposite side edge portions of the front panel, the ledges **16'** thereof are provided with tabs **91** which project downwardly into slits **92** cut in the ledges **16** on the casing side walls to securely hold the front wall **21** against separation from the front of the casing. It is understood, of course, that when the heating unit is assembled in the heating compartment, the downturned tabs **91** are first engaged in the slits **92**, while the heating unit is held tilted slightly but nearly entirely within the heating compartment. After assembly, holes indicated at **94** in Figure 7, may be drilled into the overlapping ledges **16** and **16'** at the upper front corners of the casing, to receive self-tapping screws which serve to tightly hold the front wall **21** in place and keep it from vibrating when the furnace is in operation.

Referring to Figure 6, it will be noted that the side wall portions of the casing which define the blower compartment **9**, are partially sheared through, as indicated by the dotted lines **94**, so that either side of the blower compartment may be knocked out to provide a hole through which air may enter the blower compartment. A filter, indicated at **95** in Figure 2, may be inserted into the blower compartment in a position covering the air inlet opening therein, to clean all of the air to be heated.

The open front of the blower compartment **9** is also adapted to be closed and, for this purpose, a closure member **97** is provided which cooperates with the front wall **21** on the heating unit to close the entire open front of the casing. The closure **97** may be a simple sheet metal panel having a hook-like upper edge which may be engaged over an upstanding lip **99** on the front edge portion of the shelf **10** to support the closure on the casing. Rearwardly directed flanges (not shown) along the opposite side edges of the closure **97**, like the flanges **87** on the front wall **21**, are also snugly receivable in the outwardly opening slits provided by the channels **15** on the front edge portions of the casing side walls, to provide an interlocking connection between the side edges of the closure **97** and the casing.

From the foregoing description taken together with the accompanying drawings, it will be readily appreciated by those skilled in the art that this invention provides an exceptionally simple, compact and low cost hot air furnace which features a heating unit capable of installation in the heating compartment of the furnace as a subassembly, and further featuring a fire pot of refractory material in the combustion chamber of the heating unit, and which cooperates with the walls of the combustion chamber in a unique manner to assure exceptionally good transfer of heat from the combustion gases passing to the flue discharge port to all those wall portions of the combustion gas chamber which are remote from the zone in the upper portion of the chamber at which maximum heating takes place.

What is claimed as my invention is:

1. In a heating unit for a hot air furnace: a metal combustion gas chamber for heating air circulated over its exterior, said combustion gas chamber having a bottom and substantially upright front, rear and side walls and having a flue gas discharge opening in the upper portion of its front wall; an upwardly opening refractory fire pot mounted in and occupying the lower portion of the combustion chamber, said fire pot having substantially upright walls at its front, rear and sides which extend to the bottom of the combustion gas chamber but are spaced from the adjacent upright walls of the combustion gas chamber and cooperate therewith to define combustion gas passages extending entirely around said upright walls of the fire pot; means in the combustion chamber closing the space between only the upper end portions of the fire pot side walls and the adjacent side walls of the combustion gas chamber; and refractory partition means in the upper front portion of the combustion gas chamber cooperating with the front wall of the fire pot to provide an upright flue gas passage in the front of the combustion gas chamber having its upper end portion communicating only with the flue gas discharge opening and having its lower end portion communicating only with the combustion gas passages at opposite sides of the fire pot, whereby combustion gases in the chamber above the fire pot are constrained to flow along tortuous paths leading downwardly through the passage at the rear of the fire pot, forwardly through the passages at both sides of the fire pot, and finally upwardly through said flue gas passage in the front of the combustion gas chamber in order to reach said flue gas discharge opening, so that all of those upright wall portions of the combustion gas chamber which are remote from the zone above the fire pot at which maximum heating takes place are swept by the hot combustion gases to have the heat of said gases transferred thereto during their passage to the flue gas discharge opening.

2. The heating unit set forth in claim 1 wherein said space closing means comprises integral outwardly projecting ledges extending fore and aft along the upper ends of the fire pot sides, said ledges having their outer edges in engagement with the adjacent side walls of the combustion gas chamber.

3. The heating unit set forth in claim 1 further characterized by the fact that the fire pot is comprised of complementary upright sections, and by the fact that the front of the combustion gas chamber has a hole therein beneath the flue gas discharge opening and large enough to enable the complementary fire pot sections and said partition means to pass therethrough for assembly in the combustion gas chamber; and further characterized by the provision of detachable means on the front of the combustion gas chamber closing said opening.

4. In a hot air furnace: a sheet metal casing defining an upright heating compartment having front, back and side walls, the front wall having a flue gas discharge port in its upper portion; a heating unit in said compartment including an upright sheet metal combustion gas chamber having a bottom and front, back and side walls spaced from the adjacent walls of the heating compartment and cooperating therewith to provide air heating passages through which air to be heated may be circulated in heat transfer relation with the walls of the combustion gas chamber, and an upwardly opening refractory fire pot mounted in and occupying the lower portion of said combustion gas chamber, said fire pot having upright front, back and side walls which are spaced from the adjacent walls of the combustion gas chamber except along the upper and lower end portions of the fire pot side walls, and cooperate therewith to define gas passages leading downwardly behind the fire pot from the space thereabove, forwardly along both sides of the fire pot, and upwardly along the front of the fire pot; means fixed in fluid tight relationship with the front walls of the casing and the combustion gas chamber providing a flue gas duct registering with the discharge port in the casing for conducting flue gases in the gas chamber out of the furnace; transverse partition means of refractory material mounted in the upper front portion of the combustion gas chamber and seated on the fire pot so as to cooperate with the front wall of the combustion gas chamber to provide an upward extension of the gas passage at the front of the fire pot leading only to said discharge port, said partition means blocking off direct communication between the space above the fire pot and the discharge port and thereby constraining combustion gases accumulating in the chamber above the fire pot to flow along tortuous paths leading downwardly along the passage at the rear of the fire pot, forwardly along the passages at both sides of the firepot, and finally upwardly through said passage in the front of the gas chamber in order to reach the flue gas discharge port, so that all of those upright side wall

portions of the combustion gas chamber which are beneath the level of the top of the fire pot are swept by the hot combustion gases to have the heat of said gases transferred thereto during their passage to the flue gas discharge port; and burner means mounted on the front wall of the casing beneath the flue gas discharge port therein and having a part projecting rearwardly through said gas passage at the front of the fire pot and through the front wall of the fire pot to the interior thereof, for supplying an air-fuel mixture to the interior of the pot.

5. The furnace set forth in claim 4 further characterized by the fact that the front wall of the casing is permanently secured to the front of the combustion gas chamber and forms a sub-assembly therewith.



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