

July 14, 1936.

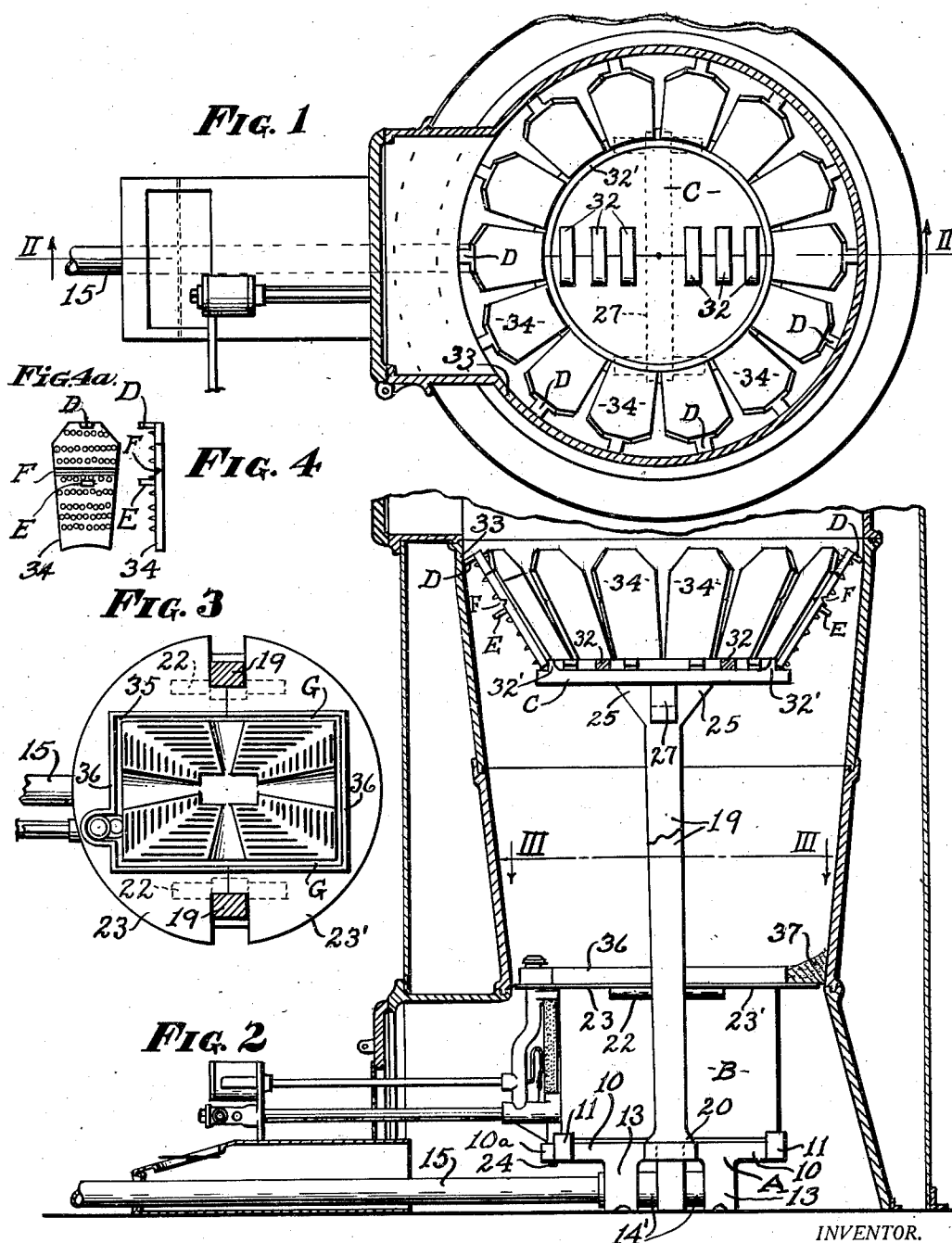
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2,047,751

BAFFLE PLATE AND RADIANT FOR GAS HEATERS

Filed Oct. 11, 1933

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

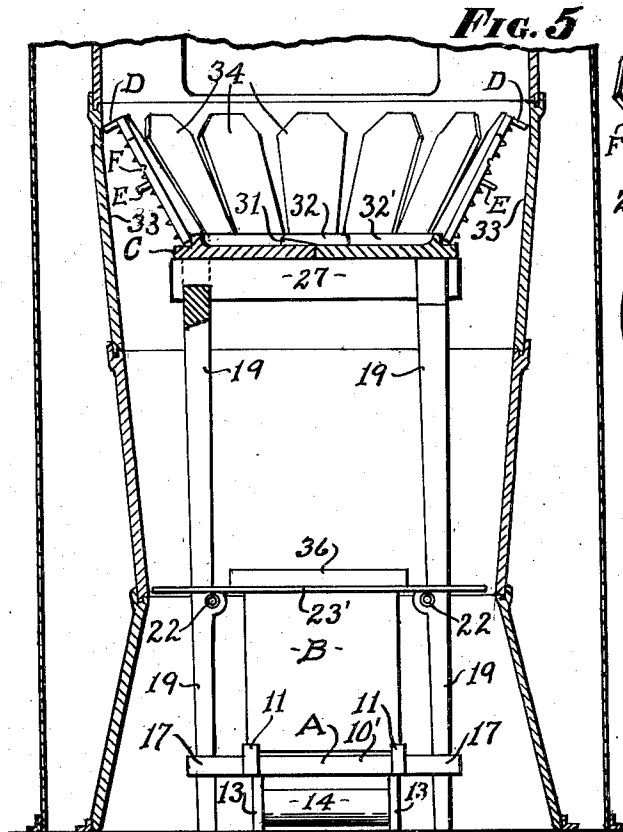
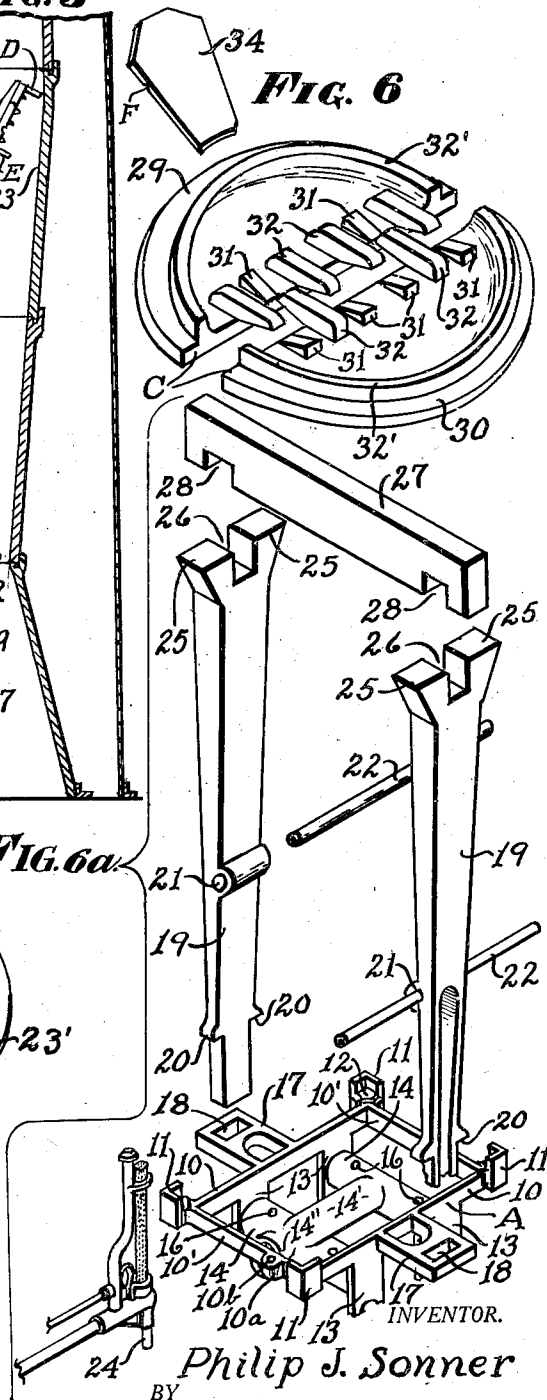
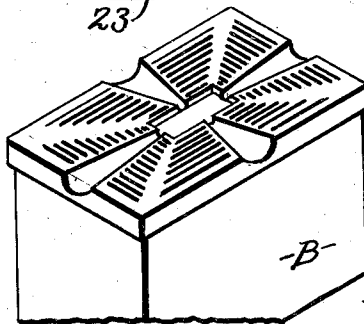
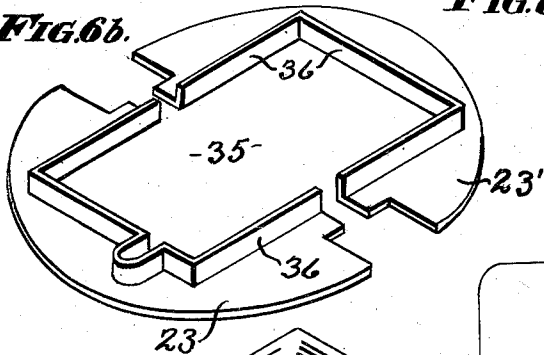


FIG. 6b.



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2,047,751

BAFFLE PLATE AND RADIANT FOR GAS HEATERS

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Application October 11, 1933, Serial No. 693,129

5 Claims. (Cl. 158—7)

This invention relates to baffle plates and radiants for use in connection with gas burner installations in furnaces and the like. The objects of my invention are to provide baffle plates and radiants positioned in relationship to a gas burner so that air currents are introduced at the most advantageous points to aid combustion of the burning gases.

Another object is to provide a system of baffle plate and radiants that are so arranged that the heat from the burning gases will be thrown against the walls of the furnace and be radiated therefrom for heating purposes thereby increasing the heating efficiency of the furnace. These and other objects of my invention will be more fully explained as this description progresses.

Now referring to the drawings in which like reference characters represent the same parts throughout the several figures, Fig. 1 is a plan view of my invention installed in a heating furnace, the furnace being shown in section. Fig. 2 is a sectional view of my invention as seen from the line II—II in Fig. 1. Fig. 3 is a sectional plan view of my invention as seen from the line III—III in Fig. 2. Figs. 4 and 4a are detail views of one of the several radiants, Fig. 4a showing a face view of the under side of one of the several radiants and Fig. 4 an edge view of one of the several radiants. Fig. 5 is a sectional view taken at right angles from that shown in Fig. 2. Fig. 6 is a detail perspective view of the baffle plate and one of the radiants associated therewith. Fig. 6A is an exploded perspective view of the assembly of the baffle and closure plate supporting elements, the burner support and pilot light. Fig. 6B is a detail perspective view of the plate elements. Fig. 6a is a perspective view of the gas burner element.

At A is shown a supporting frame work in which is seated a box-like gas burner element B. The frame work element A is provided with side rails 10 and end rails 10' having corner guides 11 at the corners of said frame, said corner guides having raised seats 12 formed therein on which rest the corners of the burner box B. At 13 are leg elements that are integral with the side rails and support the frame structure. Between the legs 13 and integral therewith are gas manifolds 14 which are joined together by a manifold element 14'. At 14'' is an extension of the manifold 14' into which a pipe 15 may be screwed as a means of feeding gas to the gas manifolds. The gas manifolds 14 are provided with holes or jets 16 for the purpose of feeding gas to the box-like gas burner element B. Integral with the side

rails 10 are outwardly projecting elements 17 having holes 18 therein to receive and hold the lower end of the supporting elements 19. On one of the end rails 10' is an outwardly projecting element 19a in which is a hole 10b which is adapted to receive and hold a pin 24 which is a part of a pilot light and thermostat device. The pin 24 is entered and held in the hole 10b as a means of supporting the pilot light and thermostat element and holding it in its proper position in relation to the box-like gas burner element B. There are two of the supporting elements 19, the lower ends of which are so positioned as to enter and be received in the holes 18, there being shoulders 20 formed on the elements 19 to rest upon the elements 17. At 21 are holes in the supporting elements 19 through which are passed pipes or rods 22 which support the plate elements 23 and 23'. The upper ends of the elements 19 are flared outwardly as at 25 and are provided with notches 26 which are adapted to receive and hold a cross bar 27. The cross bar 27 is provided with notches 28 which receive and hold the upper ends of the support elements 19 from spreading or moving toward each other. When the cross bar is fitted into the notches 26 the upper face of the cross bar 27 and the upper faces of the flared ends 25 are flush and on these rests a circular baffle plate C which is composed of two halves 29 and 30. The object of making the baffle plate C in two pieces is that the part 29 and 30 are small enough that they may be passed through the furnace door after which they may be assembled to form the composite baffle plate C. On the baffle plate sections 29 and 30 are a series of lugs 31 and fingers 32 which overlap the joint between the plates 29 and 30 and rest on the lugs 31 as a cantilever connection between the two plates 29 and 30. On the upper face of the two plates 29 and 30 is a raised circular rib 32' which is located just inside the edge of the baffle plate C and leaving an outwardly extending flange-like element around the baffle plate C. Resting on the flange-like element and leaning against the walls 33 of the furnace is a series of radiants 34 that are spaced a short distance from each other to provide spaces therebetween and also to form a circle of radiants around the baffle plate C, each one leaning against the tapered in from, and have the top corners beveled, as shown in Fig. 4a. Attention is called to the way the radiants are made, that is, they are provided with two outwardly extending lip-like elements D and E and at F is a V-shaped groove positioned just above the lip E. The reason for

this is that some furnaces are smaller in diameter than others and in the case of a smaller furnace the radiants might stand too straight up and in a case like this the radiant could be struck with a hammer and broken off along the V-shaped groove and thereby shorten the radiant to the proper length. The object of the lips D and E is to provide something to rest against the walls of the furnace and prevent the upper edge of the radiant resting against the furnace wall. This provides a passage between the furnace wall and the end of the radiants so that the heat from the burning gas will be thrown against the furnace wall and be given off for heating purposes.

As previously explained, the box-like gas burner element B is held and supported in its proper position by the frame element A, and supported on the pipe or rod elements 22 is a two piece closure plate element 23 and 23'. This element 23 and 23', when placed in position on the rod elements 22, is provided with a rectangular opening 35 which is larger than the top of the box-like burner element, therefore a space G is left between the edge of the opening 35 and the top of the box-like gas burner element. The space G provides a passage for air to come up around the sides of the box-like gas burner element and act as a secondary air supply for the combustion of the gaseous fuel above the gas burner top. The opening 35 is bounded by an upwardly extending flange 36.

When this gas burner and baffle equipment is installed in a furnace the closure plate 23 and 23' is located approximately where the grates would normally be, therefore it is desirable to create all the heat within the space at and above the closure plate 23 and 23' and it is a fact that the heat is created in this space, therefore the closure plate 23 and 23' becomes heated to a degree probably higher than is desirable, therefore

the space between the flange 36 and the wall of the furnace may be filled with asbestos plaster or the like as illustrated at 37 as a protective means for the plate element 23 and 23' and as a sealing means between the walls of the furnace and the closure plate 23 and 23'.

Such modifications of my invention may be employed as lie within the scope of the appended claims without departing from the spirit and intention of my invention. Now having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a furnace, a heating device, comprising the combination of a burner, a frame for the support of said burner and means for supplying fuel to said burner, a pair of standards, said standards being supported by said frame, a pair of plates, said plates being supported by said standards and being positioned intermediate the ends of said standards, means in said plates to receive the top portion of said burner and to provide an air passage space therearound, a baffle plate, said baffle plate being supported at the upper ends of said standards and over said burner, a series of radiants, one end of each of said radiants resting on said baffle plate and the other end leaning against the wall of the furnace.

2. A furnace as in claim 1, said radiants being spaced apart.

3. A furnace as in claim 1, said baffle plate being made in sections.

4. A furnace as in claim 1, said baffle plate being made in sections, means on said sections for engaging each other so that said sections may be uniformly placed and held together to form the composite baffle plate.

5. A furnace as in claim 1, having a fire pot and means for forming an air tight joint between said fire pot and the first said pair of plates.

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