Dec. 4, 1951 V. V. K. RÄSÄNEN 2,577,268

FURNACE BAFFLE FOR REMOVAL OF FLY ASH

Filed Dec. 12, 1945

FIG. 1

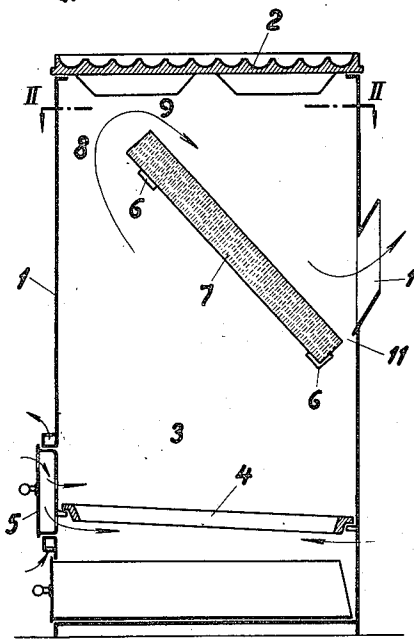


FIG. 2

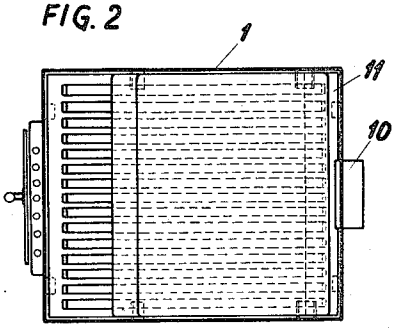
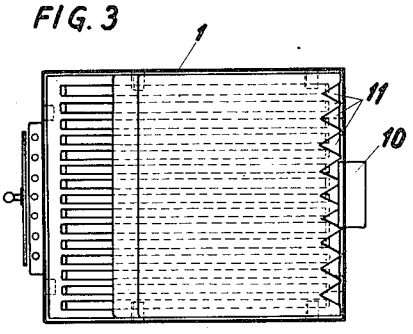


FIG. 3



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FURNACE BAFFLE FOR REMOVAL OF FLY ASH

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4 Claims. (Cl. 158—83)

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The present invention relates to a furnace, a bath-room stove or the like heating-apparatus provided with a plate of fire-proof material placed over the fire-chamber and slanting downwardly towards the rear of the furnace, said plate being adapted to conduct combustion products, passing to a flue, over the upper end of the plate.

The special features of the invention reside in the novel positioning of the plate, and the novel construction of the lower end thereof, which provide a sufficiently large opening between said plate and the rear wall of the furnace to allow the quick ash, falling on the surface of the plate, to glide directly down into the fire chamber.

Proceeding now to a more detailed description reference will be had to the accompanying drawing wherein

Fig. 1 is a vertical sectional view of the furnace,

Fig. 2 is a sectional view along line II—II of Fig. 1 and

Fig. 3 is a traverse sectional view of a modification of the furnace.

Referring particularly to the drawing, similar numerals refer to similar parts throughout the several views. 1 designates the casing, which may be of cast iron or sheet metal, preferably rectangular in transverse sectional view, provided at its upper end with a cover 2 and at its lower end with a fire chamber 3, with grate 4 and a door 5. 6 designates supports for a plate 7 of fire-proof material, removably fitted thereon. In the form of the device shown in Fig. 1, the plate 7 is placed in a forwardly inclined position in relation to the opening of the fire chamber and the sides of said plate touch the inner surface of the casing 1. An opening 8 is formed between the upper edge of said plate 7 and the front wall of the casing 1 and an opening 9 between the upper edge of said plate 7 and the cover 2. 10 designates the flue and 11 a space or gap between the rear wall of the casing 1 and the upper edge of the lower end of the plate 7, thru which the quick ash falling on the plate 7 can glide down into the rear part of the fire chamber 3.

The flow of air and combustion gases is illustrated by arrows in Fig. 1. The combustion gases formed in the fire chamber 3 pass through openings 8 and 9 and escape thru flue 10.

In accordance with both forms of the invention as embodied in the drawing the lower or bottom surface of the plate 7 is a planar surface and this surface acts as a guide to direct the combustion gases upwardly toward the front of

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the furnace so that they pass through the openings 8 and 9 and then descend downwardly toward the flue 10. The side edge of the plate adjacent the flue is spaced therefrom as in Figures 1 and 2 and the straight marginal edge is thereby disposed a distance away from the rear wall of the furnace such that while quick or fly ash can pass therethrough into the rear part of the fire chamber 3 this distance is considerably less than the extent of the openings 8 and 9 so that the main draft of the furnace will be toward the openings 8 and 9 and thus the tendency of the gases to pass directly out through the opening 11 will be minimized since the flow of gases will be toward the front of the furnace.

The space or gap 11 can be modified to provide holes or the like, by slotting or indenting the lower edge of the plate 7, as shown in Fig. 3, so that the edge of the serrations of the plate touches the rear wall of the casing 1 quite close to the lower edge of the flue 10, or underneath it.

Having described what is considered the preferred embodiment of this invention, I declare that various modifications in positioning and arrangement of parts may be resorted to within the scope and spirit of the appended claims.

Having thus described my invention, what I claim is:

1. A furnace structure including spaced parallel side walls, opposite front and rear walls and a top, a flue opening through the rear wall at a position spaced downwardly from said top, a plate having parallel planar upper and lower surfaces and parallel opposite edges disposed in said furnace on an angle extending downwardly from adjacent the front wall toward the rear wall with the uppermost edge of said plate being spaced from the top and front wall and the lowermost edge of the plate being disposed adjacent the lower edge of the flue opening, said plate having parallel side edges and a width such that the said side edges contact the adjacent side walls of the furnace so that the plate extends in spaced relation relative to the top and front wall of the furnace but extends between the side walls so that combustion gases are directed by the lowermost planar surface toward the front and top of the furnace and pass between the plate and the top and thence downwardly toward the flue, the marginal edge of the plate immediately adjacent the lower edge of the flue opening being serrated, the serrations extending along said last named edge so as to define with said rear wall a plurality of openings of a size sufficient to permit fly ash passing therethrough down into the area

of the furnace beneath the plate but of such reduced size in relation to the area between the opposite marginal edge of the plate and the top of the furnace that the major draft of the furnace is directed over the said edge of the plate adjacent the top.

2. A furnace structure as defined in and by claim 1 in which the tips of the serrations on the plate contact the rear wall of the furnace immediately adjacent said lower edge of the flue.

3. A furnace structure as defined in and by claim 2 and means removably supporting said plate within said furnace.

4. A furnace structure including a front and rear wall and parallel opposite side walls and a top, a flue opening through said rear wall at a position spaced from said top, a plate in said furnace having upper and lower planar surfaces and parallel side edges with the side edges in contact with the side walls of the furnace and extending therebetween, said plate being disposed at an angle directed downwardly from adjacent the front wall of the furnace toward the rear wall and having upper and lower parallel end edges, said parallel end edges extending at an angle perpendicular to said planar surfaces and said upper end edge being spaced from the front and top of the furnace and cooperating with the lowermost planar surface to provide combustion gas directing surfaces whereby the gases are directed upwardly toward the front and top of the furnace and thence pass downwardly over the opposite upper planar surface toward the flue, and means defining a fly ash discharge outlet extending at least substantially throughout the width of the plate adjacent the lower edge of the flue opening, said outlet having a size considerably less than the space between the top and front wall of the furnace and the adjacent edges of the plate.

VEIKKO VÄINÖ KAUKAMO NÄSÄNEN.

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