

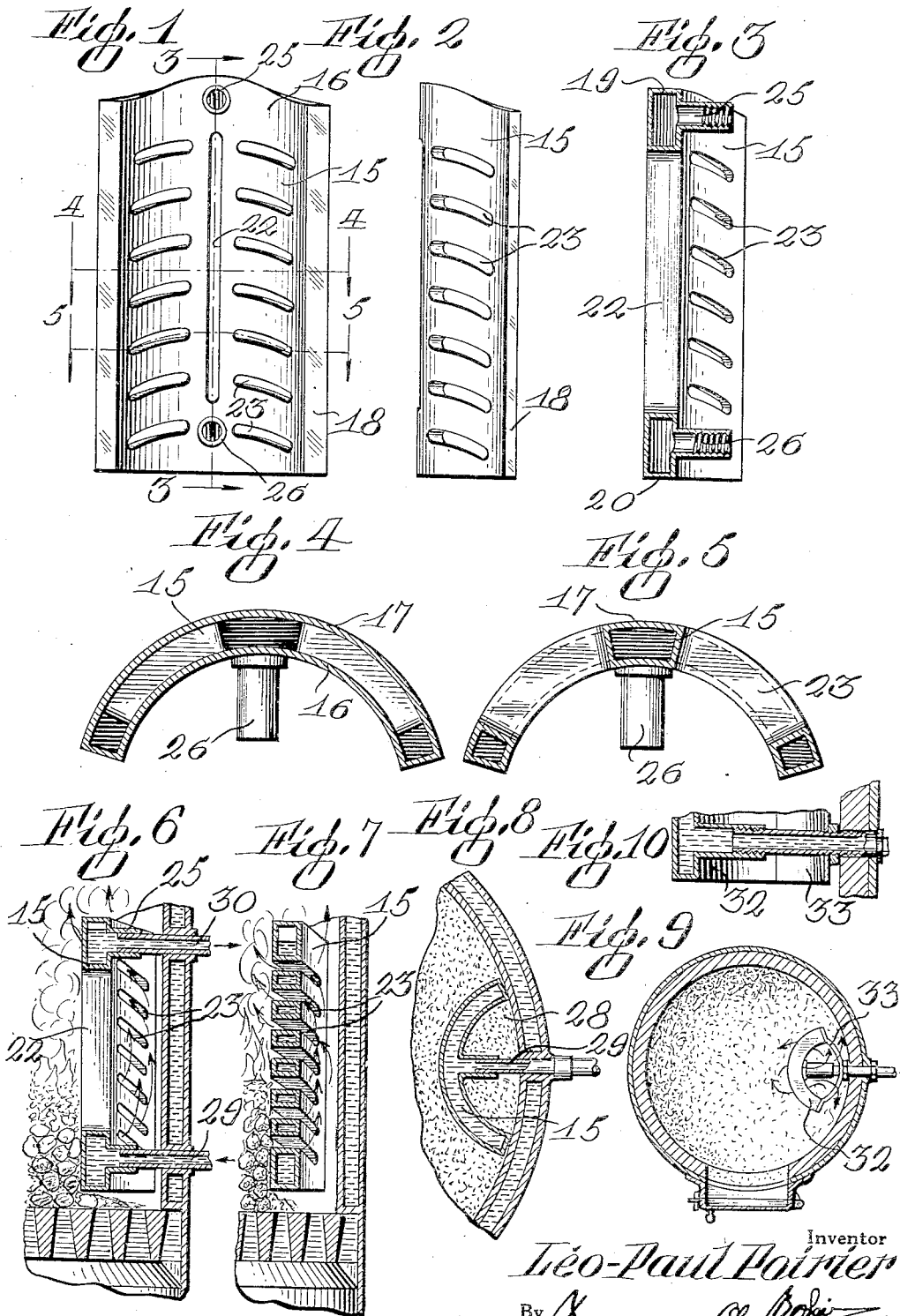
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WATER HEATER

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WATER HEATER

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3 Claims. (Cl. 122—20)

The present invention relates to improvements in water heaters for furnaces and the like.

5 An object of the invention is the provision of a water heater constructed so as to provide a relatively high heating efficiency.

Another object of the invention is the provision of a water heater which is capable of functioning as a flue to liberate gases from a fuel bed.

10 A further object of the invention is the provision of a water heater which is formed with a transverse curvature and is provided with through slots for the circulation of heat there-through.

15 Still another object of the invention is the provision of a water heater of the aforesaid character which may be easily mounted in operative position or removed from a furnace or similar heating means.

20 Other objects and advantages of the invention will become apparent as the description progresses.

In the accompanying drawing forming a part of this specification and in which like reference characters are employed to designate corresponding parts throughout the same:

25 Figure 1 is an interior elevation of the preferred form of heater,

Figure 2 is a side elevational view of the same,

30 Figure 3 is a longitudinal section taken on the line 3—3 of Figure 1,

Figure 4 is a section taken on the line 4—4 of Figure 1,

Figure 5 is a section taken on the line 5—5 of Figure 1,

35 Figure 6 is a central longitudinal section through the heater installed in a hot water furnace,

Figure 7 is a similar section taken at one side of the centre line,

40 Figure 8 is a horizontal section through the upper part of the heater installed in a furnace,

Figure 9 is a horizontal section through a hot air furnace showing a modified form of the heater mounted therein, and

45 Figure 10 is a fragmentary vertical section through the lower portion of the installation shown at Figure 9.

Referring to Figures 1 to 8 inclusive, wherein is illustrated a preferred embodiment of the invention, the numeral 15 generally designates a heater body which constitutes a relatively thin hollow receptacle formed of cast iron or other suitable material. The body 15 is preferably vertically elongated and is curved transversely in approximately semi-circular form and embodies

a concave front wall 16, a convex rear wall 17, narrow end walls 18, a slightly curved top wall 19 and a flat bottom wall 20.

At the centre, the hollow body is formed with a longitudinal slot 22 terminating short of the top and bottom walls to form a circulating slot. At each side of the vertical central slot 22 are formed a plurality of vertically spaced transverse through slots 23 designed to afford circulation through the body. On the inner concave wall 16, adjacent the top and bottom, are formed laterally projecting interiorly threaded nipples 25 and 26.

When mounted in a furnace, as for instance a hot water furnace generally indicated at 28, as illustrated at Figures 6, 7 and 8, the heater is disposed against the interior of the furnace wall in a vertical position, an inlet pipe 29 extending horizontally through the furnace wall and engaging the bottom nipple 26 and an upper outlet pipe 30 engaging the upper nipple 25 to support the heater. As shown in the drawing, the bottom of the heater is preferably disposed just above the furnace grate so that the lower portion of the heater will be imbedded in the fuel on the grate. The narrow end walls 18 will be pressed directly against the furnace wall so that the heater assumes an inwardly bulging arrangement. During the operation of the furnace, the products of combustion very effectively heat the water in the heater due to the circulation afforded by the interior passage between the heater and the furnace wall and the slots through the heater body to efficiently heat a supply of water for domestic or household purposes.

Another important feature of the heater construction is that the vertical passage between the heater and the furnace wall provides a duct or flue highly suitable for liberating gases of combustion from the fuel bed. The vertical and transverse slots 22 and 23 likewise serve as conduits for liberating gases which might otherwise accumulate in pockets in the fuel.

A modified form of construction, shown at Figures 9 and 10, embodies a heater body 32 which corresponds in construction to the heater body of the preferred form and to which is connected a complementary section 33. The section 33, which may comprise sheet metal or the like, is vertically elongated and curved transversely in approximate correspondence with the heater body 32 and assumes an outwardly bulging position. The side edges of the section 33 are connected with the end walls of the heater body. This assembly forms an approximately tubular structure having a solid

wall at one side and a hollow water heating wall at the opposed side which, when fitted in a furnace, as shown at Figures 9 and 10, assumes a position removed inwardly from the furnace wall.

5 This modified form of the heater likewise provides for effective circulation of heating gases to efficiently heat the water in the body and flues for the liberation of gases in the fuel bed.

10 It is to be understood that the forms of my invention herein shown and described are to be taken as preferred examples of the same, and that various changes as to the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope
15 of the subjoined claims.

Having thus described my invention, I claim:—

20 1. A water heater comprising a hollow body curved transversely and provided with slots there-through, means for connecting water pipes with the said body, and a transversely curved section
connected with the body and adapted to form an elongated flue between the hollow body and the section.

2. In combination with the wall of a furnace,

a water heater comprising a hollow elongated body curved transversely and having slots there-through, said body being vertically disposed within the furnace slightly above the grate thereof, and means for connecting water pipes with the said body, the said body being disposed to assume a convexly bulging position with respect to the furnace wall so as to provide a space between said wall and heater body whereby gases trapped in fuel on the grate are liberated through said space. 10

3. In combination with the wall of a furnace, a water heater comprising a hollow elongated body curved transversely and having inclined slots and a central vertical slot therethrough, and nipples disposed respectively at the top and bottom of the body for attachment of water pipes thereto, said body being disposed close to the furnace wall, in outwardly bulging relation thereto and slightly above the furnace grate so as to liberate combustible gases trapped in a fuel bed on the grate and allow their combustion, while heating water circulating within the hollow body, on both faces thereof. 15 20

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