June 11, 1940. A. DI FILIPPO 2,204,036

BAFFLE FOR FURNACES

Filed July 16, 1938

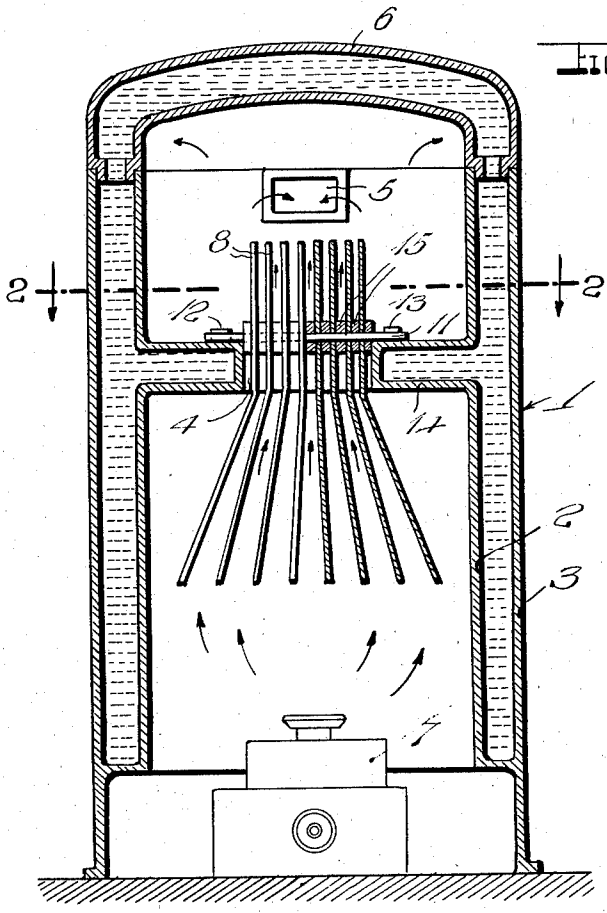


FIG. 1

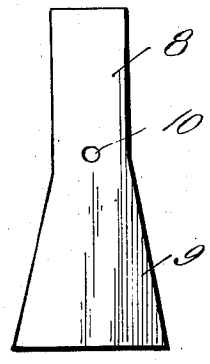


FIG. 3

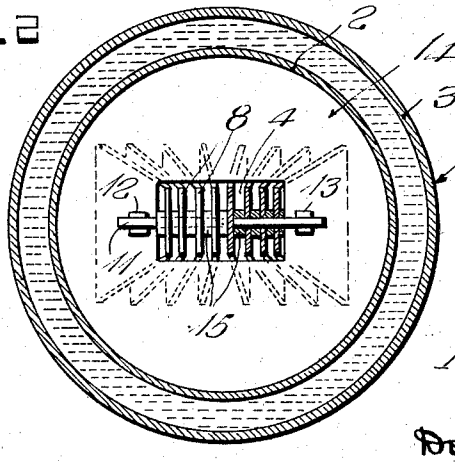


FIG. 2

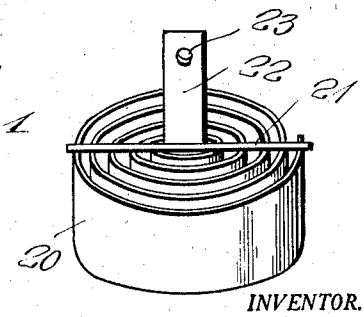


FIG. 4

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Patented June 11, 1940

2,204,036

UNITED STATES PATENT OFFICE

2,204,036

BAFFLE FOR FURNACES

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Application July 16, 1938, Serial No. 219,635

1 Claim. (Cl. 110—97)

This invention relates to improvements in attachments adapted to be incorporated in heating furnaces, said attachment providing for a saving in fuel, and a more rapid heating of the water or air in the furnace, thus providing a more efficient and effective furnace operation.

An object of my invention is to provide metal baffles suitably supported in the furnace the proper distance above the flame in the furnace, whereby the baffles will be heated to a red hot temperature, and consequently heat the water or air in the furnace more quickly, and in the use of oil heat, after the thermostat in the heating system has cut the oil burner off, the heated baffles will retain the heat in the furnace for a considerable time, thereby delaying the cooling of the water or air, so that the next time the oil burner turns on, will be very materially longer between burner operation, than would be the case if the baffles were not employed.

Another object of my invention is to provide a plurality of spaced heat retaining baffles suitably supported in a furnace and extending through the restricted opening in the transversely extending water partition, whereby all of the heated particles of combustion as they pass to the stack opening, will engage and circulate about the spaced baffles to heat them red hot, thus more quickly heating the water in the heating system, and storing up heat in the furnace to provide for less frequent operation of the oil burner in the furnace, and a lesser period of operation of the said burner, with a consequent saving in fuel cost.

A still further object of my invention is to provide an improved baffle construction in a hot water or hot air furnace which may be incorporated in any house furnace to provide a more efficient operation of the furnace, with a very small cost for the installation of the baffles.

Other objects will appear as the description proceeds.

In the accompanying drawing which constitutes a part of my application,

Figure 1 is a vertical sectional view through a hot water furnace showing my improved invention incorporated therein;

Figure 2 is a sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a front elevation of one of my improved heat storing baffles, and

Figure 4 is a perspective view of a modified form of heat storing baffle.

Like characters of reference are used throughout the following specification and the accompanying drawing to designate corresponding parts.

In carrying out my invention, I provide a suitable hot water furnace having a body portion 1 with spaced inner and outer walls 2 and 3, respectively, and with a transversely extending hollow water partition adjacent the upper portion of the body, said partition being formed with a restricted opening 4, through which the particles of combustion will have to pass in their travel to the smoke stack opening 5. A suitable furnace head 6 also formed with spaced walls is provided and will be received on the upper end of the furnace body 1, and will have communication with the hollow body, so that the water may circulate throughout every portion of the furnace.

An oil burner 7 is illustrated in Figure 1 of the drawing, and will be received within the lower end of the furnace body 1, although my invention will work with high efficiency with the so-called "gun type" of burner.

I have illustrated my preferred form of heat retaining baffle 8 as being substantially rectangular in shape, but with the lower end portions flared outwardly as at 9. An opening 10 will be formed in each baffle 8, through which the supporting rod 11 will be received. From Figure 1 of the drawing, it will be seen that I have provided a pair of seats 12 and 13 at the opposite sides or ends of the restricted opening 4 in the partition 14 which will be adapted to receive the cross supporting bar or rod 11, and the various baffle plates 8 will be suspended upon the rod 11 in spaced relation, and suitable spacing washers 15 will be provided to slide over the rod 11 between adjacent baffle plates. It will be further seen that the restricted opening 4 will be substantially filled with the baffles, there being sufficient space between adjoining baffles for the smoke and particles of combustion to pass to the smoke stack opening, and also that the lower end portions of many of the baffles are bent laterally to permit the baffles to occupy practically the whole cross area of the furnace, so that they will be heated by contact with the flame from the oil burner. The baffles will be positioned a sufficient distance above the oil burner, to prevent the forming of soot upon the baffles, which would clog up the furnace and prevent the proper and efficient operation of the same. A good portion of the baffles extend up above the partition 4, and serve to efficiently and effectively store heat within every part of the furnace.

In Figure 4 of the drawing, I have illustrated a modified form of baffle which consists of a con-

volute winding of metal ribbon of sufficient size to store up heat effectively, and the winding 20 will be held together by the cross tie 21, and will be supported upon the supporting bar 22. An opening 23 is formed in the bar 22, in order that the same may be supported upon the rod or bar 11. This form will work very satisfactorily with the "gun type" of burner, and will be supported in position below the partition 14, whereby the heat may be stored in the convolute winding to retain the temperature in the furnace for a longer period, thus providing for the lesser time of burner operation, and a longer period of time between burner operation.

Many minor changes in detail of construction may be resorted to without departure from the spirit of the invention.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is:

In a heating furnace having a cross partition with a restricted opening for the passage of particles of combustion, furnace heating means, a plurality of flared heat storing baffles supported in said opening and extending above and below the same, spacing means between said baffles, and the lower ends of said baffles being outwardly flared and laterally bent to substantially fill the cross area of the upper portion of the furnace fire box and to be heated by direct contact with the flame of the furnace heating means.

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