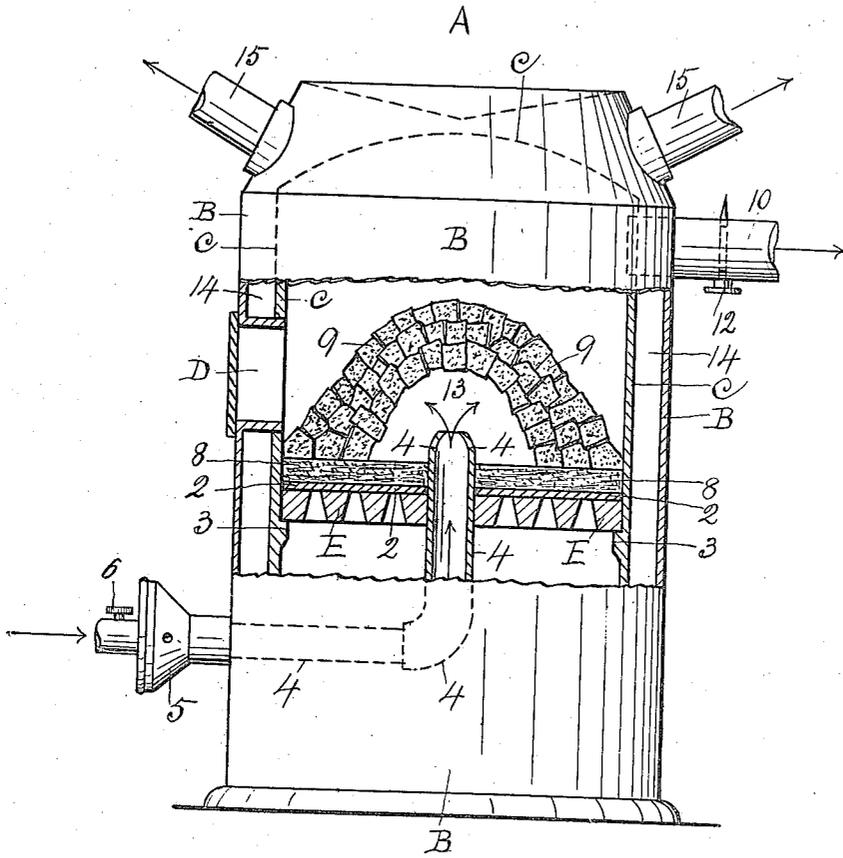


J. B. DOYLE.
GAS FURNACE.

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1,158,652.

Patented Nov. 2, 1915.



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UNITED STATES PATENT OFFICE.

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GAS-FURNACE.

1,158,652.

Specification of Letters Patent.

Patented Nov. 2, 1915.

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To all whom it may concern:

Be it known that I, JAMES B. DOYLE, a citizen of the United States of America, and resident of Hamilton, in the county of Wentworth and Province of Ontario, Canada, have invented new and useful Improvements in Gas-Furnaces, of which the following is a specification:

My invention relates to improvements in gas furnaces, in which a centrally located gas pipe extends through a common fire grate, a sheet metal plate thereon and through a layer of ashes on said plate. A hollow pyramid of pieces of fire-brick is placed on the ashes, and ignited gas from the upper end of said pipe, flares out into the hollow of the pyramid, thereby heating the same, more or less, according to the regulation of the quantity of gas through the pipe. The pyramid referred to heats the inner fire-box or dome of the furnace, and is applicable to various shapes and makes of gas heating furnaces, also to boilers, stoves and the like.

The objects of my invention are, first, to provide means whereby a furnace may be heated in the place designed to contain the heat; second, to provide means which shall be conducive to keeping the lower portion of the furnace comparatively cool, and to prevent the fire grate from warping, third, to afford facilities for obtaining and retaining a maximum degree of heat with a minimum supply of gas; and fourth, to apply my invention to hot water furnaces, as well as to hot air furnaces, and other heating devices. I attain these objects by the device illustrated in the accompanying drawing, in which is shown an elevation of a common heating furnace having a grate and fire box in the heating dome thereof, and a portion of the casing of the furnace broken away to show my improved device and method of economic heating in the interior of the dome and the casing, both of which are partially in section.

Similar characters of reference refer to similar parts throughout the drawing.

In the drawing, A, is the gas heating furnace, which comprises an outer shell or casing B, an inner fire box, or dome C, an entrance D through the casing to the interior of the dome and to the fire grate E. These several indicated parts are not new, and may be of various shapes, designs and sizes, especially the grate E, which may be of any

desired shape and construction, rigid, rotary or otherwise, and is not absolutely necessary to the working of my invention. The grate E being in position in the furnace, merely to show how my device may be applied to a heating furnace already supplied with a grate, and when my said device is removed therefrom, coal may be used on the grate, as a coal burning heating furnace.

For gas burning, 2, is a round light metallic and horizontal plate, preferably tin plate, or other material, though I have satisfactorily used light card-board and in a well heated furnace. The plate 2 rests on the grate E, or may rest on an annular shoulder or ledge 3, of the fire box, and is stationary. The plate has a round hole therethrough and concentric therewith, and the gas conveying pipe 4, extends a distance through said hole, and the opposite and lower end part of the said pipe extends through the casing B and is supplied with a common gas mixer 5, which is provided with a common gas regulator 6.

8, is a layer of ashes, or other material of a non-heating and non-combustible nature, on the plate 2, and preferably about two inches in thickness or depth. The ashes 8, completely cover the plate 2, and are in close proximity to the perimeter of the gas pipe 4, and serve to make the plate air tight and keep the same comparatively cool.

9, is a hollow pyramid of broken fire-brick, on the ashes 8, and is loosely built, the broken parts being placed one upon the other without any regard to fitting, and without mortar or cement of any nature, so that gas may permeate and percolate through and between some of said parts 9, into the dome C and through the common gas outlet flue 10, which is provided with an ordinary damper 12, to be used at discretion.

The upper end of the vertical gas inlet pipe 4, flares inwardly, as shown, to cause the gas to issue in a widely diverging jet, by reason of the smaller opening produced at the top of the pipe, and a side distribution of the lighted gas into the hollow, or cavity 13, of the pyramid, and indicated by two arrows. The pyramid may be heated to a red hot heat, by the lighted gas, consequently the dome C is heated, thereby heating the air space 14, around and above the dome, between said dome and casing.

15 are the usual hot air conveying pipes which communicate with the upper part of the space area 14, to convey warm air therefrom.

5 It will be noticed that the plate 2, the layer of ashes 8, together with the hollow pyramid 9, may be applied to a heater with or without a grate E, and in lieu of an annular ledge 3, any device may be applied
10 to support the plate 2, for instance, three or more brackets secured to the inner sides of the dome or fire place.

The direction of gas through the gas pipe 4, the outlet of gas through the upper flue
15 10, and the outlet of hot air through the pipes 15, are all indicated by arrows.

What I claim as my invention and desire to secure by Letters Patent, is:—

In a gas heating furnace of the character

described, a round plate having a hole there- 20 through and concentric therewith, rigidly located in the furnace, and supported thereby, a layer of ashes on and covering said plate, a hollow pyramid of broken irregular
25 pieces of fire-brick, loosely compiled, resting on the ashes, and extending above said hole, a gas inlet pipe extending through said
30 low of the pyramid, the upper end of said pipe flaring inwardly at an obtuse angle with the pipe to spread the flame of gas in every direction in the pyramid, and thereby equalize the heating of the same.

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Witnesses:

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