J. P. WALSH.

OIL BURNING FURNACE.

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1,151,311. Patented Aug. 24, 1915.

Fig. 1.

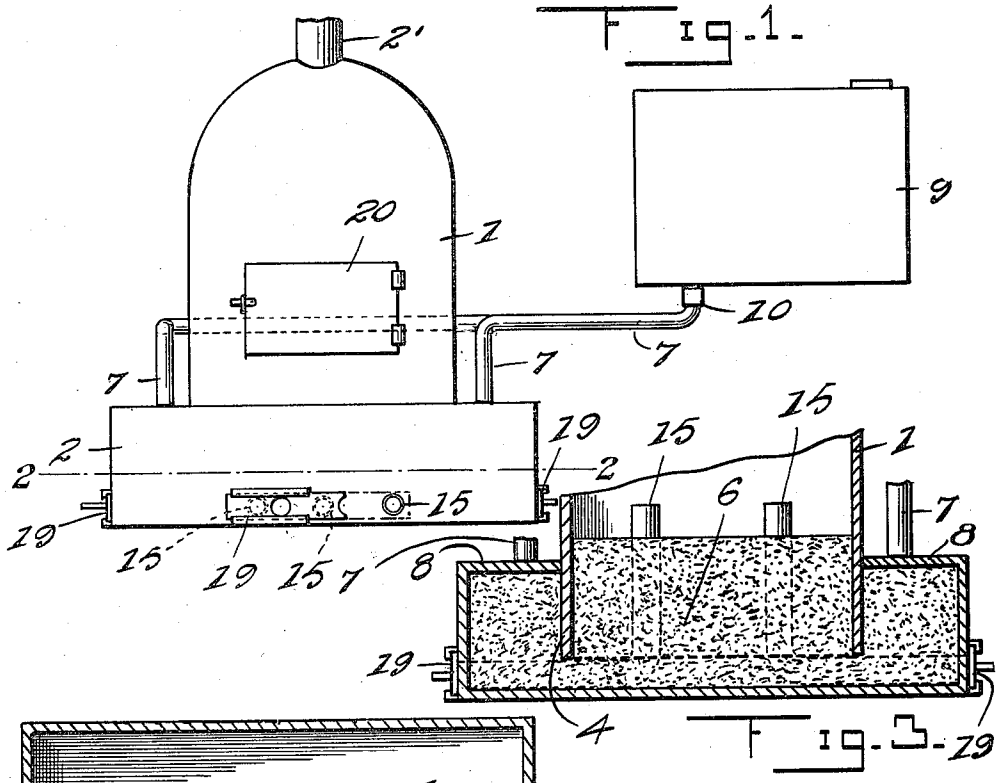
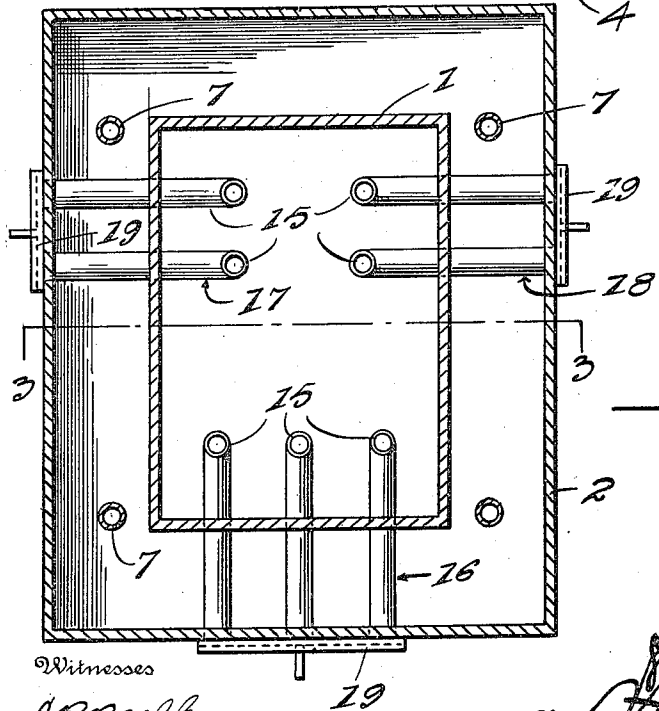


Fig. 3.

Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

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OIL-BURNING FURNACE.

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To all whom it may concern:

Be it known that I, JOHN P. WALSH, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Oil-Burning Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to furnaces, and the primary object of the invention is to provide a novel form of fire box for properly feeding oil or like liquid volatile fuel, for the proper combustion within a furnace for creating heat.

Another object of this invention is to provide a plurality of air tubes entering into the fire box and extending upwardly therethrough for supplying the fire box with the necessary amount of oxygen to insure the proper combustion of the volatile fuel.

A still further object of this invention is to provide a furnace construction which has an auxiliary box supported at the base thereof, and to fill this box with granular material such as sand or the like, and to connect to the box which is filled with granular material an oil or volatile liquid fuel supply tank so that the volatile liquid will enter the box and filter through the sand for burning in the furnace.

A still further object of this invention is to construct a fire box as heretofore specified which will materially decrease the amount of fuel necessary for properly heating the furnace; maintain a uniform burning of the fuel at all parts of the fire box, and one which is simple in construction and inexpensive to manufacture.

With the foregoing and other objects in view this invention consists in such novel features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings and claimed.

In describing the invention in detail reference will be had to the accompanying drawings wherein like characters designate like or corresponding parts throughout the several views, and in which:—

Figure 1 is a side elevation of the improved furnace. Fig. 2 is a cross sectional view on the line 2—2 of Fig. 1, and Fig. 3 is a vertical sectional view through a fragment of the furnace.

Referring more particularly to the drawings, 1 designates the housing or construction of an ordinary furnace, which has a flue 2′ secured to upper end thereof. The lower end of the furnace housing 1 is inserted in a box 2, which is of greater horizontal area than the housing 1. The bottom or lower end 4 of the housing 1 extends into the box 2, and is spaced a short distance upwardly from the inner surface of the bottom side of the box as is clearly shown in Fig. 3 of the drawings.

The box 2 is filled with any suitable type of granular fire proof material such as sand, granulated asbestos or the like indicated at 6 in Fig. 3 of the drawings. The lower end of the furnace housing 1 is also filled with the granular material which extends upwardly therein above the upper side of the box 2.

The box 2 has a plurality of pipes 7 communicating with the upper surface thereof and extending through the top 8 of the box, providing communication with the granular material which is contained therein. The pipes 7 are secured to the under surface of a volatile liquid containing tank 9 and they have valve mechanisms 10 interposed therein for controlling the quantity of volatile liquid fed from the tank 9 into the box 2. The volatile liquid retaining tank 9 may be supported in any suitable manner above the box 2, so that the liquid fuel will flow through the pipe 7 by gravitation.

The box 2 has a plurality of air feeding pipes 15 extending horizontally therein, from the marginal edges, which pipes have communication with the atmosphere around the outside of the box. The pipes 15 are disposed in sets, constituting a set 16 which extends inwardly from one end of the box and sets 17 and 18 which extend into the box from the sides of the same. The pipes 15 are bent for extending vertically within the interior of the housing 1, as is clearly shown in Fig. 3 of the drawings, for feeding the necessary amount of oxygen into the furnace for insuring the proper combustion of the volatile liquid. Suitable dampers 19 are slidably carried by the outside of the box 2 and are provided for controlling the quantity of air passing through the pipes 15.

In the operation of the improved furnace

heretofore described: the volatile fuel is fed downwardly from the tank 9 through the pipes 7 and upon entering the box 2 will gradually filter through the granular material 6 which is positioned therein, thus distributing the volatile fuel equally in all parts of the box 2 and the lower end of the housing 1. When lighting the volatile fuel, a small quantity of the same is poured upon the upper surface of the granular material, within the housing 1, through the door 20 and it is then ignited. The dampers 19 are properly adjusted for feeding the necessary amount of air into the housing 1 for supplying the necessary oxygen for insuring the proper combustion of the fuel. The heat of the burning fuel or liquid will draw the fuel upwardly through the granular material and make a continuous burning of the fuel therein. When it is desired to extinguish the fire, a shovel full of sand or granular material may be thrown upon the upper surface of that already in the furnace housing 1, which will extinguish the flame, or if it is so desired a plate may be provided for placing upon the upper surface of the same, (which plate is not shown).

From the foregoing description taken in connection with the accompanying drawings the advantages of construction and of the method of operation of the improved oil burning furnace will be readily apparent to those skilled in the art to which this invention appertains and, while in the foregoing description, the principle of the operation of this invention has been described together with various features of construction, it is to be understood that certain minor features of construction, combination and arrangement of parts may be altered to suit practical conditions provided such alterations are comprehended within the scope of what is claimed.

What is claimed is:—

1. In a furnace structure, a furnace housing having its lower bottom end open, a box mounted upon the lower open end of said furnace housing and having said housing positioned therein and spaced a slight distance upwardly from the inner surface of the bottom of said box, granular material positioned within said box and the lower open end of said housing, a plurality of air tubes extending through said box and vertically within said housing, a plurality of dampers for controlling a quantity of air passing through said pipes and means for feeding volatile liquid into said box for filtering through said granular material.

2. In a furnace structure, a furnace housing having its lower end open, a box mounted about the lower open end of said furnace housing, said housing being seated in said box and having its lower end spaced a short distance upwardly from the inner surface of the bottom of said box, granular fire-proof material positioned within said box and in the lower end of said housing, a plurality of air pipes extending horizontally through said box and vertically upward into said housing, dampers for controlling the quantity of air passing through said tubes, a volatile liquid supply tank, a plurality of pipes connected to said volatile liquid supply tank and extending into the upper portion of said box for feeding volatile liquid from said tank by gravitation into said granular material, and means for regulating the quantity of volatile fuel flowing through said pipes.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN P. WALSH.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."