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1,691,941

V. B. SOUNITZA

OIL FURNACE

Filed July 23, 1927

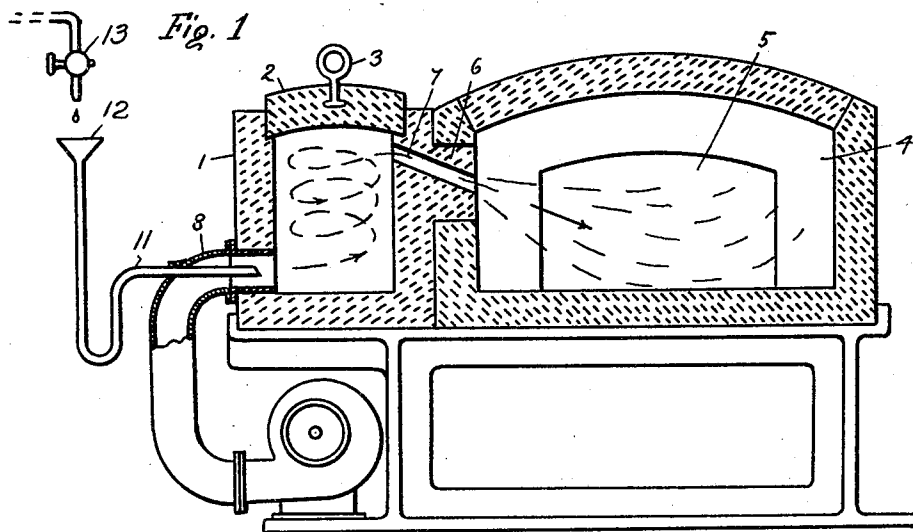
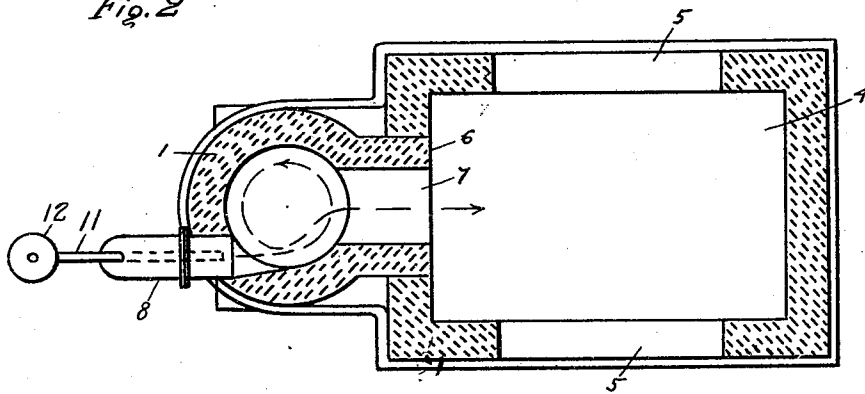


Fig. 2



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OIL FURNACE.

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My invention relates to oil furnaces and has a particular reference to furnaces of an open type or forges.

The object of my invention is to provide a furnace with a separate gas forming chamber for preheating and gasifying liquid fuel and mixing same with air in a proper proportion so that in the heating chamber of the furnace a hot flame will be obtained with a perfect combustion.

My present invention represents a modification and further development of my oil furnace for melting metals for which Patent No. 1,568,479, has been granted Jan. 5, 1926.

In my oil furnace I use a separate circular chamber attached to one side of a forge or heating furnace, and I introduce oil with air at the bottom of the circular chamber tangentially to its side, so that the mixture whirls around in a horizontal plane, rising to the top of the chamber where an inclined port is made for the hot gases to emerge into the working space in the heating furnace.

My invention is more fully described in the accompanying specification and drawing in which—

Fig. 1 is a sectional elevation of my furnace and Fig. 2 is a plan view in section.

My furnace consists of a vertical cylindrical preheating and gasifying chamber 1 closed on top by a removable cover 2 with a handle 3. The chamber is attached to one side of a combustion or working chamber 4. These chambers are made of a refractory material, such as a fire brick or silica. The combustion chamber has ports 5 in the sides for introducing objects to be heated, such as metal bars for forging, crucibles, etc.

The chamber 1 has a tubular portion 6 which fits into a corresponding aperture in the combustion chamber. A flat inclined port 7 is provided in this portion 6 for the gases to emerge into the combustion space.

At the bottom of the circular chamber an air pipe 8 is introduced tangentially to the vertical cylindrical sides of the chamber 1. This pipe is connected with the exhaust of an air blower 9 mounted on the base 10 of the furnace. An oil pipe 11 is introduced in the central portion of the air pipe and extends to

the outside, forming an U-shaped trap at the lower portion and rising vertically to a height sufficient for the column of oil to overcome the static pressure in the chamber. On top of the pipe 11 a funnel 12 is placed into which oil is fed by drops from an oil cock 13 connected with a suitable container (not shown) for oil.

The operation of my furnace is as follows.

At first the cylindrical chamber 1 is preheated by building a fire in it, for instance, by burning oil soaked rags and wood. When it becomes sufficiently hot, the blower is started and the oil cock 13 opened. The pressure from the oil column in the pipe 11 will force the oil from the end of the pipe against the air pressure in the chamber, and the suction created by the action of air flowing past the oil pipe, will cause the oil to be drawn with the air into the chamber. The blast will follow the curvature of the walls of the chamber, acquiring a rapid rotation while it rises to the top of the chamber. During this ascent the mixture of air and oil becomes preheated by the contact with hot walls of the chamber, and a small portion of this mixture will burn, helping to increase and to maintain the temperature of the walls.

At the top of the chamber the mixture will emerge into the combustion chamber 4 through an inclined port 7 and will completely burn inside of the chamber. The arrows in Fig. 1 show direction of the flow of mixture and flame which, coming at an angle from the upper portion of the combustion chamber, will effectively cover the combustion space, the flame covering objects placed on the floor of the combustion chamber.

Important advantages of my oil furnace are that it provides a simple and efficient means for obtaining a perfect combustion of a liquid fuel and for using the resultant flame in a most efficient manner in the working space of the furnace.

I claim as my invention:

In an oil furnace, the combination, with a combustion chamber, one wall of said combustion chamber being provided with an aperture in its upper portion, said aperture

being inclined towards the bottom of said combustion chamber, of a vertical cylindrical chamber adjacent to said combustion chamber, said aperture extending into the upper
5 portion of said chamber, an air pipe introduced into said cylindrical chamber at the bottom and tangentially to the inner cylin-

dricai walls of said cylindrical chamber, an oil pipe placed within said air pipe, and means to introduce oil into said oil pipe. 10

Signed at New York in the county of New York and State of New York this 22nd day of July A. D. 1927.

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