G. H. H. BÖLLING.

APPARATUS FOR BURNING PITCH.

APPLICATION FILED MAR. 26, 1917.

1,272,198. Patented July 9, 1918.

FIG. 1.

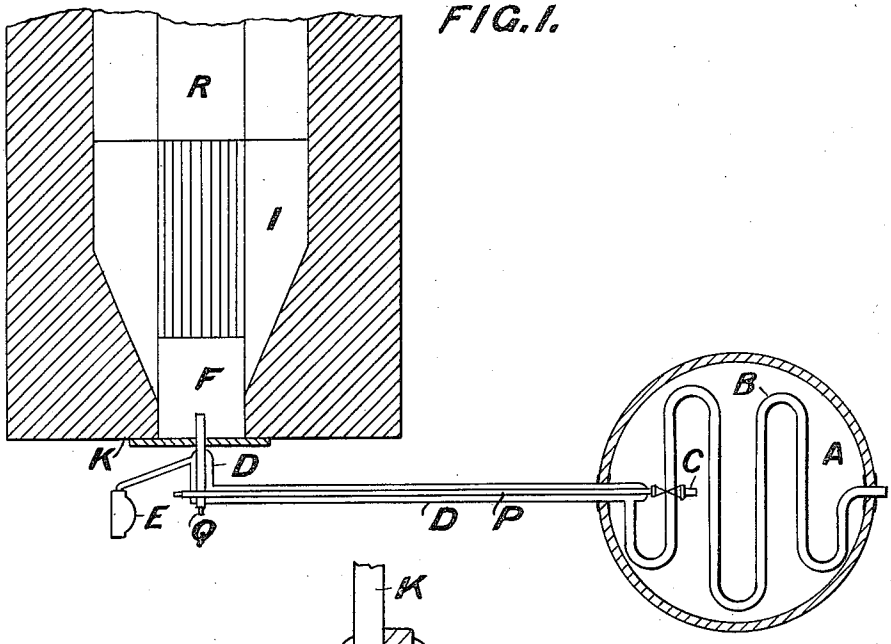


FIG. 2.

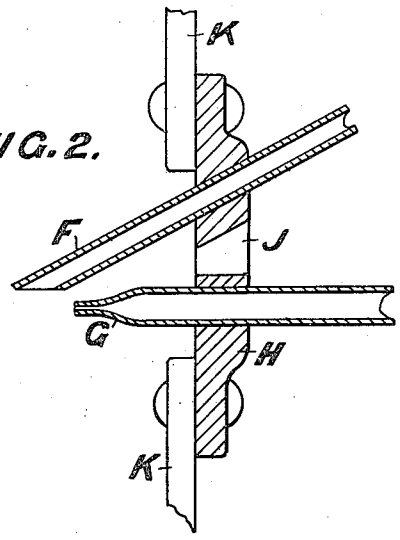
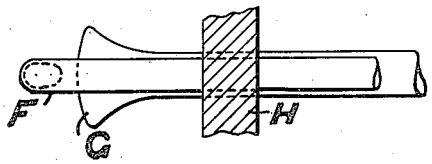


FIG. 3.



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APPARATUS FOR BURNING PITCH.

1,272,198. Specification of Letters Patent. Patented July 9, 1918.

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To all whom it may concern:

Be it known that I, GEORG HENNING HILMAR BÖLLING, a subject of the King of Norway, residing at No. 9 Jacob Aalls Gate, Christiania, Norway, have invented certain new and useful Apparatus for Burning Pitch, of which the following is a specification, reference being had to the accompanying drawing.

This invention comprises improvements in the utilization of pitch as fuel. In industries in which tar is worked up, large quantities of pitch are obtained as a by-product, for which, in many cases, no profitable use could hitherto be found. Experiments have been made for the purpose of utilizing this pitch as a combustible, but the special properties of this material have proved an obstacle to its use for this purpose.

According to this invention, pitch is used as a fuel in furnaces or fireplaces of various constructions by first of all rendering it fluid and then introducing it into the fire in an atomized condition. To permit of its use in this manner, it has been found to be a necessary condition that the pitch, on its passage from the melting reservoirs to the atomizers, should be maintained at a considerably high temperature by suitable means, such as steam heaters and jackets. For heating liquid fuels, it is, of course, already known to use steam heaters and steam-jacketed pipes have also been heretofore proposed for the conveyance of tarry residues to furnaces for burning, but this invention only concerns the utilization of pitch as fuel.

The invention may be carried into effect in the following manner, reference being had to the accompanying drawing which shows a suitable plant or apparatus for carrying out the process and of which:—

Figure 1 is a plan section of the apparatus shown applied to a furnace.

Fig. 2 is a sectional elevation, to a larger scale, of the pipe for supplying the molten pitch and a steam jet nozzle for atomizing the pitch and

Fig. 3 is a plan thereof.

The pitch is melted in a vessel A and maintained at a suitable temperature by means, for instance, of indirect steam-heating arrangements, such as the steam coil or worm B.

The fluid pitch is then passed, under control of the valve C to the furnace or fireplace through heated pipes, conduits or channels so that the pitch is maintained in the proper liquid condition during this passage.

For this purpose, feed-pipes, such as P, fitted with jackets, such as D, are suitably employed, steam of a suitable temperature being then supplied to the jackets. A steam trap E may be connected to the jacket D. The jacket D also preferably incloses part of the burner tube F, which passes through a hole in a plate H, riveted to the furnace front K and is united in a suitable manner with the feed pipe P. The plate H is, moreover, perforated to receive the steam pipe or nozzle G, which is conveniently flattened at the end so as to cause the issuing jet to pass out at a high velocity and to spread out fan-wise. The said plate H is also conveniently provided with a peep-hole J. The ends of the feed pipe P and burner tube F may be fitted with removable plugs Q so that they may be taken out to enable clearing rods or "prickers" to be used for dislodging any obstruction in such feed-pipe or burner tube.

In the furnace or fireplace R, the jet of pitch is suitably atomized by means of the steam or compressed air and then burns with a homogeneous gas-like flame. By these means, it is possible to limit the quantity of air supplied to about that quantity which is, theoretically, required and, consequently, a very high temperature of combustion is obtained. Further, the efficiency of the fire will be much better than that which is obtainable with an ordinary coal fire on fire grates. One part by weight of pitch will be the equivalent of about 1.5 to 2.0 parts by weight of coal.

Most kinds of pitch contain solid substances, such as carbon and ashes, which do not melt, and which are liable to adhere to the walls of the pipe and it is therefore necessary to arrange the pipes, and more especially the burner nozzles, so that they can be cleared out to remove incrustation, as aforesaid.

It should be noted that when coal tar pitch is used, it is necessary to start the fire by means of an energetic heating operation, for instance by means of a coal fire on the grate I below the burner and a forced draft.

What I claim is:—

1. Apparatus for effecting a continuous combustion of pitch, consisting of a vessel for containing pitch, heating means for said ves-

sel for maintaining a body of pitch therein in a fluid condition, a burner, a jacketed pipe for conveying fluid pitch from said vessel, the jacket of said pipe extending the whole distance between said vessel and burner, means for supplying heating fluid to the jacket of said pipe, a fireplace, a burner tube of said burner connected with said pipe and entering said fireplace, a jacket inclosing said burner tube, and a fluid jet nozzle arranged in proximity to said burner tube and adapted for atomizing the stream of fluid pitch issuing from such tube, substantially as set forth.

2. Apparatus for effecting a continuous combustion of pitch, consisting of a vessel for containing pitch in bulk, a heating coil within said vessel for maintaining the body of pitch therein in a fluid condition, a burner, a jacketed pipe for conveying fluid pitch from said vessel, the jacket of said pipe extending the whole distance between said vessel and the burner, means for supplying heating fluid to said jacket, a fireplace, a burner tube of said burner connected with said pipe, and entering said fireplace, a fluid jet nozzle of fan-like formation arranged in proximity to said burner tube and adapted for atomizing the stream of fluid pitch issuing from said burner tube, substantially as set forth.

GEORG HENNING HILMAR BÖLLING.