(No Model.)

L. VALENTINE.

APPARATUS FOR CARBURETING AIR AND FIRING FURNACES.

No. 302,450. Patented July 22, 1884.

Fig. 1.

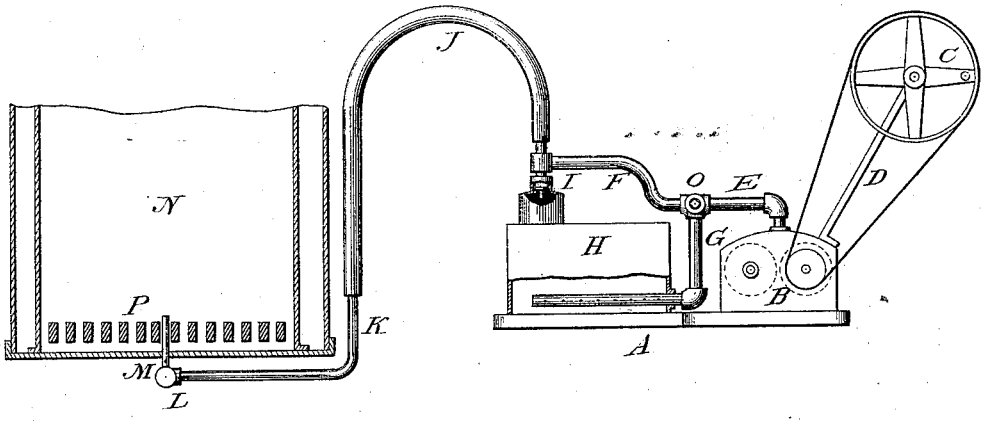

Fig. 2.

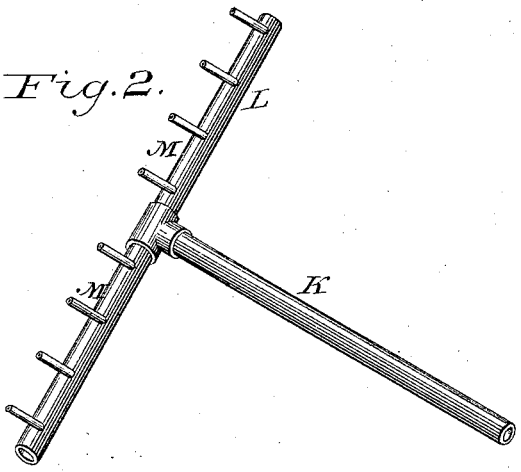

Fig. 3.

Witnesses:
Leopold Leibold
John Trautmann

Inventor.
Lester Valentine
By R. Richardson
His Atty.

UNITED STATES PATENT OFFICE.

LESTER VALENTINE, OF DAYTON, OHIO, ASSIGNOR OF TWO-THIRDS TO JAMES HAYS AND ELWOOD A. STEWART, BOTH OF SAME PLACE.

APPARATUS FOR CARBURETING AIR AND FIRING FURNACES.

SPECIFICATION forming part of Letters Patent No. 302,450, dated July 22, 1884.

Application filed August 31, 1883. (No model.)

To all whom it may concern:

Be it known that I, LESTER VALENTINE, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented a certain new and useful Improvement in Apparatus for Carbureting Air and Firing Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The nature of my invention is that of an improved apparatus for kindling fires in locomotive-engines; and it consists of a blower, vaporizer, and burner with suitable stop-cock and valve, and with the necessary pipe-connections. The same may be used in any form of furnace or fire-pot in which stove-coal is consumed.

The mechanism is illustrated in the accompanying drawings, in which Figure 1 is a side elevation of the kindling apparatus as connected to the fire-pot of a locomotive-boiler. Fig. 2 is an enlarged view of the burner. Fig. 3 is an enlarged view of single burner.

Similar letters refer to similar parts throughout the several views.

A is the base, to which are secured the blower B and vaporizer H. The blower is of a form in general use, and any form or construction of blower will answer the purpose which will create a blast.

D is an arm bolted to the case of the blower, and on the upper end of which is a bearing for the pulley C, which is connected by a band to a small pulley on the shaft of one of the fans. The blower is connected by pipes E and G to the vaporizer H, the inclosed end of the latter having numerous perforations. At the intersection of these pipes is a two-way stop-cock, O. In one position the air from the blower enters the vaporizer, in another position the air passes through the pipe F without entering the vaporizer, and in a third position the pipes F and G will both be closed against any escape from the vaporizer in the direction of the blower. The pipe F is connected above the dome of the vaporizer, which is an air-tight metallic vessel. At the top of the dome is a puppet-valve, I, which is opened by the force of the air or vapor, and therefore closes against any return of the flame from the burners.

At N, Fig. 1, is a section of a fire-pot of a locomotive-boiler, and P are the grates. L and K are two pipes arranged at a right angle, on the former of which are mounted a series of burners, M. The burners are cylindrical tubes, (see Fig. 3,) with screw-threads on the lower ends, with an orifice, S, a little above. The flexible pipe J serves to connect the burner with the vaporizer. The burner is held in position between the grates.

The operation is thus: The vaporizer is filled about two-thirds full of gasoline, the blower is turned by hand, the air issuing through the small orifices passes up through the fluid, forming a vapor, which, being ignited, burns freely while the blast continues. When the fuel is sufficiently ignited, the stop-cock is turned, and the air-blast is continued on the fuel so long as desirable. The hole at the base of the burner admits of additional air to the vapor being ejected, thereby producing more intense combustion than if an orifice was not thus provided.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In a vaporizer, the pipe E, connected with a blower by a two-way stop-cock, O, said stop-cock connected with the pipe G, extending therefrom to the interior of the vaporizer, and also the pipe F, for the conveyance of a current of air direct to the fuel to be fired, and the puppet-valve I in the pipe, making the connection between the dome of the vaporizing-vessel H and pipe F, the whole combined and operated substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

LESTER VALENTINE.

Witnesses:

B. PICKERING,

SUMNER T. SMITH.