

No. 785,903.

PATENTED MAR. 28, 1905.

H. J. MARKS.
VAPOR BURNER.
APPLICATION FILED NOV. 25, 1903

Fig. 1.

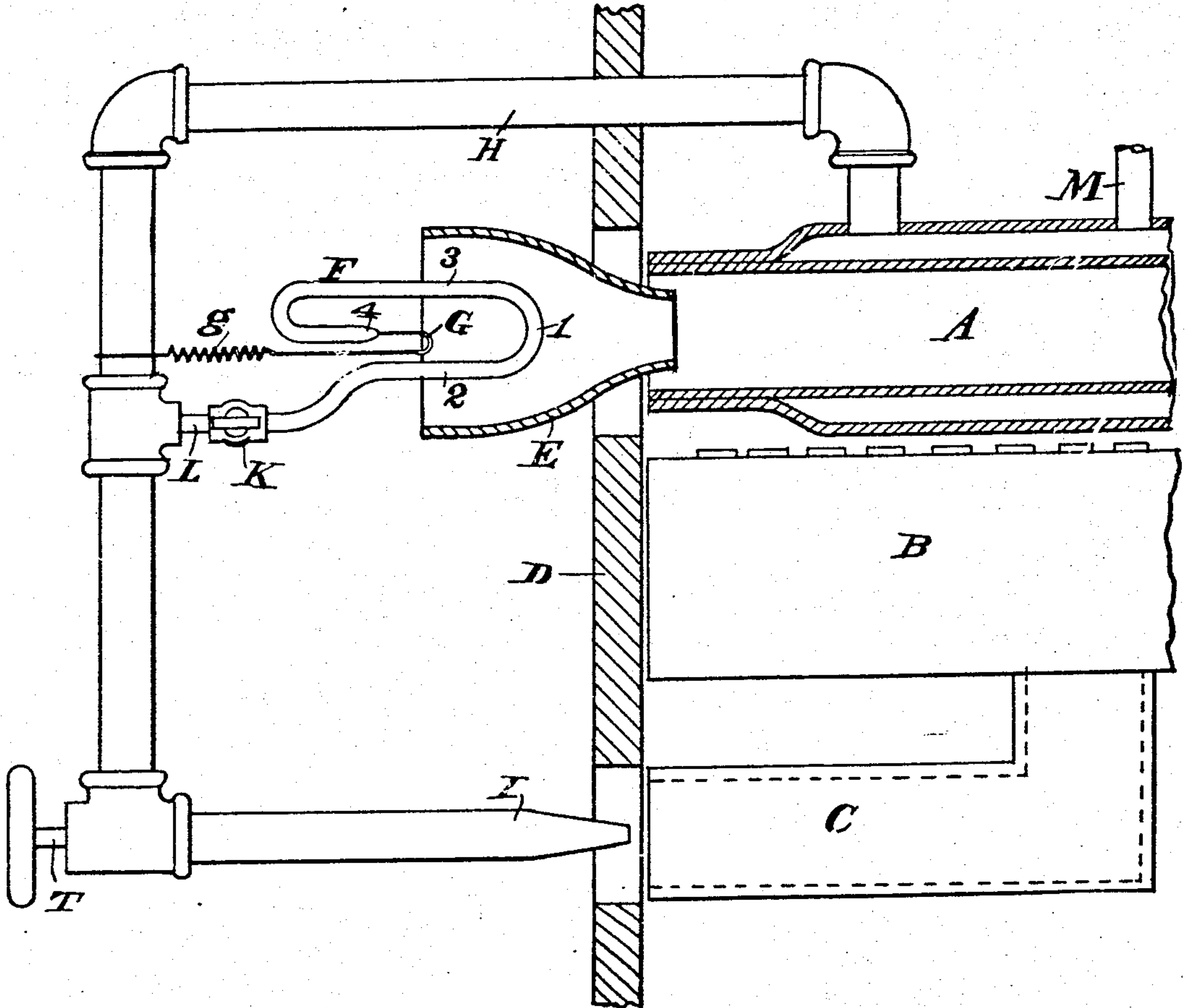
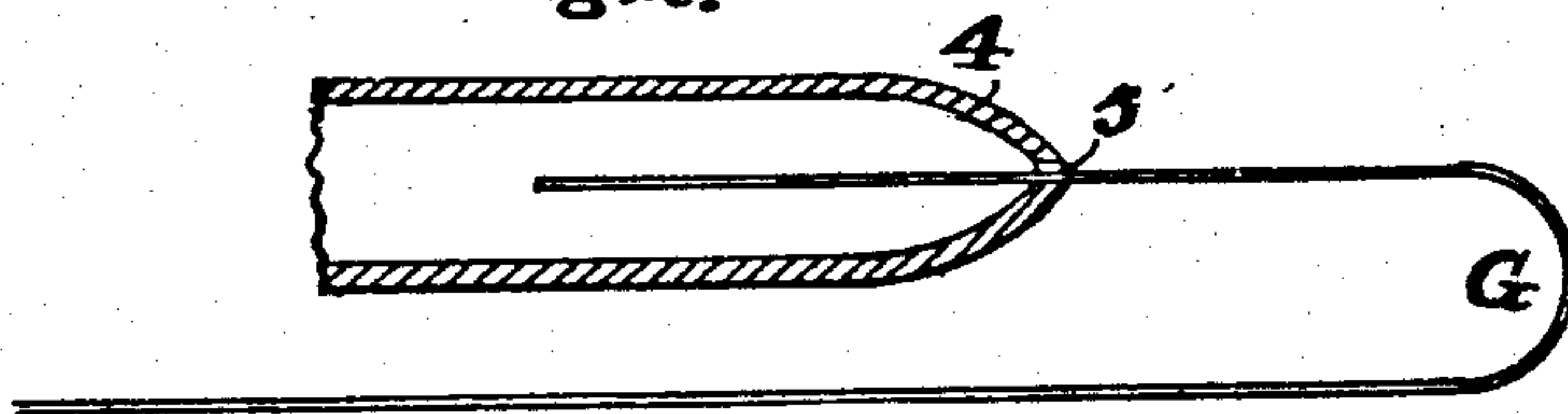


Fig. 2.



WITNESSES:

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HARRY J. MARKS, OF NEW YORK, N. Y.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 785,903, dated March 28, 1905.

Application filed November 25, 1903. Serial No. 182,582.

To all whom it may concern:

Be it known that I, HARRY J. MARKS, a citizen of the United States, residing at 41 West One Hundred and Thirtieth street, New York, N. Y., have invented certain new and useful Improvements in Vapor-Burners, of which the following is a clear, full, and exact description.

My invention relates to a torch or pilot-burner to be used in connection with vapor-burners, the same being a device to maintain a small flame sufficient to keep the vaporizer of such burners heated during the time when the main burner is thrown out of use, so that it may be kept heated and in condition for immediate use as soon as the fuel-supply is turned on.

Other advantages will appear from the following description.

The object of my invention is to simplify, cheapen, and improve such devices.

My invention will be defined in the claims.

The drawings accompanying herewith show my invention embodied in a form now preferred by me.

Figure 1 is an elevation, partially in section, of a vaporizing-burner having my torch attached, and Fig. 2 is an enlarged section of the tip or discharge end of the torch-tube.

In the use of vaporizing oil-burners it is quite generally desirable to be able to turn down or entirely cut off the supply of fuel and yet to maintain the vaporizer heated to such a point that it is available to immediately vaporize the fuel, and thus to restart the burner without previous heating up. To do this, what is known as a "torch" is used, the same consisting of a small burner which maintains the vaporizer heated when the supply of fuel to the burner is cut off.

In Fig. 1, A represents a vaporizer; M, the oil-supply tube therefor; B, a burner, that shown being of the type which is used extensively for small boilers; C, a mixing-tube; D, a side or inclosing wall of the furnace or fire-chamber; H, the gas-supply tube; I, a nozzle discharging therefrom into the mixing-tube, and T a valve for controlling the gas-supply. These parts may in the main be of any suitable type. At any convenient point

the torch-tube L is attached to the gas or oil supply tube, the point herein shown for such attachment being with the gas-supply tube H between the vaporizer and the discharge-nozzle.

The simple construction of the torch F herein shown consists of a small pipe which is bent upon itself, so as to have its nozzle or tip 4, which is provided with a small discharge-orifice 5, (see Fig. 2,) discharging upon or alongside of a portion of the pipe which supplies the fuel to the torch. This keeps the pipe heated and insures vaporization of any fuel which may have reached the torch as oil. I have shown the torch as having three approximately parallel portions of pipe, the outer or side portions 2 and 3, an end bend 1, and the inner tip or nozzle 4. I have also shown a controlling-valve K. The nozzle discharges directly upon the bend 1 and close alongside of the parts 2 and 3. This exact shape and disposition of the parts is, however, not essential. Any other form which will enable the discharge to heat a sufficient portion of the tube to insure vaporization may be used instead. I prefer to use with the torch an inclosing hood E, which embraces a portion, at least, of the torch and has an opening in each end, one for the reception of the torch-tube and the other for the discharge of the flame within or upon the vaporizer. This becoming heated radiates heat upon the torch-tube, and thereby helps to vaporize the fuel. It also acts as a funnel to more certainly direct the flame into or upon the vaporizer. I have used the term "vaporizer" to distinguish the device A, which vaporizes the fuel supplied to the burner B, although the torch-tube is as truly a vaporizer upon a smaller scale, but one which is intended to have its burner kept in action continuously, while the action of the burner B, which is mainly relied upon to heat the vaporizer A, is intermittent.

The discharge-opening 5 in the tip or nozzle of the torch is quite small, and such orifices are very apt to become clogged by the formation of deposits of solidified carbon or by the lodgment of any foreign matter which may be in the oil or the pipes leading to the torch. Because of this it is occasionally and some-

times frequently necessary to introduce a fine cleaning-wire within this hole and agitate it to clear out the obstruction. As this hole is very minute, being often from one to two hundredths of an inch in diameter, and is, moreover, in the end of a pipe which is away from the operator, it is always a slow and exasperating job to get the wire entered in the hole. To avoid this difficulty, I place a cleaning-wire with one end permanently in this hole and support it in such a way that whenever desired it may be agitated and without any necessity of ever removing it. Being always in place, the difficulty of entering it in the orifice is avoided. This cleaning-wire G is shown as recurving upon itself and provided with a spring or yielding section g, sufficient to allow the needed reciprocation of the wire. Any other method of support which will permit such reciprocation may be adopted. The outer end of the wire is secured to any convenient support—such, for instance, as the pipe H. In Fig. 2 is shown the relative position of the torch-tip and the end of this wire. I have found this little device to be a great convenience and saver both of time and temper.

The torch may be made of very small pipe, one-eighth-inch size having been found large enough for use with good-sized burners, and consequently and by further reason of its simplicity of construction it is very cheap to make. It may therefore without material loss be discarded when injured by the heat and replaced by a new one. This may easily be done by the operator and without special tools, as it is only necessary to unscrew the old one and screw in a new one. Although exceedingly simple and cheap in its construction, I have found it to be as efficient and reliable as any.

It will be observed that in the construction above described I have provided a main vaporizer for the fuel to be supplied to the main burner and a small supplementary torch for giving the initial heating to the main vaporizer and that by my construction the main burner may be more quickly started in action.

It is evident that many changes in the manner of constructing and combining the parts

may be made without changing the principles thereof or departing from my invention.

What I claim, and desire to secure by Letters Patent, is—

1. In an oil-vaporizing burner in combination, a burner, a vaporizer therefor heated by said burner and having an inner and an outer wall, a vapor-conveying pipe from said vaporizer to said burner, and a second vapor-conveying pipe bent upon itself and discharging into said vaporizer and also discharging upon itself whereby the same is heated by its own flame.

2. In an oil-vaporizing burner in combination, a burner, a vaporizer therefor heated by said burner and having an inner and an outer wall forming an opening into the same, an oil-supply connection for said vaporizer, a vapor-conveying pipe extending from said vaporizer and discharging into said burner, a second vapor-conveying pipe discharging into the opening into said vaporizer and also upon itself, and a valve for closing the vapor-supply to said burner without closing the supply to said second pipe.

3. In an oil-vaporizing burner, in combination, a burner, a vaporizer therefor heated by said burner and having an inner and an outer wall, said inner wall forming a chamber, an oil-supply connection for said vaporizer, a vapor-conveying pipe extending from said vaporizer and terminating in a nozzle discharging into said burner, and a tube supplied from the said vapor-conveying pipe and bent to discharge upon a portion of itself and discharging into the chamber of said vaporizer.

4. The combination with a discharge-nozzle for oil-vaporizing burners, of a clearing member therefor comprising a wire bent backward or upon itself and having one end lying within the discharge-orifice, the other end having a spring formed therein and fixedly supported.

Signed at New York, N. Y., this 15th day of August, 1903.

HARRY J. MARKS.

Witnesses:

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BEATRICE MIRRIS.