(No Model.)

2 Sheets—Sheet 1.

Z. DAVIS.

VAPOR BURNER.

No. 371,040. Patented Oct. 4, 1887.

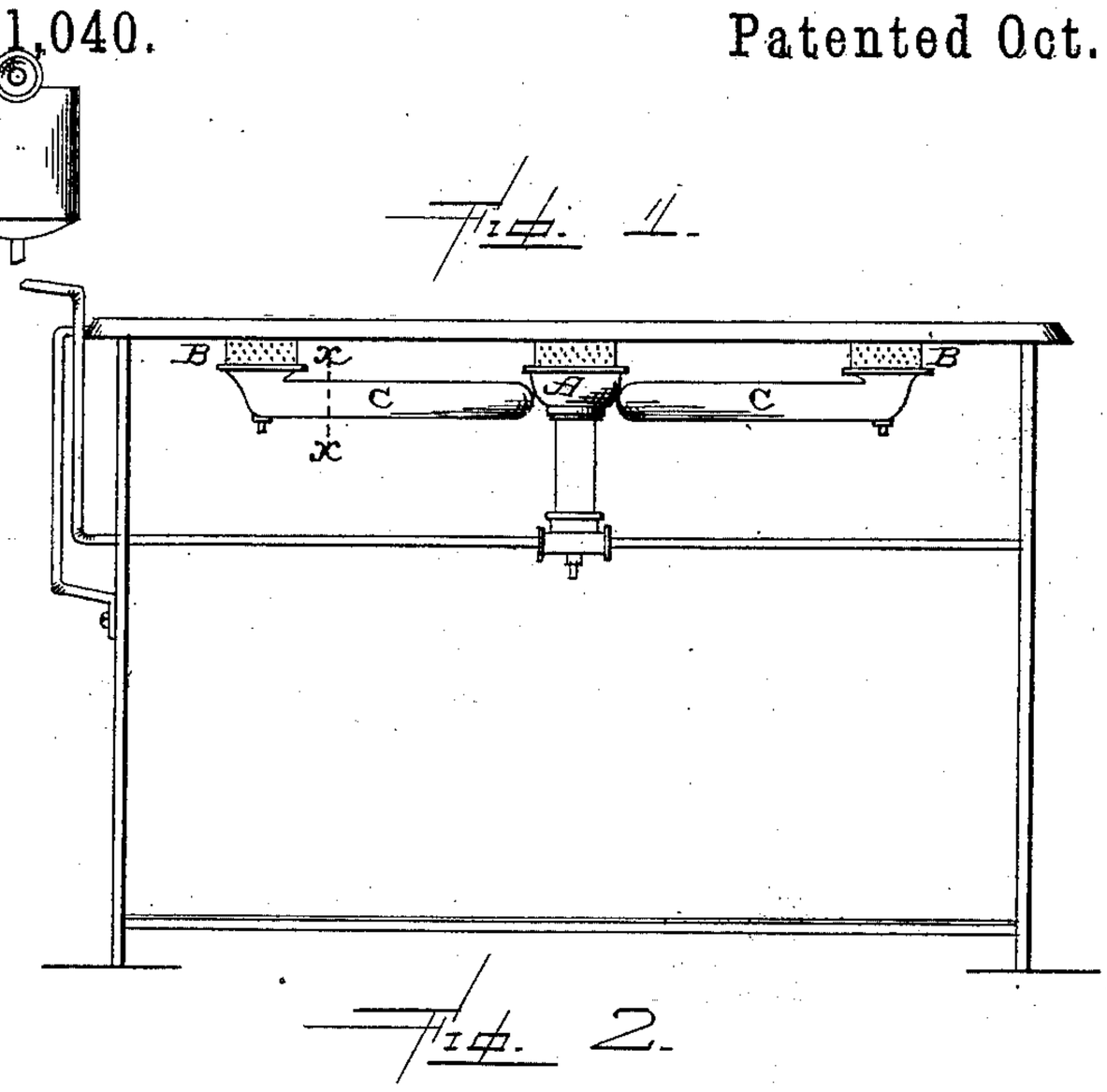


Fig. 2.

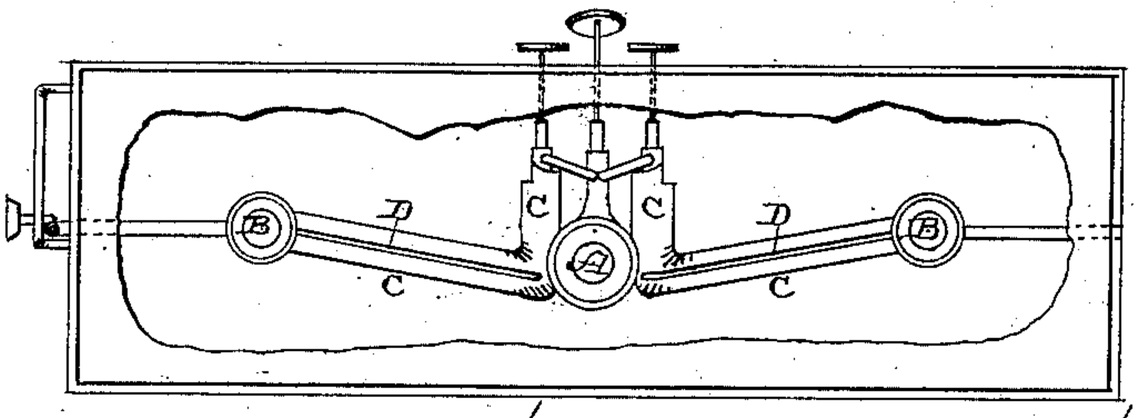


Fig. 3.

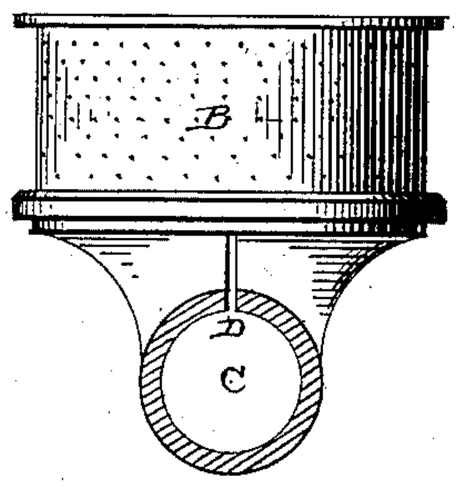


Fig. 4.

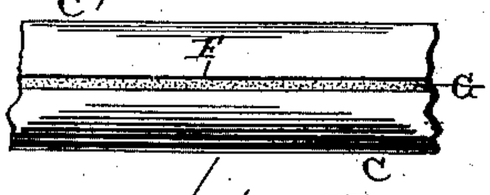


Fig. 5.

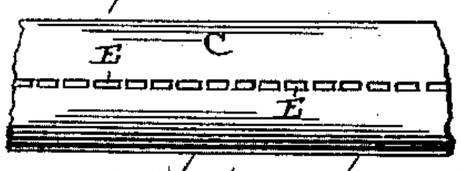


Fig. 6.

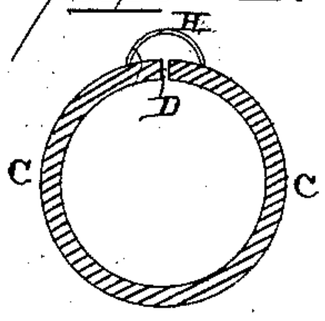
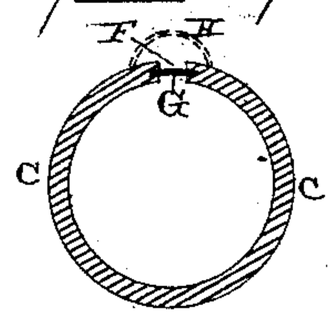


Fig. 7.



Witnesses.
C. F. Gardner
A. W. Brecht.

Inventor:
Zebulon Davis,
per F. A. Lehmann, atty

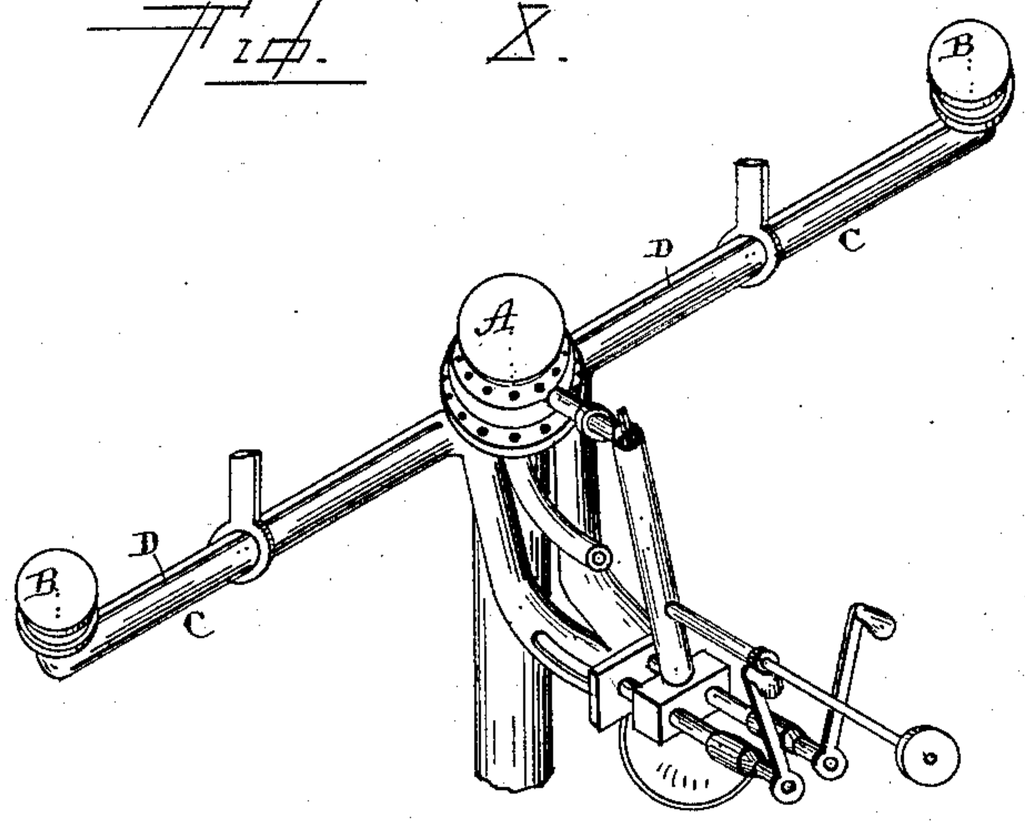
(No Model.) 2 Sheets—Sheet 2.

Z. DAVIS.

VAPOR BURNER.

No. 371,040. Patented Oct. 4, 1887.

Fig. 1.



Witnesses.
L. L. Gardner
A. S. Pattison

Inventor.
Zebulon Davis,
per
F. A. Lehmann,
Atty.

UNITED STATES PATENT OFFICE.

ZEBULON DAVIS, OF CLEVELAND, OHIO.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 371,040, dated October 4, 1887.

Application filed August 12, 1886. Serial No. 210,755. (No model.)

To all whom it may concern:

Be it known that I, ZEBULON DAVIS, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Vapor-Burner Stoves; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in vapor-burners; and it consists in a pipe which conducts the vapor from the central generator to one of the end burners, and which pipe has a slit, opening, or openings in it for the escape of the vapor, as will be more fully described hereinafter.

The object of my invention is to produce a suitable continuous opening or openings through each of the pipes which conduct vapor to the burners, so that vapor will escape continuously from the pipe while the burners are in operation, and which escaping vapor will be ignited by the lighted burner, and, burning along the length of the pipe, will convey the flame to the other burner or burners in case one of the burners should become accidentally extinguished, and also save the necessity of having to light each burner as it is brought into use.

Figure 1 is a side elevation of vapor-burner stove embodying my invention. Fig. 2 is a plan view of the same, a portion of the top of the stove being removed. Fig. 3 is an enlarged vertical cross-section taken through one of the pipes upon the lines X X. Figs. 4, 5, 6, and 7 are detail views showing different forms of my invention. Fig. 8 is a perspective of the burners for a vapor-stove, and to which my invention is applied.

A represents the central generator and burner; B, the two end burners, and C the conducting-pipes, which conduct the vapor to the end burners in the usual manner. So far as the particular construction or form of stove is concerned, no claim is here made to any novelty. Either the form of stove here shown may be used or any other to which my invention can be applied. Through the side of each one of the pipes C which conduct the vapor from the central generator to the end of the burners B is cut either a continuous slit, D, or a series of small openings, E; or there may be a continuous slit, F, in which wire-gauze or perforated sheet metal, G, of any kind may be placed, and through which continuous slit or series of small openings E, or slit in which the perforated metal G is placed, the vapor escapes continuously while the burner is in operation. As soon as the needle-valve controlling the flow of vapor to that burner is opened and the vapor passes into that pipe C the vapor begins to escape through the opening or openings in the pipe for the purpose of being ignited from the central generator or from the burner upon the end of the pipe.

If so desired, a suitable covering or cap, H, in the shape of a semicircular tube, may be placed over the top of the slit or openings through the pipe, as shown in Figs. 6 and 7; but this is a mere matter of choice and not at all necessary. It simply serves as a guard to prevent the minute flame or flames from becoming accidentally extinguished from a draft of air or any other accidental cause.

In starting the stove the central burner is always lighted with a match in the usual manner, and then when the vapor is turned into either one of the pipes C for the end burner, B, a portion of the vapor escapes through the opening or openings made in the pipe or pipes C, and this vapor in rising around the central burner becomes ignited and extends along the top of the pipe within any desired distance of the end burner, B. As soon as the flame from the top of the pipe connects with the vapor escaping through the sides of the burner B it instantly ignites. It is only necessary to make the opening or openings through the pipes approach sufficiently near to the central burner or the end burners for the ignition of the gas. In case the central burner alone is lighted and the vapor is turned into each of the pipes C that vapor which escapes through the top of the pipes C will become ignited from the central burner and almost instantly conduct the flame to the end burners, B. In case the central burner, or both the central burner and one of the end burners, should become accidentally extinguished, and the other end burner alone continue to burn, the flame from the top of

the pipe C will first light the central burner, and then the flame from the central burner will ignite the escaping gas along the pipe C, and thus conduct it to the other end burner. In this manner the burners are made to automatically ignite, and thus prevent any possibility of any accidents resulting from one or two of the burners being accidentally extinguished. Where small openings are made, as shown in Fig. 5, they should be sufficiently close together to have the flame leap from one to the other, as though a continuous slit were made. This same slit or series of openings may be made in a gas-pipe on which a series of burners are placed, so that in case one of the burners should become blown out the flame extending along the pipe would cause the burner to ignite again, and thus prevent any possibility of explosion from escaping gas.

I am aware that heretofore pipes have been placed between each pair of burners, the ends of the pipes being placed in close proximity to the sides of the burners, so as to catch a portion of the vapor which is escaping from the burner, and thus carry flame through these conducting-pipes to the other burners for the purpose of igniting them, and this I disclaim.

It will be seen that I do away with all conducting-pipes and produce the same result by simply slitting the pipes, so that a very small quantity of vapor will escape through them, and thus conduct the flame from one burner to the other by means of the escaping vapor alone.

The generating-burner and the valves for controlling the flow of vapor are the same as shown in my patents of July 28, 1885, No. 323,120, and September 1, 1885, No. 325,592, and hence they form no part of my invention in this application.

Having thus described my invention, I claim—

1. In a vapor-burner stove, the combination of two or more burners located any suitable distance apart, vapor or gas conducting pipes extending from one burner to the other and provided with slits or openings in their sides for the escape of a portion of the gas or vapor passing through them, the slitted portions of the pipes being made to extend up in close proximity to the burners, substantially as shown.

2. In a vapor-burner stove, the combination of a central generator, and one or more burners located any suitable distance therefrom, with the conducting slitted or perforated pipes, which conduct the vapor to the burners located at a distance therefrom, the slitted or perforated portions of the pipes being so shaped as to extend close up to the burners, so that the gas escaping from the pipes will be ignited from the burners, substantially as described.

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

ZEBULON DAVIS.

Witnesses:
F. A. LEHMANN,
A. S. PATTISON.