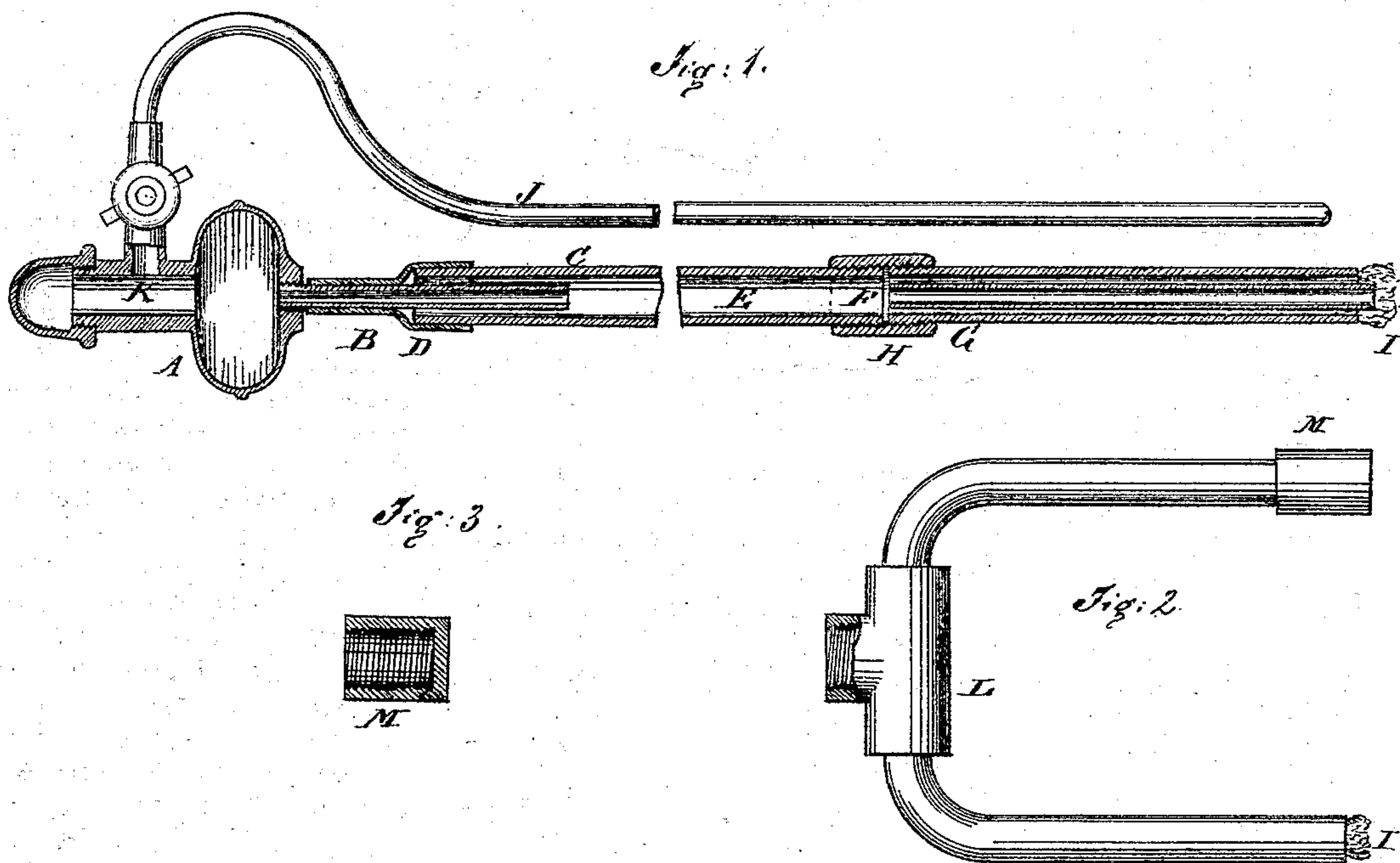


R. G. WILLIAMS.  
Fire-Kindlers.

No. 153,875.

Patented Aug. 4, 1874.



Witnesses:

Chas. Nida  
Geo. W. Mabee

Inventor:

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# UNITED STATES PATENT OFFICE.

RICHARD G. WILLIAMS, (ANNA F. WILLIAMS, ADMINISTRATRIX,) OF KNOB-NOSTER, MISSOURI, ASSIGNOR TO ALLAN K. WILLIAMS AND CHARLES C. JONES, OF ROCHESTER, MINNESOTA.

## IMPROVEMENT IN FIRE-KINDLERS.

Specification forming part of Letters Patent No. **153,875**, dated August 4, 1874; application filed January 29, 1872.

*To all whom it may concern:*

Be it known that I, RICHARD G. WILLIAMS, of Knobnoster, in the county of Johnson and State of Missouri, have invented a new and Improved Fire-Kindler, of which the following is a specification:

The invention relates to an improved device for vaporizing and burning volatile liquid hydrocarbons, and consists in the arrangement of conducting and heating tubes with a reservoir for the fluid to be burned.

In the accompanying drawing, Figure 1 is a view showing the generating-tube and reservoir in longitudinal section, with the gas-tube connected therewith. Fig. 2 is a modification of the discharge end of the generating-tube, showing two wick-tubes. Fig. 3 is a section of the cap used on the generating-tube.

Similar letters of reference indicate corresponding parts.

A is the reservoir for the burning liquid, of any suitable size and form. B is a tube connecting with the reservoir. This tube is surrounded by the outer tube C from the point D. E is a chamber formed by the outer tube C, which fills with the burning liquid from the reservoir. The chamber E is connected with another inner tube, F, and an outer tube, G, by the thimble-connection H. The annular space between the tubes F and G fills with fluid from the chamber E. I represents a wick in the annular space at the end of these tubes, as seen in the drawing. J is the vapor-tube, connected with the lower chamber K or with

the reservoir, and extending therefrom to the end of the generator, and parallel therewith, as seen, and near enough to receive heat from the generating-tube. The burning-fluid used is of a volatile nature, so that vapor escapes at a low temperature. When a match is applied to the reservoir inflammable vapor will be evolved, which will escape through the tube and be ignited at the end. When the wick I is lighted, heat will be conducted by the metallic tubes F G backward toward the reservoir, and will always be sufficient to partially vaporize the liquid, and thus afford a constant supply of vapor to the tube J.

The kindler is placed upon the hearth, beneath the grate, so that the flame or flames will reach the fuel and ignite it. When it is desired to have two wick-flames, or more, the forked tube L, Fig. 2, is attached, in place of the tubes F and G, by the thimble H, to give two, three, or more flames. M represents caps which are screwed on over the wick or wicks.

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

A fire-kindler, consisting of a burning-fluid reservoir, A, tube B, chamber E, generating-tubes F G, wick I, and vapor-tube J, substantially as shown and described.

RICHARD G. WILLIAMS.

Witnesses:

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