R. G. PIKE.

Electric Gas-Lighter.

No. 57,761. Patented Sept. 4, 1866.

Fig. 1.

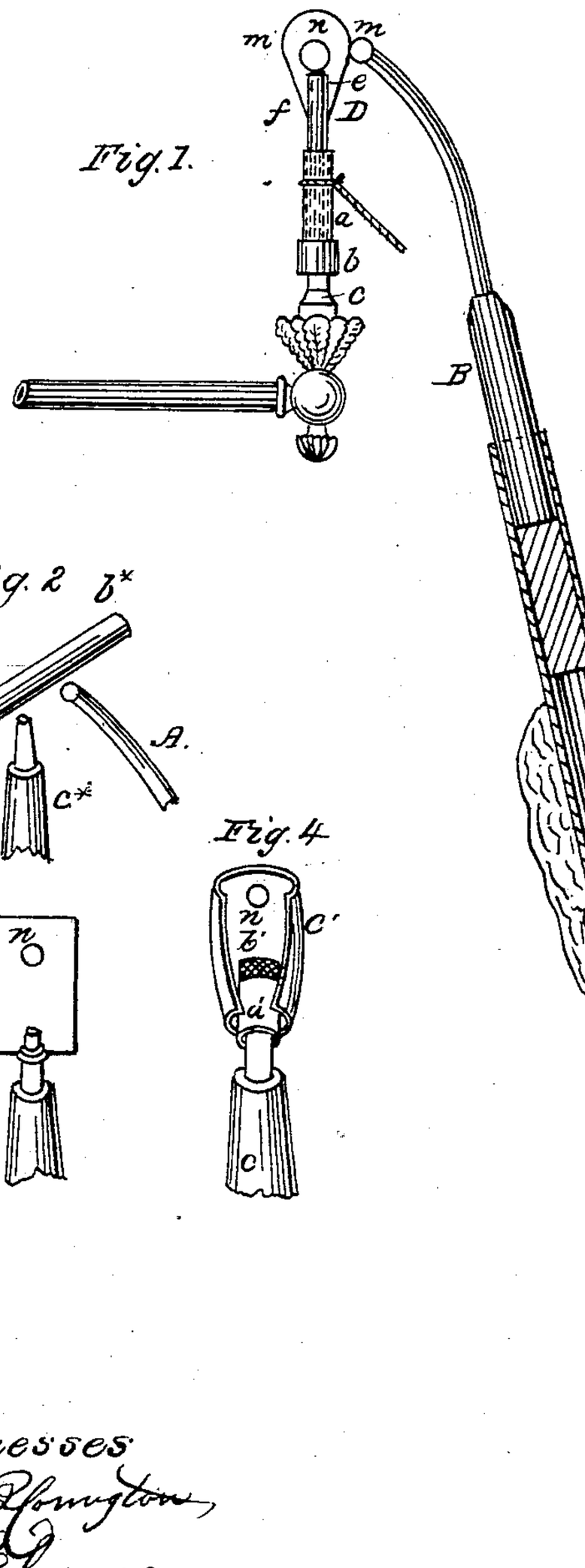

Fig. 2

Fig. 3.

Fig. 4

Fig. 5.

Witnesses

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ROBERT G. PIKE, OF NEW YORK, N. Y.

IMPROVEMENT IN LIGHTING GAS BY ELECTRICITY.

Specification forming part of Letters Patent No. **57,761**, dated September 4, 1866.

To all whom it may concern:

Be it known that I, R. G. PIKE, of the city, county, and State of New York, have invented a new and Improved Device for Burners to be Lighted by Electricity; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a side elevation of this invention. Figs. 2, 3, 4, and 5 are modifications thereof, which will be referred to in the description.

Similar letters of reference indicate like parts.

This invention relates to a contrivance for lighting gas by electricity, which is as follows: The deflector D is a small tube about one-third of an inch in diameter and three inches long, tapering at the top, large enough at the bottom to fit loosely upon an ordinary gas-burner, *c*. About one-half an inch from the bottom are fine perforations extending around the tube and up about an inch. Above these perforations the tube is tight, and is flattened at the upper end, leaving a narrow opening or slit across the top about one-sixteenth of an inch wide. Behind this is a shield or deflecting-plate, upon which is placed a boss or knob, so arranged that the gas, as it comes from the slit, will impinge upon it and be deflected and spread over it, where the spark may ignite it. This deflector serves the purpose of giving direction to the gas as it comes from the burner, whether the gas is partially or wholly turned on, mingling it with atmospheric air, and carrying it so mingled to the spot where the spark is to strike it; for I have found by experiment that by deflecting the gas and spreading it over a conducting-surface it may be ignited by the spark. Thus, when a metallic cylinder, *a* b**, Fig. 2, is brought to touch the burner *c** at an angle of about forty-five degrees, the gas spread under and around it, as represented by the dotted lines, and a spark from the baton A through it, against the tube, will ignite it at an inch or two from the burner, the distance varying according to the force of the jet and the size of the cylinder, the igniting-field being at that point where a sufficiency of air has mingled with the gas. The same result is obtained by placing a small sheet of brass about three inches high and two inches wide at the burner, (see Fig. 3,) bending it at a slight angle, almost vertical, over the burner, with a boss or button, *n*, at the top. By the time the jet has reached the button air has mingled with it, and the spark will ignite it, unless the jet is very forcible.

Again, a tube, *a'*, about two inches long, flattened to a narrow slit at the top, covered with a wire-gauze, *b'*, and applied to a plate, *c'*, about six inches high and two inches broad, and curved at the sides, will so conduct and mix the gas with air that when it strikes a button, *n*, placed near the top, the spark will ignite it on the button. (See Fig. 4.)

So, too, a loosely-fitting tube, *a'' b''*, six or eight inches long, closed at the top, will, when placed on the burner *c''*, turn the gas down round the bottom of the tube and spread it up over the exterior of the tube, when the spark will ignite it, the proper place of ignition being where the air has sufficiently mingled with the gas—that is, near the top of the tube. (See Fig. 5.)

I mention these several plans to show that the gas must be deflected and spread and mingled with the air before it can be readily ignited by the baton, and also to show that the form I have adopted acts upon the same principle, obviating in a great degree their deficiency, for a slight current of air in a room will flare away the gas from open plates, and often cause a failure of ignition. Where the gas is not confined, and its force and quantity modified, so that only a limited quantity reaches the button to mix with the air for exploding, the distance of the button must be raised according to the force of the jet, or an explosion of the spark may fail.

The form I have been led to adopt after these experiments operates as follows: The lower part, *a b*, closes over the burner, shuts in the gas, partially deflects and turns it up mixed with air, (that is already within the tube, and that draws on through the apertures and under the bottom of the tube;) thereon it passes into the upper or contracted part, *e f*, through a slit in its top, whence it is spread

over the button *n* and the plate *m m* behind it, to which it is attached, and there, mingled with more air, it is struck by the spark. The flow of gas, being partially retarded by the tube, comes back through the apertures, and sometimes back below the edge *a b*, and passes up, spreading over the outside of the tube and button and plate, mingling with the air, and it may be struck with the spark at points along *e f*, as well as at the button *n*. As soon as ignited the flame flashes down through the gas on the outside to the burner before or while the tube is lifted off the burner.

The drawings represent the size and proportion of the deflector.

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

1. A plate for deflecting and spreading the gas as it comes from the burner, before striking it with a spark, so as the more readily to mingle the air with it before striking, and also for the purpose of directing the gas to the place of striking, substantially as described.

2. The combination of the metallic gauze *a*, or perforated plate, with the tube or cap or curved plate, and also with the deflector or spreader, substantially in the manner and for the purpose described.

3. The metallic button, or its equivalent, upon the deflecting-plate, operating substantially as described.

4. The combination of the gauze *a*, deflector D, and boss *n*, substantially as described.

ROBERT G. PIKE.

Witnesses:

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