

A. T. SMITH.

Apparatus for Lighting Gas by Electricity.

No. 146,953.

Patented Jan. 27, 1874.

Fig. 1.

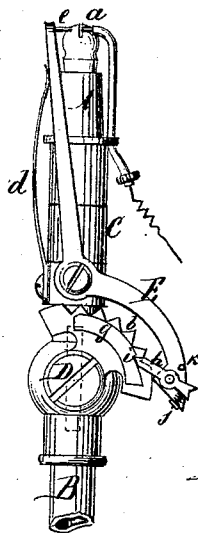


Fig. 2.

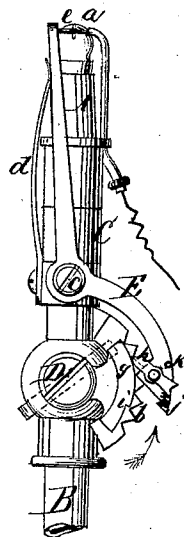
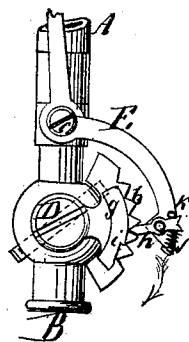


Fig. 3.



Witnesses.

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IMPROVEMENT IN APPARATUS FOR LIGHTING GAS BY ELECTRICITY.

Specification forming part of Letters Patent No. **146,953**, dated January 27, 1874; application filed December 13, 1873.

To all whom it may concern:

Be it known that I, ADOLPH THEODOR SMITH, of the city, county, and State of New York, have invented a new and Improved Electric Gas-Lighter; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which drawing—

Figure 1 represents a rear view of this invention when the gas-cock is open. Fig. 2 is a similar view of the same while the gas-cock is being opened. Fig. 3 is a similar view of the same while the gas-cock is being closed.

Similar letters indicate corresponding parts.

This invention relates to an electric gas-lighter of that class in which the mechanism for producing the electric spark or sparks is connected to the gas-cock and set in motion as the cock is being opened. My improvement consists in the arrangement of a toothed segment and a cam on the plug of the gas-cock, said toothed segment being made to act on a vibrating circuit closing and breaking key, which carries a revolving dog acting on the cam in such a manner that during the operation of opening the gas-cock the toothed segment is permitted to act on the circuit closing and breaking key, and a series of electric sparks are produced which serve to light the gas, while during the operation of closing the gas-cock the circuit closing and breaking key is thrown out of gear with the toothed segment, and the battery-power is reserved for the opening of the cock, and at the same time the mechanism is saved from unnecessary wear.

In the drawing, the letter A designates a gas-burner, which is insulated from the supply-pipe B by a union, C, of india-rubber or other suitable material. On the burner is secured a metallic point, *a*, which connects with one of the poles of a galvanic battery. The gas is admitted to the burner A by means of a gas-cock, D, and on the plug of this cock is secured a toothed segment, *b*, which engages with a lever or key, E, that swings on a pivot, *c*, and is subjected to the action of a spring, *d*, which has a tendency to throw the tip *e* of said lever in contact with the point *a* of the gas-burner. The key E is in metallic contact with

the second pole of the battery, and when the gas-cock is being turned open the toothed segment *b* imparts to the key E a vibrating motion, causing the tip *e* to advance to and recede from the point *a* of the burner, thereby producing a series of electric sparks which serve to light the gas as the same begins to escape from the burner. To the side of the toothed segment *b* is secured a cam, *g*, which acts on a dog, *h*, that is pivoted to the key E. When the gas-cock is full open the point of the dog *h* catches behind a shoulder, *i*, of the cam, (see Fig. 1,) being brought in this position by the action of a spring, *j*. When the cock is being closed the shoulder *i* throws the dog up to the position shown in Fig. 3, a stop, *k*, serving to retain it in this position, and by these means the key E is thrown out of gear with the toothed segment, the tip *e* is held out of contact with the point *a*, and the battery-power is saved, and at the same time the mechanism is preserved against unnecessary wear. When the cock is completely closed the point of the dog *h* drops in front of the end of the cam *g*, and as the cock is being opened said dog is thrown in the position shown in Fig. 2, the key E is permitted to drop in gear with the toothed segment *b*, and by its repeated vibrations the required sparks are produced.

By this arrangement I am enabled to light the gas on a large number of burners with a comparatively small battery-power, and by imparting to the key E a series of vibrations during the time the gas-cock is being opened the operation of lighting the gas does not depend upon a single electric spark, but a number of sparks are produced, so that the gas is lighted without fail.

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

1. The toothed segment *b* and cam *g*, in combination with the gas-cock D, vibrating key E, dog *h*, tip *e*, gas-burner A, and point *a*, all combined and operating substantially in the manner herein shown and described.

2. The combination of a toothed segment, *b*, with a gas-cock, D, key E, tip *e*, gas-burner A, and point *a*, substantially as set forth.

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Witnesses:

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