W. W. BATCHELDER.

Electric Gas-Lighters.

No. 148,403. Patented March 10, 1874.

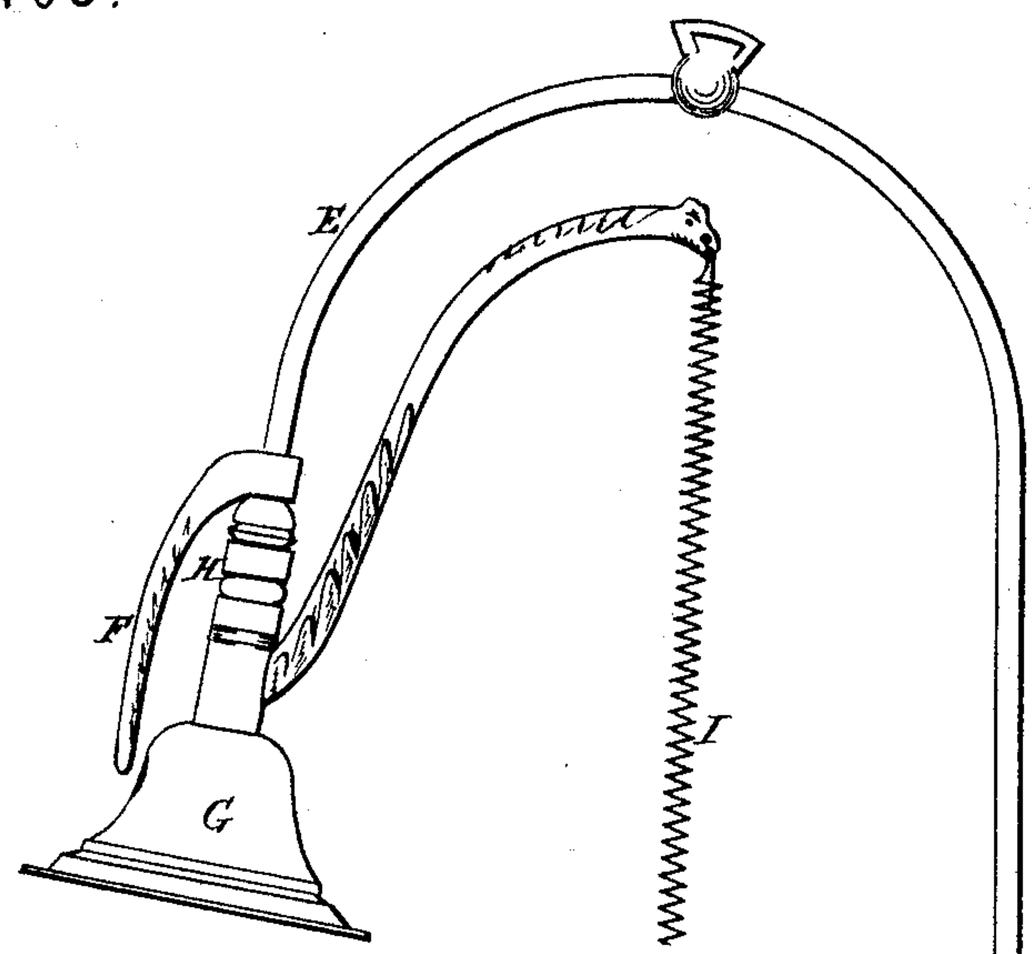


fig. 1.

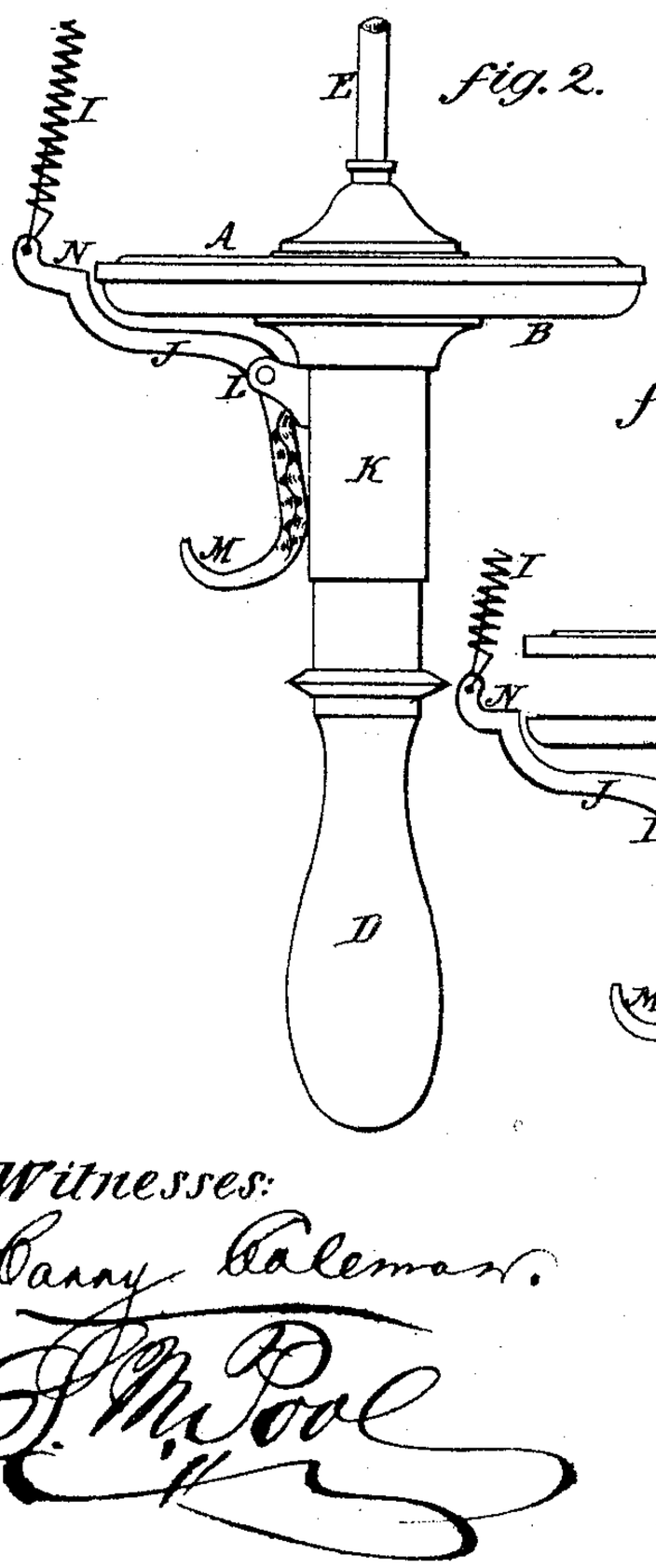


fig. 2.

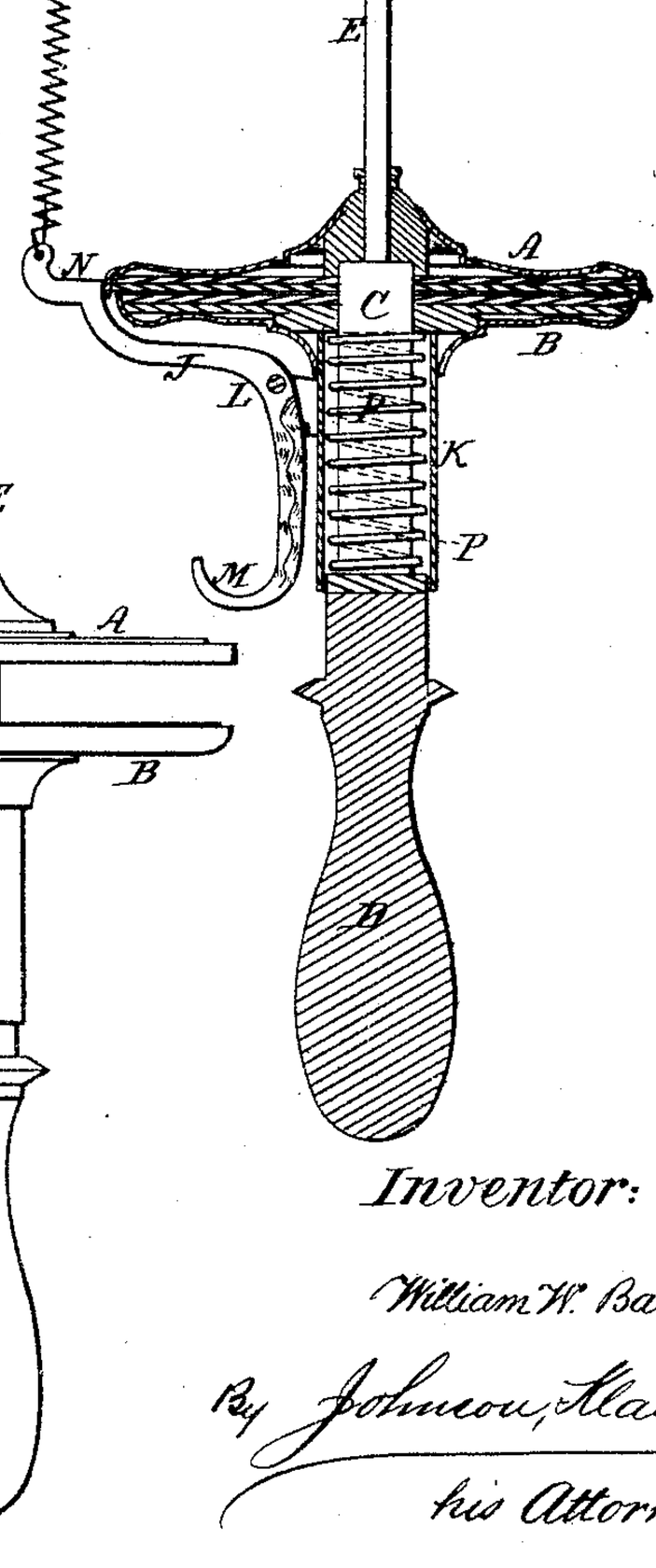
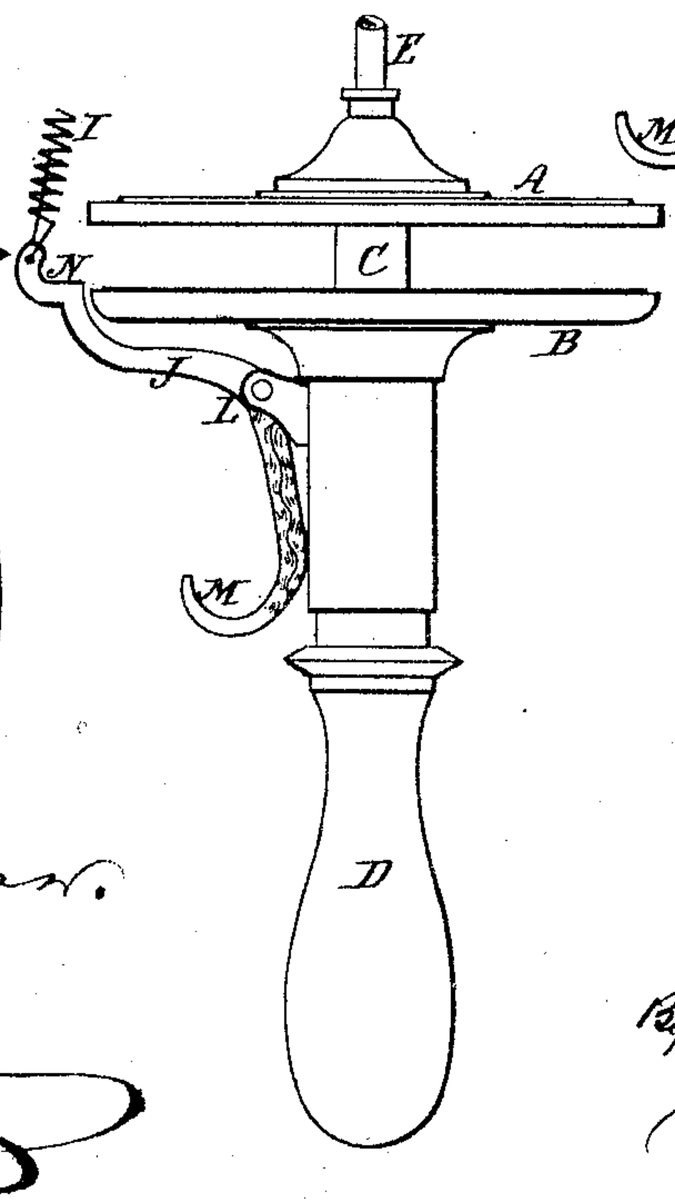


fig. 3



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM W. BATCHELDER, OF NEW YORK, N. Y.

IMPROVEMENT IN ELECTRIC GAS-LIGHTERS.

Specification forming part of Letters Patent No. **148,403**, dated March 10, 1874; application filed June 27, 1873.

To all whom it may concern:

Be it known that I, WILLIAM W. BATCHELDER, of the city and county of New York and State of New York, have invented certain new and useful Improvements in Electric Torches for Lighting Gas, of which the following is a specification:

My present invention is an improvement upon hand devices or torches for lighting gas by the generation of an electric current, as pattened to me under dates of March 5 and April 30, 1872; and the specification of which patents are referred to as giving a full description of the means for generating the electrical current, and its transmission to, and liberation within, an open chamber, which receives the escaping gas above the burner to sufficiently mix it with the air, to cause the electric spark to readily ignite it when the chamber is held a proper distance above the burner, and not in contact with it.

My said improvement consists of a lever or trigger pivoted to the movable section of the electric generator, in a manner to cross the junction formed by the movable and fixed generating-sections when in contact, for the purpose of making an electrical communication between the sections and with the gas-receiver, and to break the electrical connection of the generating-surfaces before they are separated, to insure the liberation and passage of the electric spark to the gas-receiving chamber, and prevent it from passing off into the hand upon the separation of the sections, as will be more fully hereinafter described; and in the combination of the making and breaking lever with the fixed and movable electrical generating-sections, and a flexible metallic spring-connection of the lever with the gas receiving chamber, as will be described hereafter.

In the accompanying drawings, Figure 1 represents an elevation of an electrical torch embracing my invention, showing the sections of the generator closed. Fig. 2 represents the electrical generating portion of the torch, showing the making and breaking lever pulled out of connection with the fixed generating-section; and Fig. 3, a similar view, showing the generating-surfaces separated to liberate the lighting-spark.

The general construction and operation of the torch having been described in my patents aforesaid, a full description of such in this patent is deemed unnecessary, further than is required to illustrate my present improvements. The electrical generating device consists of a fixed and a movable disk, A and B, mounted, respectively, upon a rubber or non-conducting stem, C, and a handle, D, from the former of which a metallic rod, E, projects, to the curved termination of which is attached a liberating-point, F, for the spark, and a receiver, G, for concentrating the escaping gas from and above the burner. The gas-receiver, being insulated from the metallic rod E by a non-conducting section, H, is put in communication with the movable section B of the generator by a spring or metallic connection, D, through the medium of a pivoted lever, J, so as to complete the electrical circuit to the hand. The movable disk or section B is mounted permanently upon a sleeve, K, which is fitted to have a compound sliding and turning movement over and upon the rubber stem C, thus making this part of the device simple, strong, and durable.

In my patent of March 5, the movable section of the generator was composed of two sleeves, to the inner one of which the rubber disk was attached, and the metallic shell to the outer one, for the purpose of obtaining an independent movement of each, the one in advance of the other, for breaking the metallic or charging connection before the separation of the generating-surfaces. It is to obviate this duplex-sleeve arrangement, and obtain the same end, that I have designed the outside pivoted lever with the single sleeve K, which greatly lessens the expense of the manufacture, and simplifies the construction of the generator. This lever J is connected to the movable section B of the generator by a hinge-joint, L, and its lower portion has a thumb-piece or trigger, M, while the upper end of the lever extends outward, crosses the junction of the two disks A and B when closed, and has a shoulder-point, N, the position of which must be such that it will be brought in contact with and bear upon the fixed section A of the generator when the latter is closed, and be carried away by the pressure of the thumb from the fixed disk before the separa-

tion of the generating-surfaces takes place, for a purpose to be presently described. To this end of the lever is attached the spring or metallic connection I, with the gas-receiver G, so that the lever J is utilized for the several purposes of furnishing the means of separating the disks, making and breaking the charging-connection, and completing the electrical circuit with the hand, while the spring-conductor I serves as the force by which the acting-point N of the lever is automatically brought into contact with the fixed section A, which forms a stop to limit the upward movement of the lever, while its outward movement is limited by the inward movement of the trigger against the sleeve K. The position of the trigger J is such that, in grasping the handle D with the hand, the thumb or finger will also grasp the trigger, a pull or pressure upon which will instantly release the connecting-point N from the fixed disk, and the same pull will also afterward separate the generating-surfaces, and allow the lighting-spark to pass off to the liberating-point. Upon releasing the pull the lower rubber section and trigger-connecting point immediately resume their contact with the fixed disk, and the latter is thereby recharged. This movement of the lower section is effected by a spiral spring, P, within the sleeve, bearing respectively upon the handle and the under side of the disk of the rubber surface, as shown in Fig. 1. The spring-conductor I may be in whole or in part a spiral spring, which also forms an elastic protection for the shade or globe against the contact with the metallic rod, but the lever may be forced upward by a spring independent of this conductor. The liberating-point F should be full one-sixteenth of an inch from the gas-receiver, because I have found, in practice, that if too far away from the gas-receiver the sparks will not reach the bell, whereas if it be too close the spark will not be large enough. In using the lighter the bottom of the gas-receiving chamber must be held above or away from the burner about an inch and a half, or it will not light the gas, as there must be a free commingling of the gas with the air. The spark is generated by rubbing the leather surface of the fixed disk and the rubber surface of the movable disk together, and if it fails to be produced by this action, draw down the movable disk and wipe off the hard rubber thoroughly with a dry cloth.

The torch thus constructed is adapted for lighting every variety of gas burner or fixture without any change in their construction, with or without a globe, shade, chimney, or reflector in any position. It is complete in itself, and independent of any connection with the burner or fixture. The lightest and most combustible fabrics can by no possibility be ignited with it. It is manipulated with facility and positive safety, and made of any convenient length, with a key for turning off and on the gas.

Having described my invention, I claim—

1. In an electric torch, substantially such as herein described, a thumb-lever or trigger, pivoted to the movable section of an electric generator, with one end arranged to cross the junction formed by the electric generating-sections when in contact, for the purpose described.

2. The combination, in an electric torch, of the making and breaking lever J, with the fixed and movable sections A B of the electric generator, and a flexible metallic connection or spring, I, connecting said lever with the gas receiving and diffusing chamber G, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses this 26th day of May, A. D. 1873.

WILLIAM W. BATCHELDER.

Witnesses:
A. E. H. JOHNSON,
J. W. HAMILTON JOHNSON.