C. H. HINDS & A. T. SMITH.

LIGHTING GAS BY ELECTRICITY.

No. 171,131. Patented Dec. 14, 1875.

Fig. 1.

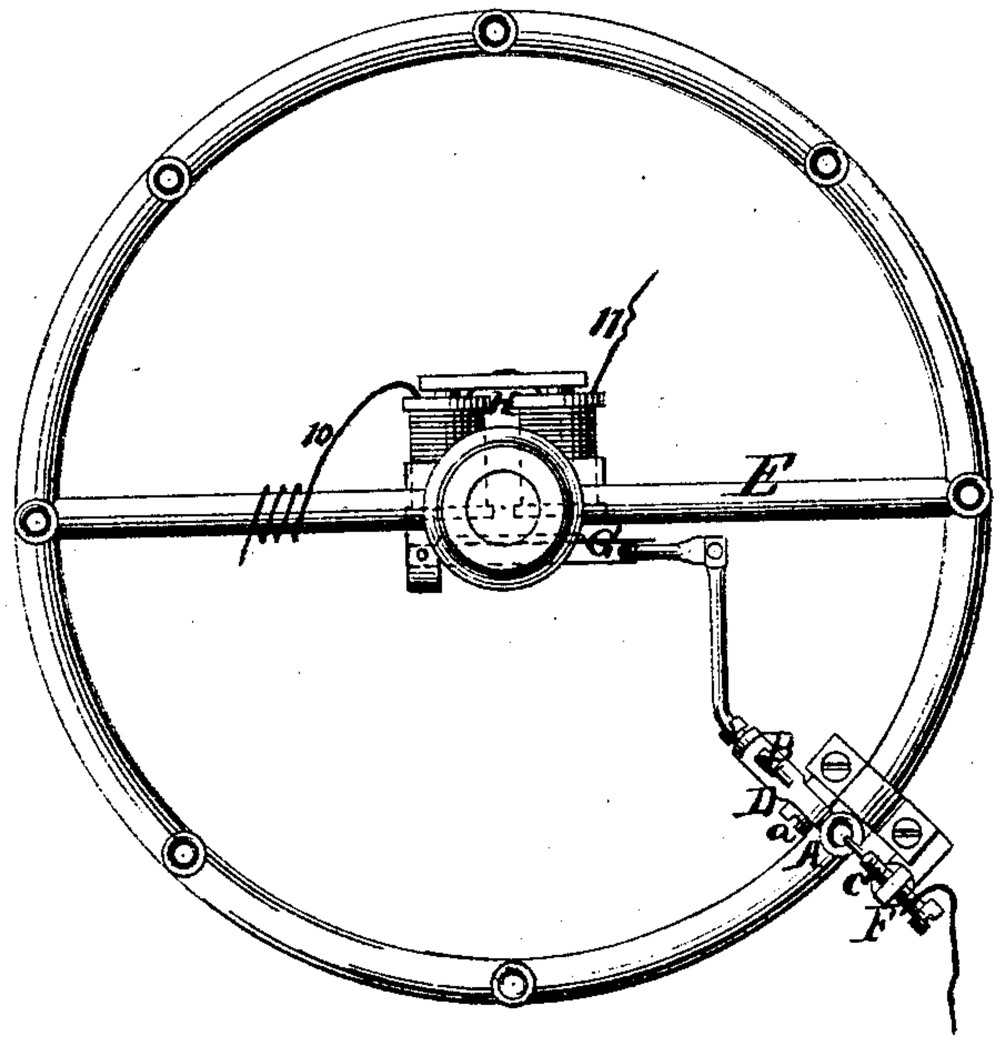
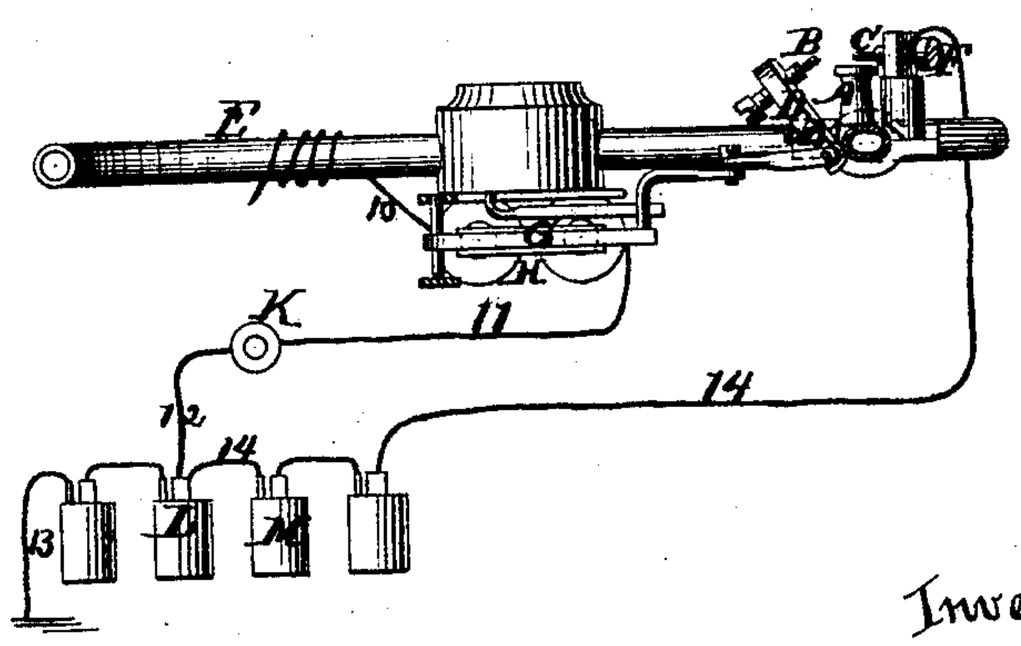


Fig. 2



Witnesses.
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UNITED STATES PATENT OFFICE.

CHARLES H. HINDS AND ADOLPH T. SMITH, OF NEW YORK, N. Y.

IMPROVEMENT IN LIGHTING GAS BY ELECTRICITY.

Specification forming part of Letters Patent No. **171,131**, dated December 14, 1875; application filed June 2, 1875.

To all whom it may concern:

Be it known that we, CHARLES H. HINDS and ADOLPH THEODOR SMITH, of the city, county, and State of New York, have invented a new and useful Improvement in Lighting Gas by Electricity, which improvement is fully described in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a plan or top view. Fig. 2 is a transverse vertical section.

Similar letters indicate corresponding parts.

This invention consists in the combination, with a gas-burner, of two or more galvanic cells, an electro-magnet, a movable electrode, which is connected to the armature of the electro-magnet, and in metallic connection with the gas-pipe, and an insulated electrode, the electro-magnet and the insulated electrode being connected to the galvanic cells in such a manner that when a suitable key is depressed the circuit of a portion of the galvanic cells is closed through the electro-magnet, the vibrating electrode is brought in contact with the insulated electrode, the circuit of the entire number of cells is closed through said electrodes, and when the key is released the electrodes separate and a vivid electric spark is produced, which serves without fail to ignite the gas issuing from the burner.

In the drawing, the letter A designates a gas-burner, which, in the example shown, is a portion of a flash light, but which may be arranged in any desirable manner. With this burner are combined two electrodes, B C, the electrode B being secured in a lever, D, which vibrates on a pivot, *a*, and which is in metallic contact with the gas-pipe E, while the electrode C is secured in a stud, F, which is insulated from the gas-pipe. The lever D, which carries the movable electrode B, is connected to the armature G of an electro-magnet, H, so that when said armature is attracted the point of the movable electrode is brought in contact with the point of the insulated electrode. The helix of the electro-magnet H connects at one end by a wire, 10, with the gas-pipe, and through this gas-pipe with the ground, while the other end of said helix connects by a wire, 11, with a key, K, the anvil of which connects by a wire, 12, with one (say the negative) pole of a galvanic cell, L. The positive pole of this cell connects by a wire, 13, with the ground, and its negative pole connects with the positive pole of another cell, M, the negative pole of which connects by a wire, 14, with the insulated electrode C.

If the key K is depressed the circuit of the cell L is closed through the electro-magnet H, the armature of this electro-magnet is attracted, the point of the movable electrode is brought in contact with the point of the insulated electrode, and the circuit of both cells L M is closed through said electrodes.

If the key K is released the movable electrode B falls back, and as the points of the two electrodes separate a vivid electric spark is produced, which invariably serves to ignite the gas issuing from the burner.

It is obvious that instead of using only two galvanic cells, L M, three or more such cells may be employed, the circuit of one or more cells being used to charge the electro-magnet, while the circuit of the whole number of cells is employed to produce a spark of sufficient force to ignite the gas whenever the movable electrode is brought in contact with the insulated electrode, and then allowed to fall back.

If the burner A forms a portion of a flash light, and the gas issuing from said burner is ignited, as above stated, the flames of all the remaining burners are lighted by the flame first lighted; but our apparatus may be used for igniting the gas of any one burner.

The electrodes B C are, by preference, made of platina wire, and since the movable electrode B is kept entirely out of contact with the flame it remains in a good working condition for a long time, and by the powerful current of electricity which is created by the combined action of all the cells whenever the two electrodes come in contact our apparatus never fails to do its work correctly.

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

The combination of the fixed insulated electrode C, the electrode B, mounted in the vi-

brating lever D, and in metallic connection with the gas-pipe, the armature G, connected with the vibrating lever, the electro-magnet H, the key K, and the galvanic cells L M, connected with the key K, the electro-magnet, gas-pipe, and insulated electrode C, substantially as and for the purpose described.

In testimony that we claim the foregoing we have hereunto set our hands and seals this 26th day of May, 1875.

CHAS. H. HINDS. [L. S.]
ADOLPH THEODOR SMITH. [L. S.]

Witnesses:
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