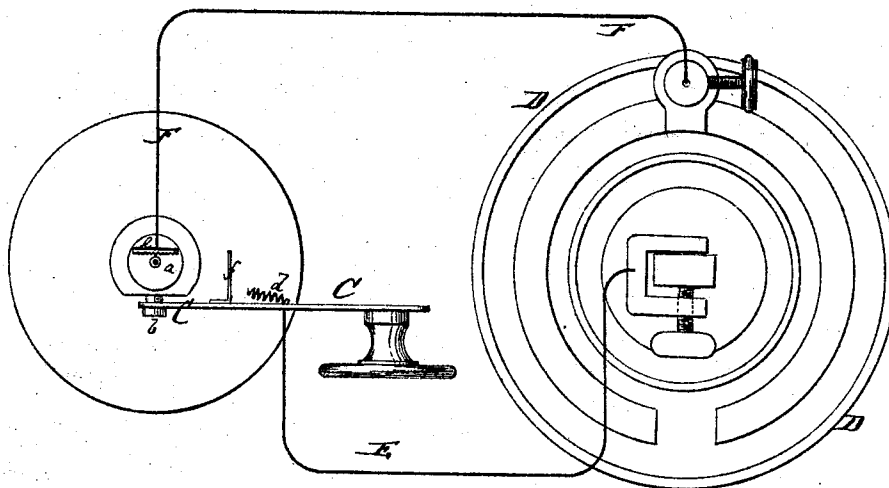
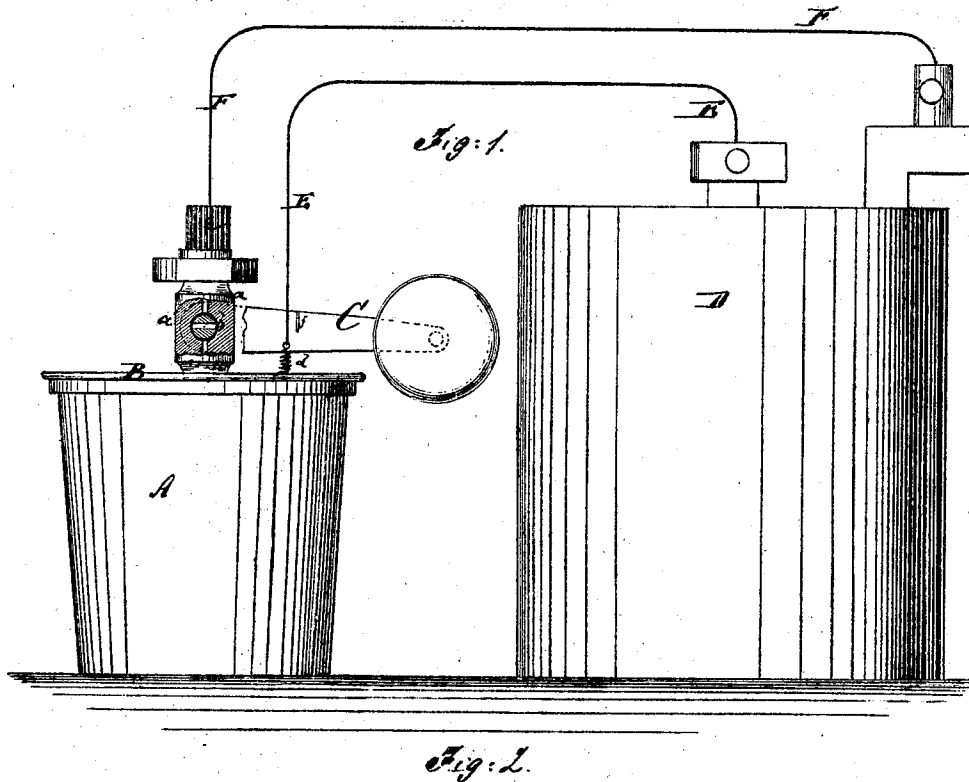


F. HEYL & P. DIEHL.

Electro-Magnetic Gas Lighting Apparatus.

No. 116,054.

Patented June 20, 1871.



Witnesses:

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# UNITED STATES PATENT OFFICE.

FRIEDRICH HEYL AND PHILIPP DIEHL, OF EAST NEW YORK, N. Y.

## IMPROVEMENT IN ELECTRO-MAGNETIC GAS-LIGHTING APPARATUS.

Specification forming part of Letters Patent No. 116,054, dated June 20, 1871.

*To all whom it may concern:*

Be it known that we, FRIEDRICH HEYL and PHILIPP DIEHL, of East New York, in the county of Kings and State of New York, have invented a new and Improved Electrical Igniting Apparatus; and we 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 drawing forming part of this specification, in which—

Figure 1 represents a side elevation, partly in section, of our improved electrical igniting apparatus. Fig. 2 is a plan or top view of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to a new arrangement of devices for bringing the electric spark in contact with the jet of hydrogen gas which escapes from a zinc-and-acid reservoir similar to that used in the Döbereiner lamp; and has for its object to dispense with the platinum-sponge, which is expensive and too rapidly destroyed, besides being easily affected by moisture or other change of temperature. Our invention consists in the connection, with the valve-lever pertaining to the said reservoir, of a projecting prong and one conductor of electricity. The other conductor leads to a serrated or corrugated plate, which projects from the top of the reservoir. When the lever is moved to open the valve and permit the escape of gas, the projecting prong is, by the same motion, brought in contact with the serrated plate, closing thereby the circuit, and producing a series of sparks which ignite the gas. The burning jet can be used to ignite other things, either the wick of a lamp, a taper, or other article. The prong and plate can be made of steel or other metal, and are more durable and reliable than the platinum-sponge.

A in the drawing represents the vessel or reservoir, within which hydrogen gas is created in the well-known or suitable manner. B

is the cover of the vessel A. From it projects a tube, *a*, for the escape of the gas. *b* is a valve fitted through the tube *a* for preventing or regulating the escape of gas. C is a lever affixed to the valve for turning the same. A spring, *d*, or weight tends to so hold the lever that the valve will be closed, as shown in Fig. 1. D is an electric battery of suitable construction. Its one conductor, E, is connected with the lever C; the other, F, with a plate or post, *e*, projecting from the upper end of the tube *a*. The plate *e* of the pivot of the lever C is insulated from the metal of the tube, so that the electrical circuit will not be established unless the lever is brought in direct contact with the plate *e*. To facilitate this a projecting prong, *f*, is affixed to the lever. Both the plate *e* and prong *f* can be made of steel or other suitable metal.

When the lever is swung up to open the valve the prong *f* is brought in contact with the surface of the plate *e* and moves over the same. We prefer to corrugate or roughen the surface of *e* so that greater friction and consequent more absolute contact will be produced when the prong moves over the plate. The electric circuit is then completed, and the current passes through the conductors, emitting sparks as it passes from *f* to *e*, or vice versa. As at the same time the valve *a* has been opened to permit an escape of hydrogen gas the sparks will come in contact with the gas, igniting the same, and enabling it to ignite other bodies.

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

The combination of the valve *a*, lever C, and prong *f* with the projecting plate *e* and electric conductors E F, all arranged to operate substantially as herein shown and described.

FRIEDRICH HEYL.

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