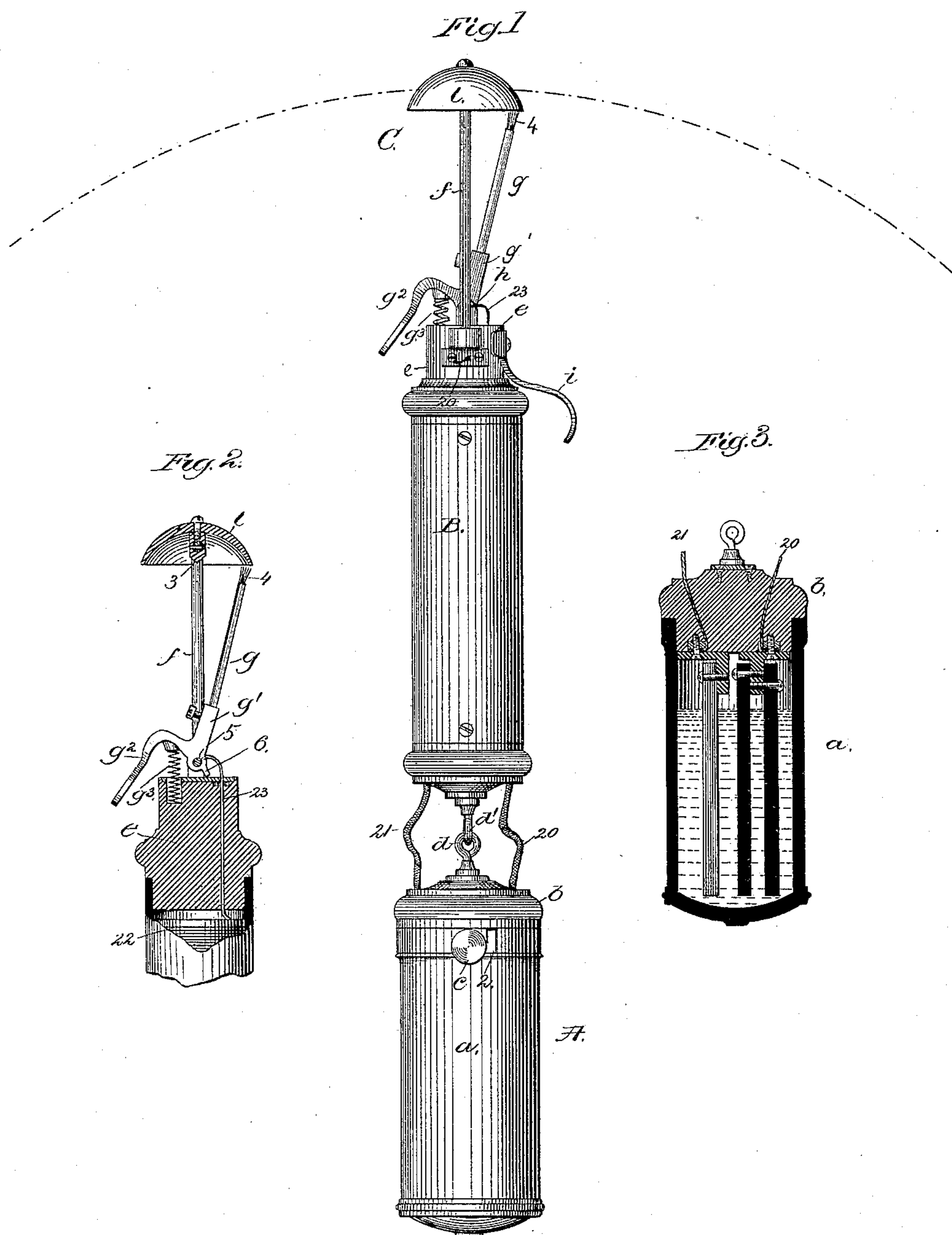


(No Model.)

W. H. H. WHITING.
ELECTRIC GAS LIGHTER.

No. 257,195.

Patented May 2, 1882.



Witnesses.
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UNITED STATES PATENT OFFICE

WILLIAM H. H. WHITING, OF CHELSEA, MASSACHUSETTS.

ELECTRIC GAS-LIGHTER.

SPECIFICATION forming part of Letters Patent No. 257,195, dated May 2, 1882.

Application filed December 29, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. H. WHITING, of Chelsea, county of Suffolk, State of Massachusetts, have invented an Improvement in Electric Gas-Lighters, of which the following description, in connection with the accompanying drawings, is a specification.

My invention relates to an apparatus for producing an electric spark for the purpose of lighting gas, and is intended as an improvement on Letters Patent No. 209,549, dated November 5, 1878, and No. 222,555, dated December 29, 1879, to which reference may be had.

The present invention has for its object to include in a single compact apparatus all the elements necessary for producing electric sparks, the said apparatus being of convenient form to be carried about in and manipulated by the hand of the operator. For this purpose the contact-electrodes, by which the circuit is made and broken for the purpose of producing sparks, and which correspond in function to those shown in the patents before referred to, are mounted upon a base which forms one end of a cylindrical case in which the coil that is employed to increase the spark by the inductive action of its successive convolutions is placed. This case is shown as made of a shell of hard rubber, and is of convenient size and shape to be grasped and held in the hand of the operator. At the lower end of the case and connected therewith is the battery, (shown as a single cell of small size,) the kind known as a "bichromate" or "sal-ammonia" battery being preferred. The battery is preferably connected with the coil-case by a universal joint, and flexible electrical conductors are used, so that the said battery will remain in a vertical position without disturbing its liquid contents while the coil and the electrodes are manipulated by the operator for the purpose of obtaining more convenient access to the burner to be lighted.

Figure 1 is a side elevation of a complete apparatus embodying this invention; Fig. 2, a longitudinal section of the upper portion thereof, showing the electrodes and a portion of the end of the coil, and Fig. 3 a longitudinal section of the battery-cup.

In Fig. 2, A represents the battery, B the case containing the coil, and C the circuit

breaking and closing electrodes between which the spark is formed, the said case B being of suitable size and shape to be readily grasped and manipulated by the hand of the operator.

The cup or vessel *a*, containing the material for generating an electric current, is provided at its upper end with a cap, *b*, to which the usual zinc and carbon poles are connected by metallic lugs, as clearly shown in Fig. 3. The said cap *b* is provided with screws *c*, (see Fig. 1,) that by their engagement with notches 2 at the upper end of the vessel *a* serve as a clasp to fasten the said vessel upon the said cap, after the manner of what is known as a "bayonet-joint." The said cap *b* is provided with an eye, *d*, which interlocks with a similar eye, *d'*, connected with the bottom of the case B, these eyes *d d'* permitting a universal angular movement of the case B relative to the battery A, which latter will thus always remain in a vertical position, regardless of the deviations of the case B in the hand of the operator.

The upper end of the case B is provided with a block, *e*, which serves as a base for the support of the electrodes, one of which is formed as a piece of stiff wire, *f*, bent in a U shape, the ends of which are fastened at either side of the said base *e*. The curved portion of this wire is provided with a downwardly-projecting point, 3, (see Fig. 2,) which lies in the path of a metallic brush, 4, at the end of a metallic arm, *g*, held in a socket, *g'*, pivoted at 5 upon lugs *h*, supported on the top of the base *e*, and insulated from the wire *f*, fastened to the sides thereof, the said base *e* being of insulating material.

The socket *g'* of the arm *g* is provided with a thumb-piece and is acted upon by a spring, *g³*, to keep the brush 4 remote from the projection 3, as shown in Fig. 2, the movement of the socket *g'* caused by the spring being limited by the stop-projection 6 thereon. The base *e* is also provided with a finger-piece, *i*, which is properly located to rest over the forefinger of the hand grasping the case B, while the thumb is in proper position to operate the thumb-piece *g²*.

One pole of the battery A is connected with a flexible wire, 20, which passes directly through the case B to one end of the wire *f*, as shown in Fig. 1. The other pole is connected by wire

21 with one end of the coil 22, (see Fig. 2,) the other end of which is connected by wire 23 with the supporting-lugs of the vibrating arm *g*, and through them and the said arm with the brush 4, which thus forms one terminal, while the projection 3 from the wire *f* forms the other terminal of the battery *A*, the coil being included in the circuit.

The operator, by pressing on the thumb-piece *g*², will swing the arm *g* in the direction of the arrow, Fig. 2, carrying the brush 4 across the point 3, and thus making and breaking the circuit and producing a spark between the said points. When he releases the said thumb-piece the spring *g*³ will carry the arm back again, making and breaking the circuit once more. The wire *f* is provided with a bell-shaped hood, *l*, surrounding the projection 3, its function being to collect a body of gas issuing from the burner to be lighted, so that the spark will be formed in the midst thereof.

The arm *g* is made adjustable longitudinally in its socket-piece *g*¹, so as to regulate the position of the end of the brush relative to the projection 3.

It is obvious that the base-pieces *e* at the upper end of the coil may be lengthened into a pole when the burners to be lighted are inaccessible to the shorter apparatus, suitable mechanical connections being then provided for operating the arm *g*.

I claim—

1. The herein-described gas-lighting apparatus, it consisting of a cylindrical coil of wire,

contact-electrodes mounted on one end of the case or frame-work of the said coil, and a battery-cell mechanically attached to the other end of the said coil, its poles being connected in circuit through the said coil with the said electrodes supported thereon, substantially as described.

2. The coil and electrodes supported thereon, combined with the battery-cell connected with the case or frame-work of the said coil by a universal joint, substantially as described.

3. The electrode, consisting of a fixed U-shaped wire, and the bell-shaped hood mounted thereon, combined with the co-operating electrode, consisting of a spring-pressed pivoted arm located between the parallel portions of the U-shaped electrode in position to make electrical contact therewith, near the center of the said hood, substantially as described.

4. The coil of wire and its cylindrical inclosing-case, adapted to serve as a handle, combined with the supporting finger-piece *i*, and the electrodes mounted on one end of the said case, one of the said electrodes being provided with an operating thumb-piece, and the battery-cup attached to the other end of the said case, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WM. H. H. WHITING.

Witnesses:

JOS. P. LIVERMORE,

W. H. SIGSTON.