

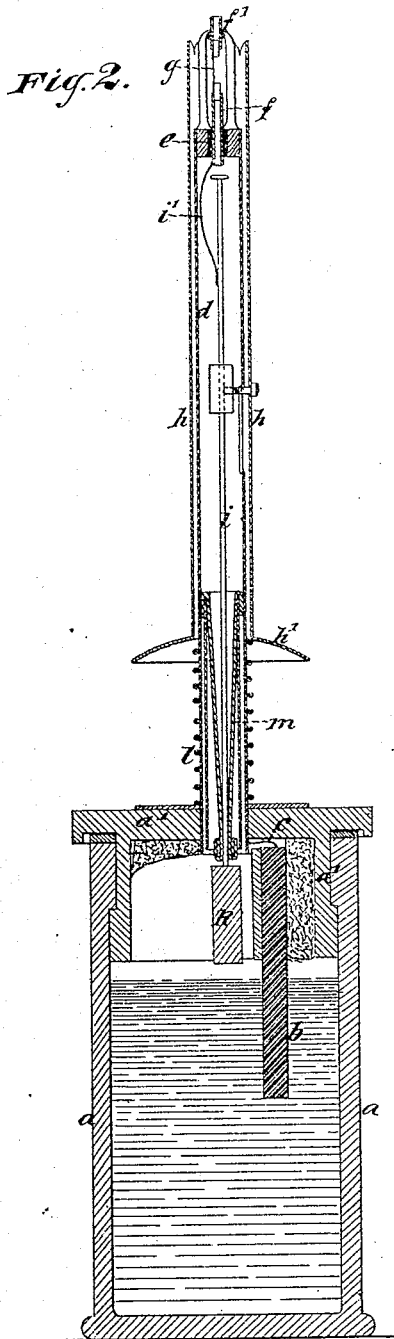
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A. R. MOLISON.

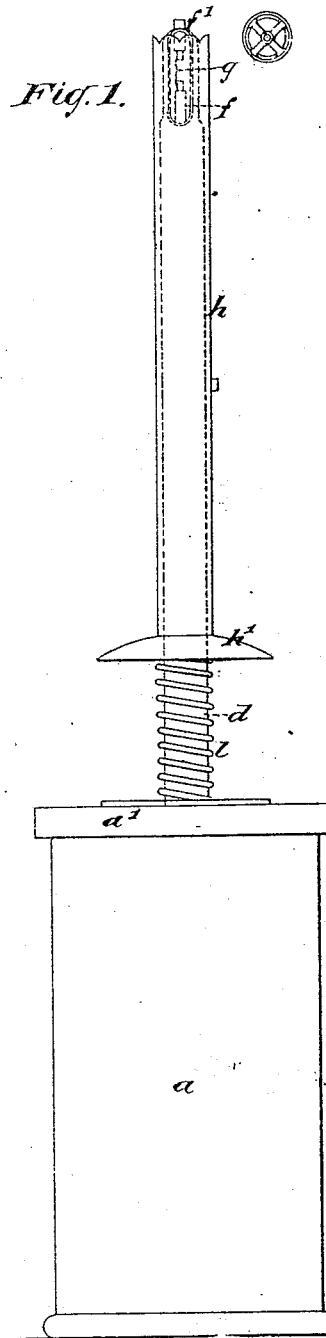
Electric Gas-Lighting Apparatus.

No. 214,173.

Patented April 8, 1879.



Witnesses  
John Becker  
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Inventor  
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# UNITED STATES PATENT OFFICE.

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ALEXANDER R. MOLISON, OF SWANSEA, ENGLAND.

## IMPROVEMENT IN ELECTRIC GAS-LIGHTING APPARATUS.

Specification forming part of Letters Patent No. 214,173, dated April 8, 1879; application filed February 20, 1879.

*To all whom it may concern:*

Be it known that I, ALEXANDER REID MOLISON, of Swansea, in the county of Glamorgan, England, have invented certain Improvements in Electrical Apparatus for Igniting Illuminating-Gas, of which the following is a specification.

The object of this invention is to provide a portable electrical apparatus which will serve the purpose of a lighted taper for igniting gas and will be ready for instant use, although no electric action takes place in the apparatus until it is required to be brought into use.

In the accompanying drawings, Figure 1 is an external view of the apparatus, and Fig. 2 is a sectional elevation taken through the center of the apparatus.

In these figures, *a* is a closed vessel for receiving the exciting-liquid and the battery elements; and *a'*, a water-tight cover, secured in place by a bayonet-joint. The battery elements are fitted to the removable cover *a'* of the vessel, and depend from the under side thereof.

Supposing carbon and zinc to be the elements used, the carbon shown at *b* is cemented to and insulated from the cover, and, by means of a wire, *c*, is brought into electric connection with a tube, *d*, standing up from the cover. In the upper end of this tube a plug of insulating material, *e*, is fitted to receive a fine metal tube, *f*, to which one end of a strip of platinum-foil, *g*, is secured by a plug. The other end of this platinum-foil is similarly secured to a second metal tube, *f'*, situated immediately above the tube *f*, and carried by a cage formed from an extension of the tube *d*. Surrounding the tube *d* is an outer tube or sleeve, *h*, terminating at its lower end in a broad flange, *h'*. Interposed between the cover of the vessel and the flange *h'* of the sleeve *h* is a coiled spring, *l*, which serves, by pressing on the under side of the flange, to keep the tube *h* in the raised position shown in the drawings, the object of which will be presently explained.

*k* is the zinc element, attached to the lower end of a central rod, *i*, which rod passes up through the tube *d*, and terminates in a but-

ton a little below the small tube *f*. Pendent from this tube *f* is an elastic pressing-piece, *i'*, which serves to bring the rod *i*, and consequently the zinc element *k*, into electric connection with the platinum-foil. This rod is supported by being connected, through a collar and screw, with the sliding tube *h*, the tube *d* being slotted longitudinally to permit of the coupling-screw connecting with the collar and sliding freely with the tube *h*.

When the spring *l* sustains the tube *h* in the position shown in the drawings the zinc will be suspended above the exciting-liquid, and no electric action will take place. In its raised position the sleeve *h* will serve as a protection to the platinum-foil.

When using carbon and zinc as the elements, I prefer to employ an acidulated solution of bichromate of potash as the exciting-liquid.

In order to close the tube *d* against the exciting-liquid, I line the lower part thereof with lead, and attach to the upper end of this lining an india-rubber sleeve, *m*, the lower end of which I secure tightly to the bottom of the central rod, *i*. The elasticity of this sleeve will permit of the free vertical motion of the rod *i*, while it closes the tube *d* against the passage of the exciting-liquid through that tube in the event of the apparatus being upset or unduly inclined during its use. In such event, the leaden lining will protect the tube *d* from the corrosive action of the exciting-liquid.

In order to ignite a gas-jet with this apparatus, it is only necessary to depress the sleeve *h* and to present the platinum-foil thereby exposed to the stream of gas. This depression of the sleeve, by forcing the zinc into the exciting-liquid, will cause an instant electrical action to be set up, and the platinum, being thereby heated, will serve to ignite the gas.

On releasing the sleeve *h* from pressure, the coiled spring will lift the zinc out of the exciting-liquid, and thereby stop the action of the battery, as the sleeve will be forced up to its normal position above the platinum, and will form a protection thereto.

Having now explained the nature of my invention and the manner of carrying it in-

to effect, I would have it understood that I claim—

1. In combination with the battery-cell *a*, a tube, *d*, carrying a strip of platinum-foil or its equivalent, such foil being brought into connection with the battery elements *b* and *k*, as and for the purpose above described.

2. In combination with the protecting-sleeve *h*, which slides upon the tube *d*, and the coiled

spring *l*, the battery element *k*, connected to the sleeve by the rod *i*, the same being arranged as and for the purpose above set forth.

Dated the 28th day of November, 1878.

Witnesses: ALEX. REID MOLISON.

V. U. GWILLIM,

REES REES,

Clerks with Messrs. Sheek & Bellingham, Solicitors, Swansea.