W. E. SAWYER.

ELECTRIC LIGHTING APPARATUS.

No. 194,563. Patented Aug. 28, 1877:

Fig 1.

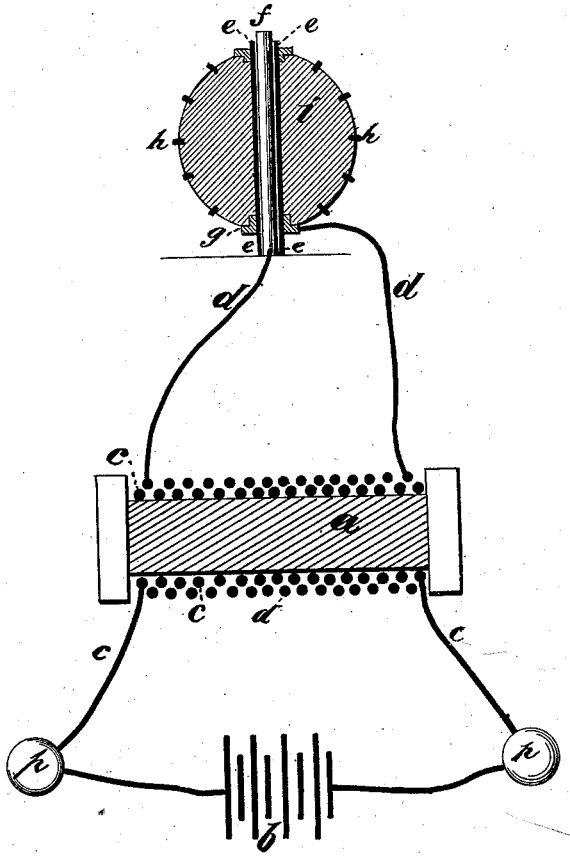
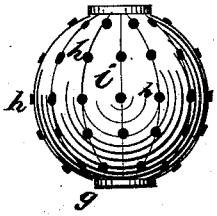


Fig 2



Witnesses.

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WILLIAM E. SAWYER, OF NEW YORK, N. Y.

IMPROVEMENT IN ELECTRIC LIGHTING APPARATUS.

Specification forming part of Letters Patent No. **194,563**, dated August 28, 1877; application filed June 22, 1877.

To all whom it may concern:

Be it known that I, WILLIAM EDWARD SAWYER, of the city, county, and State of New York, have invented a certain new and useful Improvement in Electric Lighting Apparatus, of which the following is a full, clear, and exact description.

My invention designs, by in part adopting the means employed by the old electricians for multiplying the electric spark, to produce a light sufficiently powerful to illuminate an ordinary room; and consists in the construction of the multiplier and its combination with an induction-coil, whereby many such lights may be placed in the single circuit of a galvanic battery or magneto-electric machine.

In the drawings accompanying and forming a part of this specification, Figure 1 is a plan view of the apparatus, and Fig. 2 a view of the studded sphere or multiplier.

I have shown the apparatus for a single light.

The induction-coil *a*, with or without a condenser, is actuated by the current from the battery or magneto-electric generator *b*, which, through its connection with binding-posts *p p*, traverses the primary coil *c c* of the inductorium, and as fast as its flow is interrupted or reversed in polarity induces currents of high tension in the secondary wires *d d*.

The well-known form of induction-coil answers my purpose sufficiently well.

The spark-multiplier may be given any desired shape; but I greatly prefer to construct it in spherical form, on account of the superior radiation of light attainable thereby.

The globe or sphere *i* I construct of almost any insulating substance in which I set metallic studs *h*, insulated from each other, and arranged the desired distance apart, in lines corresponding to the meridional lines of the earth. If desired, the surface of the sphere may be highly polished, or in any other way made reflective of light. The globe may be attached to a wall-bracket or a table-base, or suspended from the ceiling of a room, as desired.

One end of the wire from the secondary coil of the inductorium is attached to an insulated stud, *g*. The other end of the wire, protected by insulation *e e e e*, passes through the sphere, on the side of which opposite to stud *g* it appears at *f*.

The operation of the apparatus is as follows: The electric discharge from the inductorium, being unable to pass from *g* to *f*, except by leaping the spaces between the studs *h*, produces a series of brilliant sparks in meridional lines extending from pole to pole of the sphere, and the multiplicity of the series is such as to give an effective light.

I may embed the studs *h* so as to leave them on a level with the surface of the sphere or projecting from the same. In either case I make them sufficiently substantial to prevent rapid wearing out from the action of the spark. In most cases a hemisphere will answer the purpose as well as the sphere.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an electric lighting apparatus, an insulating-sphere studded with metallic points arranged in a series of meridional lines extending from pole to pole of the same, substantially as shown and described.

2. An electric lighting apparatus, consisting of a series of lines of insulated metallic points arranged upon the surface of a sphere, in combination with an induction-coil with or without a condenser, as set forth.

WILLIAM EDWARD SAWYER.

Witnesses:

JAMES G. SMITH,

JOS. COLLETT.