2 Sheets—Sheet 1.

J. A. VOISIN & P. DRONIER.

APPARATUS FOR LIGHTING LAMPS BY ELECTRICITY.

No. 169,387. Patented Nov. 2, 1875.

Fig. 1.

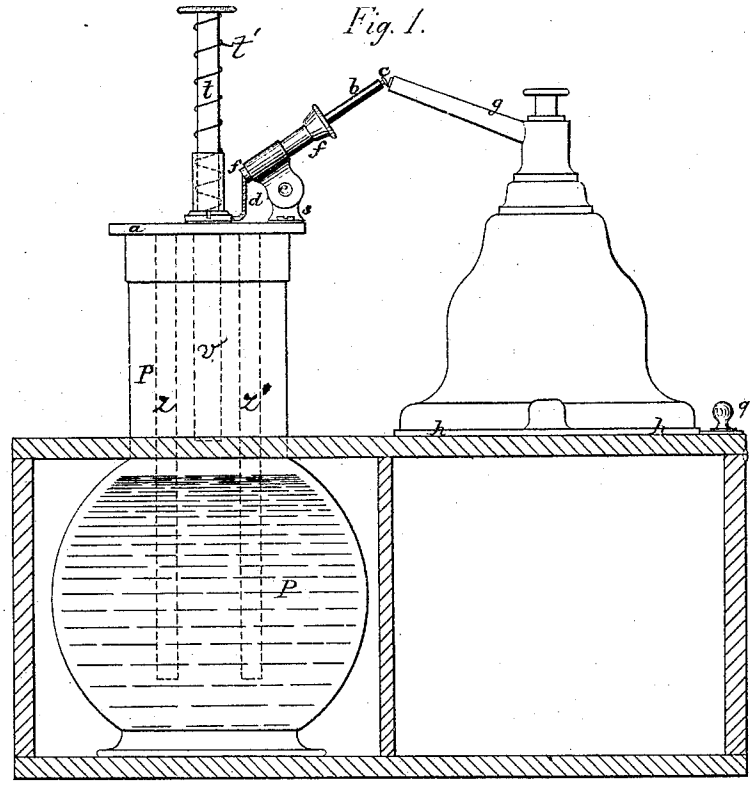
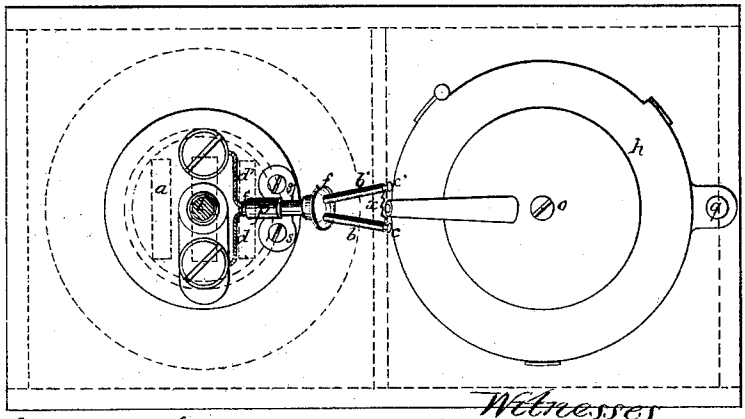


Fig. 2.



Witnesses

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Jean Alexis Voisin,
Pierre Dronier.
by John J. Halsted Atty

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2 Sheets—Sheet 2.

J. A. VOISIN & P. DRONIER.

APPARATUS FOR LIGHTING LAMPS BY ELECTRICITY.

No. 169,387. Patented Nov. 2, 1875.

Fig. 3.

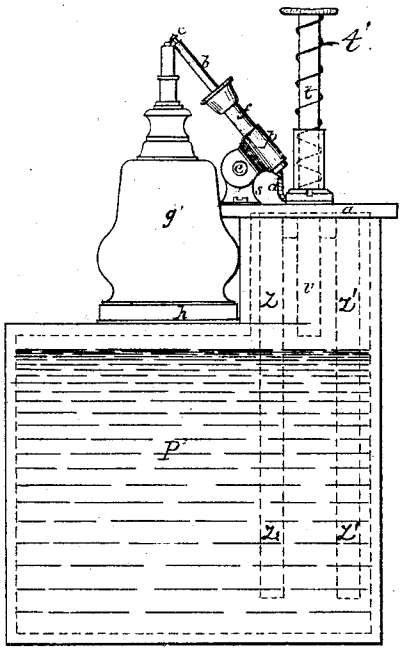


Fig. 6.

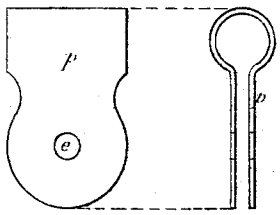


Fig. 5.

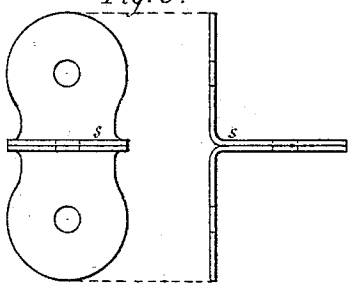


Fig. 4.

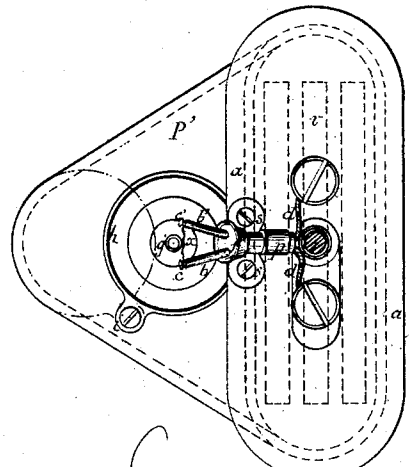


Fig. 7.

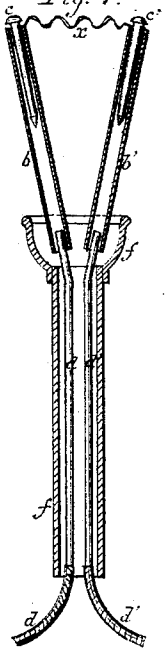
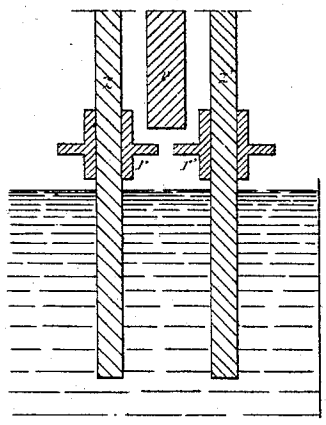


Fig. 8.



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Pierre Dronier
by John J. Halsted
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UNITED STATES PATENT OFFICE.

JEAN A. VOISIN AND PIERRE DRONIER, OF PARIS, FRANCE.

IMPROVEMENT IN APPARATUS FOR LIGHTING LAMPS BY ELECTRICITY.

Specification forming part of Letters Patent No. **169,387**, dated November 2, 1875; application filed May 1, 1874.

To all whom it may concern:

Be it known that we, JEAN ALEXIS VOISIN and PIERRE DRONIER, of Paris, in the Republic of France, civil engineers, have invented a certain Improved Method of and Apparatus for Producing a Flame or Light, of which the following is a specification:

The object of our invention is the instantaneous production of flame or light; and it consists in the combination, in an apparatus for producing a flame or light by means of electricity, of a sheath or case provided with an isolating or resinous substance, of wires, tubes, and a platinum wire or strip, as hereinafter more particularly set forth.

The apparatus is constructed of a battery, or other generator of electricity susceptible of bringing a wire or strip of platinum to red heat—by preference, a battery with bichromate of potassa. The zinc element is plunged at will a certain distance into the solution, and the current resulting is directed toward a platinum wire, or, by preference, a thin strip twisted into a spiral form. Near to this wire or strip is placed a small lamp having a wick saturated with some combustible liquid. The extremity of this wick is brought near to the platinum wire or strip, and the zinc is at the same time plunged into the solution sufficiently to raise to a dull red heat the temperature of the wire or strip of platinum.

When the combustible vapors come in contact with the platinum, the temperature of the platinum increases to a point such as will determine the combustion of the vapors, and hence of the liquid.

To enable our invention to be better understood, we will proceed to describe the same by reference to the accompanying drawings, in which—

Figure 1, Sheet 1, is an elevation of the improved apparatus; Fig. 2, Sheet 1, a plan of same. Fig. 3, Sheet 2, is an elevation of an apparatus mounted on a triangular box; Fig. 4, Sheet 2, plan of same. Fig. 5, Sheet 2, shows the support of the conflagrator; Fig. 6, Sheet 2, the clamp of the conflagrator. Fig. 7, Sheet 2, is a vertical section of the sheath or case and branches of the conflagrator; and Fig. 8, Sheet 2, is a vertical section of the electrodes with their india-rubber lips.

Thus the apparatus consists of a generator of electricity, P.

We prefer employing a bichromate-of-potassa battery. The zinc element *v*, Fig. 8, is suspended by a rod, *t*, and is kept in its place by a spiral spring, *t'*, which allows of its being plunged into the solution to the required extent, and draws it out again so soon as the pressure of the finger is taken off the rod *t*. In rising, the zinc is wiped by the two india-rubber lips or strips *r r'*, fixed to the carbon elements *z z'*. The current of electricity thus formed passes through the wires *d d'*, Fig. 7, into a sheath or case, *f*, full of rosin or other suitable isolating substance, and from thence through the tubes *b b'*, which, by means of the wedges or pins *c c'*, fix the extremities of the platinum wire or strip *x*. The sheath or case is passed into the cylindrical eye of a clamp, *p*, Fig. 6, jointed at *e* to a support, *s*, Fig. 5. The sheath is made to slide, so that it may be easily brought to the same height as the wick *g* of the lamp to be lighted.

As shown in Figs. 1 and 2, the lamp may be mounted on a pivot, *q*, so that it may be turned and present the wick to the conflagrator-wire and away from it, as required.

In Figs. 3 and 4 the apparatus is shown mounted upon a triangular box, and the electrodes of the battery are immersed according to their largest dimensions, so that by a slight lowering of the rod a surface of immersion is obtained sufficient for the current to have the required force. Experience has shown that a superficial immersion of about two to three square inches will suffice.

To work the apparatus, we lower the zinc element into the solution, and at the same time we bring the saturated wick or substance to be inflamed close to the wire. Then the temperature rises sufficiently to light the wick. The lamp is then turned to the other side, and on releasing the knob the rod will rise and raise the zinc element above the solution, and the current will cease.

Any suitable electric current generator may be employed.

We do not confine ourselves to the form of or materials employed in the apparatus.

We claim—

The combination, in an apparatus for producing a flame or light by means of electricity, of the sheath or case *f*, provided with an isolating or resinous substance, wires *d d'*, tubes *b b'*, and the platinum wire or strip *x*, all as shown and set forth.

J. A. VOISIN.
P. DRONIER.

Witnesses:
H. DUFRENÉ,
A. MALIN.