(No Model.) 2 Sheets—Sheet 1.

# L. BRISTÖL.

## PORTABLE ELECTRIC LAMP.

No. 458,279. Patented Aug. 25, 1891.

Fig 3.

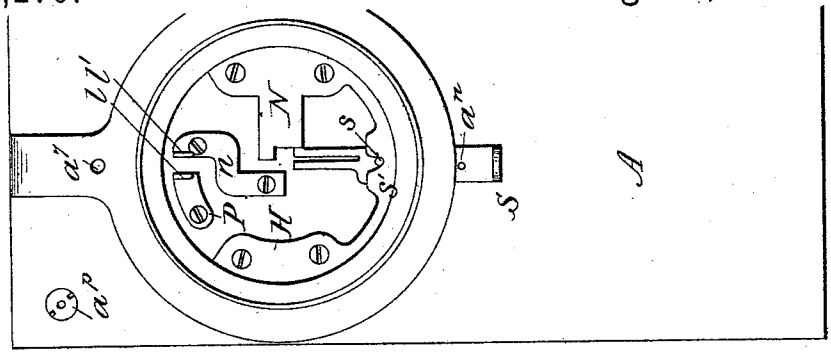



Fig 2.

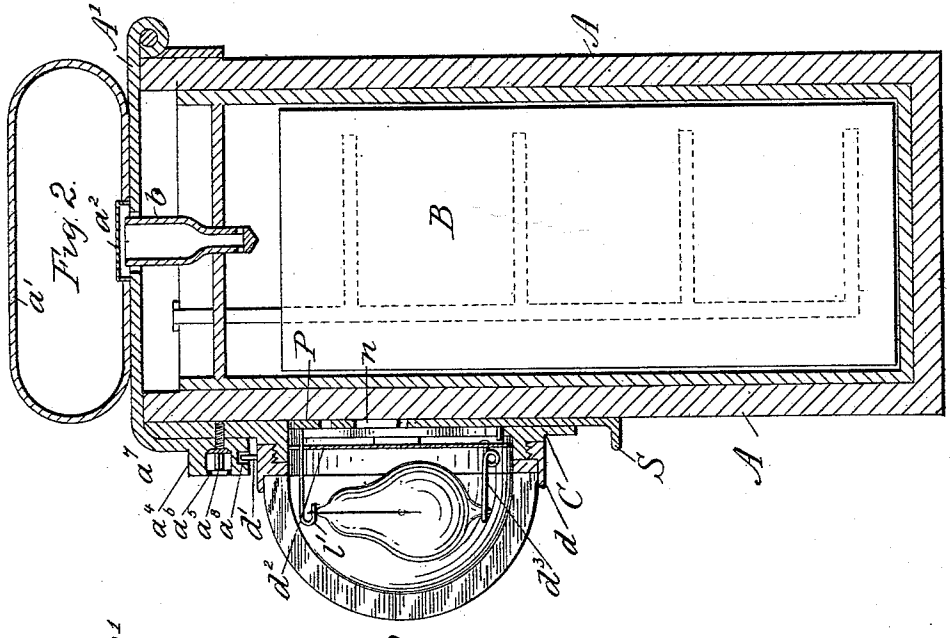
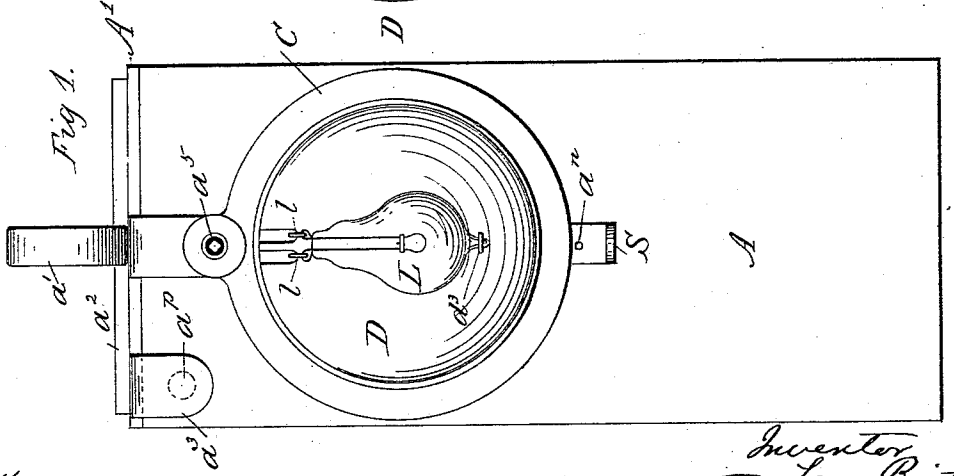



Fig 1.




Witnesses:-
A. B. Howell
H. E. Peck

Inventor
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by Richards & Co
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

# L. BRISTÖL.

## PORTABLE ELECTRIC LAMP.

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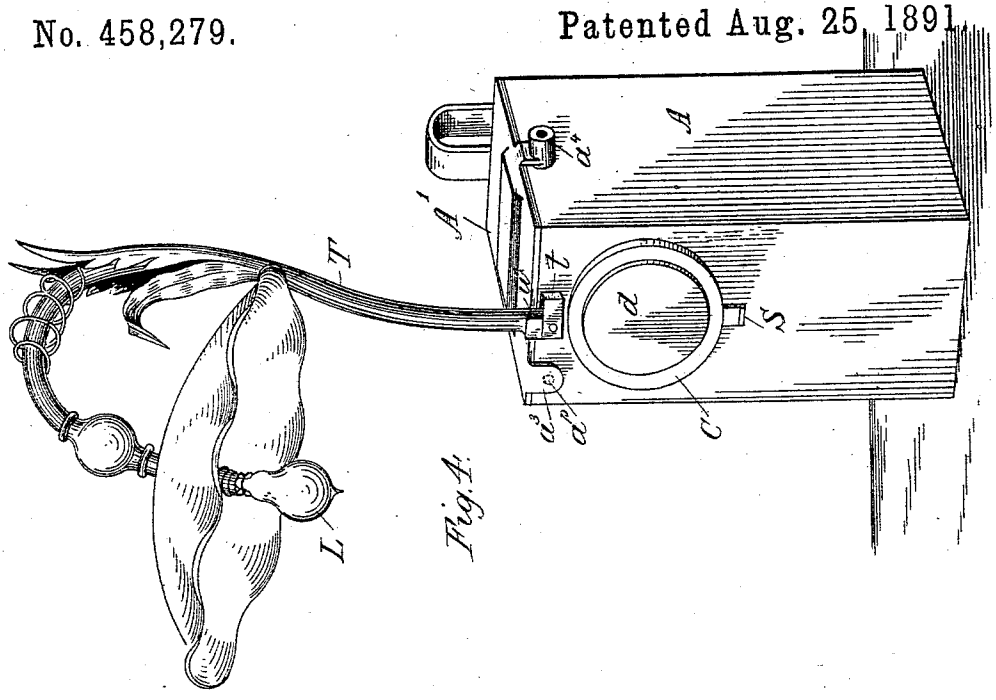



Fig. 4.

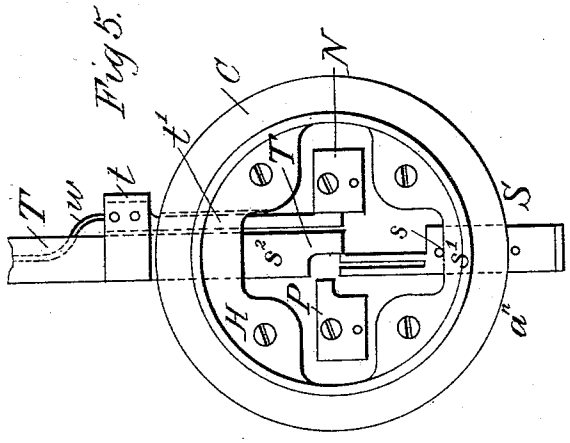



Fig 5.

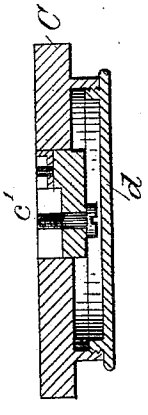



Fig 6

Witnesses
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# UNITED STATES PATENT OFFICE.

LARS BRISTÖL, OF BROMLEY, ENGLAND.

## PORTABLE ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 458,279, dated August 25, 1891.

Application filed August 28, 1890. Serial No. 363,277. (No model.) Patented in England May 21, 1889, No. 8,456; in France October 31, 1889, No. 201,674, and in Belgium October 31, 1889, No. 88,276.

*To all whom it may concern:*

Be it known that I, LARS BRISTÖL, a subject of the Queen of Norway and Sweden, residing at Acacia Villa, Park End, Bromley, in the county of Kent, England, have invented new and useful Improvements in Portable Electric Safety-Lamps, (for which I have obtained Letters Patent in Great Britain, No. 8,456, dated May 21, 1889; in France, No. 201,674, dated October 31, 1889, and in Belgium, No. 88,276, dated October 31, 1889,) of which the following is a specification.

My invention relates to certain improvements in the construction, arrangement, and combination of parts, forming portable electric safety-lamps, the object being to provide a handy, safe, convenient, and inexpensive article for the purpose. The lamp is particularly applicable for use in dangerous situations—such, for example, as coal or other mines, powder-mills, magazines, chemical laboratories, and the like.

Two typical lamps constructed according to my invention are illustrated in the accompanying drawings.

Figure 1 is a front elevation of a portable safety miner's lamp; Fig. 2, a sectional elevation thereof, and Fig. 3 an elevation of the circuit arrangement. Fig. 4 illustrates a general view of a portable safety reading or drawing-room lamp. Fig. 5 shows, in elevation, a modified arrangement of the parts illustrated in Fig. 3, and Fig. 6 is a sectional plan thereof.

Within a strong casing A, of wood, metal, or suitable material, a closed secondary battery B is fixed and connected so as to be charged by a prime generator at the terminals $a^p$ $a^n$. I may use any number of cells, from two to six; but I find three or four most suitable. The case A is inclosed by a strong lid A′, of brass or other suitable metal, provided with a handle $a'$ and having a raised channel $a^2$, open at its ends for escape of gases from the electrolyte through any suitable gas-plug, such as $b$. The lid A′ has a small lug $a^3$, covering the terminal $a^p$, to prevent tampering, and is secured by a locking device upon the enlarged end or boss of a similar lug $a^4$. This consists of a screwed spindle $a^5$, with a squared head for the usual key, which is held in the boss $a^4$ by a screw-ring $a^6$, as illustrated. The screw $a^5$ engages a threaded hole $a^7$ in an extension of the back plate C, containing the circuit arrangements, and upon which is cut a male screw-thread for receiving the female screw in the metal rim $d$ carrying the hollow lens or bull's-eye glass D. Upon the rim $d$ a projection $d'$ is fixed, which, when the rim is screwed tight, fits a corresponding hole $a^8$ in the boss $a^4$, so that when the lid is shut and locked the cap D cannot be unscrewed. Inside of the rim $d$ a plain disk $d^2$ is fitted as a reflector, upon which is fixed the spring-holder $d^3$ for the bottom of the glow-lamp L, whose terminals are retained upon a couple of spring-holders $l$ $l'$, having hooked ends splayed outward sufficiently to secure the lamp L firmly, yet easily removable. The holders $l$ $l'$ are attached, the one $l$ to the positive terminal P of the battery and the other $l'$ to an independent plate $n$, between which and the negative terminal N of the battery circuit is made and broken by a spring sliding switch S, passing through a groove behind the plate C and limited in movement by the stops $s$ $s'$ $s^2$. The negative battery terminal $a^n$ may be arranged in the switch S, as illustrated; or it may be arranged similarly to the positive terminal $a^p$ and covered by a similar lug projecting from the lid. The back plate C may conveniently be cast with the projections N H $s'$, as illustrated in Fig. 3.

In the lamp illustrated in Figs. 4, 5, and 6 the arrangements vary slightly from those above described for the miner's lamp, and the same reference-letters are used. The standard T carries an insulating-block $t$, having affixed the spring-contact maker $t'$. The standard is detachably fitted into a corresponding hole $c'$ in the plate C, and takes the position shown in Fig. 5. Contact is made between the pole P and standard-foot T by switch S, and the current passes up through the standard and lamp, returning by an insulated wire $w$ and connection $t'$ to pole N.

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

1. A portable electric safety-lamp consisting in the combination of a closed secondary battery B in casing A, having lock-lid A′, with lug $a^4$, having a hole $a^8$, back plate C, screwed to receive rim $d$ of bull's-eye glass D, with pro-

jection $d'$, a glow-lamp L, holders $l\,l'$, and circuit arrangements, substantially as set forth.

2. The combination, with the lid of a portable electric safety-lamp, of a lug or lugs $a^3$, covering one or both terminals of the secondary battery, and a bossed lug $a^4$, containing a safety-lock, constructed as described and illustrated, for the purposes specified.

3. In the circuit arrangements of a portable electric lamp, the combination, with a secondary battery and its poles P and N, of glow-lamp L, holders $l\,l'$, independent plate $n$, and spring-switch S, substantially as set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

LARS BRISTÖL.

Witnesses:

JOSEPH CRAWHALL CHAPMAN,
*F. I. P. A.*

HORACE J. BODDINGTON.