

UNITED STATES PATENT OFFICE.

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PORTABLE ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 657,020, dated August 28, 1900.

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To all whom it may concern:

Be it known that I, FRANKLIN W. BROOKS, a citizen of the United States, residing at Washington city, in the District of Columbia, have invented certain new and useful Improvements in Portable Electric Lamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in portable electric lamps.

It has for its objects to provide a lamp which shall produce a strong and brilliant light, either continuously or by flashes, and which shall be economical in construction and use and which may be readily renewed at comparatively-small cost.

With these ends in view my invention consists of a battery and case or holder adapted to receive any desired number of dry battery-cells and to have removably secured at one end thereof a lamp which when in position shall contact with one pole of the battery and which may be put in circuit at will, as will be hereinafter and in detail described.

In order that those skilled in the art to which my invention appertains may know how to make and use my improved lamp, I will proceed to describe the construction and operation of the same, referring by letters to the accompanying drawings, in which—

Figure 1 is a plan view of one of my improved lamps with the switch out of circuit. Fig. 2 is a central longitudinal section on the line $x x$ of Fig. 1, but showing the switch in circuit. Fig. 3 is a perspective view of the battery-case and battery and exposing one pole of the latter. Fig. 4 is a perspective view of the lamp and lamp-holder adapted to be removably connected with the battery-case. Fig. 5 is a central longitudinal section of a battery-case and lamp similar to that shown at Fig. 2, but showing the switch differently located; and Fig. 6 is a perspective view of the open end of the battery with a cap in position to protect and hold in place the battery-cells during transportation, the cap being broken away partially and exposing one end of a battery-cell.

Similar letters of reference designate like parts in the several figures.

A is a battery-case, preferably of cylindrical form in cross-section and composed of stiff paper or other suitable material. One end of the case A is made integral with the side walls or permanently closed by a cap, plug, or in any other suitable manner.

B is a wire or thin conductor laid along on the outside of the case A and extending from a metal band or ring C a short distance in rear of the open end of the case, back to the rear end, and through the wall to about the axial line of the case and in position to contact with one pole of the battery, as clearly shown at Figs. 2 and 5.

D is a thin paper covering secured to the outer surface of the interior battery-case A by any suitable adhesive substance, and this covering may be of color or design to give a pleasing appearance to the holder or case and constitutes a concealing-protector to the conductor B.

The ring or band C is provided at one locality with a short radial stud or projection E to make contact with the switch, as will be presently explained.

F is a ring or band permanently secured around the extreme front end of the case A, and it is formed or provided with diametric radial studs or pins G for the purpose presently described.

H are any desired number of dry batteries of any well-known construction located within the case A in such manner that their adjacent poles shall be in contact with each other and one pole of the battery at the bottom of the case in contact with the radially and inwardly projecting end of the conductor B, as clearly shown, which arrangement, as will be obvious, puts one pole of the aggregation of cells or batteries in open circuit with the metal band or ring C, the opposite pole contacting with a suitable contact-button or projection extending centrally from the lamp. The connections between the adjacent poles of the several cells H of the battery may be made by an interposed flat or coiled spring having one end soldered to the pole of one of the cells.

I is a lamp secured within a suitable reflector-case J in any well-known or suitable manner, and K is a lens secured in position within the front end of the reflector-case J,

as clearly shown at Fig. 2. The reflector-case, with the lamp and lens, is permanently fastened within the front end of a metal tube or holder L, formed with diametric bayonet sockets or gates M and provided with a pivoted or swinging switch N, having at its free end a knob or thumb piece O. The lamp holder or tube L is secured over the open end of the battery-case A in an obvious manner through the medium of the bayonet sockets or gates M and the diametric studs or pins G, projecting from the band C, and in forcing the holder L down sufficiently to permit the circumferential or lateral portion of the sockets or gateways to pass and embrace the studs or pins E the axial button projecting from the lamp connection is caused to contact with the forward pole of the battery and to force the several cells downward a sufficient distance to secure contact between the several cells and between the lowermost one and the radial end of the conductor B. When the switch N is in the position shown at Fig. 1, the circuit is necessarily open; but when the switch is turned to the position shown at Fig. 2 and in contact with the radial stud or projection E on the ring or band C the circuit will be closed and the lamp will be illuminated and remain so until the switch is moved out of contact with the stud E. The switch N is made of spring metal and is so shaped that when it is out of contact with the stud E it will not contact with any other portion of the ring or band C unless it be purposely pressed against it and will spring out of contact when pressure is removed, in which case the illumination of the lamp is produced in flashes. It will be observed that, the switch being arranged between the sockets or gateways M, if the lamp holder or tube L is secured upon the end of the battery-case in a relation the reverse of that shown in Fig. 1 the switch will occupy a position on the opposite side of the case, and hence cannot be brought in contact with the stud E, and, as before stated, can only be made to close the circuit by applying pressure to the knob O, and hence there will be no danger of closing the circuit and running down the battery unless a continuous light is desired. When the lamp is not in use, and as a safeguard against the accidental closing of the circuit, the switch may be turned to the position indicated in dotted lines at Fig. 1.

At Fig. 6 I have shown the open end of the battery-case closed by the cap P, which may be made of any suitable material and secured in position to secure the batteries within the case in the same manner that the lamp case or tube L is secured in position. The extreme or closed end of the sockets or gateways in both the cap P and the lamp case or tube L may be formed with a slight recess, as shown at Fig. 6, to interlock with the studs or pins G on the ring or band C, and thus prevent the accidental displacement of the cap or tube, respectively.

As indicated at Fig. 5, I have shown a modification of my improved lamp which consists in locating the switch N about centrally between the ends of the battery-case A and pivoted to a metallic ring or band C', similar to the band C, and electrically connecting the band C' with the lamp case or holder L by a conductor or wire B in the same manner that the band C is connected through the conductor B with the pole of the battery, as already described. With this modification in construction it will be seen that the battery-case A may be made of any desired length to accommodate any number of battery-cells to increase the power or duration of light.

While I have shown and described the locking devices for securing the lamp-holder upon the end of the battery-case as consisting of the radial lugs G on the band F and bayonet sockets or gates M on the lamp-holder, I do not wish to be confined in this respect, as any other suitable means may be employed for removably connecting the lamp-holder with the battery-case.

From the construction shown and described it will be seen that the lamp proper is made entirely independent of the battery-case and adapted to be readily secured thereto or removed therefrom and that the battery-case is likewise made independently from the lamp, and while in itself it constitutes a simple and very cheap battery-case, it is adapted to be readily connected with the lamp proper and to constitute a holder therefor and to cooperate with the lamp in closing the electrical circuit to produce light. In short, the batteries such as I have shown are now commercial commodities and are packed and transported in tubular cases; but when used in connection with an electric lamp it becomes necessary to remove the batteries from their cases and to adjust them within another case or holder, which forms a necessary and integral part of the lamp. These conditions involve expense and require special construction of the lamp and its handle or holder, with reference to the use of the ordinary commercial batteries, while with my improved construction it will be seen that I utilize the battery-shipping case as a part of my improved lamp and that when the batteries run down and become useless it is only necessary to remove the lamp and apply it to a new battery and case, and consequently an entirely new lamp does not become necessary when the handle or holder becomes worn out or the electrical connections are disarranged or broken.

The battery-case and batteries may be made of varying sizes, according to the demand of the trade, and, as will be readily understood, the purchaser of a lamp and battery complete may keep any desired number of batteries and cases on hand and may rest and renew the battery portion of his lamp at pleasure.

Many changes may be made in the details

of construction without departing from the spirit of my invention, which resides in the generic idea of a battery-case with proper conductor connections and adapted to receive
5 and hold the battery and an independent and removable lamp provided with a circuit-switch and adapted to be electrically connected with the battery-case and secured thereon.

What I claim as new, and desire to secure
10 by Letters Patent, is—

1. A portable electric lamp embodying a non-conducting battery-case A, provided with an electrical conductor B terminated at one end in contact with a metallic band C and
15 with its opposite end adapted to contact with one pole of a battery, a ring or band F, secured around the forward end of the case and formed with interlocking devices G, one or more batteries H located within the case A,
20 and a lamp-holder L, provided with a reflector, lens and lamp, and provided with a switch N and means for interlocking with the devices G, on the band F, substantially as and for the purposes hereinbefore set forth.

25 2. The non-conducting battery-case A, provided with the conductor B, and metallic

band F, the latter provided with interlocking devices G; in combination with a removable lamp-holder provided with a lamp, and with means for interlocking with the locking de-
30 vices G, on the band F, and removable batteries H, arranged within the battery-case A and adapted to contact with the conductor B, and the lamp, substantially as and for the purposes set forth.

3. In combination with the non-conducting battery-case A, constructed as described and provided with the metallic band C, having a radial stud E; and a band F, provided with
35 diametric radial stud G, the lamp-holder L, 40 provided with diametric bayonet sockets or gates M, and having a vibrating switch N, and thumb-piece O; whereby the switch may be operated to produce either a continuous or a flash light, substantially as hereinbefore 45 set forth.

In testimony whereof I affix my signature in presence of two witnesses.

FRANKLIN W. BROOKS.

Witnesses:

WM. C. MCINTIRE,

D. G. STUART.