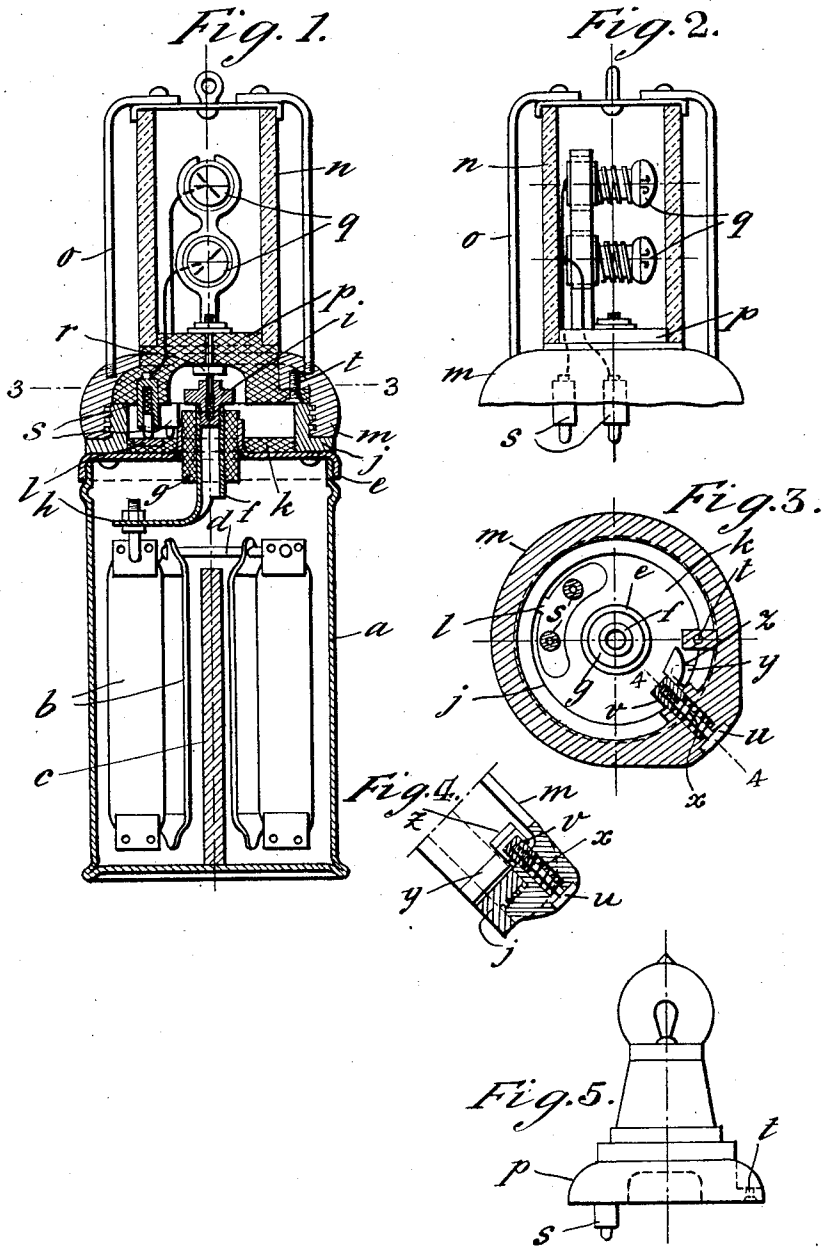


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1,331,320.

Patented Feb. 17, 1920.



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# UNITED STATES PATENT OFFICE.

LOUIS CHOMIER, OF ST. ETIENNE, FRANCE.

## MINER'S LAMP.

1,331,320.

Specification of Letters Patent.

Patented Feb. 17, 1920.

Application filed November 7, 1918. Serial No. 261,531.

*To all whom it may concern:*

Be it known that I, LOUIS CHOMIER, a citizen of the French Republic, residing in St. Etienne, Loire, France, have invented certain new and useful Improvements Relating to Miners' Lamps, of which the following is a specification.

The miner's electric lamp, which forms the subject of the present invention, consists essentially of two parts, the body of the lamp containing the source of electricity and the head of the lamp supporting the source of light and the protecting details. These two parts are united by means of a screw threaded cap fixed on the body of the lamp, and they can only be separated by means of a magnet acting in a special locking device arranged in the head of the lamp.

The accompanying drawings represent examples of the new lamp according to the invention.

Figure 1 is a vertical section of the lamp showing a front view of the sources of light.

Fig. 2 is an external view of the head of the lamp showing in side view the sources of light.

Fig. 3 is a horizontal section on the lines 3—3 of Fig. 1, the part carrying the lights being removed. This figure shows particularly the arrangements of the magnetic locking device.

Fig. 4 is a sectional elevation on the lines 4—4 of Fig. 3.

Fig. 5 shows an example of a single lamp which can be used instead of the multiple lamps.

The box *a*, which might be of other form than cylindrical, is formed of a sheet of steel stamped or welded.

This box contains the source of electricity which may be of any kind, accumulators or voltaic batteries. It is assumed that a solution which does not attack the iron is used so that the battery can consequently be directly inclosed in the box without any protection, which considerably reduces the weight and size of the lamp.

The negative pole is constituted by the box itself.

The box containing the battery is closed by the cover *e*, forming at its center a tubulure, through which a tube *f* of iron or of nickel passes and is maintained in position by means of an insulating ring *g* of

caoutchouc, ebonite or the like. The lower half of this tube is cut away, and the remaining portion is then bent so as to form a strip *h* which is fixed to the positive terminal *d*. The tube *f* serves at the same time for re-filling of the element, for the escape of the gas, and as a positive conductor; its upper portion is also threaded, and is provided with a stopper *i* which carries a piston contact.

On the cover *e* there is also a threaded ring *j*, as well as an insulating ebonite disk *k* on which there is a contact plate *l* in electric communication with the case.

The head of the electrode is formed by a spherical cap *m* which is threaded at its base on the ring *j*. In the upper part of this cap there is an opening for a glass cylinder *n*, which is held at the upper end by a cap carried by rods *o* and at the base by an insulating disk *p*, of fiber, ebonite or the like.

The disk *p* supports electric globes *q* connected to a contact *r*, and also piston contacts *s* joined by leads to the globes.

The insulating disk *p* is connected to the cap *m* by a screw *t* and consequently allows the insulating body and the glass to be removed easily in order to change the globes, or for any other repair.

The lights can be turned on and off by rotating the head of the lamp so that the contacts *s* touch or do not touch the plate *l*. By this movement either one only or both of the contacts *s* can be placed in communication with the plate *l* so that one lamp or both can be lighted at the same time as required.

The drawing (Figs. 1–5) represents two electric globes, but it is evident that a larger number could be used, each globe having its own contact. Also, only one globe could be used (Fig. 5) mounted on the insulating disk *p* which can be easily fixed on the head of the lamp by the screw *t*; this globe obviously requires only one contact *s*.

The magnetic locking device (Figs. 3 and 4) is arranged in a lug of the cap *m*. It consists essentially of a soft iron stud *u* with a stem at the end of which is threaded a cylindrical end *v* of tempered steel which, under the influence of a spiral spring *w* normally projects into the interior of the ring *j* on the cap. Within the threaded ring *j*

is fixed a stop  $y$  of which the head  $z$  is formed with a curved surface and also with a plain surface which latter rests against the cylinder end  $v$  (Fig. 3) and prevents the lamp from being unscrewed. This operation can only be effected when a sufficiently powerful magnet has been brought to the stud  $u$  so as to make the cylinder end  $v$  enter into the recess provided in the cap  $m$ .

10 The use of the magnet is not needed in screwing on the head, since a rounded surface is presented to the end  $v$  and causes it to withdraw into the recess at each revolution.

15 Besides its use in mines this lamp can evidently be employed for lighting any place in which there is danger of explosion.

The form and dimensions of the lamp can be varied without modifying the essential features of the invention.

20 Having thus described the nature of the said invention and the best means I know of carrying the same into practical effect, I claim:—

25 1. A miner's lamp, a plurality of lamp bulbs, a source of electricity therefor, an external case for said source forming one pole of the source, a cover to said case, a lamp holder mounted on the cover and adapted to be rotated so as to connect or disconnect the circuits of the lamp bulbs as may be required.

35 2. A miner's lamp, a plurality of lamp bulbs, a source of electricity therefor, an external case for said source forming one pole of the source, a cover to said case, a tube passing through the cover and connected to the other pole of the source, a contact plate in the circuit of the lamps and a plug in the tube adapted to engage with said contact plate.

40 3. A miner's lamp, a plurality of lamp bulbs, a source of electricity therefor, an external case for said source forming one pole of the source, a cover to said case, a screw threaded ring on said cover, a contact plate on the cover but insulated therefrom, a glass cylinder surrounding the lamp bulbs and a cap supporting the cylinder, said cap being provided with a screw

thread engaging with the thread of said ring.

4. A miner's lamp, a lamp bulb, a source of electricity therefor, an external case for said source, a cover for said case, a tube through the said cover serving for refilling the element, for the escape of the gas and as a connection to one pole of the source.

5. A miner's lamp, a lamp bulb, a source of electricity therefor, an external case for said source, a cover for said case, a tube through the said cover connected to one pole of the source, a screw threaded ring on the cover, a rotatable cap provided with a screw thread engaging with the thread on the ring, a contact plate secured to said cap, a plug in said tube, a plunger in the plug adapted to engage with said contact plate, a lamp holder mounted on the cover and adapted to be rotated so as to connect the lamp to said source.

6. A miner's lamp, a lamp bulb, a source of electricity therefor, an external case for said source, a cover for said case, a tube through the said cover connected to one pole of the source, a contact plate in the circuit of the lamp, a plug in the tube adapted to engage with said contact plate, a screw threaded ring on the cover, a cap provided with a screw thread engaging with the thread on the ring and means for preventing the cap from being unscrewed for removal.

7. A miner's lamp, a plurality of lamp filaments, a source of electricity therefor, an external case for said source, a cover for said case, a ring on the cover, a cap screwed to said ring, an insulating disk on said cover, a rotatable cap screwed to said ring, a contact plate on said insulating disk, a tube through said cover connected to one pole of the source, a plunger in the plug adapted to engage with said contact plate and plug contacts carried by said cap adapted to connect up any required number of the lamp filaments provided.

In testimony whereof I have signed my name to this specification.

LOUIS CHOMIER. [L. s.]