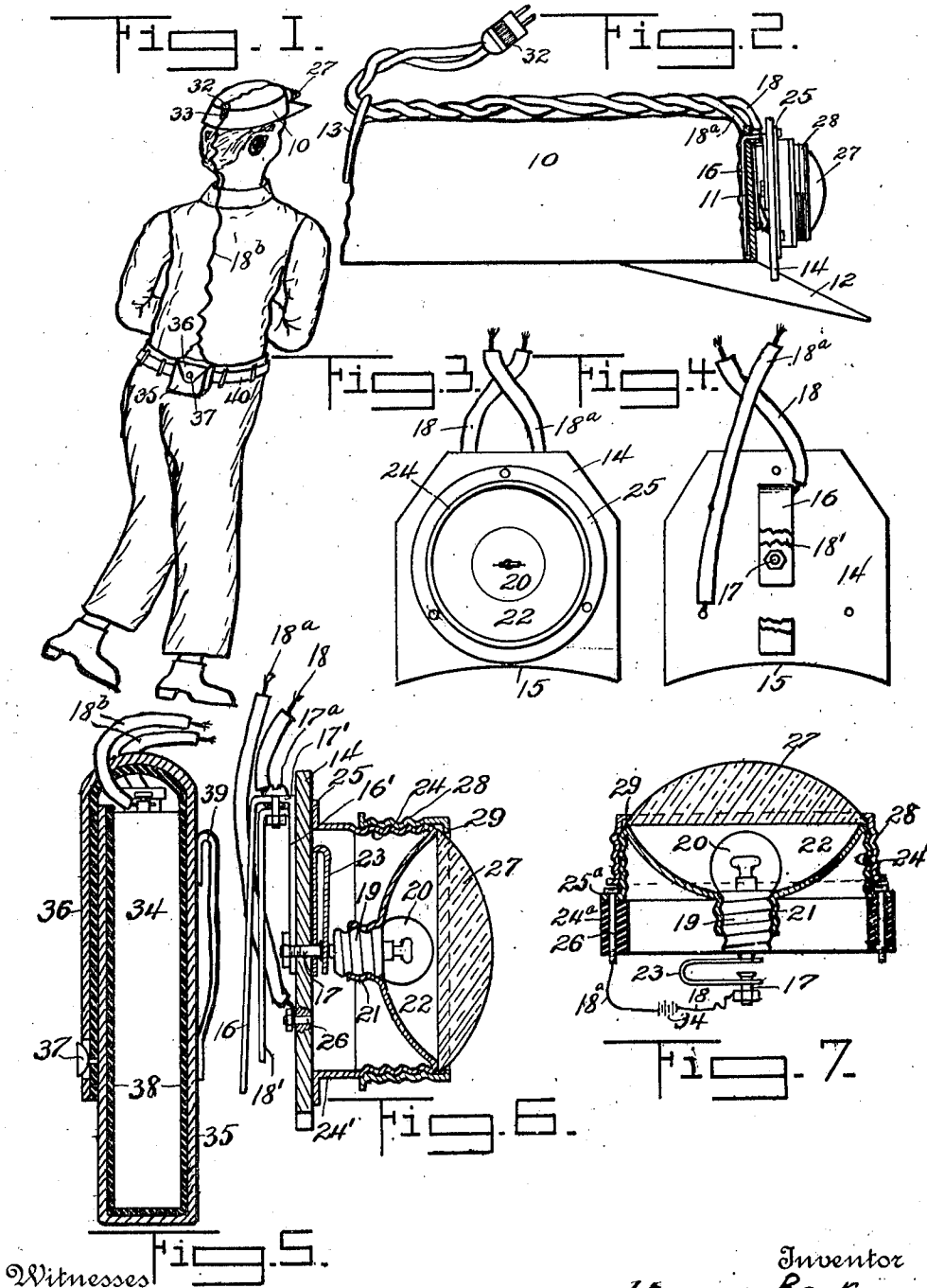


H. BECKER.
MINER'S LAMP.
APPLICATION FILED APR. 15, 1911.

1,019,748.

Patented Mar. 12, 1912.



Witnesses

E. Cloud Newman.
A. M. Wilson

Inventor
Harry Becker
by Nicholas L. Pagan
Attorney

UNITED STATES PATENT OFFICE.

HARRY BECKER, OF BALTIMORE, MARYLAND.

MINER'S LAMP.

1,019,748.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Application filed April 15, 1911. Serial No. 621,220.

To all whom it may concern:

Be it known that I, HARRY BECKER, a citizen of the United States, and residing at Baltimore, State of Maryland, have invented certain new and useful Improvements in Miners' Lamps, of which the following is a specification.

This invention relates to certain new and useful improvements in miners' lamps, and has for its primary object to provide a simple, economical, and efficient incandescent light which may be used by miners and like workmen in lieu of the ordinary oil lamps now generally employed.

A further object of the invention is to provide a miner's lamp of the above type with means for firmly supporting the same on the cap of the workman, and which may be readily removed therefrom as occasion may require.

A still further object of the present invention is to provide an incandescent electric light adapted for the purpose above described and in which the current supply is furnished from a storage battery suitably supported from the body of the workman, with the storage battery reduced in size so as to be in no wise inconvenient for the workman to carry, while remaining of a capacity fully sufficient to furnish current a required length of time.

The invention consists of the novel construction, combination, and arrangement of parts as will be hereinafter more fully described and then particularly claimed and in describing the invention in detail, reference is had to the accompanying drawings forming a part of this application wherein like numerals of reference will be employed to designate like parts throughout the different views, in which:

Figure 1 is a view in perspective showing the manner in which my improved miner's lamp is supported from the cap with the battery supported from the belt of the workman's clothes. Fig. 2 is an enlarged detail view of a miner's cap with the lamp applied thereto, the current wires being disconnected from the battery, the flexible flap carried by the cap being in section. Fig. 3 is a detail front elevation of the supporting plate and reflector of the lamp, the lens being removed. Fig. 4 is a view in rear elevation of the same parts, the supporting member being partly broken away. Fig. 5 is a central

vertical sectional view through the carrying case for the battery, the latter being shown in side elevation therein. Fig. 6 is an enlarged detail sectional view of the lamp, the insulating support therefor and showing the supporting member in side elevation, and, Fig. 7 is a vertical sectional view of the lamp showing a modified form of construction for mounting the lamp on the insulating support, and further illustrating diagrammatically the circuit from the battery to the lamp.

I am aware that heretofore and before my invention, various devices embodying an incandescent lamp have been devised to be supported upon the cap or head of a person, but such devices have not been adaptable for use as a miner's lamp. By experiment I have found that a storage battery of comparatively small size and extremely light weight may be constructed which will furnish sufficient current for the operation of a lamp of this character for a period of twenty-four hours or longer. One of the objections to adapting such head gear as has heretofore been intended for use as a miner's lamp was the inability to provide a battery which would give the required current for the necessary time and which could be readily re-charged when exhausted. Another objection to the use of such devices for the purpose stated has been that they required a special construction of cap or were expensive in construction which prohibited their use for the purpose stated. My device can be attached to the ordinary miner's cap such as is used for carrying the usual oil lamp, and the small weight of the battery renders it easily supported from a convenient point on the body of the wearer.

An embodiment of my device is shown in the accompanying drawings wherein— 10 indicates the miner's cap to which the lamp *per se* is attached. Miners' caps are generally provided on the front thereof with a piece of tough flexible material 11, such as leather, flexible fiber or the like, which is adapted to have the lamp supported therefrom, generally by a hook on the lamp which enters an opening provided therefor in the said piece of material 11. Such caps are also generally provided with a vizor 12. In so far therefore as the cap herein illustrated is concerned, it is intended to be of the type generally worn by miners, and my

improved lamp is attached to such cap without any alteration of the cap being required with the exception that it may be provided with a loop 13 at the rear or other desirable point through which the current wires are passed to prevent the same dropping down along the side of the wearer's head. The lamp *per se* involves a supporting plate 14 generally made of fiber, though any other suitable insulation will of course answer the same purpose. This supporting plate has its lower edge 15 formed to fit with the upper face of the vizor 12, and commercially the devices are furnished to fit the vizor of the cap it is desired to place the lamp upon, that is, if the cap has a peaked vizor, the lower edge of the plate 15 is curved to fit with such vizor and if the vizor of the cap be straight, a lamp is furnished with a supporting plate having a straight lower edge. This supporting plate on its rear edge carries a securing member for engagement with the leather piece 11 as shown in Fig. 2, and with the member engaged with the leather piece 11 and the lower edge of the supporting plate 14 resting firmly on the vizor 12, it will be observed that the lamp is rigidly supported and prevented from any rocking movement on the cap. This securing member I prefer to construct as herein shown, wherein the device embodies a substantially inverted U-shaped member, the outer arm 16 of which constitutes a hook, and the inner arm 16' of which lies against the inner face of the insulating supporting plate 14 and is firmly secured to said plate as by a bolt or screw 17. The top bar 17' which connects arm 16 to arm 16' carries a binding post 17^a for one of the leading in wires 18, and this binding post also acts to secure a pressure clip 18' in position in line with the arm 16 but spaced a slight distance therefrom, the purpose of which is to bind the supporting flap 11 of the cap between said clip and the arm 16 and thus more securely fasten the lamp in position. In order that the arm 16 may be readily inserted in the opening in the flap 11, said arm is extended beyond the lower end of the clip 18' as best seen in Fig. 6, and the clip is positioned with respect to the arm 16 as also best seen in said figure, being spaced from the arm a gradually decreasing distance from the lower end upward, so that when the arm or hook 16 is fully inserted, the flap 11 will be bound between the arm 16 and clip 18' at or near the upper end of the latter, and the lamp securely prevented from accidentally dropping off the cap. The securing bolt or screw 17 may act as the contact member for engagement with the plug 19 of the incandescent lamp 20 when the lamp is in position in the socket 21 of the reflector 22, but I prefer to mount on said bolt or screw a spring contact 23 so

as to insure at all times when the lamp is in position, a positive contact with the plug of the lamp.

The reflector in the preferred form of construction, (Figs. 1 to 6) is formed integral with a threaded ring 24 of a depth sufficient to space the lamp and reflector the necessary distance from the insulation plate 14. As shown in this construction, the spacing portion 24' of this ring is unthreaded and is formed at its ends with an annular flange 25 through which a plurality of bolts or screws 26 are passed into the insulation plate 14, and one of which bolts or screws may be utilized as a binding post for the other leading in wire 18^a.

In lieu of employing a ring of the depth shown in Fig. 6, I may form a flange 25^a at the end of a short threaded ring 24' in Fig. 7 and employ a spacing ring as 24^a (Fig. 7) which generally I have formed of insulation as shown, though this is not essential. In this view I have illustrated diagrammatically the circuit from the battery to the lamp, the plate 14 and arm 16' being omitted from the view. The lens 27 in either construction is preferably secured in position by a threaded ring 28 which screws onto the threaded ring 24 (or 24') and has an intumed flange 29 for holding the lens in position in front of the reflector 22.

A portion of the wires leading from the battery to the lamp is adapted to be carried by the cap, and the remainder of the wires is adapted to be carried by the battery. The portion of the wires carried by the cap has heretofore been designated as 18 and 18^a, these leading into the plug 32 of an ordinary connector, which plug is adapted to be engaged with the socket member 33 of such connector, the portion 18^b of the wires leading from the socket member 33 to the storage battery 34. This storage battery 34 I have in practice mounted in a suitable casing 35, generally made of a flexible material as tough canvas or leather, and embodying a pocket portion of a size to receive the storage battery and having a flap 36 which is closed over the top of the battery and connected to the case as by a button 37 or other suitable fastening device. I generally provide this carrying case with a lining 38 as of paraffin or the like in order to provide a damp-proof case, the case being provided on its rear side with loops 39 through which the trouser belt 40 of the wearer is passed. The storage battery being mounted in a case of flexible material and the battery being of comparatively small size, in practice not weighing to exceed a pound or a pound and a half, it will be noted that the same will be in no wise inconvenient to carry, and should the miner desire at any time to remove his cap, the circuit is still maintained so long as the members of the connector are

not disconnected, and similarly when it is desired to extinguish the lamp, the operator can readily reach the connector for breaking the circuit at that point.

5 Obviously, when the members of the connector are detached, the portion 18^b of the current wires can be tucked under the belt of the wearer, and thus the operator be permitted to conserve the energy of the battery when not in the mines.

10 I wish to call particular attention to the manner in which the device may be readily attached to the ordinary miner's cap as shown in Fig. 2 of the drawings, being 15 firmly supported thereon so that if desired the lamp may be renewed without necessitating the detaching of the lamp from the cap, yet the lamp can be readily detached from the cap at any time that may be desired, and I also desire to call attention to 20 the feature of utilizing a storage battery in connection with a lamp for the purpose described.

It will be noted by reference to Fig. 2 25 that the plate 14 hangs at a slight incline to the vertical, and thus properly positions the lamp for projecting the rays of light in the required direction. When the lamp is placed in position, the plate 14 resting on 30 the vizor of the cap prevents any lateral swinging of the lamp on its support, such as is experienced with oil lamp hung by a hook from the flap 11.

While I have herein shown and described 35 in detail preferable embodiments of the invention as the same has been practiced by me, yet I do not wish to be understood as confining myself to the specific construction shown and described, as various slight 40 changes may be made therein without departing from the spirit and scope of the invention as claimed.

What I claim is:

1. In an incandescent lamp for miners 45 comprising an insulating supporting plate adapted to rest upon the vizor of the miner's cap, means for detachably connecting the plate to the miner's cap, a contact projecting from said plate and in circuit with said connecting means, a reflector, supporting means 50 for the reflector attached to said plate and

in circuit with said reflector, a lamp mounted in and extending through said reflector and engaging with said contact and in circuit with said reflector, a binding post carried by the plate and in circuit with said supporting means, a binding post attached to and in circuit with said connecting means, and wires connected one to one of said binding posts and the other to the other of said 60 binding posts and adapted to communicate with a source of electrical energy.

2. In an incandescent lamp for the headgear of miners comprising an insulating supporting plate adapted to be arranged at 65 the front of the headgear, resilient means secured to the rear of the plate for detachably connecting the plate to the headgear, a reflector forwardly of said plate, supporting means for the reflector attached to said 70 plate and in circuit with said reflector, a lamp detachably connected to the reflector, and circuit forming means connected to said resilient means and to said plate and engaging said supporting means and adapted to 75 communicate with a source of electrical energy carried by the miner.

3. In an incandescent lamp for miners' use comprising the combination with a cap formed with a supporting flap, of an insulating supporting plate, means carried by 80 the rear of said plate and engaging with said flap for connecting the plate to the cap, a reflector, supporting means for the reflector attached to said plate and in circuit with said reflector, a contact projecting from said plate and in circuit with said connecting means, a lamp mounted in and extending through said reflector and engaging 85 with said contact and in circuit with said reflector, and circuit forming wires electrically connected to said connecting means and with said supporting means and adapted to communicate with a source of 90 electrical energy carried by the miner.

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

HARRY BECKER.

Witnesses:

ALLAN HERBERT FISHER,
HENRY KORNMANN.