H. H. HIRSCH.

INCANDESCENT ELECTRIC LAMP SUPPORT.

APPLICATION FILED MAY 17, 1911.

1,121,247.

Patented Dec. 15, 1914.

4 SHEETS—SHEET 1.

FIG. I.

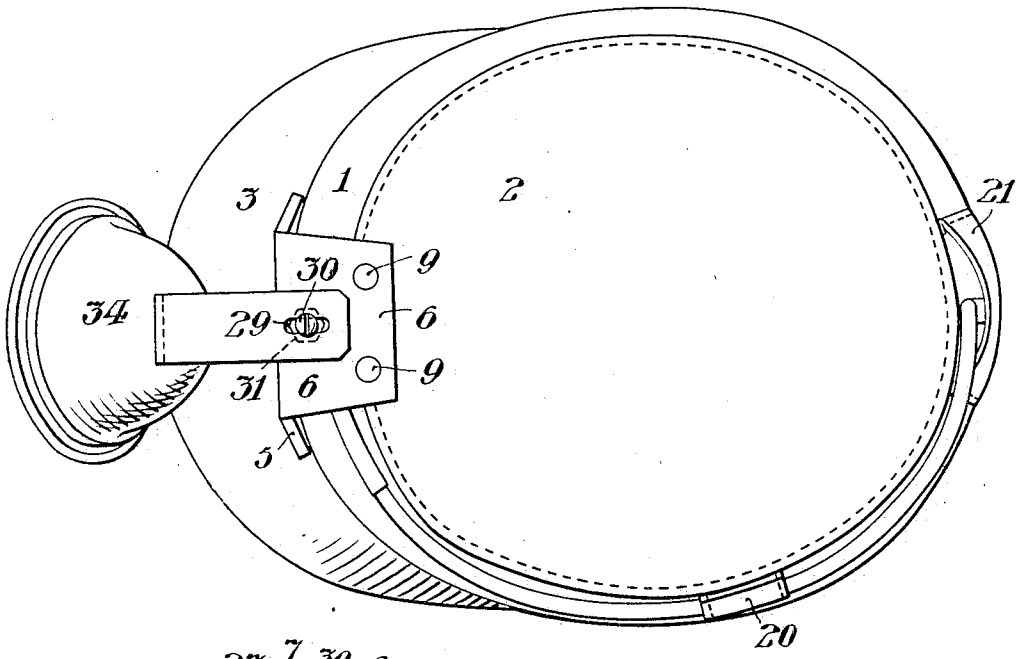
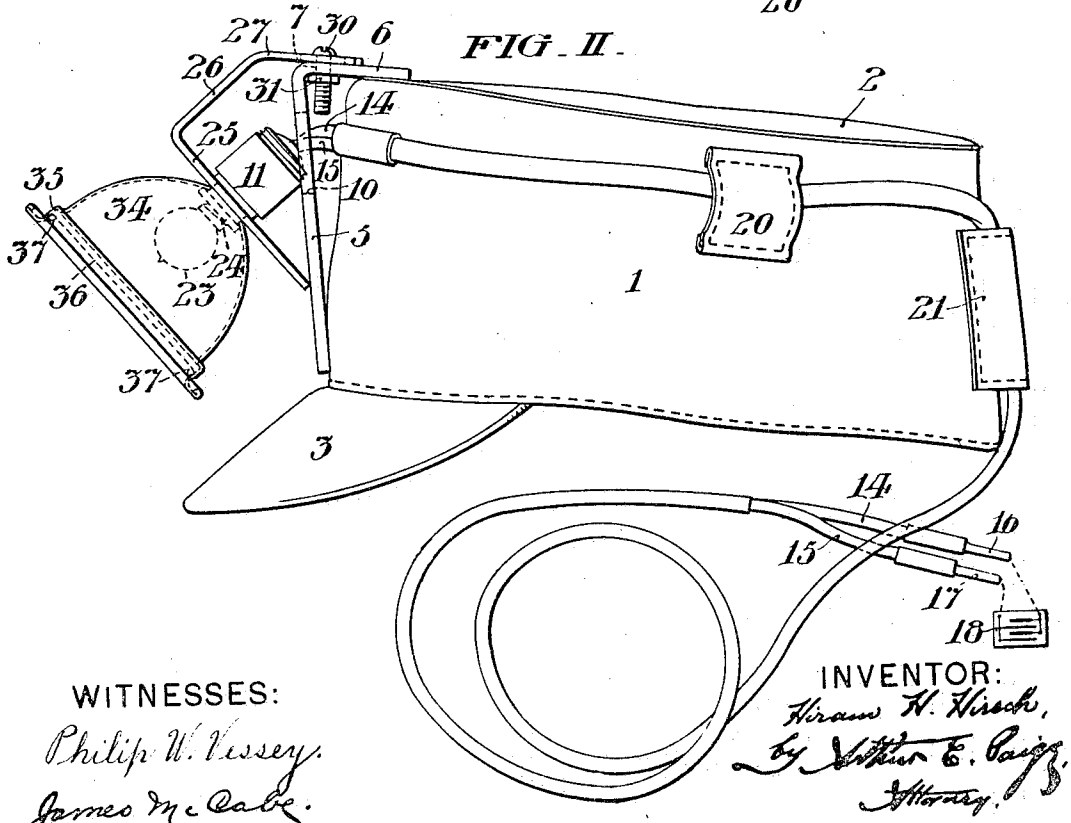


FIG. II.



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4 SHEETS—SHEET 2.

FIG. III.

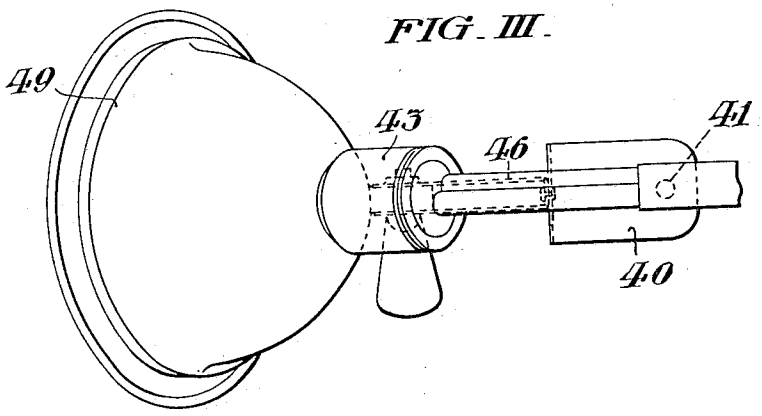


FIG. IV.

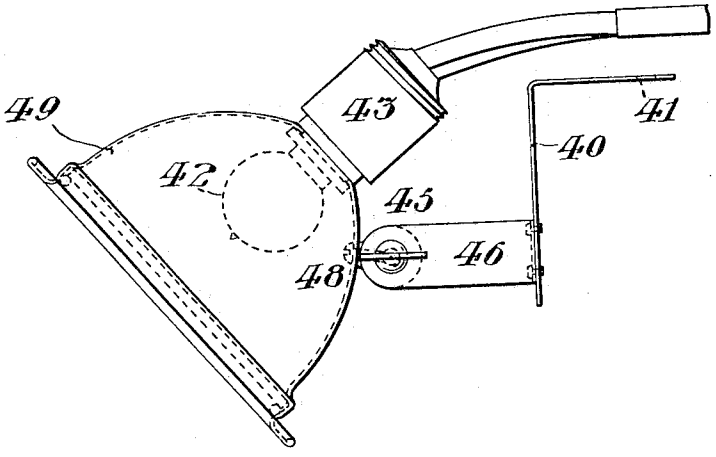
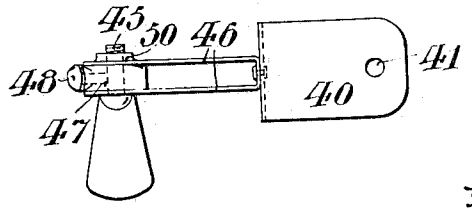


FIG. V



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4 SHEETS—SHEET 3.

FIG. VI.

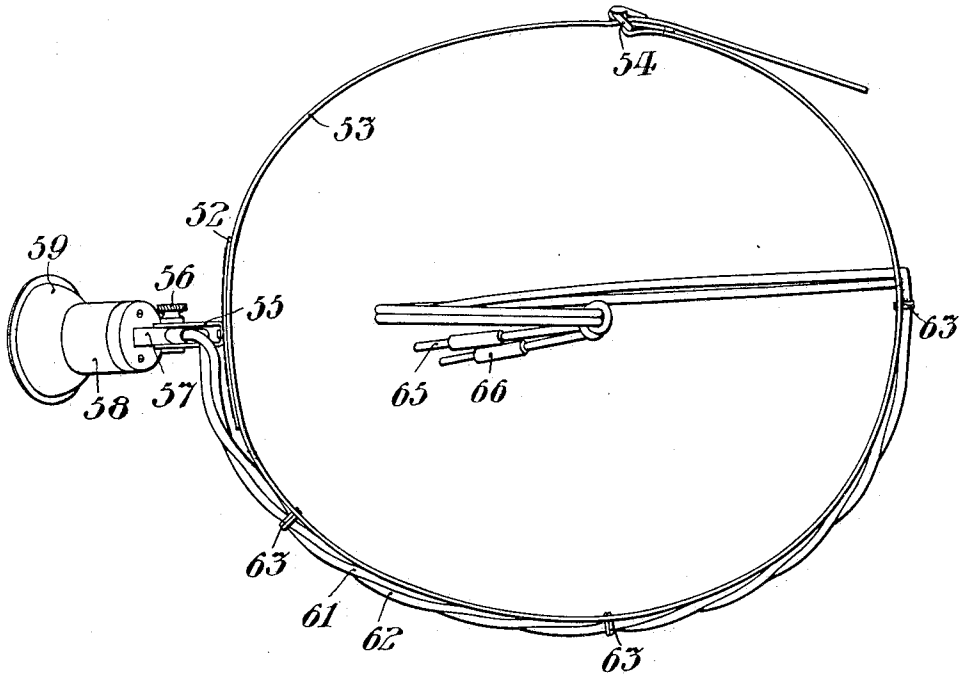
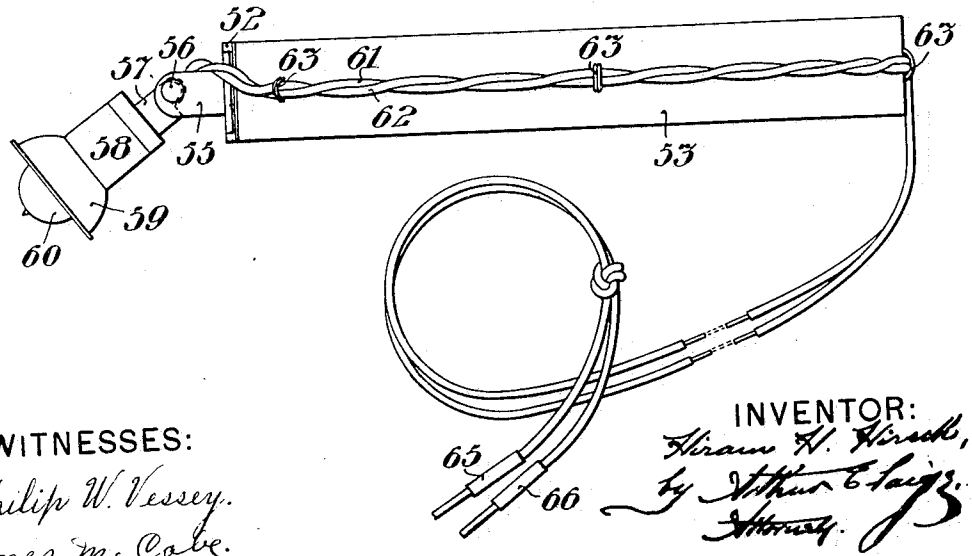


FIG. VII.



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4 SHEETS—SHEET 4.

FIG. VIII.

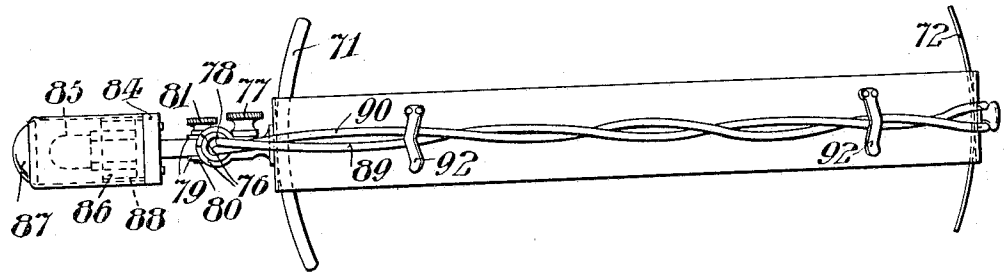
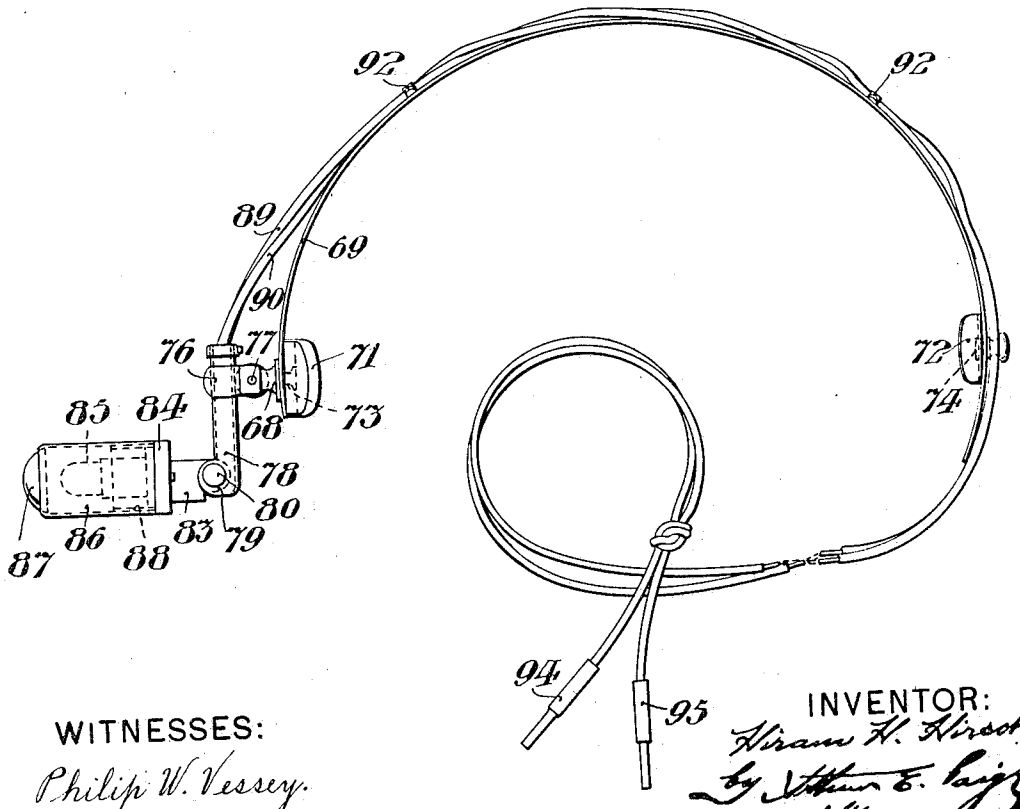


FIG. IX



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UNITED STATES PATENT OFFICE.

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INCANDESCENT-ELECTRIC-LAMP SUPPORT.

1,121,247. Specification of Letters Patent. Patented Dec. 15, 1914.

Application filed May 17, 1911. Serial No. 627,835.

To all whom it may concern:

Be it known that I, HIRAM H. HIRSCH, a citizen of the United States, and resident of Philadelphia, in the State of Pennsylvania, have invented a certain new and useful Improvement in Incandescent-Electric-Lamp Supports, whereof the following is a specification, reference being had to the accompanying drawings.

My invention relates to lamp supports designed to be used in connection with a miner's cap or other article of wearing apparel, and includes means to secure an electric incandescent lamp in angularly adjustable position and in coöperative relation with a storage battery.

The portable electric lighting system herein contemplated forms the subject matter of my application Serial 630,008, filed May 29, 1911 for Letters Patent of the United States 1,055,746 dated March 11, 1913.

My invention includes the various novel features of construction and arrangement hereinafter more definitely specified.

In the drawings:—Figure I is a plan view of a miner's cap with a convenient embodiment of my invention applied thereto. Fig. II is a side elevation of said cap and its appurtenances shown in Fig. I. Fig. III is a plan view of a modified form of my invention including means to support a lamp in angularly supporting relation to such a cap as shown in Fig. I. Fig. IV is a side elevation of the structure shown in Fig. III. Fig. V is a plan view of the adjustable clamp shown in Figs. III and IV. Fig. VI is a plan view of a modified form of my invention including an adjustable head band in lieu of the cap shown in Fig. I. Fig. VII is a side elevation of the structure shown in Fig. VI. Fig. VIII is a plan view of a modified form of my invention including a resilient head band in lieu of the cap shown in Figs. I and II. Fig. IX is a side elevation of the structure shown in Fig. VIII.

Figs. I and II show a form of my invention designed to be used in connection with a miner's cap including the head band 1, top 2 and peak 3, said band 1 constituting resilient flexible means having relatively movable opposite ends so as to be adjustably and detachably connected with the person of the operator.

The lamp supporting bracket 5 which is conveniently formed of leather, has its upper end 6 extending horizontally, provided with a bolt hole 7 and secured to the top 2 of the cap at the front thereof by the rivets 9. As shown in Fig. II, said bracket 5 is vertically pendent in spaced relation with said cap at the top thereof but in contact therewith at the bottom thereof, said pendent portion having an aperture 10 extending horizontally therethrough to receive the incandescent lamp socket tube 11 which is entered in said bracket 5 in connection with flexible conductors 14 and 15 having battery terminals 16 and 17 at their opposite ends which may be detachably connected with a storage battery 18 carried by the operator, as described and claimed in my Patent 1,055,746, dated March 11, 1913, aforesaid. The patch 20 on the side of said cap and the patch 21 on the back of said cap, conveniently stitched to the head band 1 thereof secure said conductors 14 and 15 thereto. Said socket tube 11 detachably receives the incandescent electric lamp 23, there being a screw socket connection 24 between them. Said socket tube 11 is adjustably and detachably connected with said bracket 5 by means of the hanger plate having the portion 25 extending at right angles to the axis of said socket with an aperture therein for said socket, the portion 26 extending parallel with the axis of said socket, and the portion 27 extending obliquely with respect to the axis of said socket, said oblique portion having the longitudinal slot 29 and being fitted to said upper end 6 of said bracket 5 at the top of said cap. The bolt 30 entered through said slot 29 and through the hole 7 in said bracket 5 at the top thereof has its head above said plate, and, its opposite end extending downwardly between said cap and the pendent portion of said bracket 5 is provided with the nut 31 between said bracket and said cap. It is to be understood that said hanger plate 25 etc., may be pivotally adjusted so as to vary the angle of inclination of the axis of the lamp socket tube 11 and the socket member 24

both vertically and horizontally with respect to said bolt 30, and, the nut 31 may be tightened to rigidly clamp said hanger and the lamp connected therewith in any desired position of adjustment with respect to said cap, or, said nut may be loosened to permit said hanger to be adjusted by the operator. The leather of which said bracket 5 is composed being resilient, frictionally engages said hanger plate and prevents accidental movement of the latter when said nut is tightened to the proper degree. I find it convenient to provide said lamp socket 11 with a parabolic reflector 34 in axial alinement with said socket and having a flanged recess 35 at its larger end to receive the glass cover 36 which is detachably retained therein by the split ring 37.

In the form of my invention shown in Figs. III, IV and V, the hanger plate 40 is substituted for the hanger plate 25 etc., above described and has the aperture 41 for engagement with the bolt 30 on the cap or other article of wearing apparel by which the lamp 42 is to be supported. Said lamp 42 being detachably connected with the socket 43 is connected in angularly adjustable relation with said hanger 40 by the clamp screw 45 which pivotally connects the resilient arms 46 of the bracket 40 with the clamp block 47 which is rigidly but detachably connected with said lamp 42 by the screw 48 engaging the parabolic reflector 49 which incloses said lamp and is rigidly connected with said socket 43. It is to be understood that said screw 45 is in threaded engagement with the nut 50 carried by one of said arms 46 as shown in Fig. V, but is not in screw threaded engagement with the other arm 46 or with said block 47. It is to be understood that said hanger plate 40 may be pivotally adjusted horizontally with respect to said bolt 30, and, the nut 31 may be tightened to rigidly clamp said hanger 40 in any desired position of adjustment with respect to the cap shown in Figs. I and II. Moreover, it is to be understood that said lamp 42 may be angularly adjusted upon said screw 48 as a pivot, said screw being tightened to rigidly secure said lamp in any desired position of angular adjustment with respect to said clamp block 47; said screws 45 and 48 thus forming what is in effect a universal joint between said lamp 42 and the bracket 40 which supports it.

In the form of my invention shown in Figs. VI and VII the hanger plate 52 is permanently connected with the flexible resilient band 53 which has relatively movable opposite ends one of which is provided with a buckle or clasp 54 so that said band may serve as an article of wearing apparel, for instance, a head band in lieu of the band 1 shown in Fig. I, or, it may be adjusted upon the arm, waist, or other portion of the body of the operator. Said hanger 52 is provided with the opposite resilient arms 55 in which the clamping screw 56 is engaged like the clamping screw 45 shown in Fig. V. Said screw 56 extends through the tubular clamp block 57 projecting from the incandescent lamp socket 58 having the reflector 59 detachably holding the incandescent lamp 60, so that the latter may be angularly adjusted vertically with respect to said bracket 52 and secured in any desired position of adjustment by said screw 56. The flexible conductors 61 and 62 which are in operative connection with the lamp 60 extend through said tubular clamp block 57 and being secured to said band 53 by the attaching means 63 upon the side and back thereof, are provided at their opposite ends with the battery terminals 65 and 66 which may be detachably connected with a storage battery 18 carried by the operator.

In the form of my invention shown in Figs. VIII and IX, the hanger plate 68 is permanently connected with the flexible resilient band 69 which has relatively movable opposite ends respectively provided with the swivel plates 71 and 72 which are pivotally connected with said band by the studs 73 and 74. Said plates 71 and 72 are adapted to bear upon the front and back of the operator's head and said forehead plate 71 is preferably made of hard rubber so as not to mark the operator's skin. Said plates 71 and 72 are turned transversely with respect to the band 69 as best shown in Fig. VIII, when it is desired to attach said band to the operator's head, but, both of said plates may be turned to extend longitudinally with respect to said band 69 so that the device may be compactly packed for transportation. Said hanger 68 is provided with the opposite resilient arms 76 in which the clamping screw 77 is engaged like the clamping screw 45 shown in Fig. V and said arms embrace the slide tube 78 which is both axially and circumferentially adjustable with respect to said hanger 68. Said tube 78 has opposite parallel flanges 79 carrying the bolt 80 and the nut 81. Said bolt extends through the tubular clamp block 83 projecting from the incandescent lamp socket 84 carrying the incandescent lamp 85. The lamp casing 86 which incloses said lamp 85 is provided with the lens 87 and is detachably connected with said socket by engagement with the slit tubular flange 88 of the latter. The flexible conductors 89 and 90 which are in operative connection with the lamp 85 extend through said tubular clamp block 83 and slide tube 78 and are secured to said band 69 by the spring clips 92. Said conductors are provided at their ends with the battery terminals 94 and 95 which

may be detachably connected with the storage battery 18 carried by the operator.

It is to be understood that when the screw 77 and bolt 88 are loosened, the lamp 85 may be adjusted to any desired angular position in which it may be secured by tightening said screw and bolt.

I do not desire to limit myself to the precise details of construction and arrangement hereinbefore described, as it is obvious that various modifications may be made therein without departing from the essential features of my invention as defined in the appended claims.

I claim:—

1. The combination with a cap; of a lamp supporting bracket formed of leather having its upper end extending horizontally, provided with a vertical bolt hole and secured to the top of said cap at the front thereof, said bracket being vertically pendent in spaced relation with said cap at the top thereof but in contact with said cap at the bottom thereof, said pendent portion having an aperture extending horizontally therethrough; a lamp socket entered in the aperture in said bracket in connection with flexible conductors having battery terminals at their opposite ends; a hanger plate having a portion extending at right angles to the axis of said lamp socket with an aperture therein for said socket, a portion extending parallel with the axis of said socket, and a portion extending obliquely with respect to the axis of said socket, said oblique portion having a longitudinal slot and being fitted to said upper end of said bracket at the top of said cap; a bolt entered through said slot and through the hole in said bracket at the top thereof, the head of said bolt being above said plate, and the opposite end of said bolt extending downwardly between said cap and the pendent portion of said bracket; a nut on said bolt between said bracket and said cap; a reflector in axial alinement with said socket; and, an incandescent electric lamp in said reflector; whereby said lamp may be supported by said cap in angularly adjustable relation thereto and in coöperative relation with a battery.

2. The combination with a cap; of a lamp supporting bracket having its upper end extending horizontally, provided with a vertical bolt hole and secured to the top of said cap at the front thereof, said bracket being vertically pendent in spaced relation with said cap at the top thereof; a lamp socket in connection with flexible conductors having battery terminals at their opposite ends; a hanger plate having a portion extending at right angles to the axis of said lamp socket with an aperture therein for said socket, a portion extending parallel with the axis of said socket, and a portion extending obliquely with respect to the axis of said socket, said oblique portion having a longitudinal slot and being fitted to said upper end of said bracket at the top of said cap; a bolt entered through said slot and through the hole in said bracket at the top thereof, extending downwardly between said cap and the pendent portion of said bracket; a nut on said bolt between said bracket and said cap; a reflector in axial alinement with said socket; and, an incandescent electric lamp in said reflector; whereby said lamp may be supported by said cap in angularly adjustable relation thereto and in coöperative relation with a battery.

3. The combination with a cap; of a lamp supporting bracket having a vertical pivotal connection at the top and front of said cap; an electric lamp socket in connection with flexible conductors having battery terminals at their opposite ends; a plate carried by said socket having a slot through which said vertical pivotal connection extends; and, clamping means for said pivotal connection; whereby, said lamp socket may be adjustably turned in a horizontal plane and tilted in a vertical plane with respect to said pivotal connection and clamped in adjusted position.

4. The combination with a flexible band; of an electric lamp socket; means connecting said band and socket, including a tube capable of pivotal movement; and, flexible conductors extending from said socket through said tube.

5. The combination with an electric lamp socket having a pivotal connection; of supporting means connected with said socket, the opposite ends of said supporting means being relatively movable; and, resilient flexible means, distinct from said supporting means, connecting said relatively movable ends of the latter.

6. The combination with a flexible head band; of an electric lamp socket; means connecting said band and socket, including a tube carried by said socket and capable of pivotal movement with respect to said band; and flexible electrical conductors extending from said socket through said tube, having battery terminals at their opposite ends.

7. The combination with an electric lamp socket having attaching means including a pivotal connection; of supporting means detachably connected with said socket by said pivotal connection; the opposite ends of said supporting means being relatively removable to engage and disengage a support; and a resilient flexible element, distinct from said supporting means, connecting said relativley movable ends of said supporting means.

8. The combination with an annular horizontal flexible head band; of an electric lamp socket, including a tube carried by said

socket and capable of pivotal movement with respect to said band, and a screw connection adjustable to hold said socket in variable angular relation with said band; and flexible electrical conductors extending from said socket to said tube, having battery terminals at their opposite ends.

In testimony whereof, I have hereunto signed my name at Philadelphia, Pennsylvania, this 15th day of May, 1911.

HIRAM H. HIRSCH.

Witnesses:
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