Oct. 8, 1940. B. COOKE 2,217,359

HEAD CLAMP AND LIGHT REFLECTOR

Filed Aug. 1, 1939

Fig. 2,

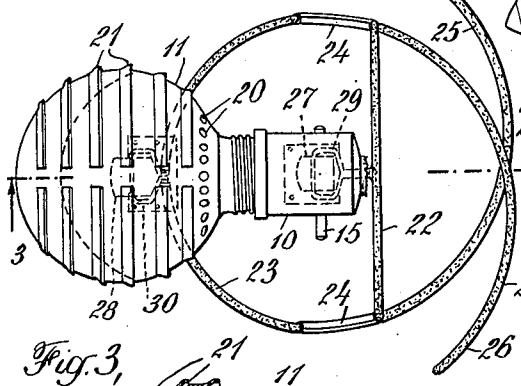


Fig. 1,

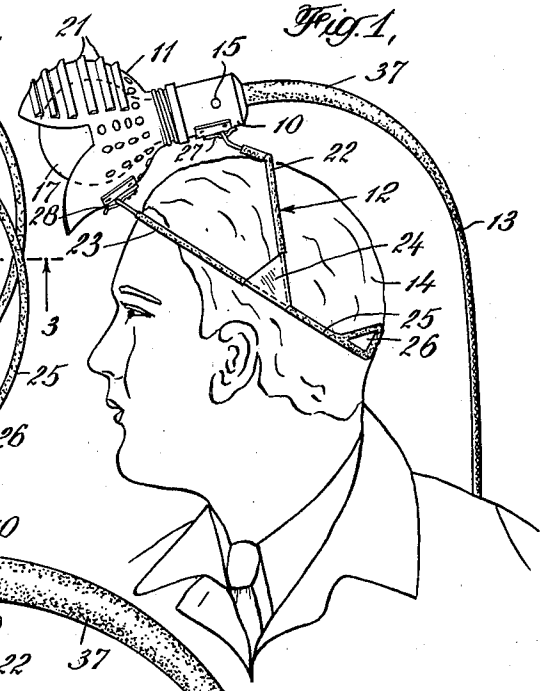


Fig. 3,

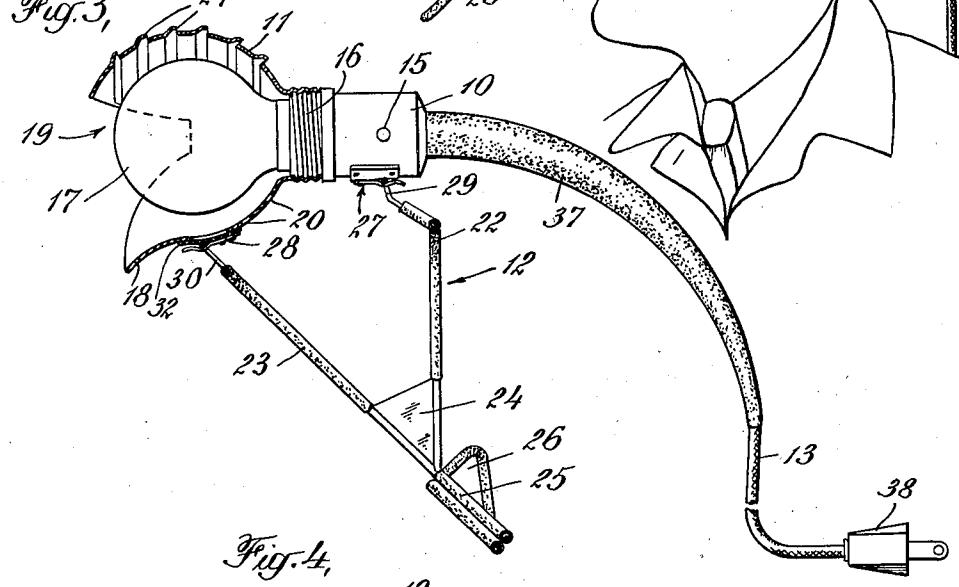


Fig. 4,

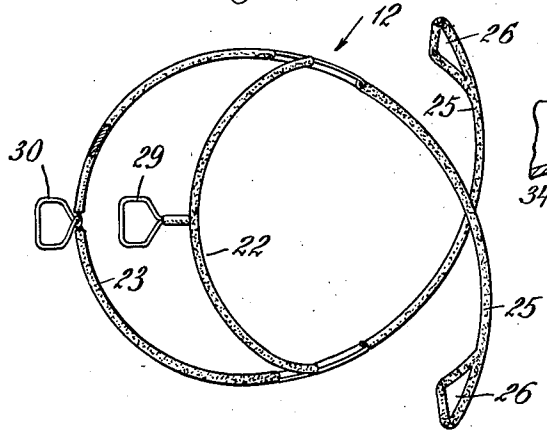
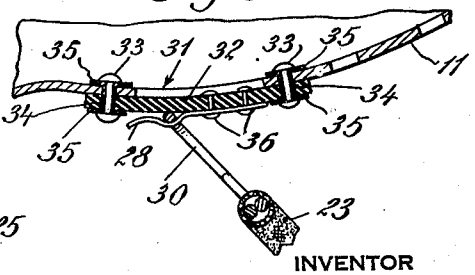


Fig. 5.



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Patented Oct. 8, 1940

2,217,359

UNITED STATES PATENT OFFICE

2,217,359

HEAD CLAMP AND LIGHT REFLECTOR

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Application August 1, 1939, Serial No. 287,774

6 Claims. (Cl. 240—59)

This invention relates to head lamps and has for its object certain improvements in head lamps operated electrically; and relates more particularly to head lamps used around shops and the like.

Electric head lamps heretofore proposed are quite cumbersome. They are usually designed to be attached to the wearer's hat or to be strapped onto his head. While some of them have certain adjustable features, the lamps proper generally protrude quite far forward of the head. In some instances, the light tends to strike the eyes of the wearer unless his hat or cap is large enough to offer protection, and the light is concentrated for the most part on a single spot or area. These head lamps are at best unwieldly and may not be conveniently mounted on or removed from the head.

As a result of my investigations, I have discovered an electric head lamp that for the most part overcomes the disadvantages indicated. My invention contemplates a combination of a socket, reflector and head clamp, as well as the reflector and head clamp separately, that results in unusual advantages.

The invention will be clear on inspection of the attached drawing, taken in conjunction with the following description, in which:

Fig. 1 is a side elevation of an electric head lamp shown mounted on a man's head for use, illustrative of a practice of the invention;

Fig. 2 is an enlarged plan view of the same head lamp showing certain of its structural details;

Fig. 3 is an enlarged side elevation of the head clamp, not shown mounted on a wearer's head;

Fig. 4 is a plan view of the head clamp in its normal un-mounted condition; and

Fig. 5 is an enlarged sectional detail showing the manner in which the reflector and head clamp are attached to but insulated from one another.

Referring first to Fig. 1 ,the electric head lamp shown comprises a metal socket 10, a metal reflector 11, a metal head clamp 12, and an electric cord 13; the lamp being shown suitably mounted on the head of a wearer 14. The socket is of the conventional type, containing a switch 15 and a free end 16 provided with internal threads adapted to receive an electric light bulb 17, and outside threads adapted to receive the reflector.

The reflector (see Figs. 1, 2 and 3) is generally spherical in shape, except for a visor portion 18 adapted to prevent light rays from entering the user's eyes when the lamp is suitably mounted on his head. The reflector is provided with an opening 19, immediately above the visor, which is sufficiently large to insert and remove the electric light bulb. A series of vent holes 20 are provided in the reflector through which cooling air may freely circulate when the lamp is in use. The top of the reflector is also provided with a series of louvers 21 opening rearwardly, so that light may be deflected above and around the head of the wearer. These louvers also provide fins for the dissipation of heat; and openings through which cooling air may be freely circulated, so that heat from the burning electric light bulb is promptly dissipated, and the wearer of the head lamp is not made uncomfortable by the heat.

The head clamp (see Figs. 1, 2, 3 and 4) comprises essentially an upper spring member 22, adapted to fit around the top of the head, generally in the direction from ear to ear, as shown. This member joins another spring member 23, adapted to fit around the head of the wearer at or in the neighborhood of the upper end of the forehead. The two members are preferably constructed of wire, such as two pieces of twisted spring wire, and are suitably attached to one another on both sides by means of triangular members 24, located above the ears of the wearer. Spring head clamping members 25 extend backwardly from the triangular members, and preferably form an extension of spring member 23. The ends of the clamping members are provided with suitable loops 26 which are adapted to prevent snarling or fouling of the free ends of the head clamp. The wires, or other head clamp means employed, are advantageously covered with insulation to prevent electrical shock.

In the particular construction shown, the head clamp is detachably connected to the reflector and socket. For this purpose the socket is provided with a spring clip means 27, integrally attached to the socket, and preferably insulated therefrom. A similar spring clip means 28 is mounted on the reflector, immediately beyond the visor. The upper spring member of the head clamp is provided with loop means 29 adapted to be inserted in clip means 27 on the socket, and the lower spring member of the head clamp is provided with loop means 30 adapted to be inserted in clip means 28 on the reflector.

In a presently preferred practice of the invention, the reflector and socket are suitably insulated from the head clamp to eliminate shock hazard. Referring to Fig. 5, it will be seen that

the reflector, for example, is provided with a cut-out or hole portion 31, over which is located a piece of insulating material 32. The insulating material is attached to the reflector by means of metal rivets 33, which are kept out of contact with the metal reflector by means of a sleeve insulator 34 and washer insulators 35. The reflector clip 28 is then suitably attached to the insulating member 32 by means of rivets 36.

As shown more particularly in Figs. 1 and 3, the socket is provided with a semi-rigid electric cord-carrying member 37, preferably made of rubber, adapted to receive the cord 13. This construction keeps the electric cord spaced from and out of contact with the wearer's head.

In the construction shown and described, the head clamp may be freely and readily attached to or detached from the reflector and socket. This construction offers certain obvious advantages. The invention, however, also contemplates a construction in which the head clamp is integrally attached to the reflector and socket. In either case, light from the lamp may be focused directly in front of the wearer, where it is most needed.

It will be appreciated that the electric head lamp of the invention is particularly adapted for use in garages, machine shops, factories, homes and the like. In such places, the plug 38 of the electric cord is advantageously pushed into a convenience or other electric outlet, so that the usual electric house current may be employed to light the lamp.

It will, however, be clear to those skilled in this art that the electric head lamp of the invention may be connected with any other suitable source of current, such as a battery. This arrangement is particularly desirable when the head lamp is employed by an automobile driver. In that case, a storage battery adapted to supply a current of 6 to 12 volts would be sufficient. The head lamp of the invention is particularly useful as a trouble lamp on the highway at night. The light reflected from the louvers and vent holes in the reflector serves as a caution or warning light to oncoming motorists, and may in this respect prevent accidents due to improper lighting. Light reflected in this manner is also highly useful around a shop, because the surrounding area around which the wearer is working may be sufficiently illuminated to provide enough light for his assistant to locate this or that object or tool without requiring the wearer to face directly in that direction.

The head lamp is so designed as to fit any and all human heads. It is very flexible; extends and contracts readily and therefore fits any head on which it is placed irrespective of shape or size. There are no adjustments to be made, no strapping or buckling to fasten the clamp on the head. The clamp is extremely light in weight and is comfortable to wear. It is completely insulated from the lamp and thereby avoids shock hazard. The reflector, socket and semi-rigid electric cord-carrying member are so mounted as to keep them at all times spaced away from the head, so that they do not at any time come in contact with the head.

Although I have described a present embodiment of the invention, it will be clear to those skilled in this art that other modifications are possible without departing from the spirit of the invention.

I claim:

1. In an electric head lamp, a socket adapted to receive and to hold an electric light bulb at its free end to connect with an electric cord at its other end, an adjustable head clamp secured to said socket and adapted to support the same on the head of a person, said head clamp comprising a pair of bowed spring members of a shape generally conforming to a person's head when placed thereon in different positions and having an unsprung position and a sprung clamping position, said members in their unsprung position defining a space smaller than a person's head, said bowed members having their extremities maintained adjacent one another and the members diverging from their extremities to a point midway of their length where they are spaced an appreciable distance apart, and inwardly bowed spring members extending rearwardly from the extremities of said first mentioned bowed spring members, the resiliency of said first mentioned bowed spring members and said spring member extensions being such that when said head clamp is placed on a person's head they will be placed under tension and will grip the head with sufficient force to retain the lamp socket in adjusted position on the head.

2. An electric head lamp as set forth in claim 1 in which a reflector is carrried by the lamp socket and the reflector and the lamp socket have spring clips for detachably securing the head clamp to the socket and reflector.

3. An electric head lamp as set forth in claim 1 in which the bowed spring members are of wire.

4. An electric head lamp as set forth in claim 1 in which a semi-rigid electric cord-carrying member extends rearwardly from the socket in such manner as to support the electric cord over and around the top of a person's head without touching it.

5. An electric head lamp as set forth in claim 1 in which a reflector is carried by the socket and has louvres extending rearwardly at an angle such that light from an electric light bulb in said socket will be reflected rearwardly to provide rearward illumination.

6. An electric head lamp as set forth in claim 1 in which a reflector having a visor portion which is bent downwardly to protect the eyes of a wearer is supported by the socket and in which the reflector has louvres at the top extending rearwardly at an angel such that light from an electric light bulb in the socket will be reflected rearwardly to provide rearward illumination, and has ventilation openings in the bottom thereof.

BENJAMIN COOKE.

CERTIFICATE OF CORRECTION.

Patent No. 2,217,359. October 8, 1940.

BENJAMIN COOKE.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, second column, line 12, claim 1, after the word "end" insert --and--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 29th day of October, A. D. 1940.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)