Aug. 5, 1952 E. L. KNIGHT 2,606,293

ARCUATE ELONGATED SUPPORTING FRAME FOR HEADLAMPS

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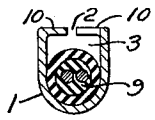


FIG. 6.

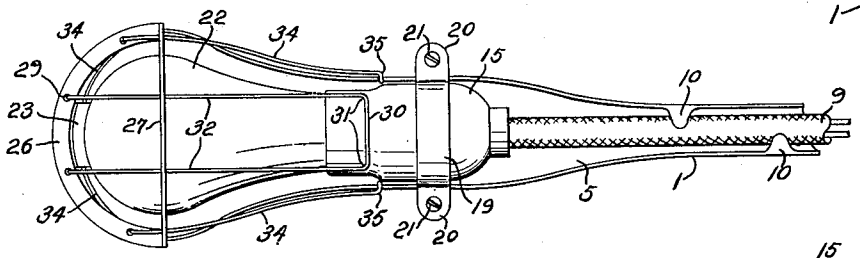


FIG. 3.

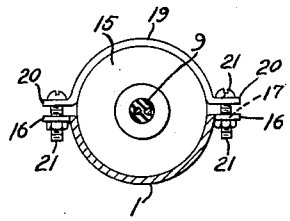


FIG. 5.

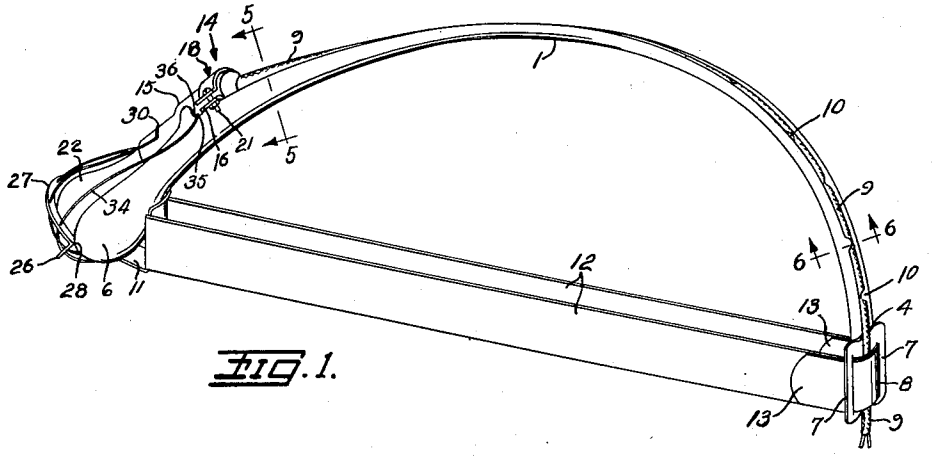


FIG. 1.

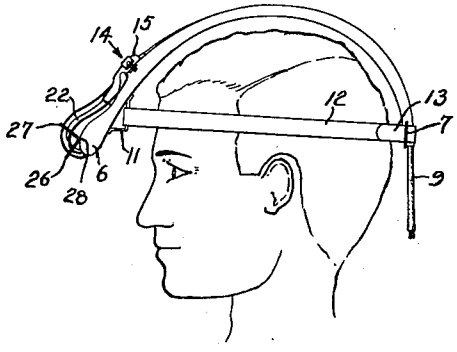


FIG. 2.

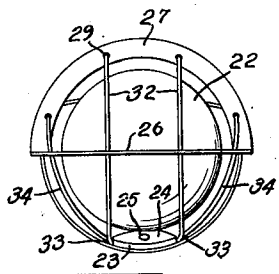


FIG. 4.

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ARCUATE ELONGATED SUPPORTING FRAME FOR HEADLAMPS

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7 Claims. (Cl. 240—59)

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This invention relates to improvements in frames for supporting an electric lamp upon the head to enable a workman to direct the light-rays therefrom upon the work to the best advantage. This invention represents an improvement over the structure disclosed and claimed in my copending application Serial No. 724,909 filed January 28, 1947, now abandoned.

One of the objects of my invention is to provide a lamp-mounting of the type described which may be worn upon the head with convenience and comfort to the wearer and which may be readily arranged and adjusted thereon to project a brilliant light beam forwardly and downwardly directly upon the work being performed.

A further object of the invention is the provision of a head-frame for a working lamp of simple and practicable construction wherein the frame affords a serviceable support for an extension-light and the cord supplying the current therefor which are detachably mounted therein in secure and safe condition, which may be readily and speedily assembled in working condition, and which may be as readily dismounted and disassembled to provide for the use of the extension lamp and cord for ordinary domestic uses.

A still further object of the invention is to provide a lamp-protective shield hingedly connected to the reflector element of my improved head-frame affording complete protection for the lamp and which may be quickly opened for the entrance and removal of the lamp.

Other objects and advantages residing in my invention will be fully apparent in the course of the following description, and by reference to the accompanying drawings, in which:

Figure 1 is a perspective view of an embodiment of my invention, in which an electric extension-lamp is mounted.

Fig. 2 is a pictorial view showing my improved head-mount as worn upon the head.

Fig. 3 is a partial view of the same in plan.

Fig. 4 is a view in end elevation as seen from the front.

Fig. 5 is a view in cross-section taken on line 5—5 of Fig. 1.

Fig. 6 is a similar view taken on line 6—6 of Fig. 1.

Referring to said views, the reference numeral 1 indicates a channeled head-frame member of relatively light sheet metal, such as aluminum, which may be formed or pressed integrally, or of a suitable plastic material molded in light and

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attractive color and form. Said frame is shaped in an arching curve to surmount the head of the wearer in spaced relation, as illustrated in Fig. 2, and is provided along its upper perimeter with a longitudinal slotted opening 2 to an interior channel 3 extending from its rearmost end 4 approximately two-thirds of its length whereat at the forward end of the frame it broadens out, as at 5, and terminates at its forward end in a bulbous portion constituting a reflector 6 whose upper interior surface may be polished to provide efficient reflection forwardly of the light rays from the lamp located therein as well as shielding the eyes of the wearer from direct rays.

At the opposite or rearward end of the frame member a pair of integral flanges 7 extend laterally from the opposite edges of opening 2 and are each provided with a vertically directed slot 8.

The opposite edges of the slotted opening 2 along the rear and more tubular portion of the frame member are spaced apart for a sufficient distance to permit the entrance of an electric-light cord, such as that indicated at 9, within the channel 3, and as an advantageous means to retain the cord therein a plurality of integral projections 10 are formed in the member along the opposite side edges of the opening which protrude over the channel in evenly spaced staggered relation, so that the cord 9 must be threaded or weaved back and forth between the projections to lie within the channel and will then be reliably retained therein until removed by reversely weaving the cord past the projections, in a manner that will be well understood.

A bracket 11 is rigidly secured to the underside of the reflector 6 through which an elastic band 12 extends and is held thereby at its middle portion. The opposite ends 13 of the band are directed rearwardly and are each threaded first through the respective slot 8 in the flange 7 extending on the adjacent side, which ends are then lapped over each other and threaded through the corresponding slot of the opposite flange whereby a secure and easily adjustable connection of the band-ends to the frame is provided.

At the aforementioned broadened section 5 of the frame clamp-devices 14 for securing a lamp-socket 15 to the frame are provided which may be formed integrally with the frame material and adjustably tightened about the socket, or, as shown, said clamp-devices may comprise an integral flange 16 extending laterally from each side of the frame formed with one or two per-

forations 17. A cap-plate 18 which may be formed of the same material as that of the frame comprises a medial semi-cylindrical barrel portion 19 and a pair of flanges 20 extending from the sides thereof to cooperate with the flanges 16 and are perforated correspondingly therewith. One or two screw-bolts 21 extend through said perforations on each side of the frame whereby a lamp-socket attached to the cord 9 may be readily and securely mounted in the frame. With the employment of a relatively wide cap-plate 18 lamps of greater or less candlepower varying in their lengths may be accommodated in the frame and secured with equal facility.

With the frame-member constructed and combined substantially in the manner described, with an electric-light bulb 22 operatively mounted in the terminal socket 15 therefor, and the socket clamped to the frame with the cord therefrom extending through the channel 3 and connected to a source of electric current, the device is ready for use and mounting upon the user's head. This is accomplished by stretching the band-portions 12 apart and placing over the head so that the band lightly and resiliently grip the sides of the head over the ears and across the temples while the lamp and reflector therefor extend frontally above the eyes which are protected from the direct rays from the lamp by the reflector 6. The frame-member carrying the current wires on its upper side does not come in contact with the head of the wearer at any point: the front and rear portions thereof are held away from the head by the elastic band and the channeled portions are arched above and away from the head so that no possibility of current leakage or short circuiting that may reach the body is to be feared, and especially so should the frame be composed of non-conducting material as is contemplated.

The ease and convenience with which the familiar and universally used electric-light cord assembly usually found in every household may be utilized and combined with my improved head-frame to provide a head-light for facilitating and illuminating the many jobs and chores about a home, together with its simple and economical construction making it available at a relatively low cost are distinctive and essential qualities of the invention.

I have provided a light and serviceable guard for the lamp utilized in my improved head-light, which consists of a continuous wire cage hingedly mounted upon the reflector 6 and together with the reflector fully enclosing the lamp to safeguard it from injury, and providing ready access to the lamp for disassembling or for making replacements.

A substantially tubular hinge-member 23 is formed or secured at the outer extremity and upon the inner side of the reflector 6 and symmetrically with the longitudinal axis thereof. Said hinge-member may be formed by turning inwardly an integral tab 24 of the reflector material and securing the extremity thereof with a rivet 25. A spacing frame is provided consisting of a pair of semi-circular plates 26 and 27 connected together at their extremities 28 and arranged at approximately ninety degrees divergence. A plurality of apertures 29 are formed in said arcuate plates for the insertion of guard-wires therethrough, as will be later explained. A convenient and preferred mode of forming said plates and that shown in the drawing is to die-cut an annulus from a sheet metal plate together with the apertures 29 and then bend said annulus diametrically at their apices 28 to obtain an integral structure.

A length of wire 30 of relatively ductile material, such as aluminum, is formed with rectangular bends 31 at its middle portion and the two ends 32 of even lengths are threaded through the apertures 29 in the arcuate plates 26 and 27. Said ends are then each given a bend at 33 and threaded in opposite directions through the barrel portion 23 of the hinge-member and are thence continued at 34 reversely in parallel with the portions 32 through the plates 26 and 27 to their extremities where hooks 35 are formed engageable at each side in notches 36 formed at the opposite marginal edges of the reflector.

The guard may be readily opened by disengaging the hooks 35 whereupon the cage structure may be swung forwardly upon the wire portions extending through the hinge-member 23.

It may also be mentioned that the head-frame may be conveniently utilized for the support of a self-contained flashlight where the employment of a lamp requiring the use of an extension-cord is inconvenient or impracticable. The flashlight, not shown, may be mounted in the channel portion 5 of the frame-member and secured therein by the clamp 14 so that the forward end of the light terminates approximately midway of the length of the reflector.

Having described my invention, what I claim is:

1. A head-lamp support, comprising a curved frame adapted to arch over the head of the wearer and to extend a spaced distance forwardly and rearwardly thereof, means to retain an electric extension-cord along said frame in detachable condition, clamping means upon the forward end of said frame to secure a lamp thereto, and an elastic band secured to the opposite ends of said frame for gripping the sides only of the head of the wearer therebetween, thereby securely supporting the lamp without exerting clamping pressure on the forehead.

2. A head-lamp support, comprising a curved frame arranged to arch over the head of the wearer and to extend a spaced distance forwardly and rearwardly thereof, said frame having a longitudinal channel formed along its upper portion to receive an electric extension-cord in detachable condition, clamping means upon the forward end of said frame to secure a lamp thereto, and an elastic band secured to the opposite ends of said frame to grip the sides only of the head of the wearer therebetween, thereby supporting the lamp without exerting clamping pressure on the forehead.

3. A head-lamp support, comprising a curved frame arranged to arch over the head of the wearer and to extend a spaced distance forwardly and rearwardly thereof, said frame having a longitudinal channel formed along its upper portion to receive an electric extension-cord in detachable condition, the margins of said channel having a plurality of projections extending over said channel in staggered relation, clamping means upon the forward end of said frame to secure a lamp thereto, laterally directed flanges extending from the rear end of said frame, and an elastic band secured to the forward end of said frame and to said flanges to grip the head of the wearer therebetween, thereby supporting the lamp without exerting clamping pressure on the forehead.

4. A head-lamp support, comprising a curved frame arranged to arch over the head of the

wearer and to extend a spaced distance forwardly and rearwardly thereof having an open channel to receive an electric light extension-cord in detachable condition therein, the forward end of said frame terminating in a reflector, the rear end of the frame having a pair of laterally directed flanges, an elastic band secured to said reflector and to said flanges arranged to grip the head of the wearer therebetween, threby supporting the lamp without exerting clamping pressure on the forehead, clamping devices to secure the lamp attached to said cord to said frame, and a lamp-guard hingedly mounted on said reflector at one end and detachably connected to the frame at its opposite end.

5. A support for a head-lamp comprising a substantially arcuate elongated member adapted to extend longitudinally over the head of the wearer and to carry thereon a lamp and means for lighting the same, the elongated member terminating forwardly of the forehead and out of contact therewith, and head engaging means comprising elastic band means interconnecting the forward and rearward terminal portions of the elongated member and adapted to engage the opposite sides only of the head of the wearer, thereby supporting the head-lamp in a balanced position without the exertion of clamping pressure on either the forehead or the back of the head.

6. A support for a head-lamp comprising an elongated member adapted to extend longitudinally over the head of the wearer and to carry thereon a lamp and means for lighting the same, the elongated member extending forwardly of the forehead and out of contact therewith, and head engaging means comprising an elastic band means attached to the forward terminal portion of the elongated member and to the rearward terminal portion of the elongated member, the rearward terminal portion of the elongated member receiving said elastic band and supporting the same at a plurality of points, thereby supporting the head-lamp in balanced relationship to the head without the exertion of clamping pressure on either the front or back portions thereof.

7. In combination with a head-lamp comprising a lamp, means for lighting the lamp, and a reflector; a support comprising an arcuate member adapted to extend longitudinally over the head of the wearer, and to terminate forwardly of the forehead of the wearer and out of contact therewith, the reflector being positioned at the forward terminal portion of the arcuate support in rigid relationship therewith to form a substantially integral extension of said terminal; means on the arcuate support for mounting thereon the lamp and the lamp lighting means, and elastic band means interconnecting the reflector and the rearward terminal portion of the arcuate support and adapted to engage each side of the head of the wearer and to clasp the same, thereby supporting the head-lamp without the exertion of clamping pressure on the forehead.

ELWIN L. KNIGHT.

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