

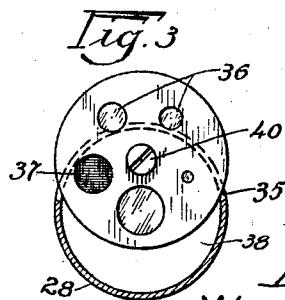
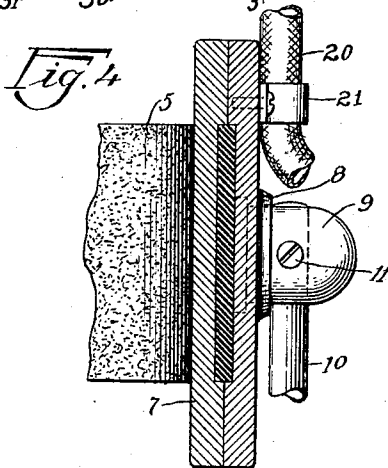
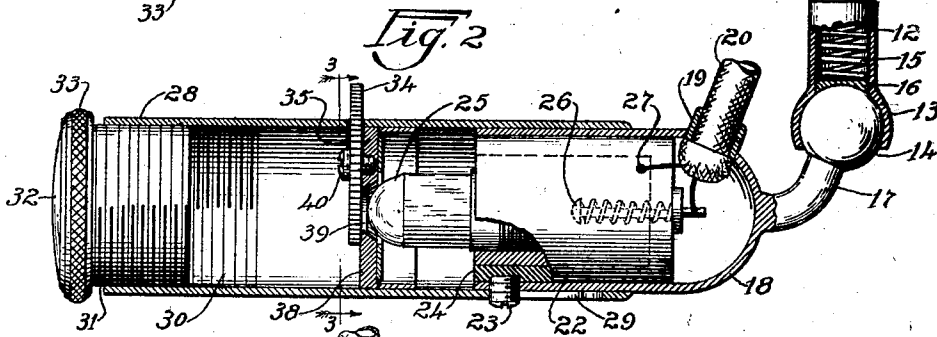
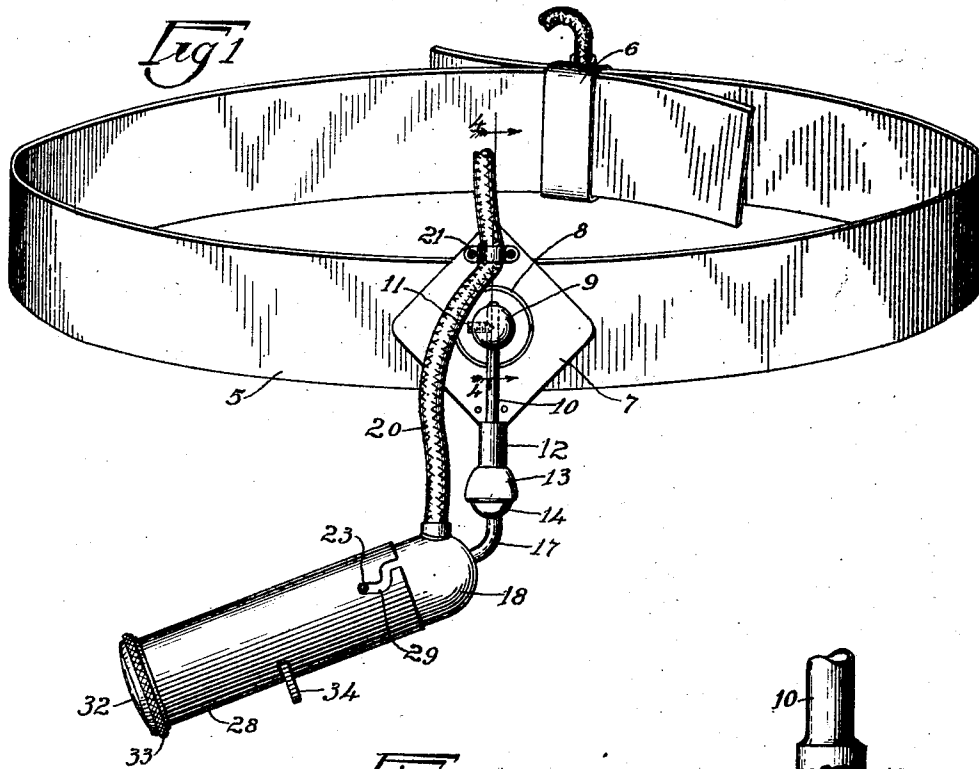
March 19, 1929.

W. J. CAMERON

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HEAD LAMP

Filed Oct. 19, 1925



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UNITED STATES PATENT OFFICE.

WILL J. CAMERON, OF CHICAGO, ILLINOIS.

HEAD LAMP.

Application filed October 19, 1925. Serial No. 63,371.

My present invention relates to illuminating devices and particularly to a portable lamp that is adapted to be placed upon and supported upon the head of a physician, surgeon, dentist or the like for the purpose of illuminating an area or cavity for making an examination and performing operations.

One of the objects of this invention resides in providing a small, but powerful lamp, which may be readily adjusted to divers positions or in different angles with respect to the band that encircles the user's head, and which is provided with means whereby the light from the bulb may be condensed by means of a suitable lens. In this connection, I have provided simple means whereby the lens may be readily focused, with respect to the object and bulb, so as to concentrate upon the particular area the greatest portion of light flux emanating from the bulb. Another object resides in providing means whereby a color screen may be interposed between the light source or bulb and the lens or between the bulb and the area under investigation and in this connection I have provided a diaphragm element that is rotatably mounted on the instrument, which element is provided with a plurality of apertures for divers sizes for controlling the light. In designing this structure I have had foremost in mind the provision of a lamp unit that is extremely compact and to this end I secure the terminal socket in the base member by means of the same screw or pin that permits the connection of the housing to said base member. Divers other objects will be apparent after an understanding of my invention is had.

I prefer to carry out my invention, and to attain the objects sought in substantially the manner hereinafter fully described and as more particularly pointed out in the claim reference being here made to the accompanying drawings that form a part of this specification.

In the drawings:—

Figure 1 is a view in perspective of the head band and the lamp unit that is adjustably connected thereto, the unit being shown in longitudinal elevation.

Figure 2 is a longitudinal or axial section of the lamp unit detached from the head band and drawn to an enlarged scale.

Figure 3 is a transverse section taken on line, 3, 3, of Figure 2 and looking in the direction of the arrows.

Figure 4 is a transverse section on line 4, 4, of Figure 1, through the head band and illustrating the manner of connecting the lamp unit thereto.

The drawings are in a sense diagrammatic and illustrate a typical or preferred embodiment of my invention, and in the drawings, so far as practicable, I have employed similar reference characters to designate like parts wherever the same appear throughout the several views.

As will be seen in Figure 1 of the drawings, I provide an elongated head band 5 of a suitable width and made of any desired material, the ends of which overlap and pass through a slide 6 that frictionally maintains the ends in divers adjusted positions so that the operator may adjust the shape of the band to the size and conformation of his head so that the same may be readily placed in position for use. At about the center of length of the band 5 it passes through a longitudinal slot in a plate 7 of rectangular or other shape, as seen in Figure 4, and there is imbedded in this plate, which is preferably made from a moldable material such as bakelite, an anchor for the spindle of the light unit. This anchor consists of a disk 8 that is preferably imbedded in the plate when the latter is molded and has a boss 9 projecting therefrom through a surface of the plate. This is bored vertically to receive the upper end portion of the spindle 10 that is secured in position by means of a set screw 11 screwed laterally into the boss until it comes into engagement with the spindle 10. The lower end of the spindle 10 is widened in diameter and forms a hollow embossment as at 12 and the outer end of this hollow portion is somewhat spherical, as seen at 13, where it is spun down upon a ball 14 so that the latter may be rotated in divers directions to provide a universal joint between the anchoring device and the lamp structure. Prior to the spinning operation a small expansion spring 15 is placed within the hollow enlargement 12 that bears against a friction block 16 and presses the latter against a surface of the ball, so that the ball will be maintained in the position into which it has been adjusted.

A curved arm 17 projects radially from the ball 14 and its outer end is provided with a cylindrically shaped base 18 that is hollow and is provided adjacent the arm 17 with an aperture 19 through which the electric con-

ductors are passed into the interior. The conductors are in the form of a flexible cable 20 or the like that extends upwardly and is secured to the plate 7 by means of a clip 21 and thence leads loosely in an arched bow to the clip or slide 6 from which it extends to a suitable tap or other source of electric supply. Thus there is provided a transverse element that will rest upon the upper portion or top of the wearer's head and prevent the band slipping down in the event the latter is adjusted too loosely. A cup 22 of insulating material is secured in the base 18 by means of a set screw 23 that passes transversely through the wall of the base, the end of the screw projects beyond or outside the wall of the base. Within this insulating cup there is placed an internally threaded electric socket 24 into which a miniature electric bulb 25 is adapted to be screwed. The central or axial terminal of the socket is in the form of a spring plunger 26, as seen in Figure 2, the end of which protrudes through the inner end wall of the insulating cup 22, and is connected to the end of one of the conductor wires. The other wire of the conductors leads through an aperture 27 in the end wall of the insulating cup, thus forming the circuit through the filament of the bulb 25.

A sleeve 28 telescopes at its rear end upon the base 18 and houses the bulb 25 and said sleeve is provided with a bayonet slot 29 opening into the adjacent end of said sleeve that co-acts with the projecting end of set screw 23, so that said sleeve is prevented from accidental displacement but it may be readily removed from the base whenever desired. The outer portion of the cylinder is internally threaded as at 30 to receive the exteriorly threaded tube 31 that carries a lens 32 at its outer end and said outer end is enlarged and serrated as at 33 to permit of the ready adjustment of the lens in the cylinder, so as to focus the light from the bulb 25 upon the object or area it is desired to illuminate. It is

frequently desired in making examinations to constrict the light and to this end I provide an apertured diaphragm 34 that is positioned transversely in a kerf or slot 35 formed in the wall of the sleeve 28 adjacent and slightly forward of the end of the bulb or lamp 25. The diaphragm is provided with a plurality of apertures 36 and in one of said apertures a glass or plain lens 37 of what is known as blue daylight-glass is mounted for the purpose of illuminating actinic rays emanating from the filament of the bulb. In order to rotatably mount the diaphragm, I secure a flanged or cup disk 38 inside the sleeve 28 that is centrally provided with an aperture 39 in axial alinement with the bulb and the lens. The diaphragm 24 is anchored upon the disk 38 by means of a headed screw 40 that is positioned eccentric to the axis of the disk so that a portion of the periphery of the diaphragm 24 will project beyond and through the slot in the wall of the cylinder 28, while the other segment is positioned in front of the aperture 39 in disk 38, as seen in Figures 2 and 3, so that said diaphragm may be readily rotated by the operator and thereby position the divers apertures in registry with the aperture 39 and the bulb 25.

What I claim is:—

A head-lamp comprising a band, a slide adjustably connecting the ends thereof to provide a closed head encircling loop, a plate mounted on said band opposite the slide, a spindle capable of longitudinal adjustment on said plate in a plane transverse to said band, a lamp carrying member having universal connection with said spindle, and conductors leading from said member and anchored to said plate and slide with its intermediate portion providing an arch in a plane that is transverse to the plane of the band.

Signed at Chicago, in the county of Cook, and State of Illinois, this 15th day of October, 1925.

WILL J. CAMERON.