R. H. WAPPLER.

HEADLIGHT.

APPLICATION FILED SEPT. 27, 1912

1,068,717.

Patented July 29, 1913.

Fig. 1

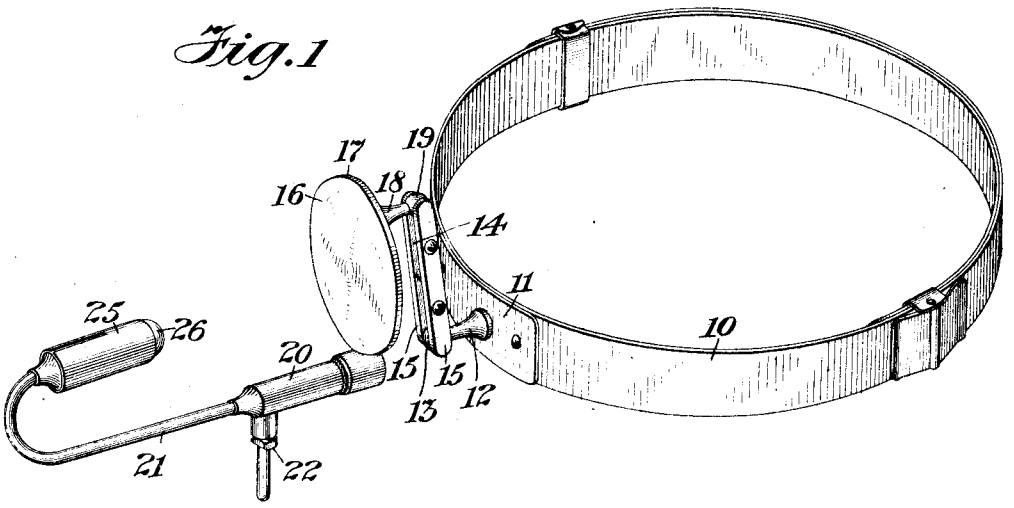
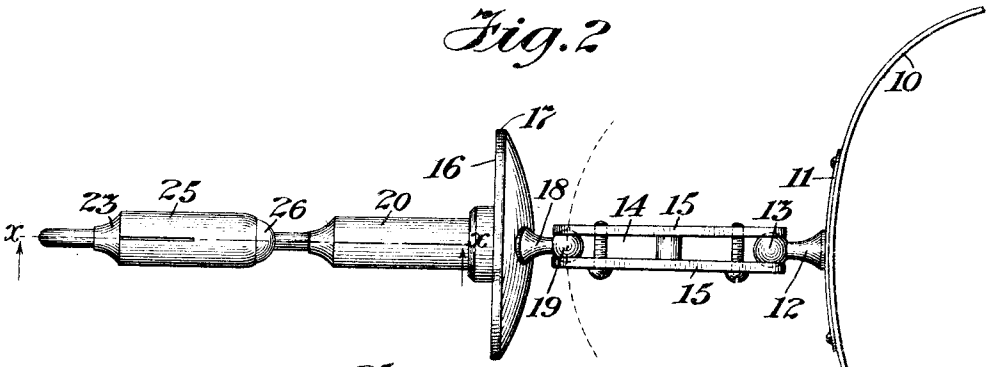


Fig. 2



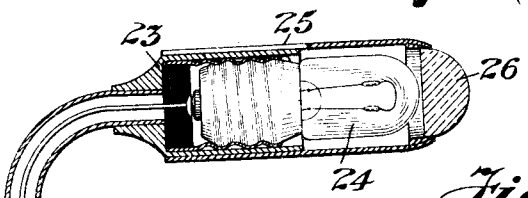
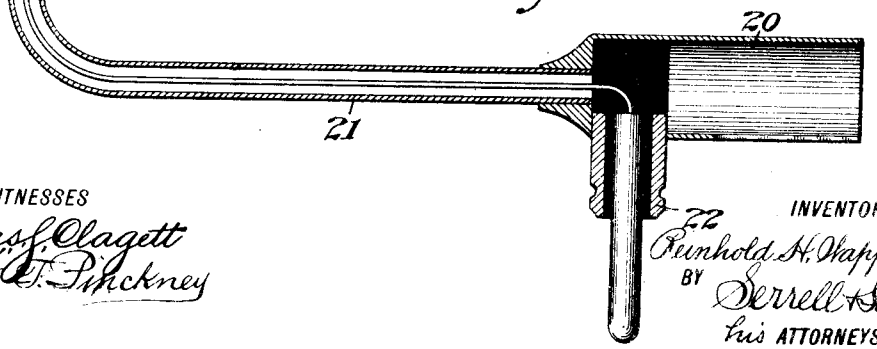


Fig. 3



WITNESSES

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UNITED STATES PATENT OFFICE.

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HEADLIGHT.

1,068,717. Specification of Letters Patent. Patented July 29, 1913.

Application filed September 27, 1912. Serial No. 722,595.

To all whom it may concern:

Be it known that I, REINHOLD H. WAPPLER, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented an Improvement in Headlights, of which the following is a specification.

My invention relates to that class of head lights employed by physicians in making examinations of the cavities of the mouth, eyes and the like, and also by scientists in making various examinations in research work.

Heretofore these instruments have generally been constructed so as to fit over the head of the examiner, and have been provided with a concave mirror and a source of light. With these instruments, however, difficulty has been experienced in obtaining an even diffusing of the light directed immediately upon the object under examination, and the purpose of my invention is the provision of such an instrument in which a circle of light is obtained, in which the light is evenly distributed over the entire circle.

In carrying out this invention, and in obtaining the objects sought, I employ together with the concave mirror and the source of light a comparatively small condensing lens, by which the concentrated rays from the source of light are reflected upon the object being examined, which may be placed at a variable distance from the mirror, depending of course upon the position of the condensing lens.

In the drawing, Figure 1 is a perspective view of my improved head light. Fig. 2 is a plan view of the parts of the same, and Fig. 3 is an enlarged cross section on line *x x*, Fig. 2.

Referring to the drawing, my improved head light preferably comprises a band 10 made of any suitable material and constructed so as to be adjustable to fit around the head of the examiner by whom the instrument is used. In a suitable position, a plate 11 is secured to the band 10. This plate 11 is provided with a stud 12, the outer or free end of which is spherical, as indicated at 13. I also employ a frame 14 preferably comprising parallel bar members 15, between the sockets in one end of which the spherical head 13 of the stud 12 fits. 16 designates a concave mirror fixed in a suitable frame 17, from the back of which extends a stud 18. Similarly to the stud 12 the stud 18 terminates at its free end in a spherical head 19 which fits within sockets provided therefor in the opposite ends of the bars 15. By this structure, as will be understood, the mirror 16 is adjustable to substantially any position.

Connected to the mirror frame 17 is a tube 20, one portion of which is of reduced cross section, as is indicated at 21. Connected to the tube 20 is a terminal 22, by means of which, through a suitable socket, electrical connections may be made to and from the instrument. These connections, however, form no part of this invention, and for this reason are not illustrated in the drawing.

The reduced portion 21 of the tube is turned on itself, and at its extremity is fitted with a socket 23, adapted to receive a small electric lamp 24. Fitted over the socket 23 and adjustable longitudinally thereon, I employ a sleeve 25, and fitted in the free end of the tube 25 is a condensing lens 26. As will be apparent, the concave mirror reflects the rays of light from the lamp at the point of greatest concentration, and a circle of evenly distributed light is obtained at a variable distance from the mirror, depending upon the relative positions of the lamp and the condensing lens.

I claim as my invention:

1. A head light comprising an adjustable band, a source of light, a frame in which the same is secured, a mirror secured to the said frame in a fixed position relatively to the said source of light, means for concentrating the rays of light from the source thereof on the said mirror, and means for adjustably connecting the mirror to the said band.

2. A head light comprising an adjustable band, an electric lamp, a frame in which the said lamp is secured, a concave mirror secured to the said frame in a fixed position relatively to the said lamp, a device adjustable to position relatively to the lamp for concentrating the rays of light therefrom on the said mirror, and means for adjustably connecting the mirror to the said band.

3. A head light comprising an adjustable band, an electric lamp, a frame in one end of which the electric lamp is secured, a

sleeve fitted over and adjustable upon this end of the said frame, a condensing lens secured in the said sleeve, a concave mirror secured to the opposite end of the frame in a position fixed relatively to the said lamp, and adjustable means for connecting the said mirror to the said band.

Signed by me this 3rd day of September, 1912.

REINHOLD H. WAPPLER.

Witnesses:
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J. B. LE BLANC.