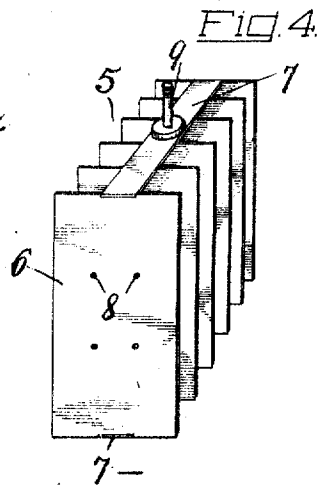
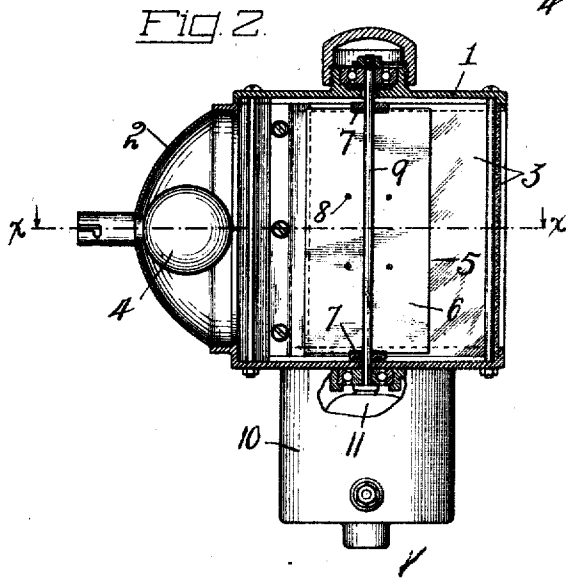
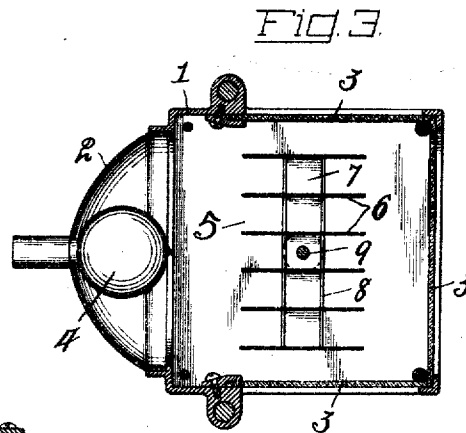
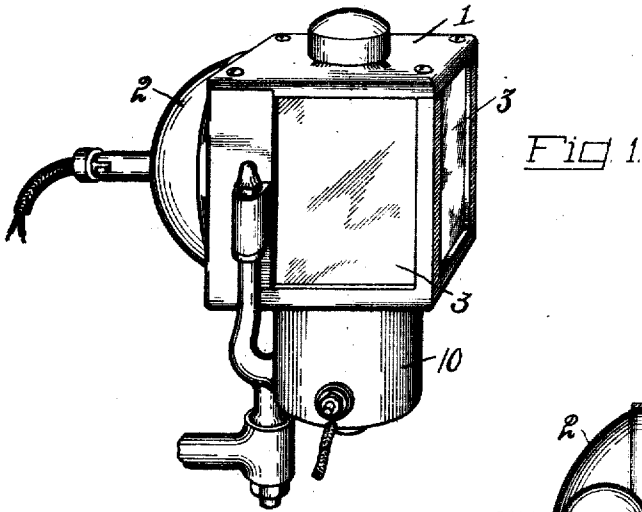


W. H. FULTON.
LIGHT DISTRIBUTING MEANS.
APPLICATION FILED MAR. 13, 1916.

1,335,889.

Patented Apr. 6, 1920.



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LIGHT-DISTRIBUTING MEANS.

1,335,889.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM H. FULTON, a citizen of the United States, and a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Light-Distributing Means; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to light distributing means and more particularly but not necessarily to a headlamp for motor driven vehicles.

The object of my invention is the provision, in combination with a strong beam of light from a light source, of simple and efficient means of periodically interrupting and diverting said beam so as to illuminate successive portions of a large area, the frequency of such periods being such that a continuous impression is made on the retina. Further objects and advantages of the invention will be apparent from the following description.

The invention is fully described in the following specification, and while, in its broader aspect, it is capable of embodiment in numerous forms, a preferred embodiment thereof is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a headlamp embodying my invention. Fig. 2 is a central vertical section thereof with the motor case in full. Fig. 3 is a horizontal section on the line $x-x$ in Fig. 2; and Fig. 4 is a perspective view of the revoluble deflector.

Referring to the drawings, 1 designates a headlamp frame or casing, which, in the present instance, is of prismatic form and provided at its rear side with a reflector 2 preferably of parabolic form, and has its front and sides provided with windows 3 through which the light rays are transmitted. It will be understood that while I have shown a particular form of lamp, this is merely for illustrative purposes, and a lamp of any other suitable shape or design may be employed without departing from the

spirit of the invention, which resides more particularly in the means employed for varying the direction of reflection of the light rays, than in the lamp construction.

The light rays to be reflected are derived, in the present instance, from a lamp 4, which is mounted in any suitable or convenient manner in advance of the reflector thereof.

Located within the frame or case 1 in the path of reflection of the light rays from the reflector 2 is a deflecting member 5, which is mounted for and intended to be very rapidly rotated whereby the beam of light from the reflector 2 is periodically intercepted at constantly changing angles, causing said beam to fall on successive portions of the area within its range.

The member 5 comprises, in the present instance, a plurality of polished double-faced deflecting plates 6, which are vertically disposed and connected together in rigidly spaced relation by top and bottom frame pieces or strips 7 and tie-rods 8. A shaft 9 projects up between the center pair of flanges 6 through the strips 7, to which it is fixed, and is journaled in any suitable manner in the top and bottom of the case 1, whereby the deflector member 5 is permitted to horizontally rotate. The lower end of the shaft 9 extends down into a motor case 10 on the bottom of the case 1 and connects in any suitable manner with a motor 11, which is mounted within the case and is preferably of the electrical type. It is thus evident that when the motor is running, the deflector member 5 will be rapidly rotated.

In the use of my device, it will be understood that a parabolic reflector such as 2, throws a strong beam of light, customarily not exceeding an angle of 15 degrees. The rapid revolving of the plates 6 in the light beam diverts the light rays from their path of reflection by the reflector 2 and results in illuminating an area of approximately 180 degrees, such area being determined by the portion of the case composed of glass or windows and the relation of the member 5 thereto. Due to the dimming effect of the short periods of illumination, it is necessary to increase the candle power of the lamp in order to maintain the same apparent intensity of beam. This can readily be accomplished by increasing the candle power of the light source 4. The gain in this con-

struction may be briefly stated as follows: Ordinarily two independent lamps of usual design on an automobile give strong illumination over an angle of approximately 30 degrees. Combine the power of the two lamps into one in my device and the effective intensity is approximately the same but the field illuminated is increased to approximately 180 degrees, or the maximum field of illumination permitted by the lamp case. The direct result is that side streets and curves, that is to say, the danger points, are properly illuminated.

It will, of course be understood that the area illuminated by the lamp depends on the window space in the lamp case 1. By extending the window space to the back of the lamp, the area of illumination will extend over nearly 300 degrees.

It will be noted that in the ordinary headlamp using a parabolic reflector, it is necessary to proportion the parts and locate the lamp in such a manner that there will be a certain "spill" of light to illuminate a sufficient area of the road. In other words, the lamp must be out of focus and consequently a large portion of the reflected rays leaves the reflector at an angle above the horizontal. These are the rays that cause the objectionable glare in the ordinary form of headlight. In the design shown herewith, it is possible to concentrate the rays into practically a parallel beam and to so set the device that the uppermost rays of the beam shall fall below the horizontal and consequently these rays will not strike the eye of a person approaching the lamp, and therefore the objectionable glare is eliminated. It is to be noted that the revolving deflectors are an essential part of the combination for producing the non-glaring results, as otherwise the area illuminated by the concentrated beam would not be sufficient for practical purposes.

I wish it understood that my invention is not limited to any specific construction, arrangement or form of the parts or number of deflecting plates employed, as it is capable of numerous modifications and changes without departing from the spirit of the claims.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A light distributing device having a source of light, and means having openings therethrough disposed in the path of the rays of light and continuously movable and operable as a unit to cause a rapid intermittent interruption of the direct light rays and a deflection of the interrupted light rays at constantly changing angles.

2. A light distributing device having a source of light, and means embodying a plurality of spaced deflecting plates continu-

ously movable to periodically intercept the light rays at constantly changing angles and causing them to fall on successive portions of the area within its range.

3. A light distributing device having a source of light, and means embodying a plurality of spaced deflecting plates revoluble to periodically intercept the light rays at constantly changing angles and causing them to fall on successive portions of the area within its range.

4. A light distributing device having a source of light, and rotatable means disposed in the path of the light rays and operable to cause a rapid intermittent interruption of the direct light rays and a deflection of said rays at constantly changing angles, said means when rotated permitting an intermittent projecting of the light rays therethrough.

5. A light distributing device having a source of light, and means having revoluble parallel deflector parts disposed in the path of the light rays for rapidly varying the direction of deflection of the light rays, the movement of the deflector parts being edge-wise.

6. A light distributing device having a source of light, and means having revoluble deflector parts disposed in the path of the light rays for rapidly varying the direction of deflection of the light rays and spaced in the plane of revolution to intermittently permit the passage of light rays therebetween.

7. A light distributing device having a source of light, a reflector for concentrating a portion of the emitted light into a beam, having parallel rays, projected on a portion of the area to be illuminated, and means having openings therethrough disposed in the path of the concentrated beam and continuously movable to intermittently intercept said beam and causing it to be rapidly deflected in different directions.

8. A light distributing device having a source of light, a reflector for the light rays, a plurality of spaced ray deflecting parts rapidly movable in the path of the reflected rays to cause a periodical interception of the light rays at constantly changing angles and a rapid variation of the direction of deflection thereof, and means for rapidly and continuously moving the deflecting parts in one direction.

9. The combination with a source of light, of a plurality of deflector plates revolubly mounted in the path of the light rays and spaced to permit a projection of the light rays therebetween when at predetermined points in a revolution, and means for continuously and rapidly revolving said plates.

10. The combination with a source of light, of a reflector for the light rays, a deflector movably mounted in the path of the

reflected rays and having a plurality of spaced deflector parts, permitting a projecting of the light rays therethrough, and means for continuously and rapidly revolving said parts to cause a periodical interception and deflecting of the rays at constantly changing angles.

11. In a light distributing device, a case having front and side windows, a source of light, means for reflecting the light rays forward in the case, and continuously revolvable means for periodically intercepting the reflected light rays at constantly changing angles to uniformly deflect the rays through both said front and side windows of the case.

12. In a light distributing device, a case having front and side windows, a source of light, means for reflecting the light rays forward in the case, and continuously movable means for periodically intercepting the reflected light rays at constantly changing angles to uniformly distribute the rays through both said front and side windows of the case, the upper and lower edges of

the rays being confined in substantially parallel lines by the top and bottom of the case.

13. In a light distributing device, a source of light, a reflector for the light rays, a continuously and rapidly movable deflector having a plurality of spaced deflector parts and operable as a unit to periodically interrupt the reflected light rays and also to deflect the rays in one plane at constantly changing angles, and means for confining the upper and lower edges of the reflector rays in predetermined limits.

14. A light distributing device having a source of light, a reflector concentrating a portion of the emitted light into a beam, having parallel rays, projected on a portion of the area to be illuminated, and continually moving means disposed in the path of the concentrated beam for periodically permitting it to project therethrough and periodically causing it to be intercepted and rapidly deflected in different directions.

In testimony whereof, I have hereunto signed my name to this specification.

WILLIAM H. FULTON.