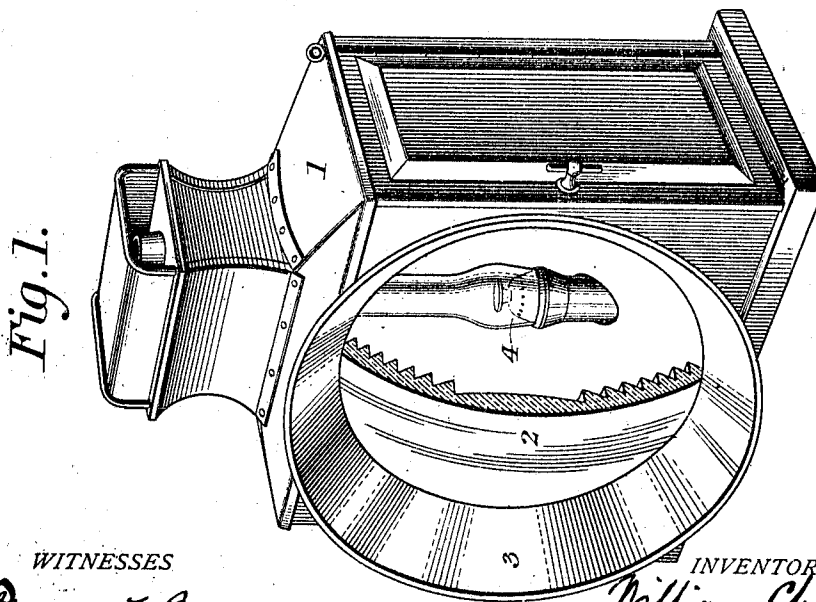
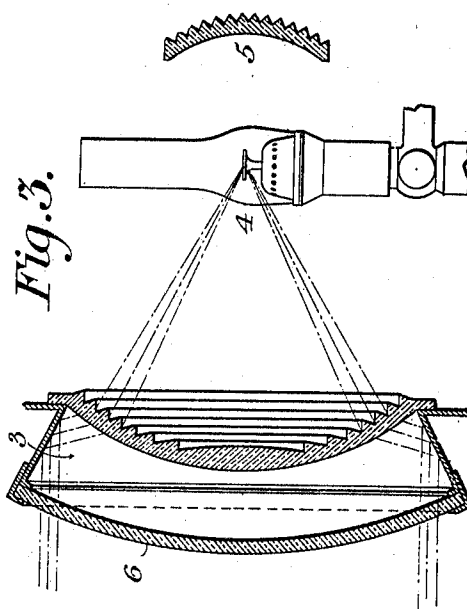
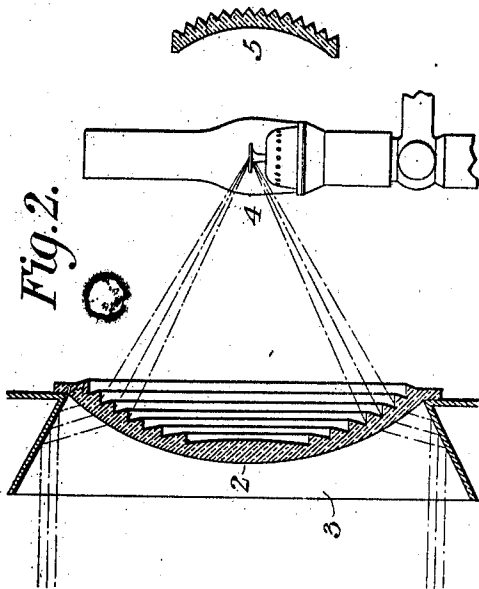


W. CHURCHILL.
 HEADLIGHT OR OTHER LIGHT PROJECTOR.
 APPLICATION FILED SEPT. 14, 1910.

1,004,628.

Patented Oct. 3, 1911.



WITNESSES
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UNITED STATES PATENT OFFICE.

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HEADLIGHT OR OTHER LIGHT-PROJECTOR.

1,004,628.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM CHURCHILL, a citizen of the United States, residing at Corning, in the county of Steuben and State of New York, have invented new and useful Improvements in Headlights or other Light-Projectors, of which the following is a specification.

My invention is primarily intended for use in a lens headlight, the object being to employ a flaring hood exteriorly around the lens at such an angle that the rays projected from the source of light through the miters and caused to diverge sharply away from the axis of the beam shall be caught by the interior surface of the hood so that they shall proceed in an approximately parallel beam, thus reinforcing the strength of the beam projected by the lens.

In the drawing, which shows my invention specifically applied to a lens headlight, Figure 1 is a perspective view in which one-half of the lens is removed so as to expose to view the source of light within the lamp case. Fig. 2 is a side view, mainly in section, the lamp case being omitted. Fig. 3 is a view similar to Fig. 2 but showing a modification.

Similar numerals of reference indicate similar parts in the respective figures.

1 is the casing which, as here shown, is of an approved headlight type, but which may be modified in accordance with the character of the lamp or device to which my invention is designed to be applied. As shown in Fig. 1, the lens 2 is mounted at or upon the front wall of the case 1 in any usual manner. An outwardly-flaring hood, indicated by 3, is fitted at its inner edge around the lens, said edge of the hood being of a diameter equal to the exterior of the uninclosed portion of the lens. The interior surface of the hood 3 may be made of burnished metal, though a white enameled surface or indeed white paint may be employed, the essential being that the interior of the hood shall have a surface with high reflecting power, and at the same time one not liable to suffer too rapid deterioration by exposure to the elements. The burner is shown by 4, and it will be seen that the light rays therefrom projected through the miters of the lens 2, sharply diverge from the axis of the beam, are caught by the interior reflecting surface of the hood 3 and

proceed in an approximately parallel beam, all as indicated in dotted lines. The strength of the beam projected by the lens is thus greatly reinforced. In the rear of the burner, as shown in Fig. 2, is a prism reflector 5, the employment of which is not, however, essential to my invention, as the prism may be omitted. If any reflector is used, one other than of the prism type may serve to act in conjunction with the lens 2.

In Figs. 1 and 2 the outer edge of the hood 3 is shown unprovided with a front glass, but in the modification, Fig. 3, a glass 6 is seen fastened at the outer edge of the hood. Instead of a glass of concavo-convex form a flat one may be substituted.

The use of the outwardly-flaring and reflecting hood herein described will increase the intensity of the beam at least fifteen per cent., or perhaps twenty per cent., with no increased cost for oil or other illuminants. At the same time the hood serves the usual purpose of protecting the lens.

I am aware that heretofore hoods have been placed around lenses of the semaphore type, but not to my knowledge with the intent of utilizing the light rays in the manner herein contemplated. The hood heretofore employed has constituted more or less a device for cutting off such rays, which in the case of a switch lamp, for example, would be undesirable if allowed to proceed at approximately a right angle to the axis of the beam. I am aware that a switch lamp has been known for some time having a broad flaring hood projecting out in dish shape at almost a right angle to the axis of the lens, but such hood is merely intended to serve as a switch target, and is practically of no value as a reflector, and is not intended to utilize, nor is it capable of utilizing, the light rays in the way here proposed. Such a hood has been made to extend out so as to be parallel to the axis of the lens, and has been painted or enameled black, so that the idea of utilizing the hood as a reflecting device is not therein embodied. It will be understood that the planes of the miters are so formed that the rays diverging from the source of light will be refracted so as to reach the outside reflector along approximately parallel paths.

While, as hereinbefore stated, my invention is intended primarily for use with a lens headlight, it is applicable to any lamp carry-

ing a semaphore lens of the usual smooth face type, as for instance, a switch or semaphore lamp.

Having thus described my invention, I claim:—

1. In a headlight or other light projector, the combination with a casing and a lamp of a lens of the Fresnel type and an outwardly flaring and reflecting hood the inner edge of which meets and surrounds the operative face of the lens, the angle of the reflecting surface of the hood being such that the rays projected from the source of light through the miters of the lens, and caused to diverge away from the axis of the beam, shall be caught and reflected by said surface so that they shall proceed in an approximately parallel beam, thus reinforcing the strength of the beam projected by the lens, substantially as set forth.
2. In a headlight or other light projector, the combination with a casing and a lamp of a lens of the Fresnel type forward of the lamp, a reflector in the rear thereof, and an outwardly flaring and reflecting hood the inner edge of which meets and surrounds the operative face of the lens, the angle of the reflecting surface of the hood being such that the rays projected from the source of light through the miters of the lens, and caused to diverge away from the axis of the beam, shall be caught and reflected by said surface so that they shall proceed in an approximately parallel beam, thus reinforcing the strength of the beam projected by the lens, substantially as set forth.
3. In a headlight or other light projector, the combination with a casing and a lamp

of a lens of the Fresnel type, an outwardly flaring and reflecting hood the inner edge of which meets and surrounds the operative face of the lens, and a glass at the outer edge of said hood, the angle of the reflecting surface of the hood being such that the rays projected from the source of light through the miters of the lens, and caused to diverge away from the axis of the beam, shall be caught and reflected by said surface so that they shall proceed in an approximately parallel beam, thus reinforcing the strength of the beam projected by the lens, substantially as set forth.

4. In a headlight or other light projector, the combination with a casing and a lamp of a lens of the Fresnel type forward of the lamp, a reflector in the rear thereof, an outwardly flaring and reflecting hood the inner edge of which meets and surrounds the operative face of the lens, and a glass at the outer edge of said hood, the angle of the reflecting surface of the hood being such that the rays projected from the source of light through the miters of the lens, and caused to diverge away from the axis of the beam, shall be caught and reflected by said surface so that they shall proceed in an approximately parallel beam, thus reinforcing the strength of the beam projected by the lens, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM CHURCHILL.

Witnesses:

LOTTIE P. STRAIT,
E. PFEIFFER.