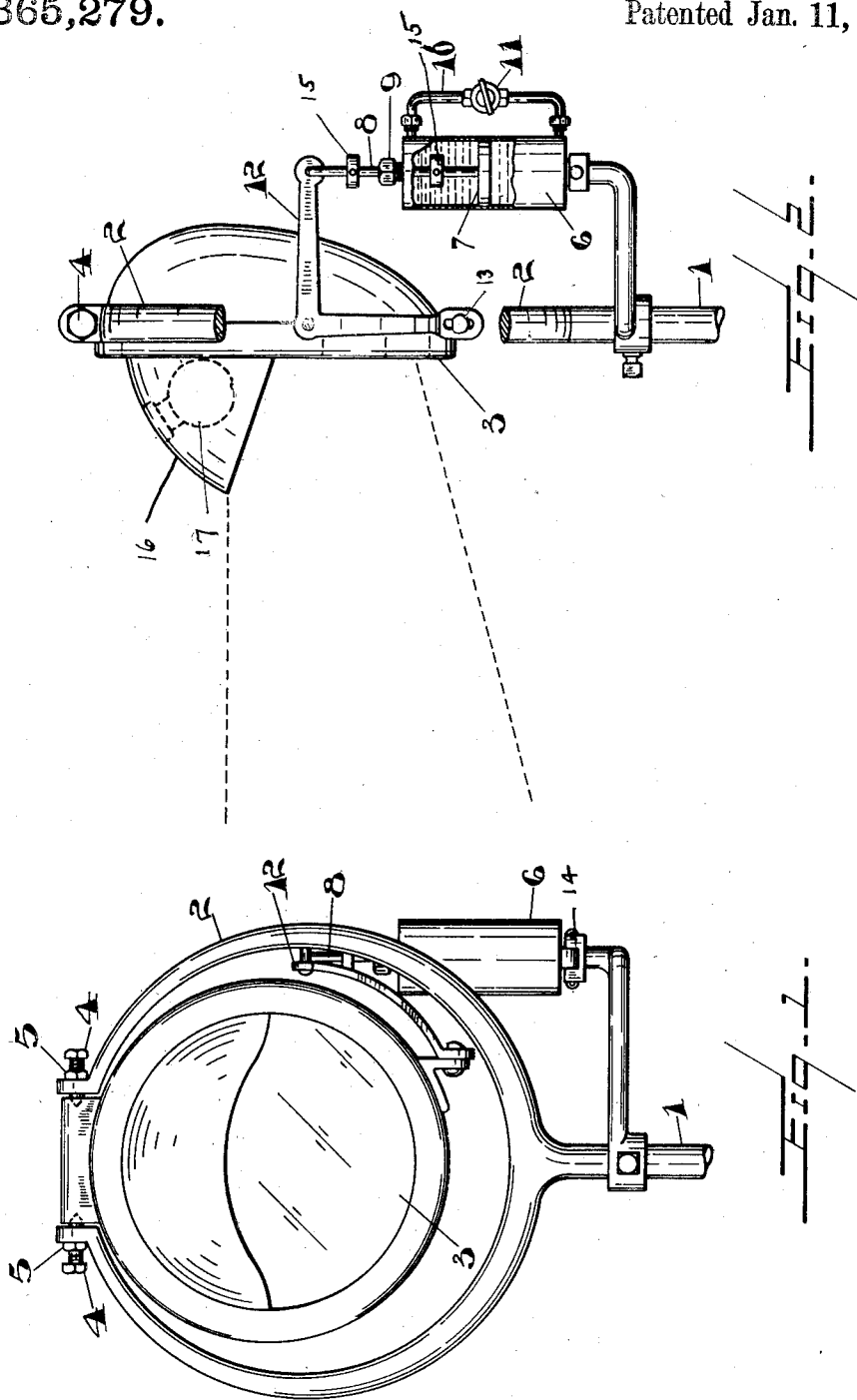


J. C. RYAN.
VEHICLE HEADLIGHT;
APPLICATION FILED NOV. 24, 1919.

1,365,279.

Patented Jan. 11, 1921.



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VEHICLE-HEADLIGHT.

1,365,279.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN CARL RYAN, a subject of the King of Great Britain, and resident of the city of Toronto, in the county of York, Province of Ontario, Canada, have invented certain new and useful Improvements in Vehicle-Headlights, of which the following is a specification.

This invention relates to reflecting headlights particularly adapted for use on vehicles traveling on highways with changing grades, and my object is to devise a headlight which will always maintain the axis of the direct beam of light from the deflector at substantially a constant angle to the horizontal, and which will prevent glaring rays of light being directed upwardly into the eyes of the driver of an approaching vehicle.

I attain my object by means of constructions hereinafter described and illustrated in the accompanying drawings in which—

Figure 1 is a front elevation of a headlight constructed in accordance with my invention; and

Fig. 2 a side elevation of the same partly broken away.

In the drawings like numerals of reference indicate corresponding parts in the different figures.

1 is the headlight supporting frame formed with a yoke 2, which passes on each side of the reflector 3. This reflector is of concave form and may be constructed in any ordinary manner. At its upper side this reflector is hinged to the upper part of the yoke 2 by means of the trunnions 4, which are preferably threaded through the ends of the yoke and provided with suitable lock nuts 5 by means of which they may be locked as adjusted. The reflector thus swings from its upper side well above the center of gravity. It follows from this that the reflector always tends to remain with its optical axis at a constant angle to the horizontal despite changes in the grade over which the vehicle may be running. This prevents the beam of light from the reflector being thrown up into the air when the vehicle passes over the crest of a rise, or being thrown in a downwardly direction when the car dips after passing the crest of a rise.

As, however, the reflector would tend to oscillate more or less under the influence of inequalities in the road surface, it is necessary to provide means for damping these oscillations, leaving the light susceptible

only to prolonged changes of the position of the vehicle relative to the horizontal. For this purpose I provide the cylinder 6, which is filled with a suitable fluid and has plunger 7 therein connected to the plunger rod 8 which extends out through the stuffing box 9 in one end of the cylinder. A by-pass 10 is provided between the ends of the cylinder at each side of the piston, which by-pass is controlled by a valve 11. Greater or less resistance to the displacement of the fluid from one end of the cylinder to the other may be obtained by adjusting the valve. If regulation of the resistance is not deemed of importance, the plunger may be made a loose fit in the cylinder and the by-pass dispensed with.

The swinging movement of the reflector is changed into rectilinear movement of the plunger rod by means of the bell crank lever 12, one end of which is suitably connected with the reflector, preferably at its lower edge, while the other arm is pivotally connected with the plunger rod 8. Connection with the reflector is preferably by means of a pin and slot connection 13, while provision for the varying distance of the pivotal connection with the plunger rod from the fulcrum of the bell crank lever is provided for by pivotally connecting the cylinder to the frame as indicated at 14. Collars 15, preferably adjustable by means of set screws, are placed on the plunger rod 8 to limit the movement of the plunger in either direction, so that a limit is set to the swing of the reflector in either direction. The device just described effectually damps the oscillations of the reflector, but permits of the reflector moving readily with changes in the grade over which the vehicle is running.

To further prevent direct rays from the reflector being directed upwardly into the eyes of the driver of an approaching vehicle, I provide the reflector with a segmental concave shield and reflector 16, one edge of which is substantially co-terminous with the upper part of the rim of the main reflector 3. The free rim of this shield is so positioned as to cut off all rays from the main reflector which pass above the horizontal line when the vehicle is standing on level ground.

Within this shield and reflector is situated the source of light, which will usually be an incandescent electric lamp 17. The main reflector must be so figured as to form a suitable cone of light save as the upper part is

cut off by the action of the shield 16. A
headlight constructed as described will be
found to satisfactorily attain the object of
my invention as set out in the preamble of
5 this specification.

What I claim as my invention is:—

1. A headlight comprising a frame; a re-
flector hinged on the frame and balanced to
hang with its optical axis in a substantially
10 constant position relative to the horizontal;
a bell crank lever fulcrumed on the frame;
an operating connection between one arm of
the bell crank lever and the reflector; and
damping means connected with the other
15 arm of the bell crank lever adapted to damp
the oscillations of the reflector.

2. A headlight comprising a frame; a re-
flector hinged on the frame and balanced to
hang with its optical axis in a substantially
20 constant position relative to the horizontal;
a fluid-filled cylinder; a plunger movable

therein; a by-pass between the ends of the
cylinder at opposite sides of the plunger;
means for controlling and adjusting the by-
pass; and means for converting the swinging 25
movement of the reflector into rectilinear
movement of the piston rod.

3. A headlight comprising a frame; a re-
flector hinged on the frame and balanced to
hang with its optical axis in a substantially 30
constant position relative to the horizontal;
a bell crank lever fulcrumed on the frame;
an operating connection between one arm of
the bell crank lever and the reflector; a fluid-
filled cylinder; a plunger movable therein 35
and connected to the other arm of the bell
crank lever; a by-pass between the ends of
the cylinder at opposite sides of the plunger;
and means for controlling and adjusting the
by-pass.

JOHN CARL RYAN.