

No. 733,136.

PATENTED JULY 7, 1903.

F. BUCHANAN.  
REFLECTOR FOR HEADLIGHTS.

APPLICATION FILED JAN. 2, 1903.

NO MODEL.

Fig. 1.

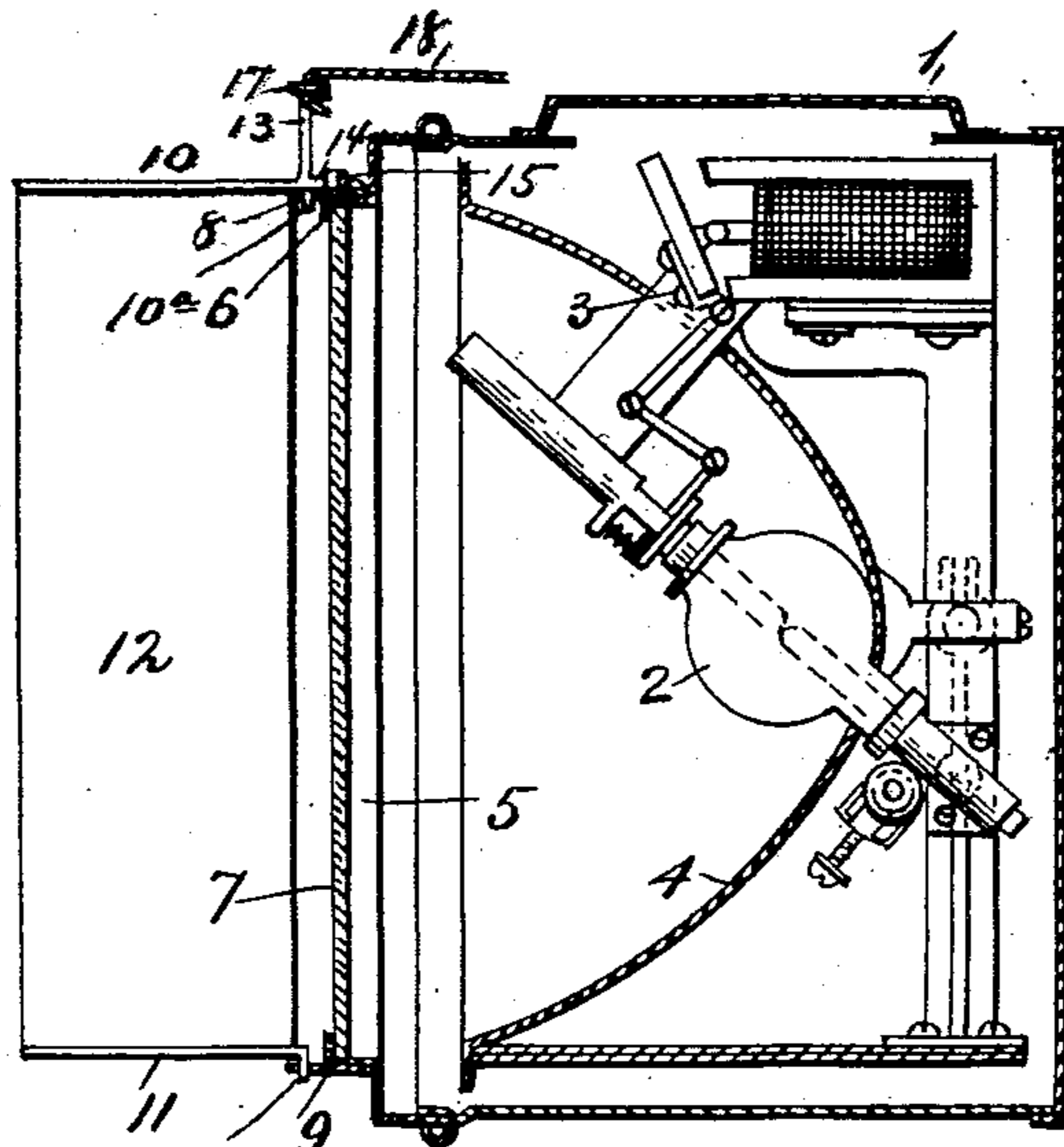


Fig. 3.

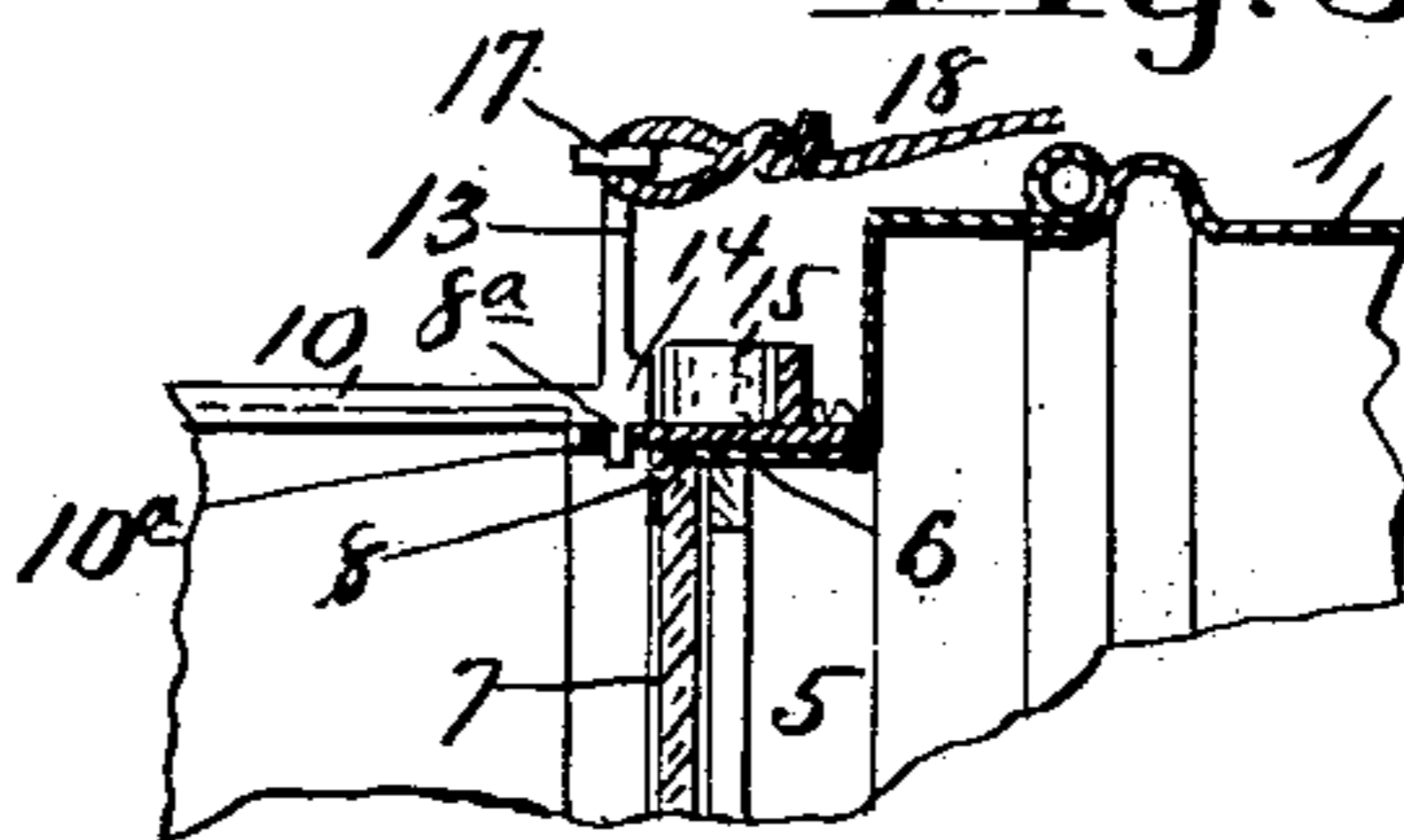


Fig. 4.

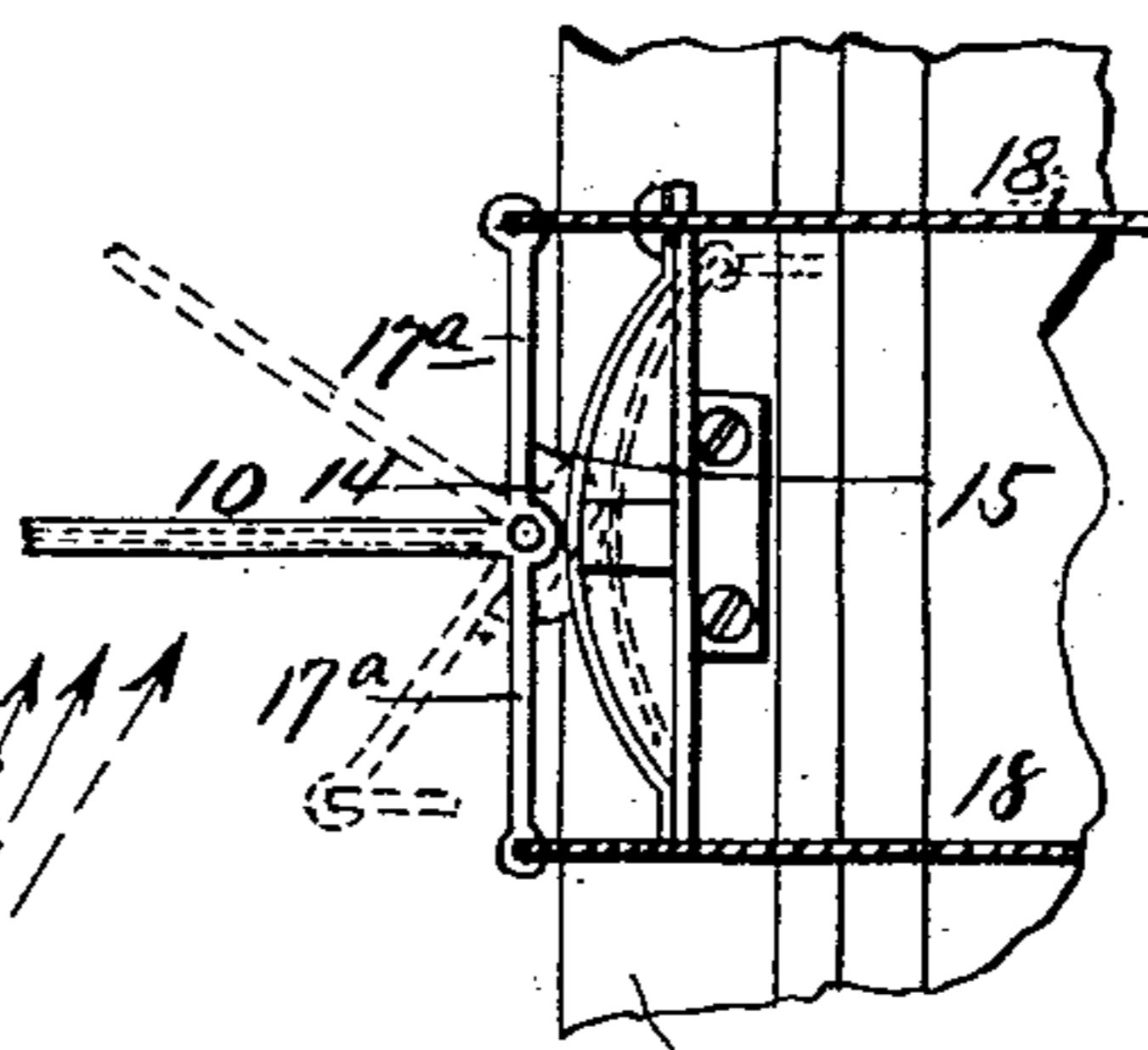
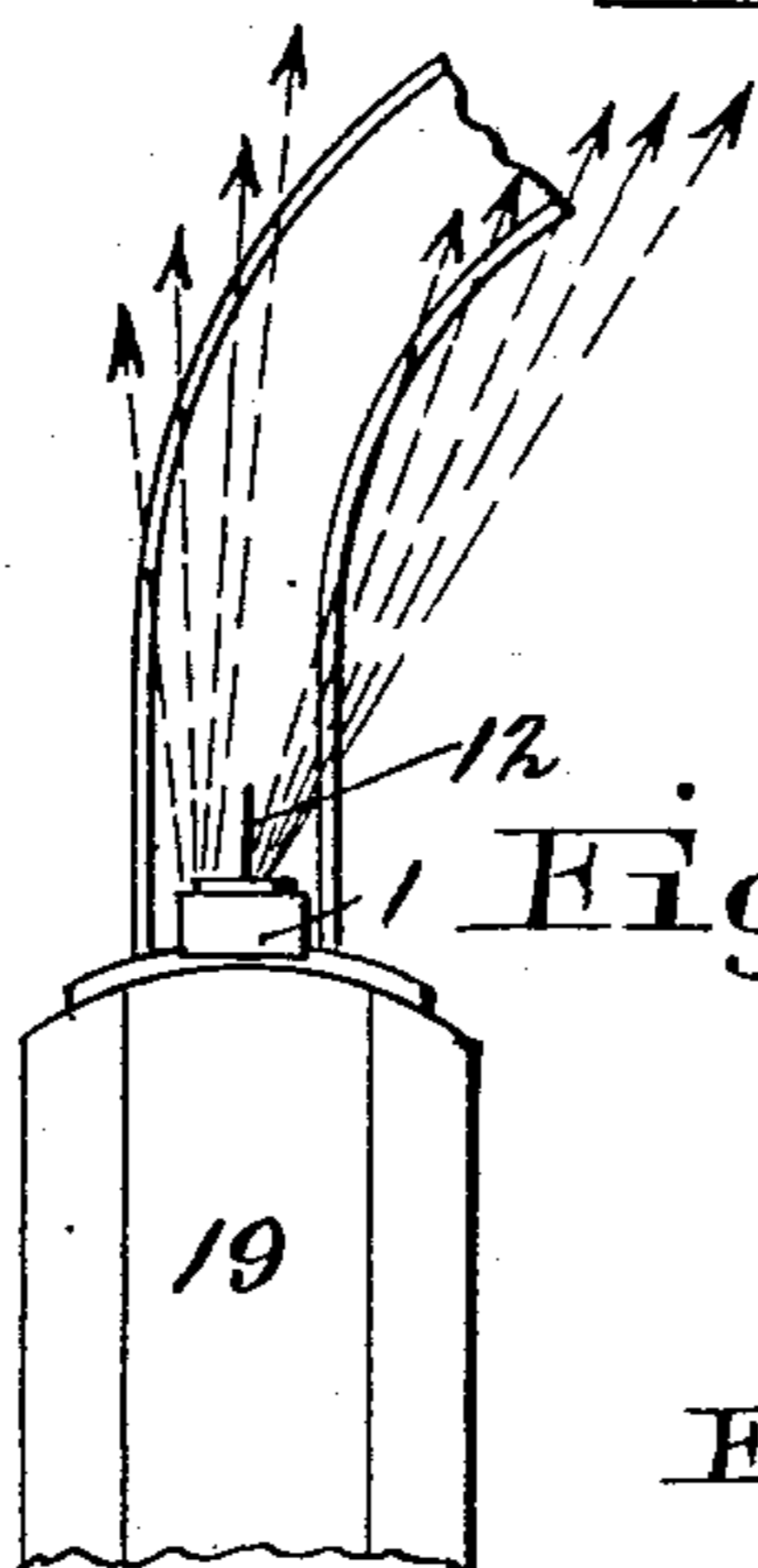


Fig. 5.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

FRANK BUCHANAN, OF DAYTON, OHIO.

## REFLECTOR FOR HEADLIGHTS.

SPECIFICATION forming part of Letters Patent No. 733,136, dated July 7, 1903.

Application filed January 2, 1903. Serial No. 137,550. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK BUCHANAN, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented new and useful Improvements in Reflectors for Headlights, of which the following is a specification.

My invention relates to headlights, and has for its object to construct an auxiliary reflector to be attached to the front of a headlight to be used when rounding curves to deflect the light so that it will illuminate the curve for a considerable distance ahead.

The simple and novel construction employed by me in carrying out my invention is fully described and claimed in this specification and illustrated in the accompanying drawings, forming a part thereof, in which—

Figure 1 is a vertical section of a headlight equipped with my reflector, the plane being taken perpendicular to the door. Fig. 2 is a perspective view of the door and its frame with my reflector. Fig. 3 is a detail section of the upper hinge. Fig. 4 is a plan view of the lever and spring-stop. Fig. 5 is a plan view of a curved track with a car thereon bearing one of my improved headlights.

Like numerals of reference designate like parts in the different views of the drawings.

The numeral 1 designates the casing of a headlight comprising an arc-light 2 with a suitable carbon-feed mechanism 3, a parabolic reflector 4, and a door 5, consisting of a frame 6, in which is mounted a glass 7. Brackets 8 and 9 are rigidly secured to the top and bottom, respectively, of the frame 6 in the same vertical plane and have apertures 8<sup>a</sup> and 9<sup>a</sup>, respectively, therein to accommodate lugs 10<sup>a</sup> and 11<sup>a</sup>, formed on arms 10 and 11, which carry a vertical auxiliary reflector 12. A stem 13 is carried by the arm 10, which is also enlarged to form a centering-block 14, having a concave face 14<sup>a</sup>, which bears on the convex face of a bowed spring 15, having its extremes fixed by screws 15<sup>a</sup>. A lever 17 is carried by the upper end of the stem 13 and has oppositely-extending apertured arms 17<sup>a</sup>, to which are attached flexible members 18, such as cords, for use in operating the reflector.

In practice my improved headlight is mounted in the usual manner on the forward

end of a car 19, with the members 18 within reach of the motorman or conductor, if it be an electric car, or the engineer or fireman, if it be a locomotive. In running a curve, as shown in Fig. 4, the reflector 12 is swung slightly to the right by pulling the right-hand cord 18. The pull on the cord 18 will actuate the lever 17, thereby bringing the right side of the centering-block 14 in contact with the spring 15, bending it slightly as it yields to permit the reflector to swing. The resistance of the spring increases with the angle of displacement of the reflector 12 and returns it to its normal position perpendicular to the plane of the door 5 as soon as the members 18 are released. The result of swinging the reflector is to reflect one-half of the rays of the headlight to the right and direct it along the inner side of the curve, thereby illuminating the curve for a long distance ahead. By the use of my reflector 12, in fact, the light can be made to cover a semicircumference, which is not possible with auxiliary reflectors mounted within the casing.

I do not wish to be limited as to details of construction, as these may be modified in many particulars without departing from the spirit of my invention.

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

1. In a headlight, the combination with the casing of a headlight, of an auxiliary reflector swinging about a vertical axis and located outside of said casing and designed to deflect one-half the rays from the headlight to either side to illuminate the track in rounding curves, and means for operating said reflector, substantially as described.

2. The combination with a headlight of an auxiliary reflector located outside of the casing and swinging about a vertical axis, a bowed spring mounted on said casing, a centering-block carried by said reflector and having a concave face engaging the convex face of said spring, substantially as described.

3. In a headlight, the combination of apertured brackets attached to the outside of the casing, arms bearing lugs engaging the apertures in said brackets, an auxiliary reflector carried by said arms, a lever connected to one of said arms, and flexible members con-

nected to said lever to operate said reflector, substantially as described.

4. The combination with a headlight, of an auxiliary reflector swinging about a vertical  
5 axis, a bowed spring secured at its ends, and a centering-block carried by said reflector and having a concave face engaging the convex face of said spring to serve to restore said reflector to its initial position after displacement, substantially as described.  
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5. The combination with a headlight, of an auxiliary reflector, a bowed spring mounted on said headlight, a centering-block carried

by said reflector and having a concave face engaging the convex face of said spring to  
15 hold said reflector normally centered, and means for operating said reflector, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.  
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FRANK BUCHANAN.

Witnesses:

A. C. BUCHANAN,  
WM. A. BUDROE.