

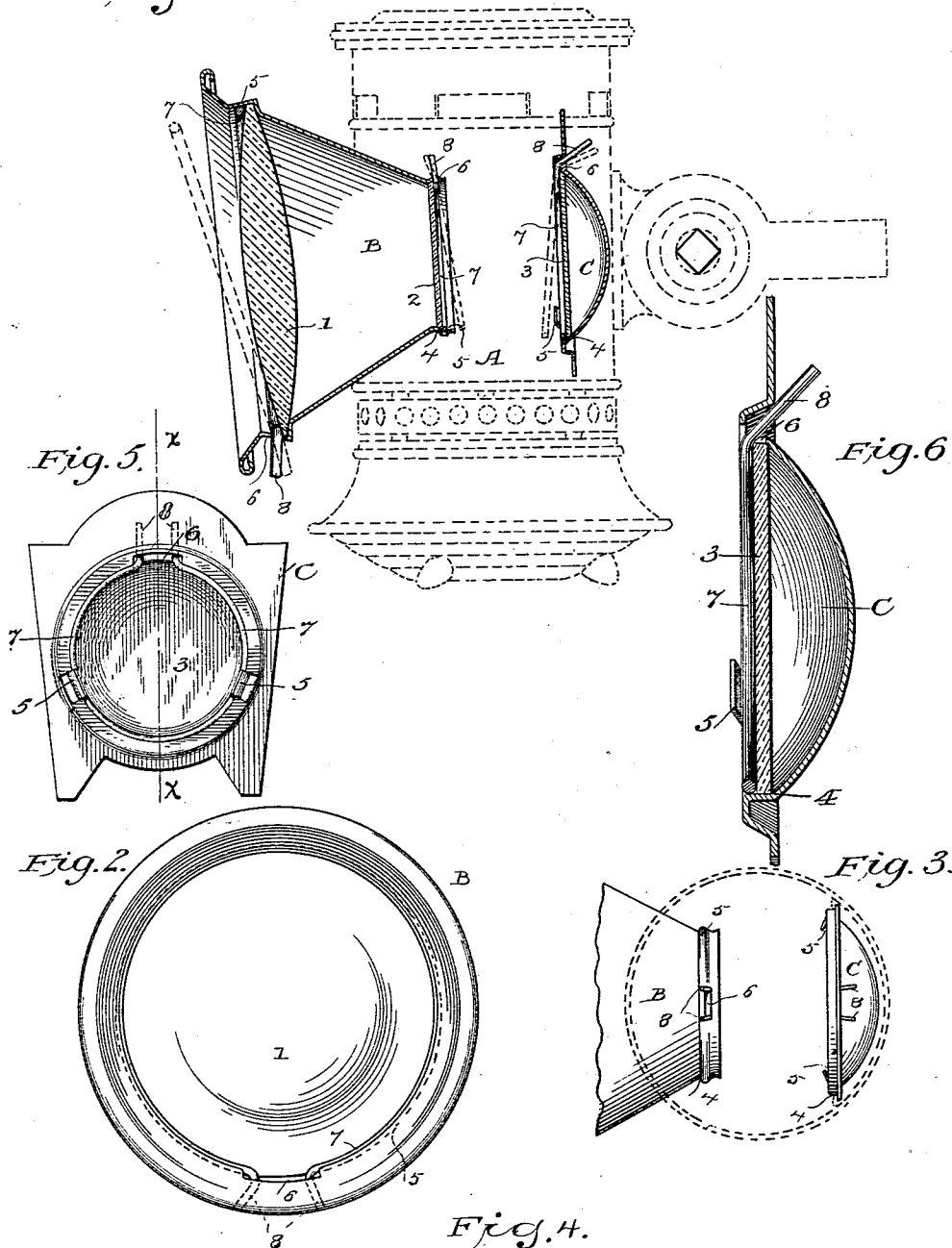
(No Model.)

F. RHIND.  
BICYCLE LAMP.

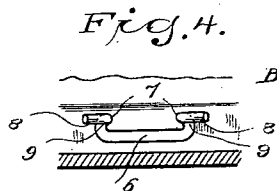
No. 560,174.

Patented May 12, 1896.

Fig. 1.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

FRANK RHIND, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE BRIDGE-  
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## BICYCLE-LAMP.

SPECIFICATION forming part of Letters Patent No. 560,174, dated May 12, 1896.

Application filed February 20, 1896. Serial No. 580,077. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK RHIND, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Bicycle-Lamps; 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.

My invention relates to the construction of lamps for bicycles, carriages, cars, &c.; in fact to any lamp or lantern using glasses, lenses, protectors, or other removable parts, and has for its object to provide a device for holding the removable parts, such as glasses, lenses, protectors, &c., in place, which will lessen rather than increase the cost of construction, will hold the removable parts firmly and securely in place without regard to variations in the thickness of the removable parts, and will permit said parts to be readily removed and replaced for cleaning or for any purpose whatever.

With these ends in view I have devised the novel construction which I will now describe, referring by letters and numbers to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a sectional view illustrating the application and use of my novel invention in holding the lens and the reflector shields or protectors of the well-known "Search-Light" lamp, the body, reservoir, open connection, wind-guard, and holding device of the lamp being shown in dotted lines in elevation; Fig. 2, a front elevation of the front reflector, showing the front glass or lens held in position by my novel holding device; Fig. 3, a plan view illustrating the application of my invention in holding the protectors or shields in position at the rear end of the front reflector and at the front of the back reflector; and Fig. 4, a detail inverted plan view of the outer end of the front reflector, illustrating a special form of locking-slot for the ring. Fig. 5 is an elevation of the back reflector detached; and Fig. 6 is a section, on an enlarged scale, on the line *x x* in Fig. 5.

A denotes the body of a bicycle or other lamp shown only in dotted lines, B the front

reflector, and C the back reflector. At the front end of the front reflector is a glass or lens 1. At the rear end of the front reflector is a transparent or translucent protector or shield 2, and at the front of the back reflector is a transparent or translucent protector or shield 3.

The novel feature of my invention consists in providing the fixed parts of the lamp with a shoulder or shoulders 4, and in front of said shoulder with an inclined socket 5, (see especially the front end of the front reflector in Fig. 1 and the front of the back reflector in Fig. 3,) and in the plane of the sockets with an opening 6. This opening is made long enough to permit the ring to be contracted and to be inserted or removed by simply pressing the ends together, and may be either straight or provided with locking-recesses at its ends, which are engaged by the ring, as clearly shown in Fig. 4. The glass, lens, protector, or other part to be held in place rests against the shoulder or shoulders, which may be formed in any convenient manner, the special mode of forming the shoulder or shoulders not being of the essence of my invention.

7 denotes spring-holding rings, which are adapted to lie in the inclined sockets 5 to hold the glass, lens, protector, or other part firmly in place against the shoulder. The mode of forming the inclined socket is likewise not of the essence of my invention. For example, the socket to receive the holding-ring may be a groove, as shown at both ends of the front reflector, or the lens-socket may be formed by means of lugs upon the fixed part, as is clearly shown upon the back reflector in Fig. 3.

8 denotes the ends of the rings, which are turned outward and pass through openings 6, and are separated a sufficient distance to permit the rings to be contracted, as in removal or insertion, as clearly shown in the drawings.

In addition to turning the ends of the holding-rings outward, which is an essential feature of my improved construction, I preferably bend each of the ends backward more or less—that is, bend the ends so that their tips are at a greater distance apart than where the ends intersect with the rings proper—so that instead of lying parallel the ends form

more or less acute angles with the body of the ring, whereby in use the rings are locked firmly in place and are prevented from jumping out of the sockets under any circumstances, it being practically impossible to remove any of the rings until they are contracted by pressure upon the ends. In addition to the outward inclination of the ends of the holding-rings I preferably bend the ends slightly forward from the plane of the ring, as shown in Fig. 1, the effect of which is to throw the opposite side of the ring outward the instant the ring is contracted by pressing the ends inward.

When the operator desires to remove the glass, lens, protector, or other part for cleaning or to put in a new part, it is simply necessary to contract the ring by pressing inward upon outwardly-turned ends 8 and swing the ring outward, as indicated by dotted lines in Fig. 1, but without detaching the ring from the fixed part of the lamp. This permits the removable part—*i. e.*, the glass, lens, or protector—to be readily removed for cleaning or to permit the same removable part or another part to be placed in position. In inserting a glass, lens, or protector the operator simply places it in position with its edge resting against the shoulder, the holding-ring being contracted by pressing the ends inward, then swings the ring inward into the socket and against the removable part to lock the latter in place. The rings themselves may be readily removed at any time, if required, by simply pressing the ends inward far enough to permit them to be drawn out from the elongated opening. This, however, is rarely necessary in practice, and the acute angles formed by the outwardly-turned ends and the bodies of the rings act to normally prevent the rings from coming out. By inclining the lens-socket I provide for the use of glasses, lenses, &c., of varying thickness, it being of course understood that in the case

of lenses in particular no two are of the same thickness, the variation, as a matter of fact, being sufficient to cause rattling, if the lenses are not of uniform thickness, unless the socket is inclined so as to cause the rings to hold them firmly against the shoulders. If a glass of extra thickness is put in, the ring will of course not pass as far into the socket, but will press the glass or lens against the shoulder just as firmly as it will a thinner glass or lens.

Having thus described my invention, I claim—

1. The combination with a fixed part of a lamp having a shoulder and in front of said shoulder an inclined socket and in the plane of the socket an opening, of a removable part adapted to rest against the shoulder and a spring-ring having outwardly-turned ends adapted to pass through said opening and lying at a distance apart, so that when said ends are pressed toward each other the ring will be contracted and the removable part may be taken out, and when the ring is in place it will be forced by the incline against the removable part and prevent rattling.

2. The combination with a fixed part of a lamp having a shoulder and in front of said shoulder an inclined socket and in the plane of the socket an opening, of a removable part adapted to rest against the shoulder and a spring-ring having outwardly-turned ends adapted to pass through said opening and lying at a distance apart, the ends of said ring being bent backward from each other so that said ends form an acute angle with the body of the ring substantially as described, for the purpose set forth.

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

FRANK RHIND.

Witnesses:

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