

(No Model.)

E. TILMANN.  
REFLECTOR FOR LAMPS.

No. 524,076.

Patented Aug. 7, 1894.

Fig: 1.

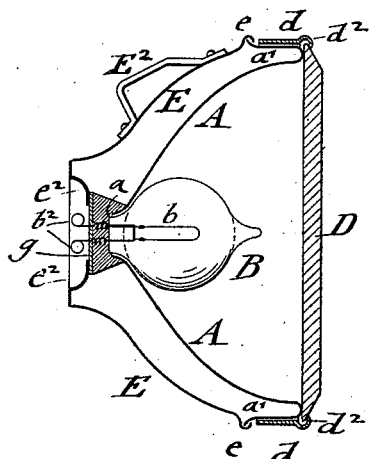


Fig: 2.

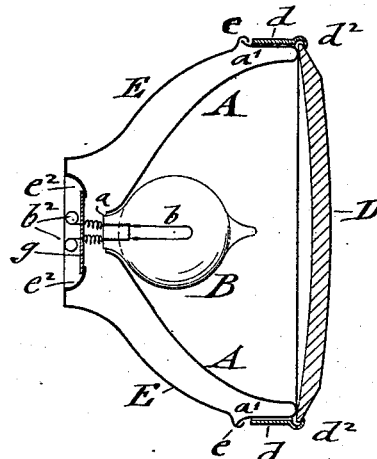
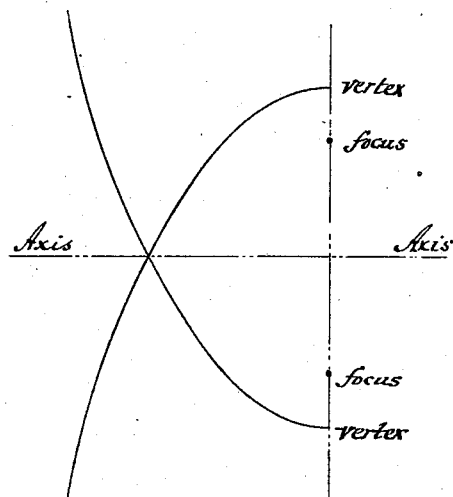


Fig: 3.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## REFLECTOR FOR LAMPS.

SPECIFICATION forming part of Letters Patent No. 524,076, dated August 7, 1894.

Application filed December 1, 1893. Serial No. 492,474. (No model.)

*To all whom it may concern:*

Be it known that I, ERNEST TILMANN, a citizen of the Republic of France, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Reflectors for Lamps, of which the following is a specification.

This invention relates to an improved reflector for the electric or other lamps for bicycles, cabs and other vehicles, which reflectors and lamps are mainly intended for use within the limits of a city in which the streets are illuminated and in which it is essential that a lamp with a concentrated light should be supplied, so that the approaching vehicle can be readily seen, and which reflector and lamp are intended for use in cities, being different from lamps and reflectors in which the light is thrown with considerable power to a certain distance ahead of the vehicle so as to light up the road in front of the same.

The invention consists of a lamp for bicycles, cabs and other vehicles, which consists of a reflector, the surface of which is formed of a parabola, the focus of which is located not within the lamp but outside of and in a plane in front of the same, said reflector being provided with a central opening into which the base or stem of the lamp is seated, said lamp being retained by suitable means at the center of the reflector.

The invention consists further, of the combination of a parabolic reflector, the focus of which is located in front of the lamp, an incandescent electric lamp supported in the center of the same, a glass-front applied to the front-edge of the reflector, an exterior sheet-metal casing and means for connecting the lamp with said casing, as will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a vertical central section of my improved reflector and lamp for bicycles, cabs and other vehicles, shown with a plane glass-cover. Fig. 2 is a like section of a reflector and lamp, shown with a convexo-concave glass-cover, and with a slightly modified arrangement of the means for securing the lamp to the reflector and its casing, and Fig. 3 is a diagram showing the form of the parabolic curve ac-

cording to which my improved reflector is constructed.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the reflector of my improved lamp for bicycles, cabs and other vehicles and B a miniature electric lamp which is secured into an opening *a* at the center of the reflector A.

The reflector A is made of parabolic form, but in such a manner that the vertex and focus of the parabola are not located within the bulb of the lamp B, but in front of the same and in a plane at right angles to the axis of the reflector, preferably in a plane located at or near the front-edge of the reflector, as shown in Fig. 3. This arrangement of the parabola concentrates some of the reflected rays of the electric lamp within the lamp and does not throw the same in forward direction in parallel rays as when a parabolic reflector of the ordinary well-known construction is used. Instead of throwing a strong beam of light in the forward direction, a luminous concentrated body of considerable power is produced, by which the approaching vehicle can be immediately seen and collision with the same avoided.

The reflector A is spun from a suitable piece of sheet-metal, which is silver-plated and polished in the usual manner. The metal at the front-edge of the reflector A is bent outwardly and rearwardly, so as to form a cylindrical rim *a'* on which the cylindrical rim *d* of the glass-cover D is placed, the rim *d* being retained by frictional contact on the exterior rim *a'* of the reflector. The cover D is made either of a circular plate of glass that is made plane on both sides or concavo-convex, the edge of the cover being retained in a groove formed in a circumferential bead *d'* of the rim *d*. The cover D and its rim *d* can be readily removed from the reflector whenever it is desired to clean the interior surface of the reflector and the lamp, in case dust has settled on the same.

The reflector A is inclosed by a sheet-metal casing E, which is attached by its beaded front-edge *e* on the outwardly-flaring rear-edge of the rim *a'* of the reflector. The casing E is provided with a metal strip or wire

$E^2$ , by which it may be connected by a leather or other strip to the bicycle or other vehicle. The central rear-portion of the casing E is made of concave shape, so as to form a shallow cup  $e^2$  that partly closes the hook-shaped ends of the conducting wires  $b^2$  which lead to the incandescent filament of the miniature electric lamp B.

The casing E protects the reflector and the electric lamp against injury when the bicycle or other vehicle is thrown to the ground, and forms with the reflector and the front a strong and compact lamp for bicycles and other vehicles. The concave rear-portion  $e^2$  has a central opening for the passage of the conducting wires  $b^2$ , said opening being of sufficient size to prevent the wires from coming into contact with the metal of the casing E.

To retain the lamp B within the central opening of the reflector, the base or stem of the lamp is made to rest against the curved edge of the central opening of the reflector, and a body of plaster of paris, which is interposed between the stem of the lamp and a flat disk  $g$  of paste-board or other non-metallic material, which rests against the concave rear-portion  $e^2$ . The conducting wires are twisted so as to form spiral springs which are embedded into the body of plaster of paris, as shown at Fig. 1. The body of plaster of paris may be dispensed with, in which case the disk is supported from the outside against the rim of the concave rear-portion  $e^2$ , while the coiled portions of the conducting wires hold the disk and lamp in position in the central opening of the reflector, as shown in Fig. 2.

My improved lamp for bicycles, cabs and other vehicles has the advantages first, that a powerful light is obtained from a comparatively small lamp, inasmuch as the light rays are condensed within the lamp and not projected in forward direction, so that a strong concentrated body of light is formed by which the approach of the bicycle or other vehicle is immediately perceived and accidents

avoided; secondly, that by the peculiar shape of the parabolic reflector the lamp may be located at the center of the reflector so as to be fully inside of the glass-cover by which and the casing the reflector and lamp are protected against injury by accident to the vehicle, the lamp being furthermore so arranged that it can be readily removed and replaced by a new one.

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

1. A reflector for lamps formed of parabolic shape, the vertex and focus of the parabola being located in a plane in front of the light-giving body, substantially as set forth.

2. A reflector for lamps formed of parabolic shape, the vertex and focus of the parabola being located in a plane at right angles to the center axis of the reflector, substantially as set forth.

3. The combination of a reflector formed of a parabola, the vertex and focus of which are located in a plane at right angles to the axis of the reflector, an electric or other lamp located in a central opening of the reflector, and means for holding said lamp in position on the reflector substantially as set forth.

4. The combination, of a reflector formed of a parabola, the vertex and focus of which are located in a plane at right angles to the axis of the reflector, an electric or other lamp located at the center of the reflector, a glass-cover attached to the front of the reflector, a casing inclosing the reflector, and means for connecting the electric lamp with the rear-part of the casing, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

E. TILMANN.

Witnesses:

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K. R. BRENNAN.