

(No Model.)

E. TILMANN.
REFLECTOR FOR ELECTRIC OR OTHER LAMPS.

No. 524,075.

Patented Aug. 7, 1894.

Fig. 1.

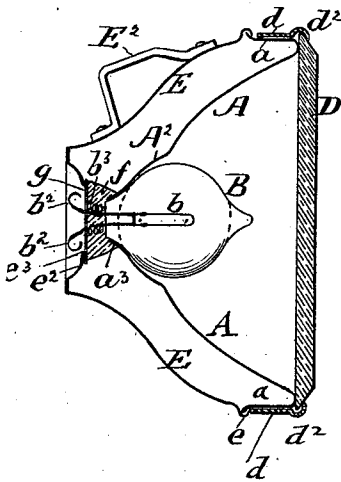


Fig. 2.

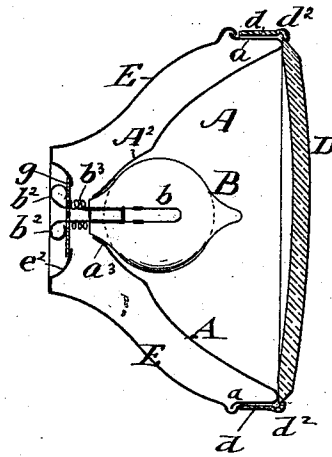
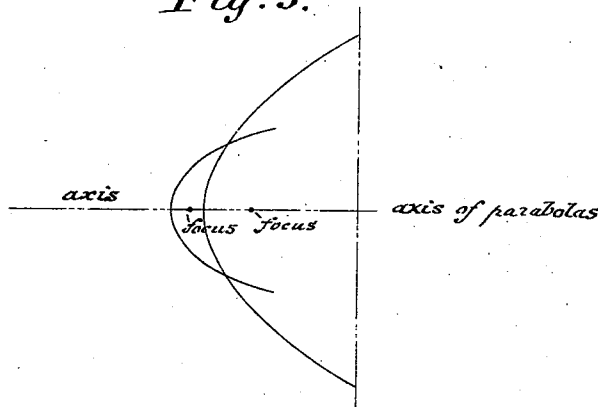


Fig. 3.



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ERNEST TILMANN, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO
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REFLECTOR FOR ELECTRIC OR OTHER LAMPS.

SPECIFICATION forming part of Letters Patent No. 524,075, dated August 7, 1894.

Application filed December 1, 1893. Serial No. 492,473. (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 Electric or other Lamps, of which the following is a specification.

The object of my invention is to furnish for bicycles, cabs and other vehicles, an improved reflector which is to be used with an incandescent electric or other lamp, said reflector being so constructed that the light of the lamp is reflected to a considerable distance, so that objects in front of the vehicle are clearly illuminated and the reflector and its lamp thereby adapted especially for use on unlighted country-roads.

The invention consists of an integrally-spun reflector of parabolic shape which is provided at its center with a socket-portion for an incandescent electric or other lamp, said socket being also made in parabolic shape and in such a manner that the foci of the main and socket-sections of the reflector are located within the bulb of the lamp.

The invention consists further of the combination with a parabolic reflector having a central parabolic socket-portion, of an incandescent lamp, an exterior casing, a glass-front, and means by which the bulb of the lamp is supported in position in the socket of the reflector, as will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a vertical longitudinal section of my improved reflector for bicycles or other vehicles, said reflector being protected by a plain glass-front and an exterior casing. Fig. 2 is a similar section, showing the reflector provided with a convexo-concave glass-front and 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 parabolas on which the main and socket portions of the reflectors are constructed.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the main-portion of my improved reflector for the lamps of bicycles, cabs and other vehicles,

and A² the central or socket-portion of the same. The main portion A is made in parabolic shape, while the center or socket-portion A² is likewise made in parabolic shape but with a greater degree of curvature. The foci of the two parabolic portions A and A² of the reflector are so arranged as to be located within the bulb of a miniature incandescent electric lamp B, which is secured into the socket-portion A².

The relative position of the light-giving filament *b* of the incandescent lamp B toward the double parabolic reflector A, A², is so arranged that the focus of the main-portion of the reflector is preferably located near the outer end of the loop *b* of the lamp, while the focus of the parabolic socket-portion A² is at a short distance to the rear of the focus of the parabolic main-portion A, as shown in Fig. 3.

The main and socket-portions of the reflector are formed contiguous to each other, and are made in one piece of sheet-metal, which is suitably spun so as to form the parabolic main-portion A and the parabolic socket A², the surface of said reflector being silver-plated and polished in the usual manner.

The metal at the front-edge of the reflector A is bent outwardly and then rearwardly, so as to form a cylindrical surface *a* over which the cylindrical rim *d* of the glass-front D is placed, said rim being retained in position on the rim *a* by frictional contact therewith.

The glass-front D may be made either of a circular plate of glass that is plane on both sides, as shown in Fig. 1, or it may be of convexo-concave shape, as shown in Fig. 2.

The edge of the glass-front D is retained within a groove *d*² formed at the front-edge of the rim *d*. The glass-front D and its rim *d* can be removed whenever it is desired to clean the reflector and the lamp in case dust should have settled on the same.

To protect the reflector A, A² and the miniature incandescent lamp B against injury or destruction by contact with stones on the ground or with the road-bed caused by the fall of the bicycle or the upsetting of the carriage, the reflector is inclosed by a casing of sheet-metal. This casing corresponds in its general outlines to the form of the reflector.

tor, and is made of such dimensions that it leaves an annular space between it and the reflector. The front-edge of the casing E has a bead e which engages the slightly outwardly-flaring rear-edge of the circumferential rim a of the reflector.

To the casing E is soldered or otherwise attached a metal-strip or wire E^2 of suitable form, by which the casing may be connected by a leather-strip to the bicycle or other vehicle. The central portion of the casing E is concaved to form a shallow cup e^2 , which incloses the looped or hooked ends of the conducting wires b^2 which lead through the base of the bulb of the lamp to the filament at the interior of the same. The cup e^2 has at its center an opening e^3 for the passage of the conducting wires b^2 , said opening being sufficiently large to prevent said wires from coming into contact with the casing E.

To retain the bulb of the lamp B in position in the socket A^2 of the reflector, the rear-part of its globular portion is made to rest against the socket A^2 while its base or stem extends into the central opening of the socket A^2 .

In the rear of the glass-stem of the bulb, the conducting wires b^2 are twisted so as to form coiled springs that may be embedded either in a layer f of plaster of paris that is interposed between a disk g of card-board and the stem of the lamp B, as shown in Fig. 1, or the plaster of paris may be dispensed with and the bulb of the lamp B retained by placing the disk g of card-board on the rim of the cup e^2 , as in Fig. 2, and causing the hook-shaped ends of the coiled wires b^2 to bear against the rear-face of the card-board, as shown in Fig. 2.

The hook-shaped ends of the conducting wires b^2 are connected with electric wires which lead to a battery, dynamo or other suitable source of electricity, which supplies the current for lighting the filament of the lamp.

In case the filament of the lamp is worn out by use, the lamp can be easily removed and a new one inserted in place of the same.

In place of an incandescent electric lamp, a small arc-lamp or any other light-giving medium may be used in connection with the reflector.

The advantages of my improved reflector and lamp for bicycles, cabs, &c., are, first, that by the arrangement of the parabolic socket at the center of the main-portion, the lamp can be set back into the reflector so that a flat

or slightly convex glass-cover can be used with the same; second, by the use of the parabolic main-portion and the parabolic socket, the light of the lamp is thrown in parallel rays to a considerable distance in front of the vehicle, so that all objects on the road are clearly illuminated and thereby a considerable security against accidents obtained; third, the reflector in the lamp is protected by the exterior casing, so as not to be injured by the upsetting of the bicycle or other vehicle; fourth, the entire lamp and its reflector are arranged in a very small and compact shape and furnish a powerful light-giving device for bicycles and other vehicles.

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

1. The combination with a reflector formed of a parabolic main-portion and a second parabolic portion at the center of the main-portion, of a source of light of considerable length, so situated within the parabolas that the foci thereof are located within the source of light, the rays issuing from each focus being thus reflected in parallel lines from the corresponding parabola, substantially as set forth.

2. The combination with a reflector formed of a parabolic main-portion and a parabolic socket-portion at the center of the main-portion, of an incandescent electric-lamp, so situated within the parabolas that the foci thereof are located within the source of light, the rays issuing from each focus being thus reflected in parallel lines from the corresponding parabola, substantially as set forth.

3. The combination, of a reflector formed of a parabolic main-portion and a parabolic socket-portion at the center of the same, an incandescent electric lamp located in said socket-portion, a glass-cover, an exterior sheet-metal casing provided with a concave contracted rear-portion, a non-metallic disk resting against the rear-portion of the casing, conducting-wires having looped outer ends located in the concave, and means for holding the disk and conducting wires in position, 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.

ERNEST TILMANN.

Witnesses:

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K. R. BRENNAN.