

M. M. MERRITT.
REFLECTOR.
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1,387,424.

Patented Aug. 9, 1921.

Fig. 1.

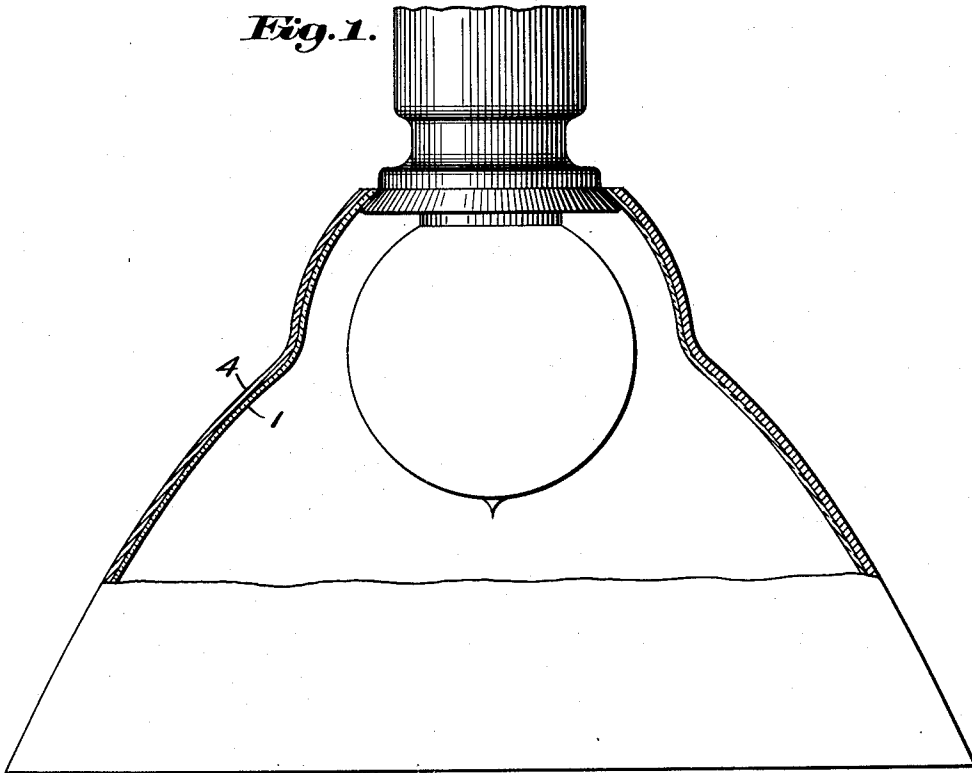
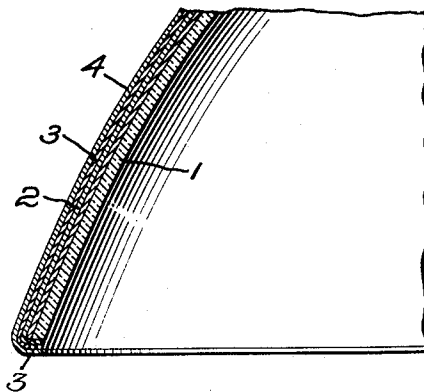


Fig. 2.



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UNITED STATES PATENT OFFICE.

MATTHEW M. MERRITT, OF DANVERS, MASSACHUSETTS, ASSIGNOR TO COPPER PRODUCTS COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

REFLECTOR.

1,387,424.

Specification of Letters Patent.

Patented Aug. 9, 1921.

Application filed July 19, 1917. Serial No. 181,836.

To all whom it may concern:

Be it known that I, MATTHEW M. MERRITT, a citizen of the United States, and a resident of Danvers, county of Essex, Commonwealth of Massachusetts, whose post-office address is Danvers, Massachusetts, have invented an Improvement in Reflectors, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention pertains to improvements in reflectors and methods of making the same, and more particularly, though not exclusively, to improvements in reflectors peculiarly well adapted for use with high-powered nitrogen lamps.

In lamps of this character, and to a lesser degree with other types of high-powered lamps, great difficulty has been experienced because of rapid deterioration of the reflecting surface occasioned by heat, unequal expansion and other causes.

Attempts have been made to overcome the difficulty arising from heat by electrolytically depositing copper on the back of the silvered surface of the reflector, but this has not been successful because of the deleterious action of the electrolyte on the silvered surface, because of unequal expansion of the glass or other transparent material on which the silvered surface is deposited, and of the copper backing which causes imperfections in the silvered surface.

Among the objects of my invention is to provide a reflector in which, if desired, a glass parabolic lens may be silvered and then coated with copper or other metal to conduct away the heat without impairment of the silvered surface, while preventing deterioration of the silvered surface occasioned by unequal expansion of the copper and glass or by the electrolyte.

In the drawings I have shown:—

Figure 1 a section, partially in elevation, of an illustrative parabolic reflector made in accordance with one embodiment of my invention;

Fig. 2 is an enlarged section through a portion of the parabolic reflector shown in Fig. 1.

Referring to the drawings of the preferred form of my invention selected for illustrative purposes, I have shown a parabolic reflector comprising a glass or other transpar-

ent parabolic shape. The back of the glass 1 is silvered by any well-known method, and then coated with a protective material 2, preferably an insulator, and preferably being of malleable consistency to admit of differentiation in the rate of expansion between the glass and the subsequently deposited metal. This protective material also preferably serves as a cushion to prevent damage to the silvering. In the preferred form of my invention this first coating may take the form of a paint adapted to be either sprayed or spread on the back surface of the silver, and may be composed of graphite and linseed oil. In the preferred form of my invention, after this coating has hardened I preferably provide a second coating, which may take the form of a layer of paint 3, preferably water-proof and acid-proof, but preferably carrying a conducting load such as a metallic powder. I preferably incorporate this powder in the paint prior to its application, but for some purposes I may apply the conductive material direct to the surface of the first coating or to the surface of a suitable vehicle spread over the surface of the preliminary coating. The second coating preferably comprises powdered brass mixed with amyl-acetate.

After the second coating has thoroughly dried, I preferably immerse the reflector in an electrolytic bath, either still or agitated, and deposit metal 4 thereon until the desired thickness is obtained. The malleable coating and the conductive coating are both preferably continued around the edge of the front of the lens so that the rim is protected and the firm adherence of the backing to the glass is insured in spite of vibration to which it may be subjected when used in motor cars and the like.

I have found in practice that the copper very readily absorbs and very readily gives off the heat of the lens, so that the silvering is not raised to such a temperature as would blister or otherwise injure it. I have also found that the coating interposed between the silver and the copper permits sufficient go and come without injury to the silver to eliminate that deterioration of the silver which would normally arise from the unequal expansion of the glass and copper if the intermediate protective coatings were not utilized.

It will be understood that while through-

out the specification and claims I have referred to glass as the transparent material forming the front of the reflector, and to silvering or silver as the reflective element, 5 I have used glass generically to include any transparent protective coating or material for the silvering, and that I have used silver or silvering generically to include any type of reflecting material.

10 While I have illustrated and described a preferred embodiment of my invention and a preferred method of practising the same, I wish it understood that my invention is not limited to the structure or methods illustrated and described, and may be greatly 15 varied within the scope of the appended claims.

Claims:

1. A reflector, comprising in combination,

a glass, silvering on said glass, a coating of 20 graphite and linseed oil back of said silvering, a coating of relatively high conductive material back of said coating of graphite and linseed oil, and a sheet of electrolytically deposited metal back of said relatively 25 high conductive coating.

2. A reflector comprising, in combination, a glass, silvering on said glass, a coating of relatively malleable material back of said silvering, a coating of powdered metal and 30 amyl-acetate in back of said coating of relatively malleable material and electrolytically deposited metal on the back of said coating of powdered metal and amyl-acetate.

In testimony whereof, I have signed my 35 name to this specification.

MATTHEW M. MERRITT.