

(No Model.)

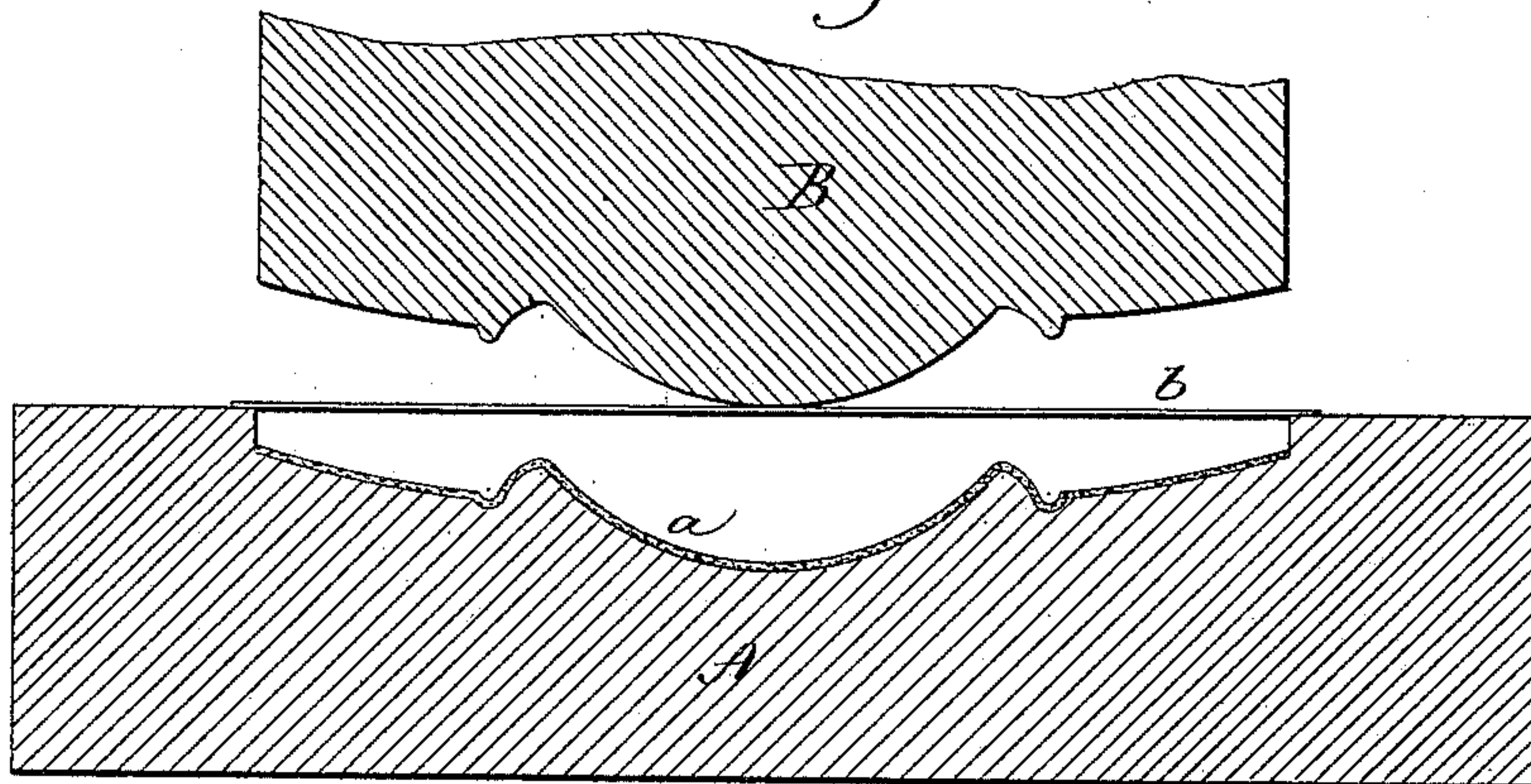
O. W. SWIFT.

DIE FOR SHAPING SHEET METAL.

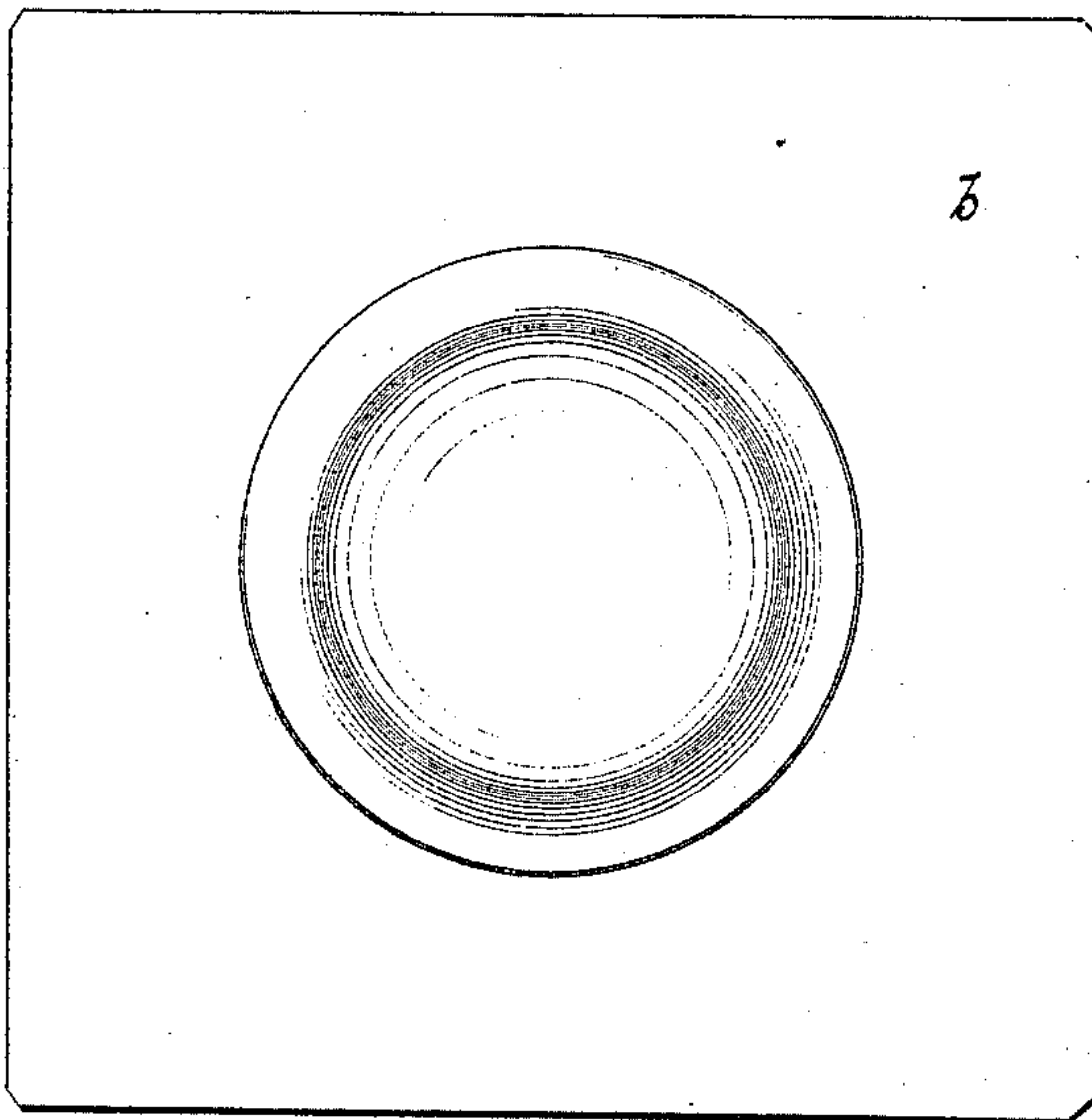
No. 405,618.

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*Fig. 1.*



*Fig. 2.*



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# UNITED STATES PATENT OFFICE.

ORRIN W. SWIFT, OF NEW HAVEN, CONNECTICUT.

## DIE FOR SHAPING SHEET METAL.

SPECIFICATION forming part of Letters Patent No. 405,618, dated June 18, 1889.

Application filed September 24, 1888. Serial No. 286,172. (No model.)

*To all whom it may concern:*

Be it known that I, ORRIN W. SWIFT, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Dies for Shaping Articles from Sheet Metal; and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a vertical central section through a pair of dies embodying the invention; Fig. 2, a face view of an article produced by the dies.

This invention relates to an improvement in dies for the manufacture of that class of articles made from sheet metal in which the surface is required to be highly polished and burnished, the invention being particularly applicable to the manufacture of reflectors for carriage-lamps.

The reflectors for carriage-lamps present an irregular surface, usually a circular raised or convex center with a molded border around it, and the surface of the reflector outside the molding slightly convex, these shapes being desirable for this particular purpose. Such reflectors require to be polished and burnished in the highest degree. The polishing and burnishing of such reflectors or articles, after having been shaped, is an expensive operation. Many devices have been applied to facilitate and cheapen the expense of polishing and burnishing, but yet the reflector is an expensive portion of the lamp.

The object of my invention is to produce the reflectors with the usual highly-burnished surface, but yet avoid the expense heretofore incident to the production of this surface. In the usual manufacture of these reflectors a pair of dies are constructed, the one stationary and the other movable, the one having a cavity corresponding, say, to the exterior surface of the reflector, and the other or movable die having a reverse surface, and so that the blank of sheet metal from which the reflector is to be made, placed between the dies and struck thereby, will come from the dies of the required shape, the metal being introduced with its surface unpolished, the polish-

ing being performed afterward, because if the surface of the metal were polished before striking the bringing of the polished surface onto the metal of one die would so abrade or deface that surface that repolishing and burnishing would be necessary; and my invention consists in the construction of the dies, as hereinafter described, and more particularly recited in the claim.

Under my invention I construct the two parts A B with their faces of substantially the usual shape for shaping the reflector. A represents the lower or stationary die, and B the upper or movable die. The cavity in the lower die corresponds in shape substantially to the exterior of the finished reflector. The surface of the cavity I cover with a soft flexible non-metallic material *a*, preferring felt or like fibrous material which will present a soft surface. The upper or movable die has its face of corresponding reverse shape. The non-metallic surface for the die is applied by first coating the surface of the die to which it is to be secured with an adhesive substance, according to the nature of the said non-metallic material. If felt, leather, or material of like nature is used, then a coating of shellac is applied to the surface. The said non-metallic material is placed between the two dies or parts of the die and the two parts forced together, bringing the said non-metallic material to the required shape within the die, and is there held in a compressed condition until the adhesive material is set. Thereafter the non-metallic material will retain its place substantially as if a part of the die.

The metal from which the blanks are cut is polished and burnished to the required extent for the finished reflector, and from such burnished metal the blank is cut of the required shape and laid upon the lower die, the burnished side downward, as indicated at *b*, Fig. 1. The movable die is then brought upon the reverse side of the blank, and so as to force it into the cavity of the lower die in the usual manner for striking such articles, and the reflector or article is brought to the required shape; but because of the soft covering of the surface of the lower die the burnished metal is not affected by contact therewith, as it would be when coming directly in



contact with the metal; but the shaping of the blank under the great pressure brought thereon by the dies produces the shape substantially the same as if the face of the blank met a metal face in the die. The result of this operation is that the article comes from the coated die with its burnished surface unaffected by the operation substantially as perfect as when the blank was cut from the sheet. Consequently by the employment of the dies which I have described the subsequent expensive operation of polishing and burnishing the surface is avoided, the burnishing of the surface while in the sheet being an inconsiderable item of expense in the manufacture of the reflector or article.

This illustration of the manufacture of reflectors for coach-lamps will be sufficient to enable others skilled in the art to apply the invention to the shaping of other burnished sheet-metal articles to which the invention is adapted.

It will be understood that in the construction of the dies the cavity in the metal die is formed with due reference to the covering

which is to be applied, and so that after the covering is applied the surface presented by such covering will correspond to the burnished surface of the finished article. It will also be understood that it is immaterial whether the face side be produced upward or downward. In either case the face of the die which is to operate upon the burnished surface is the surface to be coated.

I claim—

The herein-described dies for the manufacture of articles from burnished sheet metal, consisting in a pair of dies presenting faces of reverse shape corresponding to the two sides of the article to be produced, the surface corresponding to the burnished surface of the article to be produced being covered with soft non-metallic material, the said non-metallic material being secured directly to the said surface by suitable adhesive material, substantially as described.

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Witnesses:

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