

UNITED STATES PATENT OFFICE.

WILLIAM H. COTTINGHAM, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO
FREDERICK R. FOSTER, OF SAME PLACE.

INCANDESCENT GAS-BURNER AND MANTLE.

SPECIFICATION forming part of Letters Patent No. 582,459, dated May 11, 1897.

Application filed April 3, 1896. Serial No. 586,477. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. COTTINGHAM, a citizen of the United States, residing at Milwaukee, county of Milwaukee, State of Wisconsin, have invented a certain new and useful Improvement in Incandescent Gas-Burners and Mantles; and I 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 pertains to make and use the same.

My invention relates to new and useful improvements in incandescent mantles for gas-lights; and it consists of the matters herein-after described, and pointed out in the appended claims.

Heretofore incandescent mantles have been commonly made from the combined oxids of lanthanum, yttrium, and zirconium, and have been largely used for the purpose of intensifying the light emitted by gas-burners with the consumption of a very small amount of gas. Such devices have, however, proved in service to be exceedingly fragile, and have, therefore, in many instances been entirely unsatisfactory because of the fact that with the least jar or vibration the incandescent mantle will fall to pieces or break down and be, therefore, useless.

It is the object of my invention to provide an improved incandescent mantle which shall effectually remedy this defect, and for this purpose I have found that by treating a fusible base with graphite and the oxid of chemically-pure platinum or "little silver," oxid of copper, and the oxid of ruthenium I am enabled to produce a much more durable and substantial form of mantle than has been heretofore possible, and one which when in use may be subjected to severe vibration or jar without harm or may be freely handled at will without liability of fracture.

To this end I manufacture my improved article as follows: I prepare a suitable fusible base, which may be of any desired form or structure, conveniently of a skeleton or

openwork form, with graphite, applying to the outside of said base a thin layer of the same. I then deposit upon the graphite coating a light layer of copper, this deposit being made by the well-known electroplating process. I then similarly apply a coating of platinum or little silver, and finally apply a somewhat heavier coating or layer of ruthenium upon the outside of the platinum or little-silver coating. After the several coatings or layers have been applied to the fusible base the mantle may be heated to such a temperature as to consume the fusible material which forms said base, so as to leave only the exterior composite covering, consisting of the aforesaid metals.

I have found in practice that mantles thus constructed are very durable and will stand a great deal of rough usage without damage, and that the same may be freely handled without danger of fracture.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. An incandescent mantle for gas-burners consisting of layers of copper, platinum and ruthenium, which have been electrically deposited upon a suitable base or hood and said base or hood subsequently destroyed by heat, substantially as described.

2. The herein-described method of forming incandescent mantles, for gas-burners, consisting in successively depositing or electroplating upon a fusible base of the shape and proportions of the desired mantle, layers or films of copper, platinum and of ruthenium, and subsequently destroying or driving off the fusible base by heat, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

WILLIAM H. COTTINGHAM.

Witnesses:

JOHN E. WILES,
E. W. STOUT.