

UNITED STATES PATENT OFFICE.

ARTHUR E. HOBSON, OF MERIDEN, CONNECTICUT, ASSIGNOR TO INTERNATIONAL SILVER CO., A CORPORATION OF NEW JERSEY.

METAL ALLOY.

No. 846,851.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ARTHUR E. HOBSON, a citizen of the United States, and a resident of Meriden, in the county of New Haven and State of Connecticut, have invented a new and Improved Metal Alloy, of which the following is a specification.

My invention relates more especially to that class of manufactured metals known as "German silver" or "nickel-silver," that is composed of copper, zinc, and nickel in certain proportions; and the object of my invention is to provide an alloy including the above-mentioned metals that may be freely worked and spun without liability of fire-cracking; and a further object is to provide a metal that shall have a fine appearance and that shall be extremely durable.

It is of course well known that German silver is produced by combining copper, zinc, and nickel; but extreme care must be taken in the working of such a metal in order to prevent fire-cracking. Various means have heretofore been employed for the purpose of attaining this result, and I am aware that manganese has been introduced into the composition. These efforts, however, have proven unsuccessful for the reason that too great a quantity of manganese has been employed and also for the further reason that the proper proportions of the other metals entering into the composition have not been employed.

By extended experiments I have demonstrated that manganese when employed in a proper proportion to the other metals, the other metals also being employed in certain definite portions not heretofore known, that the manganese greatly improves the resultant metal, and the latter can be easily worked and spun with little liability of fire-cracking. In extending my experiments I finally demonstrated the fact that a very small proportion of manganese must be employed and that the proportion of zinc must be reduced from that heretofore employed.

A metal for producing good results should not contain manganese in excess of four per cent. of the entire amount nor zinc in excess of twenty per cent. of the entire amount. The nickel and copper may vary, it being understood, however, that a relatively high proportion of copper is usually employed.

I have demonstrated that good results may be obtained from a composition as follows: copper, sixty-seven per cent.; zinc, twenty per cent.; nickel, ten per cent.; manganese, three per cent. I have also obtained good results in a composition composed of copper, fifty-nine per cent.; zinc, twenty per cent.; nickel, eighteen per cent.; manganese, three per cent.

From the above it will appear that the relative proportions of the zinc and manganese are retained, and even these may be varied to some extent so long as the proportion of the manganese does not exceed four per cent. and that of the zinc does not exceed twenty per cent. of the entire composition.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. An alloy composed of copper, nickel, zinc and manganese, the latter to be not more than four per cent. of the whole.

2. An alloy composed of copper, zinc, nickel and manganese, the manganese to be not more than four per cent. and the zinc to be not more than twenty per cent. of the whole.

3. An alloy composed of copper, zinc, nickel and manganese, the manganese to be not more than four per cent., the nickel not more than eighteen per cent., and the zinc not more than twenty per cent. of the whole.

4. An alloy composed of fifty-nine parts copper, twenty parts zinc, eighteen parts nickel, and three parts manganese.

ARTHUR E. HOBSON.

Witnesses:

BENJ. CHURCH, Jr.,
GEORGE L. KING.