

UNITED STATES PATENT OFFICE

JOSEPH H. KONIGSBERG, OF BROOKLYN, NEW YORK, ASSIGNOR TO STANDARD ROLLING MILLS, INC., OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK

BRITANNIA METAL OR PEWTER ALLOY

No Drawing.

Application filed April 14, 1931. Serial No. 530,149.

This invention relates to white metal alloys, such as britannia metal, which is an alloy consisting of the greater part of tin, with comparatively small quantities of antimony or copper, or both. In such metal, the proportion of tin ranges from about 85% to over 99% by weight. The proportion of antimony ranges up to 15%, and the proportion of copper, up to 15%. Frequently, combinations of antimony and copper are used, not usually, however, exceeding a total of about 15%, or even as low as 1%, with the remainder, tin.

Frequently, either the copper or the antimony is entirely omitted, since both of these metals are introduced for hardening purposes, tin alone being too soft to serve the purposes for which britannia metal is intended.

In britannia metal, as ordinarily constituted, and containing either antimony or copper or both in connection with a predominating quantity of tin, the metal does not have a good color but is given a yellowish cast by the comparatively large quantity of tin used therein. Where the metal is to be used for ornamental purposes, such as to be cast in the form of ornaments or ornamental strips, the yellowish color is objectionable, but it has not heretofore been possible to introduce into the britannia metal, a suitable material to give it a whitish color and to eliminate the yellowish tinge given by tin. The introduction of any metal heretofore for this purpose, in sufficient quantity to effect the result, has resulted in changing the properties of the alloy in such a way as to make it difficult if not impossible to use it for casting or molding purposes.

I have found, however, that an extremely small quantity of zinc or aluminum, or both, removes the yellowish tinge from the metal and makes it sufficiently white to allow the alloy to be used for the purposes above described and particularly, casting.

The addition of such small quantities of zinc or aluminum furthermore, does not change the properties of the alloy but does change its color. I therefore prefer to use from 0.005% to 0.1% of zinc or aluminum,

or part zinc and part aluminum to make up a total not over the percentage just specified of both aluminum and zinc in the alloy. This small quantity of zinc and/or aluminum is insufficient to change or materially affect the properties of the resulting alloy, but does permit the alloy to be cast in the production of ornaments or the like in the ordinary way. I have found that the following proportion of the various metals form a good alloy having the desired properties: tin, 97.5%; antimony, 1.5%; copper, 1%; zinc, 0.005%.

My improved alloy is much better suited for use in connection with jewelry or hollow ware such as silver and pewter hollow ware or the like, and for ornamental purposes, than ordinary britannia metal, since the alloy when molten does not form a scum on top, as would be the case were any materially larger quantities of zinc used therein, while at the same time, the color of the metal is much whiter than that heretofore obtainable.

It will be understood that while I have specified certain definite ingredients and proportions, equivalents of the ingredients may be used, and the proportions varied to some extent, and I therefore do not intend to limit myself to the exact proportions and ingredients specified, but intend to claim my invention as broadly as may be permitted by the state of the prior art and the scope of the appended claims.

I claim:

1. A soft white metal alloy including from 1% to 15% of hardening metal selected from a group consisting of antimony and copper, 0.005% to 0.1% of zinc, and the remainder, tin.

2. An alloy containing from 1% to 15% of a hardening metal, selected from a group consisting of antimony and copper, 0.005% to 0.1% of aluminum, and the remainder, tin.

3. An alloy containing from 85% to about 99% of tin, a total of from 1% to 15% of antimony and copper and a total of from 0.005% to 0.1% of zinc and aluminum.

4. A white metal alloy comprising 1% to 15% of a hardening metal selected from a group consisting of antimony and copper,

0.005% to 0.1% of a white metal selected from a group consisting of zinc and aluminum, and the remainder, tin.

5 5. A soft white metal alloy free of the yellowish tinge imparted thereto by tin and free of dross and scum when molten, comprising zinc 0.005%, antimony 1.5%, copper 1%, and tin 97.5%.

JOSEPH H. KONIGSBERG.

10

15

20

25

30

35

40

45

50

55

60

65