UNITED STATES PATENT OFFICE.

JOHN A. JEANÇON, OF NEWPORT, KENTUCKY.

ALUMINUM ALLOY.

SPECIFICATION forming part of Letters Patent No. 446,351, dated February 10, 1891.

Application filed March 20, 1890. Serial No. 344,675. (Specimens.)

To all whom it may concern:

Be it known that I, JOHN A. JEANÇON, a citizen of the United States, residing at Newport, in the county of Campbell and State of Kentucky, have invented new and useful Improvements in Aluminum Alloys, of which the following is a specification.

My invention relates to aluminum alloys, and is more particularly useful with reference to so-called "aluminum bronzes," in which a small proportion of aluminum is alloyed with copper to impart something of its desirable qualities, particularly untarnishability. Most alloys of this character, however, require repeated fusions to render them homogeneous, and, moreover, they are usually (unless the proportion of aluminum is very small) hard and brittle and lacking in both strength and malleability, owing to the crystalline combination formed by the metals.

My invention has for its object to improve the quality of these alloys and is based upon the discovery that the addition of a small proportion of manganese improves the texture and qualities of the alloy. The addition of manganese alone imparts malleability and a susceptibility to an exceedingly brilliant surface luster, besides enhancing the untarnishability.

The improvement is especially valuable, in that a practically new class of bronzes is obtained having a much wider range of useful application than heretofore.

A larger percentage of aluminum can be utilized than has been found practicable heretofore, thereby enhancing the untarnishability of the alloy, besides attaining a marked improvement in texture, luster, and color.

By way of example and illustration I have appended in tabulated form a list of constituents and proportions of two bronzes produced according to my invention, samples of the same being placed on file as exhibit specimens correspondingly numbered:

Constituents.	Sample No. 1.	Sample No. 2.
Aluminum, parts	20	15
Manganese, parts	3	3
Copper, parts	77	82
	100	100

These specimens are sufficiently ductile to be rolled, hammered, drawn, or cut, and are suitable for all manufactures involving these processes. Both possess the brilliant color, luster, and texture of gold alloys with a surface sheen peculiar to themselves.

In carrying out my invention I first produce an alloy of aluminum with manganese. This alloy in determined proportions is afterward used as a basic metal and fused with the copper in the desired proportions of the two. The basic metal can of course be prepared directly by fusion of the constituent metals themselves with fluxes of the alkaline chlorides—potassium, sodium, and calcium—according to known practice.

In commercial practice, however, I employ a cheaper method, as follows: To produce the basic metal of the manganese-aluminum bronze, I place in a graphite crucible, say, fifteen pounds anhydrous potassium and calcium chloride, heat slightly, and stir in a quantity of comminuted carbon. To this I add fifteen pounds aluminum in small fragments and heat to cherry hardness, fusing the chlorides and softening the aluminum, and, lastly, add and stir in about fifteen pounds anhydrous mangenese chloride, cover the crucible tightly, and heat to whiteness. The resulting regulus consists of aggregations or nodules of varying proportions of the metals, which are then lixiviated in boiling water to remove the soluble salts, and, finally, remelted to obtain a regulus of uniform composition, which is then remelted with the required proportion of copper. I employ a

fairly pure commercial aluminum and make no account of the slight impurities contained therein. There is, of course, some loss in the process, for which experience will suggest the proper allowance, but which I roughly estimate at about one per cent. for aluminum and eight to ten per cent. for manganese chloride.

I claim as my invention and desire to secure by Letters Patent of the United States—

A bronze or alloy of copper, aluminum, and manganese in about the proportions of seventy-five to eighty-five per cent. of copper, twelve to twenty-five per cent. of aluminum, and two to five per cent. manganese, substantially as set forth.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN A. JEANÇON.

Witnesses:
L. M. HOSEA,
ELLA HOSEA.