

UNITED STATES PATENT OFFICE.

ROLLA C. CARPENTER, OF ITHACA, NEW YORK.

ALLOY AND PROCESS OF MAKING SAME.

SPECIFICATION forming part of Letters Patent No. 652,833, dated July 3, 1900.

Application filed March 30, 1900. Serial No. 10,780. (No specimens.)

To all whom it may concern:

Be it known that I, ROLLA C. CARPENTER, a citizen of the United States, residing at Ithaca, in the county of Tompkins and State of New York, have invented a certain new and useful Alloy and Process of Making the Same; and I do hereby 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 appertains to make and use the same.

My invention relates particularly to alloys which are fusible at a comparatively-low temperature and are particularly intended for use as bearing metals, although my alloy is equally suitable for many other uses; and my invention consists in the novel composition of the alloy and in the novel manner of compounding the same.

The objects of my invention are to produce an alloy especially suitable for antifrictional purposes and which is hard, tough, possesses unusual strength to resist distortion from impact, compression, and tension, or some or all of these stresses, which melts readily at a comparatively-low temperature, flows freely and shrinks very little in cooling, so that it may be cast or poured into boxes of cast-iron or other hard material or into a shell or journal-box, or, owing to its great strength, may be used for the journal-box itself or for other purposes.

The ingredients of my alloy are aluminium, zinc, and tin, preferably combined in the proportion of fifty parts aluminium to twenty-five parts zinc, and twenty-five parts tin, although these proportions may be varied, in all cases, however, the percentage of aluminium being greater than the percentage of either the zinc or of the tin. This alloy is produced by the fusion of its ingredients.

In compounding the alloy it is preferable first to melt the aluminium, then to add thereto the tin (unfused) in small quantities,

and finally to add the zinc, likewise unfused. The addition of the tin to the molten aluminium has the effect of lowering the melting-point of the mixture, and, preferably, the tin should be added in such quantities and at such times that the chilling of the molten mass, due to the addition thereto of the tin, may keep pace with the reduction in temperature of solidification, due to the mixture of the tin with the aluminium. The temperature of the molten aluminium and tin is then comparatively low when the time comes for the addition of the zinc, and so the loss of zinc by oxidation may be avoided almost entirely. The alloy thus produced has a specific gravity of from 3.2 to 3.3, with a tensile strength of about twenty-six thousand pounds per square inch and an elongation of about eight per cent.

Having thus completely described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An alloy of aluminium, zinc and tin in which the quantity of aluminium is in excess of that of either the zinc or the tin.

2. An alloy of aluminium, zinc and tin combined in the proportion of fifty parts aluminium to twenty-five parts tin and twenty-five parts zinc.

3. The herein-described process of compounding an alloy of aluminium, tin and zinc, which consists in first fusing the aluminium, then adding thereto tin in quantity less than that of the aluminium, and lowering the temperature of the molten mass, and then adding zinc in quantity less than that of the aluminium.

In testimony whereof I affix my signature in the presence of two witnesses.

ROLLA C. CARPENTER.

Witnesses:

E. F. SMITH,

E. I. DRAKE.