

UNITED STATES PATENT OFFICE.

ROBERT S. ANDERSON, OF SEATTLE, WASHINGTON, ASSIGNOR OF THREE-FOURTHS TO WALTER F. HORNER, WILLIS C. MEEKER, AND HIRAM U. WOODIN.

PROCESS OF MAKING ALLOYS.

SPECIFICATION forming part of Letters Patent No. 773,450, dated October 25, 1904.

Application filed July 14, 1903. Serial No. 165,503. (No specimens.)

To all whom it may concern:

Be it known that I, ROBERT S. ANDERSON, a citizen of the United States, residing at Seattle, in the county of King and State of Washington, have invented certain new and useful Improvements in Alloys; 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 to an alloy designed for commercial use wherever ductility is desired in conjunction with lightness and also for use as an antifriction metal and as a good conductor of electricity.

The alloy is made by mixing aluminium, copper, tin, and blue vitriol or copper sulfate in the following manner and proportions: The copper and tin are heated and melted in a crucible to the proper temperature, and while in a fluid condition blue vitriol or copper sulfate in a pulverized state is added. The proportions in which the blue vitriol or copper sulfate is used is that of two pounds of vitriol to ninety-three pounds of copper and seven pounds of tin. The copper and tin, with the vitriol added, are allowed to remain in the crucible until the vitriol has become absorbed or taken up by the copper or tin and until the desired chemical effect has taken place upon the alloy of copper and tin and is no longer capable of separation therefrom, the effect being to harden the alloy. The melted mass may then be poured off into mats or pigs and cooled for subsequent use with aluminium, or the latter may at once be added to the molten mass after the action of the blue vitriol has taken place, and the alloy of copper and tin aluminium and vitriol are poured off together. The proportion of aluminium for general use is two pounds of aluminium to five ounces of the alloy of copper sulfate, copper, and tin.

In general practice it is preferable to cast the mats or pigs of the alloy composed of

copper sulfate, copper, and tin and afterward add the same to the desired proportion of aluminium, the latter serving as a base, and the reason for this is that for different uses the proportions of the alloy are slightly changed to meet the various requirements. For example, if it is necessary to have the alloy harder than above set forth it is accomplished by the addition of a greater proportion of the alloy, or if a more ductile product is desired a less quantity of the alloy is added to the aluminium base.

I have found from actual tests that the alloy thus produced can be made more or less ductile, strong, and light and is useful as an antifriction metal and as a conductor for electrical purposes.

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

1. The process of producing an alloy which consists in mixing copper and tin and heating the same until they are brought into a molten mass and then adding copper sulfate and finally adding aluminium.

2. The process for producing an alloy which consists in mixing copper and tin in about the proportion of ninety-three pounds of copper to seven pounds of tin, and heating the same until they are brought into a molten mass, adding copper sulfate and finally adding aluminium in about the proportion of two pounds of aluminium to five ounces of copper sulfate copper and tin and pouring off the same and allowing it to cool in the form of mats or pigs.

3. The process of producing an alloy which consists in mixing copper and tin and adding copper sulfate and then adding aluminium.

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

ROBERT S. ANDERSON.

Witnesses:

WALTER F. HORNER,
G. WARD KEMP.