

# UNITED STATES PATENT OFFICE.

WARREN G. BLACK, OF ST. LOUIS, MISSOURI.

## ALLOY.

No. 912,645.

Specification of Letters Patent.

Patented Feb. 16, 1909.

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*To all whom it may concern:*

Be it known that I, WARREN G. BLACK, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Alloys, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

10 This invention relates to alloys.

The object of my invention is to provide a new and useful alloy that is particularly adapted for bearings such, for example, as journal bearings and shaft bearings, al-  
15 though, of course, it can be used for various other purposes.

The principal metals in my alloy are copper, iron and nickel and it also comprises aluminum and lead. The metals are fused  
20 together and the proportions of the different metals are about as follows: Copper 50 to 60%; iron 40 to 50%; nickel 4 to 6%; lead 6 to 15%; aluminum  $\frac{1}{4}$  of 1% to  $\frac{1}{2}$  of 1%.

25 To produce a batch of alloy weighing about 100 lbs. I prefer to first melt 40 lbs. of iron, then put 4 lbs. of nickel into the molten iron, then 50 lbs. of copper in this molten mass and then about 4 oz. of aluminum. This mixture is then stirred for a  
30 short period and 6 lbs. of lead is introduced into same, the mass being stirred again after the lead has been introduced until it is hot enough to pour. As nickel is heavier  
35 than copper, when it mixes with the iron the weight of the nickel and iron will be about equal to the weight of the copper so that these three metals will amalgamate thoroughly. The introduction of the alumi-

num raises the temperature of the molten 40 copper, iron and nickel and operates to fuse said metals.

The main object of incorporating lead into the alloy is to impart a certain degree of softness to the alloy, the quantity of lead 45 that is introduced varying according to the use for which the alloy is intended. An alloy of this description forms a very efficient bearing for the nickel in the alloy is greasy and thus acts as a lubricant. 50

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

1. An alloy composed of metals mixed together in about the following proportions: 55 50 to 60% of copper, 40 to 50% of iron, 4 to 6% of nickel, 6 to 15% of lead, and from  $\frac{1}{4}$  of 1% to  $\frac{1}{2}$  of 1% of aluminum; substantially as described.

2. An alloy composed of metals mixed to- 60 gether in about the following proportions: 50 lbs. of copper, 40 lbs. of iron, 4 lbs. of nickel, 4 oz. of aluminum, and 6 lbs. of lead; substantially as described.

3. An alloy that is produced by melting 65 iron, then adding nickel to the molten iron, then adding copper to the molten mass, introducing aluminum into said mixture, and thereafter adding lead; substantially as described. 70

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this fifth day of February 1908.

WARREN G. BLACK.

Witnesses:

CORA BADGER,  
GEORGE BAKEWELL.