

# UNITED STATES PATENT OFFICE.

EDWARD C. MILLER, OF EAST ORANGE, NEW JERSEY.

## ALLOY.

SPECIFICATION forming part of Letters Patent No. 467,140, dated January 12, 1892.

Application filed August 5, 1891. Serial No. 401,740. (No specimens.)

*To all whom it may concern:*

Be it known that I, EDWARD C. MILLER, of East Orange, in the county of Essex and State of New Jersey, have invented certain new and  
5 useful Improvements in the Manufacture of Anti-Friction Metals; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it ap-  
10 pertains to make and use the same.

This invention relates to certain improvements in the manufacture of anti-friction metals.

15 The object of the invention is to provide an improved anti-friction metal easily and quickly made, which will not heat or fuse when in use, and will be durable, and which will reduce the friction to a minimum.

20 With these objects in view my invention consists of an anti-friction metal composed of 80 parts of lead, 15 parts of antimony, and 5 parts of tin.

25 My invention consists in the above-named ingredients combined in the proportions substantially as herein stated, although they may vary ten or fifteen per cent., according to the quality of the lead employed, as hard lead may require less and soft lead more of the other ingredients. However, any mate-

rial deviation from the proportions may spoil 30 the advantageous qualities of the metal.

In forming the composition eighty pounds of lead is preferably melted, and, if desired, the lead can be cleansed by sal-ammoniac. Fifteen pounds of antimony and five pounds 35 of tin are then added.

Care should be taken that the temperature is not raised too high in melting the various ingredients; otherwise excessive oxidation takes place and the qualities of the metal are 40 seriously affected.

My improved metal possesses its great advantages by reason of the peculiar proportions of the three ingredients used.

Having thus fully described my invention, 45 what I claim as new, and desire to secure by Letters Patent of the United States, is—

The anti-friction metal consisting of lead, eighty parts; antimony, fifteen parts, and tin, five parts, substantially as described. 50

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

EDWARD C. MILLER.

Witnesses:

S. VICTOR CONSTANT,  
GEO. E. MILLER.