

# UNITED STATES PATENT OFFICE.

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## ANTIFRICTION ALLOY.

972,786.

Specification of Letters Patent.      Patented Oct. 11, 1910.

No Drawing.

Application filed November 27, 1909.      Serial No. 530,210.

*To all whom it may concern:*

Be it known that I, JOSEPH R. STRATTON, of Moncton, Province of New Brunswick, and Dominion of Canada, have invented certain new and useful Improvements in Antifriction Alloys; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to a composition of metal of that class known as anti-friction or Babbitt metals which are adapted for use in supporting journals or other revoluble or slidable machine elements so as to diminish the friction of the same.

The object of my invention is to produce a composition of the above-stated class, which, while affording but slight friction to moving parts, is sufficiently hard to reduce its abrasion and wear to a minimum without cutting or injuring such moving parts in practice.

A further object of my invention is to attain a composition possessing the foregoing advantages, which composition will be comparatively inexpensive in manufacture and yet will be of a sufficiently high melting point to be infusible under conditions where considerable heat has been engendered in the bearing.

Other objects and advantages of my invention will be in part obvious and in part more particularly pointed out hereinafter in the description of my preferred embodiment.

Heretofore, anti-friction metals have been made principally of lead and antimony in the proportion of about 85% of lead to 15% of antimony, and in some cases where a rather more expensive composition would be acceptable, a definite amount of copper together with some tin have been included. I have discovered, however, that the addition of spelter in combination with various selections of the aforesaid metals in diverse proportions has produced an anti-friction metal exceedingly well adapted for its purpose, especially when used in railroad and other heavy service.

While I may combine spelter with other elements and in diverse proportions within the spirit of this invention I have adopted

as a practical embodiment of my invention this preferred formula:

Copper -----	8 oz.	1.7	
Tin -----	1 lb. 12 "	5.8	
Lead -----	3 "	9.8	55
Spelter -----	25 "	82.0	
Antimony -----	3 "	.7	
Total -----		30 lb. 17 oz.	100.0 60

These metals in the proportions selected, may be melted together and thoroughly mixed in any manner preferred by metallurgists and then run into suitable molds in order to form ingots of such size and dimension as may be best adapted for use in the market. The metal may also be poured into suitably recessed brasses if desired.

It is thought that the preceding will sufficiently enable anyone to manufacture into use the herein described invention, the scope of which is ascertainable from the following claims.

I claim—

1. An anti-friction alloy comprising approximately 82 per cent. of zinc, 1.7 per cent. of copper, 5.8 per cent. of tin, 9.8 per cent. of lead, .7 per cent. of antimony.

2. An anti-friction alloy comprised mainly of zinc approximately 10% of lead, tin, copper and antimony.

3. An anti-friction alloy comprised mainly of zinc approximately 6% of tin, lead, copper and antimony.

4. An anti-friction alloy comprised mainly of zinc approximately 2% of copper, lead, tin and antimony.

5. An anti-friction alloy comprised mainly of zinc approximately 5% of antimony, lead, tin, and copper.

6. An anti-friction alloy comprised mainly of zinc approximately 10% of lead, approximately 6% of tin, and copper and antimony.

7. An anti-friction alloy comprised mainly of zinc approximately 10% of lead, approximately 2% of copper, and tin and antimony.

8. An anti-friction alloy comprised mainly of zinc approximately 10% of lead, 100

approximately 5% of antimony, and tin and copper.

9. An anti-friction alloy comprised mainly of zinc approximately 10% of lead, approximately 6% of tin, approximately 2% of copper, and antimony.

10. An anti-friction alloy comprised mainly of zinc approximately 10% of lead, approximately 2% of copper, approximately .5% of antimony, and tin.

11. An anti-friction alloy comprised mainly of zinc approximately 10% of lead, approximately 6% of tin, approximately .5% of antimony, and copper.

12. An anti-friction alloy comprised mainly of zinc approximately 10% of lead, and tin and copper.

13. An anti-friction alloy comprised mainly of zinc approximately 10% of lead, approximately 6% of tin, and copper.

14. An anti-friction alloy comprised mainly of zinc approximately 10% of lead, approximately 2% of copper and tin.

15. An anti-friction alloy comprised mainly of zinc approximately 10% of lead, approximately 6% of tin, and approximately 2% of copper.

16. An anti-friction alloy comprised mainly of zinc lead, approximately 6% of tin, approximately .5% of antimony and copper.

17. An anti-friction alloy comprised mainly of zinc lead, approximately 6% of tin, and approximately 2% of copper.

18. An anti-friction alloy comprised mainly of zinc lead, approximately 6% of tin, and copper.

In testimony that I claim the foregoing as my invention, I have hereunto affixed my signature in the presence of the subscribing two witnesses, this 16th day of November, 1909.

JOSEPH R. STRATTON.

Witnesses:

GEO. W. RITCHIE,  
JOS. W. STRATTON.