UNITED STATES PATENT OFFICE.

SAMUEL SINGLEY, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE MAGNOLIA ANTI-FRICTION METAL COMPANY, OF SAME PLACE.

ANTI-FRICTION COMPOSITION.

SPECIFICATION forming part of Letters Patent No. 429,248, dated June 3, 1890.

Application filed August 31, 1887. Serial No. 248,375. (Specimens.)

To all whom it may concern:

Be it known that I, SAMUEL SINGLEY, a citizen of the United States, now residing in the city, county, and State of New York, have invented a new and useful Improvement in Anti-Friction Composition, for use in boxes, bearings, and all purposes where an anti-friction metal is useful.

My composition consists of the following ingredients, in the proportions, by weight, substantially as stated:

	Per cent.
Lead	79¼
Antimony	15
Tin	5
Bismuth	¼
Graphite (plumbago)	½
	100

These proportions will vary ten or fifteen per cent., depending upon the quality of the lead. The proportions given are for good pure lead. Hard lead will require less of the other ingredients. Soft lead will require more in proportion to the weight of the lead. The proportions of the other ingredients remain one to the other substantially the same. The ingredients are melted and added one by one, care being taken to prevent overheating and excessive oxidation, the molten mass being stirred and skimmed from time to time to free from scum or dross, which process is assisted by the use of the usual salts and resins.

The lead, when molten, I prefer to cleanse and free from arsenic and other impurities by a process invented and discovered by me, and for which I have made application for Letters Patent of the United States under even date with this specification, which process consists in adding to the lead a sufficient quantity of sal-ammoniac, preferably in a powdered condition—say about four to eight ounces to eighty pounds of the lead, depending upon the quality of the lead—and stirring and skimming the molten mass to remove the dross and arsenical scum and impurities arising. This renders the lead very pure and materially assists in enabling the alloy to subsequently absorb the graphite.

Sufficient excess of graphite in a powdered state should be used to enable the alloy to absorb and retain substantially the percentage named. Some of the bismuth will usually be oxidized and lost.

What I claim, and desire to secure by Letters Patent of the United States, is—

The herein-described anti-friction metal or alloy, consisting of lead, antimony, tin, bismuth, and graphite, substantially in the proportions and for the purposes specified.

SAMUEL SINGLEY.

Witnesses:
WALTER K. GRIFFIN,
CHAS. B. MILLER.