

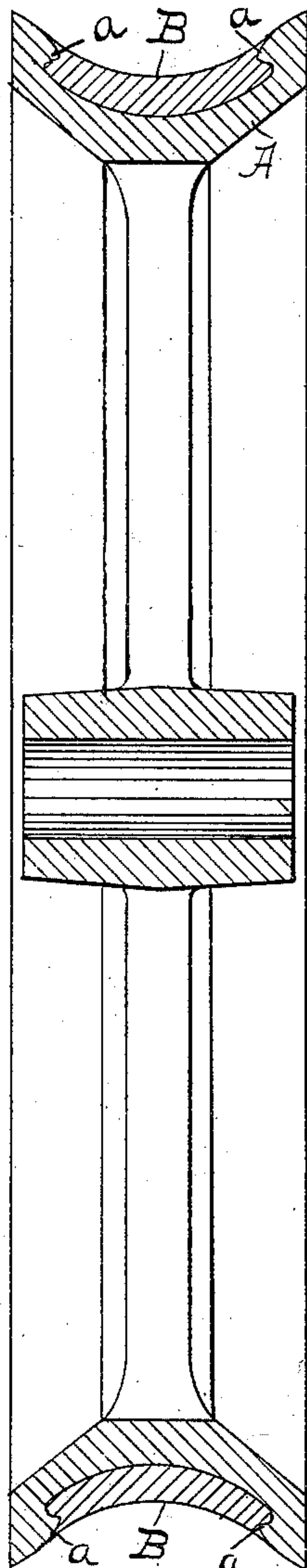
(Specimens.)

G. HAYDEN.

EXPANDING AND ANTI FRICTION METAL.

No. 309,350.

Patented Dec. 16, 1884.



Witnesses:

E. L. Thurston
W. C. Coe.

Inventor:

George Hayden

UNITED STATES PATENT OFFICE.

GEORGE HAYDEN, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
JOSEPH DUYER, OF SAME PLACE.

EXPANDING AND ANTI-FRICTION METAL.

SPECIFICATION forming part of Letters Patent No. 309,350, dated December 16, 1884.

Application filed June 28, 1884. (Specimens.)

To all whom it may concern:

Be it known that I, GEORGE HAYDEN, of the city of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Expanding and Anti-Friction Metal, of which I declare the following to be a full, clear, and exact description.

The object of my invention is to provide a metallic alloy which possesses to a high degree the qualities of toughness and anti-friction, and which expands in cooling.

To this end it consists in the combination of zinc, tin, and antimony, in the following proportions by weight: zinc, one thousand parts; antimony, seventy parts; tin, sixty parts.

I find the following to be the preferable method of preparing the said alloy, although I do not desire or intend to be confined thereto: The zinc is first melted, when the antimony, which should be melted in a separate crucible, is poured in and the two metals thoroughly mixed. The tin, which should be granulated or reduced to small pieces, is now scattered slowly into the molten mass, where it immediately melts. The ingredients are thoroughly mixed, when the alloy is ready for immediate use; or it may be drawn off into bars or bricks, to be remelted and used on any subsequent occasion. This metal is especially designed to be used upon sheave-pulleys over which run iron or steel cables, as is illustrated in the accompanying drawing, which represents a cross-section of a pulley designed for

such use. The pulley, which is usually of cast-iron, is constructed preferably with the central portion of the outer rim, A, depressed or cut away, leaving a turned-in annular flange, *a a*, on each side thereof. The bearing-surface for the cables is prepared by casting into said depression in the rim the herein-before-described alloy while the pulley rests in a properly-prepared mold. In cooling, this metal B expands to a slight degree, and therefore when cool fits tightly in said depression, and is securely retained therein by the annular flanges *a a*. This metal is very tough, and does not crack either in cooling or at any time, and by reason of its anti-friction qualities it does not cut the cable nor readily wear away itself, thus making it very valuable for the bearing-surface of pulleys. It may also be used for journal-boxes or linings, or in any other place where a tough, durable anti-friction or expanding metal is required.

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

The herein-described anti-friction and expanding metal, consisting of zinc, tin, and antimony, in the proportions, by weight, of one thousand parts zinc, sixty parts tin, and seventy parts antimony.

GEORGE HAYDEN.

Witnesses:

E. L. THURSTON,
W. C. COE.