UNITED STATES PATENT OFFICE.

FRANK S. HODSON, OF PHILADELPHIA, PENNSYLVANIA.

METALLIC ALLOY.

1,335,284. Specification of Letters Patent. Patented Mar. 30, 1920.

No Drawing. Application filed June 12, 1918. Serial No. 239,527.

To all whom it may concern:

Be it known that I, FRANK S. HODSON, a citizen of the United States, and a resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain new and useful Improved Metallic Alloy, whereof the following is a specification.

My invention consists of an improved metallic alloy of high tensile strength and hardness peculiarly suitable for use in the manufacture of high tensile strength die castings, drawn rods and bars, sheets, etc. It is a zinc-aluminum-copper alloy, manufactured in the main along the lines described in my pending application filed August 28, 1917, Serial Number 188,555, allowed January 30, 1918, the characteristic of which is that the aluminum is in greater proportion than the copper, and that the zinc is in a greater proportion than the aggregate amount of aluminum and copper.

It is the object of my present invention to improve the foregoing by a small addition of manganese, and titanium, rendering said alloy more homogeneous, and, therefore, more strong. Said addition also whitens the alloy.

As an example of suitable proportions for the manufacture of my improved alloy, I give the following;—

Zinc	83.25
Aluminum	15.16
Copper	1.34
Manganese	.175
Titanium	.075

It will be noted that the zinc is considerably in excess of all the other elements of this alloy, and that to the zinc there is added a hardening alloy which contains say 92 per cent. of aluminum, and eight parts of copper. The amount of hardening alloy may vary from say 15 to 20 per cent. of the zinc.

The amount of copper in the total alloy may vary from say one to two per cent.

In addition to the aluminum-copper hardening alloy, I make an addition of manganese and titanium which may range from .002 per cent., to 3 per cent., any increase being mainly at the expense of the aluminum.

In the foregoing alloy the manganese acts to whiten and to strengthen the alloy. Whitening is an index of the resistance of the surface to oxidation or deterioration. The titanium acts as a deoxidizer rendering the alloy more homogeneous, and, therefore, stronger.

Having thus described my invention, I claim:

An improved alloy containing zinc, aluminum, copper, manganese and titanium, in which the zinc amounts to about 80 to 85 per cent. of the whole, while the remainder consists mostly of aluminum and copper in the ratio of about 9 to 1; the alloy also containing small percentages of manganese and titanium in the ratio of about 2 to 1, the manganese varying between 2 per cent. and .001 per cent. of the whole alloy and the titanium varying between 1 per cent. and .0005 of the whole alloy.

In testimony whereof I have hereunto signed my name at Philadelphia, Pennsylvania, this eleventh day of June, 1918.

FRANK S HODSON.

Witnesses:
JAMES H. BELL,
E. L. FULLERTON.