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UNITED STATES PATENT OFFICE.

CHARLES PACK, OF NEW YORK, N. Y., ASSIGNOR TO DOEHLER DIE CASTING COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

ALLOY.

No Drawing. Application filed October 10, 1921. Serial No. 506,932.

To all whom it may concern:

Be it known that I, CHARLES PACK, a citizen of the United States, residing in the borough of Queens, county of Queens, city and State of New York, have invented certain new and useful Improvements in Alloys, of which the following is a specification.

This invention relates to alloys and in particular to aluminum alloys suitable for die casting.

In making die castings, an alloy is required that has a maximum strength and elongation at high temperatures, since otherwise the castings are apt to be cracked. It is also essential for a good die casting alloy that it "lay" to the surface of the die, since otherwise the casting is apt to show blow holes and surface imperfections. Another essential for a good die casting alloy is that it does not solder or adhere to the surface of the die.

The object of my invention is to provide an improved aluminum alloy for the purpose above stated. Other objects include the provision of an aluminum alloy of such a character that die castings made therefrom are not apt to contain cracks or blow holes or surface imperfections, and one which will not adhere to the surface of the die.

In accordance with my invention, I form an alloy of a predominating proportion of aluminum and relatively small proportions of nickel, copper and silicon. I have found that these metals can thus be combined to form an alloy which, when die cast, will "lay" to the surface of the die without soldering or adhering thereto, and which has sufficient strength and elongation at high temperatures, so that die castings made therefrom will not contain cracks, or blow holes or surface imperfections.

I have found that alloys of nickel, copper, silicon and aluminum within substantially the following proportions have the qualities above referred to:—

Nickel	3 to 6%
Copper	3 to 6%
Silicon	1.5 to 4%
Aluminum not less than 85%.	

An aluminum alloy covered by the above table has a tensile strength of approximately 30,000 pounds and an elongation of approximately 8%, and will produce castings which are free from surface imperfections and cracks.

What I claim is:—

1. An alloy consisting of not less than 85% of aluminum and smaller proportions and over 1% of nickel, copper and silicon.

2. An alloy consisting of a predominating proportion of aluminum, nickel 3 to 6%, copper 3 to 6%, and silicon 1.5 to 4%.

3. An alloy consisting of nickel 3 to 6%, copper 3 to 6%, silicon 1.5 to 4%, and aluminum not less than 85%.

This specification signed and witnessed this 7th day of October, 1921.

CHARLES PACK.

Witnesses:
WILLIAM R. AHRBERG,
WILLIAM E. BAUERSCHMIDT.