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ALUMINIUM ALLOY

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1 Claim. (Cl. 75—147)

This invention relates to an aluminium alloy consisting of 2 to 5% magnesium, 6 to 14% zinc, 0.2 to 2.0% nickel, 0.01 to 1.5% iron, 0.1 to 1.0% silicon and the remainder aluminium, the content of silicon being always greater than that of iron. The new alloy may also contain a trace to 1.5% manganese, and also a small quantity of cobalt, molybdenum, vanadium, tungsten, titanium, lithium, and beryllium without appreciable change in the nature. The object of the invention is to obtain an aluminium alloy which has a great tensile strength and great elongation especially when subjected under heat treatment.

Example of the alloy showing percentages of the elements employed and also tensile strength and elongation when the alloys are subjected under a mode of tempering and annealing are given as follows:

Mg	3.0	3.0
Zn	9.0	9.0
Ni	0.5	1.0
Fe	0.3	0.3
Si	0.8	0.8
Al	Remainder	Remainder
Tensile strength kg./cm²	57	59
Elongation %	13	11

It will be seen from the above example, the new alloy has a very great tensile strength and a very great elongation which are hardly obtainable in known aluminium alloys.

As to mutual action of the elements of the new alloy, it is supposed as follows. A part of magnesium may combine with silicon to form magnesium silicide, and another part of magnesium may be alloyed with a part of zinc and a part of aluminium to form various three elemental alloys of different percentage. Further nickel may be alloyed with iron. These chemical compounds and alloys may crystal out in the main element, viz., aluminium and may be uniformly distributed therein. Further, when manganese is employed, this manganese not only acts as reducing agent, but also hinders the growth of particles of zinc-manganese-aluminium alloys and also of nickel-iron alloy so that the distribution of the alloy may be promoted.

What I claim is:

An aluminium alloy consisting of 2 to 5% magnesium, 6 to 14% zinc, 0.2 to 2.0% nickel, 0.01 to 0.5% iron, 0.1 to 1.0% silicon and the remainder aluminium, the content of silicon being always greater than that of iron.

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