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FLINT ALLOY

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2 Claims. (Cl. 75—152)

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This application is a division of my U. S. Patent 2,389,198 of November 20, 1945.

The invention relates to a flint alloy for flaming lighters and the like, and aims to provide an alloy for the indicated purpose which is more efficient than the flint alloys of conventional composition.

Whereas, in the Patent No. 2,389,198 I have described and claimed certain flint alloys which do not contain magnesium, the present invention aims to provide a flint alloy wherein magnesium is present in an amount up to that of the conventional product, that means up to about 2% in weight or approximately between 4 and 8% in volume of the composition, which new alloy, however, will stand a greater number of lighting operations than an equal quantity of the conventional alloy.

In the Patent No. 2,389,198 it has been stated that a satisfactory flint alloy without magnesium can be obtained by adding suitable quantities of silver, nickel and chromium to the usual components, viz. misch-metal, iron and copper, and a composition has been recommended in which the various metals are present in the following approximate relation as to weight:

Misch-metal	300
Iron	75–100
Copper	5 (about)
Silver	2–4
Nickel	1
Chromium	1

If, now, it is desired to increase the resistance of such flint alloy to disintegration, or to obtain sparks of a more whitish color, magnesium may be added according to the present invention in a relative quantity up to that present in the conventional flints. This means that up to 2% in weight may be added to the components of the alloy whose analysis has been hereinbefore stated. However, in most instances where magnesium will be added, very small quantities will be sufficient in view of the purifying effect of the silver.

I have found that my new alloy is much less readily consumed in use than the conventional alloys. In testing flint rods of equal diameter in a lighter in which the pressure between the flint

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and steel was maintained constant, a certain length of rods of conventional alloys was consumed by 3000 to 3500 lighting operations, whereas an equal length of rods of my novel alloy stood 4500 to 5000 operations. Hence, even if magnesium is present in my alloy up to the full amount used in the conventional alloys there will be a very considerable saving in magnesium from the viewpoint of consumption.

In preparing the alloy the misch-metal is first molten under a salt layer. While raising the temperature the iron is added which will dissolve, depending on its relative quantity, at a temperature below the general melting point of iron, owing to the presence of the misch-metal. Then the silver, nickel and chromium, and finally the copper may be added and stirred into the mixture at a suitable temperature so that the various metals form a homogeneous alloy. Although I prefer the mentioned sequence in the adding of the metals, I have not found appreciable differences if the copper is added prior to one of the other metals. The magnesium may be added at a suitable time; however, it is advisable to add it before the iron has been molten in the mixture.

When the melting and mixing is completed the melt may be cooled to a casting temperature slightly above the solidifying point and may be cast in a pre-heated mould having a temperature slightly below that point so as to obtain flints in the form of rods which later may be cut to pieces of marketable size.

I claim:

1. An alloy for flints consisting of approximately 300 parts in weight of misch-metal, 75 to 100 parts of iron, about 5 parts of copper, some magnesium and small quantities of silver, nickel and chromium, said magnesium being present in quantities up to approximately 2% and said quantities of silver, nickel and chromium together being less than 2% in weight of the alloy.

2. An alloy for flints consisting of approximately 300 parts in weight of misch-metal, 75 to 100 parts of iron, about 5 parts of copper, 2 to 4 parts of silver, about 1 part of nickel, about 1 part of chromium, and magnesium being present in quantities up to 2% in weight of the alloy.

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