

## UNITED STATES PATENT OFFICE

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## ALLOY

Rene Wassermann, New York, N. Y.

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This application is a continuation-in-part of my copending application Serial No. 365,483 filed November 13, 1940, and further contains improvements over the subject matter disclosed in said copending application.

The present invention relates to alloys or similar compound material. Its main object is to provide an efficient, economical and extremely effective alloy for brazing, welding, soldering or similar purposes.

The alloy prepared and produced in accordance with the present invention is unusually adaptable for bonding or uniting steel, sheet metal; profiles, tubes etc. made of copper, cast iron, brass or bronze, or nickel and compositions thereof.

It is another object of the present invention to provide an alloy which contains selected proportionate constituents which alloy has unusual strength and hardness, but which is highly fluid during the brazing or like operation and has a perfect affinity to ferrous materials and steel.

A further object of the present invention is to provide an alloy particularly suitable for oxy-acetylenic welding, the properties of said alloy being not affected by high temperatures of the welding torch.

Yet, another object of the present invention is to provide an alloy of the above nature which has high mechanical and physical properties and at the same time possesses the characteristic of deep penetration within the base material.

Other objects of the invention will appear as the description proceeds, it being understood, however, that it is not intended that the invention be limited to the exact details described herein which illustrates the production of the knowledge gained through or gleaned from an understanding of the invention; and it is further intended that there be included, as part of the invention all such obvious changes and modifications thereof as would occur to a person skilled in the art to which this invention pertains and as would fall within the scope of the claim.

This application involves the alloys resulting from the compounded material consisting of copper, nickel and zinc by suitably proportioning these metals with an addition of a deoxidizing agent or agents, such as silicon, phosphorus or

similar material and to which may be further added tin, or cadmium or manganese either separately or combined.

According to the invention an alloy is obtained which may contain besides the deoxidizing agent or agents copper less than 50% by weight, nickel from about 10% to 18% by weight, zinc forming the remainder.

As heretofore stated the deoxidizing agent may be silicon, phosphorus or the like in an amount preferably of from .1% to 1%.

In certain cases in order to produce desired additional physical properties tin may be added in an amount of from .1% to 1%, and/or cadmium from .1% to 15% and/or manganese from .1% to 15%.

It is preferable to provide an alloy in which the copper content is about four to five times the nickel content, and the zinc similar to the copper also four to five times the nickel content but somewhat less than the copper content. For instance, the alloy may comprise 10% by weight nickel, 49% by weight copper and 41% by weight zinc; however if it is desired to add any or all of aforementioned ingredients the zinc content will be proportionately decreased.

The composition may be molded in the form of rods which may be employable for brazing purposes preferably on steel or other ferrous metals and will be found to possess besides high tension strength and other valuable characteristics, higher mechanical and physical properties than heretofore known.

In accordance with the above it will be understood that wide deviations may be made from the embodiments of the invention herein described without departing from the spirit of the invention.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent, is:

An alloy consisting of the following ingredients in substantially the following proportions: copper from 15% up to 50% by weight, nickel from at least 10.2% to approximately 18% by weight, silicon in small but effective amounts capable of increasing the hardness of the alloy and ranging from about .1% to 1% by weight, and zinc forming the balance.

RENE WASSERMANN.