Patented Nov. 11, 1941

2,261,975

UNITED STATES PATENT OFFICE

2,261,975

COPPER-BASE ALLOY

Donald K. Crampton, Marion, and Henry L. Burghoff, Waterbury, Conn., assignors to Chase Brass & Copper Co. Incorporated, Waterbury, Conn., a corporation

No Drawing. Application July 31, 1940, Serial No. 349,015

3 Claims. (Cl. 75—155)

This invention relates to improvements in age-hardenable copper-base alloys.

This application is a continuation-in-part of our application Serial No. 269,780, filed April 24, 1939.

One object of this invention is to provide improved age-hardenable copper-base alloys having high yield-strength and tensile strength, and good ductility.

Other objects of this invention will appear from the present disclosure.

We have invented improved age-hardenable copper-base alloys having zinc from about 12% to about 30%, nickel from about ¼% to about 3%, phosphorus from about 0.03% to about 0.4%, with the phosphorus being from about ⅓ to about $\frac{1}{10}$ of the nickel by weight, and the balance substantially of copper. One preferred alloy contains zinc about 20%, nickel about 1%, phosphorus about 0.2% and the balance substantially of copper. Another preferred alloy has zinc about 12%, nickel about 1%, phosphorus about 0.2% and the balance substantially of copper.

Expressions such as "the balance or remainder substantially of copper," etc., are intended to include such one or more additional elements in such substantially-innocuous amounts as do not seriously impair the essential properties of the alloy, that is, in such amounts as do not essentially change the nature of the alloy.

These alloys are age-hardening and possess desirable high yield-strength with good ductility and tensile strength in their age-hardened condition. They can be very severely cold-worked and are low in cost.

The invention may be carried out in other specific ways than those herein set forth without departing from the spirit and essential characteristics of the invention, and the present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive, and all changes coming within the meaning and equivalency range of the appended claims are intended to be embraced therein.

We claim:

1. An age-hardenable copper-base alloy comprising: zinc from about 12% to about 30%; nickel from about ¼% to about 3%; phosphorus from about 0.03% to about 0.4% with the phosphorus being from about ⅓ to about $\frac{1}{10}$ of the nickel by weight; and the balance substantially of copper.

2. An age-hardenable copper-base alloy comprising: zinc about 20%; nickel about 1%; phosphorus about 0.2%; and the balance substantially of copper.

3. An age-hardenable copper-base alloy comprising: zinc about 12%; nickel about 1%; phosphorus about 0.2%; and the balance substantially of copper.

DONALD K. CRAMPTON.
HENRY L. BURGHOFF.