

UNITED STATES PATENT OFFICE.

CHARLES F. ACKERMAN, OF CLEVELAND, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS,
OF ONE-HALF TO DAVID S. HAWKINS, OF CLEVELAND, OHIO.

COMPOSITION OF MATTER.

939,938.

Specification of Letters Patent.

Patented Nov. 9, 1909.

No Drawing.

Application filed July 7, 1906. Serial No. 325,050.

To all whom it may concern:

Be it known that I, CHARLES F. ACKERMAN, a citizen of the United States, resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Composition of Matter, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to a new and useful composition of matter.

The object of the invention is the production of a metallic compound or alloy presenting the qualities that have hitherto characterized nickel and rendered the same valuable. Among such qualities I should particularly include its color, which is nearly that of silver; its hardness by reason of which it resists wear and abrasion to a much greater degree than silver; and its power of resisting oxidation and the tarnishing and corrosive effects of many gases and liquids.

Said invention consists of the composition of the ingredients hereinafter fully described and specifically set forth in the claims.

The following description sets forth in detail one composition embodying my invention, such disclosed composition constituting only one form in which the principle of my invention may be utilized.

As has been already indicated my new composition is designed to serve as an inexpensive substitute for nickel in the numerous uses in the manufacturing arts to which the latter has been applied. The relative cost of my compound compared with that of nickel is in fact so low that I am enabled to cast articles solidly of it at a less expense than it has heretofore been possible to make them of brass and coat them with a more or less thin and transient coat of nickel. Obviously the avoidance, thus made possible, of the tedious as well as costly process of plating still further commends the composition the ingredients of which I shall now proceed to disclose.

In the preparation of my new composition of matter I employ the following ingredients in substantially the proportions indicated:—sixty parts of copper, one and one-half parts of white arsenic, three and one-half parts of sodium bichlorate, twelve parts of nickel,

twenty-three parts of zinc, five parts of lead, and one and one-half parts of aluminum. In such preparation I prefer to first take the copper and heat the same in a suitable crucible. As soon as the copper assumes the molten condition I add to it the relatively small quantities of white arsenic and sodium-bichlorate stated above. These of course are likewise fused, and by thorough stirring for a suitable length of time depending upon the absolute quantities involved, the whole mass becomes thoroughly intermingled. Thereupon I add the quota of nickel, and allow the same to become fused, properly mixing it with the preceding ingredients by occasional stirring. Lastly I add the zinc, lead and aluminum, thereby completing the mixture, for as soon as these last named have been melted and intimately mingled with the mass, the composition is complete and can be cast into whatever form may be desired.

In the use of my improved composition of matter, it is cast in much the same fashion as is brass, and when thus cast it is capable of being worked in exactly the same way. It is hence available for all the numerous uses to which the latter alloy has been put in the manufacture of findings for the plumber, the harness-maker and many other lines of industry. Its superiority over such and other alloys lies in the fact that its surface is readily susceptible of a high polish that renders it indistinguishable from a nickel-plated object. This polish, it retains tenaciously, and aside from this, the further fact that there is no coating to be worn through by any number of subsequent polishings makes it much superior to the latter, which, because of its value, can only be used in restricted and economical fashion. In fact such compound presents the several commendable features of German silver without being nearly so expensive. Furthermore it is much harder. These results I attribute to the use of the arsenic and aluminum, relatively small quantities of which produce an effect only equaled in the case of the alloy just named by the introduction of a large portion of nickel. It is of course understood that the purpose of the sodium-bichlorate is to serve as a flux for the arsenic.

The subject matter involving the method of treating metals, to which reference is made in this application, and which is em-

played in the production of the composition of matter covered herein is the subject matter of other applications, namely,—Ser. No. 459,370 and Ser. No. 519,721.

5 Having thus described my invention in detail, that which I particularly point out and distinctly claim, is:—

1. The composition of matter, containing copper, zinc, nickel, and lead, together with
10 relatively small quantities of arsenic and aluminum.

2. The composition of matter comprising copper, zinc, nickel, lead, arsenic and alumi-

num, combined in substantially the manner herein described.

3. The herein described composition of matter containing sixty parts, by weight, of copper, one and one-half parts of arsenic, twelve parts of nickel, twenty-three parts of zinc, five parts of lead, and one and one-half
20 parts of aluminum.

Signed by me, this 2d day of July, 1906.

CHARLES F. ACKERMAN.

Attested by—

WM. C. RHODES.

JNO. F. OBERLIN.