

## UNITED STATES PATENT OFFICE

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## ENAMELED WARE

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## 2 Claims. (Cl. 91—73)

This invention relates to a process for making enamels, more particularly white opaque enamels for sheet iron. Iron cannot be enamelled directly, for enamels are incapable of adhering to iron. In the production of such enamels, therefore, use is usually made of a base enamel containing oxides of cobalt, nickel, or the like which brings about adherence of the enamel to the iron. The enamel proper (coating enamel) rendered opaque by the clouding agent, is then applied to this enamel base. Since such base enamel is colored a thoroughly opaque coating enamel is necessary in order to hide the coloring. The invention depends on the fact that alloys of iron with metals enable enameling to be effected without the use of a base enamel containing nickel oxide or cobalt oxide.

Thus, alloys of iron with nickel or cobalt are suitable for the process according to the invention, these metals being employed as alloy constituents either separately or combined with one another, as desired.

The quantity of alloy constituents, or the content of such, may be established empirically. The alloy constituents are employed only in such quantities that adherence of the enamel is effected. Alloys with those metals which already bring about adherence of the enamel when present in small quantities have proved to be best of all, i. e., alloys which with 1 to 3% of alloy additions and even less, effect adherence of the enamel to the iron.

By employing alloyed iron or alloyed sheet iron as a base material for the enameling, action may also be produced on the enamel itself, such as

more particularly on the adherence, on the elasticity, on the coefficients of expansion and so forth.

The use of such alloyed metal sheets for the enameling consequently enables the production of opaque, more particularly white clouded, enamels even with a single layer of enamel, i. e., without use of an enamel base, it being immaterial whether as clouding agents for such an enamel which is to be applied once only or is to be applied directly to the surface to be enamelled the known solid clouding agents are used, such as for example the insoluble white oxides of tin, zirconium or the like, or gas clouding agents.

It will be understood that the term adhesion metal as herein employed has reference to those metals disclosed in the present specification or their equivalents, which when alloyed with iron render the same capable of being enameled directly and without the use of a priming coat of metallic oxides.

What I claim is:

1. Enameled sheet iron ware comprising a white clouded vitreous enamel and a base consisting of an alloy of iron with one to three per cent of a metal selected from the group consisting of cobalt and nickel.

2. Enameled sheet iron ware comprising a white clouded vitreous enamel and a base consisting of an alloy of iron with not more than three per cent. of a metal selected from the group consisting of cobalt and nickel, but containing a sufficient amount of said metal to cause adhesion of the enamel to the said iron base.

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