Patented Aug. 21, 1928. 1,681,499

UNITED STATES PATENT OFFICE.

JOHN W. SAUER, OF CHICAGO, ILLINOIS.

ETCHING SOLUTION.

No Drawing. Application filed April 28, 1927. Serial No. 187,412.

The invention relates to a formula whereby a solution is produced whereby the surface of a metallic article, when subjected to the solution, will have a pattern applied to the surface thereof, in which the various parts forming the pattern will vary as to shade and color, thereby presenting a mottled appearance to the article.

It is a further object to provide for the production of the above effect in which the portions of the pattern vary as to their shape or outline and also their size or dimension.

The invention has these and other objects, all of which will be more thoroughly understood from the following description, it being obvious that changes and modifications of the ingredients of the formula may be varied without departing from the scope of the appended claims forming a part hereof.

The invention is adapted for use in decorating various articles, particularly those which are cast or otherwise formed and produced of brass which, while due to the different compositions of various brasses, results in a decoration in which the portions thereof differ both as to shade and outline. When brass of one character is subjected to the action of the solution for a certain period of time, the decorations produced upon the surface of the article resemble flat facets, which vary in shade, color and also shape and size, giving the article a mottled appearance, the facets being defined by straight lines, whereas when brass having different characteristics than that above referred to is subjected to the action of the solution, the outline of the decorative portions may be of a rounded character, which differ in shade relatively to each other and also, due to the difference in color of the brass, will present a different general appearance compared to that previously referred to.

One formula whereby a solution capable of resulting in an action and formations such as those hereinbefore referred to includes copper sulphate, nitric acid, muriatic acid, ferrous sulphate, and sodium chloride or salt in water, making a bath in which the article to be decorated is immersed for a suitable period.

The ingredients when added to one gallon of water in the following proportions and left for substantially one-half day prior to use will, upon subjecting the article to the solution for about one-half hour, accomplish the above result: water, one gallon; copper sulphate, 2 ounces; nitric acid, one-fourth ounce; muriatic acid, one-fourth ounce; ferrous sulphate, one-fourth ounce; salt, one-half pound.

The copper sulphate, ferrous sulphate and the salt are employed to produce the different shades and tinge or color to the various decorative portions, for instance, the copper sulphate produces a blue tinge, the ferrous sulphate a green tinge, and the salt a lighter tinge. Therefore, it is obvious that these above ingredients may be varied or added to, to reduce or increase the number of colors which may result depending upon desire or necessity.

It is manifest that the action of the solution will vary, depending upon the particular consistency or composition of the brass, and will thus produce a variation of outline to the etched portions which will result in the production of different effects.

Having thus described the invention, what I claim and desire to cover by Letters Patent is:

1. A solution of the character described composed of water, copper sulphate, nitric acid, muriatic acid, ferrous sulphate, and sodium chloride.

2. A solution of the character described containing water, nitric acid, muriatic acid and ferrous sulphate in equal portions, copper sulphate, and sodium chloride.

3. A solution of the character described containing water, copper sulphate two ounces, nitric acid one-fourth ounce, muriatic acid one-fourth ounce, ferrous sulphate one-fourth ounce, and sodium chloride one-half pound.

In witness whereof, I hereunto subscribe my name this 12th day of March A. D., 1927.

JOHN W. SAUER.