

UNITED STATES PATENT OFFICE

CHARLES L. ROBERTSON, OF PROVIDENCE, RHODE ISLAND.

IMPROVED COMPOSITION FOR COATING WOOD AND OTHER MATERIALS.

Specification forming part of Letters Patent No. 63,428, dated April 2, 1867.

To all whom it may concern :

Be it known that I, CHARLES L. ROBERTSON, of the city and county of Providence, in the State of Rhode Island, have invented certain new and useful Improvements in the Composition and Preparation of Enamels for Coating Articles of Wood or other Material; and I do hereby declare that the following specification is a full, clear, and exact description thereof.

The present invention has for its object the production of a composition of matter which, when applied as an exterior coating to any article, and subjected to the action of a degree of heat within the capacity of wood to bear without injury, shall develop, without subsequent polishing by friction, a brilliant and lustrous enameled surface, which will resist the solvent action of boiling water and be unaffected by acids.

To accomplish the result with the best advantage, two compositions are employed, one of which may be called the primary and the other the finishing composition.

The primary composition is made of linseed-oil, Prussian blue, coach-black, and black oxide of manganese, in the following proportions: To each gallon of oil I add four ounces of Prussian blue, four ounces of coach-black, and one-half an ounce of black oxide of manganese.

The quantities of the several elements having been measured and weighed, and the coach-black and black oxide of manganese reduced by grinding or other means to a fine powder, the ingredients are placed in a kettle over a moderate fire and boiled slowly from four to five hours, the composition being all the time kept in agitation by stirring the same with a ladle.

The boiling process must be carefully conducted, as upon its proper management the success of the result depends; and unless it is continued to the point when the composition becomes "ropy," and of the consistence of sirup, failure will ensue.

The test to be applied to determine whether the mixture is sufficiently cooked is to allow from time to time a few drops to fall upon a sheet of tin or glass. If they fall without spat-

tering and assume the form of coherent globules, which, when touched by the finger, will adhere to the skin, and be readily drawn out into an attenuated thread, the composition may be considered to be sufficiently boiled; but unless this quality is exhibited, the boiling process must be continued until it appears.

The composition, after the boiling process has been completed, should be permitted to cool, when it is to be reduced with naphtha to a more liquid state. The quantity of naphtha to be used should generally be the same as the quantity of oil originally used, and should be well mixed with the mass. After the composition has been allowed to settle, which will occupy a day or two, it will be fit for use.

Two coats of this primary coating are generally required to be put upon articles. It can be applied with a brush, or the article may be immersed in it for an instant and the surplus liquid allowed to drain off. After each coating, the article is to be subjected for three or four hours in an oven to a heat of from 120° to 150° Fahrenheit.

The finishing composition which I have found the best is made of three ounces of Prussian blue and half an ounce of black oxide of manganese to each gallon of linseed-oil. This mixture is prepared under the same rules as in the former case, and the test of its fitness for use is the same as before described; and it should be reduced, after it has been boiled, by the addition of naphtha in the quantity as in the other case mentioned.

Articles which have received the preparatory coats are now to be dipped in this mixture, and then, after being dried for the space of from one to two hours in a heat of 150°, they should be subjected to a heat of about 300° for four hours.

One finishing coat is generally sufficient where the article has received two good preparatory coats; but, if it is desired, an additional finishing coat may be put on, in which case the drying and baking process should be repeated.

It will be found that, if the compositions above described are used, and the articles heated as directed, at the conclusion of the

baking process a brilliant and lustrous enamel will be produced, which will rival in beauty the surface of polished ebony.

If it is desired to produce other colors than black, it is necessary to substitute in place of the coach-black a pigment of the color which is required—as, for example, Indian red, lake, or vermilion—in which case the colors appropriate to these pigments will not be obtained, but only a color resulting from the combination of the Prussian blue with such pigment. If the Prussian blue be omitted, the color belonging to the pigment used will be obtained, but the distinctive lustrous character of the enamel described will be wanting.

The compositions above described are to be distinguished from the well-known Japan varnishes, which in some respects they resemble, in this, that while the elements of the mixture in both cases may not be substantially different, and the mode of application and development by heat may be the same, the result is entirely different, for the one exhibits a dull, dead color, while the other is a lustrous enamel. This difference of result is due to the difference in the preparation of the composition before the application of heat, and consists in bringing the composition by the boiling process to the point when it exhibits the

qualities which have above been described as indicating its fitness for use.

I wish it, therefore, to be understood that I do not confine myself to the use of all the ingredients mentioned for either of the compositions, nor to the use of them in the proportions mentioned, as these proportions can be varied materially without changing the result; but I rest the invention upon the discovery that linseed-oil, in combination with Prussian blue or its chemical equivalent, whether combined with other coloring ingredients or not, will, after it has undergone the process of boiling for a sufficient length of time, exhibit the rosy consistence described, and possess the quality of developing luster upon the application of heat.

I therefore claim as my invention and desire to secure by Letters Patent—

A composition for coating articles of wood or other material, prepared substantially as herein described, which, under the application of heat, will develop the characteristics herein mentioned.

CHAS. L. ROBERTSON.

Witnesses:

W. B. VINCENT,
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