

UNITED STATES PATENT OFFICE.

CHARLES STÜMER, OF NEW YORK, N. Y.

IMPROVEMENT IN ENAMELS FOR IRON.

Specification forming part of Letters Patent No. 5,681, dated July 25, 1848.

To all whom it may concern:

Be it known that I, CHARLES STÜMER, of New York, in the county of New York and State of New York, have invented a new Composition of Matter and Process of Using the Same for Enameling Metals; and I do hereby declare the following to be a full, clear, and exact description of the same.

The nature of my invention consists in providing an enamel for iron and other metals which will retain its adhesion to the metal, and particularly is it not capable of being crumbled or broken off by blows or by heat, thus possessing the quality of comparatively commingling with the surface of the metal. Thus it is far superior to any known enameling for metals, and may be modified so as to render it in all the shades of colors in full variety. The iron or other metal should be prepared by pickling or otherwise until it is free from all foreign substance. For this I prepare a pickle of vitriol-water of the strength of three pounds of liquid vitriol to twenty-seven gallons of water, but do not consider this precise amount as in all cases requisite; but with iron this is a good proportion.

I provide a composition as follows, which I will call "Composition A:" sixteen ounces of gravel-sand, ten ounces of silver gladt, (silver gilt or silver gilding,) two ounces of white clay, three-fourths of an ounce of saltpeter. These should all be put into a crucible, melted and mixed together, when it should be poured out, cooled, and then should be pulverized by grinding. This, when ground, should be mixed with thirty-two ounces of gum-arabic (*Gommi Arabicum*) dissolved in half a gallon of water. The iron being cleaned, as before stated, the composition should be laid on with a brush or pencil, as paint, in a thin coating. The piece of coated metal is then put in an oven heated to a very high degree, when it becomes heated

or burned onto the metal, almost like the metal itself, or perhaps even harder and more tenacious than the parts of the metal itself. I cannot give the precise degree of heat or the time for remaining within the oven; but this must be learned by trying pieces and frequent examinations, when the eye will detect that it is sufficiently burned, which may be varied by many circumstances. After this coating of either composition A or B may be added, and finally a complete coating of composition B, each of which is burned on in like manner to the first, and to this colors may be added to give any shade required, or ornaments may be painted on, as in china or such like substances; but as I do not claim the ornamenting as patentable, but use it in common, it is not deemed important to describe the ingredients.

Composition B: Seven ounces of glass, (common white glass,) four ounces of gravel-sand, eight ounces of zeon seanocks, (or oxide of tin,) six ounces of borax, one and one-half ounce of soda, three ounces of saltpeter, one and one-fourth ounce of white clay, one ounce of magnesia, one-fourth of an ounce of white chalk, one-eighth of an ounce of oyster-shells. This should be pulverized like composition A, and then mixed with the gum-water, when it is laid on and burned in, as before described.

I do not claim as new or my invention enameling iron or other metals, or any new way of applying the same.

What I do claim, and desire to secure by Letters Patent, is—

The peculiar compositions A and B, composed of the parts and compounded as described.

CHARLES STÜMER.

Witnesses:

J. I. KINGSLEY,
T. G. FRENCH.