United States Patent Office.

NICHOLAS HEINTZELMAN, OF NEW YORK, N. Y.

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IMPROVED PROCESS FOR MAKING MOLDS FOR CASTINGS OF ALTO-RELIEVO FIGURES, &c.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, NICHOLAS HEINTZELMAN, of the city, county, and State of New York, have invented a certain new and improved method or process of preparing or obtaining duplicate Molds for making Composition or other Cast-metal Alto-relievo, or high relief, or Under-cut Figures; and I do hereby declare that the following is a full description of the same.

My invention relates to that kind of castings formed in high relief, so as to show the figure prominently standing out from the base, and presenting its entire outline nearly as if simply attached to it.

In the ordinary way of making metal castings of such alto-relievo figures the molds have to be made in sections, so as to release the casting when made. But, in so doing, a seam, or seams of metal are formed on the figure where the sections of the mold join together. The consequence of this is that the figure has to be finished up by hand to get rid of this defect, which, in delicately outlined figures, is attended with considerable labor, besides adding greatly to the cost of such kinds of ornamental work.

By my process this difficulty is entirely overcome, and at the same time great numbers of molds may be duplicated at very little cost, and thus large quantities of the castings obtained, thereby, by the facility with which they can be made, cheapening them greatly.

The nature of my invention consists in the following method or process of preparing the mold for obtaining the casting therefrom.

I first form or mold the design or figure in wax, or other plastic or soft material, and take a negative electrotype or type-metal shell of it.

When thus electrotyped, the wax or other material used as a model is melted, to free it from the electrotype, as it will be obvious that, as the figure or design is under-cut, the electrotype would not separate from the mold except by melting it out, as would be the case with basso-relievo or open-cut surfaces, such as wood engravings, &c.

My process in this respect, therefore, differs from the method of obtaining electroypes generally practiced.

When the electrotype negative shell has been obtained, I next take a copy of it with a gelatine composition, or other equivalent elastic substance.

It will be obvious that this gelatinous substance will readily take a perfect impression of the finest tracery of the design and its under lines, and when cold retain them, and be readily separated from the electrotype without injury, and thus leaving the electrotype perfect, from which any number of elastic impressions or patterns may be taken.

When the gelatinous pattern has been obtained, I next take a plaster mold from it. This plaster mold is composed of two parts of finely-pulverized brick-dust and one part of plaster of Paris; other similar plasters may be used, as I do not confine my invention to the plaster of which the mold is made, which are mixed in water quite thinly. This I apply to the elastic pattern with a soft brush, so as to obtain a perfect mold of the design, and then, when sufficiently backed up, let it stand to harden. When it has become quite hard, the elastic pattern is then separated from the mold.

The mold is now thoroughly dried in an oven, and is then ready for the taking the metal casting therefrom. When the casting has been taken, the plaster mold is separated from the casting by breaking it to pieces, or by soaking in water or other liquid, to dissolve or disintegrate the plaster, and thus release the design in as complete and perfect finish as was the original design.

It will be obvious that by this process I can make an unlimited number of molds, and thus at one casting duplicate the design to any extent desired.

Another advantage pertaining to my invention is, that, by the drying out of the gelatinous pattern, it shrinks or contracts to nearly one half of the original size of the design. In view of this peculiar property of the gelatinous pattern which I have discovered, I propose to make the castings of the design of different sizes, so as to adapt them to different articles and uses, by composing the gelatinous pattern of such a consistency as will retain a perfect impression of the figure or design when cold, yet by drying out, will shrink to the requisite size desired, and thus from the same original model make different sizes of castings therefrom.

Having now described my invention,

I will proceed to set forth what I claim and desire to secure by Letters Patent of the United States—

I claim—

The method or process substantially as hereinbefore described, for making molds for obtaining composition or other soft-metal castings, of alto-relievo or high relief, or under-cut ornamental figures or designs.

NICHOLAS HEINTZELMAN.

Witnesses:

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