

United States Patent Office.

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Letters Patent No. 61,133, dated January 15, 1867.

IMPROVED MODE OF FINISHING TOOLS, IMPLEMENTS, MACHINERY, AND OTHER ARTICLES.

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

TO ALL WHOM IT MAY CONCERN:

Be it known that we, JOHN ALLEN, of New York city, State of New York, and GASTON D. SMITH, of Washington city, District of Columbia, have invented a new and useful improvement in Finishing Tools, Implements, Machinery, and other articles and devices made of iron or steel, or partly of these, or either of them; and also in restoring to good condition, tools, implements, machinery, and other devices which have been damaged by oxidation or corrosion; and we hereby declare the following to be a full and exact description of the same.

The usual mode of finishing tools, implements, machines, and other similar articles made of iron and steel, is to polish or burnish them. Instead of this treatment they are sometimes "blued," bronzed, plated, painted, or varnished, so as to form a surface more or less protected against oxidation and corrosion. When such articles are plated with silver, or other non-corrosive metal, they are well protected, but the process is too expensive for general use. The processes of burnishing and polishing are effective only when the article is kept in a dry atmosphere, and away from corrosive gases.

The nature of our invention consists in omitting the usual finishing of mechanical devices, or metal ornaments, or tools, or instruments of any kind used in surgery or mechanics, by polishing, burnishing, painting, or varnishing, and, instead thereof, to finish them by galvanizing their surfaces by the process well known for making galvanized iron, so that water, gases, and other injurious agents, shall be excluded from contact with the metal.

To enable others skilled in the art to use our invention, we proceed to describe our process.

After the mechanical or ornamental device or tool is completed, we make the surfaces clean, and then plunge them into a bath of molten metal or metals, known as a galvanizing bath, which can be composed of white, silvery, bronze, golden, or any colors. This bath fills the pores of the metal, and also covers the entire surfaces exposed to the action of the bath, making the metallic articles impervious to water, gases, and other agents which corrode iron, steel, and other metals. In preparing the bath, we prefer to use metals which have not too high a point of fusion, and which do not readily tarnish, as zinc and tin. For large articles we use about eighty parts of zinc and twenty parts of tin; for small articles we use a larger proportion of tin, varying the quantity according to the color and smoothness of the work required, without limiting ourselves to any particular proportions or description of metals used for the bath, our purpose being to fill the pores or crevices of the metal of the mechanical devices or tools, and cover their surfaces with fused metals, and to apply the process to tools and mechanical devices. To restore any tools or devices to a good condition, which are damaged by rust or corrosion, we first clean their surfaces, using therefor acid, if that be necessary, and then subject them to the action of the bath, the same as in finishing, described above. The metal of the bath will penetrate iron, and become incorporated with it, making a surface and body of much closer texture and greater solidity than that of iron or steel. The alloys we use oxidize very slightly, however long they may be exposed to the action of air or water, either salt or fresh, and when properly applied, present a beautiful smooth white or colored surface of much brilliancy, easily kept clean and bright by simply rubbing with a cloth or soft leather, and also susceptible of a high polish.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The finishing of devices of machinery, engines, sewing machines, tools, and instruments of all descriptions, by the mode and means hereinbefore described, and for the purpose of preserving them from damage by oxidation or corrosion, as set forth.
2. The restoration of damaged tools and machinery to good condition by the method and means set forth.

Witnesses:

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JOHN ALLEN,
GASTON D. SMITH.