

No. 753,097.

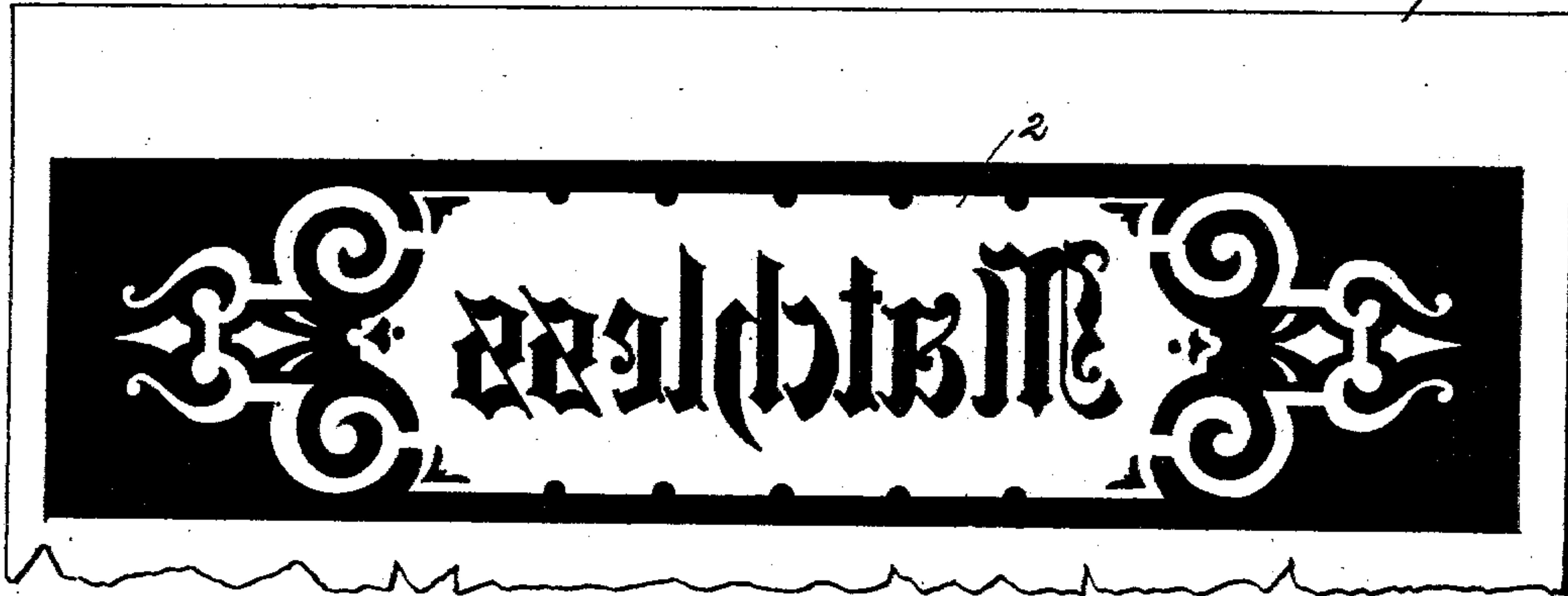
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O. PALM, JR. & W. T. BLOMBERG.

PROCESS OF TRANSFERRING AND ETCHING DESIGNS ON METAL SURFACES.

APPLICATION FILED MAY 9, 1903.

NO MODEL.



WITNESSES:

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PROCESS OF TRANSFERRING AND ETCHING DESIGNS ON METAL SURFACES.

SPECIFICATION forming part of Letters Patent No. 753,097, dated February 23, 1904.

Application filed May 9, 1903. Serial No. 156,376. (No specimens.)

To all whom it may concern:

Be it known that we, OTTO PALM, Jr., and WILLIAM T. BLOMBERG, citizens of the United States, residing at New York, in the borough of Manhattan and State of New York, have invented a certain new and useful Improvement in Processes of Transferring and Etching Designs on Metal Surfaces, of which the following is a specification.

Our invention relates to the process of decorating and lettering metal surfaces by etching; and the objects of our invention are to provide an improved process whereby lettering or ornamentation of metal surfaces, whether the same be flat, beveled, or curved, by etching thereon may be accomplished in an accurate, rapid, and uniform manner, to provide an improved process of this kind which shall be at once simple and inexpensive, and to produce other improvements the details of which will be more clearly pointed out hereinafter. These objects we accomplish in the manner hereinafter described.

In the accompanying drawing we have illustrated a portion of a paper sheet, showing thereon an example of one transfer print which we utilize in carrying out our improved process, which process is substantially as follows:

The design to be etched on metal is printed on previously-prepared sheets of transfer-paper 1, such as is ordinarily employed in the production of designs to be transferred onto wood or other material. The design thus printed upon the sheet is produced in a heavy black or other solid color, this color being mixed with desirable proportions of bees-wax and asphaltum or other acid-resisting materials prior to the printing operation.

The design to be printed upon the sheets is in the nature of an open-work design. For example, where the design consists of lettering and ornamental or scroll work, as shown in the drawing, the parts to be etched, such as the background for the letters and the ornamental work, are left blank, while the

remainder of the body of the design or panel within which the design is inclosed is printed in the solid color. The design thus being printed upon the sheet, the face of the latter is washed with a sponge and water, so that all the gum with which the paper sheet has been previously treated is washed from the exposed surface of the paper. It is obvious that any desired or convenient number of corresponding designs, such as that indicated at 2 in the drawing, may be printed upon one sheet or numbers of sheets; but prior to utilizing these designs or prints for transferring the paper sheet may be cut into strips, each containing one of the designs. The metal surface to be decorated is now covered with a thin smooth coating of asphaltum, and the design to be transferred is likewise coated with a thin layer of asphaltum. After the coating of asphaltum upon the design has sufficiently dried to bring the same to an adhering or sticky state the design is laid face downward upon the metal surface to be decorated and pressed in engagement with said surface by rolling the back of the design containing the strip with a rubber or other suitable roller. The back of the paper is then sufficiently saturated with water to permit of the paper body being readily slipped off or separated from the design itself. It will be understood, however, that the transfer design-paper may be dipped in water before laying the same on the metal surface, then laid on the surface and rolled down, resulting in a quicker saturation of the paper and permitting of the latter being separated from the design immediately after it has been rolled down. As a result of the above-described steps of the process the design is now transferred to the metal surface, and any stains of asphaltum in the open spaces of the design may be removed by washing over the design quickly with a soft rag or sponge saturated with spirits of turpentine. This being accomplished, the transferred design is properly dried and is now ready for

the etching operation, which is as follows: In carrying out this etching operation any suitable etching mixture may be utilized; but that preferred consists of a small quantity of dissolved gum-arabic combined with a suitable quantity of nitric acid, so that the mixture becomes somewhat thickened to produce a comparatively gummy liquid which will not readily flow from the metal surface. The etching mixture is applied to the open spaces of the transferred design with a camel-hair brush, giving the same a smooth solid coating, which will cause the open spaces of the metal surface to be eaten out or etched by the acid preparation to the desired depth. It is obvious that the etching operation may also be accomplished by dipping or submerging the entire metal article to be etched in a weak solution of nitric acid or other suitable etching mixture or acid preparation until the open parts of the design are eaten out or etched to the desired depth. This being accomplished, the acid or etching preparation is removed with a soft wet sponge and the transferred design is removed from the metal surface by the application thereto of a mixture of spirits of turpentine and alcohol, one-half of each, resulting in the dissolution of the material forming the transferred design.

From the above-described process it will be seen that a simple and comparatively inexpensive method is provided for transferring and etching ornamental designs and lettering on metal surfaces, the same being particularly applicable in the decoration of metal piano-action rails, sword-blades, sign-plates, or other metallic products of manufacture upon which etched designs are desirable.

Having now fully described our invention,

what we claim, and desire to secure by Letters Patent, is—

1. The process for transferring and etching designs upon metal surfaces consisting in coating a sheet of paper with gum, printing the design upon the gummed surface, the material used in printing being mixed with acid-resisting materials, cleansing the unprinted surface of the paper, pressing the printed face of the paper into close contact with the surface to be etched, removing the paper from the design, subjecting the open places in the transferred design to the action of acid and removing the transferred design.

2. The process for transferring and etching designs upon metal surfaces consisting in preparing a sheet of paper with a coating of gum, printing the design to be transferred in a solid color, the latter comprising a mixture of asphaltum and beeswax, on said gum-coated sheet, cleansing the face of the printed sheet to remove the gum coating therefrom, applying to both the surface to be decorated and the design a thin coating of asphaltum, applying the design to the metallic surface and causing the same to adhere thereto, separating the paper and design by saturating the same with water, subjecting the open surfaces in the transferred design to the action of an etching preparation and removing the transferred design from the metal surface by the application thereto of equal parts of turpentine and alcohol, substantially as specified.

OTTO PALM, JR.

WILLIAM T. BLOMBERG.

In presence of—

VERONICA M. CLARK,
LOUIS C. GAERTH.