UNITED STATES PATENT OFFICE.

GUSTAV R. HOFFMAN, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN PROCESSES FOR PRODUCING MULTICOLORED DESIGNS ON WIRE-CLOTH.

Specification forming part of Letters Patent No. **169,640**, dated November 9, 1875; application filed May 7, 1873.

To all whom it may concern:

Be it known that I, GUSTAV R. HOFFMAN, of Chicago, in the county of Cook and State of Illinois, have invented a Process for Painting on Wire-Cloth Window and Door Screens, of which the following is a specification:

This invention relates to a process employed for producing ornamental and picturesque designs upon wire-cloth window and door screens by means of stencil-plates and other appliances; and consists, first, in the manner of using one stencil-plate for various colors; second, in the manner of preparing the wire-cloth preparatory to being decorated; third, in the appliances and processes used in connection with stencil-plates to produce certain results, as will be hereinafter described and claimed.

In carrying out my invention, zinc or other suitable metal plates, of proper thickness, in number sufficient for the design, are selected. These plates are perforated with apertures representing the various colors and shades in the design, placing one or more colors in each plate, as may be most advantageous, to complete the design with the least number of plates. The wire screen to be decorated is then stretched on a suitable frame or stretcher and placed on a bench or table, the surface of which is so constructed as to form a "filling" for this frame, presenting thus a level surface for the wire-cloth to rest on preparatory to the stencil being applied thereon. All these above-described parts being so provided, they are placed in "register." That portion of the wire-cloth immediately under and in register with the brilliant or light colors represented in the design is now coated with white, or any shade lighter in color than that of the original wire-cloth, and allowed to dry. It will be seen that this forms a base for the brilliant or light colors in the design, and is only then required when the original color of the wire-cloth is more or less dark, which is nearly always the case. The object of this light base color for the brilliant and light colors in the design is this, viz: In order to complete the design while all the colors are yet moist, as will be explained hereafter, the succeeding stencils must be applied before the colors of the prior ones are dry, thereby causing a portion of this newly-put-on paint to be removed from the extreme upper surface of the wire by contact with any of the subsequent stencil-plates, and thus expose the original color of the wire-cloth, and this, being dark, would cause the two colors—the brilliant and that of the wire-cloth—to intermingle and make the brilliant colors look dull; but, as the original color of the wire-cloth is changed to white, or any color or shade harmonizing with these so-called brilliant colors, none of their luster is lost, but, on the contrary, they are improved thereby. On the finer qualities of wire-cloth screening, the meshes of which are very small, this "base" color cannot be applied with a brush, for the brush does not only deposit the color on the upper surface of the wires, but also on the sides thereof. Now, as this color is left to dry—instead of being expunged, as is the case in all the other instances, when supplanted by another color—this, besides a coat of varnish, applied when the design is completed, would be very apt to clog up the meshes, and thereby detract from the value for the purpose it is intended. Now, to obviate this, a stencil-plate containing apertures representing this base color is etched with nitric acid, as is customary with lithographers in treating lithographic stones, and the color prepared for this purpose, and technically termed "ink," is then applied by means of a roller similar to those used by lithographers. This roller will not permit the ink to penetrate the meshes of the cloth, but will deposit it only on the extreme surface, and just where it is wanted, and the stencil-plate, being treated as above described, will, on being wet, repel the ink. Thus, while depositing the ink through the apertures on the wire-cloth, it leaves the stencil-plate perfectly clean. The base color being dry, the first stencil-plate of the series is now placed on the wire-cloth, and in register. Suitable color or colors are then applied through the apertures. This stencil-plate being replaced by the second one, the color or colors of the one just removed, which may necessarily appear through its (the second one's) apertures, is expunged, leaving again the original color of the wire-cloth, and a dry surface to

apply the colors through the apertures of this stencil-plate. The same process is repeated with each successive stencil-plate, through the entire series thereof, until the design is completed.

When the apertures in the stencil-plates come in such close proximity as to cause one color to infringe on one or more of the others while being applied through the apertures of the stencil-plate, a "shut" may be used to cover one or more apertures while applying the color through the remaining one or more uncovered ones. The same results can also be obtained by one or more improvised rude stencils being fastened to the stencil-plates proper.

By this means—*i. e.*, completing the design while the colors are yet moist—I am enabled to blend different shades in the manner practiced by artists, thus producing an artistic effect impossible by the use of stencils as heretofore employed.

When dry, a coat of varnish may be given or not, as preferred.

By means of a "mat" (so termed by photographers) being placed over and in register with the stencil-plates, the picture or design may be made to assume various sizes and shapes.

What I claim as my invention, and wish to secure by Letters Patent, is—

The process for producing multicolored designs on wire-cloth, consisting essentially of first coating the wire-cloth through a stencil-plate, by means of a roller, with white, which is allowed to dry, and then applying colors upon the whitened surface through successive stencil-plates, each plate being used before the previously-applied color is dry, that portion of the moist color exposed through each succeeding plate being expunged before the new color is used, substantially as and for the purpose hereinbefore set forth.

GUSTAV R. HOFFMAN.

Witnesses:

WM. H. LOTZ,

WM. ZIMMERMAN.