

UNITED STATES PATENT OFFICE.

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MANUFACTURE OF MIRRORS WITH TRANSLUCENT COLOR DECORATIONS.

SPECIFICATION forming part of Letters Patent No. 689,526, dated December 24, 1901.

Application filed July 9, 1901. Serial No. 67,683. (No specimens.)

To all whom it may concern:

Be it known that we, EDUARD WAGNER and GOTTFRIED LORENZ, subjects of the Emperor of Austria-Hungary, residing at Vienna IV, Empire of Austria-Hungary, have invented certain new and useful Improvements in the Manufacture of Mirrors with Translucent Color Decorations; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has relation to the art of decorating mirrors, and in our application for a patent of the United States filed February 4, 1901, Serial No. 46,015, we have described a process for decorating mirrors consisting, essentially, in forming the ornamentation, design, or pattern directly on the reflecting material or back of the mirror with a substance or composition that will dry slowly or that will become soft on exposure to heat, or both, the ornamentation, design, or pattern and the surrounding reflecting material, as well as the reflecting material in the body of the ornamentation, being then coated with a thin coating of a substance that will dry rapidly and become hard or brittle on exposure to heat—as, for instance, a solution of shellac. The shellac coating is then dried, and when it has become hard or brittle the ornamenting substance is simply wiped out in any desired manner, as by means of a rag, leaving a sharply-outlined stencil of the ornamentation or pattern, after which the reflecting material thus laid bare is removed, leaving a sharply-outlined transparent stencil of the ornamentation, design, or pattern, which is then painted or colored with any suitable coloring-matter, and if a translucent-colored ornamentation is desired so-called “translucent” pigments or colors are used.

It is well known that the reflecting materials now used in the manufacture of mirrors are readily removable by friction—as, for instance, when handled in packing or unpacking during transportation or in mounting or framing. It is also well known that these reflecting materials are sensitive to atmospheric influences, and unless protected against these

influences the mirror is speedily injured and practically destroyed.

To protect mirrors against injury in handling or from atmospheric influences, it is now the general practice to coat the reflecting material or back of the mirror with a substance or composition that is indifferent to atmospheric influences and that will so firmly adhere to the reflecting material that it cannot be removed by the friction to which the parts of the mirror may be subjected in handling before it is finally mounted or framed. This backing of the mirror is done at the factory, and our present invention is directed to the ornamentation of such mirrors, so that the invention may be practiced at any desired place other than the factory.

The backing of mirrors above referred to consists generally of some substance or composition that will harden on drying and that is indifferent to atmospheric influences. These substances or compositions vary with different manufacturers and with the grade of the mirrors, but are invariably composed of a readily-soluble substance or composition of substances, as a varnish, such as printers' varnish, with or without a binder, or compositions of tar, asphalt, or other similar substances. The backing for the higher grades of mirrors consists usually of a coating of shellac mixed with a filler, as a pulverulent pigment and of a coating of a solution of an asphalt composition.

In the ornamentation of mirrors backed as described and broadly speaking we proceed as follows: The ornamentation, design, or pattern is formed on the backing for the reflecting surface with a substance or composition that will not readily dry or that will soften under the action of heat, or both, which is then, together with adjacent parts of the backing, coated with a thin coating of a substance that will readily dry and become hard and brittle, or the whole of the back of the mirror may be so coated. The coating last referred to is now dried, and when it has become hard and brittle the substance used in forming the pattern of the ornament or design can be readily removed, as follows: Slight pressure will break the brittle coating

all along the outlines of the pattern, and the substance with which the pattern has been formed, together with the brittle coating, is wiped off, thus baring the mirror-backing and leaving perfectly sharp outlines. The backing thus bared is then removed by means of a suitable solvent that will not dissolve the brittle coating to lay bare the reflecting material, which is finally removed by any well-known means, thus leaving a transparent stencil pattern on the glass, which is finally painted or colored by hand or by the well-known transfer process, either with opaque or translucent colors.

By the described method we are enabled to reproduce even very intricate designs or subjects—as flowers, plants, &c.—and produce exceedingly beautiful and highly-artistic effects in an almost incredibly short time and at a very low cost, the final picture, whatever it may be, requiring but little retouching.

That our invention may be more fully understood, we will describe the same in detail, taking as an example the ornamentation of a mirror having a backing for the reflecting material consisting of a first coating of shellac with or without a filler in the form of a pulverulent pigment and a second coating of asphalt or of an asphalt composition.

The substance or composition which we prefer for the formation of the pattern, that will not dry rapidly or that will soften when exposed to heat, consists of a filler, as printers' white, of printers' varnish, glycerin, and oil of cloves, or of printers' ink as a filler, printers' varnish, glycerin, and oil of cloves, or of printers' varnish, glycerin, turpentine, and oil of cloves. The oil of cloves, together with the glycerin, are the agents that prevent the composition from drying rapidly, and either one of the compositions described will become soft when exposed to heat.

The proportions of ingredients in the compositions referred to may be varied within comparatively wide limits and depend upon the time which may elapse between the formation of the pattern on the back of the mirror by means of the composition and the coating of the same with a substance that will dry rapidly, harden, and become brittle on exposure to heat, and the time that may elapse between the application of the last-named coating and the drying of the same, and, finally, upon the time that may elapse between the drying and removal of the pattern composition. The longer the time between the formation of the pattern with the slowly-drying composition and its removal the greater should be the proportion of glycerin and oil of cloves, within certain limits, of course, and with a view to economy of time the composition should be of the consistency of printers' ink, so that the pattern may be printed on the back of the mirror. For the outer coating we prefer to use a solution of shellac, though any other equivalent soluble substance that

will rapidly dry, harden, and become brittle may be used.

Let it be assumed that the ornamentation is to consist of flowers along the base and one edge of the mirror. The outlines are drawn on the backing and then coated with the substance that will not dry rapidly or that will soften under the action of heat, or both. This, however, is a process that requires some skill and considerable time and would be applicable to a single mirror only, and in order that the pattern may be rapidly formed on any number of mirrors we resort to printing, suitable printing-blocks being prepared. We then coat the imprinted pattern and the adjacent portions of the backing, or the whole of the latter, with a thin coating of a solution of shellac and expose the back so prepared to heat. When the coating of shellac has become hard, it, together with the pattern composition, is wiped off by means of a rag. As is well known, the fracture of shellac and similar bodies is a compact or clean-cut one, and as the pattern composition is in relief on the backing of the mirror the slightest pressure will break the shellac all along the outlines of the pattern, which is therefore readily removed and with it said composition, leaving practically a stencil-like pattern upon the asphalt back, which remains more or less visible. The asphalt coating thus laid bare by the removal of the pattern composition is then dissolved with any well-known solvent indifferent to shellac and removed, and this can also be done with a rag, thus baring the under coating of shellac, which is next dissolved out with a solvent, as alcohol, thereby baring the reflecting material of the mirror, and as the solvent for the asphalt does not affect the outer coating of shellac and as the solvent for shellac does not affect the asphalt coating, which adheres with great tenacity to the underlying shellac coating and the latter with equally great tenacity to the reflecting material, it is obvious that when the latter is removed in any well-known manner a transparent stencil-like pattern with perfectly sharp or clear outlines will result, which is then colored or painted on the back of the bared glass, either by hand or by the transfer or similar process.

If the ornamentation is to be translucent, well-known colors or inks are used, thus producing most beautiful and artistic effects, the finished ornamentation requiring but little touching up.

This mode of ornamenting mirrors has the further advantage that the ornamentation is thoroughly protected against injury to which such ornamentation is exposed when applied to the reflecting or outer face of the mirror—as, for instance, in cleaning or handling. The mirror so prepared may now have the ornamentation protected either by an opaque or translucent protective coating, or it may be backed with a ground or translucent glass

plate, according as the ornamentation is opaque or translucent.

Having thus described our invention, what we claim as new therein, and desire to secure by Letters Patent, is—

1. The process, which consists in forming a pattern of the ornamentation on the back of the mirror with a substance that will dry slowly and soften when exposed to heat, coating the pattern and adjacent parts of the mirror-back with a substance that will dry rapidly and become hard and brittle, drying the latter, and removing first the pattern-forming substance with its hard coating, then the protective backing for the reflecting material of the mirror laid bare by such removal, and next the reflecting material laid bare by said removal of the protective backing, for the purpose set forth.

2. The process, which consists in forming a pattern of the ornamentation on the back of the mirror with a substance that will dry slowly and soften when exposed to heat, coating the pattern and adjacent parts of the mirror-back with a substance that will dry rapidly and become hard and brittle, drying the latter, and removing first the pattern-forming substance with its hard coating, then the protective backing for the reflecting material of the mirror laid bare by such removal, next the reflecting material laid bare by said removal of the protective backing, and finally coloring the transparent pattern thus produced, for the purpose set forth.

3. The process, which consists in forming a pattern of the ornamentation on the back of the mirror with a substance that will dry slowly and soften when exposed to heat, coating the pattern and adjacent parts of the mirror-back with a substance that will dry rapidly and become hard and brittle, drying the latter, and removing first the pattern-forming substance with its hard coating, then the protective backing for the reflecting material of the mirror laid bare by such removal, next the reflecting material laid bare by said removal of the protective backing, and finally coloring the transparent pattern thus produced with translucent colors or inks, for the purpose set forth.

4. The process, which consists in forming a pattern of the ornamentation on the back of the mirror with a substance that will dry

slowly and soften when exposed to heat, coating the pattern and adjacent parts of the mirror-back with a substance that will dry rapidly and become hard and brittle, drying the latter, and removing first the pattern-forming substance with its hard coating, then the protective backing for the reflecting material of the mirror laid bare by such removal, next the reflecting material laid bare by the removal of the protective backing, coloring the transparent pattern with a translucent color or colors and finally backing the mirror with a translucent protective backing, for the purpose set forth.

5. The process, which consists in forming on the back of the mirror a pattern of the design or ornamentation with a composition consisting of printers' varnish, glycerin, oil of cloves and a filler as a printers' white, coating the pattern and adjacent parts or the whole mirror-back with a thin coating of shellac, drying the latter, removing the composition and the shellac covering the same, then the protective coating laid bare by such removal and finally the reflecting material laid bare by the removal of said protective coating, substantially as and for the purpose set forth.

6. The process, which consists in forming on the back of a mirror a pattern of a design with a composition that will soften when exposed to heat, coating the pattern and adjacent parts with shellac solution, drying the latter and removing the composition and its shellac covering to expose the mirror-back, dissolving off the asphaltum protective backing exposed, then the underlying shellac and last the silvered surface, substantially as and for the purpose set forth.

In testimony that we claim the foregoing as our invention we have signed our names in presence of two subscribing witnesses.

EDUARD WAGNER.
GOTTFRIED LORENZ.

Witnesses as to the signature of Eduard Wagner:

JOSEF RUBURCH,
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Witnesses as to the signature of Gottfried Lorenz:

E. COLSTEN,
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