

UNITED STATES PATENT OFFICE.

EMILE LAPORTE, OF FRIBOURG, SWITZERLAND.

PRODUCTION OF ARTISTIC DESIGNS OR PICTURES.

No. 908,017.

Specification of Letters Patent.

Patented Dec. 29, 1908.

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To all whom it may concern:

Be it known that I, EMILE LAPORTE, a citizen of the French Republic, and resident of Fribourg, Switzerland, professor, have invented new and useful Improvements in or Connected with the Production of Artistic Designs or Pictures, of which the following is a full, clear, and exact specification.

This invention has for its object the production of pictures imitating in effect etchings of the best finish and without the intervention in any way of the talent of an engraver for the purpose of cutting away the metal of the plate. The images obtained by the process are artistic and consequently different from those which can be obtained through the intervention of photography.

The process is realized in preparing, with the intervention of light, the plate or surface which is to receive the impression, this plate or surface being impressed or affected by a transparent sheet which bears the design itself executed in pencil or otherwise by the artist. But in order that one may design or depict on a surface it is necessary that this surface should not be smooth like glass but it is on the contrary necessary that the surface should be grained as finely as possible in order that the point of the pencil which is passed over this surface may leave a trace which is more or less accentuated according to the touch of the artist and the effect to be produced by the picture.

The process, the object of this invention, consists then in taking as a primitive surface a translucent sheet of which the surface is grained or roughened in order to permit of the artist executing thereon a portrait, a scene or a picture of any other kind. The grain thus formed upon the surface which receives the picture having taken away the transparency of the material of the sheet it is necessary to restore to the supporting sheet employed its primitive transparency in order that it may be traversed by luminous rays as for an ordinary photographic stereotype for example. It is then that the supporting sheet bearing the picture of the artist and restored to its transparency can serve to impress or affect a plate of copper which can afterwards be bitten into by the known means for etching plates or for affecting a plate of zinc as in ordinary zincography or for acting on a lithographic stone suitably prepared, the essential characteristic of the process being in the employment as a sup-

port of a transparent sheet which is first grained in order that the picture may be traced on its surface and which after being thus rendered opaque has its transparency restored in order to permit of the passage therethrough of luminous rays.

The supporting sheet which one may employ to realize this process may vary considerably. It suffices that it shall be capable of being grained so that the picture can be traced upon it and that its transparency can be afterwards restored to it. To this end I employ by preference a sheet of polished celluloid of the clearest and most transparent kind obtainable. On that face which is the most level and smooth I form a grain more or less close and fine according to the design which the artist wishes to depict and the effect which he desires to produce. A small close grain suits best for a highly finished design while a larger and more separated grain may be chosen by preference for a mere study. The grain being irregular, as is for that matter the drawing paper used by artists, the sheet of celluloid is rendered opaque by this graining and it is then that a crayon (the term crayon is used in its wide or generic sense) such for example as charcoal pencil or the ink from a pen can adhere perfectly to it. The artist having before him this sheet, grained and rendered opaque, placed upon a white surface or at least one sufficiently clear for the purpose, or better still upon a transparent drawing board lit from below as for example the well known retouching boards, can now depict his design by hand according to his inspiration utilizing if need be, as in the case of drawing paper; indiarubber or bread crumbs to efface certain parts and can modify his design, soften details and in a word produce on the opaque grained sheet the same effects which he can produce on ordinary drawing paper. This graining of the sheet of celluloid which fits it for the reception of the design, may be effected by different means. One way which gives good results consists in placing the sheet to be grained upon a plate of wood against which cylinders of Bessemer steel whose surfaces have been cut after the manner of files are rolled. These cylinders receiving a to and fro movement directly or by displacing the plate of wood which serves as a support for the plate, press into the celluloid and form

upon it a very irregular grain, the size and closeness of the grain depending upon the manner in which the surfaces of the cylinders are cut. Or the sheet of celluloid may be
 5 fixed at its four corners under the plate of a fly press and pressed against sheets of emery of different degrees of fineness so as to produce different graining effects. By giving several pressures by the plate of the press, the
 10 position of the sheet of emery being changed at each pressure, grainings quite irregular and different from one another may be obtained. In the case of plates of small size the grain may be produced on the
 15 celluloid by covering the latter with a sheet of emery paper or cloth and striking with a hammer sufficiently heavy and with a large striking surface. By suitably displacing the sheet of emery cloth at each stroke and
 20 with a little practice it is soon easy to produce the exact graining which one desires for the execution of a picture.

Another efficacious method of obtaining a convenient graining on the surface of celluloid
 25 consists in sprinkling or spraying its surface with a solution of resin in alcohol. When the alcohol evaporates there remains on the celluloid a grained surface of fine particles which is very convenient for a highly finished picture.
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Whatever the means employed to obtain the grained surface the artist executes his design or picture as has been explained. When he has obtained the desired effect it
 35 only remains to fix the picture and to restore to the sheet of celluloid its primitive transparency, this being only a little attenuated in the asperities or roughnesses which constitute the design. To thus fix
 40 the crayon, whatever it may be, and restore its transparency to the celluloid, one may have recourse to different means for example to treat the drawing with a convenient fixing means capable of causing the crayon
 45 or the like to adhere to the celluloid, and after some minutes to dip the sheet of celluloid into a bath of acetone, alcohol or other suitable liquid, with the object of restoring the transparency and of completing the
 50 fixation. Or instead of this latter operation one may cover the surface of the picture with acetone, alcohol, or the like by means of a sprinkler or the like so as to produce the necessary transparency and also the
 55 complementary fixation. I preferably employ alcohol for these purposes. When the sheet of celluloid bearing thus the design of the artist has returned to its primitive transparency so as to allow of the passage
 60 of luminous rays there is nothing more to be done but to place it in contact with the surface which is to serve for printing the impression in printing ink or the like.

If one desires to obtain pictures resembling
 65 fine etchings the sheet of celluloid may be

applied to a plate of copper covered by any coating or film sensitive to luminous rays and exposed to daylight in order that these luminous rays may produce their action upon the sensitive film of emulsion or the like which is to be affected. The plate of copper may then be treated by any of the well known means employed in photo engraving attacked by acid and a copper plate finally obtained which can be immediately
 70 employed for the production of impressions or prints reproducing exactly the design executed by the artist on the grained sheet and without the intervention of an engraver. In employing in the same manner a sheet of zinc
 80 or a lithographic stone provided with a coating or film sensitive to light plates suitable for typography may be obtained and designs combined with printing book characters may be obtained for journalistic or other
 85 printing work or the stones prepared for lithographic reproduction may be used. The same process may be advantageously utilized for engraving pictures upon glass repeated as often as may be desired the glass
 90 receiving a sensitive coating which may be affected by the rays of light passing through the sheet of celluloid and hydrofluoric acid being as in the ordinary means employed for engraving on glass utilized for biting
 95 more or less deeply into the vitreous material to reproduce the original etching.

Celluloid is not the only material which lends itself to the work just described as it suffices that the material employed should
 100 be translucent and capable of being grained so as to have the picture executed thereon and so as to be capable of having its transparency restored for the passage of luminous rays. Gelatin in particular may be used for
 105 the purpose of this work as well as other materials known in commerce as substitutes for celluloid.

What I claim is:

1. The process hereinbefore set forth
 110 which consists in producing a grain upon a transparent sheet, executing a design or picture thereon, and afterwards fixing the said design on the sheet and restoring the transparency to the latter, substantially as
 115 set forth and for the purpose described.

2. The process hereinbefore set forth which consists in subjecting a transparent sheet to the action of roughened surfaces to produce a grain upon the sheet, executing
 120 a design or picture thereon, and afterwards fixing the said design on the sheet and restoring the transparency to the latter, substantially as set forth and for the purpose described.
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3. The process hereinbefore set forth which consists in subjecting a transparent sheet to the action of roughened cylinders to produce a grain upon the sheet, executing a design or picture thereon, and after-
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wards fixing the said design on the sheet and restoring the transparency to the latter, substantially as set forth and for the purpose described.

5 4. The process hereinbefore set forth which consists in producing a grain upon a transparent sheet of celluloid, executing a design or picture thereon, and afterwards fixing the said design on the sheet and restor-

ing the transparency to the latter by treat- 10
ing it with alcohol, substantially as described.

In witness whereof I have hereunto signed my name this 21 day of August 1907, in the presence of two subscribing witnesses.

EMILE LAPORTE.

Witnesses:

FRANÇOIS BONNABRY,
LEO J. FRANKENTHAL.