

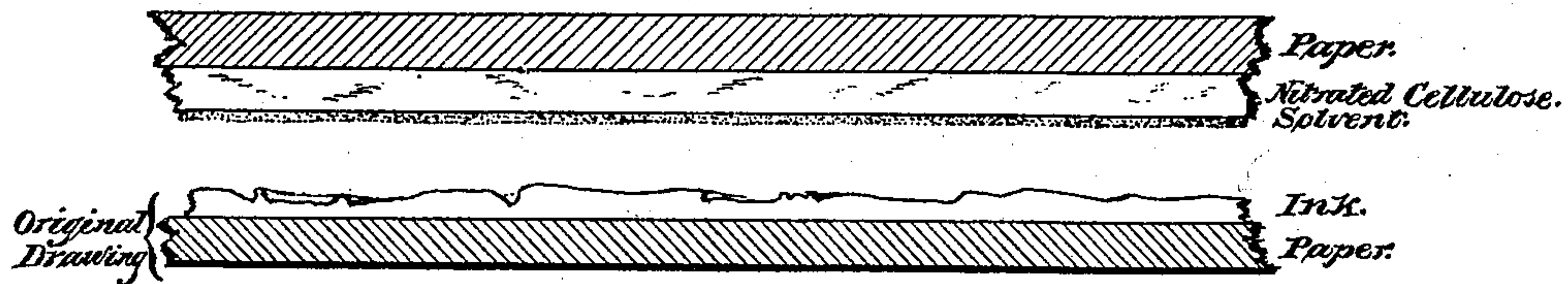
No. 611,687.

Patented Oct. 4, 1898.

G. ITASSE.  
PROCESS OF TRANSFERRING DRAWINGS.

(Application filed Nov. 22, 1897.)

(No Model.)



Witnesses.  
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# UNITED STATES PATENT OFFICE.

GUSTAVE ITASSE, OF PARIS, FRANCE.

## PROCESS OF TRANSFERRING DRAWINGS.

SPECIFICATION forming part of Letters Patent No. 611,687, dated October 4, 1898.

Application filed November 22, 1897. Serial No. 659,456. (No specimens.) Patented in France April 10, 1897, No. 265,893, and in England May 12, 1897, No. 11,856.

*To all whom it may concern:*

Be it known that I, GUSTAVE ITASSE, chemist, a citizen of the Republic of France, residing at Paris, France, have invented a certain new and useful Improvement in Transferring Drawings and the Like, (for which I have obtained Letters Patent in France, No. 265,893, dated April 10, 1897, and in Great Britain, No. 11,856, dated May 12, 1897;) and I do hereby declare that the following is a full, clear, and exact description of the same.

The present invention relates to a process for reproducing all old or recent impressions made in fatty inks, whether in black or in colors, and all drawings or compositions—such as charcoals, pastels, and the like—or those made with various crayons, such as lead, red chalk, and the like.

I purposely make a distinction between impressions in fatty inks and pencil-drawings, charcoals, pastels, and the like. From experiments regarding impressions made with fatty inks I find that only a portion of the ink is absorbed by the pores of the paper, to a greater or less degree, according to the quality and thickness of the paper, while there always remains an excess of fatty ink, which can be removed without inconvenience and without diminishing the clearness or the strength of the impression. In the case of a pastel, charcoal or like drawing, or of a drawing in pencil, whether black or colored, there is a deposit on the surface of the paper or other support of molecules of the coloring-matter, and these coloring molecules can be “divided up” without losing in an appreciable manner their original value either as regards tone or shade.

In view of the foregoing I have found a process for the reproduction of impressions made with fatty inks as well as for drawings made with various crayons in the first case by refreshing, softening, or reviving the surplus ink and then by removing it to form a negative (this being a chemico-mechanical process) and in the second case by dividing up the molecules of the coloring-matter of the crayon (this being a mechanical operation) without in either case injuring or altering the original.

The drawing represents in section the pre-

pared paper having the solvent poured over it preparatory to being pressed upon an original print, design, drawing, or the like.

This process consists, broadly speaking, in removing or detaching from the original impression or drawing a superficial pellicular layer or slice, by way of transfer of the softened fatty ink or by way of a so-called “division” of the molecules of the coloring-matter of the crayon in such a manner as to obtain a negative, a reversed image of the original design with all the details of tone and shade belonging to the latter—a negative which may give one or more positive prints on paper, silk, canvas, wood, glass, porcelain, and the like identical with the original. My process is consequently applicable to reproduction not only of all black or colored drawings in crayon, but also of all impressions in black or colored fatty inks, and generally in all cases where on the surface of the paper or other support on which the original is formed there is an excess of matter, (crayon, fatty ink, and the like,) even in the case of oil-paintings, whether the material applied to the paper or other support enables the accomplishment of the partial transfer with or without the softening of said material.

In making a transfer I use a specially-prepared paper which has the property of absorbing the softened ink or coloring-matter and which receives the partial transfer or negative. Paper of any suitable grade is coated with a solution of pyroxylin or nitrated cellulose dissolved in a suitable solvent, to which solvent may or may not have been added a fatty substance, such as castor-oil or any other oil that will render the absorbing coating plastic. I have used as a basis for making this paper the following formula: Ether at 54°, one hundred parts, by weight; alcohol at 80°, eight parts, by weight; pyroxylin, five parts, by weight; castor-oil, four parts, by weight. These proportions may be varied at will, and when desired turpentine, glycerin, rosin, gum, wax, and the like may be added or used in place of castor-oil. Thus it will be seen that I use a large proportion, by weight, of ether, mixed with varying proportions of nitrated cellulose or similar compounds, a fatty substance, and



alcohol. Any suitable ether or alcohol may be used as a solvent for the nitrated cellulose and the oil. The paper when coated and dried is ready for use and keeps well, not being affected by the atmosphere. In order to employ it, it is rendered sensitive by wetting in a suitable liquid that will dissolve the excess of ink on the drawing or design. I use as a solvent sulfuric ether at 40° or, better still, at 56°, mixed with about ten per cent. to forty per cent. of ethylic acid at 80°. This preparation serves as a bath for dampening or moistening the chemical paper and is equally good for obtaining the partial transfer or negative and for the transfers proper or positives.

It is to be understood that I do not limit myself to the composition of the liquid used, as it may be easily modified without departing from the principle of my invention, the liquid being essentially a solvent of the nitrated cellulose as well as for the ink, crayon, or other fatty substance with which the drawing or design is made.

It would be possible to substitute for the aforesaid mixture Hoffman's ether, acetones, benzin, acetate of amyl, or any other liquid possessing the property of dissolving in part the layer of pyroxylin on the surface of the paper.

For the different qualities and nature of inks used for various prints, as in lithographic or typographic work or engravings, it is desirable to modify the composition of the bath to suit these various inks.

Taking a sheet of the chemical paper corresponding in size to the surface of the original to be reproduced, a certain quantity of sensitizing liquid is quickly poured over the prepared surface, and the excess of liquid is either removed by blotting-paper or by exposing the wet sheet a few moments to the air, after which it is placed with the prepared side against the original drawing and subjected to pressure by means of a press, roller, or other suitable means. The liquid refreshes or softens the ink or divides up the coloring molecules of the crayon, and the composition on the chemical paper absorbs either the excess of fatty ink or the divided molecules of the coloring-matter of the crayon. This takes place very quickly, and the intensity to which the negative is being formed may be ascertained by raising a corner of the chemical paper, and when sufficiently intense the chemical paper is separated from the original, producing a clear negative that may be kept for any length of time before printing the positives therefrom. Just before making the transfer proper or printing the positives the negative is dipped—say for thirty seconds—into a bath which is a solvent of the prepared surface of the paper. The effect is to soften the surface of the sensitive layer (not, however, to such a degree as to blur the lines of the drawing or composition) and to cause the excessively-

thin superficial pellicle or film on which the original has been, either in part or wholly, transferred to become capable of being removed. Instead of using the same bath for the sensitive paper when printing the positives as when making the negative I may modify it more or less to prevent the slipping of the lines and the sensitive film from adhering to the surface to be printed upon. For this purpose I use ether at 52°, one hundred parts, by weight; alcohol at 80°, seven parts, by weight; pyroxylin, one part, by weight. After having taken the negative from this bath, or after having wetted it with the above solution, it is carefully placed on the surface to receive the positive retransfer, and slight pressure is applied with the hand. A superficial pellicle is thus rendered removable and adheres firmly to the paper or other material receiving the print. The positive obtained by retransfer resists rubbing as well as atmospheric agents and is quite indelible, whether obtained by retransfer on satin, paper, or any other substance. The chemical paper when relieved of its negative after taking one or more prints (the number of such prints depending upon the intensity of the negative) can be used again until too thin to absorb the ink, the number of times it can be used depending upon the thickness of the sensitive layer. As the superficial pellicle is removable, and in order to assure good adhesion of the picture to the permanent surface, it is desired that this surface should not be very smooth, and for this reason, when it is a question of paper, a semisized or sort of blotting-paper is used, the surface of which adapts itself better to the production of a perfect print than that of a paper highly sized, hot pressed, or glazed.

Should it be desired to print on smooth paper, glass, or porcelain, it can be done by modifying the composition of the sensitive preparation by the addition of a turpentine (preferably Venetian turpentine) or by retaining the ordinary composition and adding the turpentine to the bath.

In case it is unnecessary to print a positive a positive may be obtained directly by transparency by taking as a support for the sensitive layer a translucent or transparent material—such as celluloid, tracing-paper, vegetable pellicle, gelatin, or the like—or a transparent film of sufficient thickness formed solely of my composition may be used. This may be done by making the sensitive layer on gummed paper or paper having a coating of any suitable paste, which is used for making the negative. Then the gummed paper is moistened and stripped from the sensitive film, leaving a transparent sheet through which the drawing can be seen in positive, or this film may be transferred to a sheet of glass. It is obvious that one or more negatives may be taken from the same drawing, print, or design, depending upon the



strength of negative taken and upon the strength of the lines of the original drawing or engraving. Negatives made in the manner described may be copied or positive prints made by exposing them with a sheet of photographic paper to the light, using this negative like any ordinary photographic negative.

I am aware that a process has already been invented by means of a special adhering composition which enables impressions with fatty inks to be transferred on wood; but it does not allow of subsequent transfers, as it causes a complete destruction of the negative, which negative is the only one that can be taken from the original design.

What I claim is—

1. A process for transferring drawings, designs or prints, which consists in pressing a transfer-film of softened nitrated cellulose onto such drawing, design or print to produce a negative print on such film, and retransferring said print to form a positive, substantially as set forth.

2. A process which consists in softening the material with which a drawing, design, picture or print is produced by means of a solvent of nitrated cellulose, pressing a film of nitrated cellulose onto such softened material to produce a negative print on said film, and retransferring said print to form one or more positives, substantially as described.

3. A process which consists in softening the material with which a drawing, design, picture or print is produced by means of ether, pressing a film of nitrated cellulose onto such softened material to produce a negative print on said film, and retransferring said print to

form one or more positives, substantially as described.

4. A process which consists in softening the material with which a drawing, design, picture or print is produced by means of a mixture of sulfuric and ethylic ethers, pressing a film of nitrated cellulose onto such softened material to produce a negative print on such film and retransferring said print to form one or more positives, substantially as described.

5. A process which consists in softening the material with which a drawing, design, picture or print is produced by means of a solvent of nitrated cellulose, pressing a film of nitrated cellulose rendered plastic by the addition of an oil onto such softened material, to produce a negative print, keeping such film moistened with a suitable solvent and retransferring said print to form one or more positives, substantially as described.

6. A process, which consists in softening the material with which a drawing, design, picture or print is produced by means of a vaporizable solvent of said material, pressing a transfer-film of nitrated cellulose onto the drawing, design, picture or print to remove therefrom a part of said material and produce a negative print upon said film, and retransferring said print to produce one or more positives, substantially as set forth.

In witness whereof I have hereunto set my hand this 9th day of November, 1897, in the presence of two subscribing witnesses.

GUSTAVE ITASSE.

Witnesses:

R. H. BRANDON,  
EDWARD P. MACLEAN.