(No Model.)

J. BAYNES.

METHOD OF MANUFACTURING TRANSPARENT PATTERNS.

No. 418,674. Patented Jan. 7, 1890.

Fig. 1.

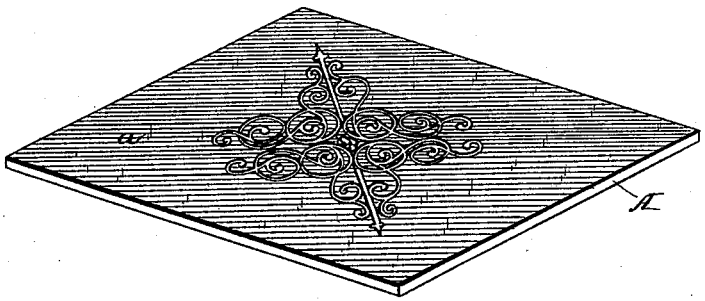


Fig. 2.

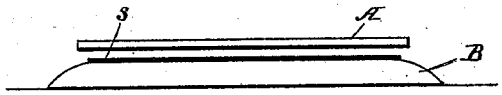
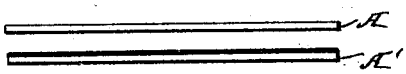


Fig. 3.



Witnesses
Jno. G. Hinkel, Jr.
A. E. G. Fanonnann.

Inventor
John Baynes,
By his Attorneys.
Foster & Freeman

UNITED STATES PATENT OFFICE.

JOHN BAYNES, OF WEST CHESTER, ASSIGNOR OF ONE-FOURTH TO LOCKWOOD DE FOREST, OF OYSTER BAY, NEW YORK.

METHOD OF MANUFACTURING TRANSPARENT PATTERNS.

SPECIFICATION forming part of Letters Patent No. 418,674, dated January 7, 1890.

Application filed January 4, 1887. Serial No. 223,380. (No model.)

To all whom it may concern:

Be it known that I, JOHN BAYNES, a subject of the Queen of Great Britain, and a resident of West Chester, Westchester county, New York, have invented a new and useful Improvement in the Manufacture of Transparent Patterns, of which the following is a specification.

In the manufacture of certain articles, or in the ornamentation of such articles—as, for instance, in the ornamentation of the backs of watch-cases, the surfaces of vases, salvers, and various useful and ornamental objects—it is now the practice to employ transparent patterns consisting of glass with the pattern painted thereon by hand, which pattern is used between the object to be ornamented and the source of light, the rays of light passing through the pattern and acting photographically or otherwise to produce or aid in producing the desired result. The method of making such patterns by painting the desired matter upon the glass sheet is expensive, and the patterns so produced, unless carefully made, will present ragged edges, and are liable to permit a partial passage of the light at the parts which should be absolutely opaque and impenetrable. In order to overcome these objections, I produce the patterns in a manner which I will now describe, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a prepared plate illustrating my improvements. Fig. 2 is an edge view illustrating one manner of using the completed pattern-plate, and Fig. 3 is an edge view illustrating another manner of employing the pattern-plate.

A is a plate of glass upon which the desired pattern is to be made to form either a positive or negative, and to the surface of this plate is cemented by any suitable cementing material a sheet *a* of tin-foil. After the cement has dried the desired pattern is marked with a stylus, or by means of a stencil or otherwise, upon this sheet of foil; or the pattern is traced through a paper pattern by pressure onto said sheet. After the pattern has been properly drawn upon the sheet *a* the operator, by means of a sharp blade or needle, cuts the sheet *a* along the lines of the pattern and then removes so much of the sheet as is within or without said lines, according as the pattern is to be a positive or negative, leaving the remaining portions of the sheet cemented upon the glass, which, together with said portions, constitutes the transparent pattern desired. By these means I am enabled to quickly transfer most intricate patterns to the foil, which readily receives and retains delicate impressions, and I have found that the operator can, after a little practice, cut and remove the portions of the sheet to be disconnected from the glass very rapidly and with great facility. The portion of foil left upon the plate is absolutely opaque, and, owing to the soft and adhesive character of the foil, the edges produced by cutting through the same are uniformly clean, so as to present no ragged margins, as would be the case where the pattern and plate are covered with wax and the foil and its coating of wax is "stripped" off the plate, leaving a portion of the wax adhering to the plate, as has heretofore been done. Besides the very rough and uneven edge necessarily left by tearing or pulling the wax apart along the edge of the pattern, and which would be very perceptible and objectionable if a coating is used thick enough to make it absolutely opaque, the wax is far more liable to injury by handling than is the harder material in tin-foil, and consequently is not as durable or satisfactory.

Aside from the additional cost of the wax used and the time necessary to apply it and wait for it to "set" where it is thick enough to be opaque, it is extremely difficult to apply a pattern of tin-foil to an adhesive surface without stretching it and getting it out of shape where the pattern is cut out before it is applied, and especially in one having portions of it nearly severed from the main body of the pattern; and again, in fine work it would be impossible to remove the pattern and leave a very narrow strip of wax on the plate, as the cohesion of the wax along the edges would be greater than the adhesion of the wax and the plate, and consequently all of the wax would be stripped off and the sur-

face of the object would be exposed where it was desired that a very small strip or portion should be covered or protected.

If instead of using the tin-foil and wax the plate be coated with silver or aniline, &c., as has also been done, and the coating removed along the lines of the drawing or design, which is far more difficult and expensive than by the use of tin-foil alone, the edges of the lines made by the graver are necessarily chipped or scaled off by the instrument, which must be pushed against or through the coating. It is also very difficult, if not absolutely impossible, to remove the portion of the coating between the lines, owing to its delicate or fragile texture, while with the tin-foil it is sufficiently tenacious that it can be removed even in very thin or narrow strips, as well as in larger pieces.

One mode of using my improved pattern-plate is shown in Fig. 2, where the plate is shown as interposed between a source of light, either the sun or an electric light, and a watch-case B, coated with a resist *s*, which is rendered either soluble or insoluble by the action of light, according to its character, the soluble portions of the resist being washed away after sufficient exposure, after which the article is submitted to the effect of an etching-liquid, which operates only where the resist has been removed.

In Fig. 3 the transparent pattern A is shown as arranged between the source of light and a plate A′ of glass covered with a coating, which will be acted upon by the light in such manner as to make a reverse plate, a negative if the pattern-plate A is positive, or a positive if the pattern-plate A is a negative.

Other modes of employing such pattern-plates may be used, but need not be here described, and some of the same will be set forth in separate applications for Letters Patent.

Without limiting myself to the precise details of operations hereinbefore set forth, I claim—

The within-described improvement in the manufacture of tranparent pattern-plates, the same consisting in cementing to a sheet of glass a sheet of foil, in outlining the desired pattern upon the sheet of foil and then removing the portion of foil between the lines covering the parts of the pattern through which the light must pass, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN BAYNES.

Witnesses:

C. J. NORRIS, Jr.,

SPENCER C. DOTY.