

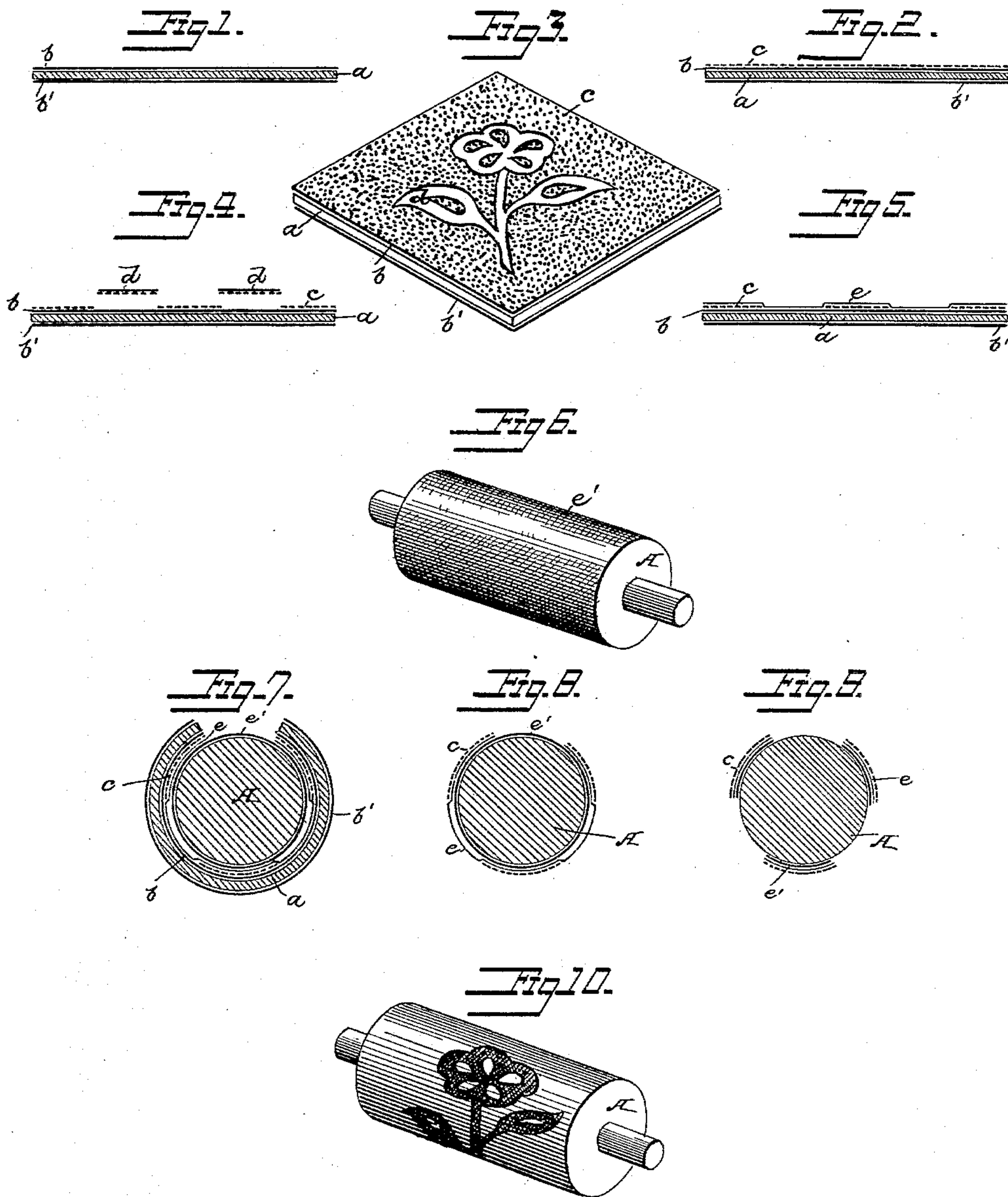
(No Model.)

J. BAYNES.

PRINTING TRANSFER PROCESS.

No. 378,419.

Patented Feb. 28, 1888.



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UNITED STATES PATENT OFFICE.

JOHN BAYNES, OF WESTCHESTER COUNTY, NEW YORK.

PRINTING-TRANSFER PROCESS.

SPECIFICATION forming part of Letters Patent No. 378,419, dated February 28, 1888.

Application filed May 18, 1887. Serial No. 238,682. (No specimens.)

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 Westchester county, New York State, United States of America, have invented certain new and useful Improvements in Printing-Transfer Processes, of which the following is a specification.

My invention relates to improvements in ornamenting various articles, or to producing etched or engraved outlines, figures, &c., upon the surface of any article; and it consists in the method, substantially as hereinafter set forth, whereby such ornamentation may be produced, and in what I have termed a "printing-transfer process."

While my process may be carried out in various ways and by the use of various materials producing various results, I will now describe one way which I have found advantageous, and which will serve to illustrate my invention. I take a sheet of paper, for instance, and cover it evenly, back and front, with any material easily soluble in water or other substance, and I have found dextrine and glycerine, gelatine, and the like good materials. When this is dry, I coat one side of the covered paper with an acid-resist that is sensitive to the action of light. I then print on this sensitive resist with an ink that does not become insoluble for some time—say twenty-four hours—and the printing may be effected by the use of blocks, lithographic stones, steel plates, &c., in any of the ordinary presses. The paper thus printed is then exposed to the action of light for a sufficient time, the ink acting as a negative and to keep the resist under it from changing or drying. When the parts of the resist not covered by the ink have been sufficiently exposed to become changed and insoluble, I wash the paper in some liquid in which the original coating is insoluble, and in which the resist, unaffected by light and covered by the ink, is soluble, as turpentine, and thereby remove the resist and the ink over it from the parts printed, leaving the coating of dextrine, &c., on the sheet of paper exposed at the parts corresponding to the pattern of the ornamentation. I then cover the whole face of the paper, as well as the metal or other object to be decorated, with a resist or varnish that is insoluble in water, or in any substance

in which the original coating on the paper is soluble, and when this varnish becomes "tacky" I place the paper with the resist-coating face downward upon the metal or other object, as a roller, for example, and thoroughly rub or otherwise get uniform contact, free from air-bubbles, between the two surfaces. The whole is then put in water, if dextrine or gelatine is used, or in some other solvent for the original coating, and the dextrine is first dissolved and removed from the back of the paper. Then the paper is penetrated by the water and the dextrine on the face of the paper is dissolved, when the paper is removed, leaving the resist pattern secured to the article.

The varnish may be applied to the article to be ornamented only; but I have found that the adhesion under such circumstances is not so perfect, and I prefer to coat both the pattern and the object as above described. The surface of the object is then wiped or sponged with turpentine, which will remove all soluble portions of the varnish or resist, leaving the article covered with a clear pattern of the desired ornamentation, when it may be treated to the ordinary etching or other process to produce the ornamentation, and the pattern may be afterward removed by any suitable means, as is well understood.

Sometimes I have found it desirable to first coat the paper with an oil-varnish or other substance soluble in oil, and to then coat this with a gelatine bichromate resist, and to then print, as above described. The gelatine resist is then exposed to the action of light and after developing it in water it is caused to adhere to the object to be ornamented either by water or by a varnish insoluble in the same oil as the soluble coating on the paper. It can then be treated with turpentine or something that will dissolve the oil-varnish on the paper and afterward etched. The pattern may be used as a stencil to brush out or dissolve in any other way some other object, as paint, that has been previously applied to the object to be ornamented.

The process may be varied somewhat and still produce the same effect—as, for instance, after the paper has been covered with the coating of sensitive material and printed and exposed to the action of light, but before developed, it may instead be attached directly to

the metal or other object while the ink is upon it. Then by dissolving the varnish and removing the paper the sensitive resist may be developed directly upon the object itself and the soluble parts and the ink removed, leaving the pattern adhering, as before.

In order that the process may be better understood, reference is made to the accompanying drawings, forming part of this specification, in which—

Figure 1 shows on an enlarged scale the sheet of paper *a*, having a coating, *b b'*, on each side thereof of dextrine, gelatine, or the like. Fig. 2 is a similar view showing the coated paper with a layer of sensitive acid-resist on one side thereof, the resist being represented by dotted lines. Fig. 3 is a perspective view of a sheet of paper coated on both sides and covered with an acid-resist and having the ornamentation or pattern *b* printed thereon in ink in the manner described. Fig. 4 is a sectional view showing the paper *a*, having a coating on each side and the resist *c* on one side after the same has been exposed to the action of light and the parts covered with ink, *d*, corresponding to the pattern, having been removed by washing or otherwise. Fig. 5 is a similar view showing the pattern-sheet of Fig. 4 covered with a layer of adhesive material or varnish, *e*. Fig. 6 is a perspective view of a roller, *A*, covered with a similar adhesive varnish, *e'*. Fig. 7 is a sectional view of the roller *A* covered with a coating of varnish, *e'*, and having the pattern shown in Fig. 5 applied thereto. Fig. 8 represents the same roller after the coatings and paper have been removed, leaving the hardened resist upon the surface of the roller and the portions corresponding to the pattern covered with the adhesive varnish. Fig. 9 shows a similar view with the adhesive varnish removed from the cylinder at the portions corresponding with the pattern of the ornamentation, the roller being in condition to be etched or otherwise operated upon to produce the ornamentation; and Fig. 10 is a perspective view of the ornamented roller.

From the above my improved process will be readily understood, and it will be seen that designs or patterns of the most intricate character, as well as the simple pattern illustrated in the drawings, may be readily applied to the

object to be ornamented and reproduced in an exact similitude of the original copy, and this may be done without the expenditure of skilled labor, requiring only a careful manipulation of the various steps of the process set forth.

What I claim is—

1. The method, substantially as hereinbefore described, of ornamenting articles, which consists in coating a transfer-sheet with a sensitive acid-resist, printing the pattern on said resist in ink after exposure, removing the portions of the resist corresponding to the pattern, and transferring the remaining portions to the surface of the article to be ornamented.

2. The method, substantially as hereinbefore described, of ornamenting articles, which consists in coating a transfer-sheet, applying the sensitive acid-resist to one surface thereof, producing the pattern on the surface of the resist in ink, exposing the resist to light and removing the portions thereof protected by the ink, applying said pattern to the object to be ornamented, and removing the transfer-sheet and coating therefrom and subjecting the article to an etching process.

3. The method, substantially as hereinbefore described, of ornamenting articles, which consists in covering a sheet of paper with a coating which is soluble in water, applying a sensitive acid-resist thereto, printing the desired pattern or ornamentation upon the resist in ink, exposing the resist to light and removing the portions covered by the ink, applying an adhesive coating to the pattern-sheet thus formed and securing it to the article to be ornamented, removing the pattern-sheet from the hardened resist, and etching the article at the exposed parts to produce the pattern.

4. An adhesive negative transfer-sheet having its coated surface covered with a sensitive acid-resist and the pattern of the ornamentation printed directly thereon in ink, substantially as described.

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

JOHN BAYNES.

Witnesses:

P. KEMBLE, Jr.,
BERNARD J. KELLY.