UNITED STATES PATENT OFFICE.

PIERRE A. DESPAQUIS, OF PARIS, FRANCE.

IMPROVEMENT IN THE PREPARATION OF PHOTOGRAPHIC SURFACES FOR PRINTING.

Specification forming part of Letters Patent No. **185,673**, dated December 26, 1876; application filed January 3, 1876.

To all whom it may concern:

Be it known that I, PIERRE AUGUSTE DESPAQUIS, of Paris, France, have invented an Improvement in Preparing Photographic Pellicles or Surfaces for Printing, of which the following is a specification:

I flow a coating of gelatine, to which bichromate of ammonia of potash has been added, upon a glass plate that has been coated with ox-gall, as is practiced by gelatinizers, for the purpose of securing the separation of the gelatine, after drying, from the plate upon which it has been poured. I make this coating very thin, for the purpose of making it less strong than the coat or coats of collodion-leather with which I cover it, as will be seen farther on, and also for the purpose of avoiding a too-long exposure from the backs when I make the second exposure of the pellicle by the back until the effect of the light reaches the half-tones of the image, and, further, for the purpose of having less swelling of the gelatine at the time of printing, the coat of gelatine always swelling in proportion to its thickness. When this coat of gelatine is dry, I cover it with a coat of thick normal collodion, (three or four grams of soluble cotton to the hundred of ether and alcohol,) to which are added three per cent. of castor-oil, for the purpose of giving it strength and pliability, and to make it less brittle. When this coat of collodion is dry, I detach it from the glass by cutting the edges.

The coat might be made double, and the first layer of collodion thinner than that described above, and without the additions of castor-oil, for the purpose of obtaining a pellicle retaining its sensitiveness a long time, as the oil or fatty matters in contact with a sensitized gelatine surface rapidly destroys its sensitiveness.

I cut this pellicle into the desired sizes, and I expose it to the light under a negative, the gelatine side being in contact with the negative. After sufficient exposure, I remove it from the pressure-frame, and put it in another frame with the back of the pellicle—that is, the collodion side—exposed to the light, and I continue the exposure until the action of the light has penetrated to the half-tones, as is explained in another application of mine for a patent—that is to say, until the image becomes veiled and about to disappear in looking at it from the gelatine side.

The two exposures being completed, the first under the negative and the second by the backs, I place the pellicle (always protected from the action of light) upon a flat surface with the gelatine side down. Upon the collodion side I attach a flexible body, such as a fine metallic web, well stretched, in order that it may press closely upon the collodion, and I cover it with another coat of the collodion mixed with castor-oil. The collodion penetrating the metallic fabric combines with the coat or coats of collodion first applied, and thus makes them adhere to the metallic web.

When the collodion is dry, and the whole well adhering together, it is immersed in cold water for some hours, for the purpose of dissolving out the bichromate salt.

If time is a consideration, the surface may be printed from immediately by moistening the surface, care being taken to keep it always moist, especially when exposed to light.

In place of employing the ordinary means of damping with a sponge, a method which necessitates the use of a dry dabber to remove the excess of water, and above all that left in the depressions forming the black of the image which should take the ink, I employ a roller, of porous stone or Passy brick, which is rendered specially porous and spongy. With this damping-roller the damping is only done in the reliefs of the plate—that is to say, in the parts not solarized, and which ought to take the water and repel the fatty inks, and consequently form the lights of the picture. In this way, the water not running over the entire plate, but depositing itself from the porous roller solely on the parts in relief, and which are the only parts requiring it, it becomes unnecessary to use the dry dabber, and there is no fear of taking away the water from the parts which should be saturated, which causes the ink to adhere to these parts, and equalizes the half-tints with the blacks and stains the white.

In place of a metallic web, linen cloth, &c., or solid surfaces, like wood or card-board, may be used as a support for the pellicle; and even the last coat of collodion intended to unite

the pellicle to some support may be dispensed with, and a varnish or rubber cement or strong glue be employed, the coating of collodion by its impermeability preventing the water used at the time of printing from reaching the glue.

To prevent the threads of the cloth from swelling and causing inequalities of surface in the layer at the time of inking the pellicle of gelatine, the threads may be enveloped with bichromated albumen by pouring a thick layer on the cloth while the gelatine picture rests upon the glass plate.

By my invention a gelatine pellicle or collodion can be attached to a long flexible metallic or other web, or can be attached to a firm support, such as slabs of wood, cardboard, &c., for use in the ordinary hand printing-press.

My improvement allows the exposure of the pellicle from the back until the action of light reaches the first parts acted upon by exposure under the negative, and dispenses with the glass as a permanent base.

These pellicles preserve their sensitiveness a long time, and, being very light, can be prepared in advance, and can be used at the necessary time with a movable press, serving for scientific or other expeditions.

The collodion may be poured upon a glass coated with talc, and then the bichromated gelatine poured upon it. This is especially useful when, for making engravings, lines, drawings, &c., the layer of gelatine is covered with a coat of albumen. Washing with cold water will remove all the parts of the albumen not impressed by the light, leaving the gelatine beneath, which will receive water, thus keeping the white clean.

I claim as my invention—

1. The pellicle of gelatine coated at the back with collodion, and attached to a foundation of wire or other suitable material, and having the surface moistened and prepared for printing in fatty inks, substantially as set forth.

2. The method herein specified of moistening the pellicle of gelatine by means of a roller of porous brick or similar material, as and for the purpose set forth.

Signed by me this 6th day of December, A. D. 1875.

PIERRE AUGUSTE DESPAQUIS.

Witnesses:
SARTON BRAUN,
ROBT. M. HOOPER.