(No Model.)

O. LELM.

MEANS FOR OBTAINING COPIES OF WRITINGS, DRAWINGS, AND THE LIKE.

No. 369,536. Patented Sept. 6, 1887.

Fig. 1.

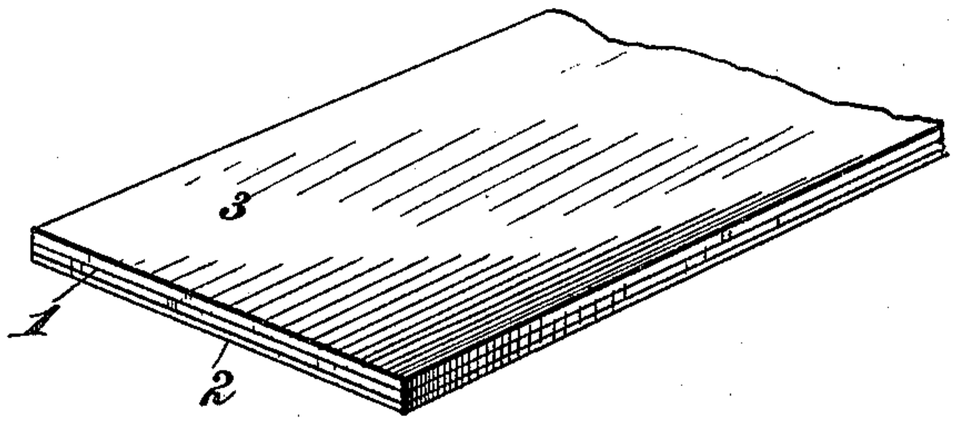


Fig. 2.

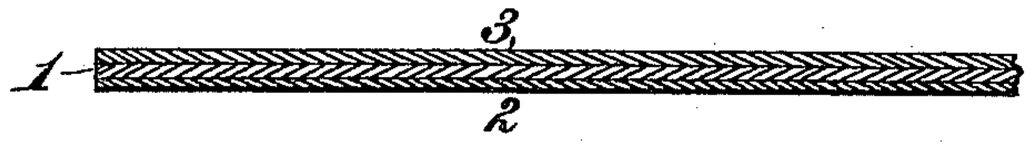
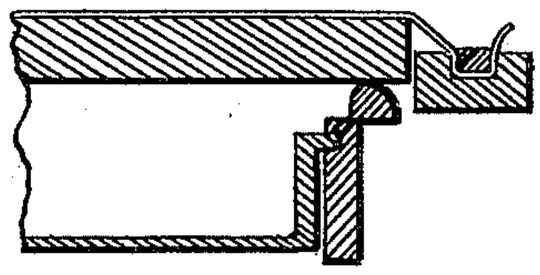


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

OTTO LELM, OF PARIS, FRANCE.

MEANS FOR OBTAINING COPIES OF WRITINGS, DRAWINGS, AND THE LIKE.

SPECIFICATION forming part of Letters Patent No. 369,536, dated September 6, 1887.

Application filed April 27, 1882. Serial No. 59,698. (No model.) Patented in Germany September 8, 1880, No. 15,711; in France October 11, 1880, No. 138,352; in Belgium October 15, 1880, No. 52,651; in England October 18, 1880, No, 4,248; in Italy May 11, 1881, No. 12,876, and in Austria-Hungary October 3, 1881, No. 6,723 and No. 35,346.

To all whom it may concern:

Be it known that I, OTTO LELM, of Paris, France, merchant, have invented a new and useful Improved Means for Obtaining Copies of Writings, Drawings, and the Like, (for which I have obtained a patent in Great Britain, No. 4,248, bearing date October 18, 1880; a patent in Germany, No. 15,711, dated September 8, 1880; a patent in France, No. 138,352, dated October 11, 1880; a patent in Belgium, No. 52,651, dated October 15, 1880; a patent in Austria-Hungary, No. 6,723 and No. 35,346, dated October 3, 1881, and a patent in Italy, No. 12,876, dated May 11, 1881,) of which the following is a specification.

This invention relates to a printing-surface for carrying out the process of caligraphic printing set forth in the English patent of Alfred Pumphrey, dated February 8, 1878, No. 533. This process consists in taking a flat plate of glass, slate, metal, or other hard substance, paper, or cloth and coating it with a thin film of gelatine, which is then dried. When it is desired to make a printing-surface from a plate or surface coated with gelatine, it is moistened with water, after which a writing or drawing made with common writing-ink is placed face downward upon the moistened gelatine film in order to produce a negative impression of the original upon said moistened gelatine film. By applying fatty printing-ink by means of a roller or otherwise to the prepared surface, and otherwise proceeding as in printing from lithographic stone, impressions in printing-ink may be obtained from the prepared plate or surface, the said impressions being fac-simile reproductions of the original writing or drawing which has been pressed into close contact with the prepared plate.

It has been found that the above process is well adapted for producing permanent copies in fatty inks of original writings and drawings; but up to the date of my invention the surfaces from which the impressions are taken have proved defective and otherwise objectionable for the reason that the use of a solid material as a foundation for the gelatine involves expense and is attended with other disadvantages—such as liability of breakage and peeling off of the gelatine film—and when ordinary paper or cloth is used as a backing for the gelatine film it is impossible to properly stretch the moistened printing-surface without tearing the same or causing the moistened film to peel off or separate from the backing.

I have adapted a substance for use in preparing gelatinized surfaces for caligraphic printing which is cheap, light, and so strong and pliable as to permit it to be tightly stretched in a holding-frame, which is a most essential factor in carrying out a process that is analogous to lithographic printing.

I employ as a foundation for the gelatine parchment paper, or so-called "vegetable parchment," which is made by immersing ordinary unsized paper in diluted sulphuric acid and withdrawing it in a few moments. After drying, paper thus treated is found to have assumed a new character, resembling rather that of animal membrane than vegetable fiber, and its strength is very much greater than the ordinary paper, and this without increasing its thickness.

The parchment paper is coated with gelatine in the manner hereinafter described, so as to prepare surfaces adapted for caligraphic printing. Through humidity the parchment paper acquires a certain degree of elasticity, and in consequence of this property the sheet of parchment paper covered with gelatine is susceptible, after having been moistened with water, of being distended very much, thus allowing it to be stretched upon a solid backing and held by a marginal clamping-frame, as is shown in my patent granted April 3, 1883, No. 275,226.

In the accompanying drawings, Figure 1 is an enlarged perspective view of a printing-surface made in accordance with my invention. Fig. 2 is an enlarged section of the same. Fig. 3 is a section showing the gelatine parchment paper in a holding and clamping frame.

In manufacturing my caligraphic-printing surfaces I pass the vegetable parchment through a bath containing gelatine heated to such a degree that it is quite soft and will spread evenly. In withdrawing the vegetable

parchment from the gelatine bath I draw its under surface over a blade with a sharp but not a cutting edge, so that the surplus gelatinous composition taken up by the said surface of the parchment will be removed, while the upper gelatinous film will remain perfectly intact. The vegetable parchment prepared in this manner is dried and can then be used advantageously as a caligraphic-printing surface after any length of time and in all climates. The thin film 2 of gelatinous matter on the under side of the vegetable parchment serves to prevent the soaking of the latter with water, it being the intention to have the same only acquire a sufficient degree of humidity by moisture permeating the gelatinous coating on both sides thereof. Another function of the gelatinous film on the under side of the parchment is to prevent the peeling off of the upper coating, which is to be used as the printing-surface. If such thin or protective film were not employed, the water would be liable to soak through the parchment from the under side, and thus loosen the upper or copying surface from the parchment.

In preparing a gelatinized sheet of parchment paper for printing I immerse it for a few moments in water, and after sponging or blotting the sheet, so as to remove excess of water, I stretch it upon the frame or apparatus shown in Fig. 3, and forming the subject-matter of my patent, No. 275,226.

The impression upon the upper gelatine film of the sheet of parchment paper is then obtained from a sheet of ordinary paper, which has the writing or drawing first produced thereon by a suitable ink capable of coagulating the gelatine. This paper is then laid face downward upon the prepared surface of the parchment paper and pressed thereon for about two minutes, when the writing or drawing will be found reproduced reversely on the gelatinous surface of the said material. The only operations then required are to pass the inking-roller, covered with a greasy ink, over the said gelatinous surface, when the ink will be taken up by the impression from the original and repelled by the other portions of the surface. Thereupon a sheet of paper is applied, which by a slight pressure of the hand is caused to take up the ink on the gelatinous surface. The operation of inking is repeated after each copy is taken from the gelatinous surface, and a great number of impressions can be taken from the same, which impressions will be perfectly clear, however fine or delicate the lines of the original may be.

It should be observed that it is very desirable to have the gelatinous films of varying thicknesses, as above described, since without such provision the blotting and further preparation after soaking in water might tend to injure the upper film, or the one which is to form the printing-surface. Furthermore, in printing it is essential to have a surface which is not so elastic as to yield too much and disturb the regular outlines of the reversed impressions—a result liable to occur when the under gelatine film is as thick as the upper one.

After a printing-surface has been used for taking a number of impressions it is discarded, and it should be stated that in very rare instances would the under protective film be adapted to printing, so that no loss is caused by not utilizing both sides of the sheet as printing-surfaces.

What I claim is—

1. A flexible or pliable surface for caligraphic printing, consisting of a sheet of parchment paper or vegetable parchment coated with a gelatinous matter, substantially as described.

2. A flexible or pliable surface for caligraphic printing, consisting of a sheet of parchment paper or vegetable parchment having an upper coating of gelatine adapted to form the printing-surface and an under film of gelatine made thinner than the upper coating and serving as a protective covering, substantially as described.

In witness whereof I have hereunto signed my name in the presence of three subscribing witnesses.

OTTO LELM.

Witnesses:
JOSE V. POU,
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