(No Model.) 2 Sheets—Sheet 1.

O. LELM.

APPARATUS FOR STRETCHING GELATINE COATED SHEETS.

No. 275,226. Patented Apr. 3, 1883.

Fig. 1.

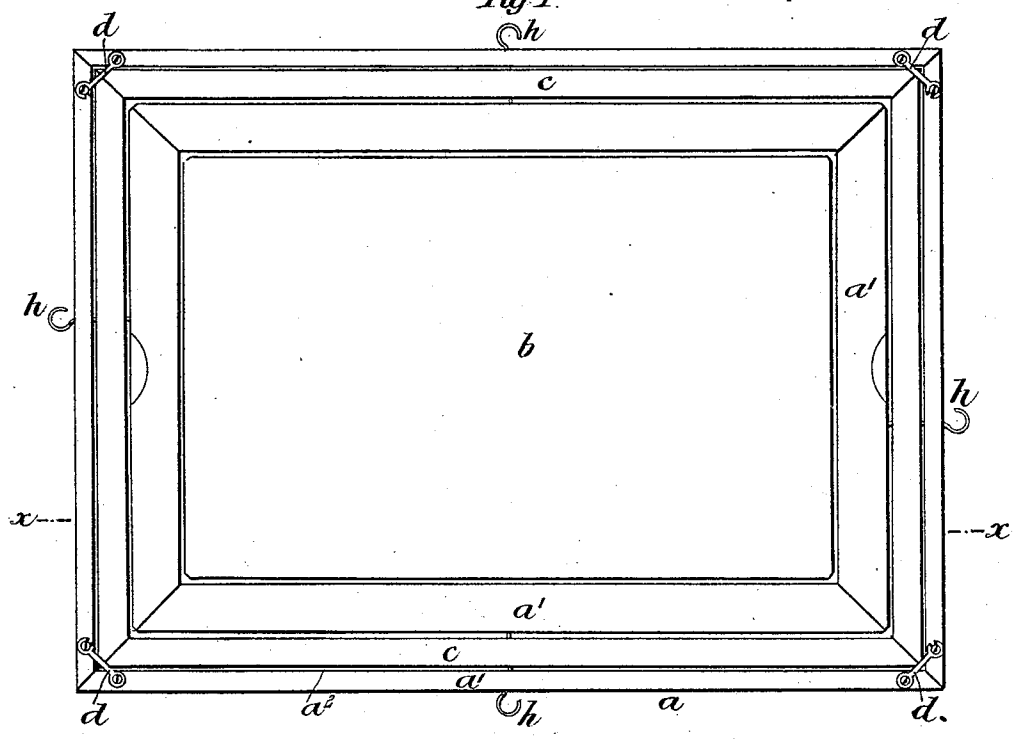
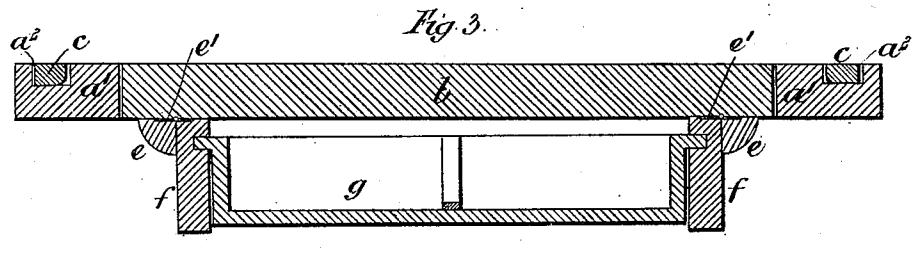


Fig. 3.



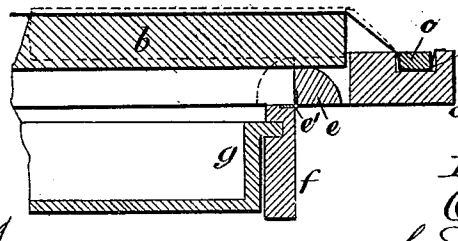


Fig. 3a

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N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

O. LELM.

APPARATUS FOR STRETCHING GELATINE COATED SHEETS.

No. 275,226. Patented Apr. 3, 1883.

Fig 2.

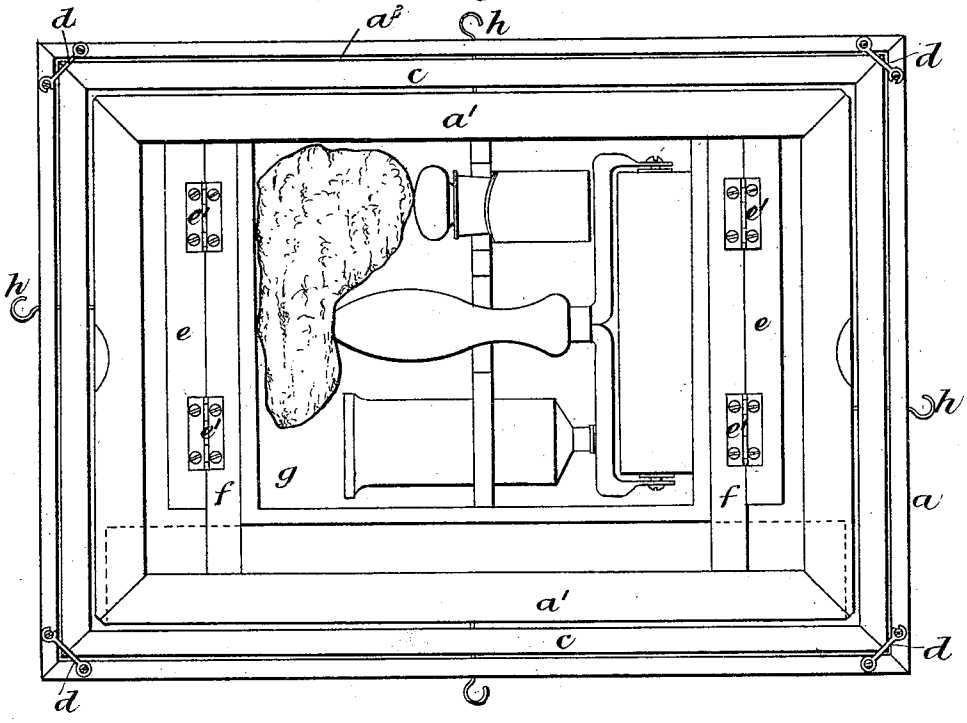
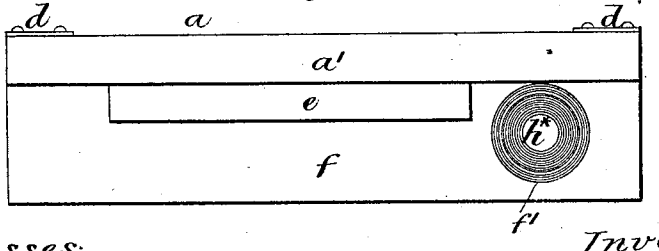


Fig 4



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UNITED STATES PATENT OFFICE.

OTTO LELM, OF LONDON, ENGLAND.

APPARATUS FOR STRETCHING GELATINE-COATED SHEETS.

SPECIFICATION forming part of Letters Patent No. 275,226, dated April 3, 1883.

Application filed January 23, 1882. (No model.) Patented 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; in Austria-Hungary October 3, 1881, and in Germany October 21, 1881, No. 15,711.

To all whom it may concern:

Be it known that I, OTTO LELM, of London, England, merchant, have invented a new and useful Improved Apparatus for Stretching Gelatine-Coated Parchment or like Material, for obtaining copies of writings, drawings, and the like, which apparatus is also applicable for other purposes, (for which I have obtained a patent in Great Britain, No. 4,248, bearing date October 18, 1880,) of which the following is a specification.

The chief object of my invention is to provide means which will enable any person to reproduce writing, drawing, or the like in an expeditious, cheap, and simple manner, in indelible black, without using a press or any acids, and without any troublesome washing or melting down of any compositions, such as have been heretofore used for such purposes.

The invention embraced herein consists of a frame or apparatus for holding and stretching a flexible printing surface or medium composed of parchment, paper, linen, or other flexible material coated on one or both sides, as a base or medium in the use of such surface for obtaining copies of writings, drawings, and the like. This frame or apparatus is illustrated in the accompanying drawings, in which—

Figure 1 is a plan of the said apparatus, and Fig. 2 a similar view with the panel hereinafter referred to removed. Fig. 3 is a longitudinal section on the line *x x*, Fig. 1, and Fig. 4 is an end view of the said apparatus.

Like letters indicate the same parts in all of the figures.

This apparatus is constructed of wood or other suitable material in the form of an oblong frame, *a*. It has an outer or main portion, *a'*, within which is fitted an adjustable panel, *b*. The said outer or main portion, *a'*, has a groove or channel, a^2, formed in it and extending along its four sides, for the reception of a light clamping-frame, *c*, and the said apparatus is provided at its four corners with hooks *d* or other suitable devices for holding the said clamping-frame *c* securely in place in the said groove. Below the panel *b*, I arrange near the ends of the apparatus hinged or jointed pieces *e*, which can be turned up or down on their hinges *e'*, for a purpose hereinafter explained. The said apparatus is provided with two cross-bars, *f*, or other suitable means for supporting it in a level position upon a table, and is provided with a drawer, *g*, for containing the ink and other materials and articles necessary in using the said apparatus. Provision is made for holding a roll of the prepared parchment by forming two holes at *f'* in the cross-pieces *f* at the back of the drawer, the roll of parchment *h** being placed in these holes, as shown in Fig. 4.

In using this improved apparatus for stretching the sheets of prepared parchment or any other material, the clamping-frame *c* is raised from its groove a^2 and a piece of oil-cloth or other like material is placed on the top of the movable panel *b*. The sheet of parchment (which has been damped) is then placed over the said oil-cloth on the panel *b*, with its sides projecting over the said groove or channel a^2, and the said clamping-frame *c* is then placed in the said groove over the parchment and pressed down thereon, and is secured by the hooks *d* or other devices provided at the four corners of the frame for this purpose, as above specified; and the sheet of parchment is further secured in place by passing small pins *h* through the grooved frame *a* and clamping-frame *c*. The panel *b*, when placed in the frame, is level or nearly level with the top of the frame, and the sheet of parchment or other material, when placed thereon, is slack or unstretched; but the stretching and tightening of the sheet are effected by the aforesaid hinged pieces *e*, which are curved or rounded on their surface in such a manner that when turned up on their hinges, as shown in section in Fig. 3ª, they exert a powerful cam-like action on the panel and raise the same above the surface of the frame, and thereby stretch and tighten the sheet of parchment or other material. By further turning the said hinged pieces *e*, as shown in dotted lines, an additional tightening action may be produced on the flexible printing-surface when desired. Instead, however, of forming the panel *b* of wood and covering the same with oil-cloth prior to placing the gelatinized parchment thereon, I in some cases form the same of glass and dispense with the sheet of oil-cloth.

The impression upon the vegetable parch-

ment coated with a gelatinous solution, as above explained, is obtained by writing with special ink upon a sheet of ordinary paper, whose written surface is then laid face down upon the stretched surface of the parchment. The writing is thus reproduced upon the gelatine surface in a reverse direction, and the only operation then required is to use an ordinary inking-roller which is passed over the gelatine-surface prior to each copy being taken off from the same. A great number of copies may thus be obtained in an indelible black ink, and the impressions will be perfectly clear and fine.

The ink I prefer to use for preparing on paper the original intended to be transferred to the gelatine is manufactured as follows: I dissolve one hundred grams of alum in six hundred and seventy-five grams of water and cause the solution to boil energetically for at least ten minutes, so that the alum will not subsequently crystallize on cooling. I then add thirty-five grams of perchloride of iron, filter the solution, and allow it to cool. There is then added thirty per cent. of a very soluble aniline solution containing one part of aniline for every ten parts of water, the ink being thus colored.

I have stated herein that I use a gelatinized parchment as a base for a gelatinous printing-surface; but such matter is not claimed herein, this patent being intended to cover only the improvements which are made the subject of the respective claims, the said gelatinized parchment forming the subject of another application for a patent.

I claim—

1. The frame for stretching the flexible parchment or other material and insuring a good printing-surface, comprising the part a', having the groove a^2, the panel b, the clamping-frame c, the hooks d, the hinged pieces e, the cross-bars f, and the pins h, all constructed, combined, and operating substantially as above set forth, and for the purposes specified.

2. The combination of the vertically-adjustable panel b, a frame, a', surrounding it, and cam-pieces e e, hinged to said frame beneath said panel, with means, substantially described, whereby the printing medium is clamped over the surface of the panel to the said surrounding frame in the operation of stretching said printing medium.

3. The combination of the hinged cam-pieces e e and the adjustable panel b with the grooved frame a' and the clamping-frame c, substantially as described, for the purpose specified.

OTTO LELM.

Witnesses:
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