

(No Model.)

D. WUILLEMIN.

LACE AND THE ART OF MAKING THE SAME.

No. 315,589.

Patented Apr. 14, 1885.

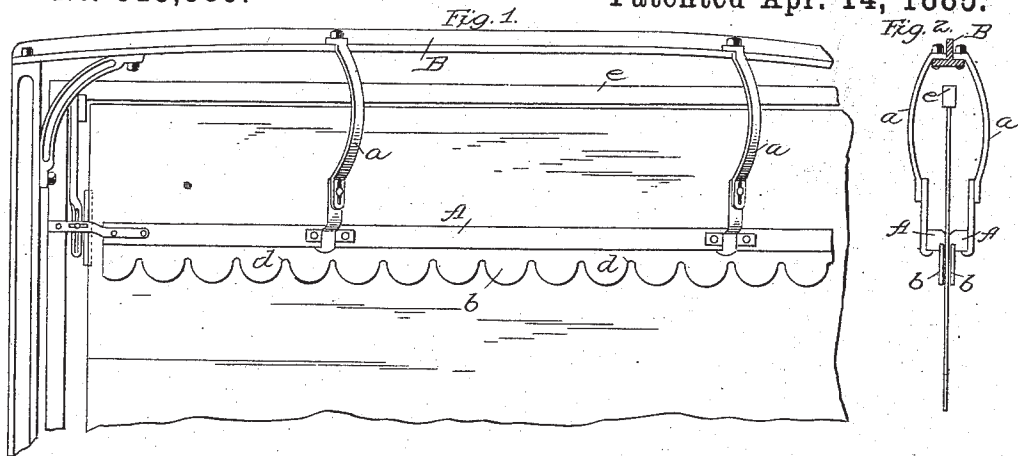


Fig. 3.

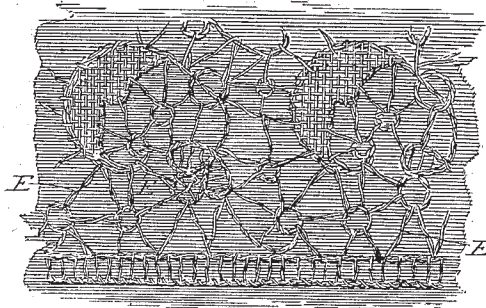


Fig. 3.

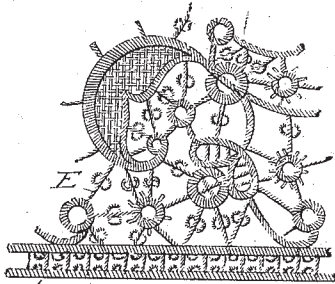
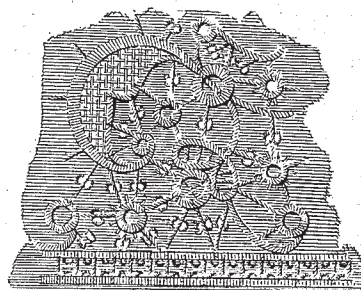


Fig. 4.



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LACE AND THE ART OF MAKING THE SAME.

SPECIFICATION forming part of Letters Patent No. 315,589, dated April 14, 1885.

Application filed May 24, 1884. (No model.)

To all whom it may concern:

Be it known that I, DAVID WUILLEMIN, of Courgevand, in the Canton of Fribourg and Republic of Switzerland, have invented a new and useful Improvement in the Manufacture of Lace by Embroidery-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to the manufacture of lace made by an embroidery-machine with thread of any kind upon a ground adapted to be removed after the embroidery-machine has done its work.

The object of my invention is to produce an improved embroidered lace which in quality shall have greater strength than ordinary lace, and shall be entirely free from the foundation upon which the embroidery is made.

My invention consists, first, in embroidering by a machine of suitable construction and with suitable thread upon a ground which may be dissolved without materially affecting the thread of the embroidery, thus leaving only the embroidered part in the form of lace.

My invention consists, secondly, of the improved lace, the figures of which are connected by understitches attaching one figure to another, and forming a part of the embroidery.

In carrying out my invention I use as a ground paper or other material that can easily be dissolved and removed without injury to the thread, flax, cotton, wool, silks, or other material that may be used for the embroidery.

In the accompanying drawings, Figure 1 shows a front elevation of the mechanism used to support the paper or other ground. Fig. 2 is a cross-section on Fig. 1. Fig. 3 shows the understitches and connecting-thread of embroidery-figure with the ground unremoved. Fig. 4 shows the same figure when completely embroidered. Fig. 5 shows again the same embroidery-figures after the ground has been dissolved and removed, thus forming a piece of lace made according to my invention.

The apparatus for holding the paper or other ground consists of bars A A, which are supported by arms *a* from a bar, B. The bars A A are held lightly in contact. Thin plates *b* *b* are attached to the lower sides of the bars A A, with their inner faces flush with the in-

ner face of the bars A A. These plates are formed with waved edges, as shown in Fig. 1, and the needles pass through at the point *d*. The paper or other ground being held between the bar *e* and the bars A A and the plates *b b*, the plates protect the paper from tearing while the needles pass back and forth.

The mechanism used to embroider is of the ordinary well-known kind.

In working the machine the understitches are first made on the paper or other ground where the figures are to be embroidered, the thread running continuously from one figure to another. These figures may be such as shown in Fig. 3. After the understitches are made a thread, E, is run through by passing it below the understitches of one of the figures and drawing it out from the front, then passing it through the understitches of the next figure, and so on until all the figures are connected. Then the embroidery is finished in the usual manner by the machine, and when the embroidery is completed it will be understood that it is an embroidery of thread on the paper or other soluble ground. When thus finished, the fabric, with its foundation, is immersed in the solvent, and the foundation is entirely dissolved, leaving the lace perfectly free and composed of the understitching, the connecting-threads, and the machine-embroidery. With paper as a ground water will be a suitable solvent, by means of which the paper may be entirely removed without injury to the thread. This leaves the lace composed wholly of the threads, consisting of the understitches put in by the embroidering-machine to form the figures, and the connecting-threads and overstitches, which, when the article is completed, form part of the lace itself, the whole being entirely free from any ground or base. The process is much more simple than the method of cutting out the ground, since the latter operation cannot be performed without great care and skill, and the ground fabric cannot be removed so completely and perfectly as it can by the dissolving process.

The apparatus shown for supporting paper when paper is used is adapted to be moved for examination of the embroidery as the work progresses, and of cutting the ends of the

thread. It is needed, however, only when the paper or other material on which the embroidery is to be made is not strong enough to support the needles and thread while the work is going on.

The fabric produced is distinguished from the ordinary machine-work upon ground, as before stated. It is distinguished by the total removal of the foundation from all other kinds of lace. It is also distinguished from all other kinds by the construction and arrangement of the threads, as described, which give a very strong, as well as a very ornamental, lace.

Having thus described my invention, what I claim is—

1. The improved lace, consisting of suitable figures having understitches connected by threads carried under and over, and the whole

having machine-embroidery finishing-stitches, and being without foundation or ground, as described.

2. The hereinbefore - described process of manufacturing lace, consisting in marking the design or figures upon paper or other soluble ground and connecting said figures by threads, then completing the embroidery by suitable machine, and subsequently removing the ground, substantially as described.

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

DAVID WUILLEMIN.

Witnesses:

JEAN MOSBERGER,
ADOLF MERZ, Jr.