MANUFACTURE OF REAL LACE BY MACHINERY.

Considerable attention has lately been paid in Europe to the manufacture of lace by machinery. A company has been organized in Paris with a capital of 2,500,000 francs to develop M. Malhère's lace loom.

This loom is a marvel of mechanism, having from 1,800 to 2,000 spindles, which are put in motion at the same time

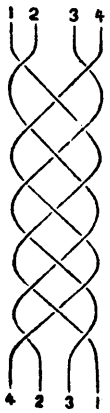

Fig. 1.

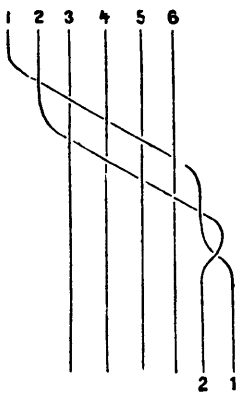

Fig. 2.

that 200 to 800 pins are placed or displaced. But the inevitable complication of the members of which it is composed, though a just object of admiration, is a legitimate cause of apprehension as to the regular working of the apparatus. In order to work economically the lace machine must move with great rapidity, and without very frequent interruptions; but whether these conditions can be realized is a matter that can be proved only by experiment.

This loom makes real lace, imitating hand work. We give a photographic reproduction of a sample of Valenciennes lace made with this machine, also a study of the rounded mesh of Valenciennes from Bruges. The pattern is not the work of a regular designer of lace, but was composed spontaneously by M. Malhère, who invented the loom; this explains its lack of elegance.

It is claimed that this loom can produce all kinds of lace, and that competent judges, and even lace-makers, confound the lace which it produces with that made by hand. The microscope demonstrates to the incredulous that the weaving is the same as hand-made lace, without the least resemblance to the imitation.

For the principal facts we are indebted to the report written on this subject by M. Jousselin, engineer. The report begins by explaining how the inventor was led to construct the machine.

M. Malhere, in studying with a magnifying glass the intertwining of the thread of the lace made by hand, ascertained that in all kinds of lace, in the network and in the flowers, the thread is subjected to the same operation. This was the first conception of the possibility of producing these operations mechanically. Indeed, if one considers a twist forming the mesh of the Valenciennes and the knot of the figure constituting the flower, it is ascertained that the thread No. 1 (Fig. 1) crosses successively over thread No. 2, over thread No. 4 (which was crossed over No. 3), and under No. 3, in order to return, passing over and under the threads until it resumes its original direction, forming thus, with the three other threads, a twist of four threads. In Fig. 2, the adjacent threads, 1 and 2, pass suddenly in a transverse direction, twisting with a half revolution, and passing in alternation over and under threads 3, 4, 5, 6.

This problem, then, is reduced to making a twist of two contiguous threads from right to left or from left to right, according to the requirements of the design, and making it in such a manner that this twisting will be effected at will from right to left or from left to right in order to reverse the thread below or above.

In consequence of this it is necessary to accomplish mechanically the transposition of the threads in order to put in proper relation those threads which are destined to be worked together, and M. Malhere conceived the fundamental idea of making a machine employing rotative disks, which contain two threads capable of being twisted together by a half revolution or a complete revolution. These disks are tangent and in pairs, capable of transferring the thread from disk to disk, and are arranged in the segment of a cylinder, in order that the threads between the disks and their converging point may be as nearly as possible of a uniform length. The lace is produced in the geometrical center of the segmental frame. Several bands of lace are

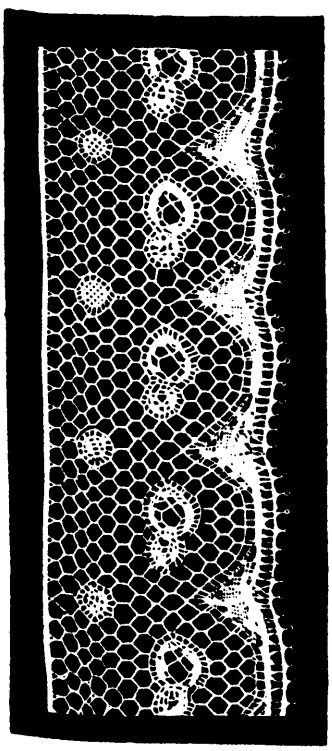

Fig. 3. Valenciennes made by the Lace Loom.—

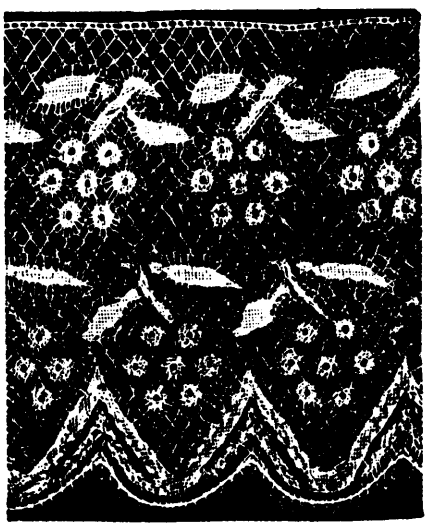

Fig. 4.—Bruges Valenciennes.