

How Silk Lace is Made.

The following interesting summary of an important special industry that has been successfully domesticated in this country, is extracted from a recent article on the subject, which appeared in the *Brooklyn Eagle*:

To Nottingham, England, goes the credit for having placed window curtains within the reach of the masses. As a matter of fact Nottingham is entirely innocent in the premises and the only connection between the two, lies in the fact that, Nottingham, being the home of the English lace industry, has been adopted as an appropriate name to be given to the output of our cotton lace manufactories. What Nottingham is to England, and Calais and Candre to France, Brooklyn stands to the United States—the home or head center of the lace industry. The pioneer in this industry in this country was A. G. Jennings of Brooklyn, who in 1887 opened a modest mill in New York city, which in a very few years proved inadequate to the demands of his growing business. In 1871 he decided to locate in his native city, and the plant has been increased from time to time until now there are seven large buildings covering the site on Hall street and Park avenue, giving employment to about one thousand men and women. Mr. Jennings is not only the pioneer in the lace industry in America, but is also the inventor of several machines that have been revolutionary in their operation, the most notable of which is a knitting machine, capable of 140 revolutions a minute and on which the finest silk veiling is made.

To follow a thread of silk from its raw state, through its course of preparation to be worked up into delicate lace by the marvelously ingenious machinery, is an exceedingly interesting occupation. The silk is received in this country in bales shipped from Italy, China and Japan. It is in skeins in the raw state, either greenish-white or yellow in color. The thread is like a hair and is as long as the skein. The first operation is to throw it, or, in other words, bring as many threads together as may be required in very fine or heavier fabrics. When the thread is of the desired thickness it is boiled to remove the gum, and when dry it is wound on spools. This is done by machines of from sixty to ninety spools each. The spools are then put on a jack, or frames of pins, on which they revolve and from which the silk is fed on a drum, or warping mill, through brass plates perforated with holes, according to the number of threads to be placed in the warp. An ingenious device registers the yards as they run on the drum, so that when the desired length has been wound the machine is stopped. The warps vary in width according to the work in which they are to be used. The next operation is to run the warps on the warp beams. These beams are steel rollers of various thicknesses, and in widths running as high as 154 inches. Transferring the warp from the drum to the beam is a repetition of the operation from the spool to the drum. To every machine there is a main warp which forms the ground work of the pattern, supplemented by several auxiliary warps of various size threads, with which the pattern is perfected. The main warp may be several thousand yards long, while the auxiliary warps are shorter and are replaced from time to time. When the skein is wound on the spools, part of it goes in another direction where the silk is run from the spools on to bobbins. The bobbins are the instruments that in lace making, form the design of the pattern by twisting around the warp threads. At this stage the machine is armed with the material ready to be worked up. And this is the point at which art enters. A corps of designers are employed making new designs and laying out the work. The design being acceptable, a draughtsman's pattern is drawn to scale, one copy of which

goes to the operator on the machine who threads it accordingly by running the threads from the warp beams which set at the bottom of the machine through a sley cloth and perforated steel bars and fastened on the roller at the top. This operation is of the most exacting character, and the greatest care must be exercised as the misplacing of a single thread will bring disaster to the most elaborate and carefully worked out design. Each thread is handled separately and many hours are required to thread a machine of 154 inches in width. Within that space the pattern is repeated as many times as the width will allow, so that when the fabric is turned out of the machine as many as thirty strips may be found. Another copy of the draughtsman's pattern is sent to the Jacquard puncher where the pattern is punched on heavy cardboard. If there are three hundred stitches in a pattern there will be three hundred of these cards strung together. The machine being threaded the cards are adjusted to the Jacquard attachment, without which lace might better be made by hand. The design cards operate droppers in the attachment bars, through which the threads pass and weave the pattern, each movement being complete and perfect. On a machine 154 inches in width as many as 10,000 threads are used. The description of the working of one machine covers all. When the desired length is run off it goes to the examining room, where skilled women go over it and pick up any flaw that may be found, after which it goes to the dye house to assume any color that may be chosen. From thence it is taken to the finishing room, where it is washed in a prepared bath and then stretched on drying frames in rooms kept at a temperature of 130°. It now reaches its last stage preparatory to going into the world—the carding room—where the draw threads between the strips are pulled out and the strips wound on cards, and then—the milliner.