

LACE, in the Manufactures, a delicate kind of net work, composed of silk, flax, or cotton threads, twisted or plaited together. The meshes of this kind of net are of a hexagonal figure, in which thick threads are also woven to form the pattern, according to some design; and these threads, which are called gimp, form the ornament of the lace. Buckinghamshire and Bedfordshire have been for many years the counties most celebrated for the manufacture of the pillow or bobbin lace, so called, because it is woven by women or children upon a pillow or cushion by means of bobbins. The pattern is fixed upon a large round pillow, and pins being stuck into the holes or openings in the patterns, the threads are interwoven by means of the bobbins, which are made of bone or ivory, and each of which contains a small quantity of fine thread, in such a manner as to make the lace exactly resemble the pattern. At the close of the last century, the manufacturers of Nottingham directed their ingenuity to imitate this species of lace by machinery, in which they have completely succeeded. The Nottingham imitations of lace are of two kinds, point-net and warp-net. The point-net frame is a variety of the stocking frame, which was invented by Mr. John Morris, of Nottingham, in 1764; but it was not at first used to make lace, being intended to make the ankle part of stockings. The machine is an addition to a stocking frame, and operates on the thread in the same way as in stocking weaving, for a great part of the process. The Nottingham lace, therefore, is only a modification of the stitch or loop of which stockings are made; all the meshes being formed by a continuance of one thread, which is, by the machine, formed into loops a whole course at once, by pressing it down alternately over and under between a number of parallel needles; a second course is then

made of similar loops on the same needles, and the loops of the first are drawn through those of the second, in such a manner as to form meshes by retaining the first loops; the second are then retained by a third course, and this by a fourth, and so on. The warp-net frame is also a variety of the stocking frame; but the parts are very differently arranged, the movements being produced by treadles, leaving the hands of the workman to manage the machine, which is a piece of mechanism applied in front of the row of needles of the frame. In the warp frame, the piece of lace is not formed of one continued thread, as in the point-net frame; but there are as many different threads as there are needles in the frame. These threads are warped, or wound upon a roller or beam, the same as a loom; and it is from this circumstance that the machine is called warp frame. These threads pass through eyes in the ends of small points, called guides, which are opposite the needles; and these guides are fixed on two bars, each of which has half the guides fastened on it, that is, one guide is fast in one bar, and the next in the other, and so on alternately of the whole. Each of the guides presents a thread to its needle, and are all at once moved by the hand to twist the threads two or three times round the needles which are opposite them: the loop is now made in a manner similar to the other frame. The next time, the alternate guides are shifted endways, so as to apply themselves to other needles than those they were opposite before. This crosses the thread, so as to make a net: but the quantity which is shifted endways is altered every time, by means of the machinery, so as to move a certain number of needles; which number is altered every time, to produce the pattern. One more improvement remains to be noticed. In 1809 Mr. John Heathcoat invented a machine for weaving the real twisted lace, like that which is made on the pillow. The ground-work of the invention, is to extend those threads which form the warp of the lace in parallel lines, and dispose the diagonal threads upon small bobbins, which are detached, and are capable of passing round the extended warp threads so as to twist with them. By this means, the number of bobbins is reduced to one half. In this machine there are two horizontal beams, or rollers, one to contain the thread, and another to receive the lace; also a number of small bobbins to contain the thread. Since this period, the manufacturers of Nottingham have exercised much ingenuity in making lace machines; but though they differ in the mechanism which produces the movements, they are all on the principle of Mr. Heathcoat's machine, and work by license under his patent. We understand that this invention has been carried into France by some of Mr. Heathcoat's workmen, who have established a manufactory at Douay. The lace trade of Nottingham was at first carried to a very great extent, but afterwards fell into a state of stagnation, being chiefly dependent on foreign trade, as it has never been in great repute with the British ladies. Lace of a very superior quality is manufactured in France and the Netherlands, particularly at Lisle, Brussels, and Valenciennes, great quantities of which are continually imported into this country; and it is a subject of regret, that notwithstanding the excellence of our own manufactures, the foreign article is still so much preferred.