

Clear-four-da'tion Lace. Also called Lisle lace, from the French town of that name. A light, fine, transparent, white thread, hand-made lace. It has a diamond-shaped mesh formed by two threads plaited to a perpendicular line.

Gui-pure'. A kind of lace in imitation of the antique. Patterns are cut out of cambric to form the flowers and heavy parts; the open parts are made of stitches.

Hou'i-ton-lace. (*Fabric.*) A variety of lace made by placing a perforated pattern upon a pillow, and then so twisting and interweaving the thread by means of bobbins, pins, and spindles, as to produce the required pattern.

Lisle-lace. A light, fine, transparent, white-thread, hand-made lace, so called from Lisle in France. It has a diamond-shaped mesh, formed by 2 threads plaited to a perpendicular line. Also known as *clever-foundation*.

Mech'lin-lace. (*Fabric.*) A light Belgian lace with an hexagonal mesh; made of three flax threads, twisted and plaited to a perpendicular line, the pattern being worked in the net, and the plait-thread surrounding the flowers.

Net'ting-ma-chine'. Lace is said to have been first made by machinery in 1768 by Hammond, a stocking-weaver of Nottingham, England, who invented what was known as the *pin-machine*, for making single-press point-lace in imitation of Brussels ground.

The *warp-frame* for making warp-lace was introduced in 1782. The first attempt to make bobbinet by machinery was in 1799, but no successful machine was produced prior to 1809, when Heathcote patented his machine, in which, by means of bobbins, a series of diagonal weft-threads are passed around and intertwined with the parallel threads of the warp. Many subsequent improvements were made on this machine, which has been variously modified to produce different kinds of netted fabrics, among which we may enumerate —

The bobbinet-machine.	Traverse-warp machine.
Lever-machine.	Twist-machine.
Straight-bolt machine.	Pusher-machine.
Circular-bolt machine.	

The *warp-machine*, based on the stocking-frame, was invented about 1795, and is employed in making lace, and also knit jackets, "Berlin" gloves, and similar articles. See BOBBINET-MACHINE; LACE-MAKING MACHINES.

Net'ting-nee'dle. A shuttle used in netting. One from the tombs of ancient Egypt is of the same form as used at the present day. (c, Fig. 3316.) See also TATTING-SHUTTLE.

Pil'low-lace. A lace made with bobbins or pirns upon a pillow. *Bobbin-lace*.

It was originally made of silk or thread woven into a net with hexagonal or octagonal meshes. Afterward, it was ornamented with a thicker thread called *gimp*, so interwoven with the meshes as to form flowers and curved designs. The pillow is hard stuffed and covered with parchment, on which the design is drawn. To form the meshes, pins are stuck into the cushion and the threads woven or twisted round them. The pattern on the parchment indicates the spots for the insertion of the pins, and also shows the places for the gimp, which is interwoven with the fine threads of the fabric. The work is begun at the upper side of the cushion by tying the threads together in pairs, each pair being attached to a pin. The threads are twisted and crossed and secured by the pins, which determine the meshes.

Push'er. A form of *bobbin-net machine*, so called from having independent *pushers* to propel the bobbins and carriages from front to back, instead of pulling or hooking them, as in other arrangements.

Thread-lace. Lace of linen thread; such as Houton, and many other kinds.

Twist-ma-chine'. One form of lace-making machine.

Va-len'ci-ennes' Lace. A variety of lace, whose meshes are of the form of an irregular hexagon. It is formed of two threads, partly twisted and plaited at top of the mesh. The pattern is worked in the net.

Warp-lace. Lace having a warp which is crossed obliquely by two weft-threads. See also BOBBINET.

The oldest lace has a knit ground, and the ornament worked by the needle. The oldest machine, made in 1764, was a modification of the stocking-frame, and was called the *frame-looped net machine*; six-sided meshes could be made, which held their form when starched, but shrunk like crape when damp.

To this succeeded the *warp-frame*, which had looped stitches, but had so much more solidity that it could be cut and stitched like cloth. In 1810, there were 400 warp-frames at work making Mechlin net.

Heathcote patented his first *twist-net* machine in 1805, and Lord Lyndhurst pronounced it "the most wonderful machine ever invented." It was to make a net like the *bobbin-net* made on the *pillow*. As he observed: "Cushion-made net had half the threads proceeding in wavy lines from end to end of the piece, and may be represented by warp-threads. The other threads, lying between the former, pass from side to side by an oblique course to the right and left, and may be called weft-threads. If the warp-threads could move relatively to the weft-threads so as to effect the twisting and crossing, but without deviating to the right or left hand, and if the weft-threads could be placed so that all of them should effect the twisting at the same time, and one half of them should proceed at each operation to the left and the other half to the right (a substitute being also provided for the cushion-pins), lace would be made exactly as on the cushions." See "Popular Science Monthly," March, 1874, Vol. XLVII., pages 540-542.

Warp-ma-chine'. A lace-making machine having a thread for each needle employed; in contradistinction to the stocking-frame, which has but a single thread.

This machine was invented about 1775; it was improved by Dawson in 1784, by the application of the rotary motion and the cam-wheels to move the guide-bars. Warp-machines were the first to produce ornamental patterns on lace, such as spots, bullet-holes, etc.

The Jacquard apparatus was applied to the warp-machine by Draper in 1839.