

WEAVING, the art by which threads or yarns of any substance are interlaced so as to form a continuous web. It is perhaps the most ancient of the manufacturing arts, for clothing was always a first necessity of mankind. The methods by which weaving is now accomplished have been explained and illustrated under *LOOM* (q.v.); it therefore only remains to describe the variations which may be effected by ingenious applications of the powers of the loom; and as these are almost endless, some of the more common and easily understood will be chosen. The simplest form of weaving is that employed in making the mats of uncivilised nations. These consist of single untwisted fibres, usually vegetable, arranged side by side to the width required, and of the length of the fibres themselves, which are tied at each end to a stick, which is so fixed as to keep the fibres straight, and on the same plane, as in fig. 1. Then the weaver lifts up

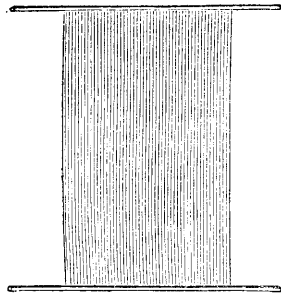


Fig. 1.

every other of these longitudinal threads, and passes under it a transverse one, which he first attaches by tying or twisting to the outermost fibre of the side he commences with, and afterwards in the same way to that on the other side, when it has passed through the whole series. The acquisition of the art of spinning threads of any length enables more advanced nations to give great length to the warp, or series of threads which are first arranged, and to pass the weft or transverse thread backwards and forwards by means of a shuttle, without the necessity of fixing at the sides. The mechanical appliances already described under *LOOM* aid these operations to an amazing extent. That kind of weaving which consists of passing the weft alternately over and under each thread of the warp is called *plain*

weaving, and a transverse section of the web would be represented by fig. 2; but if the weaver takes up first one and then two threads alternately of the warp series, and passes the weft under them for the first shoot of his shuttle, and raises those which



Fig. 2.

were left down before for the second shoot, he produces a cloth with a very different appearance, called *TWILL* (q.v.), many varieties of which may be produced by varying the numbers missed or taken up—as, for example, one and three, instead of one and



Fig. 3.

two. The simplest form of twill, viewed transversely, would be represented by fig. 3.

There are few arts which require more patience or skill than weaving. As many as from one to two thousand threads often constitute the warp; and these threads may be so varied in quality (see *YARN*) as to produce many varieties of fabric. From that cause alone, there are almost infinite variations. Many may be produced by the order in which the threads are lifted for the passage of the weft—that of itself can also vary as much or more in its quality and other circumstances, so that the inventive genius of the weaver finds incessant opportunities for its display, and nice arithmetical calculations are required in estimating and allotting the numerous threads to the endless variety of patterns which are constantly passing through the looms. A really practical knowledge of weaving can only be obtained by working with looms, and studying such technical treatises as *Watson's Theory and Practice of the Art of Weaving*, and some of the elaborate treatises by the French weavers. See *WEAVING*, in *SUPP.*, Vol. X.