Such fabrics as do not require dressing, silk and woollen, for instance, require the yarn to be cleared from time to time with a comb, in order to remove obstructions, which might impede their progress through the reed. The comb itself removes many inequalities, but such as do not yield to it are removed either by a pair of nippers or a pair of scissors. In what the weavers call bad, that is, unequal warps, this clearing takes up a considerable portion of their time. The inequality and weakness of a warp is a great evil, as more time is occupied in clearing and tying than in weaving, and wages, already inadequate, are thereby rendered insufficient to the support of life. Many kinds of fabrics, such, for instance, as the finer kinds of worsted goods, namely, double twilled shalloons, called by the Lon­don shopkeepers “ French merinoes,” wildbores, &c. re­quire picking after weaving, that is, going over the work with a pair of steel nippers, and taking off knots, threads, and other imperfections left by the process of weaving. If the weaver do this for himself, as he often does, it will take about one third as much time as the weaving ; but this is often done by the wife, and perhaps still more fre­quently by the weaver and his wife together.@@1

Such is the ordinary process of weaving in the common British, or, more properly speaking, European loom, in which a large proportion of the textile fabrics are still pro­duced.@@2 It now remains to notice the contrivances for pro­ducing figures, and the more modern improvement of sub­stituting steam for human power; an improvement which, as we have already said, does not alter the nature of weaving, but merely regards the source of motion, and the method of communicating it, and of connecting the different mo­tions to be produced, with one single source.

Varied and complicated as figure-weaving is in practice, it is nevertheless extremely simple in principle. We have seen that in plain weaving each yarn or thread of weft passes over and under the threads of warp alternately, so that the separate crossings of the yarns form equilateral parallelo­grams, or net-like squares. In the case supposed, we have assumed one hundred warp yarns to be so arranged that each pressure of the treadle raises the alternate fifty yarns, so that the result is a plain fabric, taking up every alternate thread of warp. The threads, as we have stated, will be arranged in squares, thus :

Now, suppose the two heddles, instead of taking up the alternate threads of the warp, were so arranged that one of them took up three threads in succession, and the other only one, it would follow that the threads of weft would not appear equally exposed on the surface of the warp, but would in some places pass over three threads, and in others only one. The result would be a figured face, as depicted in the annexed dia­gram. The white portion of this figure repre­sents the threads of warp, the black the threads of the weft covering one out of four and three out of four threads alternately. This variation of the number of threads of warp exposed is the simplest species of figure, for it can be produced by two heddles. It supposes no difference in the yarns as compared with plain weaving ; it requires no difference in the operations of the weaver ; it requires no increase in the number of the heddles ; all it requires is a different arrangement of the warps through the loops or eyes of the heddles, and when that is done, all the processes proceed as before.

In the above description we have supposed no difference in the colour of the warp and weft, the only alteration in the appearance of the cloth being produced by the threads of weft exposed on the surface of the warp ; but it must be evident, that if the warp yarns consist of different colours, the cloth produced by the loom, arranged in the ordinary way, will be striped in the longitudinal direction of the web ; and if the heddles be arranged as just described, the result will be a checked fabric, and this still without any change in the process of weaving.

The simplest variation in the operation of weaving, is the employment of two or more shuttles containing bobbins of different coloured threads. If woven in the common loom, the weaver making an equal number of shoots of two co­lours alternately, the cloth produced would be striped in the transverse direction. With the heddles arranged as above described, or with two coloured warps, any variety of check may be produced.

For the convenience of using two or more shuttles con­taining weft different in colour, fineness, or material, move­able shuttle-boxes are employed, so contrived as to slide up and down the swords or bars of the batten or lay, and by means of a loom capable of being adjusted to the shuttle- race on a level with the opposite driver.

A further means of varying the pattern consists in in­creasing the number of the heddles, each having a certain proportion of the warp-yarns attached to it, and each be­ing moved by a separate treadle. The threads raised cover that shoot of weft which passes over the warp yarns not raised, and is exposed to view on their surface. The number of threads thus raised being capable of being varied as many times as there are heddles, being indeed capable of an immense number of combinations, it follows that figures may be described, or names and sentences woven in, to suit the fancy of the weaver, or the caprice of his customers. It will be observed that the employment of an additional number of heddles is only a contrivance to increase the weaver’s means of varying the distribution of the warp, and consequently of the weft, for the one cannot be accomplished without the other ; and when we add to this the employment of two or more coloured warp yarns, and of two or more coloured wefts, together with the adap­tation of the said colours to the figure produced by the arrangement of the heddles, we at once perceive that the possible combinations are extremely numerous.

Twilled fabrics are extremely various and complicated in their character, and it is difficult to convey an idea of their structure within the space to which we are limited. The best way to gain a clear conception of the nature of a twilled cloth, is to take a small piece, say of merino or shalloon, and partially unravelling it, so as not wholly to disengage the weft from the warp, examine its structure through a single magnifier. It will then be seen that the weft yams, instead of interlacing the warp yarns alternately and at regular intervals, as in the above figures, take up only every third thread, and that too at irregular intervals, so that the interlacing marches across the piece diagonally, and not transversely, thus : In some of the finer fabrics, the interlacings occur only at the fourth, fifth, or sixth threads ; and it is stated in the treatise on the silk manufacture, forming part of the Cabinet Cyclopædia, “ that in proportion as the materials wrought are finer, longer intervals are allowed, until, in some of the finest silks, the interlacing takes place with only each sixteenth thread.” P. 237. To aid the reader still further in gaining a clear conception of the nature of a twilled cloth,

@@@, “ On one occasion,” says the Assistant Commissioner, “I saw a piece of shalloons woven under the following circumstances : 1. The man was in the loom weaving ; 2. a boy of tcn years of age was winding bobbins ; 3. the wife was at her husband’s elbow picking the work ; 4. his daughter was at the back of the loom taking off the broken threads of the warp. When the piece was taken home, the wages would be paid as the earnings of *one man,* yet the piece was really the work of a family.” (Assistant Commissioners' Hand-Loom Reports, 1839, p. 599.)

@@@\* It has been computed that there are about 85,000 power-looms and about 250,000 hand-looms in Great Britain.