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## THE INFLUENCE OF THE TWIST OF THE YARN UPON THE FABRIC

(Continued from December issue.)

### Direction of Twist.

According to whether a thread is right or left hand twist, the same shows to the observer a different effect, with reference to light and shade. This difference is

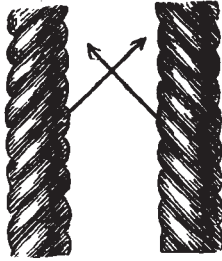


Fig. 1

so much more pronounced as soon as two threads or two series of threads, each of a different direction of twist, are used alternately side by side in the construction of a fabric. At the same time, the twist in a thread influences its joining to the next thread in the

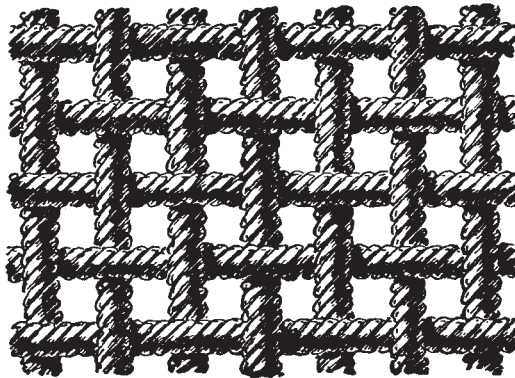


Fig. 2<sup>a</sup>

fabric, *i. e.*, whether these two threads have the same direction of twist or reverse directions. This explains that the direction of the twist in the yarn, not only

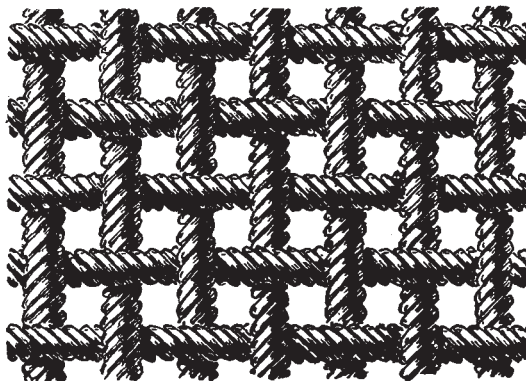


Fig. 2<sup>b</sup>

influences the appearance of the face of a fabric, but at the same time its construction, features, which we will now take more in detail under consideration.

Fig. 1 shows us two threads of the same count and quality of yarn, side by side, the difference being that one is right hand, the other left hand twist. Placing two such threads parallel, near each other, will show that the direction of the twill in the two threads, if extended, will meet each other at a right angle (see arrows in the illustration, drawn for the purpose of simplifying matter). This explains another subject.

The influence of the twist of the yarn upon a fabric, can be readily demonstrated. For instance, let us take the common plain weave, and use, for example, 10, 20 or more ends of right hand twist to alternate with a corresponding number of ends of left hand twist, of a yarn spun from the same roving, with the same number of turns per inch, and when clear, defined stripes will be seen in the finished fabric, the same as if two different kinds of yarns had been used. This characteristic feature is sometimes made use of by the designer in producing fancy effects in fabrics, more particularly, in the worsted industry. In that instance, provided we deal with piece-dyes, the yarn for one of the twists has then to be slightly stained, in order to guide the dresser, the drawer-in, but more particularly the weaver, so as not to mix threads of one twist with that of the other. The same as with the plain weave, thus referred to, matters hold good with twills, since in this case, one twist produces a more open, and its mate a more closed twill effect. This will explain, that in this way we may produce certain effects in a fabric, stripes or checks, not possible to be obtained in any other way.

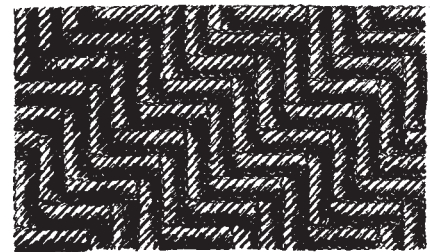


Fig. 3

The appearance of a fabric is always influenced by the twist of the yarn used in its construction, *i. e.*, whether we use the same twist for warp and filling, or a different twist for either system. Figs 2<sup>a</sup> and 2<sup>b</sup> are given to explain the subject. Fig. 2<sup>a</sup> shows us a filling used which has the opposite direction of twist from that of the warp, whereas Fig. 2<sup>b</sup> shows us a fabric structure where warp and filling have the same direction of twist. Previously we mentioned, that if two threads with opposite twists, are placed parallel near each other, that the direction of the twists run vertically against each other. This then explains, that if threads cross each other at a right angle, *i. e.*, bring them in position of warp and filling they occupy in the loom, that then the coils of the twist run parallel to each other, provided the filling has the opposite twist

from that of the warp, and that they cross each other, *i. e.*, stand vertically towards each other, if the filling

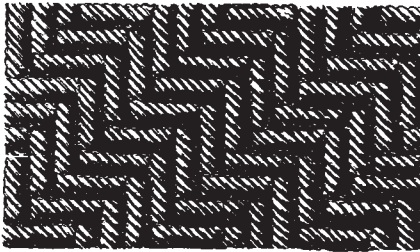


Fig. 4

has the same direction of twist as the warp. Figs. 2<sup>a</sup> and 2<sup>b</sup> illustrate the subject.

In Fig. 2<sup>a</sup>, the coils of the twist of the filling run parallel with that of the warp, whereas in Fig. 2<sup>b</sup>, they are placed vertically against each other. The two illustrations will clearly show the difference in the effects; the same counts and the same amount of twist per inch have been used in the yarns of both fabric structures. Examining both illustrations from the same position, the difference will be most distinctly noticed.

Having thus referred to the difference of the twist, in connection with the plain weave, it will be readily understood that this difference is so much more pronounced, when dealing with floating, *i. e.*, far apart

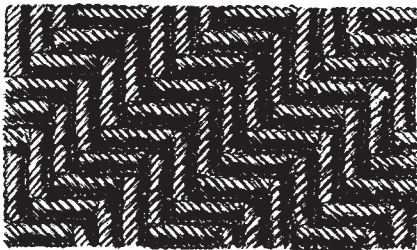


Fig. 5

interlacing weaves, since then the twist has a greater influence to show light and shade effects. The accompanying sixteen diagrams of fabric structures (enlarged) are given to more clearly explain the subject.

Fabric structures Figs. 3 to 8 are interlaced with the  $\frac{2}{3}$  6-harness twill, effect running from left to right.

Fabric structures Figs. 9 to 14 show the same twill weave used, however, the direction of the twill is reversed, *i. e.*, the same runs from right to left.

In connection with fabric shown in Fig. 3, the warp is right hand twist, the filling left hand twist.

In connection with fabric illustrated in Fig. 4, the warp is left hand twist, the filling right hand twist.

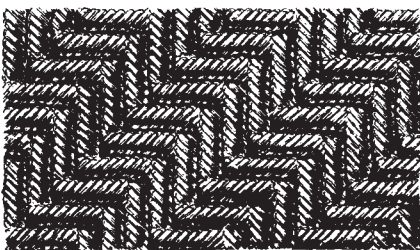


Fig. 6

Examining both fabric structures, it will be noticed that in both cases, the direction of the twist, for warp

and filling, runs parallel, *i. e.*, runs in the same direction in the fabric, or as we might say, the twist of the two systems of threads runs into each other.

Effect Fig. 5: warp and filling right hand twist.

Effect Fig. 6: warp and filling left hand twist.

In connection with these two fabric structures, using the same direction of twist for warp and filling, the result shows that the twist of the warp and filling threads meet each other at right angles in the woven fabric.

Fabric structure Fig. 7 shows the arrangement of warp and filling to be: one end right hand twist to alternate with one end left hand twist, in both systems. This illustrates a most interesting subject, showing an even distribution of light and shade, since the effect of using opposite twist, in both systems of threads, balance each other.

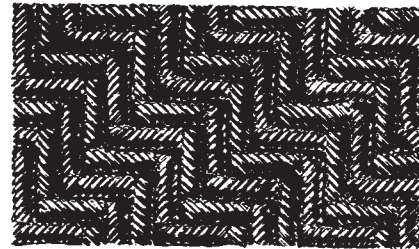


Fig. 7

Provided different twist yarns are used in the mill, and the same are of one color, be careful that these yarns are spun on distinctly different bobbins, or different colored cops, in order to prevent mistakes in the spooling, dressing as well as the weave room. Possible mistakes at the loom, in connection with the warp, can be more or less prevented (if such is possible to be done) by drawing the ends of the different twists on separate (marked) harnesses, and when the weaver, in case a thread breaks, will know which twist he has to deal with. At the same time, it may be advisable to insert a rod next to the whip roll, having

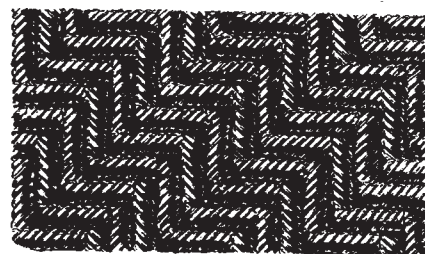


Fig. 8

the one twist of threads running above, the other twist below said rod, or in other words, simplify matters as much as possible for the weaver.

Fabric shown in Fig. 8 is constructed thus: warp one end right hand twist to alternate with one end left hand twist; filling all left hand twist. This combination shows that the contrasting effect, obtained in the previous example, in this instance, is not as complete.

(To be continued.)

#### Manufacturers in Great Britain,

like manufacturers in the United States, are having their troubles with cancellations of orders, and it is there pointed out that owing to the scarcity of goods in all parts of the world there is no immediate prospect of prices being reduced.