

The Various Types of Moire Effects and Their Production

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The various classes of moire take a prominent position among other fabric effects in the textile industry. The woven and printed moire patterns in their various forms are generally boardy and show a definite regular repeat. True moire effects produce a very changeable effect in luster in the folds of a dress and lines. Unfortunately, a great many moire patterns are very fine, delicate and indistinct in their appearance, in other words, they are not clearly visible at any distance.

Among the various types of moire effects produced, we find first, the natural or genuine moire and, secondly, the pressed, impregnated or imitated moire.

The genuine moire is recognized by its continuous and always changing moire lines and waves without any definite repeat throughout the goods as well as by its uniform, more or less, smooth reverse side. The only exception in this class of moire are the continuous stripe and wave lines on both sides of the goods.

The genuine moire can only be produced on rib goods which consist of fine and high count warp yarns, and fairly thick or heavy count filling yarns and woven with a plain or tabby weave. The "reppy" character of these fabrics is the underlying principle in producing good moire effects. The fine warp ends are closely reeded and the heavy filling yarn produces a "repp" or rib type of cloth made mostly in silks and cottons and furniture coverings. The above described construction brings about the most perfect moire effects. The cotton, worsted or woolen and linen moires are also produced with warp ribbed fabrics. In these types of fabrics the warp yarns are firmer and harder than the filling yarns which produces the same effect as when fine warp yarns and heavy filling yarns are used. Such goods can often be run through a calender to produce a moire effect. In a warp moire the wave lines are produced in the direction of the warp.

Moire fabrics are distinct fashion articles—

the type of finish repeats itself about every five to eight years, coming back into the textile field with new or changing effects and modifications in the effect.

At the present time moires are produced in small lined and figured effects, generally with colored stripes or with warp printed yarns, also with woven stripes (rayé) which are used in the necktie trade in considerable quantities. The modern dress goods trade demands thin, soft and well draping materials and the moire fabrics are unsuitable in this respect because the genuine moire can only be produced satisfactorily on goods which have relatively large yarns in them and are closely set. For mourning or lining fabrics, a good silk moire with wool or cotton filling is demanded. Recently a rayon moire has made its appearance on the market for the covering or lining of leather goods, pocket books, trunks, etc. There are also fabrics which are produced constantly such as narrow moire fabrics for streamer, ribbon, flag, etc., uses.

The production and methods used in the production of the various types of moires are various. For the production of special moire effects many special "knacks" are used.

It must be remembered that moire effects are based on light reflection and its visibility and appearance to the eye, especially at a distance. This is affected by a contrast of reflection in flat and round surfaces in fabrics.

The ordinary moire effect consists of "veins" or wave lines and the spaces between them. In the old way heavy, doubled fabrics were treated on a wooden block, with heavy wooden gavels. To produce moire effects commercially, mangling and rolling machines are used. Often calenders or plate presses as well as decatizing machines are employed. In addition to these, engraved rolls have also been used to bring about moire effects.

Calenders and mangling machines enable one to produce very distinct veins on the fabric, whereas the plate press produces beautiful lustrous surfaces. The calender generally

produces a stiffened piece of goods with a more or less shiny backside. The mangling machine permits the production of a soft or medium stiff piece of goods. The production of moires by a decatting machine is only possible with woolen or worsted goods. In very light goods it is necessary to temporarily back-fill the goods before they are moire processed.

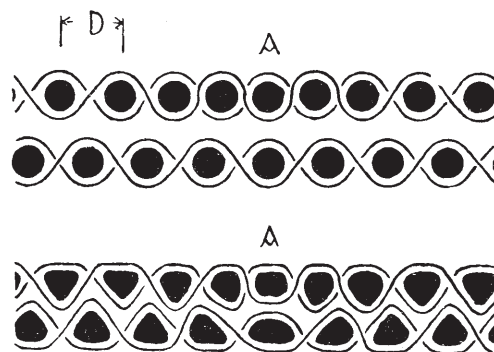
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The production of the genuine moire by means of doubling up of the fabrics in which the right sides of the fabrics are facing each other and in which the crossing filling ribs are pressed against each other and in that way flattened out where the most pressure comes to bear. Figure 1 shows the cross-sections of two such fabrics placed one above the other before the pressing is done. It must be said here that the upper piece of goods marked "A" is laid at an angle on the other piece of goods. On account of this, an irregularity is produced in the number of picks per inch which causes the moire effect, after pressing.

Figure 2 shows the two fabrics after a heavy pressing together. Those particular filling ribs "A" which fall squarely on each other are flattened out considerably more than the other ribs which do not fall squarely on each other. Wherever a rib crosses another rib a flat space is created which reflects the light differently. The ribs, which fall between each other, become prismatic. The relative position at meeting as well as crossing of various ribs in one with those of the other fabric produces very distinct, slightly distinct and indistinct lines in the direction of the warp. A certain amount of luster is produced in the space between the moire lines and this is of great importance. This luster takes on the characteristics of a "glimmer" or faint "shimmer" similar to that of the sun reflecting from a rippled water surface. Should the various ribs in the direction of the filling fall directly parallel with those of the other fabric, a piece of goods showing considerable luster or "glimmer" would be produced but no moire lines would make their appearance. The reverse side of the fabric under those conditions would be smooth and present a flat appear-

ance as well as the face side of the goods.

Figures 1 and 2 are plain weave fabrics with fine warp yarns consisting of silk, rayon, spun silk, etc., and coarse filling yarns of either wool, cotton, rayon, etc.



Figures 1 and 2

Oftentimes thin and thick filling yarns are woven into the cloth in alternating regular and irregular fashion which produces crosswise moire effects which are interesting.

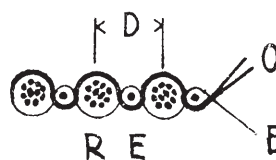


Figure 3

Figure 3 shows a cross-section of a furniture covering fabric. The heavy filling pick R consists of a ply cotton yarn with little twist. The fine filling E consists of a fine hard twisted cotton yarn or a metallic yarn in the case of brocaded effect. The face effect or repp warp O is of silk shappe, fine wool, mercerized cotton or linen. It is generally drawn into the harness two as one. The binder warp B consists of hard twisted smooth cotton yarn. Generally there are four to eight ribs per cm. "D" being the distance between the ribs which is generally from one and a quarter to 2½ mm. On such cloths very pronounced moire effects can be produced. The rule that the more the ribs are raised, the more pronounced the moire appearance will be is well known. Of all materials the best results can be obtained with silk goods.

For certain types of moire effects it is necessary that the ribs lie as nearly parallel as is possible. In order to accomplish this, short pieces of yarn from one-third of a yard to one yard in length are woven into the selvages so that the weaver can ascertain during weaving whether the picks are going into the fabric in parallel and right angle fashion.

In the finishing and doubling of these goods they are sewn at each selvege so that the goods will rest on each other face to face absolutely and exactly parallel, as far as the filling is concerned. If it is required that the moire effect have very few lines, waves or veins, it is nec-

essary to do this. For other moire effects in which the lines should be staggering in effect it is necessary to cross the filling yarns and *not have them absolutely parallel*. In such cases the goods are sewed together at each selvege in such a way that a certain distance is allowed and that that distance will always be the same.

A very sharp line of demarkation or break in the moire effect in the lengthwise direction of the goods is generally to be avoided. To do this two pieces of goods are woven on a double width loom and then folded over and sewn in different places.

(To Be Continued)