

Weaving Rayon and Silk Mixed Fabrics

By JOHN PICONI

In the weaving of rayons with silk yarns there are several difficulties that arise, due to the difference in the properties of the yarns, and particularly the difference in elasticity. First, let it be stated that there is no use in trying to weave rayon and silk mixtures on old looms, as it cannot be done successfully. Thousands of pieces are spoiled annually in trying to use worn-out machinery.

Almost any other combination of yarns can be woven more or less successfully regardless of the age of the loom. But the writer would advise any one manufacturing rayon and silk mixtures to have up-to-date machinery, equipped and mounted with all the latest improvements.

It is now possible to get practically uniform weaving when combining silk and rayon yarns. There should be some attention paid to the twist. There is a tendency to put too much twist into the threads, causing a weakness in the fabric. The writer believes that there should be a twist test taken very frequently.

Warp Line Important

One of the most important matters in weaving rayon and silk mixtures is the warp line. The writer has seen looms in first class mechanical condition but with a faulty warp line which caused difficulties. Some of the resulting troubles were barre marks, loose ends not covered properly, and a cockly appearance. A frequent difficulty is ends of warp breaking down, causing a loss of production and a poorly woven fabric.

The warp line is an imaginary line through the shed from the breast beam to the whip roll, as shown in the accompanying illustrations. The harnesses should be dropped so that the top shed will be the same distance from the warp line as the bottom shed. Figure 1 is the proper method and Figure 2 shows the wrong setting.

In Figure 1 it will be noted that both the top and bottom sheds are at an equal distance from the warp line. The result is that the tension on the warp threads is equal in both sheds. In Figure 2 we have the harnesses hung improperly. On a close inspection of Figure 2 it will be noticed that the shed through which the shuttle passes has the same size opening as in Figure 1.

The strain on the lifted threads in Figure 2 is very heavy, while on the downward pull there is very little strain. As a result the defects in weaving that are mentioned above will prevent good cloth and it is

impossible to get a good cover, regardless of the mechanical condition of the loom.

Sometimes there is difficulty in obtaining a proper shed, even after the shafts or harnesses have been adjusted. To regulate the harnesses for an equal shed is very simple. See that the dobby knives on the dobby open in an equal position; if not they should be adjusted from the adjusting rod on the loom. Then lower or raise the entire harness so that the warp ends just clear the race plate. Also see that the shuttle has space enough to go through the shed without touching or dragging on the warp ends.

The writer has found that by laying a rod from the whip roll through the shed, to the top of the breast beam, using the rod as a guide for the warp line, and adjusting the harness so that the lower shed will be at the same distance as the upper, a good setting can quickly be secured.

In looms where the spring method is used for pulling down the harness too little attention is paid to the uneven stretching of the harness springs. Good results cannot be secured unless the harness springs are of the same stretch and strength. To find the stretching capacity of the springs to be used is a very simple matter. First, fasten the springs to an iron rod and then hang a weight on each. It can be seen at a glance where springs vary in tension and stretch. Have all springs of the same length and strength, as far as possible.

Tension on Warps

It is very essential when weaving rayon and silk mixtures that the fiber qualities be taken into consideration. The natural fiber can be stretched considerably without reaching its breaking point and has true elasticity. The rayon fiber on the other hand becomes weak when stretched nearly to the breaking point. The result is that the rayon fiber has difficulties in trying to adjust itself to conditions that are satisfactory for the natural silk threads. In most cases the overstretching of the rayon thread cannot be seen while in the weave room, but the results are very noticeable after finishing and there is considerable loss due to imperfect merchandise.

Rayon Filling

When using rayon filling in a mixed fabric there are difficulties which are mostly due to shuttle troubles.

There should never be any attempt to use worn out shuttles, as goods have been spoiled time and time again due to shadiness, loops, tight or bright picks, shiners, and cockled cloth, which all come from poor shuttles.

In the past there was considerable trouble with broken picks, double picks, and loops. These troubles mostly have been done away with by using better equipment. One of the best improvements is the modern feeler motion. When properly adjusted, very

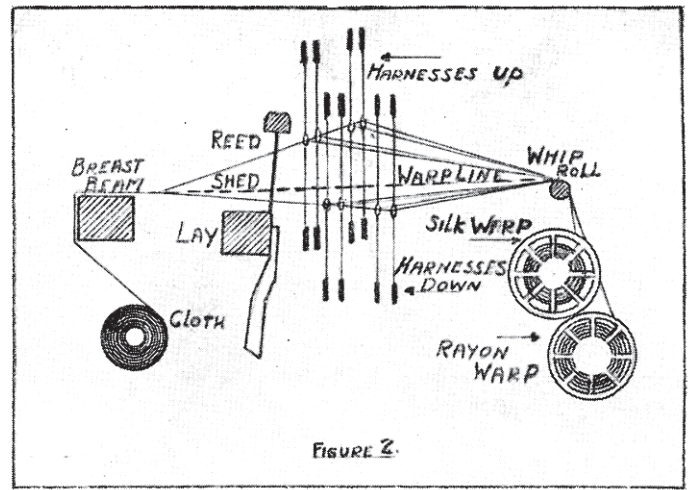
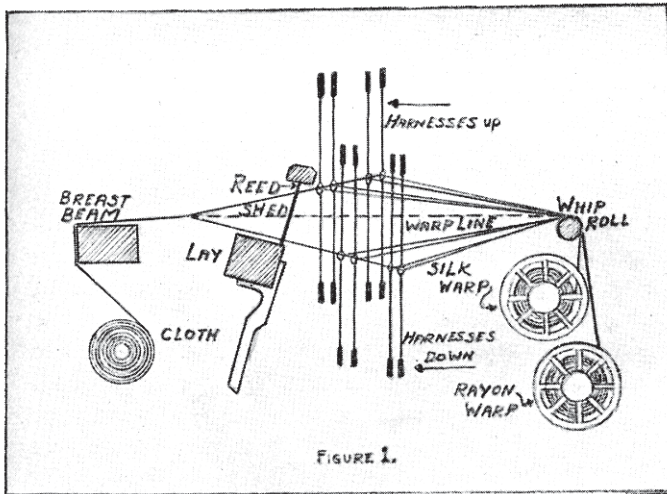


Fig. 1. Proper Method of Dropping the Harness and Fig. 2 Wrong Setting

Then we have the tension to contend with. The writer has found that by using a light weighted tension very good results can be obtained. As a result of not having proper tension on the filling there are numerous imperfections that arise, which are well known to the trade.

gratifying results are to be had, as most of the starting marks, shires and joinings are done away with.

In the weaving of silk and rayon mixtures the writer does not favor an excessively high speed of loom. It has been found by experience that a maximum speed of 142 picks is best suited for work of this kind.