TECHNICAL SECTION


Designs in Cotton Shirting Fabrics

A GOOD shirting fabric must have a ground that will stand up well under frequent laundering. The colors must be well harmonized and fast to washing. If silk yarn is introduced it must be in sufficient quantity to make a pseud stripe, or it must be backed up with cotton to prevent slipping during the finishing process and subsequent laundering. A good shirting fabric should really look better every time it comes from the laundry, and continue to look well until worn out. Such a fabric can be made on what is termed a Madras ground or a pongee ground.

Fig. 1. Shows an artificial silk and colored stripe Madras fabric. The ground weave is shown at the right of Fig. 4 and the weave of the artificial silk stripe at the right of Fig. 4. The ground weave repeats on 16 ends and 48 picks, but can be woven on 8 harnesses. The artificial silk stripe weave repeats on 8 ends and 48 picks, but can be drawn on 3 harnesses. It is, however, advisable to draw the artificial silk on 3 harnesses in order to spread the silk so there will be less friction in weaving. The colored stripe edging the silk stripe is a 4-end sateen weave. This pattern will require 19 harnesses distributed as follows: 8 for ground weave; 5 for artificial silk stripe; 4 for colored stripe; 2 for plain and selvage.

Fig. 5 shows a fancy silk and colored striped pongee shirting. The silk is natural 21.5/25 Italian, and is drawn as doubles, that is, 2 ends of silk together in one heddle, and 2 doubles in one dent, equaling 8 ends of silk per dent of reed. It is good practice to draw this kind of silk as doubles, as it is a help toward good weaving. The ground of this fabric is 68 warp ends of 60s and 96 picks of 4½ soft twist filling per inch. The center of the ground work is drawn 3 ends colored and 4 ends white, the color combination being orange and blue. The ground weave is shown at Fig. 6 and is a point stop. The weave repeats on 32 ends, but is drawn on 11 harnesses. The

Some Popular Constructions—Points on Laying Out to Facilitate Weaving

By L. N. Suhr

Some beautiful effects are produced during the finishing process, particularly if natural silk is used for stripes.

The following constructions are used among the best used for Madras Shirtings:

- 64½ 10s warp
- 36½ 30s filling

Another popular construction, and one that is coming into larger use, is as follows:

- 84½ 40s warp
- 40s filling

The finest pick per inch in this last construction ensures a better production than on the first two. The heavier filling balances the fabric, and the lower pick means better weaving.

The cheapest grade of Madras shirting made is around 72½ with 4½ warp and 36 filling. The size of the colored yarn used is 40 single.

The construction of pongee shirtings does not vary so much as in Madras shirtings; most all pongees ground count as follows:

- 72½ 100
- 57½ 96
- 48½ 96

In all these constructions 60s warp and 40s filling are used. A popular cheap pongee fabric is made as follows:

- 64½ 10s warp
- 30s filling

The fancy ground weave repeats on 10 ends and 12 picks, but can be woven on 7 harnesses. The weave of the silk stripe is shown at the right of Fig. 2. It repeats on 10 ends and 24 picks, but can be woven on 7 harnesses. The entire pattern requires 20 harnesses as follows: 1 for fancy ground; 2 for plain ground and selvage; 7 for silk stripe; 4 for color stripe.

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Spread Artificial Silk

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The Setting of Drawing Rolls

Close Attention Required to Prevent Excessive Wear and Irregular Draft

It would seem that details of the proper setting of drawing rolls on moving and spinning frames in cotton mills is a subject with which every mill operative is so familiar that comment would be unnecessary. Yet it is a fact that improper setting or neglect of any kind of setting is responsible for a considerable amount of bad work and waste which results from such practices. It makes a great difference whether draft rolls are set too far apart, too close, or too tight. There are various ways of setting rolls incorrectly, and particularly irregularly, which may be listed as follows:

1. Some rolls are set too close; others too far apart. Some are out of line with the bottom roll; others are not centered vertically. Most manufacturing is done under conditions fairly correct, but much of it is done under irregularities such as those specified.

2. A common hazard is uneven roll图画 which gives the impression of uneven drafts. Reference to Fig. 1 will illustrate a very common fault in setting the top roll. It will be noticed that the front top roll is set directly over the bottom roll. But the other two sets of rolls are placed off centers with the bottom roll. It will be noted that the difference between the centers at which contact is made with the bottom roll shows an extreme variation of half an inch from the correct position of each roll. This, while somewhat of an exaggeration of typical cases, is nevertheless a good illustration of improper settings often found.

Another evil which improper setting of the top rolls involves is the deflection of the travel of the roving, giving it a different bite at the back and middle rolls from that obtained by the front rolls. This results in a deflection of 4/100 of an inch in the passage of the roving, out of a straight line traverse which should always be the rule.

With Correct Setting

Reference to Fig. 2 shows the correct relation between top and bottom rolls and illustrates how the grip of the roll on the sliver passing through the rolls. Fig. 2 shows the correct setting of rolls on center. Therefore, if the bottom rolls are set at the proper distance from each other, the top rolls should be set in a manner to make this result the same on the contact points as the spacing of the bottom rolls intended to make it. Both sets of rolls should line up.

When rolls are set out of line, as shown in Fig. 3, the roving is deflected by the rolls, which produces an imperfect draft. The proper setting of rolls is very important and very damaging to the machines, as well as productive of faulty yarn. The end given an exaggerated illustration of this haphazard setting, which is, however, frequently to be found, and one which cannot be too strongly condemned. Proper settings must first embody alignment of rolls longitudinally. Then top rolls must be set over bottom rolls on centers vertically, if irregular draft action is to be avoided, even when bottom rolls are properly spaced.

Proper Spacing of Rolls

There are many considerations which govern the proper spacing of rolls which are properly centered vertically, as by distance apart horizontally. These may be listed as follows:

1. Light or heavy weight on top rolls.
2. High or low speed of rolls.
3. Rolls of weighted or self-weighted type.
4. Short or long draft of cotton in passing through.
5. New or old rolls, that are either sharp or dull.
6. Coarse or fine work.
7. Hard or soft twist.
8. Single or double roving.
9. High or low grade cotton.
10. Large or small rings.
11. Light or heavy travellers.
12. Short or long cotton.
13. Large or small rolls.
14. Leather or composition covered rolls.
15. Metal or soft cotton rolls.
16. Long or short traverse.

Setting Yarn

Many of the above considerations affect the proper setting of rolls when they exist in combinations which require it. Conditions vary and so does the procedure for setting rolls, but all of the best practice would be to set them 1/3 inch apart, as it will be found that this is the safest practice in the long run. This is true because of the far-reaching effect of saving as many as possible of the shorter fibers, which are held in the sliver if allowed to be dropped more or less by a space between rolls which exceeds the length of the staple. This is particularly true in the case of carded work, where it is also affected to a certain extent, because of the presence of percentage of short fiber which persists.

Results of Setting Too Far Apart

The results then of spacing the rolls too far apart is that much more waste is made at the drafting rolls of all machines, and that the case were rolls set too close together, so good rolling would permit. But it is not always advisable to prevent short fibers from falling through between drafting rolls. In the case of finely carded stock, for instance, it is desirable to let short fibers drop out if they will and could injury to the longest fibers by setting the rolls a greater distance apart than the longest length expected to occur among the cotton. Otherwise, in the general run of work, where a certain amount of short fibers does not injure the fabrics made, the rolls should be given the best possible setting for best rolling, even to