A STUDY IN PLAIN AND FANCY SELVAGES.

The purpose of a selvage is to impart to the fabric on both sides a solid edge. At the loom the selvages prevent excessive drawing-in of the outer situated warp-threads towards the centre of the fabric by the tension on the filling, imparting at the same time to the edge of the cloth an increased stability, required on account of the different manipulations the fabric is subjected to during the various processes of finishing. For this reason the size and prominence of selvages vary, depending in some instances upon the finish of the fabric, and for which reason a fabric requiring a great amount of finishing, like gigging, stretching, etc. (in connection with woolen cloth) will require a more substantial selvage than light-weight fabric, which requires little, if any, finishing.

In connection with fabrics requiring a great amount of finishing a solid selvage must be produced, using in most instances a lower count of yarn for the selvage threads compared to that used for the warp.

With reference to width, finish and color, a selvage will vary, depending upon the fabric it is used for. For example, dress goods, damasks, etc., may call only for four or more double ends of the regular warp yarn, whereas a face-finished woolen goods may be provided with a selvage varying of from $\frac{3}{4}$ to $1\frac{1}{4}$ inches in width, and where the proper selection of the selvage threads becomes of the greatest of importance in order to produce a perfect selvage, an ornament to the fabric in its finished state.

The selvage must harmonize with the fabric, neither be too long or too short; it must improve and not detract from the general appearance of the fabric. To neglect this point is quite common, since it is left in some mills to the care of persons who may be very competent to conduct mechanical operations, such as dressing or weaving, but who have no taste whatever for colors, nor do they understand the nature of the raw materials of which fabrics are composed, neither the various processes of carding, spinning, dyeing or finishing. and who are liable to use the wrong yarn for a selvage.

It will be readily seen that the outside ends in a fabric in the loom have to stand more chafing from the reed as compared to the threads situated more towards the centre of the fabric. On account of the tension on the filling, its twist and interlacing, the cloth will, in the loom, shrink always more in proportion at the outside than at the centre, the affair varying according to the class of fabrics under operation. This, of course, puts the most chafing of the reed on the selvage, consequently these threads must be made equal to the strain.

As long as not required to produce a fancy selvage, it is best to arrange for as narrow a selvage as can be conveniently used, an excessively wide selvage being either a loss to the buyer or to the mill.

Very often we hear in the mill of a selvage being either too long or too short. If the selvage is too long, more particularly in connection with woolens and worsteds, it will make trouble everywhere in the finishing department, working to disadvantage on the fulling mill, the napper, the gig, the dryer, the shear, the press, and even in the simple last job of winding the fabric on the cloth board. The shear tender will have his hands full in connection with such a selvage, to keep his machine from cutting the latter. In the same way there will be trouble at the press, the selvage being longer than the fabric, may in places turn over, running in on the fabric and consequently be pressed on the latter and marking the same.

Again, there will be trouble provided the selvage is shorter than the fabric, since then the nearest two or more inches of the fabric to the selvage will vary more or less, as to nap, shade of color (especially if piece-dyed) etc., from that of the centre portion of the fabric.

When dealing with a fabric having a short selvage, it will prove of trouble to the finisher, more particularly in those processes requiring tension lengthwise on the fabric, as for instance gigging, winding for the steaming process, etc., since in this instance nearly the whole of the tension will have to be carried by the selvage, whereas the same should be equally divided between the warp-threads of the fabric structure and the selvage threads.

Excessive tension put on such tied (short) selvages may burst the latter, the fabric may catch, cutting part of the selvage and thus possibly tear into the fabric. In many of these cases the operator of the machine will be blamed, whereas the blame should be put upon the originator of the trouble, *i. e.*, the party who designed such imperfect selvages.

There are a good many causes for long and short selvages, for instance, the difference of the texture between the selvage and the fabric may occasionally make the warp-threads and selvage threads take up differently; again, the difference in the materials used between the warp and the selvage threads may be at the bottom of the trouble, etc.

With heavy fabrics we can interlace the selvage with the weave used for the cloth, only we must be careful to arrange the last end so as to properly catch the filling.

More difficult, however, is the production of a perfect selvage with light-weight fabrics, especially such where a variety of weaves are used; for example, light-weight worsted dress goods made out of single yarns, and when the use of a special reeding and weave for the selvage may become necessary, although we may use the same yarn as used for the fabric also for its selvage. A higher texture for the selvage is often produced by using two ends of the warp yarn for every alternate thread of the selvage. The weave used to the best advantage in this instance is the basket weave, it being a weave where in most cases a perfect selvage may be sooner expected than with any other weave.

A poor selvage may be also caused by weaving a fabric in a rather wider loom than necessary, and when the filling may form loops at the end of the selvage, although the fixer should know how to get over the trouble. Be careful that you have sufficient friction on the filling end as it leaves the shuttle; take care for the one-sided tension of the thread caused by the one-sided construction of the shuttle, and which will insert more tension upon one selvage than upon the other. This necessary disadvantage in the construction of the shuttle may possibly be remedied by placing the most outside situated selvage thread one dent away from the rest.

When dealing with an extra hard twisted filling, a special friction arrangement must be provided for the filling in the shuttle, so as to prevent snarling. The best plan is to insert a yarn brush into the throat of the shuttle, and which at the slackening of the tension will prevent snarling.

The same object can be accomplished by fastening pigs' bristles along the lay, and which will give in

certain distances a hold to the filling, the latter clinging sufficiently long on said bristles until on the backward run of the shuttle the filling end is pulled tight, without giving it time to form a loop.

In some instances imperfect setting of the filling stop motion may be the cause of loops formed by the filling. If such is the case, shorten the movement of the lift of the fork, which will reduce the touch of the filling by the fork to the least possible time.

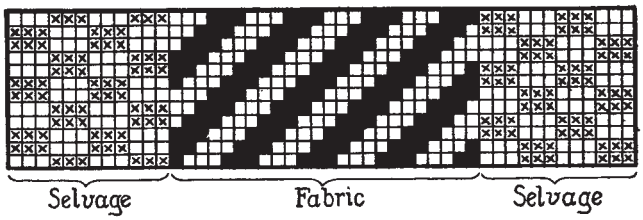

Fig. 1

Temples have much to do with a perfect selvage, but a fixer will know how to regulate any trouble from them. Thick and thin places in selvage (if the body of the goods are otherwise perfect) are made in the loom. The tension of the filling and the temples need to be looked at. Imperfect and rough selvages are generally nothing but the result of the neglect of the fixer or weaver. When the shed is not good at the sides, the time for picking incorrect, or one shuttle delivering loose filling, another tight, we may expect imperfect and rough selvages which will show on threadbare goods when finished, if not before.

Fancy Selvages.

Fig. 1 shows us (see *cross* type) the application of a 6 by 4 basket selvage, used in connection with a fabric interlaced with the 3 *up* 3 *down,* 6-harness even sided twill (see *full* type) three ends being drawn in one dent. Use 4-harness for weaving selvage.

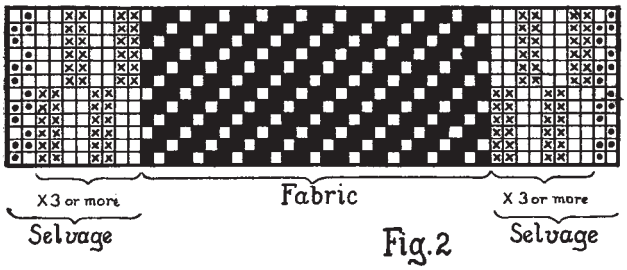

Fig. 2

Diagram Fig. 2 illustrates a selvage for a ladies' dress goods, requiring fulling and gigging. The weave for the fabric (see *full* type) is the common 2 *up* 1 *down,* 3-harness twill, whereas the selvage shows extra heavy floating 6 *up* 6 *down,* with 2 ends working alike (see *cross* type), in order to interlace extra loose with the filling. 2 double ends (see *dot* type) at the ends of the selvages are made to interlace the same as the warp, and consequently are drawn on the same harness. 2 or 4 extra harnesses are needed for this selvage.

(To be continued.)

British Order Regulating Dyeing and Sale of Socks.

A cablegram from Consul General ROBERT P. SKINNER, of LONDON, states that the war office has issued an order prohibiting the sale and dyeing of socks produced from army gray worsted or woolen yarn, except as to socks sold and delivered to retail dealers prior to September 2.

Broad Silks.*

. . . . In matters of fabrics and fashion the Europeans have been and will continue to be the leaders, notwithstanding newspaper items about American ideas and cleverness. For years we have looked to *France* for ideas in silk, and will continue to do so.

In marked contrast to our ever-increasing wage rates are the conditions that obtain in other lands, for instance in *England,* a duty-free country which has practically lost its silk-manufacturing industry, other than some spun-silk fabrics produced in a small way.

According to what I believe to be reliable reports, pre-war rates and wages are still maintained there, but the earnings of the workers are being supplemented by Government payments to an amount commensurate with the higher cost of living resulting from war conditions.

It has been stated that these payments by the British Government are now averaging 15 shillings ($3.65) *per week.* I mention this as an illustration of what another nation seemingly has in mind, *viz.:* The maintenance of its lower rates and wages through the war period, believing that thereby they will be better able to hold on to what they have always considered an economic advantage.

With reference to Japanese manufacturing conditions and the resultant product, such information as I have gathered has been at *"second hand."* I may state, however, that although in their testimony reference has been made mostly, if not entirely, to the one weave, HABUTAE, there are being manufactured by the Japanese a constantly increasing number of other silken fabrics, including especially crêpes.

Personally, I consider that the menace to the silk industry in our land from the Japanese woven product is traceable directly to the very great difference in labor costs, and that unless an adequate competitive duty rate shall govern we shall not have a fighting chance to hold even our own markets.

*Abstract from a paper by Edward M. Barlow, General Manager, Stehli Silk Corporation, Lancaster, Pa., and High Point, N. C.

Worsted Drawing Speeds.

The simplest method of calculating and regulating the speeds of the various machines in a set of worsted drawing is as follows:

RULE. Multiply the size of the front roller of drawing box by its speed, and the product by the weight of silver delivered per minute. Divide this by the product resulting from multiplying the size of the back roller of any machine which the above is supplying by its speed, and weight taken in.

Thus:

$$\frac{\text{Front Roller Diam.} \times \text{Speed} \times \text{Weight}}{\text{Back Roller Diam.} \times \text{Speed} \times \text{Weight}} = \text{Number of Spindles.}$$

EXAMPLE. What number of roving spindles will a drawing box supply whose front rollers are 4 in. diam., running at 60 revs. per min, and delivering 220 drams per min; the back rollers of the rover being $1\frac{1}{2}$ in. diam., 8 revolutions, and taking in 20 drams?

$$\frac{4 \times 60 \times 220}{1\frac{1}{2} \times 8 \times 20} = 220 \text{ Spindles.}$$

The above method may be applied to any stage in the drawing.