

2nd. The yarn should be as even as possible, and free from lumps; if it is solid colors see that the colors are even and not streaked; avoid winding a new batch of dyed yarns on the same bobbins that have yarn on from the preceding batch, as two batches are seldom the same shade, even should they be from the same dyer. The winders should keep their frames free from fly and waste, and keep the guides as tight as the yarn will permit, so that no lumps or waste will pass through. Keep the yarns in separate bins or boxes, and the number of yarn marked on each box or bin containing the same.

The foreman or forelady should be watchful of the yarn, or if they are not the winders will not be, and good spooling is the essential part to avoid seconds.

The winders should whip their colored skein yarn well before using as this removes most of the dry dyestuff and grit that generally adheres to the yarn in dyeing. Some run their yarn through oil, but if the yarn is properly manipulated as above no oil will be required as it gives the goods a dull appearance after being pressed. This refers to solid colors. Good lard oil is a help on mixed.

See that the operators are careful with their work and that the lengths are correct. Goods should be tried on the form three or four times a day as the gauge is liable to slip or may get out of order, thus making seconds. The machines should work properly, for if they do not the knitter will make seconds. Never let a knitter run a machine that is out of order. The rib machines should be kept in good repair and the cutters so instructed that they will not let any bad tops, etc., go through. Special attention should be given to the rib machines.

The power should run even, which will greatly facilitate the working of all the machines. On light colors or solids see that in oiling the machines it is properly applied so that it does not make black streaks or spots, thus saving seconds. The knitters should be required to turn out all scabs and holes caused by the breaking of a needle, etc., thus saving seconds. See that the machines are cleaned every night, which will save seconds. Goods should be kept on the wrong side until the pressers are nearly ready for them. The knitters should turn them as they make them, and they should be mended before they are turned by the turners, as they are liable to make a second out of a mender with their sticks. All goods should be paired, folded and boxed as soon as pressed to insure them against getting soiled.

#### CLOTH SELVAGES.

In the manufacture of cloths which are made otherwise than by the plain treading of the healds, some special arrangements are usually necessary to secure a plain selvage, or, at any rate, one which, when the cloth is finished, will be a good substitute for a plain selvage. When stripes are being woven, in which the ground is plain cloth, the shafts which make the ground may be utilized for making the selvage—care being taken in designing the pattern to so arrange that the first and last stripe shall be equi-distant from their respective selvages. In other fancy cloths, it is sometimes possible, by using

two or more of the shafts to make a suitable selvage. These are matters for the designer, and should never be forgotten when designing a pattern for striped cloth. In jacquard weaving, it is usual to reserve certain needles for the formation of the selvage. In these cloths, therefore, no further special arrangement is necessary. But in three and four shaft drills, where one heald only is raised or depressed at one time; in five shaft sateens, in matting, serges, oatmeal, mock crapes, and a variety of other cloths, it is absolutely necessary to have some arrangement by which a different selvage from the body of the cloth may be made. The old plan was the addition of skeleton shafts to the shafts required for weaving the body of the cloth. Skeleton shafts are shafts on which healds only are knit when required for raising or depressing the selvage ends. Up to within a few years ago, it was usual to make these healds of the same yarn, or similar to that used for the ordinary healds, but, it being found that the great strain upon the few healds, placed upon these skeleton shafts, caused them to wear out long before the healds upon the other staves, thus resulting in loss to the manufacturer, it is now usual to employ selvage mails—that is, healds containing metal eyes, which, when properly made, last a very long time. In many cases, however, it is impossible to use skeleton shafts without the addition of some arrangement to actuate these shafts, for instance, in making three or four shaft drills, and five shaft sateens, where motions exist which only provide for actuating three, four, or five shafts respectively. When this is the case, it is obvious that some further arrangements are necessary. One arrangement for this purpose is the addition of two small plain tappits to the tappit shaft; these tappits are cast in halves for convenience of application. They are placed just under that point where the selvage ends will come. Two small treadles are actuated by each of these tappits, and these treadles, in their turn, actuate the skeleton shafts. Where a spring top is used, the top staves may be attached to two of the jacks, should there be any not previously employed, or arrangements may sometimes be made to attach them to a long heald roller. In some cases, only one plain tappit is employed. This tappit is, of course, fixed upon the tappit shaft, whilst the three, four, or five, leaf tappit is upon the twill shaft. When this is done, some care is required in designing the tappit. In all cases where strong selvage ends are used, the skeleton shafts should be placed behind the other shafts, and not before. When two small tappits are used, skeleton shafts are sometimes done away with, and the selvages are made by a harness arrangement. The selvage healds are threaded through small comber boards, which are attached to the loom side or loom top, similar to those used in making fancy bordered dhooties, and either connected at the top with two of the jacks of a spring top, or else with elastics. Another variation of this plan is to have only one pair of these tappits at one side of the loom. The mail healds are connected with two of the jacks of a spring top. These jacks, of course, actuate their fellow jacks to work the selvages on the other side of the loom to which