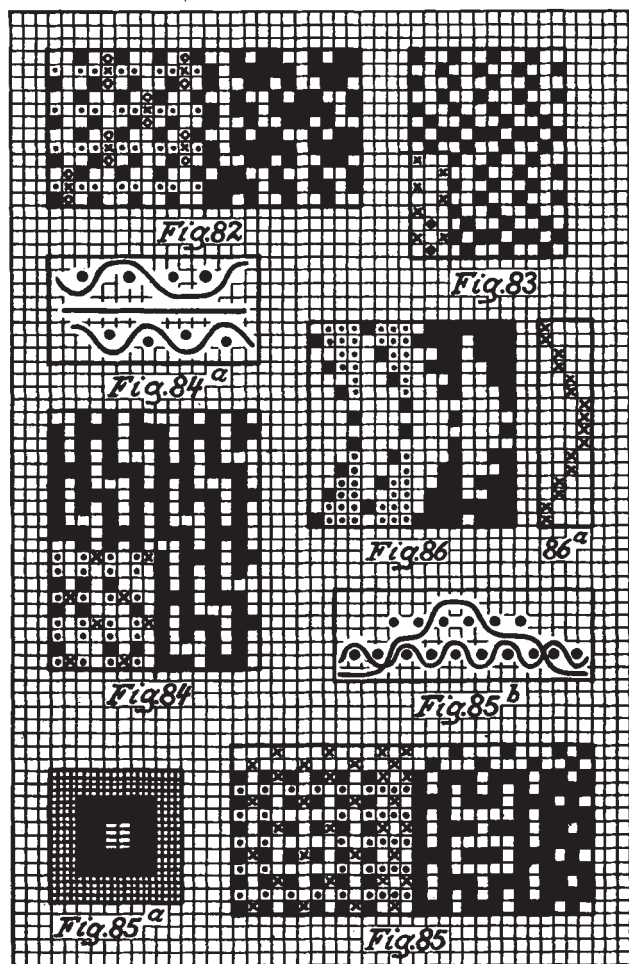


Three and More-Ply Fabrics.

Rules observed in constructing these fabrics are identical with those observed in constructing two-ply structures.

For this reason; for example, if constructing a four-ply fabric:

1st. Plan for lowermost situated structure, considering only warp-threads and picks belonging to it.



at the same time raising all the warp threads belonging to the three structures that are to rest above it.

2nd. Introduce the weave into the warp-threads and the picks of the structure as is to rest above the first, leaving all the warp-threads of the latter down, raising at the same time all the warp-threads of the two structures as are to rest above it.

3rd. In connection with the picks destined for the third structure, consider then only the warp-thread and picks belonging to the latter fabric structure when inserting the weave, raising all the warp-threads of the face structure, lowering at the same time all the warp-threads belonging to fabric structures one and two.

4th. Insert the weave into the face structure, leaving then all the warp-threads of the other three structures down.

As a rule, arrange the successive picks to interlace in rotation in structures 1, 2, 3 and 4, returning back again to structures 3, 2 and 1.

The various structures may be united into one compact fabric, either by using a separate binder warp, or

by stitching one structure into the other, using either risers or sinkers for the purpose.

Fig. 86 shows the weave for a 4-ply fabric, each ply interlacing with taffeta (plain).

The introduction of the filling into the various plies is shown at the right hand side in Diagram Fig. 86^a. viz.:

2	picks in	first ply	(bottom)
2	"	"	second ply
2	"	"	third ply
4	"	"	fourth ply (top)
2	"	"	third ply
2	"	"	second ply and
2	"	"	first ply (bottom)

DICTIONARY OF TECHNICAL TERMS RELATING TO THE TEXTILE INDUSTRY.

(Continued from August issue)

Wool Extract:—Wool (Shoddy or Mungo) recovered from rags composed of wool and cotton by subjecting them to a chemical process which destroys, *i. e.*, carbonizes the cotton.

Wool Extracting:—The removal of the burs and other spinose members of plants that are found in the wool staples is sometimes done by the bur picker, whereas other times a chemical process is substituted, which is known as carbonizing or extracting. In process of extracting, these vegetable impurities are destroyed by chemical agents. The wool is for this reason first steeped in dilute sulphuric acid and then dried, so that the vegetable material may be thoroughly killed. The wool is afterwards steeped in a solution of soda, so that the acid may be neutralized, and it is then washed in the ordinary way.

German Wool:—Same as Berlin wool, which see.

Wool Grading:—The arrangement of fleeces into qualities without untying the string as holding it together to facilitate handling, baling and shipping.

Wool Grease Yolk or Suint:—This grease is very variable in different wools as regards quantity, but the nature is similar in all breeds. The soluble part of it is produced by the secretion of the sweat; the insoluble is the product of the soil and surrounding circumstances. Some wools contain from 50 to 75 per cent of their weight in grease, others only from 15 to 20 per cent. To rid the wool of this grease without attacking the fibre with the chemicals employed, is one of the secrets of success in wool scouring. Used as a basis for ointments; lanolin.

Wool-grower:—A person who raises sheep for the production of wool.

Wool in the grease:—Wool containing the yolk; uncleaned wool.

Wool Moire:—A fabric of silk and wool similar to Bengaline, and watered.

Wool Monger:—A dealer in wool.

Wool Oiler:—An attachment to a mixing picker or breaker card, for adding oil to the wool while passing through the machine, to prevent the fibres from becoming felted together in the process of spinning.

Wool Picker:—A machine for freeing wool from foreign matters by beating it with rapidly revolving blades; a wool cleaner. Also frequently termed "mixing picker," a machine by which the stock is opened. It consists, first, of the feed apron, upon which the stock to be picked and mixed is deposited either by hand or a self feed; second, the feed rolls, which take the stock from the apron, and deliver it to the action of, third, the main or picking cylinder. The stock is thrown out of the rear of the machine by the current of air produced by the fan like action of the main cylinder. The wool, after being picked, is ready for the carding engine.

Wool Qualities:—The qualities are Picklock, XXX, XX, X, No. 1 (or half-blood), No. 2 (or three-eighths), No. 3, or quarter-blood, and coarse or common. These qualities are liable to variation in many wool-houses, according to the varying demand.

Picklock (now very scarce) is the quality produced from a pure Saxony sheep.

XXX.—The first cross of the merino with the Saxony.

XX.—The true standard is the quality of a full-blood merino.

X.—Is three-quarter blood merino.

No. 1, No. 2, etc., indicate the variations in purity of blood from the pure merino, from crossing with common sheep.

Coarse Wool.—The product of sheep with but little trace of merino blood.

Braid Wool.—The clip of bright-haired (lustrous) woolled sheep, almost pure, as Lincoln, Cotswold, and Leicester.

Wool Scouring:—The mechanical and chemical process of cleansing wool from all its impurities, to bring it into a workable condition for spinning. Raw wool is naturally covered with a preservative greasy matter, termed yolk or suint, to which also adheres a considerable quantity of sand, dirt, and other foreign matter; the amount of pure wool varies from 25 to 80 per cent. of the weight of raw wool. The scouring or washing of raw wool has the object of removing these impurities, and the process is carried out by treating the wool with warm (not hot) solutions of soap, with the addition of ammonia and carbonate of soda. This emulsifies the yolk, the sand, etc., being then readily washed away. Scoured wool is usually oiled before carding or combing, and this oil, together with dirt, etc., contracted during the various stages of manufacture, must be removed by a second scouring operation, before yarn or piece dyeing.

Wool Sorter:—One who sorts wool, especially one skilled in dividing wool into lots according to its quality, as length and fineness of fibre.

Wool Sorter's Disease:—Blood poisoning, probably *anthrax* (although there is not always an external lesion), occurring in those engaged in handling and sorting alpaca, mohair and other varieties of similar wools which have not been previously disinfected. A disease caused by *Bacillus Anthracis*, which may enter the system either by the skin or by the internal organs. In the former case it gives rise to pustules, which become painful and cause perspiration, fever, delirium and other disorders. In the latter case it produces the most serious ailments, such as blood

poisoning and inflammation of the lungs, which often prove speedily fatal.

Wool Sorting:—Dividing a fleece into different qualities or sorts, according to fineness, length and strength of staple, whiteness, etc., in order to be able to spin the required yarn as to quality, count, cost and evenness of thread, and is the first process of manufacture in a woolen and worsted mill, also the most important. Sorting is done by the tearing off of each staple of wool separately by the hand, and it is generally intrusted to an expert who understands the grading of wool staples. The finest and most even drawn staples are found on the shoulders and the sides of the fleece. A staple of fairly good quality resembling that from the shoulders is got from the lower part of the back. On the loin and the back of the sheep the staple is shorter and of a more tender nature. The upper parts of the legs give a wool of moderate length that is often suspended in loose open locks; it is this part that is useful to the bur plant by brushing off the spinose fruit and so acting as a disperser of the seeds. The staple so charged with bur fruit or leaves becomes the burry wool of commerce, and the presence of the burs reduce the price of such staples. The wool from Buenos Ayres is often charged with burs of the Medick. The upper part of the neck gives an irregular staple that is often infested by the spinose leaves of wild prairie plants and seeds. In the central part of the back the wool is similar to that of the loins of a delicate staple. The belly portion includes the wool from the fore and hind legs. The staple is deficient in quality and of a tender nature. The tail of the sheep has a coarse, short and glossy staple, often intermixed with kemps. The woolly fibres from the head, chest and shins is of a stiff and straight nature. The fibres from the shins are often termed "the shanks."

The discrimination of the staple from a fleece gives rise to a great many names, see "Wool Qualities" given before. Some mills, more particularly those abroad use different terms. Such as used with reference to the grading for woolen spinning are: 1 Picklock, the finest, most elastic and strongest staple, 2 Prime, 3 Choice, 4 Super, 5 Head, 6 Downrights, 7 Seconds, 8 Abb and 9 Breech. In connection with the worsted industry the grades made are given as follows: 1 Blue, 2 Fine, 3 Neat, 4 Brown Drawing, 5 Breech, 6 Cow-tail and 7 Brokes. Superfine, middling and common are applied accordingly as the quality of the staple is determined in Botany wools, and this grading is dependent on the adaptability to spin certain counts of yarn either up or down. Port Philip, Sydney and Adelaide are the three principal kinds of staples that were introduced into the wool market from Australia. These wools are used for either woolen or worsted goods, according to their character, quality and length of staple.

Wool Top:—Highly purified scoured wool that has had the short fibres and inferior particles, called noils, removed by the process of combing. The long fibres are laid parallel with each other, and when drawn through the comb become wool top, which is subsequently drawn and spun into any kind of worsted yarn.