

Georgia, Florida, Alabama, Mississippi, Tennessee, Arkansas, Oklahoma, Louisiana, and Texas. This cotton is suited for all numbers of yarn up to 50's warp and 80's filling, being clean, regular in length of staple and well graded. On account of these features, as well as the fact that the quantity raised is greater than that in all other parts of the world together, the price of American cotton regulates the price of cotton throughout the world.

Of this American cotton the Gulf (or New Orleans), Benders or Bottom Land varieties are the most important, varying as to length of staple from 1 to $1\frac{1}{2}$ inches ($1\frac{3}{8}$ inches in special instances) permitting spinning up to 50's warp and 80's filling. Cotton brought in the market as Mobile, Peelers and Allan Seed, belong to the same variety and are next in importance, while Mississippi, Louisiana, Selma, Arkansas and Memphis cottons also belonging to this variety, are slightly inferior. Texas cotton varies from $\frac{3}{4}$ to 1 inch in length of staple, and is well suited for warp yarns up to 32's. Next in importance are the Uplands cotton, having a length of staple of from $\frac{3}{4}$ to 1 inch, permitting ready spinning into 30's to 40's filling. Cottons as brought in the market under the name of Georgia, Boweds, Norfolk, or Savannah cotton also belong to the variety of Uplands.

Picking Cotton.

MAINLAND COTTON.

Cotton is picked by hand, Fig. 15 showing cotton pickers at work in the field. Notwithstanding that considerable skill and capital has been expended in the efforts to construct a machine cotton picker, no satisfactory results have thus far been obtained. What machines that have been invented and tried, gathered more rubbish, (limbs, leaves and hulls) than seed cotton, necessitating the passing of the whole through a separator. As high as 333 pounds of cotton have been picked per day by one man, though it is probable that 100 pounds is nearer the day's work of the average plantation laborer. As a rule, the cotton plants have their bottom or first crop gathered during the time that the leaves of the plant are green; but the second crop, from the upper part of the plant, is liable to attacks of frost, which interferes with the picking harvest. Cotton picking is the most tedious and expensive operation in cotton growing, the most of the picking being paid for at the rate of from 40 to 50 cents per hundredweight, expert pickers in this way earning from \$1. to \$1.50 per day. It is very light work, at the most pleasant season of the year and it is effectively performed by the women and even by small children, as well as by men.

When cotton opens, all the thoughts of the planter are centred on picking it; so, whether the snowy flakes are dry or wet with dew or recent rains, the pickers are sent forth to gather them. As pickers work mostly by the 100 lb., they are not over particular, and thus leaves, hulls, limbs, and quite frequently lumps of dirt and mud find their way into the sacks to make up the weight of the day's picking. The cotton is then emptied out of the picking sacks in baskets, hauled to the cotton house, or is piled on the turn row, to lie there exposed to the elements until it is hauled to the cotton house or the gin. This is one of the points apt to result in damaged cotton with a consequent loss to the farmer, for which reason the picking of the seed cotton should have his most careful attention.

SEA ISLAND COTTON.

Picking of this cotton is done whenever enough cotton is open, about every 10 days. The cotton is gathered as free from trash as possible and carried to the storehouse, where the next morning each picker sorts his own picking, throwing out diseased or yellow locks and pieces of bolls, leaves, and other trash. The cotton is then spread on arbors to dry in the sun. It is watched and turned frequently, and usually dries in one day. After sunning, the seed cotton is assorted by women, who remove any yellow locks, bits of leaves, etc. If very dirty it is whipped over a coarse wire screen stretched across a small box to take out the sand. Very fine cotton is again sorted or overhauled by another set of laborers. The cotton is then bulked and allowed to remain from four to six weeks before ginning.

During the ginning, one or two hands inspect the cotton as it passes to the gins, to remove impurities, and one of two others "mote" the lint as it passes from the gin to the press, by picking out yellow tufts, etc. By all these means a high grade is maintained for Sea Island cotton, which is reflected in a price per pound several cents higher than that paid for the Sea Island cotton grown on the mainland, near the coast, and which is known as Interior Sea Island Cotton.

(To be continued.)

TERRY PILE FABRICS.

Their Quality, Production, and Cost.

By H. Barlow.

(Continued from July issue.)

Shedding.

A continuous terry fabric, such as plain toweling, can be woven by cam shedding, but in many instances the requirements of the trade make it necessary that a cross border dobbie should be used. One set of bars is then used for the terry and the loopleess or plain cloth in headings, and the other set of bars for cords or other fancy weaves in headings. Usually, a measur-

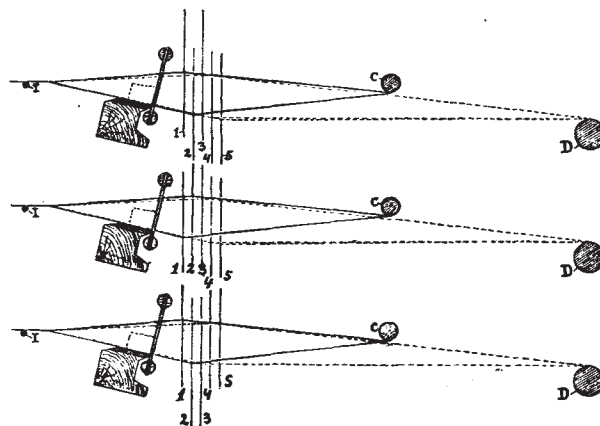


Fig. 13

ing chain on the take-up roller is the cause of forcing the starting handle of the loom off its notch when the required length of terry or body of the towel has been woven. Then the weaver, by moving a handle at the dobby, or a cross-rod which extends across the front of the loom, can bring the terry bars of the dobby out of action and put the fancy weaving bars into action.

We might think that positive dobbie shedding would be more satisfactory, considering the extreme tension upon the ground warp, but in practice this type has proved unsatisfactory at quick speed, because there is not a perfect control of warp lines, and there are more breakages in cords and jacks, also the movement of the warp is more jerky or unsteady.

In the negative type of shedding and where springs return the harnesses, the hook with its harness begins to drop immediately the draw or lifter knife returns, whereas in the positive type of shedding, the harness must wait until the auxiliary blade reaches the arm of the lever, which it presses back. The cost of positive shedding is also greater.

The secret of a good shed is to make the same as small as possible, consistent with the proper and true running of the shuttle, and to keep the terry and ground warp shed lines in correct relative positions. For this reason, there is decided objection to using large shuttles; in place of it the shuttle should be bodied so as to take as large a cop as possible. The ground warp shed is less than the terry warp shed at the reed, and the dobbie draw knives may be reversely set (if thought necessary to do this) so as to give more lift to the front than the back harnesses. The third, fourth and fifth harness should lift approximately level, or there will be a tendency to produce cracks or irregularities in connection with light makes of cloth.

Fig. 13 shows three sheds as formed for the first, second, and third picks in a 3-pick terry. The method of adjusting the harnesses is as follows: Put the fourth and fifth harness so that the yarn is just above the raceboard, and the second harness so that the terry warp is bearing on the raceboard, but not bending round. Connect the third ground harness so that its warp lies above that from No. 2 harness when the latter is down. Nos. 1 and 2 are terry harnesses, which when up, must lift the terry warp clear above the lifted ground warp; No. 1 terry harness, which controls warp forming terry on upper side of cloth must not take its warp below that from No. 3 harness when down. No. 2 harness controls the warp to form terry on the underside of the cloth. If the terry warp-threads are kept lower than the ground warp-threads a much cleaner and fuller terry may then be expected on the back of the cloth.

The time of shedding should be as late as is reasonably possible, taking the width of the loom into account. If shedding is late, picking must correspond, but the latter should not be later than 180 degrees. A clearer and sharper loop will be made with late than with early shedding, because the harnesses not having crossed to form the shed, the picks move forward more easily, and are held more securely after the beat-up. The ground warp does not require weighting to the same extent, and the reed does not disturb the threads because the crossing of the harnesses and warp to form the next shed has not taken place. *C* in illustrations indicates the warp-beam for the terry warp, and *D* that for the ground warp; *I* the cloth guide rod.

(To be continued.)

Mexican Export Duty on Wool and Hair.

The Mexican Government has increased export duty on wool to 40 cents Mexican gold per kilo and 20 cents Mexican gold per kilo on hair. [Mexican gold peso, par value, \$0.4985; kilo, 2.2046 pounds.]

SILK THROWING

(Continued from July issue.)

Combination Spinning, Doubling and Twisting Frame.

This is the combination machine for spinning organzine by one operation in place of three machines as used in some mills, *i. e.*, combining first-spinning, doubling and second-spinning in one operation.

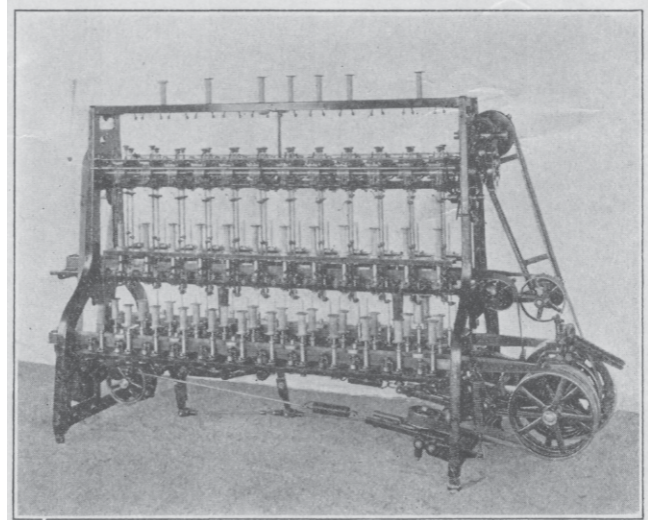


Fig. 28

Fig. 28 shows this machine as built by the Atwood Machine Company, in its perspective view. This Combination Organzine Frame can be built in any length, a standard size being 160 first-time and 80 second-time spindles, dealing with a machine 19 feet, 5 inches long, 1 foot, 11 inches wide and 3 feet, 8 inches high to feed rollers.

The spindles are belt-driven, and of the self-oiling type, the first-time spindles being mounted in an automatic, swinging holder and the second-time spindles in an adjustable holder, thus ensuring uniform drive with minimum of power; the arrangement of spindle belts is very simple and effective, and are provided with suitable take-up devices.

The first-time spindles take a standard winder bobbin in general use; the twist is regulated by the change of a single gear and the relative amount of first and second-time twist is obtained by change of a single pulley. Feed rollers are removable singly and all parts of the frame are easily accessible; stop motion is very simple and instant in operation; rings are of the double adjustable type.

In operation, the first-time ends are brought up through the drop wires, around the feed-rollers and down to the receiving bobbin; any break of either end releases the faller, lifts the feed-rollers and stops the receiving of twisting spindles.

Fig. 29 is a diagrammatical end view of the machine, clearly showing the run of threads through it.

a is one of the two end frames, shown by dotted lines. *b* is the spindle rail and *c* the spindles for carrying the "first-time" bobbins *d*, the ends *e* of which are brought up through tension wires *f* and in turn through faller wires *g*, then through guide eye *h*. The two threads are guided in their travel by two parallel rods *i* and *j*.