over the counters of New York, Boston, and other leading markets, in direct competition with goods made in Massachusetts, and it will be nothing short of a miracle if it will be found that the situation is becoming somewhat serious, to say the least, even with the present hours of labor.

The time had come when it was no longer possible to make as good wages as before the passage of the ten-hour law, even in the most modernized mills. In 1873 there were only a few eight-hour looms, most of them tending six and less. A weaver who could tend eight looms could earn $8 to $10 weekly. In 1875, an eight-hour loom employee could earn $9 to $10 weekly. In 1878, $10 and $12 weekly, and in 1882 $15 weekly. By 1885, more than $20 weekly. Speed had to be increased and wages reduced from time to time, and new improvements had to be made in the machinery to keep pace with the competition with which they had to contend.

The average cost of cotton per pound was increased, and the result was a rise in the price of cloth. The cost of labor, rent, and repairs was also increased, and the result was a decrease in the quantity of goods manufactured. The machinery which was being built and put into new mills was built upon the same old principle. The old idea was to increase the speed of the loom, and to make the looms run faster, and thus increase the output of the mill. This was done by increasing the number of spindles, and by increasing the number of looms. The result was a rapid increase in the cost of labor, and a decrease in the quality of the goods produced.

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THE TEXTILE MERCURY.

May 9, 1893.

For the weight \( \frac{64 \times 34 \times 50}{20 \times 50} = 9 \text{ lb. 11 oz. of wool} \).

The same method of working may be adopted whatever the order of colouring may be. The same principles may also be applied to weft colourings, as will be shown later.

The second complication in warp calculation is the not unfrequent system of using yarns of two or more counts in the same warp. This method of finding the weight of the warp under these circumstances presents itself.

Firstly, the average counts of the two or more yarns may be found and the weight calculated for the average counts on the ordinary system.

Secondly, should the order of warping, etc., be very complicated, the system employed for finding the weights of various colours may be adopted to these conditions.

The cloths most easily dealt with under the first conditions are backed and double cloths, in which the warping plan seldom exceeds three or four threads.

Example.—A warp is composed of alternate ends of 2/96 and 2/75 worsted; set 120 ends per inch. Find the weight if made 6 inches wide, 50 yards long.

**Rule IV.**—To find the average count.—Find the resultant counts of the 2, 3, or 4 ends combined, and then multiply by 2, 3, or 4, according to the number of ends given.

In the above example, \( 15 \times 2 = 30 \) and \( 15 \times 2 = 30 \).

Then \( \frac{30 \times 2}{5} \) the average counts, and \( 120 \times \frac{30 \times 2}{5} \) the weight of warp.

Or by taking each count separately:

- 60 ends of 2/96 make 2 lb. 3 oz. fine warp.
- 60 ends of 2/75 make 2 lb. 3 oz. thick warp.

Total weight \( = 45 \) lbs.

The 6 oz. lost by the previous method is due to the fractions involved. The advantage of being able to reason a question out in more ways than one has been here clearly shown.

Errors.—In last week's issue, the reference to the angle formed by the weft with warp, with half an equilateral triangle, was inadvertently lettered wrongly, but if the base of the triangle be lettered \( a \), the altitude \( c \), and the hypotenuse \( b \), the deduction will be understood.

NEW DESIGNS.

COTTON DRESS DESIGN.

The colours at present most popular, although rich in costly unions, are still the quiet, screen blues in inexpensive fabrics. For ordinary everyday wear the most charming cotton dress goods are in every shade of grey, from grey green, grey blue, grey green, and pale fawn. There are a few greens almost black, and some greyish-blended designs.

**Design A.**

[Diagram of Design A]

**Design B.**

[Diagram of Design B]

COTTON SHIRTINGS.

**Design C.**

[Diagram of Design C]

**Design D.**

[Diagram of Design D]

The best materials: the goods well bleached or piece-dyed in fawn, blue-grey, grey, indigo, navy, light blue, or any of the fashionable shades, and burl finished. This design worked out from particulars given will be found satisfactory.