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A Study in Weave Formation.

HOW TO CONSTRUCT DIAGONALS.

In the December 1913 issue of Posselt's Textile Journal we explained the Construction of Diagonals by means of what is known as *Warp Drafting*, taking for the present article the subject of how to obtain these Diagonals by means of

Filling Drafting.

The difference between warp and filling drafting is that by the first procedure only one new diagonal will result, whereas with filling drafting any number of new diagonals can be obtained from one foundation weave, the number of new weaves possible depending upon the repeat of the foundation weave under consideration.

For this reason, if for example 10 is considered as the foundation, filling drafting will permit four entirely different combinations, hence four new diagonals can be obtained from any one of our 10-harness twills.

In the same way, considering 12 as the foundation, this will give us five different combinations, *i. e.*, five new diagonals can be obtained from everyone of our 12-harness twills, etc.

The foundations to be used for these diagonals are again our regular 45 deg. twills, the repeat of the latter indicating at the same time the repeat warp ways for the new diagonal. No reduction as to number of harnesses required takes place. In this they differ from diagonals obtained by warp drafting where in connection with foundation twills of an even repeat the number of harnesses required for its mate diagonal is reduced by one half.

With reference to the repeat of these diagonals drafted filling ways they call for double the number of picks compared to its foundation weave, and in which they again differ from diagonals obtained by warp drafting and when, as explained in the December 1913 issue, the repeat filling ways of the foundation weave corresponds to that of the diagonal obtained from it.

A few practical examples will explain the construction of these diagonals as obtained by means of filling drafting, resulting, provided the proper (well broken-up, *i. e.*, no large floats) foundation twills are used, in some excellent weaves.

Ten Harness.

Four new combinations are possible.

Fig. 1 shows us the 2 up 2 down, 2 up 1 down, 1 up 2 down 10-harness regular twill, being the same weave

and started similarly in Figs. 5, 9 and 13. *Full* type is used in every diagram.

USING PICK THREE.

Fig. 2 shows us the same 10-harness twill but started with a different pick as compared to weave Fig. 1, using *pick 3* of the latter as its first pick. This weave is shown by *cross* type so as to distinguish it from the same weave shown in Fig. 1 but started with a different pick.

To obtain the new diagonal, draft alternately one pick (taken in rotation) from arrangement shown in Fig. 1 and one pick from arrangement in Fig. 2. Continue drafting alternately one pick from one and then from the other, until every pick of the two positions of the foundation twill are used, and when the repeat of the diagonal is obtained.

Fig. 3 shows this plan of drafting, showing each pick in a different type. All the uneven number of picks are shown by *full* type and which are taken in rotation from weave Fig. 1; all the even number of picks are shown by *cross* type and which are taken in rotation from weave Fig. 2.

Fig. 4 shows the diagram of construction given in Fig. 3 executed in one kind of type to give a clearer view of the resulting weave in the fabric.

USING PICK FOUR.

Fig. 6, shows us the foundation started with *pick 4* of weave Fig. 1, or what is the same as weave Fig. 5. Drafting weaves Figs. 5 and 6 1:1 will result in combination Fig. 7 and weave (shown in one kind of type) Fig. 8, a weave which differs in its result in the woven fabric considerably from that produced by weave Fig. 4.

USING PICK FIVE.

Fig. 9 is a duplicate of weaves Figs. 1 and 5, both with reference to interlacing and more so in this instance with reference as starting pick 1 uniformly in each instance. Weave Fig. 10 is started with *pick 5* of weave Fig. 9. Drafting weaves Figs. 9 and 10 1:1 results in diagram 11 and in turn in diagonal weave (shown in one kind of type) Fig. 12.

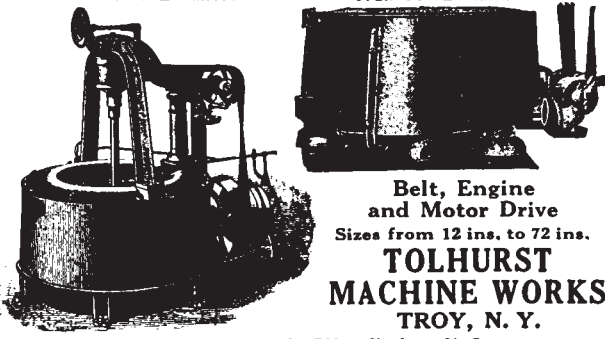
USING PICK SIX.

Figs. 13, 14, 15 and 16 explain subject, *i. e.*, the first pick in Fig. 14 is *pick 6* in Fig. 13.

TWO PICKS IN ONE SHED.

Using *pick 2* for starting the changed weave will


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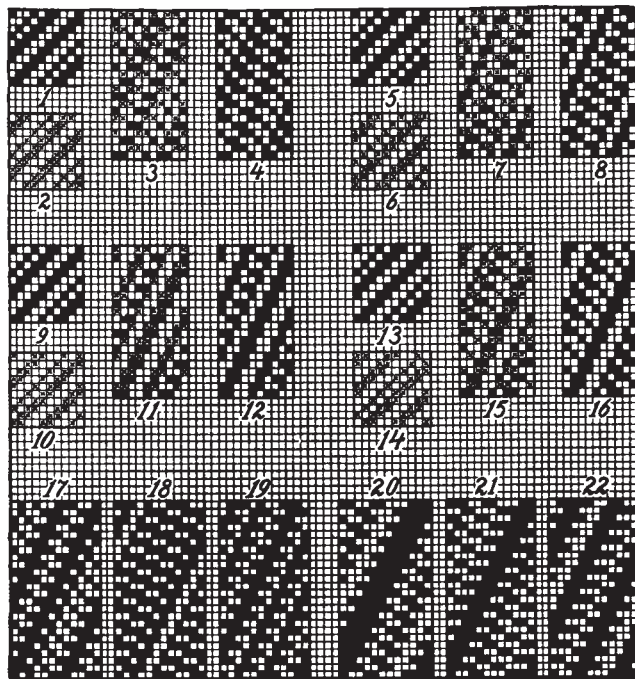
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result in the same regular twill with 2 picks in every shed, although presenting the appearance of a diagonal on the design paper if indicating every pick of the 20 picks forming the repeat of the weave.

DUPLICATE EFFECTS.

This then leaves us only four more possible points of starting the change of twill, *viz*: using either pick 7, 8, 9 or 10.



Using *pick 7* will give us the same combination, *i. e.*, weave, as *pick 6* has produced, in turn resulting in diagonal Fig. 16.

- Using *pick 8* results in diagonal Fig. 12.
- Using *pick 9* results in diagonal Fig. 8, and
- Using *pick 10* results in diagonal Fig. 4.

Twelve Harness.

Considering the great number of twills possible to be made, and taking into consideration that every one of these weaves is able to produce new and different diagonals, this will readily indicate to us the great number of different diagonals at our disposal. The higher the repeat of the foundation weave used, the more regular twills we meet with, hence, the more diagonals possible to be made.

On 12-harness ($12 \div 2 = 6 - 1$ two picks in a

shed =) 5 different diagonals can be constructed from any one of the 12-harness regular twills.

Two specimens are given *viz*:

Figs. 17, 18 and 19 show us three specimens of the five diagonals possible to be obtained from the $\frac{3}{2}\frac{3}{1}\frac{1}{2}$ 12-harness regular twill, and Figs. 20, 21 and 22, three specimens of the five diagonals possible to be obtained from the $\frac{4}{2}\frac{2}{3}$ 12-harness regular twill.

Production of Lustre on Cotton.

According to a late French patent, a fast silky lustre is produced on cotton and other vegetable fabrics by impregnating the cloth with a salt such as sodium or ammonium chloride or other crystallisable substance followed by calendering at 100 to 200 deg. C. The crystallisation of the salt during the hot calendering produces the lustre.

PROTECTING CLOTHING, FURS, ETC., AGAINST THE ATTACK OF MOTHS, AND OTHER INSECTS.

In a former patent it was shown that *p*-dichlorobenzene was effective for protecting clothing, furs, etc., against insects, and for killing agricultural and domestic pests. It is now claimed by a patent lately issued in England in the interest of the Actien Gesellschaft für Anilin Fabrikation, Berlin, Germany, that *o*- and *m*-dichlorobenzene mono- and tri-chlorobenzene, and mixtures of chlorobenzenes are effective for the same purpose.

Khaki serge has now been added by England to the list of goods the export of which from that country during the continuance of the war has been prohibited.

THE Dutch Government has issued an order prohibiting the exportation of cotton yarn from Holland during the continuance of the war.

The German and Austrian trade, as far as it affects cotton spinners and doublers in England, says the "Textile Mercury," would have been wrested from England to a great extent during the next few years—apart from the war. Some doubling mills that have catered exclusively for the German trade in Barmen and Saxony districts are now closed, and the likelihood of their starting again is indeed remote.

A comparative table published by the Department of Commerce shows that importations of unmanufactured cotton total \$21,692,346 for the year ended Sept. 30, 1914, against \$21,134,000 for the corresponding period last year.