mill life as being below them. The problem is a most complicated one, but what we have said will serve as a guide to the causes which have been at work to produce the results which all see, and most deplore.

ENGLISH v. AMERICAN CALICO PRINTING.

The *Dry Goods Economist* calls attention to a letter, which appeared in one of our Manchester papers a short time ago, respecting the different systems which prevail in working the calico printing industries of the two countries and the different results obtained. The letter, which was signed "J. L."—the initials of a well-known Manchester calico printer—gave some remarkable statistics which, if true, would undoubtedly be startling. The following figures are given:—America, with 300 printing machines, turned out last year 1,077,600,000 yards of printed cloth of all sorts, while England, with 900 machines, only produced 949,400,000 yards—a difference in yardage of more than 128,000,000, or in gross nearly four times the quantity per machine in favour of America, the English printers averaging about 3,500 yards per day per machine, and the American 12,200. How is this great difference to be accounted for? In England the printing business is conducted mainly on orders, and for any number of pieces a buyer may require. Such small quantities as 300 yards to a colouring, and only two colourings to a design, are nearly the rule of the trade. In such cases the loss of time in changing the pattern—that is, taking the rollers out of the machine and putting in another pattern—is far greater than the whole time spent in actually printing the goods. Where the design is one of many colours, such as chintz blotches, the loss of time will be multiplied. In addition to the inevitable delays arising from what are called "short runs," English printers do a great deal of sampling; that is, new patterns are sampled in many varieties of colourings in short lents only, from two to six yards in length. The pattern is then taken out of the machine, and is not put in again until the arrival of the order, which may only be for the two short runs before mentioned of 300 yards each in two combinations. In many English concerns 30 per cent. of the machines are engaged all the year round in sampling only. The system in the States is totally different. There sampling lents is unknown. The American printer receives his orders from the merchant in large quantities to a pattern. A new design will be ordered in quantities ranging from 800 to 1,000 pieces of 50 yards each. These are printed right off to eight or nine colourings, and the merchant takes the risk of the sale of them. Sample cloths are taken from the goods when finished. It will be seen at once that Americans effect two great savings by avoiding: (1) loss of time in changing for short runs; and (2) loss of time in separately sampling lents, which costs English printers 30 per cent. of their producing power.

Provided that Americans can find markets for all they produce, and so keep their machines running the year round, it is easy to see that their output must exceed ours. But output is not the supreme goal to be attained. Profitable working is the ultimate object, and to this question "J. L." offered no contribution, and the *Dry Goods Economist* has a very gloomy tale to tell. It would appear that this enormous production has overtaken the demand and over-stocked the market. The natural consequence of an over-stocked market is that people sicken of the goods. The patterns and material depreciate in the eyes of the public, and other fabrics are preferred. There is nothing so uncertain and changeable as taste and fashion, and nothing so demoralising to taste as flooding a market with more goods than are required. This is what the Americans have been doing. The *Dry Goods Economist* says that "the profits in the calico printing industry of the United States have been steadily declining for years past. Compared with fifteen years ago dress calico printing is but a fragment of what it then was. In that time more than 100 machines, that formerly produced calicoes for dress, have disappeared, and of those machines now running, fully one-half print cloths for other purposes than dress wear, such as quilts and furniture tapestry." There does not appear much encouragement in these statements for Englishmen to attempt to follow the American idea. Perhaps our printers had better "bear those ills they have than fly to others they know not of." In the meantime we do not hear much of the "Calico Printing Union," from which so many benefits were expected to accrue to the trade. All statements to the effect that the scheme has collapsed are, we know, strenuously denied by some persons interested, but for all that we venture to think that there is a good deal of truth in them. Although in previous comments on the subject our views have leaned towards the syndicate, we fail to see that it is possible for it to be a success, or even to commence to exist, while small firms ask ridiculously high prices for plant which, in some cases, is not worth in the open market 40% of the sum named by the owners. At the same time we are aware that there are substantial firms keenly desirous of seeing the scheme successfully floated, and whose earnest and continued support may confidently be counted upon by the promoters. These firms, looking ahead, see that the industry with which their fortunes are bound up cannot emerge from the troubled waters which now surround it, unless joint action is taken with a view to stopping the practices which constitute the curse of the business. We are glad to learn this week from a reliable Glasgow source, that the opposition of the Scotch printers is not so general as was feared, and that several of the largest firms across the Tweed are still distinctly favourable to its success, seeing as they do no hope of reasonable profits unless the Union, or a combination of some kind, is formed. The delay that has undoubtedly taken place is, we are furthermore informed, chiefly due to the recent financial convulsion, the effects of which are even yet too apparent in monetary circles; and secondly, to Sir John Puleston's personal advent in Glasgow having been delayed owing to various unforeseen circumstances, domestic affliction, ill-health, etc.

The fact is the print trade has become completely demoralised owing to the influence of outsiders, not practical printers, whose only guide to price is what they are told by customers that their neighbours are willing to take, and who are under the thumb of the middlemen who have recently sprung up and exploit needy printers, who must keep their works going at any cost. No combination or agreement as to prices having been found possible, or practicable, a Union such as is contemplated can alone redeem the trade from its present low ebb, and this the syndicate will effect, despite the suicidal attempts of small printers, acting in the interests of their lords and masters the middle-men, to stifle what ought to, and would, prove the greatest benefit to them if they were in a position to take an impartial view. Such is the language used by a well-known Scotch printer in reply to a report that the scheme had collapsed. While welcoming such an outspoken utterance from a quarter where the project has not received too much encouragement, we think it a pity that the progress of the scheme should be delayed owing to the ill-health of one gentleman. Cannot others be found to assume the control of affairs during Sir John's indisposition? Surely there are those connected with the firm of James Black and Co. able and willing to meet the Scotch section of the trade in Glasgow for the purpose of discussing matters.

Reviews of Books.

All books reviewed in this column may be obtained post free at the published prices from Marsden and Co., "The Textile Mercury," 23, Strutt Street, Manchester.

DENHAM'S LARGE SCALE CYCLING, TOURING, AND DRIVING ROAD MAP OF MANCHESTER, OR 75 MILES ABOUT MANCHESTER (53, Market-street, Manchester.)

This is a clearly-arranged map mounted on cloth and based upon the Ordnance Survey. The specially interesting feature in connection with the work is the length of the radius from Manchester included in it. Other maps of the kind have not, we believe, exceeded 40 miles. It only remains to add, respecting Mr. Denham's enterprising venture, that the roads are coloured, and that the names are clearly printed. There is not an illegible word in the whole sheet. To commercial men and others travelling through the important industrial district covered in the map, the work, which is published at the low price of 2s. 6d., should prove of great value.

IN Japan velvet is rapidly going out of fashion in favour of zanellas. Of late years this article has been obtained almost exclusively from Great Britain, for although German produce is on a par with that of England, we cannot (says a German merchant) compete with the great Bradford firms on the score of cheapness. The kind in demand is mostly black, but a few coloured and striped goods are disposed of. It is a distinct novelty and one worthy of being recorded in the columns of *The Textile Mercury* this: that a German should acknowledge the inability of his countrymen to produce as cheaply as Great Britain.

Designing.

NEW DESIGNS.

FANCY TWILLED GINGHAMS.

Eighty ends per inch of 36's cotton for warp, 80 picks of 36's weft ordinary cassimere twill.

Warp pattern: 150 dark green, 12 silver grey, 8 dark green, 4 red, 4 white, 4 red, 4 white, 12 dark green, 8 silver grey, 150 dark green, 8 silver grey, 6 dark green, 8 silver grey. Repeat with the first 150 dark green. Weft pattern the same. Forty-eight inches in the reed.

Second pattern: Same counts, etc., as the first, 44 inches in cloth, which is called the "Atalanta"—a beautiful pattern for a graceful draping costume, and one which will be a favourite throughout the summer and autumn seasons. 6 claret brown, 6 slate dove, 6 claret brown, 48 white, 6 slate dove, 6 claret brown, 6 white, 60 claret brown, 6 white, 6 claret brown, 6 slate dove, 48 white, 6 claret brown, 6 slate dove, 6 claret brown, 200 slate dove, and repeat from the first six of claret brown. Weft pattern the same. If No. 3 pegging plan is also used, a fine bold effect will be produced. Plain weaves in these cloths are also in great request. There is quite a revival of the gingham fabrics, and it is likely to continue. We will endeavour to furnish manufacturers with all the latest information in patterns and details for the make of these textures.

Third pattern: 60 slate dove, 6 white, 12 slate dove, 8 white, 8 slate dove, 12 white, 12 dark purple, 8 slate dove, 8 dark purple, 12 slate dove, 6 dark purple. Repeat from 60 slate dove. Weft pattern the same. A very economical way to produce a good effect, quite in keeping with the general tone of the pattern,

would be to draw the 6 white ends after the 60 of slate dove on the 3rd and 6th shafts, in this manner: 2 white, two in a heald, on 3rd shaft; 2 white, two in a heald, on 6th shaft; 2 white, two in a heald, on 3rd shaft. Then in the next repeat of the pattern take the 6 white ends after the 60 slate dove, and draw 2 white, two in a heald, on 6th shaft; 2 white, two in a heald, on 3rd shaft; 2 white, two in a heald, on 6th shaft. All other ends straight over. This arrangement will ornament the fabric without requiring extra yarn, shafts, or extra weft. The round will not be increased as the weft pattern will remain as given.

Fourth pattern, plain weave: 12 terra-cotta, 6 white, 48 terra-cotta, 8 dark blue, 12 terra-cotta, 12 white, 12 terra-cotta, 8 dark blue, 48 terra-cotta, 6 white, 12 terra-cotta, 8 white, 4 dark blue, 4 white, 4 dark blue, 4 white, 4 dark blue, 2 white, 2 dark blue, 2 white, 2 dark blue, 2 white, 2 dark blue, 8 white, 24 dark blue, 8 white, 2 dark blue, 2 white, 2 dark blue, 2 white, 2 dark blue, 2 white, 4 dark blue, 4 white, 4 dark blue, 4 white, 4 dark, 8 white; repeat from 12 terra-cotta. This is a double plaid pattern.

FANCY STRIPED COTTON CHECK.

This is a very fashionable cloth. The grounds are in all shades of blue, bronze, purple, dark fawn, and pinks, in conjunction with white, for the stripes and transverse bars. It is made 80 ends per inch of 40's cotton for the ground, and 2/40's cotton for fancy stripe. 40's cotton weft, 80 picks per inch. Pegging plans are numbered for reference of draft and tread. *Warp pattern:* 6 dark blue, 4 white, 4 dark blue, 2 in a heald one heald per dent, 4 white, 4 dark blue, 2 in a heald, one heald per dent; 4 white, 4 dark blue, 2 in a heald, one heald per dent; 4 white, 4 dark blue, 2 in a heald, one heald per dent; 4 white, 12 dark blue, single 1 white, 1 dark blue, 1 white, 1 dark blue, 1 white, 1 dark blue, 1 white, 1 dark blue, 1 white, 8 dark blue, 8 white, 16 dark blue, all on 1, 2, 3, 4 shafts; 2 white 2/40's, two in a heald, on 9th shaft; 2 white 2/40's, two in a heald, on 10th shaft; 2 white, two in a heald, on 9th shaft; 12 dark blue, on 5, 6, 7, 8 shafts; 2 white, two in a heald, on 9th shaft; 2 white, 2 in a heald, on 10th shaft; 2 white, 2 in a heald, on 9th shaft; 32 dark blue on 5, 6, 7, 8 shafts, and repeat from 6 dark blue. *Weft Pattern:* 32 dark blue on 1, 2, 3, 4 treads; 6 white on 5, 6, 7, 8 treads; 12 dark blue on 1, 2, 3, 4 treads; 6 white, on 5, 6, 7, 8 treads; 8 dark blue on 1, 2, 3, 4 treads; 6 white on 5, 6, 7, 8, treads. Repeat from 32 dark blue. Total, 70 to the round. The pegging plan, No. 1, would have to be extended to this number to complete the pattern, which can easily be done by following the directions given in the weft pattern above, where we shew how many picks go on the various treads; the white weft will be loose on the back, and can be cut away, which would increase the cost of the production. As most dress goods when made up are lined, it would be better left uncut.

Second Pattern: 6 bronze, 4 white, 4 bronze, 2 in a heald; 4 white, 4 bronze, 2 in a heald; 4 white, 4 bronze, 2 in a heald; 4 white, 4 bronze, 2 in a heald; 4 white, 12 bronze (1 white, 1 bronze, 5 times), 8 bronze, 8 white, 16 bronze, all on 1, 2, 3, 4 shafts; 6 white, 2 in a heald, 2/40's on 7, 8, 9 shafts; 28 bronze on 5, 6, 7, 8, 9, 10, 11 shafts; and repeat from 6 bronze. Weft pattern: 28 bronze, 8 white, 12 bronze, 2 white, 2 bronze, 2 white, 2 bronze, 2 white, 10 bronze, 8 white, and repeat from 28 bronze. See No. 2 pegging plan.

WORSTED COATINGS.

Design 40 is an effect specially constructed with the idea of using a comparatively light warp and dark weft or *vice versâ*. The following sett will prove effective:—

Warp.
All 2/48's medium brown and white mixture,
14's reed 6's.
Weft.
All 24's dark brown.
84 picks per inch.

Many of the now prevalent delicate mixture yarns varying only in colour, not in luminosity, will also prove very effective.

Design 41 is an original effect on 24 ends, which in fairly open worsted setts will give a characteristic appearance. Similar colourings to those given above will prove effective, but we should also recommend neutral twist yarns, *i.e.*, say a dark yarn twisted with a finer mixture yarn.

The following sett should be tried.

Warp.
All 2/36's worsted.
15's reed 4's.
Weft.
All 18's worsted.
60 picks per inch.

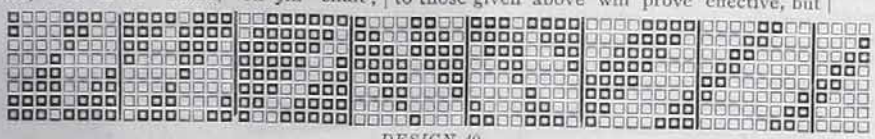
Even coarser setts than the above, using cross-bred yarns, will give excellent effects.

LOW WOOLLEN NOVELTIES.

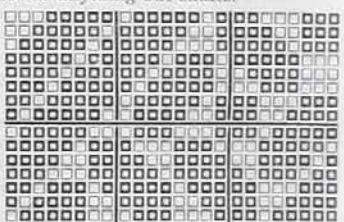
In *Design* 42 we have endeavoured to give expression to an idea for novelties in low woollens which should prove of some service. Briefly the cloth is constructed as follows:—

Warp.
1 thread woollen,
2 ,, cotton.
Weft.
1 pick woollen (like warp),
1 ,, cotton,
1 ,, woollen (thick),
1 ,, cotton.

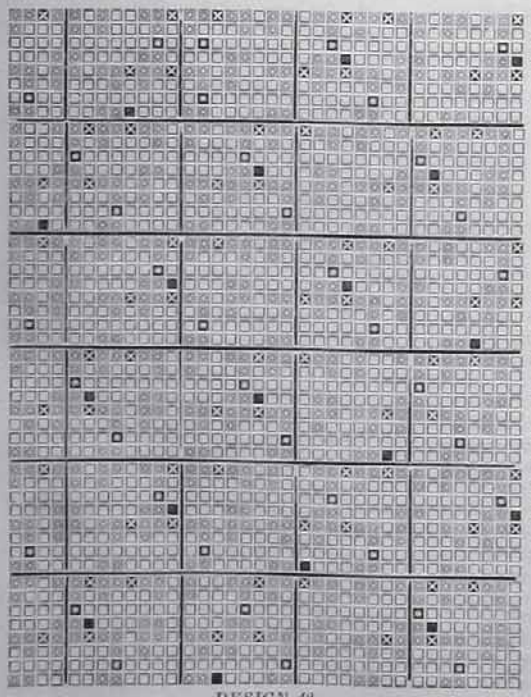
Practically the woollen warp and weft interweave two-and-two twill or plain, forming the face cloth, the cotton warp and weft form a firmer cloth, while the thick woollen pick goes to the back, thus covering the cotton. The special feature of the arrangement is that the face cloth is modified in effect by binding to the cotton cloth. Thus honey-comb, diagonal or check, effects may be produced as required. In *Design* 42 we have adhered to the foregoing particulars, as will readily be seen, two-and-two twill being formed throughout, and the thick woollen pick bound to the cotton cloth, and the cotton cloth to face cloth on the two possible systems, for illustration. A further development would be to figure with the thick woollen, say combined with half the cotton warp. Other methods might also be used without, save in extensive figure effects, resorting to the use of anything but shafts.



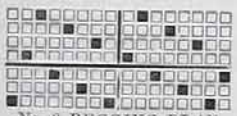
DESIGN 40.



DESIGN 41.



DESIGN 42.



No. 2 PEGGING PLAN.

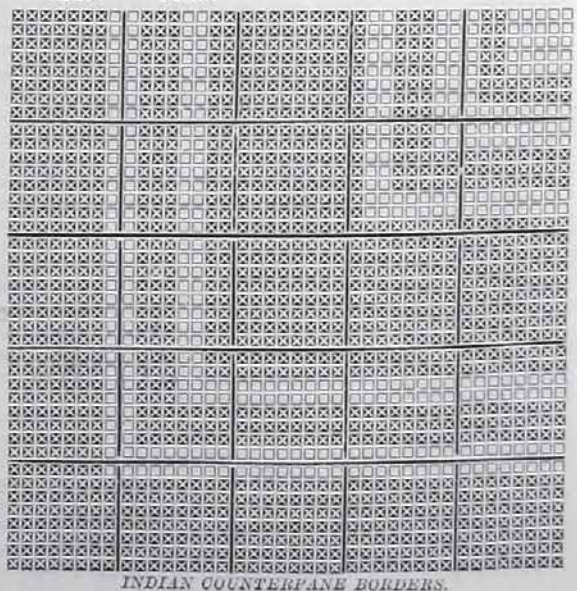
No. 3 PEGGING PLAN.

No. 4 PEGGING PLAN.

FANCY CHECK AND STRIPE.

No. 2 PEGGING PLAN.

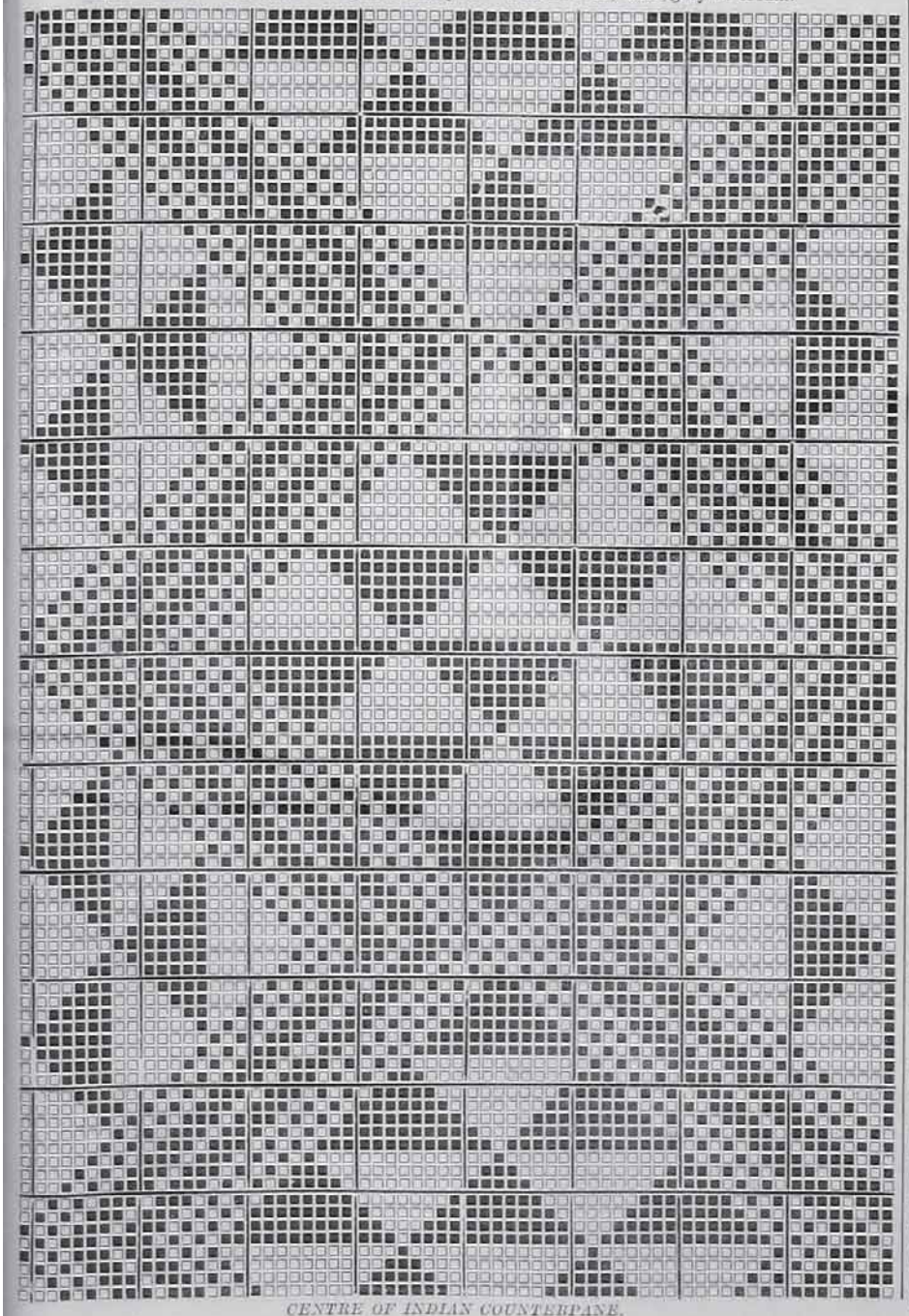
No. 1 PEGGING PLAN.



INDIAN COUNTERPANE BORDERS.

INDIAN COUNTERPANE.

We give the centre, side, and cross borders of an Indian Counterpane, made at Hoshyarpord, Punjab. The length is five yards; width, two yards; white pure bleached. The light type shews the white, the dark type a light clear red. The border reds are very dark by way of contrast. One inch from selvage all white. It is a kind of double cloth, the white and red being reverse on the under side. In fact, it may be called a reversible, or a type of the Scotch and Kidderminster carpet weave. The entire fabric is all cotton, the ornamentation is geometrically and symetrically arranged flat, in a simple local hue of red, bordered with a darker shade of the colour to give a clear expression to the white. There are no multiplied tints, to increase the difficulties of production, out of all proportion to any effective result. There is extreme simplicity with a rich and satisfactory appearance, obtained by a rigid adherence to arrangement and colour. Manufacturers of bed-spreads have in this design a capital study. The native designers rarely indulge in foliage, either imitatively or perspectively. All ornamentation, of whatever nature, is reduced to the flat form, and without shadow. The Indian fabrics, individually and as a whole, are a lesson given to us by those from whom we least expected it. For border design see page 324.



CENTRE OF INDIAN COUNTERPANE.

ZEPHYR STRIPES IN COTTON.

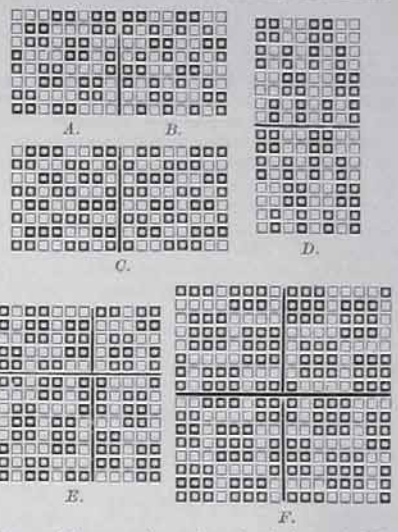
On 72 ends per inch 36's warp twist, 72 picks 36's soft spun cop, 28 inches wide, in cloth plain weave, 2 dark blue, 4 white, two in a heald; 16 dark blue, 4 white, two in a heald; 16 dark blue, 4 white, two in a heald; 16 dark blue, 4 white, two in a heald; 2 dark blue and 1 of white, 1 dark blue, for 19 ends, and repeat from the first 2 dark blue. Variation in colour—

Salmon for dark blue,
Light blue ,,
Rose ,,
Blue green ,,
Red ,,
Slate ,,
Lavender ,,

Weft in every case, grey or cream.

WEAVE MODIFICATIONS.

In continuation of our remarks on weave modification when dealing with the "Sateens" some time ago, we furnish this week weaves *A*, *B*, *C*, *D*, *E*, and *F* as types of interesting methods by which new effects are obtainable.



Weave *A* is a much used make, being suitable both for woollens and worsteds, contrasting as a somewhat irregular make with more regular twills, etc. Notice here the construction, simply a pick of plain and a pick of two-and-two weft rib producing an effect on four threads and four picks. An effect based on a similar construction is that given in *C*, consisting simply of a thread of plain and a thread of two-and-one twill, repeating on six picks and twelve threads. Many more useful effects may be produced by like means.

In weave *D* a method of modifying weave *A* is shewn. This consists of doubling the picks or putting down each pick twice, thus extending the design to double the number of picks. In like manner may the threads or both threads and picks be treated. Thus in weaves *E* and *F* we have weft doubled and both weft and warp doubled respectively, producing effects in which the maximum flush is four, that is, only an increase of one, though the designs repeat on eleven and fifteen threads respectively. Many excellent weaves will furnish good bases for modification, supplying effects suitable for both coarse or fine setts or for worsteds or woollens.

MUSLIN, OR LACE STRIPED ZEPHYR.

First Pattern: 30 in., in cloth, 80 ends per inch, 40's twist, 80 picks per inch, 40's weft. 80 dark fawn (5 white, one dent, two dents empty; 1 white, one dent, two dents empty; 5 white, one dent, two dents empty; 1 white, one dent, two dents empty; 5 white, one dent; 5 dark fawn, one in a dent), repeat five times, and begin the next repeat of pattern with 80 dark fawn. Weft all dark fawn. Varieties formed by substituting dark blue for fawn, rose, sea-green, dark yellow, silver grey, and lavender, or all white ground and stripe, with white weft. Whatever shade or tint the ground may be, the weft must be the same hue, always retaining white for lace stripe effect.

Second pattern: 4 light mauve, 2 red, 4 light mauve, 4 black, 2 white, 2 black, 30 light mauve, 2 black, 4 white, 6 light mauve, 2 black, 12 light mauve, 6 red, 2 white, 12 light mauve, 4 white, 4 black, 4 light mauve, 2 white, 2 red, 6 white, 2 black, 4 light mauve, 2 black, 4 light mauve, 4 white, 2 black, 2 white, 4 light mauve, 8 red, 4 light mauve, 4 white, all on 1, 2, 3, 4 shafts. No. 4 pegging plan (one empty dent) 1 white, one in a dent, one empty dent; 5 white, one in a dent, one empty dent. Repeat the 1 white and 5 white with empty dents; repeat 14 times on the shafts 1, 5, 1, 2, 1, 5=the six white ends, and repeat the pattern from the first 4 of light mauve. Weft all bleached white.