

that they will send for their families and settle permanently in this country.

The Oswego Mills, six in number, at Oswego Falls, one of the most valuable mill properties in New York, have been sold, through Mr. A. B. Pitkin, to Mr. Charles Fletcher, a successful business man of Providence. The mills have 170,000 feet of floor space, and a water power (Oswego River, flowing into Lake Ontario) of 1,600 horse power on the wheels, and as much more not utilised. About 1,000 hands have been employed in the manufacture of worsted yarns. Mr. Fletcher will fit up the mills with new machinery, and revive the business, which has been dormant since the Riverside failure.

THE break-up of the Calcutta Jute Manufacturers' Association will doubtless, says *Capital* (Calcutta), give the Indian jute industry a bad quarter of an hour. "It may safely be assumed that full time will be resumed. The sudden increase of 50 per cent. in the consumption of the raw material and in the production of gunnies will be burning the candle at both ends. Jute will get dearer while bags will get cheaper. Profits will approach the vanishing point, and jute shares will become sport for the 'bears.' The wiser mills, foreseeing dirty weather ahead, have been reefing their top-sails and making everything as taut as possible by laying in jute and making large forward sales. When the reign of chaos begins, we are confident that a very short experience of it will bring every one back to his sober senses. As soon as some of the mills, who, having waxed fat, are now beginning to kick, have arranged for the extensions they so eagerly desire and have tasted a little of the fruits of adversity, a very general wish will arise in favour of a new Association built on better lines than the old. When this is accomplished, we shall see the representatives of the mills meeting together once more for mutual information and consultation on all matters affecting the prosperity of the trade, without any attempt at making the organisation an instrument of tyranny and oppression as it is at present. A march into the wilderness will not be lost if it enables them to reach the Promised Land."

## Designing.

### THE FINISHING OF WOOLLENS. (Continued from page 99.)

As intimated in our last, the extent to which pieces are milled must depend wholly upon the effect required. In the better class tweed trade, for example, it would be supposed that the milling machine only would be used, but it is found that the stocks impart a fullness to the piece which cannot be obtained in the machine. Thus it is very evident that if the principles of the two processes be borne in mind little difficulty will be experienced in obtaining any desired result, provided the proper conditions have been fulfilled in the preliminary processes.

The process of "entering" now claims consideration. This simply consists in stretching out the cloth to the required width, and drying in this state, thus as it were "fixing" it at the required width. If the fact be remembered that wool, when moist, is very plastic, and when dry elastic, but resisting change in shape, then entering is readily comprehended. While dealing with this subject it will be well to remember that tailors always shrink cloth received to be made up, since they apparently do not consider even what are termed "shrank" goods free from the defect of further contraction. It requires little thought to understand that when a piece leaves the milling machine it has assumed its approximate width and length for the greatest stability; therefore entering, save just to get it nice and even, is extending it beyond safe limits, and it will, of course, contract at the first opportunity.

Having thus briefly dismissed entering, "raising" must now be considered. The process of "raising" simply consists of pulling—usually by means of teazles—all the fibres not forming the body of the threads on to the surface of the cloth. It is not, of course, desirable to raise all cloths: for example, the woollen tweeds, in which distinctness of individual threads is desirable, would be more or less spoiled by being subjected to such a process, save in a very mild form; again, certain classes

of low goods would probably not stand raising; but on coming to such goods as doeskins, velvet-finished goods, some meltons, carriage rugs, etc., it is found that raising is the great impart of beauty. The lustre or "dress face," as it termed, on the doeskin, is due to the parallelism of the fibres, obtained by raising; the soft short pile in the velvet finish is dependent on raising, and the soft, woolly fullness of certain classes of carriage rugs, shawls, etc., is likewise due to raising.

It is very evident then that in raising the first thing to obtain is a fibrous surface, care being taken not to damage the body of the threads. Having obtained a fibrous surface the next thing is to arrange the fibres according to the result required: thus, if for a doeskin, the fibres must be laid parallel to one another, all leaning in one direction; if for a velvet finish, instead of being arranged parallel the fibres are caused to stand straight out by beating the piece on the back; while in the case of meltons, etc., raising is usually applied with the idea of covering the make, and of obtaining a surface that will yield a level piece when subjected to "cutting." The question of raising wet or dry may readily be dismissed, since it depends on the principles just demonstrated. Wool damped is more plastic, and therefore conforms more to the action of the teazles of teeth in the gig; thus such goods as doeskins and many of the better class woollens, in which make is subservient to finish, are raised wet, while fancy woollen goods are usually raised dry. In the case of worsteds "brushing" may be said to take the place of "raising," and since woollen goods are so varied in character, some classes approaching the worsted and others the felt type of cloth, the processes must be selected according to the type of finish required.

As already intimated, "teazles" are in almost all cases used for raising. There was however, a raising machine shewn at the Manchester Exhibition which worked with iron teeth, and which was said to do very good work. The principle simply consisted in giving a two-fold motion to the teeth, as shewn in the accompanying sketch.

### NEW DESIGNS.

#### LIGHT ZEPIHYR CHECK.

In a 80 reed, 40's twist for warp and weft; woven plain, 80 picks per inch. Warp pattern: 60 red brown, 2 white, 48 red brown, 10 white, 36 red brown, 16 white, 20 red brown, 36 white, 12 red brown, 48 white, 2 red brown, 60 white; weft pattern the same. Another change is to substitute lilac for red brown, also light purple, or dark myrtle. A second pattern is: 20 brown, 2 white, 16 blue, very dark, and 12 white; weft pattern the same. As a cassimere twill, a 60 reed, 30's twist weft and warp, 60 picks, 24 of dove, 24 light canary; weft pattern the same. Or 12 fawn, 12 white, 12 chocolate; weft pattern the same. All these varieties will be found pleasing arrangements.

#### NEW FANCY CHECKED STRIPE.

This checked stripe can be made on 6 shafts, straight over-draft. We give three varieties (see 1, 2, and 3 pegging plans); 60 ends per inch of 16's twist for warp, and 60 picks per inch of 16's weft; 30 inches wide. Warp pattern: 3 navy blue, 1 orange, 3 cream (repeat this for 24 times); the total of this stripe will then be 24 x 7 = 168 ends. Second stripe, 168 of navy blue, making the whole pattern 2 x 168 = 336 ends, and repeat. The weft pattern the same for looms with drop boxes on each side, but in the absence of these a plan may be adopted for odd picks, which we have before described and again repeat, viz., a catcher must be made with one of the selvage ends at the opposite side from the shuttle boxes; the weft pattern would then be 6 navy blue, 32's weft, 2 orange 32's, 6 cream 32's, each tread in the pegging plan to remain open for the double pick. To make this as plain as possible, we give No. 4 pegging plan, which will at once shew the method of proceeding with the checking, 12 to the round. We have mentioned 32's for weft because if 16's is used for the double pick the weft pattern

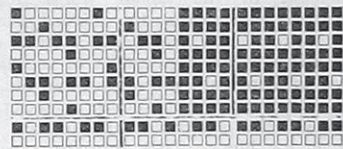
### NEW FANCY CHECKED STRIPE.



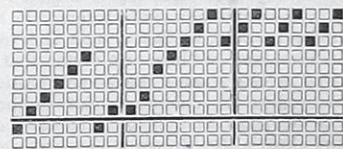
would be out of all proportion to the warp pattern. We need not occupy space by shewing how different combinations of colours both in warp and weft may be obtained by very simple means; this will suggest itself to the manufacturer, who will find a very fertile field open in this fancy checked stripe for a legion of good, useful, saleable, patterns, either in dress goods, or shirtings.

### TWO-STRIPE VELVET.

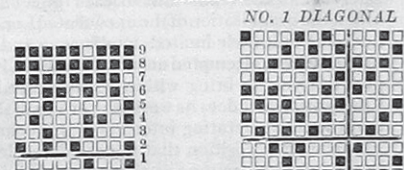
A two-stripe velvet is given as another likely favourite for spring and summer dress goods in all the fashionable shades and tints. The stripes can be easily increased by extending the draft to 24 and 24 or 36 and 36 ends each; there is, in fact, in this respect, no limit, but the width of the cloth. A very unique pattern would be as follows:—6 on 1, 2, 3, 4, 5, 6, and 3 on 7, 8, 9; then 12 on 1, 2, 3, 4, 5, 6, and 3 on 7, 8, 9; 24 on 1, 2, 3, 4, 5, 6, and 12 on 7, 8, 9; the stripe forming the velvet to be two in a dent, the second stripe on 7, 8, 9, three in a dent, in a 40 reed, 31 inches wide; 16's single twist for warp, 24's weft. The weight or number of picks will be according to quality of cloth required, but sufficient weft must be used to make a good bold clearly-defined stripe of velvet, piece dyed, and well finished.



TWO STRIPE VELVET.



DRAFT.

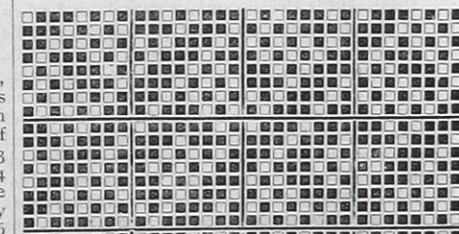


PEGGING PLAN

(Velvet Stripe.)



WORKING PLAN.



DIAGONALS FOR SHIRTINGS. NO. 1.

### FANCY SHIRTING DESIGNS—DIAGONALS.

(1.) This diagonal would make a very suitable shirting in a 36 reed, two in a dent or 72 ends per inch of 20's warp twist and 56 picks per inch of 14's weft. Warp pattern: 12 white, 9 dark blue, 2 red, all cop weft, straight-over draft.

- (2.) Warp pattern : 24 dark blue, 6 white, 2 red. Weft : dark blue or grey cop.
- (3.) Warp pattern : 24 dark blue, 6 red, 6 sky blue, 6, white. Weft : soft spun cop or dark blue.
- (4.) Warp pattern : 6 rose pink, 6 white. Weft : soft cop.
- (5.) Warp pattern : 6 white, 3 dark blue, 6 white, 6 dark blue, 3 red, 6 dark blue : total ends in pattern, 30. Weft : soft cop, 2, 3, 4, and 5. Same reed counts and picks as No. 1. By using the dark blue weft they are all adapted for dress goods.

VELVET CORDS.

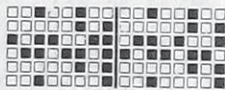
As there is every appearance of a demand for cut and uncut cords and velvets for the spring and summer seasons, we give three very useful weaves, easily made on Woodcroft's section tappets or other limited machinery.

No. 1, a velvet cord, has 10 picks of weft for the face, and 6 picks for the back (see pegging plan), straight-over draft; 36 reed, 32's double yarn for warp; weft, 24's single, about 9 ounces to the yard. Of course this may vary for very light cloths. The warp and weft ought to be of the best quality, and the pieces well bleached, dyed, and finished. The fancied shades and tints will be light primrose, canary, shrimp, violet, white lilac, gold, and blue.

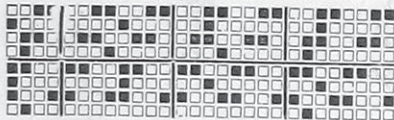
No. 2 is a 28-end draft, 8 to the round, and may be made in the same reed with particulars given for No. 1, and dyed in all the fashionable shades at present prevailing.

No. 3.—This cord has a round top, which gives the cloth a very pleasing effect. It may be woven in a 40 reed, 60's two-fold twist, and sufficient 50's weft to give 10 ounces to the yard. It is a 20-end draft, 12 to the round, and does not require any complicated machinery for weaving it. Dyed in pink shades, very light cinnamon browns, and peacock green, it would be found well worthy of notice.

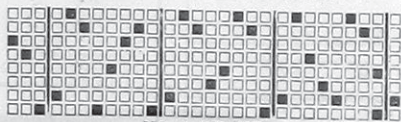
VELVET CORDS.



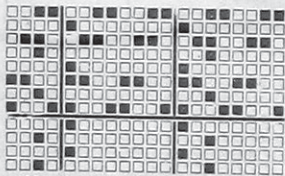
NO. 1.



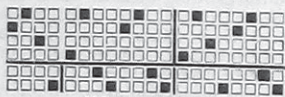
NO. 2. EIGHT SHAFT CORD.



NO. 3 DRAFT.



NO. 3. ROUND TOP CORD.



NO. 3 DRAFT.

FIGURED DRESS OR MANTLE CLOTH.

Figure B is a floral effect suitable for applying to the above goods. A few methods of application will well repay discussion, since, though the effect is a very ordinary one, floral groups being largely applied to textiles, yet the fact must be remembered that development plays, in textile art, as important a part as actual design, if not, indeed, more so, since a brief analysis of a collection of current textiles will undoubtedly disclose the fact that figures, etc., anything but beautiful are rendered at least passable by efficient development.

Now, there is an aspect of such designs as this which cannot be overlooked by the manufacturer, though undoubtedly it often is by the designer—and that is the question of expense. We have, in these articles, previously impressed upon our readers the necessity for the combination of the arts of design and development in one individual for the production of the highest type of textile design, and still more is this necessary with reference to economical production. In extra weft or warp goods this is very apparent, since the extra material is often very expensive, and when it is realised that something like 50 per cent. of such material can be saved by skilful arrangement of colours, etc., the importance of obtaining designers who fully understand development is fully realised, and it is worthy of note that the French are very proficient in this branch of textile design.

A brief glance at Figure B will show that to obtain the most perfect development of the figure, two extra warps or wefts are necessary, that is to say, one for the leaves and the other for the flowers, stems, etc., and therefore the skill of the designer in this case must be exercised in reducing the necessity for two extra materials, which will have to be used apparently between every ground thread or pick, unless some other means can be devised. Now, there are four distinct ways of producing the desired effect by weft development:—(1st) the method usually employed in the case of silks, i.e., a fine-sett warp to form the sateen ground or the fabrics, and the weft to be of two colours picked one and one, as previously demonstrated; (2nd) to use the ground warp or weft to form the leaves, simply introducing an extra weft for the flowers, etc.; (3rd) to use one extra weft throughout, but of two colours; thus wherever one colour is wanted for the leaves every other

extra pick, say odd numbers, must be brought to the surface, and wherever the colour for the flowers is required every other pick, even numbers, must be brought to the surface; and (4th) the method previously indicated of introducing two extra picks between every ground pick. In addition to these four methods there is, of course, that of developing simply by warp and weft flush.

Of course, the conditions of development must be selected according to requirements, but it is worthy of note that the most economical use of material is made by the first method, the disadvantage being that it is only usable with fine setts, such as are usually employed in silk goods; in the second method an even distribution of both types of figures, in this case leaves and flowers respectively, is necessary, or the extra material will overpower the more subdued ground weft or warp effect, and a patchy appearance will be produced; the third method is only applicable to bold effects, strongly developed, where little detail is required; and the fourth method is of course applicable under almost all circumstances, but possesses the disadvantage spoken of, viz., expense.

Figure B will prove effective in certain classes of silks, developed according to the first method given, or as a simple warp and weft figure an exceedingly good effect will be produced. A fine sett should be used, at any rate one which admits of shading by means of the 8-end sateen; the leaves should be developed mostly by shading, bolder rib or twill effects being used to give prominence to the corolla of the flower, care being taken to balance the more boldly developed flower, by the larger surface, but more subdued leaves, for upon this the beauty of the flower will depend.



FIGURE B.