

only two ways of avoiding this—namely, taking care to buy a good quality of plate or thread in the first instance; and in preventing the introduction of the mischievous fraud we have described, which there is reason to believe has at times been more or less widely prevalent in the weaving districts. The firm of Messrs. E. and W. G. Makinson, in which we have learnt most of the particulars here given regarding this manufacture, is one of the oldest engaged in it, and we have every confidence in stating that thorough reliance may be placed upon its productions for being of the quality represented, whilst, if they be consulted as to the quality of plate or thread it may be desirable to use to stand certain severe processes and to come out untarnished, their advice may be implicitly relied upon.

Technical Education.

THE RESULTS OF THE CITY AND GUILDS EXAMINATIONS.

(Continued from page 65.)

The additional following results of the recent examinations held by the City and Guilds of London Institute for the promotion of technical education are to hand:—

CRAGG VALE.

Results in Cotton Spinning:—First Class Honours: Walter S. Smith (last year's medalist and money prize-man); Second Class Honours: Charles Hellewell, Sam Greenwood, and Cyril Mellor. First Class Ordinary: G. Wilde; Second Class Ordinary: W. T. Pickup, O. Woolridge, M. Dennison, and J. A. Clegg. Teacher, Mr. John Beswick, Junr.

DUKINFIELD.

The following is the pass list of the Cotton Spinning Class held at the Astley Institute and taught by Mr. John Woolley:—Ordinary Grade: Allen Harrop, Harry Smith, Joseph Walker, Fred Makin, and Harry Fletcher (1st Class). William Chapman, Charles E. Warhurst, John William Heap, Thomas Jones, and Fred Swindells (2nd class).

DUNDEE.

In this centre, 68 students of jute manufacture, taught by Mr. T. Ferguson, have gained certificates. The following are the winners of the prizes and medals, the prizes being given by the London Clothworkers' Company, and the medals by the City and Guilds of London Institute:—*Jute Spinning*: Honours grade, Andrew Fleming, first prize of £3 and silver medal. Ordinary grade, Robert R. Davidson, first prize of £2 and silver medal; John Egbie, second prize of £2 and bronze medal; William Robertson, third prize of £1 and bronze medal. *Jute Weaving*: Honours grade, Andrew Fleming, first prize of £3 and silver medal; Charles Derutter, second prize of £3 and silver medal. Ordinary grade, Thomas Lowdon, first prize of £2 and silver medal; William Waddell, second prize of £2 and bronze medal; Alexander Rattray, third prize of £1 and bronze medal.

GUISELEY.

The following are the names of five students who have passed second class in the ordinary grade in *Woolen and Worsted Spinning*: Ernest Winterburn, Egbert Slater, George H. Brook, Fred Hobson, and John Rhodes.

MANCHESTER.

The textile classes of the Manchester Technical School show the following results:—*Cotton Weaving*: William Myers, first-class honours, first prize of £3 of the Clothworkers' Company and the Institute's Silver Medal; John W. Tegg, first-class ordinary grade, first prize of £2 of the Clothworkers' Company and the Institute's Silver Medal; Samuel Watson first-class ordinary grade, second prize of £2 of the Clothworkers' Company, and the Institute's bronze medal; Samuel Holt, first-class ordinary grade, third prize of £1 of the Clothworkers' Company, and the Institute's bronze medal. — *Bleaching and Printing*: James Robinson, first-class honours grade, first and a silver medal; John Miller, first-class ordinary grade, second and a bronze medal; Frederick Davenport, first-class ordinary grade, third and a bronze medal. — *Coal Tar Products*: Ernest Bantz,

first-class honours grade, second prize and a silver medal.—*Cotton Dyeing*: C. H. Batty, first-class ordinary grade, second and a bronze medal. The following is a summary of the total number of certificates obtained in all classes: Honours, first-class, 85; honours, second-class, 37; ordinary first-class, 69; second-class, 151.

ROWERBY BRIDGE.

Mr. John Beswick, jun., certified teacher of the Sowerby Bridge, Ripponden, and Cragg Vale Cotton Spinning Classes, has gained the Institute's Silver Medal and £2 money prize, and first-class certificate in Honours. He has before gained £3 and Bronze Medal in Cotton Manufacturing, and four first-class Honours Certificates and Teachers' Certificate. In this class 98 per cent. have passed. The following are the names:—First Class Honours: John Beswick, jun., Thos. Hoey, J. W. Carter, and Edwin Hardman, the latter has also been granted a Teachers' Certificate. Second Class Honours: T. Beswick, J. Beswick, sen., Herbert Wolfenden, and John Hanson. First Class Ordinary: Wm. Hartley, Arthur Haigh, Joe Beswick, A. R. Dearden, F. S. Ryder, H. Barratt, and John Gaukroger, Second Class Certificates: Joe Dyson, Bea Foster, F. Holroyd, W. H. Hellewell, Jno. Bates, and C. H. Mitchell.

Mr. Beswick, the teacher of these classes, has been with Messrs. C. E. and F. Ramsden, cotton spinners, Sowerby Bridge, for the last 14 years, in various capacities, and in his last year's four Cotton Classes he passed 90 per cent. all round, including one medalist. He is now barred from further competition for prizes.

STALYBRIDGE.

The following is the pass list of the Cotton Spinning Class held at the Mechanics' Institution, and conducted by Mr. John Woolley:—Honours Grade: W. H. Cook (1st Class). E. H. Buckley and W. Hopwood (2nd Class). Ordinary Grade: J. H. Britner, J. T. Draycott, and James Griffiths (1st Class). J. W. Morris, J. L. Gudger, James Bradbury, W. A. Stuart, Charles J. Corrigan, and Samuel Gudger (2nd Class).

To be continued.

Designing.

NEW DESIGNS.

In our contemporary, the *Boston Journal of Commerce* has appeared the following query:—"Will some of your Chatterers inform me why, in weaving some classes of plain goods, the bottom warp, when the shed is open, is depressed more below the centre than the top warp is raised above?"

Since this is a question which interests all overlookers, no matter what the class of work they are engaged on, we think a brief intimation of the principles underlying the subject would prove interesting.

The first thing to be considered is the effect produced by the arrangement mentioned. Now on reference to *Diagram A* it will at once be seen that the effect of depressing the bottom



DIAGRAM A.



DIAGRAM B.

half of the shed more below the centre than the top is raised above is simply to throw all or most of the strain upon the bottom half of the warp, leaving the top portion slack, it being very evident that the line *A C B* is shorter than *A D B*. In the particular case under consideration, viz., the application to plain cloths of this principle, the reason for adoption lies in the fact that from certain of the threads being slack the reed-marks, which otherwise would appear very distinctly, are rendered undistinguishable, thus materially adding to the value of the piece.

Then, again, if this principle of shedding be adopted, the pick just entering the shed will be beaten up over the preceding pick carrying the

threads with it as shewn in *Diagram B*, and thus it is at once seen that more weft can be introduced. True, the conditions in plain cloths are exactly reversed in the succeeding pick; still the advantage gained is probably not wholly lost, while in ordinary woollen cloth manufacture the raising of the back rest, which is equivalent to throwing the top section of the shed slack, is commonly resorted to simply as a means for getting in more weft.

This system of shedding cannot be resorted to in the case of tender warps, so the overlooker must always use his discretion in this matter, or trouble may ensue.

Another method of getting in more weft is what is known as "crossing the shed" before the pick is beaten up. In all looms, whether for woollen, worsted, cotton, or silk, means are provided for effecting this, and in most cases both systems mentioned are utilised.

GAUZE FABRICS.

Though the number of designers who have practically dealt with gauze or leno fabrics is very limited, yet the knowledge once acquired may be so useful that all should endeavour to obtain a grasp of the subject, when with a little practice all difficulties will disappear. With this idea before us, we propose furnishing from time to time examples in this class of design with suggestions for application, etc., which we hope will prove of service to manufacturers, and which at the same time will, we hope, clear the way for the uninitiated.

In *Figures 24* and *25* are shewn two examples which we will endeavour to analyse and then apply. The doubling plans are attached, and *Designs 170* and *171* along with their pegging plans shew the principle of indication on point paper.

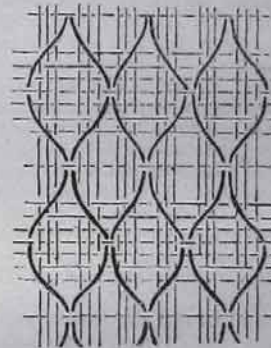


FIG. 24.



DRAFT FOR FIG. 24.



FIG. 25.



DRAFT FOR FIG. 25.

The first thing to be noticed is the fact that the thick solid black threads are the ones evidently acted on by the doup, since they cross in each case three of the thin threads actuated by ordinary shafts. On reference to the doubling plan the method of accomplishing this is clearly demonstrated. The three thin threads are drawn on two ordinary shafts, 1 and 2, while

the thick thread passes first through the doup, then crosses the thin threads and passes through the ordinary shaft used in conjunction with the doup for the formation of gauze. In both the drafts supplied, it will be noticed that the ordinary shaft, working in conjunction with the doup, is placed at the back, while the doup occupies the foremost position. This system of working is by many not considered the best, since when the ordinary shaft is raised there is a danger of the slip of the doup becoming entangled in the warp and causing breakages. As a rule therefore better work will result with the doup and doup shaft being placed together in the front. It may now be not uninteresting to compare the point paper plans with the actual patterns as sketched in Figures 24 and 25; before doing so, however, note should be made of the arrangement of the picks. First then notice Figure 25, where we have given the effect of plain combined with a single gauze crossing, which is the cause of isolation of the single pick, since here the doup thread is crossed into its false position, to return to its original position the next pick and weave plain for seven picks, an uneven number of plain picks always being introduced between the crossings when a clearly defined effect is sought after. On turning to Figure 24 we have represented the same division of picks, seven and one, but here there is nothing to produce this grouping; so that the design as sketched here is hardly true, except when a narrow stripe of this figure is combined with Figure 25, in which case the effect is exactly as sketched, while if a broad stripe of Figure 24 be used the grouping of the picks is entirely lost. The three threads, however, are always grouped together by the thick thread passing from side to side. It may now be asked: how is it that the thick thread is bent out of its course and not the three thin ones, since in many gauzes equal divergence occurs? The answer to this is that the thin threads interweave with the weft in such a manner that their stability is much greater than that of the thick thread, and as a natural consequence the thick thread bends as required and thus produces the effect sketched.

Then again it should be remarked that if in weaving the shed is formed from the bottom, if Figure 24 be woven right side up much more lifting will be required than if the cloth be woven wrong side up; so in describing the lifts etc., we will treat the subject just the reverse of what is denoted by our sketch.

On consulting the first sketch (Figure 24) it will be at once seen that the only threads raised for the first pick to pass in are the doup or crossing threads; therefore, the doup must be raised. If the manner in which the pegging plan for Design 170 acts upon the doup, shafts, etc., is realised, as indicated by the arrows, there will be no difficulty in seeing that as marks indicate rises, the doup will thus be raised and produce the desired effect. For the second pick, the crossing thread and two out of the three

thin threads are down while the third of the thin threads must be raised, so in order to accomplish this, shaft 1 must be raised as indicated in the pegging plan. For the third pick, shaft 2 will be raised; for the fourth pick, shaft 1; and for the fifth pick the doup shaft as indicated, thin raising the crossing thread on the opposite side of the three thin threads. The manner in which the effect represented in Figure 25 is worked out will be understood on reference to Design 171, and also the draft and pegging plan. Here the stationary and crossing thread work plain for seven picks, but for the eighth the doup thread crosses to the opposite side of the thread with which it has been forming plain and back again for the ninth pick to form plain again; thus the effect represented in Figure 25 is obtained.

DRESS FABRICS, ETC.

The two patterns of gauze just described may be combined in stripes varying in width as required, in either cotton, or cotton and silk, or silk and worsted. A good effect will be obtained by using for the fine threads fine silk (say 2/60's or 2/80's), while the thick crossing threads may be worsted (say 2/30's or 2/40's). Again, excellent patterns may be produced by using cotton warp and silk or lustre weft, combining with the gauze an ordinary stripe plain or satin ground with a weft figure developed. Designs of this type will claim our attention in future numbers, and we shall also direct attention to the many methods adopted for producing gauze effects with ordinary healds.

FANCY STRIPE.

We give another example of a scroll figure suitable for a fancy dress stripe. For details of colouring, etc., see *The Textile Mercury*, July 19th. The repeat of this figure may occur after two or more plain shoots are passed between, or the junction of the bottom with the top can take place without any interval of plain cloth or sateen. The design is purely suggestive, but if entertained would be found highly ornamental as a stripe.

NEW GALATEA STRIPE.

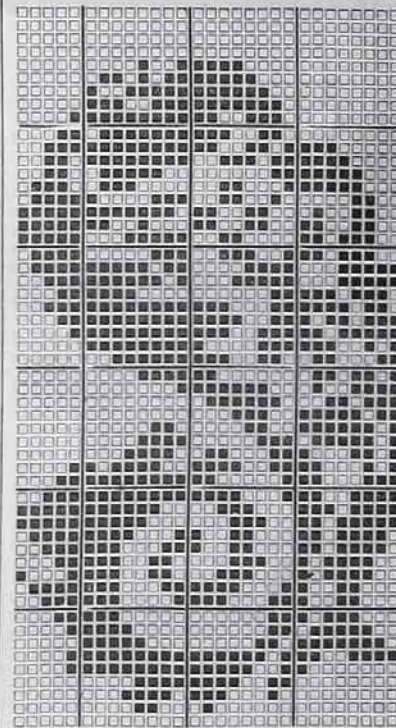
Fast colours; 80 ends on the inch, 24's warp, 20's weft, 56 picks per inch; weft all very dark blue, nearly black; warping and draft: 60 dark blue, on 1, 2, 3 shafts; 3 white, three in a heald, on fourth shaft; 6 dark blue, on 1, 2, 3 shafts; three of very bright green on fifth shaft; three in a heald, 6 dark blue, on 1, 2, 3 shafts; three white, three in a heald, on fourth shaft; three dark blue on 1, 2, 3 shafts; three white, three in a heald, on fourth shaft; 6 dark blue on 1, 2, 3 shafts; three white, three in a heald, on fourth shaft; three white, three in a heald, on fifth shaft; 6 dark blue on 1, 2, 3 shafts; three white, three in a heald, on fourth shaft; three dark blue on 1, 2, 3 shafts; three white, three in a heald, on fourth shaft; 6 dark blue on 1, 2, 3 shafts; 3

yellow, three in a heald, on fourth shaft; 3 of bright green, three in a heald, on fifth shaft; 6 dark blue on 1, 2, 3 shafts; three white, three in a heald, on fourth shaft; total ends in pattern, 78. See pegging plan; the fourth and fifth shafts are next the reed; all the warp, three in a dent.

TARTAN CHECK.

First Pattern.—A tartan check in a 72 reed, two in a dent, 30's twist for warp, and 24's for weft, 60 picks per inch. The weft, whatever may be the counts or picks, must, however, be arranged so as to square the warp pattern, 6 shafts. Pattern and draft: 144 silver grey, straight over on shafts marked 1, 2, 3, 4, 5, 6; then 12 dark brown on 1, 2, 3, 5, 1, 3, 1, 2, 3, 5, 1, 3, shafts; 6 slate on 4, 5, 6, 1, 2, 3, shafts; 6 of tan on 4, 5, 6, 1, 2, 3 shafts; 6 very light slate or white on 4, 5, 6, 2, 4, 6 shafts; total 174 ends. The checking same as the warp pattern and the round to follow the draft. To prevent any misconception we give full details (see pegging plan). The horizontal spaces are the shafts marked 1, 2, 3, 4, 5, 6; the vertical spaces are the treads marked at the bottom 1, 2, 3, 4, 5, 6, known as the round; the silver-grey weft must square the silver-grey in the warp by repeating the 1, 2, 3, 4, 5, 6 treads; the dark brown weft on 1, 2, 3, 5, 1, 3, 1, 2, 3, 5, 1, 3 treads; 6 slate, 6 tan, 6 white wefts all on 4, 5, 6, 1, 2, 3, 4, 5, 6, 1, 2, 3, 4, 5, 6, 2, 4, 6 treads. It would be as well to have warp and weft of one count, say 24's, and 72 ends per inch with 72 picks.

Second Pattern.—144 coral, 12 royal blue, 6 primrose, 6 dark brown, 6 peacock green; weft checking same as warp pattern, but crimson in place of peacock green. We have been very particular in giving full details for the make of this tartan cloth, as it is very likely to be in great demand at the back end of the season. More combinations of colour draft and weave will be given in a future issue.

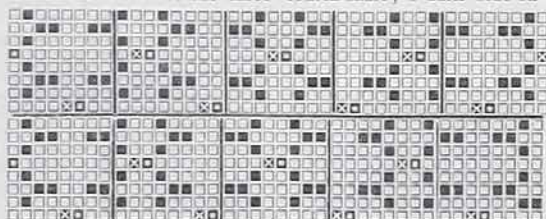


FANCY STRIPE.

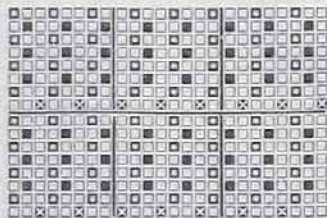


TARTAN CHECK.

GALATEA PEGGING PLAN.



DESIGN 170.



DESIGN 171.

PEGGING PLAN FOR DESIGN 171. PEGGING PLAN FOR DESIGN 170.

INDIC E DOUP.