tors in the trade, sails for Europe on the 9th instant, by the French steamer, *La Champagne*. He purposes making his usual large selection of ribbons for the fall season.

Charles R. Shaw, New York, white goods and linen buyer for Tefft, Weller and Co., sails for the European markets to-morrow, per *Germanic*.

Mr. Brightson, head of the H. R. Claflin Co.'s notions, etc., department, has left for Europe. His assistant in fancies, Mr. Connell, left for Europe last Saturday week. His other assistants, Messrs. McEwen, buttons; Finlay, trimmings; and Peck, ribbons; will follow him shortly, and, with this combination of talent, he looks forward to securing extensive assortments for the holiday and fall business, superior to anything previously put on the market.

Mr. Hamilton, head of E. S. Jaffray and Co.'s linen department, will probably sail for Europe on Saturday, and Mr. Messenger, dress goods buyer, with the same firm, to-day.

A NEW THREAD MILL.

The William Clark Co., of Westerley, R.I., have just had completed a new mill for the manufacture of cotton thread. The mill is to contain 25,000 spindles for making thread, and the necessary machinery, includes 30 combers, 32 revolving top-flat cards of the new "Centenary Simplex" pattern of Dobson and Barlow, England (of whom Stoddard, Lovering and Co., Boston, are the agents), jack frames, etc. The Grinnell Automatic Sprinklers are used.

THE PROTECTIVE POLICY IN REGARD TO LINENS.

(FROM *The Haberdasher*, NEW YORK.)

"Oh, yes," said Mr. John R. Walker (head of the firm of Messrs. John R. Walker and Co., Chicago and Manchester), "the linen industry of Ireland is catching it right and left at the hands of Ireland's Continental customers. Russia's tariff is almost prohibitory. Germany has her handicap on. So have one or two of her neighbours; and now France has taken a hand in the protective game. This has increased the duties upon linen handkerchiefs fully 15 per cent. It is next door to prohibiting their importation entirely.

"When the Bill was up before the Chamber, the manufacturers of linen undergarments, shirts, etc., protested against any advance of duties upon bleached linens, and I am not sure just what disposition was made of the portion of the Bill applying to these. This was because they realised that the advance of value would work to the injury of their export trade, Germany being a very strong competitor. Strange to say, French linens were dearer under the old tariff than imported Irish goods, and wages are almost one-third lower in France than in Ireland.

"But when all has been said, these countries must have Irish linens and handkerchiefs, and though protective duties may diminish their consumption to some extent, all countries who have used them at any time must continue to do so. While places like France and Germany have their looms and factories where linens are manufactured, and where they turn out fair weight and quality, they fail when it comes to bleaching the cloth, and there's where Ireland will hold the supremacy."

Designing.

THE ANALYSIS OF PATTERN.—IX.

PILE FABRICS.

A lengthy consideration of the construction and analysis of these fabrics is hardly within the scope of these articles, so that all we propose doing is to touch very briefly upon the principal structures, and indicate in a general way the best system of analysis.

Formerly there was little difficulty in defining plushes; to-day there is such a multitude of specially constructed cloths, partaking more or less of the appearance of pile fabrics, that any rigid definition is impossible. The main feature of these cloths, viz., ends or loops standing straight out of the body of the cloth, however, renders at least the classification easy.

There are two distinct classes of pile fabrics, viz., those in which the pile is formed by the weft, and those in which the pile is formed by the warp, as instanced in *Diagrams* 20 and 21. Weft piles may be first considered.

WEFT PILE FABRICS.

The construction of these cloths is in reality very simple, since no pile is formed in the loom, the cloth being woven as an ordinary piece, as shewn in *Diagram* 20. After leaving the loom, all the picks which flush, for example *a*, are cut with a knife *k*; thus the two ends will stand straight up from the threads *c* and *d*. The point-paper plan for this is given in *Design* 27, in which there are four pile picks *a* to one ground pick *b*, and since the pile picks are only bound once in every 8, 10, or 12 ends, as the case may be, a large number of picks per inch are required to hold the pile firmly. A firmer binding is that shewn in *Design* 28, in which the pile weft interlaces for three threads with the warp. A corduroy type of effect is given by *Design* 29, and the reason is very apparent: if the bindings of the pile picks be examined, it will at once be seen that they all bind in a line up the piece; thus, when cut, they all project from one portion of the piece, forming a distinct rib.

The difficulties in analysing such cloths sink into oblivion when it is remembered that these cloths are *woven like ordinary pieces*. There is one point, however, which must not be overlooked, and that is, that in designs similar to *Nos.* 27, 28, and 29 the pile picks will not occupy so much space in the cloth as represented on paper. For example, in *Design* 27 the four pile picks *will altogether make one plain pick*, and may be regarded as such in the cloth. In determining the number of pile picks between each ground pick, then, this fact must be remembered.

A recent innovation in the manufacture of these goods provides for the cutting, *as required*, in the loom, by means of thin knives passing between the reeds in the going part. Quite elaborate figures may be woven thus, but under any circumstances the fabrics should be analysed as intimated above, since the pile is formed by the healds or harness giving the requisite float to the pile pick, the knives simply being worked to cut the flush.

Another type of weft pile is formed in the finishing process. A plan similar to *Design* 30 is employed with a cotton warp mohair *a* and wool *b* weft, the result being that shrinkage takes place weft way, resulting in the long float being thrown up as a curl. The analysis is, of course, effected in a manner similar to the previous examples.

WARP PILE.

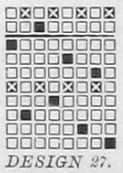
The structure and analysis of warp pile goods is somewhat more complex than the above. In *Diagram* 21, for example, there is evidently some arrangement for forming the loop, while in *Diagram* 23 there is evidently still more complication. These loops are usually produced by means of wires inserted in a shed specially provided for them, for it is evident that only the pile threads must pass over the wire. Thus, in designing for these fabrics, the point-paper must be classed into *ground and pile threads, and picks, and wires*. *Design* 31 is the point-paper plan for *Diagram* 21, the solid type representing the ordinary picks and the crosses the wires, while *a* are pile threads and *b* ground threads. With these particulars ordinary piles may readily be analysed, this being usually effected by examining the back of the fabric with a piece-glass; but the more intricately figured fabrics call for further explanation.

The simplest method of figuring these goods is by means of cut and uncut or looped pile, as illustrated in *Figure* 7 and *Diagram* 21, in this latter *d* being the looped and *c* the cut. The advantages of figuring in this manner are, firstly, that only one pile warp beam is required, each end taking up alike, while the figure produced is very distinct, as instanced in *Figure* 7, which exaggerates very little the variation between the looped *c* and the cut *d*. Another effective method of figuring is that illustrated in *Figure* 8 and *Diagram* 22, in which case the pile warp is composed of two colours, say red and tan, arranged end and end. Under these conditions either red or tan figures may be formed by bringing every other end over the wires as required, but should only one pile warp beam be used, every thread must be over the wires the same number of times. Should these conditions not be requisite, however, four distinct effects may be produced, viz., red pile, cut and uncut, tan pile, cut and uncut.

Another system of figuring with pile is by means of different heights of wires, as shewn in *Diagram* 23, in which, when the shed for *a* is formed, a broad wire is inserted, while at *b* a narrow wire is inserted. This system of figuring is often employed with a flat or sateen ground, as instanced in *Figure* 9, in which *a* is the sateen ground, *b* the short loop, and *c* the long loop or cut pile.

In analysing any figures similar to those given the figure must be ascertained by one of the systems already given, but, in sketching on design paper, the proportion of picks (not picks and wires) to threads must be carefully ascertained, and the design paper selected according

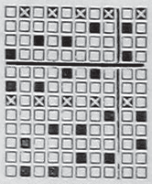
DESIGN 30.

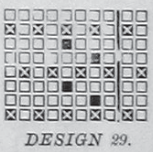

DESIGN 27.

DESIGN 31.


FIG. 7.


FIG. 8.


DESIGN 28.


DESIGN 29.

to this proportion. Should only ordinary design paper be at hand, the figure may be sketched out upon this and then may be put on to the cutting design sheet, missing picks for the wires as required. By this means, however, the figure will be considerably distorted.

A type of figured pile likely to be mistaken for the above is that known as "tapestry carpets," in which the figure is printed upon the warp in a considerably elongated form to allow for the take-up in weaving.

Another type, of much greater beauty, is the Axminster carpet, in which the pile is put in from bobbins in the front of the loom, the bobbins being arranged in the colours required to give the pattern, in many cases a large number of colours being employed with most telling effect.

NEW DESIGNS.

COTTON DRESS FABRICS.

There is a never-failing succession of novelties in cotton fabrics to tempt buyers: satin stripes in pale blue, pink, mauve, yellow, and light green—one of these colours alone, or two or three; and in some instances all together are in great request for evening dresses. The satin is a warp face, totally concealing the weft, in close-set reeds, giving all the possible brightness of colour beauty in these stripes. A great favourite for all-cotton coloured fabrics is Russian green; red merely appears in combination with green, navy blue, and black—the fashionable heliotrope is known commonly as cherry-pie; nominally it is a pale blue passing into white; one variety shades into a dark purple.

The colour scale for the spring season may be taken in orange, Nile green, olive, *écru*, gray, yellow, pink, and cream. These are well shewn in velvets; in fact, a delicate and refined taste seems to increase every season, and cotton fancy goods are fast becoming more perfection in make, colours, and ornamentation.

Design A, which we submit, is on 4 shafts, 32 end draft, 32 to the round, forming a check in distinct squares, with one shuttle; warp, 24's twist, 30 dents per inch; weft, 24's, with 60 picks per inch; one black, one white, without twist in a heald, forming one dentful; weft, black and white, wound on the bobbin for the shuttle, without twist. Larger squares, two or three inches in size, are fancied; to obtain these the draft and round would have to be increased. When finished the width to be 30 inches.

Design B is another novelty for cotton dress goods, 35 ends, 35 to the round, 50 dents per inch of 30's twist for warp, 72 picks per inch of 30's weft. Warp all two in a heald, one heald per dent, orange and deep blue slightly twisted, say, four times in one inch; weft the same, but without any twist: one shuttle. The following varieties will give capital effects:—

Warp.	*Weft.*
Brown and white,	Green and red.
Blue and white,	Orange and purple.
Yellow and purple,	Green and white.
Brown and blue print,	White and red print.
Lilac and pink print,	White and brown print.
Cardinal and white print.	Black and white print.

It is evident from these variations that almost any other number can be formed at will; of course if heavier or lighter cloths are required the quantities, counts, and sett of reed may be increased or decreased if necessary.

Design C is constructed for a class of dress diagonals which is becoming very popular, in large plaid patterns, and which is likely to be a success, especially in white and all the delicate shades, for summer and autumn. We have given a little variety to the squares, which will entail the use of a small jacquard, 76 ends repeat, 52 to the round, the angle of diagonal always to the right; it may be reduced considerably so as to be brought within the compass of a dobby machine, 24 shafts. We may in a future issue give a few patterns suitable for dobbies. This design can be worked out from the following particulars:—Warp 2/60's, 40 dents per inch, two in a dent; weft 64 picks per inch of 24's cotton. If it should be considered necessary to preserve the squares exactly in form, then 30's weft, 80 picks per inch, would be required. The dots are weft to the face.

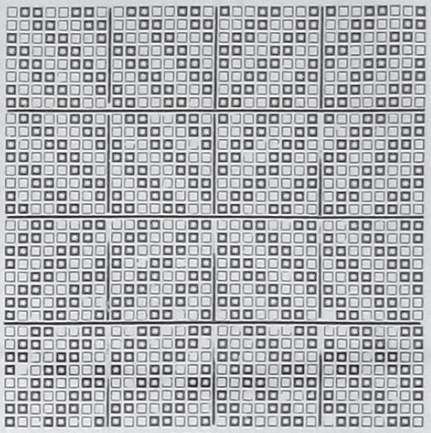
First pattern is a clan tartan, somewhat after the Stuart, 200 crimson or red, 12 royal blue, 24 dark brown, 4 straw, 4 black, 4 white, 24 dark brown, 8 crimson, 4 black, 4 crimson, 4 white, 4 crimson, 4 black, 8 crimson, 24 dark brown, 4 white, 4 black, 4 straw, 24 dark brown, 12 royal blue repeat from the "200 crimson." Weft pattern the same. One variation of this pattern may be made by substituting dark green for royal blue, or white for crimson, and crimson for the small portions of white.

Second pattern: 12 red, 12 chocolate, 12 red, 100 chocolate, 12 red, 12 chocolate, 12 red, 100 very light lavender, 12 red, 12 chocolate, 12 red, 100 light lavender; repeat from the first "12 red." Weft pattern the same. This combination will give a handsome pattern, with a good, bold effect. The diagonals break up the continuity of vertical and transverse lines, giving the fabric a very pleasing appearance in the making-up for dress goods.

Third pattern: 48 mid-gas green, 12 scarlet, 48 mid-gas green, 24 dark brown, 24 light cream, 24 dark brown, 24 light cream, 24 dark brown, 24 light cream, 24 dark brown, and repeat from the first "48 of mid-gas green." Weft pattern, red for green and green for scarlet. All the other checking same as warp pattern.

Fourth pattern: Shepherd's plaid, 24 white, 24 black or blue. Weft pattern the same.

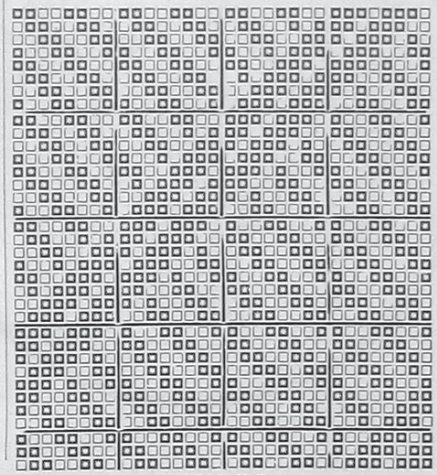
All these patterns will give satisfaction, and no doubt obtain success for home or export trade. Good finish is important; 50 inches wide out of the loom.



DESIGN A.

A: PEGGING PLAN.

A: DRAFT.



DESIGN B.

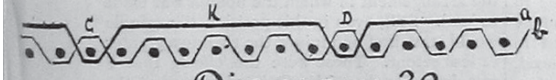


Diagram 20.

Diagram 21.

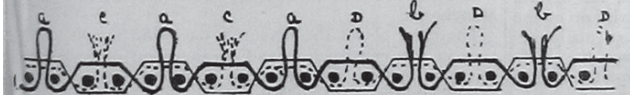
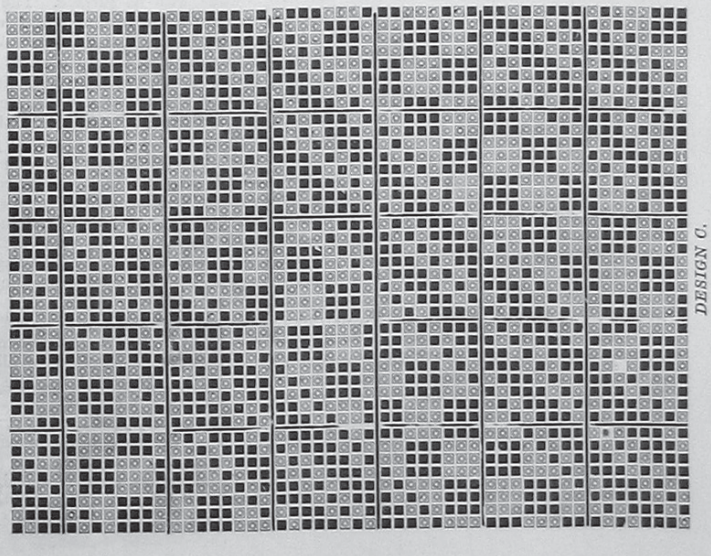


Diagram 22.

Diagram 23.



DESIGN C.