kiers are being filled. The goods in No. 1 are being boiled up and treated with the bleaching liquor, which circulates into the kier through pipes. By the time the last kier has been filled the first kier is ready to be emptied. This arrangement is clearly an ingenious one, and is quite practicable; there is no doubt that it presents some advantages over the old system, where the kiers are arranged in a straight line, through which it will save much labour, and it is certainly a decided advantage to be able to fill the kiers from one spot and work towards a better arrangement of the rest of the bleaching machinery.

Dr. Hugo Erdman, of Halle, has patented a cold process of dyeing hair and feathers. It consists in impregnating a bath of paraphenylenediamine with caustic soda, with this the hair or feathers are impregnated, and are afterwards submitted to an oxidising process, generally by treating with peroxide of hydrogen. After some time, about 24 hours, the hair, etc., is dyed a black colour, which can, by regulating the process, be made very deep. By substituting chinec for the peroxide of hydrogen a brown colour is obtained, by varying the strength of the solution a variety of shades, from very light brown to black, can be obtained.

Dr. Erdman specially states that his new process is applicable for dyeing hair of the head and beard, and that the substance used is not injurious to the health of those who are affected by the metallic salts which have been hitherto used for this purpose. We should think that this method would be much more applicable in the dyeing of skis, skin rugs, etc., with advantage, for with these it is necessary to perform the dyeing operation at a certain temperature, whereas anything higher spoils the skin; and some colours it is difficult to dye owing to such colours necessitating a boiling temperature.

A New Indigo Vat.—It will be some years before indigo is displaced by any artificial product or any substitute. At present these bodies are more expensive to apply than indigo, and there seems little likelihood of the cost being reduced to enable them to compete; and as the quality of the indigo is being improved, and the quality obtainable from the plant is also being increased by the use of improved processes, the time when it will be replaced by artificial indigo is getting more and more remote. Of course one hardly knows what will happen in a few years, and some new compound may be found out which will yield artificial indigo very cheaply. Still inventors have not been slow in the improvement of the methods of applying indigo, and Mr. James Cowan, of Glasgow, has recently taken out a patent for a new and an improved Indigo vat. He grinds together indigo, zinc powder, sugar, and potassium carbonate in a suitable mill, and so obtains a dry compound. This is supplied as a commercial article. To prepare a vat some of this is taken and mixed with sulphuric acid and bisulphite of soda, when the indigo will dissolve, and it is then ready for use. The new vat is much more quickly made than any of the old vats, and is decidedly more economical in use, inasmuch as there is no sedimentary matter to deal with. A liquid vat is prepared by grinding together the above constituents with bisulphite of soda, and this, like the dry mixture, is supplied as a commercial article. The new vat may be used continuously for hours, whereas with all existing vats it is necessary to allow them to rest for some time to allow the sediment to settle. The new vat, too, can be used hot or cold, and this is a great advantage, especially in dyeing wool. Indigo dyed hot on cotton is faster to soaping than when cold dyed.

A new method for pushing business in India has just been patented. It is proposed to send a train of 30 carriages from Calcutta, containing the goods and goods, towards the desert, as desire to calculate or increase business with the North Western Province. This train is to stop at all the chief stations, remain there for one day at the larger, one day at the smaller, and for a few hours only at the less important. Furthermore, the scheme is to send assistants with the goods to look after them and sell them.

Manchester Chamber of Commerce.—The following gentlemen have been nominated to serve as directors for the ensuing year, in view of the annual meeting of the Chamber, to be held on the 6th of April:—Benjamin Barlow, proposed by Henry Barlow, seconded by C. C. Hetherington; W. W. Glisham, proposed by J. Thistil Johnson, seconded by A. D. Dyson; Jeremiah Garnett, proposed by John Mark, seconded by John S. Dodds; A. B. Bowley, proposed by Isaac Lewinsson, seconded by Benjamin Armitage (Clyde), S. J. Mather, proposed by F. D. Doherty; C. C. Lees, proposed by George Lord, seconded by John Alex. Reid; William Pegg, proposed by G. H. Gaddum, seconded by Samuel Allan; Charles A. Armsby, proposed by Isaac Hoyte, seconded by George Lord, R. G. Williams, proposed by George Hector, seconded by J. A. Le_polygon; John Thompson, proposed by Benjamin Armitage, seconded by James Garnett. The number to be elected is nine.

In this list the retiring directors are denoted by an asterisk.

Designing.

New Designs.

Spring Designs in Cotton, Silk, Linen, or Worsted.

In the spring designs No. 1 and 2, which we introduce to the notice of makers of fancy dress goods in cotton, silk, linen, or worsted, every facility and scope is given for the exercise of their judgment, taste, and choice of such materials as may be on hand to produce a cloth which ought to command a ready sale. Hard and fast lines cannot be laid down as regards proportion of yarns or colour, for such are the vagaries of taste and fashion that the best efforts of designers are at present subjected to. Colours would be given to customers refusing to give orders unless some shade or tint in the composition were removed to please their eyes, although in strict accordance with complement or harmony. It is a very difficult task to please the public, and a basis may be given that can be worked from either under or over, as circumstances permit. 80 ends and 60 picks per inch 1/2 warp and 24's double weft will give the necessary result, keeping warp and weft an equally balanced as possible. Warp any dark shade, black, blue, black, dark brown, chocolate etc., and maroon, mist white or any light tints, or warp of light tint and weft in all the fancy shadings, as Jasper and bronze greens, Jaffa and red browns, dark, greyblue, and Hungarian blues, terra cotta, etc. Worsted, linens, silks, or silk may be shot over cotton warp, or warp may be any of the above materials and weft cotton.
WOOLEN MANTLE CLOTH.

Design 1 is furnished for this class of material. It consists essentially of a ribbed portion A developed in crosses, the 2 and 3 twist and the 4 and diagonal, the design as here given repeating on 90 threads and 48 picks.

Section A developed in crosses requires closer setting than the section developed in solid; for the twilled section the following sett is suitable:—

Warp.
All 36 sk. woollen. 3½ reed 5's.

Weft.
All 36 sk. woollen. 46 picks per inch.

Of course, extra holda or holds specially made are required, in order to weave the two sections A and B together, since the ribbed sections will require considerably more picks per inch than the twilled section.

The colours employed modify to perhaps a greater extent than the weave, the appearance of the cloth. Now if section A be woven 1 thread black, and 1 thread white, we shall obtain first a black rib and then a white rib. For section B, a light grey warp might be used, then, if a dark grey weft is inserted, we shall get the twill figure prominently developed, edged with a stripe consisting of first, a square of black, and then a square of white. This system of shading will give a very neat effect, but with colours introduced, much more stylish cloths may be produced. The following are suitable colourings:—

Part 1.

1 th. light blue grey, \( \frac{3}{1} \)
1 th. dark brown, \( \frac{3}{1} \)
1 th. buff grey, \( \frac{3}{1} \)
16 th. threads dark grey, \( \frac{1}{3} \)
16 th. buff, \( \frac{1}{3} \)
16 th. dark grey, \( \frac{1}{3} \)
16 th. light blue grey, \( \frac{1}{3} \)
16 th. buff grey, \( \frac{1}{3} \)
16 th. light brown, \( \frac{1}{3} \)
16 th. dark grey, \( \frac{1}{3} \)

Part 2.

1 th. dark olive green, \( \frac{3}{1} \)
1 th. yellow, \( \frac{3}{1} \)
1 th. light olive yellow, \( \frac{3}{1} \)
1 th. dark brown, \( \frac{3}{1} \)

Part 3.

1 th. light olive green, \( \frac{3}{1} \)
1 th. yellow, \( \frac{3}{1} \)
1 th. light olive yellow, \( \frac{3}{1} \)
1 th. dark brown, \( \frac{3}{1} \)

Part 4.

1 th. dark olive green, \( \frac{3}{1} \)
1 th. yellow, \( \frac{3}{1} \)
1 th. light olive yellow, \( \frac{3}{1} \)
1 th. dark brown, \( \frac{3}{1} \)

8 th. dark green, \( \frac{3}{1} \)
8 th. mid grey, \( \frac{3}{1} \)
8 th. maize, \( \frac{3}{1} \)
8 th. white, \( \frac{3}{1} \)
8 th. dark green, \( \frac{3}{1} \)
8 th. mid grey, \( \frac{3}{1} \)
8 th. maize, \( \frac{3}{1} \)
8 th. white, \( \frac{3}{1} \)
8 th. dark olive green, \( \frac{3}{1} \)
8 th. yellow, \( \frac{3}{1} \)
8 th. light olive, \( \frac{3}{1} \)
8 th. dark brown, \( \frac{3}{1} \)
8 th. mid grey, \( \frac{3}{1} \)
8 th. maize, \( \frac{3}{1} \)
8 th. white, \( \frac{3}{1} \)
8 th. dark olive green, \( \frac{3}{1} \)
8 th. yellow, \( \frac{3}{1} \)
8 th. light olive, \( \frac{3}{1} \)
8 th. dark brown, \( \frac{3}{1} \)

Brown, yellow and green; lavender, sage green, and brown and green mixture; and light brown, dark brown and dark green, are also suitable colourings to use.

The weave stripes may be made broader or narrower, according to requirements.

FIGURED DRESS FABRIC.

Figure 5 is furnished for this class of fabrics, and may be utilized in many ways.

First, we might form the ground of A, and the figure of B, when, if a lustrous yarn is used for weft, the figure will be very clearly developed. Another system would be to warp the cloth 1 thread of a light colour, and 1 thread of a dark colour, then produce a hairless stripe by means of the plain weave for the ground, and develop one of the semi-circles in the dark colour, and one in the light colour, by means of the double plain weave.

Again, a plain ground, and warp and weft stripes might be inserted, when the following sett should be used:—

Warp.
2/60's lavender, or other lightish coloured silk.
30's red 3's.

Weft.
30's white silk.
72 picks per inch.

Lastly, this figure would make an excellent figured waistcoat. A twilled ground, straight or drafted should be used, and the two semi-circles might be developed in the same coloured silk, as an extra weft figure, or two extra colours might be used. The figure would be most useful distributed on the 5 and satin arrangement, but varying circumstances produce different requirements, so we leave the matter in the designer's hands.