

then through sodium sulphide, and dyed in a liquor of 7°Bé. of aniline salt and potassium chlorate: loss in strength, 15%. (4th.) The cotton was passed through Turkey-red oil, then through copper sulphate, then in the same liquor as in No. 3: the loss in strength was 20%. (5th.) Cotton first passed through iron bath, then through soda, then dyed in the same liquor as No. 1: the loss in strength was 20%. (6th.) A liquor of 7°Bé., made with aniline tartrate, potassium chlorate, and copper sulphate was used, when the loss in strength was 20%. (7th.) Aniline liquor of 7°Bé., made from aniline salt, aniline oil, potassium chlorate, and copper sulphide: the loss in strength was 12%, but the black was liable to be uneven. (8th.) Similar liquor to that used in No. 7, but containing starch: the loss of strength was 10%, but the black was liable to be uneven. (9th.) Similar liquor to No. 7, but containing dextrine: the black was very liable to be uneven, the loss of strength being 10%. (10th.) An aniline liquor at 7°Bé., made in aniline salt, potassium chlorate, copper sulphate, and antimony salt: loss in strength was 15%. (11th.) The cotton was bottomed with Diamine black RO, then dyed in an aniline liquor of 5°Bé., made with aniline salt, potassium chlorate, and copper sulphate: the loss of strength was 15%. (12th.) Cotton bottomed in diamine black RO, diazotised, and developed with phenylene diamine, then dyed in a liquor of 3°Bé., made with aniline salt, potassium chlorate, and copper sulphate: loss of strength was 8%. This method gave the least tendering of the cotton, but the black was the least fast, for the bottoming does not fully resist exposure to light and air. Oxidation blacks, owing to the loss in strength, cannot be recommended for dyeing yarns that have to be woven. The one-bath method is the best for fast blacks, but they rub very much; by careful working, however, this rubbing can be reduced to a minimum.

SOCIETY OF CHEMICAL INDUSTRY.

Among the papers down for reading at the last meeting of the Manchester section of this society were some bearing on the textile industries. Dr. C. O. Weber read the second part of his "Researches on the formation of lake pigments." He referred especially to the formation of

LAKES FROM THE ACID COAL-TAR COLOURS, and said that the reason these lakes had hitherto turned out so unsatisfactory was because the precipitant, such as barium chloride, only acted on one of the two or more groups present in the colour. When barium chloride was added to a solution of a dye containing the sulpho and amido groups, the former only was precipitated. The colour was soon washed out of cotton dyed with a sulpho basic colour, because the cotton had no affinity for the acid group. If, however, the cotton was previously mordanted with tannic acid and tartar emetic, and then placed in a solution of a basic sulpho dye, on the addition of barium chloride to the bath the colour was precipitated on the cotton. By such means as this the author had produced good and fast colours from sulphonated methyl blue and kindred dyes. By satisfying the respective affinities of the different groups in an acid colour in this way, the problem of the preparation of lakes was solved.

In another paper, Dr. Weber referred to OIL AND IRON STAINS IN COTTON CLOTH. Though the stains of fatty oils could be removed by washing, those from mineral oil remained a source of trouble. Iron stains might be removed by a moderately strong solution of oxalic acid or bisulphite of soda. When, however, oil and iron stains occurred together, as frequently happened, they proved difficult of removal. He recommended washing in a bath consisting of one part soft soap, one part glycerine, and three parts water.

In a paper on the analysis of TURKEY-RED OIL, the author, Mr. J. A. Wilson, stated that a good deal of the oil at present in the market, and purporting to be produced from castor oil, was adulterated, to the damage of dyers and printers.

Mr. Carter Bell communicated a paper entitled "Notes on various oils." This paper had special reference to the

OILS USED IN WOOLLEN MILLS and the experiments which had been undertaken for the insurance companies, who, it appeared, were particular that only fatty and not petroleum oils should be used. By saturating wool with various oils and exposing it to the temperature of boiling water, great variations were observed in the rise of temperature.

The amount of oxygen absorbed by wool greased with the different oils was also found to vary. These tests were given as a guide to the liability of the oils to spontaneous combustion. The tests confirmed the general idea that moist wool or cotton heated sooner than when dry, but he could not confirm the generally accepted theory that white wool was more liable to spontaneous combustion than dyed wool. Various cloths greased with 8 per cent. of olive oil and exposed to the same temperature gave the following rises:—Dark green 600°F., drab 420°F., brown 524°F., white 360°F. He had never been able to get spontaneous combustion with the proportions of oil used in the woollen mills.

A BLUE may be dyed on cotton by first passing through sumac, then through an iron bath, dyeing with alizarine, and topping with indigo. The cost of the labour must be great, although the blue will be very fast.

ACCORDING to a French patent, China grass may be bleached by boiling in 1½% solution of manganate of soda for from two to five hours, washing in water, and steeping in sulphurous acid or in bisulphite of soda to dissolve off the brown deposit of oxide of manganese which is formed on the fibre.

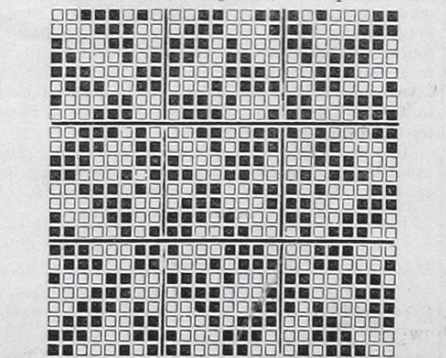
A METHOD of producing designs or ornamental effects in a variety of colours on textile fabrics has been patented in this country. The principle of the process consists in producing on the piece a deposit of lead sulphide or some other metallic sulphide that possesses colour, such as, for instance, lead, copper, iron, or manganese sulphides. This is done by first impregnating the fabric with a salt of the metal, e.g., lead acetate, copper sulphate, or copperas, then treating this with sulphuretted hydrogen or a solution of a soluble sulphide, when the sulphide is formed. The next proceeding is to print on a discharge containing as an essential constituent peroxide of hydrogen, which acts by oxidising the sulphide to sulphate, which is colourless, and is deposited as an insoluble body (lead sulphate) in the fibre, or is soluble and is therefore washed out. By mixing with the discharge some coloured body on which peroxide of hydrogen has no effect, coloured designs may be produced, and it will be seen that by varying the nature of the discharges so printed on, a variety of effects may be produced.

Designing.

NEW DESIGNS.

COTTON DRESS GOODS.

Design A is on 6 shafts, 12-end draft, 12 to the round, all threads two in a treadle, and two picks in a shed; 20 dents per inch, 4 in a dent, 30's twist; 80 picks per inch of 30's weft; 31 inches breadth in reed. First warp pattern: 12 red, 12 cream, 12 green; weft pattern the



DESIGN A: DRESS GOODS.



A: PEGGING PLAN



A: DRAFT.

same. Second warp pattern: 6 green, 6 red; weft the same. Third pattern: 2 dark blue, 2 red, 2 dark blue, 6 white, 2 light yellow, 6 white, 2 yellow, 6 white, 2 yellow, 6 white, 2 yellow, 6 white, 2 yellow; weft pattern the same. Fourth pattern: 4 red, 2 light blue, 24 cream, 4 dark blue, 2 light blue, 24 cream; weft pattern: 28 cream, 2 red, 28 cream, 2 blue. All varieties in colours and shades may be used, either in the form of stripes or checks; beetle finish.

Design B will furnish an immense number of stripe patterns, either in shirtings or dress goods. The colour may be varied at will, and if the separate sections of the draft be gone over repeatedly, the width of the stripes may be increased to any size. It is on four shafts, 4 to the round; a very simple weave, 40 dents, 2 in a dent; 24's for warp; weft, 60 picks per inch of 18's cotton. Warp pattern: 18 white, double end of green, double end of red, 20 light blue, 2 orange, double end, 2 dark blue, double end; weft all white. Second pattern: 18 cream, 4 dark blue, double ends, 20 cream, 2 purple double end, 2 yellow double end; weft all cream. Third pattern: 46 ends all light fawn, 4 light blue, 4 red, 4 light blue, 4 red, 3 white, 3 dark blue, double end pink, double end green, 20 white, double end green, double end red; weft all white. Fourth pattern: 18 white, 4 ends double violet, 20 white, 4 ends double orange; weft pattern exactly as the warp; the violet and orange weft 2 in a shed.

THE firm of Johann Abraham Ernst Wuester has just erected a new ribbon factory in Barmen.

HERR LADISLAUS BARTEN is erecting a large steam dyeing works in Boehm-Skalitz.

HERR J. PRIBYL is building a power-loom weaving shed in the neighbourhood of Neustadt, in Bohemia.

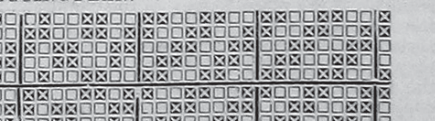
THE firm of Brauenlich and Wintersteiner, dyers and finishers, in Bruenna, is enlarging its dyeing works at Fischer-gasse No. 8, by an additional shed.

THE factory premises of Jacob Pick, Hermann S. Doctor, and Isaac Mautner and Son, all in Nachod, are about to be extensively enlarged. In each of the two last named, 200 power-loom will be installed.

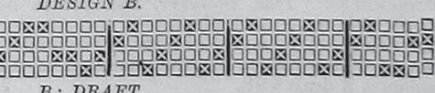
A LARGE piece of land in Georgswalde has been purchased by the Upper Lusatian firm of C. A. Roscher, in Altgersdorf, for the erection thereon of a loom factory intended for the needs of Austria. It will have adjoining an iron foundry.

PATENTS IN 1891.—According to the ninth report of the Comptroller-General of Patents, Designs, and Trade Marks, just laid upon the table of the House of Commons, the total number of applications for patents last year was 22,888, as compared with 21,307 in 1890. Of the nine applications made to the Privy Council for extensions of the terms of patents, two were acceded to, and two refused, the remainder not having been disposed of at the end of the year. The receipts from the sale of the office publications amounted to £6,142, which sum was paid over to the account of the Stationery Office. The number of applications for registration of designs was 21,675 (excluding sets of designs, of which there were 277), as against 22,235 in 1890 (excluding 318 sets of designs). No fewer than 545 designs were refused registration on account of their similarity to designs already registered, while 1,194 applications were objected to by the Comptroller-General. In the case of 1,005 of the objections, the applicants acquiesced without claiming a hearing, and in 82 cases the objections were waived after some correspondence. Of the 107 opposed applications which were accorded a hearing, 44 were accepted without alteration, 55 were refused, and eight were accepted subject to modification. In regard to trade-marks, there were 10,787 applications, as compared with 10,258 in 1890; 4,456 trade-marks being advertised, and 4,225 registered. The total receipts from various sources on account of trade-marks were £11,034, including £2,345 on account of renewal fees. The number of applications under the provisions of the International Convention for the Protection of Industrial Property was 171.

B: PEGGING PLAN.



DESIGN B.



B: DRAFT.