Jan. 17, 1950 D. M. COOPER 2,495,054

MEANS FOR USE IN THE DESIGNING OF WOVEN FABRICS

Filed Feb. 23, 1946

Fig. 1.

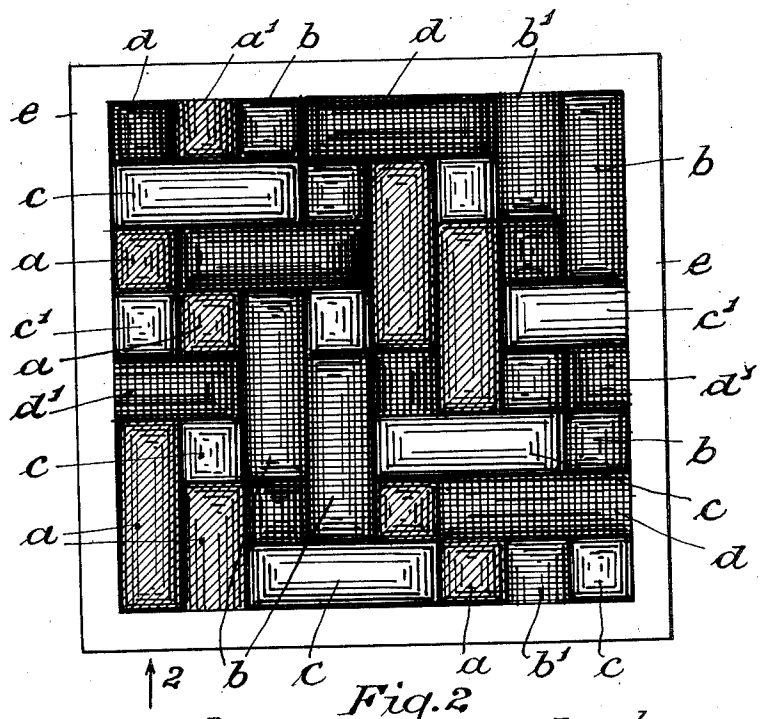


Fig. 2

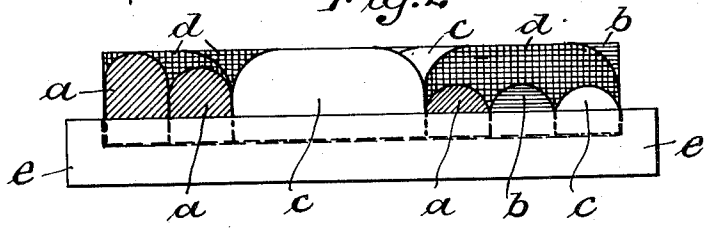
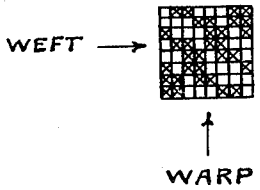


Fig. 3.



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MEANS FOR USE IN THE DESIGNING OF WOVEN FABRICS

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5 Claims. (Cl. 35—15)

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In the designing of textile fabrics, one of the difficulties a designer is up against, when producing a design in which a plurality of yarns differing in colour is employed, is to visualise how the different colours he proposes to employ will blend, in other words what the fabric made to his design will actually look like when woven and finished. The difficulty is enhanced by the fact that different yarns and different dyes react or behave differently in the finishing process and produce, in consequence, in combination with other yarns differing in characteristics and/or colour, a fabric sometimes markedly unlike that which the designer visualized.

The labour and materials entailed in actually producing in finished cloth a range of designs based on mixtures of yarns of different colours is very considerable, and it often happens that for, inter alia, the reasons above mentioned, quite a number of the designs prove unsatisfactory or fail to give the effect aimed at, with consequent loss of time and material.

It is an object of the present invention to provide means whereby a designer will be able, before his designs are actually woven and processed into finished fabrics, to see exactly what their appearance will be in the finished fabric state.

A further object of the invention is to facilitate the development of colour-application in students of textile design and thus enable them when they come later to apply themselves to what may be termed "practical" cloth designing, to have a better and fuller appreciation of relative colour values than can be gained from the present methods of studying the subject.

The invention is characterised broadly by the provision of several groups of coloured blocks or parts which can be assembled in the required order or relative arrangement to enable the effect or blend of different colours, when blocks of such colours are assembled to form any given pattern, to be judged.

When used for educational purposes particularly, the blocks or parts may, in order to facilitate the creation of abstract designs be provided in a system or form representing pre-determined colour intervals or steps in each or any of the chromatic and achromatic ranges of colour. This will enable designs to be studied and reproduced which cannot readily be arrived at or obtained except by the use of such a "colour-interval" system.

The blocks or parts may be made to resemble or may be covered with fibres or with pieces of yarn or of fabric so that appreciation of the ultimate result can be had if a design from such blocks or parts is viewed through a suitable instrument, constructed to reduce or to enlarge the design, as for instance, to dimensions approximating those it is intended it shall have when reproduced in a fabric having a given number of ends of warp and picks of weft per inch in the finished state.

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As it is desirable, particularly in connection with the use of the invention for educational purposes, that the means to be employed shall be as cheap as possible to produce and thus be more widely available, the blocks or parts may be fashioned, by moulding, pressing or otherwise forming suitably-coloured material to the shape desired, and by making, if desired, their upper surface to represent portions of fabric or of yarn.

If the surfaces of the blocks are arranged to represent pieces of fabric, the weave of such fabric is not very material, though a twill weave is preferred since by arranging for such a twill to run from left to right or vice versa crossband (or S) or openband (or Z) yarn structures can be indicated.

The blocks or parts are made of convenient size to handle and in multiples of unit size, so that by employing blocks of say double or treble unit length, two-floats or three-floats of warp or weft in the weave may be represented. Preferably, the blocks will be made of different heights according to the lengths of float of warp or weft they are intended to represent.

In the accompanying drawings,

Fig. 1 represents a plan view, and Fig. 2 an edge view looking in the direction of the arrow 2 in Fig. 1, of blocks arranged to form a design corresponding to the weave indicated in Fig. 3, in which, as is usual, the crossed squares represent raised warp threads.

Referring to the drawings, blocks *a* of one group of blocks represent warp threads coloured brown, and blocks *b* of another group of blocks represent warp threads coloured blue. Blocks *c* of a third group of blocks represent weft threads coloured white and blocks *d* weft threads coloured black. The blocks are shown as having been assembled in a suitable frame *e*.

In order to increase the similitude, to a piece of fabric, of the image of the design built up, as shown in Fig. 1, when viewed through a suitable instrument, the blocks are preferably, as shown, semi-cylindrical or convex on their upper faces, so that in the viewed image they resemble interlaced portions of yarn. In order still further to increase the similitude the blocks are made of

different heights according to the length of weft or warp float they represent; that is to say a block representing a single raised end is made of a certain height, one representing a two-float is made a suitable amount higher, and one representing a three-float a suitable amount higher still. If the blocks are made to represent longer than three-floats there is no necessity to make them of greater height than is employed for the three-float blocks, since they do not stand any higher above what may be termed the base plane of the fabric.

For use where, as is the case of the example we have used for purposes of illustration, the design is such that at places around the perimeter of a repeat a float of two or more picks or ends is broken, it is desirable to provide, and have available, what may be termed "perimeter blocks," that is to say blocks which represent the appropriate parts of the broken floats. Such perimeter blocks are indicated in Fig. 1 at *a'*, *b'*, *c'* and *d'*.

Instead of employing pre-coloured blocks several groups of white blocks can be employed and these be coloured as desired. Such an arrangement will be of value when the invention is being used by students, as colours in a built-up design can be changed or varied and differences in resultant effects examined.

Practical tests with the means according to the invention have shown that a very considerable saving can be effected in time and materials when it is necessary to produce a range of new designs, or when additional colour combinations are to be added to existing ranges. As the cost of the blocks and frame is relatively small, and since most manufacturers work from season to season on a fixed number or range of shades, it is the designer's job to produce new combinations of these shades and the same blocks and frame can thus be used repeatedly.

When it is necessary to discard redundant shades and introduce new ones to the colour range available to the designer, the fabric or colouring may be removed from the blocks concerned and the new colours substituted as required.

Whilst it is preferred to use a reducing instrument whereby to obtain the similitude to a piece of finished fabric, a generally similar though not, of course, as satisfactory an effect can be obtained by viewing the built-up block design from a suitable distance without any reducing instrument.

Apart from their value from a business point of view, the means according to the invention have a distinct educational value as they will assist students of all ages in elementary and technical schools in developing colour-appreciation and will be of particular benefit to students of textile design in offering an easy and practical way of stimulating creative design by allowing different combinations of colour to dictate the form which the design should take, rather than a procedure based purely and simply in terms of different weaves and adding colour to them, which has been the practice hitherto. Examples of good design in colour of the block construction could be shown by means of a projection lantern, and/or epidiascope images of actual cloth could be shown for the purposes of lectures or demonstrations.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A patterning set comprising three groups of blocks adapted to represent the raised portions of the threads forming a fabric, each of said three groups of blocks consisting of at least two sub-groups of blocks, all said blocks being of equal width, but the blocks of the first of said groups of blocks having a relatively small length and a relatively small height, the blocks of the second of said groups of blocks, having a medium length and a medium height, and the blocks of the third of said groups of blocks having a relatively great length and relatively great height, and the blocks of each of said sub-groups of blocks differing in color from the blocks of the other sub-groups of blocks of the same group of blocks.

2. A patterning set comprising several groups of blocks adapted to represent the raised portions of the threads forming a fabric, all said blocks being of equal width, but differing in length and height from the blocks of the other groups of blocks.

3. A patterning set comprising several groups of blocks adapted to represent the raised portions of the threads forming a fabric, all said blocks being of equal width, but differing in length, height and color from the blocks of the other groups of blocks.

4. A patterning set comprising several groups of blocks adapted to represent the raised portions of the threads forming a fabric, all said blocks being of equal width, but the blocks of one of said groups of blocks having a relatively small length and a relatively small height and the blocks of each following group of blocks having a greater length and a corresponding greater height until the blocks of the last of said groups of blocks have a relatively great length and a relatively great height.

5. A patterning set comprising several groups of blocks adapted to represent the raised portions of the threads forming a fabric, each of said several groups of blocks consisting of at least two sub-groups of blocks, all said blocks being of equal width but the blocks of one of said groups of blocks having a relatively small length and a relatively small height and the blocks of each following group of blocks having a greater length and a corresponding greater height until the blocks of the last of said groups of blocks have a relatively great length and a relatively great height; and the blocks of each of said sub-groups of blocks differing in color from the blocks of the other sub-groups of blocks of the same group of blocks.

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