June 27, 1939. G. J. J. TERRASSE 2,163,769

WOVEN FABRIC

Filed May 25, 1937

Fig. 1

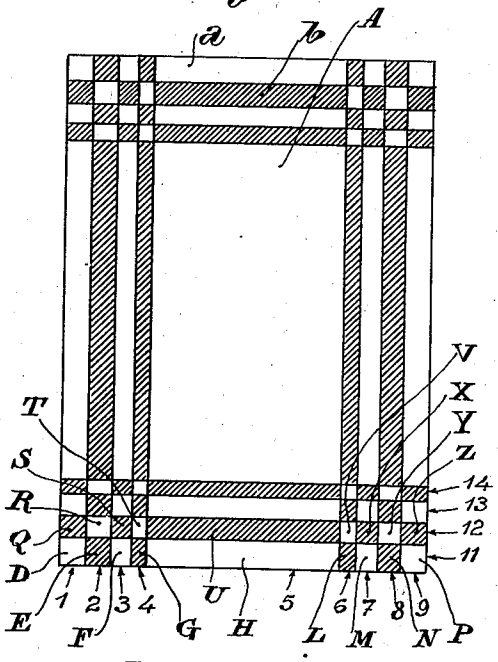


Fig. 2

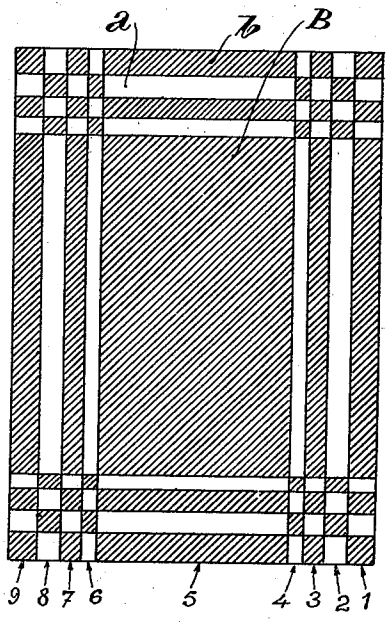


Fig. 3

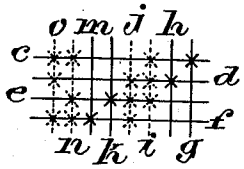


Fig. 4

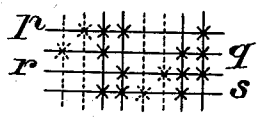


Fig. 5

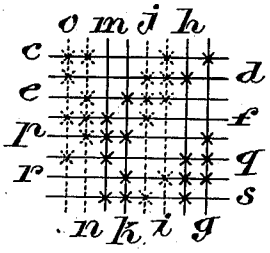


Fig. 6

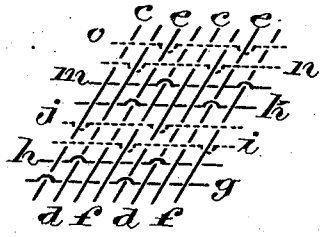
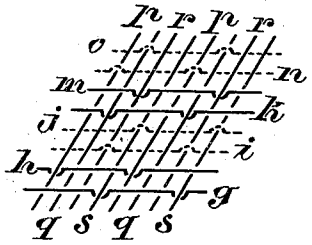


Fig. 7



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WOVEN FABRIC

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2 Claims. (Cl. 139—383)

The production on a woven fabric of a reversible pattern of large surface composed of two different colors or other characteristics necessitates in the method of production used at present a complicated harness arrangement as it involves a considerable "ratio" between the warp and weft, that is to say, the previous perforation of a very great number of jacquard cards.

The present invention relates to a method of weaving which permits of obtaining on a woven fabric having two colors a pattern of large surface with a single harness arrangement merely involving an extreme small "ratio" between the warp and the weft, this pattern being identical on either face of the fabric and distinguishable only by the inverting of the colors.

It consists in the new combination of a harness mounting arranged so that similar patterns are formed on both faces of the fabric by the weft, distributed to two groups of healds and an inversion of the picking produced at the moment when the colors are changed for the formation of the pattern. In other words the present invention includes a method of weaving with weft threads of different colors, wherein the healds are arranged in two groups in such a manner as to produce the pattern in the transverse direction and in order to bring about a change in the pattern being woven, the normal sequence of picking is inverted, so that in the parts of the pattern controlled by one group of healds, weft threads that formerly predominated on one face now predominate on the other face, and similarly for the parts of the pattern controlled by the other group of healds.

In order that the invention may be readily understood and carried into effect it will be hereinafter described with reference to the accompanying diagrammatic drawing; given by way of example, in which a practical form of the invention is illustrated.

Figures 1 and 2 show the two faces of a fabric having a pattern in two colors.

Figures 3 and 4 illustrate the harness arrangement corresponding respectively to the first and second group of healds taken separately.

Figure 5 shows the harness arrangement combined with a suitable picking.

Figures 6 and 7 show in perspective the path of the threads of the first and the second group of healds respectively for the formation of the pattern in the direction of the warp. The inversion of the order of the picks forms the pattern in the direction of the weft.

The reversible fabric to be obtained will comprise two colors, white *a* and blue *b*, the blue being represented in the drawings by hatching. As the fabric is reversible, the white parts *a*, on the face A shown in Figure 1 will appear in blue on the face B shown in Figure 2, and inversely.

For carrying this method of weaving into effect with a view to producing a fabric as shown in Figures 1 and 2, it is possible to proceed by starting with a harness mounting arranged so that similar patterns are formed on both sides of the fabric by the weft (three-thread twill) with a repeat of pattern of 4 warp threads and 8 weft threads.

The drawing is effected in the following manner:

The white warp threads composing the bands **1**, **3**, **5**, **7** and **9** are drawn in straight on a first group of four healds.

Those composing the band **2**, **4**, **6**, **8** are drawn in straight on a second group of four healds.

It is obvious that the number of warp threads composing each strip of cloth woven will be four warp threads or a multiple of four, which will obviate interruptions or faults in the weave.

The weave on each series of healds is analysed as is shown in Figures 3 and 4.

The four healds of the first group (Figure 3) are shed so as to produce a three thread twill by the weft with a similar pattern on each face of the fabric, and having a pattern comprising four warps *c*, *d*, *e*, *f* and eight picks *g*, *h*, *i*, *j*, *k*, *m*, *n*, *o* consisting, in the present case of two blue picks represented by continuous lines and two white picks represented by broken lines.

The threads of the four warps *p*, *q*, *r*, *s*, of the other four healds of the second group are also shed to produce the same pattern, that is to say, a three thread twill with the same pattern on both faces of the fabric, with no reverse face, the "ratio" or repeat of the pattern of which, being still of four warps and eight picks, is displaced by two picks with respect to that of the four healds of the first group of healds.

The whole of the weave on the warps of the two series of healds is therefore that shown in Figure 5, the blue and white picks being represented in the same manner as in Figures 3 and 4.

It will be observed that in the shedding of the first group of healds, when the face A is woven on top, the white weft and hence the white *a* of the fabric appears mainly on the upper surface thereof, while inversely the blue weft and hence the blue *b* of the fabric appears on the lower surface B thereof, the picking sequence employed

being such as to obtain alternately two blue picks together followed by two white picks together.

On the warp threads controlled by the four healds of the second group, the opposite takes place. The blue weft appears on the surface in the face A, while the white weft appears on the surface in the face B.

The picking taking place in this order along the whole of the weft band 11, the production of the effects D, E, F, G, H, L, M, N, P, proceeding longitudinally from the bottom upwards and transversely from left to right in the design of the face A, Figure 1 is obtained if, of course, the number of picks is a multiple of eight.

For the weft band 12, by any of the known methods, there is produced an inversion of picking sequence which will take place this time by two blue picks succeeding two blue picks, but followed by two white picks alternating with two blue picks, and so on.

By this inversion, all the threads relating to the first group of healds in shedding ensure the production on the face A of the blue effects and all the warp threads relating to the second group of healds in shedding will, on the other hand, ensure the production of the white effects. It will therefore follow that the effects Q, R, S, T, U, V, X, Y, Z are produced by a number of picks which is necessarily a multiple of eight.

For the production of the following weft band 13, the arrangement which has produced the band 11 is reverted to, while the band 14 is produce in the same way as the band 12, and so on, the production of the weft bands designated by an even number only differing from those designated by an odd number by the inversion of the picking produced at the moment of the passage from one to the other, that is to say, two blue picks succeeding two blue picks or two white picks succeeding two white picks before the return of the alternation in pairs of picks of different color.

According to this method, no surface limitation intervenes either in the direction of the warp or in the direction of the weft, so that bands of any desired width and length may be made and the length of each color section depends on the frequency of inversion of the weft sets.

All types of bands and borders may thus be formed simply by the use of either a white warp or a color warp and by the use of two wefts of different color picked according to the most varied combinations. For example, it would be very easy to produce in the middle, repeats of the border so as to decorate or embellish the centre of the article.

The perforating of jacquard cards for more than eight different sheds for the harness mounting is never necessary in order to produce a repeat of the pattern, whatever the type and dimensions of the article to be produced in the case of the combination in two groups of healds. The only intervening factor is the starting arrangement, which must be a harness mounting so arranged that the weft produces a fabric having the same pattern on each face in combination with a suitable picking.

The invention is particularly advantageous in the production of articles such as table linen, for example.

Having now fully described my invention, I claim:

1. A reversible fabric having rectangular pattern effects consisting of a single warp of uniform characteristics and two wefts of different optical characteristics, said fabric being woven in the patterned areas with successive weft picks of different characteristics and having inversions of the pattern along lines extending transversely of the warp of the fabric at which lines of inversion two successive weft picks of the same characteristics are included to form a straight line of junction between the adjoining patterned areas.

2. A reversible patterned fabric according to claim 1 which is woven with a block pattern design.

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