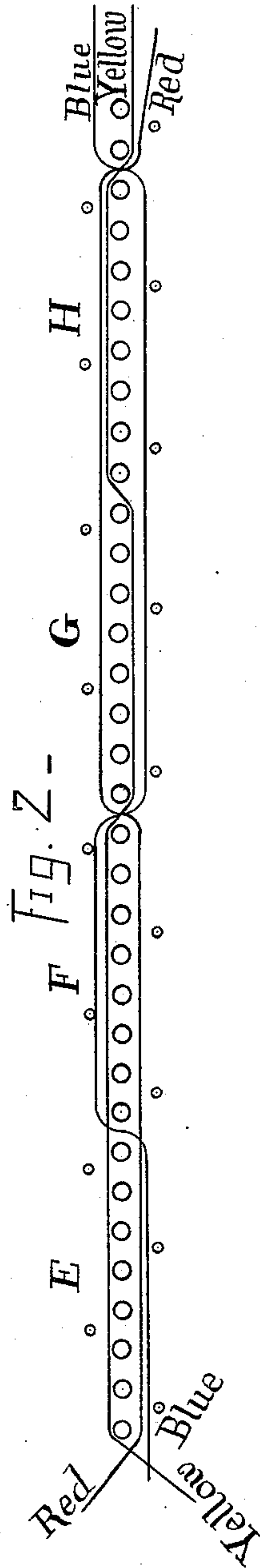
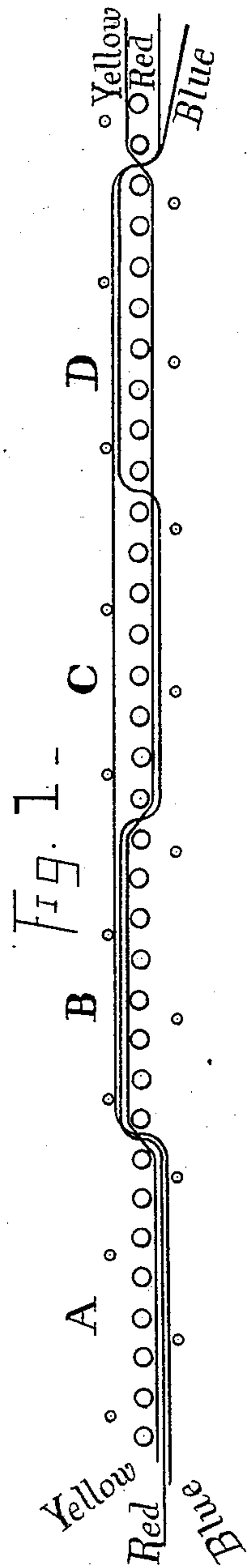


(Specimens.)

D. B. KERR.
WOVEN FABRIC.

No. 411,040.

Patented Sept. 17, 1889.



WITNESSES.

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DAVID B. KERR, OF FRANKFORD, PENNSYLVANIA.

WOVEN FABRIC.

SPECIFICATION forming part of Letters Patent No. 411,040, dated September 17, 1889.

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To all whom it may concern:

Be it known that I, DAVID B. KERR, a citizen of the United States, residing at Frankford, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Woven Fabrics; and I do hereby declare that the following, taken in connection with the annexed drawings, is a full, clear, and exact description thereof, and is sufficient to enable others skilled in the art to practice my invention.

The object of my improvement is to produce a greater number of shades of color in ornamental woven fabrics by a new way of interweaving with warp-threads three weft-threads, each of a different color, without additional weft-threads or expense.

My invention is especially adapted to fabrics compound in texture—viz., fabrics composed of warp-threads for forming the outline of figures and grounds and warp-threads for forming a texture of the wefts and for tying the figure-warp threads and weft-threads together and by a combination for shading purposes. The weave of the figure-warps is determined by the design or pattern to be woven, which is transferred to the fabric by the use of perforated cards in connection with a Jacquard machine. The binder-warp threads may be woven plain or twilled by heddles, or a variety of weaves when the jacquard is used, to effect shading and texture of figures and grounds.

My improvement is applicable to upholstery fabrics for furniture-coverings, curtains, draperies, table-covers, shawls, and carpets.

To produce my improved fabric I use the Jacquard machine as originally operated, using one hook for each warp-thread and one perforated card for each weft-thread, as indicated by the design or pattern to be woven, a pick and pick-loom for operating the shuttles, one beam for the figuring-warp threads, and another for the binder-warp threads.

The following order of operation will be understood by those skilled in the art of weaving and assist them in making a design and cutting the cards for my improved fabric.

The designer is instructed to make a pattern with six colors for weft-threads, using the three primary colors—viz., yellow, red,

and blue—in the parts of the figures or ground intended for single-weft colors. The portions selected for shading with double colors may be painted with the secondary colors—orange, purple, and green. This may be done in whole objects, “dots,” “seeding,” or “striping.” A design thus made has six colors for wefts, and is ready for the “card-stamper,” who cuts the cards as follows: For the yellow weft-thread, yellow, orange, and green are cut; for the red weft-thread, red, orange, and purple are cut; for the blue, blue, purple, and green are cut.

Pattern-cards perforated in the above manner and operated on the Jacquard loom will effect the object of the design on the face of the fabric.

The three primary colors—yellow, red, and blue—make a unit of the design. Each color appears in a shed alone as a unit in parts of the pattern, and in other portions in one shed parallel and contiguous with another color as a unit of the design. In this manner a reversible fabric is obtained where two colors appear on the face as a unit. The third appears on the back as a unit of the design, where the three primary colors may appear in one shed on the face. The figuring-warp threads appear on the back for reversible purposes.

In the old and well-known method of weaving such fabric as Broché or Paisley shawls, that part of the weft-threads which are not used on the face of the goods are floated on the back, and when out of the loom the loose parts sheared off. In double-faced and reversible goods the parts of the weft-threads which are not used on the face or back are floated or concealed between the face and back. In upholstery goods the parts of the wefts which are not used on the face are inclosed in the back by the binder-warp without regard to outline of figure or for shading effects. In such fabrics where three or more colors are a unit of the design one color only appears in any part of the figure or ground as a unit, and is therefore sparse and thin. In my improvement the two colors selected for shading appear on the face more compact in texture and solid in color.

I am aware that two or more colors of weft-threads have been used in a twisted state,

thus obtaining "moresque" shadings and effects by spiral contiguity throughout the whole width of the fabric.

My improvement produces shading effects by parallel contiguity of the lateral shot-about lines where two colors appear on the face or back in one shed. All the colors may be inserted in one shed in parts of the figure and held in their lateral position by threads of the binder-warp.

For illustration of my improvement I have selected the three primary colors—yellow, red, and blue—and their combination with each other to produce orange, purple, and green, the whole in combination with a figuring and a binder warp, which may be black or other suitable color and used in combination with the weft-threads for shading purposes. It is obvious that many other colors may be selected to produce ornamental shadings, and that more than three colors having a shuttle for each may be used, and that one or more twisted wefts may be used for variety in shading effects.

Referring to the drawings which I have prepared to illustrate the manner of interweaving the wefts and warp-threads to produce a shaded ornamental fabric, it will be noticed that I have arranged the figuring-warp threads in sets with a binder-warp thread in the center of each set, as is shown and described in Patent No. 353,790, granted to me December 7, 1886. The warp-threads may also be arranged as described in application Serial No. 282,291, filed August 8, 1888, by me as an improvement on Patent No. 353,790.

There are two figures shown—Figure 1 and Fig. 2. Fig. 2 is a continuation of Fig. 1. The drawing represents a cross-section taken on a line parallel with the weft-threads. The figuring-warp threads are represented by the large circles and the binder-warp threads by the small circles. The weft-threads are shown one above the other; but in the fabric they will be side by side where two or three appear in the same shed.

At A the three weft-threads are all on the back and in the same shed. At B the three

wefts are all on the face and in the same shed. At C the blue weft is on the face and the yellow and red wefts on the back in the same shed. At D the red and blue wefts are on the face and in the same shed; the yellow weft is on the back. At E the yellow weft is on the face; the red and blue wefts on the back in the same shed. At F the blue and yellow wefts are on the face in the same shed; the red weft is on the back. At G the red weft is on the face; the yellow and blue wefts are on the back in the same shed. At H the yellow and red wefts are on the face in the same shed, and the blue weft is on the back.

At A the warp-threads only show on the face. At B all the weft-threads show on the face. At C the blue weft shows. At D the blue and red wefts show, making a purple shade. At E the yellow weft shows. At F the yellow and blue wefts show, making a green shade. At G the red wefts show. At H the yellow and red weft show, and make an orange shade.

The wefts woven as above described may be interwoven by the warp-threads, as described in my improvements in weaving before referred to, and produce a great number of shades in coloring figures and grounds in fancy weaving.

Having thus described my invention, I desire it to be understood that I do not claim making a design for six colors of weft-threads, nor do I claim any known weaves in combination with my improved fabric; but

What I do claim, and desire to secure by Letters Patent, is—

A woven fabric composed of a figuring-warp and a binder-warp and three weft-threads, each different in color, each color single in a shed in parts of the face and back of the fabric and parallel and contiguous in one shed, with each of the other colors in other portions of the figures or grounds, as herein specified and set forth.

DAVID B. KERR.

Witnesses:

JOHN SHINN,
JOSEPH P. COBB.