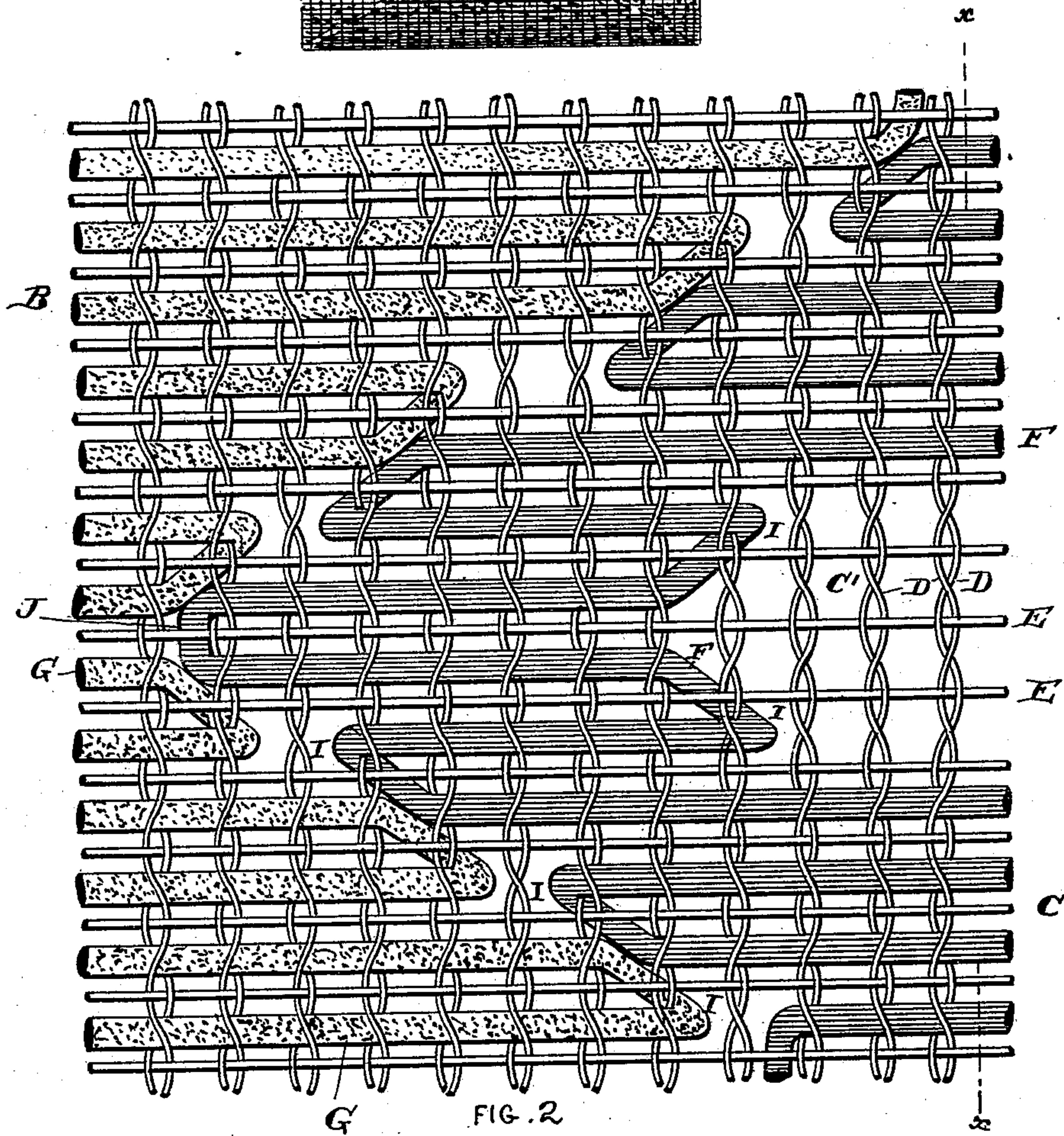
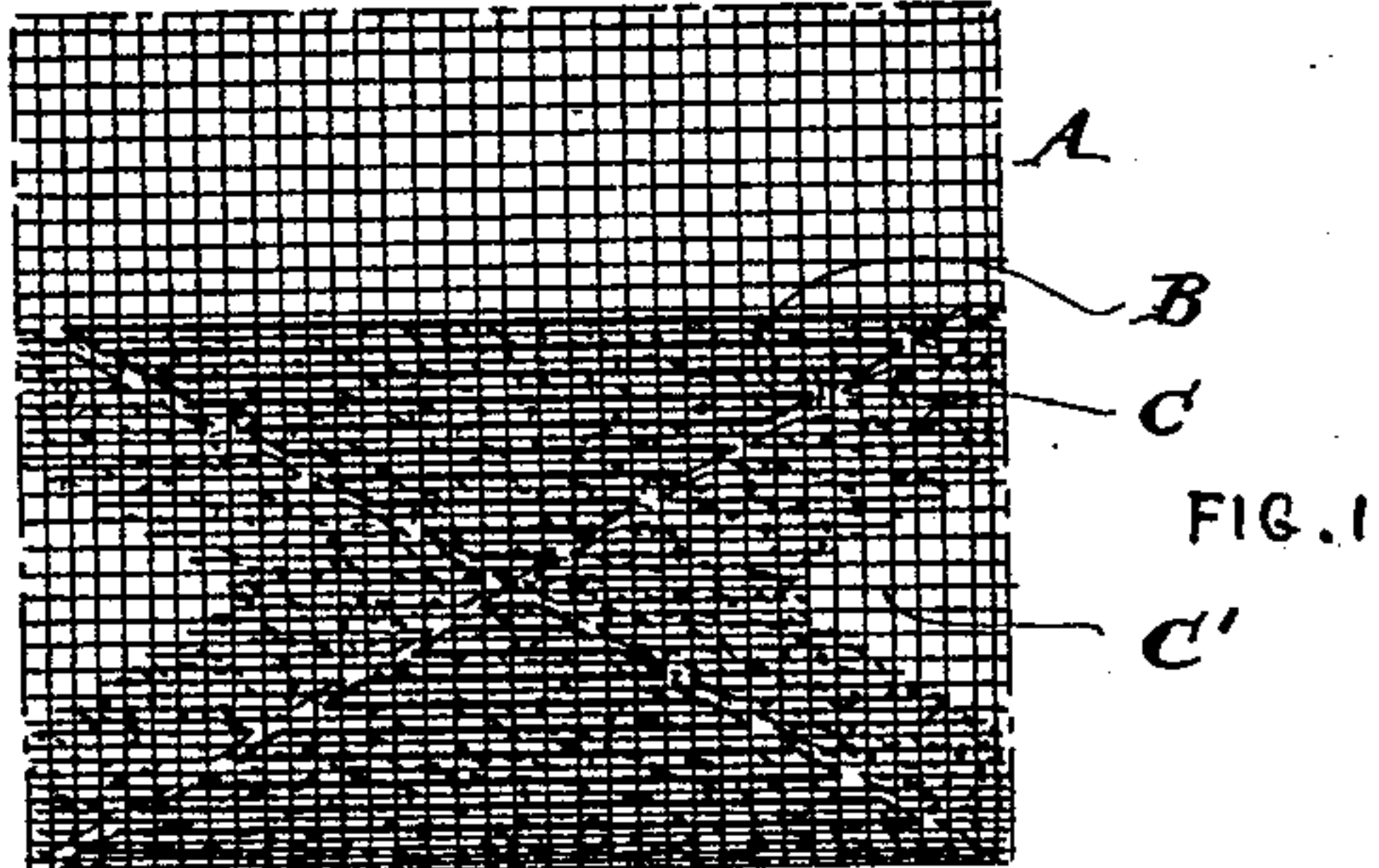


(No Model.)

W. G. CONNELL.
WOVEN FABRIC.

No. 522,556.

Patented July 3, 1894.



WITNESSES:

Henry Denny
C. A. Dittmer

FIG. 3

INVENTOR:

Walter G. Connell
By his atty
J. M. Smith

UNITED STATES PATENT OFFICE.

WALTER GLEN CONNELL, OF PHILADELPHIA, PENNSYLVANIA.

WOVEN FABRIC.

SPECIFICATION forming part of Letters Patent No. 522,556, dated July 3, 1894.

Application filed March 6, 1893. Serial No. 464,682. (No specimens.)

To all whom it may concern:

Be it known that I, WALTER GLEN CONNELL, of the city and county of Philadelphia and State of Pennsylvania, have invented an Improvement in Woven Fabrics, of which the following is a specification.

My invention relates to woven fabrics, and consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings which form a part thereof.

My invention comprehends a new fabric employing a ground work known as the gauze weave and having the pattern and color effects produced by one or more additional filling figuring threads independent of the ordinary warp and weft threads of the gauze weave. These additional filling figuring threads are introduced during the act of weaving and are bound into the fabric by the twisted warp threads of the gauze weave of the ground work. In the fabric an indefinite number of filling figuring threads may be introduced, and each of these threads may be carried from one part of the fabric to another so that an indefinite variety of color and pattern effects may be produced in any piece of fabric.

In the present application I do not broadly claim the fabrics composed of any weave of warp and weft threads as the ground work combined with the independent filling figuring threads passing laterally across the fabric in sectional shots and bound into it by the warp threads, as that forms part of my application, Serial No. 452,265, filed November 17, 1892.

The present invention relates only to cross woven fabrics in which the independent filling figuring thread or threads are bound into the fabric by the crossed warps of the ground work.

In carrying out my invention I form an open or gauze fabric employing a single or double gauze weave in the ordinary way and during the act of weaving I introduce one or more (the number being practically unlimited) filling figuring threads of different colors or characteristics which are independent of the warp and weft, and are bound into the fabric by the crossed warp threads during the formation of the fabric. The filling fig-

uring threads in being introduced, may be moved laterally in either direction to a greater or less extent within part of the sheds produced by the crossed weft threads, the other sheds taking in body weft threads, thus producing a shot of the filling thread over a greater or less sectional area of the fabric. As these filling threads may pass across the other and any number of them may be used, an unlimited variety of pattern and color effects may be produced. As a general rule, in the production of this fabric, the filling figuring threads which form the sectional shots will be bound in the warp sheds at intervals while the remaining sheds receive the body weft, that is to say, one or more sheds of the warp will take in weft threads only, and the next shed a figuring filling thread forming the sectional shot.

It is immaterial to the present invention by what means or mechanism the fabric may be produced. In my application, Serial No. 452,264, filed November 17, 1892, I have shown a loom of the general character adapted for producing this fabric. It will be understood however, that for this purpose the loom shown in that application should be fitted with the usual appliances for producing a cross weave.

I shall now refer to the accompanying drawings for the purpose of more particularly describing the construction of my new fabric.

Figure 1 is a plan view illustrating a piece of the fabric. Fig. 2 is a similar view of a portion of the same on a greatly enlarged scale showing the structure of the fabric; and Fig. 3 is a sectional view on the line $x-x$ of Fig. 1, showing the chain of the weave.

A represents a portion of the body of the woven fabric without the figuring filling threads.

B and C are two portions of fabric in which different sectional filling threads are employed.

C' is a plain or gauze portion of the body of the fabric from which the filling figuring threads are omitted.

D are the warp threads which are shown arranged in pairs and crossed in the weaving in the manner well known in the art.

E are the weft threads which are interwoven with the crossed warps in the usual manner.

F and G are two of the independent filling

figuring threads of which any number may be employed.

The warps D, D and wefts E are woven together in the manner usual in gauze weaving, the wefts being introduced into every cross shed formed by the lifting and lowering of the warps. The filling figuring threads F, G, &c., are introduced in the act of weaving into the open sheds and lie between the crossed parts of warp threads. These threads may be carried laterally through the open shed a greater or less distance so as to lie between a greater or less number of crossed warps, and a series of independent filling or figuring threads may be introduced in the same shed each extending across a section thereof only. When the next cross shed is formed and the weft E is again shot through to preserve the twist or gauze of the crossed warps, these previously introduced filling threads F and G are bound into the fabric. The weft threads E enter the cross sheds and form the full gauze or half twist, and the filling figuring threads enter the open sheds and form a half gauze or quarter twist for sectional shots or for such lateral distance as each filling figuring thread may carry through the shed. These filling figuring threads pass under the wefts which are shot in the next formed cross shed and are then introduced as before in the open shed between the crossed warps. In thus carrying the filling figuring threads from one open shed to the next they may be moved laterally so that they will be introduced between a different pair of crossed warps in entering the shed, forming the bends as shown at I in Fig. 2 of the drawings. They may, however, in passing to the next open shed not be moved laterally, so that in entering that shed they will enter between the same pair of twisted warps which they last left. This is shown at J in Fig. 2. These manipulations depend of course, upon the character of the pattern to be formed by the filling figuring threads F and G. By moving the filling figuring threads laterally the distance of one pair of warps in passing from one shed to another so as to form the angular bends I the adjacent threads F and G may be brought close together as shown.

It will be seen that in any line of the fabric, any number of filling figuring threads may be introduced, one succeeding another, and each extending for a greater or less sectional distance across the fabric. As these threads are independent and may be introduced at any portion of the fabric that may be desired an infinite variety of pattern and color effects may be produced.

Each filling figuring thread F, G, &c., may extend continuously throughout the fabric, traveling from one part to another as the pattern may require. If desired the filling figuring threads may be omitted from a portion of the fabric, as is shown at C' in Fig. 2, and at such points the ordinary body open or gauze weave is exposed with the twisted

threads of the warp lying over one another as at e without the intermediate filling thread. The fabric may be formed with this gauze body with a small pattern formed by the filling threads upon it.

While I have shown a fabric in which the body portion is of the common gauze type, the invention is not restricted thereto but applies to any cross woven fabric in which the filling threads are introduced between the crossed warps and are bound into the fabric by them.

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

1. A woven fabric composed of a series of warp and weft threads interwoven together into a gauze weave, and one or more filling figuring threads independent of the warp and weft passing laterally a greater or less extent across the fabric and bound into the fabric by the warp threads, the filling figuring threads lying between any warp threads in different sheds as the pattern may require.

2. A woven fabric composed of a series of crossed warp threads arranged in pairs, a series of weft threads interwoven with the crossed warp threads, and one or more independent filling figuring threads passing laterally across the fabric for variable distances and lying between the pairs of crossed warp threads.

3. A gauze woven fabric in which the pattern and color effects are produced by a series of filling figuring threads independent of the weft threads passing laterally part way across the fabric and lying between the crossed warp threads.

4. A woven fabric consisting of a series of warp threads crossed in pairs and a series of weft threads interwoven with the crossed warps to form a gauze woven body, and two or more separate filling figuring threads being in one shed and each extending part way across the fabric to such extent as the pattern may require.

5. A woven fabric composed of a series of warp and weft threads interwoven together into a gauze weave and forming a gauze body, and one or more filling figuring threads lying between the crossed warp threads and extending laterally across the fabric and passing from one shed to another without interweaving with the weft threads.

6. A woven fabric composed of a series of warp and weft threads interwoven together into a gauze weave and forming a gauze body, and a series of filling figuring threads lying between the crossed warp threads and extending laterally across the fabric each filling figuring thread in passing from any shed to another always passing over the same side of the weft threads so as not to interweave there-with.

7. A woven fabric consisting of a series of crossed warp threads and weft threads interwoven to form a gauze body and one or more

independent or continuous figuring filling threads lying between the crossed warp threads of alternate sheds for distances less than the full width of the fabric.

- 5 8. A woven fabric consisting of a series of crossed warp threads and weft threads interwoven to form a gauze body and one or more independent or continuous figuring filling threads lying between the crossed warp
10 threads of alternate sheds for distances less

than the full width of the fabric, and having the connecting parts brought down to pass under the intermediate weft threads.

In testimony of which invention I have hereunto set my hand.

WALTER GLEN CONNELL.

Witnesses:

ERNEST HOWARD HUNTER,
HELEN L. MOTHERWELL.