

A. SCHOENFELDT.

FABRIC.

APPLICATION FILED AUG. 19, 1911.

1,060,368.

Patented Apr. 29, 1913.

FIG. 1.

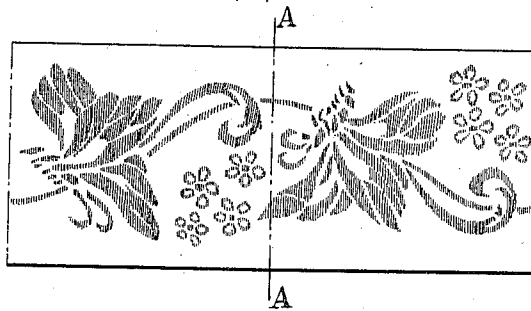


FIG. 2.

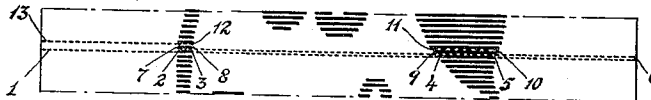


FIG. 3.

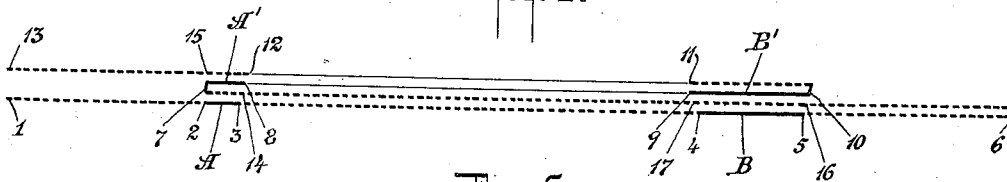
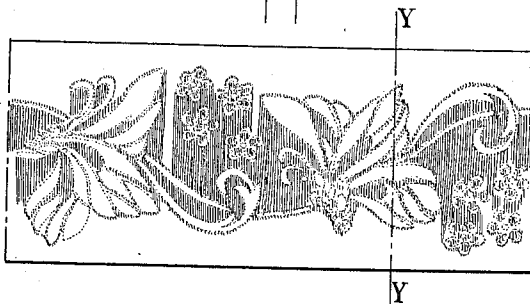


FIG. 4.



WITNESSES

G. V. Rasmussen

John A. Ferguson

INVENTOR

ALFRED SCHOENFELDT

BY

Biesen & Mauch

ATTORNEYS

UNITED STATES PATENT OFFICE.

ALFRED SCHOENFELDT, OF BROOKLYN, NEW YORK, ASSIGNOR TO CLARENCE WHITMAN & CO., OF NEW YORK, N. Y., A FIRM COMPOSED OF CLARENCE WHITMAN, JAMES S. WHITMAN, EDMUND S. TWINING, LYMAN B. TRIEZE, JR., C. MORTON WHITMAN, HENRY L. ANGELL, AND WILLIAM F. ADAM.

FABRIC.

1,060,368.

Specification of Letters Patent.

Patented Apr. 29, 1913.

Application filed August 19, 1911. Serial No. 644,904.

To all whom it may concern:

Be it known that I, ALFRED SCHOENFELDT, a citizen of the United States, and a resident of the borough of Brooklyn, county of Kings, and State of New York, have invented a new, useful, and Improved Fabric, of which the following is a specification.

My invention relates to the art of weaving fabrics and has for its object the production of a fabric of novel construction, particularly a fabric composed of a ground of interwoven warp and weft threads upon which is superposed a figured design formed by a float of weft threads or portions thereof. Heretofore design fabrics have been made in which the weft threads without exception extend directly across the fabric from side to side; during one traverse from one side of the fabric to the other side thereof, these threads are suitably interlaced or interwoven with the warp threads to form a ground while during the return traverse they extend either wholly above the warp threads to form a figure or design on the upper surface of the fabric, or wholly below the warp threads to form loose floating threads extending across the lower surface of the fabric over the whole area thereof, except an area equivalent to that of the design appearing on the other side of the fabric. It may be said that these return threads form on the upper surface of the fabric a design in positive while on the lower surface they form the same design in negative. The loose floats on the under surface of the fabric, it will be seen, are without function of any kind and are thus objectionable because they both require a very considerable amount of useless thread and produce an unsightly surface which soon becomes torn and ragged.

One of the principal objects of my invention is to produce a design fabric which is free from objectionable features such as have been referred to.

The principles of construction of my improved fabric will be clearly set forth in the following description of one embodiment of my invention, which is illustrated in the accompanying drawings in which—

Figure 1 shows a view of the upper surface of a portion of a fabric embodying the features of my invention. Fig. 2 is an en-

larged diagrammatic view of the fabric shown in Fig. 1, in proximity to the line A—A thereof. Fig. 3 is a further enlarged diagrammatic illustration of the double traverse of the weft thread in the vicinity of the line A—A of Fig. 1 and Fig. 4 is a view of the lower surface of the fabric shown in Fig. 1.

The fabric shown by the drawings is composed of longitudinally extending warp threads and one continuous transversely extending weft thread; the former may consist of cotton threads and the latter may be a silk thread, preferably of a color different from that of the warp threads. Portions of the weft thread are suitably interwoven by any type of weave with the warp thread to form a ground while other portions thereof extend either above or below the warp threads, the parts extending above marking the floral design on the upper surface of the fabric as shown in Fig. 1. Considering, for example, that portion of the design which is shown in Figs. 2 and 3, in which the weft threads are shown in slightly separated relationship and not closely associated or beaten down by the action of the reed of the weaving mechanism, it will be observed that the weft thread at the beginning of its traverse from the left to the right of the web, *i. e.* at the point marked by the reference character 1, is interwoven with the warp threads, as indicated by the dotted line. The interweaving extends to the point 2, from which to the point 3, the thread extends above the warp, as indicated by the heavy black line A, and serves to form a part of the floral design visible on the upper surface of the fabric. From the point 3 to the point 4 it is interwoven to form the ground; from the point 4 to the point 5 it extends above the warp to form another portion B, of the design, and from the point 5 to the point 6 it is again interwoven. This terminates one traverse of the thread across the web. On the return traverse it is interwoven with the warp threads from the point 6 to the point 7, which lies at the extreme left of the portion A of the design. The ground weaving is not continued beyond the point 7 although the shuttle continues its movement to the edge of the web

near the point 1. On the return movement of the shuttle no interweaving of any kind is accomplished until the point 7 is again reached when the thread is brought above the warp threads and continued thereabove to the point 8 to form the portion A' of the design. The loop or loose thread formed by this movement of the shuttle from the point 7 to the edge of the web and back again to the point 7 is taken up by the further shuttle motion to the right. A similar shuttle action occurs at the right of point 10. The thread itself, therefore, irrespective of the travel of the shuttle turns back upon itself toward the right from the point 7, extending above the surface of the warp to the point 8, to form a portion A' of the design, lying next to the portion A between the points 2 and 3. From the point 8 it extends below the warp threads to the point 9, where it extends above the warp threads to the point 10, thus forming a portion B' of the design, lying next to the portion B, between the points 4 and 5. The part of the weft below the warp is not shown in Fig. 2, but is indicated in Fig. 3 by a light full line, and is visible on the lower surface of the fabric shown by Fig. 4. At the point 10 it again turns back upon itself and begins a return sweep toward the left of the web. It is interwoven from the point 10 to the point 11, from which to the point 12 it extends below the fabric; from the point 12 to the point 13 at the left edge of the web it is again interwoven. The thread has now completed a double traverse of the web, extending from one side of the fabric to the other and back again to the first mentioned side. From the point 13 the weft thread begins another double traverse from left to right and return which is similar to that already described, but varies according to the design to be exhibited, the portions extending above the fabric forming the desired design in accordance with the operation of the jacquard mechanism of the loom. At the edges 1, 13 and 6 of the fabric the weft thread is suitably interwoven with the warp threads so as to form selvages. At suitable periods the weft threads are forced into close proximity to each other, or beaten up, as for instance by the action of the reed mechanism of the loom. This results in positioning the woven portions of the weft thread practically in lateral contact with each other at all points of the fabric.

At the particular portion of the fabric shown in Figs. 2 and 3, the woven portions 6—7, 10—11 and 12—13, are forced toward the woven portions in the line 1—6. A part 7—14 of the portion 6—7 at the extreme left thereof is forced below the design portion A, and lies in the line 1—6. A part 12—15 of the portion 12—13 at the extreme

right thereof is forced below the design portion A'. Similarly the portion 10—11 is forced below the design B' and the part 16—17 of the portion 6—7 is forced below the design B. The remaining parts of the portions 6—7, and 12—13, that is, the parts 6—16, 17—14 and 15—13 are forced into close relationship with the portions 5—6, 3—4 and 1—2 respectively. Furthermore, the portions 10—11 and 12—15 will be forced into close relationship with the portions 16—17 and 7—14 respectively. It will be seen that after this beating up of the weft thread there will be a thickness of only two woven threads, the design portions A, A' and B, B' being situated above these woven threads and closely adjoining one another. The finished fabric therefore has a homogeneous ground portion with the design floats situated above said ground portion. Similarly of course the float portions 8—9 and 11—12 will be situated below the fabric, directly below the woven portions 3—4 and 17—14 respectively. The finished fabric thus comprises woven portions, float portions directly above said woven portions and float portions directly below said woven portions, all of these portions being therefore in a common plane, said plane being perpendicular to the plane of the fabric. These lower float portions, it will be readily understood, extend only between the inner confines of separated portions of the design and do not extend outside of the confines of the design. If the design at any transverse line were a solid figure without interstices within the boundaries of its area it is clear that no under floats would appear, a condition which is approximated in the design illustrated at the line Y—Y of Fig. 4, along which it will be noted there are substantially no such threads.

As has been pointed out above, the apparent four thicknesses of thread, shown in Fig. 3, are forced together by the action of the reed or equivalent means to form two woven thicknesses, and therefore it is necessary to substantially so arrange and proportion those portions of the thread which are interwoven, those which extend above the fabric and those which extend below the fabric, that along any line at right angles to the transverse course of the thread, there are for all practical purposes only two intersections of woven portions with said lines. For instance, at the left there are two woven thicknesses, viz. 1—2 and 13—15; under the design A, A' there are two, viz. 14—7 and 12—15; at the middle of the web are the portions 3—4 and 17—14; under the design B, B' there are the portions 16—17 and 10—11, and at the right are the portions 5—6 and 6—16.

It will of course be understood that instead of the apparent four thicknesses, as

shown, formed by the turning back upon itself of the weft upon its return reciprocation, there may be a greater number if desired and the back looping obviously, may be made upon the forward reciprocation or upon each reciprocation instead of upon the return reciprocation.

I claim:

1. A fabric comprising warp threads and a single weft thread extending across the fabric, and having a portion thereof interwoven with certain of the warp threads and a float portion extending above certain of the warp threads, said weft thread being turned back upon itself in its course from one side of the fabric to the other side thereof.

2. A fabric comprising warp threads and a single weft thread extending across the fabric, and having a portion thereof interwoven with certain of the warp threads and a float portion extending above certain of the warp threads, said weft thread being turned back upon itself a plurality of times in its course from one side of the fabric to the other side thereof.

3. A design fabric comprising warp threads and a weft thread traversing said warp threads, said weft thread having a portion interwoven with the warp threads to form a ground, a portion extending above the warp threads to form the design and a portion extending below the warp threads, said three portions being in a common plane perpendicular to the plane of the fabric.

4. A design fabric comprising warp threads and a weft thread extending from one side of the fabric to the other side thereof and back again to the first mentioned side, thus forming a double traverse, and having portions above, under and interwoven with the warp threads, the interwoven portions in each double traverse being substantially equal in length to twice the distance across the fabric.

5. A design fabric comprising warp threads and a weft thread forming a series of double traverses across the fabric, and having an interwoven portion and a design float portion, said weft thread in each double traverse being turned back upon itself intermediate of the sides of the fabric.

6. A design fabric comprising warp threads and a single weft thread, said weft thread having portions thereof interwoven with certain of the warp threads to form a ground, float portions extending above certain of the warp threads to form a design, and float portions extending below certain of the warp threads, said last mentioned float portions being wholly within the boundaries of the design formed by the first mentioned float portions.

In testimony whereof, I have hereunto set my hand in the presence of two subscribing witnesses.

ALFRED SCHOENFELDT.

Witnesses:

JOHN A. FERGUSON,
EUGENE EBLE.