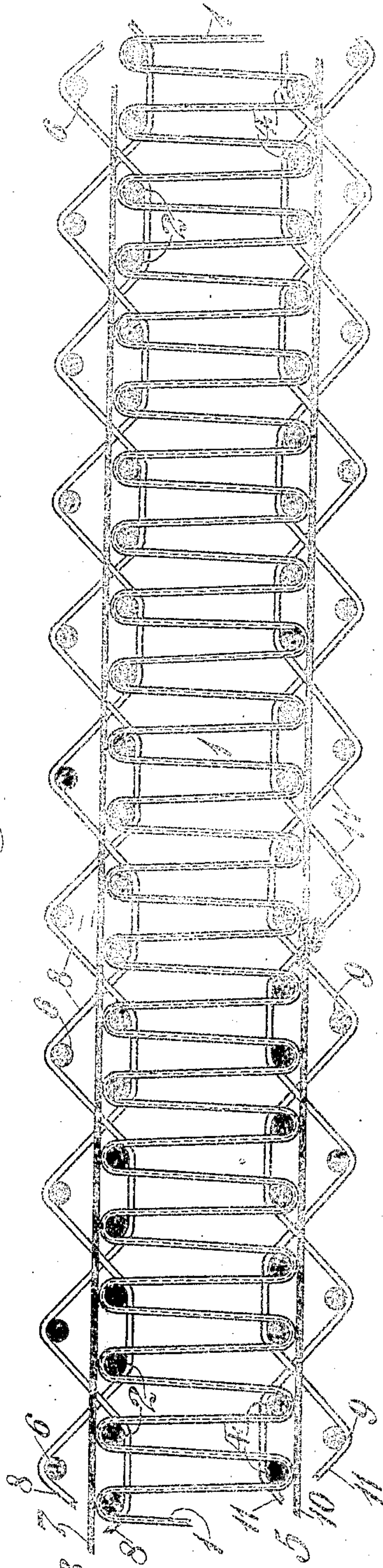


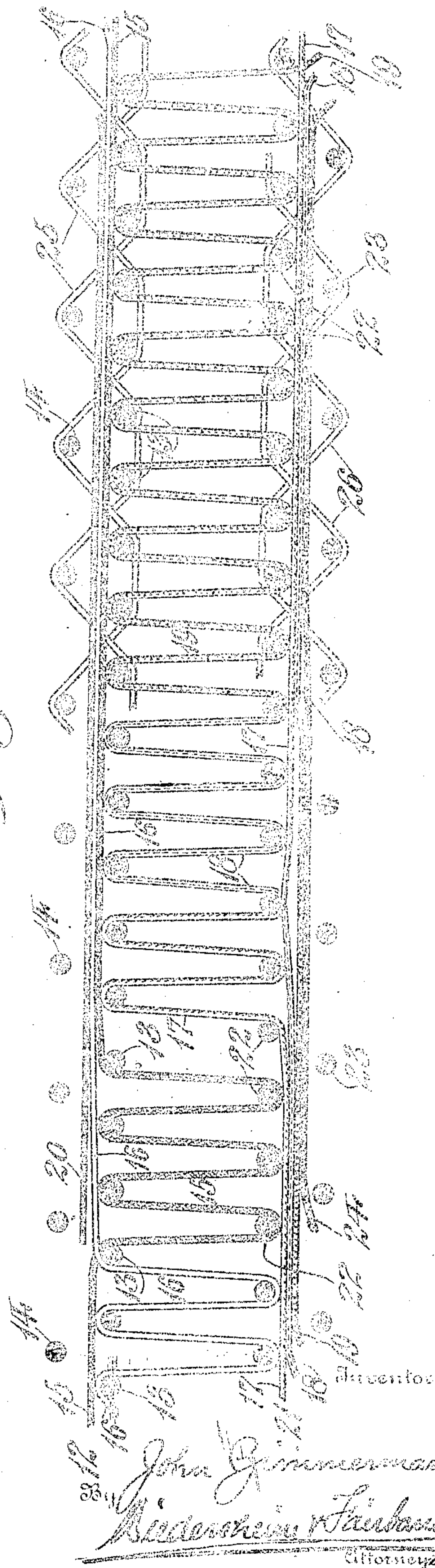
No. 813,130.

PATENTED FEB. 20, 1906.

J. ZIMMERMAN.
WOVEN PILE FABRIC.
APPLICATION FILED JAN. 18, 1905.



Witnesses
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TO PHILADELPHIA TAPESTRY MILLS, A CORPORATION OF PENN-
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WOVEN PILE FABRIC.

No. 813,130.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed January 18, 1905. Serial No. 241,538.

To all whom it may concern:

Be it known that I, JOHN ZIMMERMAN, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Woven Pile Fabric, of which the following is a specification.

My invention relates to cut-pile fabrics; and it consists in weaving a double cloth after the manner hereinafter described, and illustrated in the accompanying drawings, in which—

Figures 1 and 2 represent longitudinal vertical sections of my improved fabric, showing different forms.

Similar numerals of reference indicate corresponding parts in the figures.

In my present invention a pile-warp 1 when used in making pile engages each of the weft-threads 2 and 4 of the inner row of wefts of each cloth, and a stuffer-warp passes directly between the outer and inner row of wefts in each cloth. For example, as seen in Fig. 1, stuffer-warp 7 is situated between the outer wefts 6 and the inner wefts 2. The object of my present invention is to bind together in a single shed two weft-threads of the inner row of wefts with one weft-thread of the outer row of wefts, securing also the stuffer-warp and the pile-warp which is between the two weft-threads of the inner row of wefts. It will be seen that there are two portions of the pile-warp between the weft-threads of the inner row of wefts and that each weft-thread of each outer row of wefts will be bound to the two weft-threads of each inner row of wefts at the space between the said two inner weft-threads. It is apparent that by thus binding one outer weft-thread to two inner weft-threads a very durable cloth will be produced in which the different threads are firmly bound together.

Referring to the drawings, in Fig. 1 I illustrate the construction of a double fabric whose pile-warps 1 are of but one color and are passed over the weft-threads 2 in the upper cloth 3 and below the weft-threads 4 in the lower cloth 5 during the process of weaving. Interposed between the weft-threads 2 and 6 are the stuffer or body warps 7, which with the pile-warps 1 are secured in the upper cloth 3 by the binding-warps 8. Interposed between the weft-threads 4 and 9 are the stuffer or body warps 10, which with the pile-

warps 1 are secured in the lower cloth 5 by the binding-warps 11. In the illustration I show that the binder-warp crosses between the fillings every three picks, the wefts 2 with the pile forming warps around them, the weft 6 arranged between but above the center of the wefts 2 to form a lock for the purpose of pinching the pile-warp firmly, so as to prevent it from pulling out after it is cut.

In Fig. 2 I illustrate the method employed when more than one color is desired in the figure or pile warp. In the present instance I indicate the employment of five colors in the figure or pile warps. The upper cloth 12 consists of the weft-threads 13 and 14, between which two latter are the pile-warps 15, 16, 17, 18, and 19 and also the stuffer or body warp 20. The lower cloth 21 consists of the weft-threads 22 and 23, between which two latter are the pile-warps 15 to 19, both inclusive, and also the stuffer or body warp 24. It is to be noted that when the warps 15 are introduced into the pile they are passed over the wefts 13 and under the wefts 22, and when they are not to appear in the pile they are retained between the weft-threads 13 and 14 until again wanted in the pile, when they follow the course hereinbefore described, the same being the case with the pile-warps 16. When the pile-warps 17, 18, and 19 are to appear in the pile, they are passed from below the weft-threads 22 and up over the weft-threads 13 and under the weft-threads 22, and when not wanted in the pile they are retained between the weft-threads 22 and 23 until again wanted in the pile, when they follow the course hereinbefore described. The several warps and wefts in the upper cloth 12 are securely held in position by the binding-warps 25, and those in the lower cloth 21 are held by the binding-warps 26.

The pile is cut in the usual manner during the process of weaving, so as to produce two distinct fabrics when finished, or this can be done after the cloth is off the loom by machine specially constructed for that purpose.

It is apparent that in each face or plane the number of wefts in the inner row is twice the number of wefts in the outer row, and one of the outer row of wefts, together with the pile and body warp, is firmly fastened to two wefts of the inner row by binding-warps which pass alternately above one weft of the outer row and under two wefts of the inner

row. Owing to the relative position of these wefts, one of them being centrally located above the other two, the binding-warps will wedge the three wefts together and fasten the warps and the wefts much more securely together than has been done heretofore.

It will be evident that various changes may be made by those skilled in the art which will come within the scope of my invention, and I do not, therefore, desire to be limited in every instance to the exact form herein shown and described.

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

1. In a double-pile fabric having a double upper and a double lower weft plane, a body-warp interposed between the weft-threads in each plane, a pile-warp engaging adjoining wefts of the inner rows of wefts singly and binding-warps passing alternately over one of the weft-threads of the outer row of wefts and under two of the weft-threads of the inner row of wefts in each plane.

2. In a double-pile fabric, inner and outer rows of weft-threads, a stuffer passing between said rows, pile-warps passed around each of the inner weft-threads and binder-warps binding two inner weft-threads and one outer weft-thread in one shed, whereby

the two inner weft-threads with the pile-warps lapped around them are tightly bound side by side with the outer weft-thread bound with the two inner weft-threads at the junction of the same.

3. In a double-pile fabric, weft-threads arranged in inner and outer planes, a binding-warp uniting a group of inner weft-threads in one plane to outer weft-threads, and a pile-warp uniting all of the inner weft-threads in the two inner planes with a grouping differing in number from that embraced in the inner plane by the binding-warp.

4. In a double-pile fabric, inner and outer planes of weft-threads, a binding-warp uniting a plurality of inner weft-threads to single outer weft-threads and a pile-warp passing around each of the inner weft-threads individually.

5. In a pile fabric, weft-threads in two planes, pile-warps evenly distributed between the wefts and lapped around weft-threads in one plane and warps binding wefts of the said plane to wefts in the other plane in a different grouping from that in which the pile-warps lap them.

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