

(No Model.)

3 Sheets—Sheet 1.

T. ANDERSON.  
FIGURED PILE FABRIC.

No. 307,701.

Patented Nov. 4, 1884.

FIG: 1.

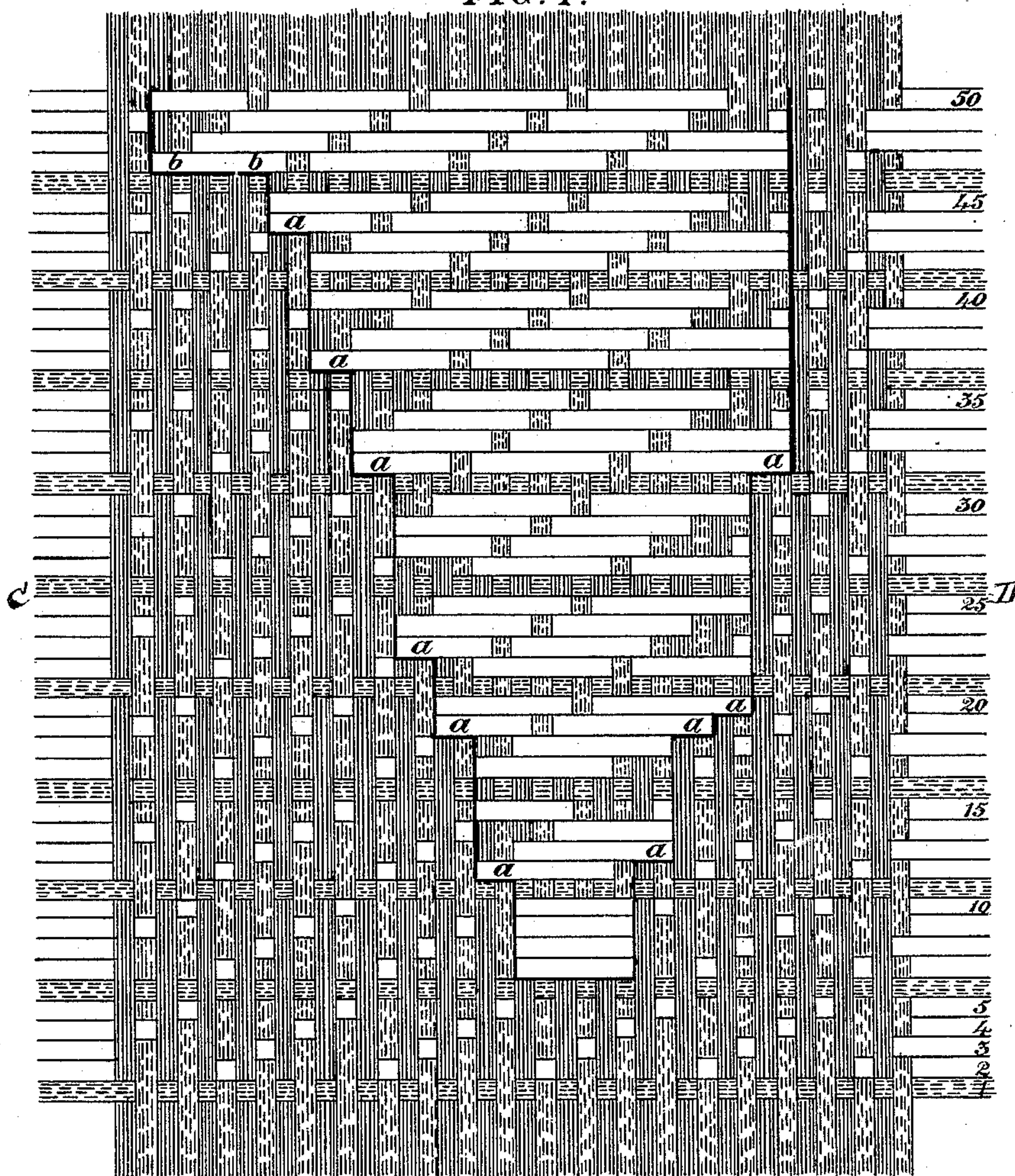
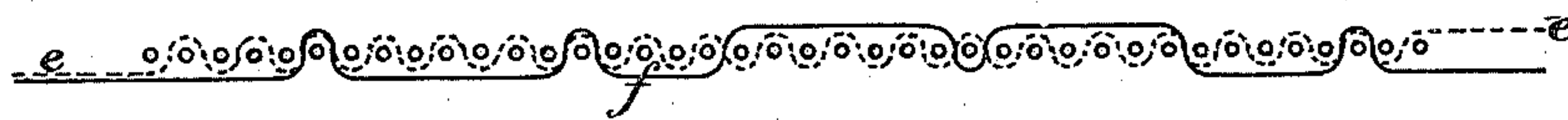


FIG: 3.



Witnesses.

John C. Tunbridge,  
Harry M. Turk

Inventor.

Thomas Anderson  
by his attorneys  
Brisson & Steele



(No Model.)

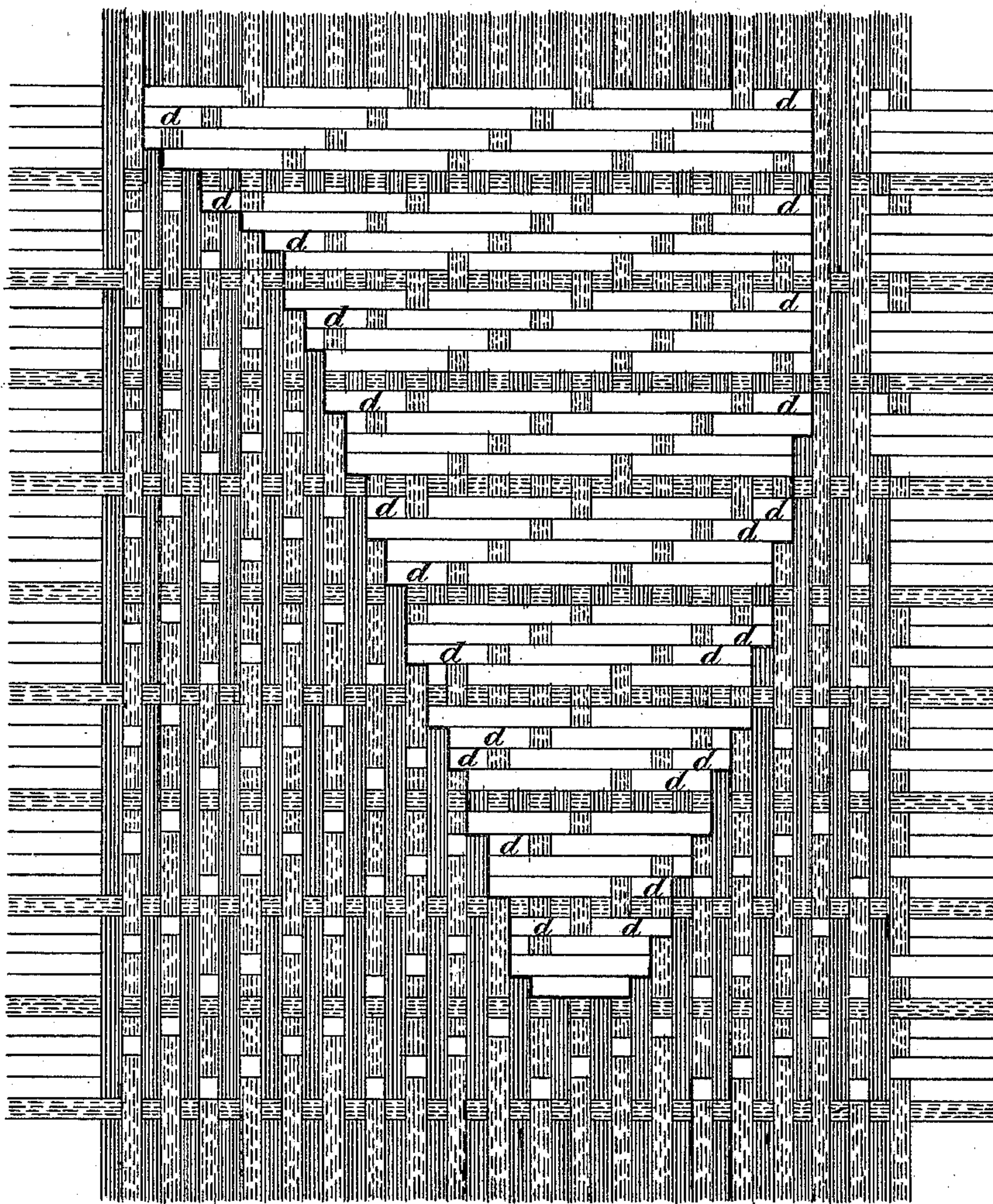
3 Sheets—Sheet 2.

T. ANDERSON.  
FIGURED PILE FABRIC.

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FIG: 2.



Witnesses.

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Harry M. Burk

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(No Model.)

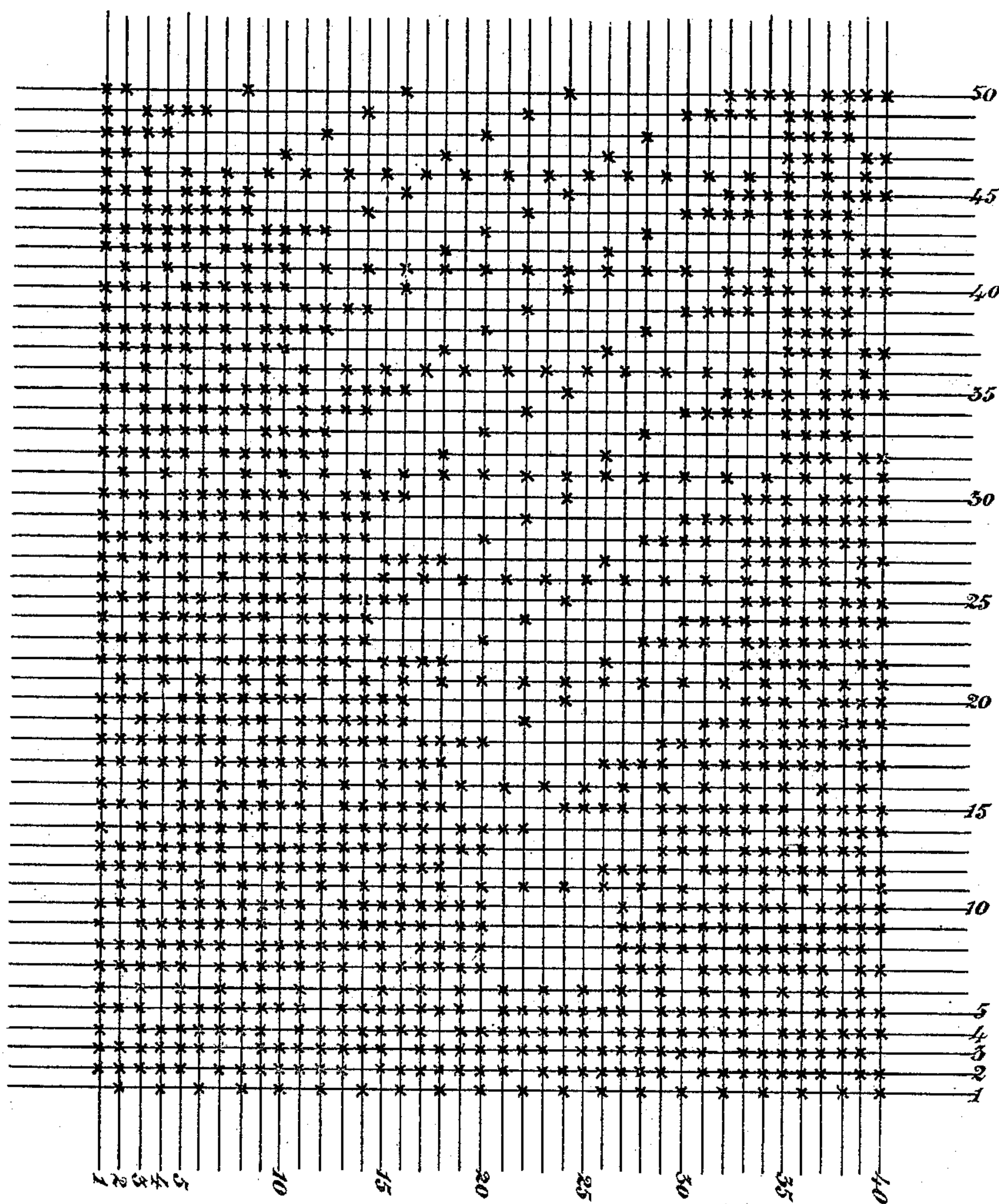
3 Sheets—Sheet 3.

T. ANDERSON.  
FIGURED PILE FABRIC.

No. 307,701.

Patented Nov. 4, 1884.

FIG: 4.



Witnesses.  
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Harry M. Runk

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# UNITED STATES PATENT OFFICE.

THOMAS ANDERSON, OF LIVERSEDGE, WEST RIDING, COUNTY OF YORK,  
ENGLAND.

## FIGURED PILE FABRIC.

SPECIFICATION forming part of Letters Patent No. 307,701, dated November 4, 1884.

Application filed July 23, 1883. (No specimens.) Patented in England May 13, 1882, No. 2,254.

*To all whom it may concern:*

Be it known that I, THOMAS ANDERSON, a subject of the Queen of Great Britain and Ireland, and residing at Liversedge, in the West Riding of the county of York, England, have invented Improvements in Figured Pile Fabrics, (for which I have obtained a patent in Great Britain, No. 2,254, dated May 13, 1882,) of which the following is a specification.

10 This invention relates to the manufacture of that class of figured pile fabrics called "velvets" or "velveteens," wherein the figured pile is formed from the weft-threads, the object of the invention being to facilitate the cutting of the pile, and to enable the knife to pass with greater certainty from the "race" of one figure of weft-pile to the corresponding race of another figure of the same without liability to slip out of the race or to trip.

20 What is known as the "race" in velvet-weaving is the space or furrow underneath the floated threads wherein the point of the knife travels in cutting the said floated threads to form the pile.

25 Figure 1 represents a face view of my fabric. Fig. 2 is a face view of a known fabric. Fig. 3 is a section along the thread C D, Fig. 1. Fig. 4 is a weaver's diagram showing how my fabric is made.

30 In designing the patterns for the manufacture of such figured weft-pile fabrics according to my invention the design is so arranged that the outline thereof "steps" or moves in races at the edge of the figures—that is to say, where the edge of the pattern crosses the warp-threads it must always step the exact number of threads which correspond with the distance between the races or multiples of such number. For example, if a design is made with

40 a pile floating over seven warp-threads and under one binding-thread, in which there is one race for every two warp-threads in the cloth, as in an ordinary "E1" velvet, then, as there is a race for every two warp-threads, the edge of the figure must step or move two warp-threads (or any multiple of two) at a time. This is clearly shown at Fig. 1 in the annexed drawings, which represent a highly-magnified plan view of the face of a piece of

50 uncut figured velvet woven according to my

invention. The perpendicular bands are the warp-threads, and the horizontal bands are the weft-threads, the white being the floated threads which form the pile, and the shaded bands being the binding weft-threads which form the back. The pattern represents the point of a leaf, the black outline showing clearly the edges of the pattern stepping at the sides invariably two warp-threads (or one race) at a time, as at *a a a a*, or a multiple of the same, as at *b b*. The same system applies to any other weft-pile velvet or velveteen "tie-up," of course varying the stepping or moving at the edges of the pattern according to the tie-up used. For instance, in a pile which has a race for every four warp-threads, the pattern would step or move in fours, (or multiples of fours,) and so on, the edges of the design thus always stepping in races. The advantage of this system is that it facilitates the cutting, as it enables the cutter's knife to enter the race (after passing over a portion of the ground) much more easily than on the old plan, on account of the small squares formed by stepping or moving in races, which act as guides for the point of the knife and prevent it from slipping out of the race. To illustrate this I have shown at Fig. 2 the same pattern as it would be woven according to the best method known previously to my invention, where it will be seen that the pattern steps at the edges by a single warp-thread only at a time, and in consequence of this the knife very frequently entered the wrong race, or passed through the back of the cloth after crossing over a portion of the ground; but this difficulty is overcome to a great extent by my improvement.

Another point to be observed in designing the patterns according to my invention is that, in addition to stepping or moving in races along the edge of the patterns, care must be taken to throw all the short floats at the edges of the patterns to the back of the cloth. For instance, in a weft-pile floating over seven warp-threads, I throw all smaller floats than five threads to the back of the cloth. Floats of four threads could be cut; but I find it much easier for cutting if there are no smaller floats on the surface than five threads. On reference



to Fig. 1 it will be seen that none of the floated pile-threads on the face of the cloth pass over fewer than five warp-threads, while, on the contrary, at the edges of the velvet or velveteen pile-figures made on the old plan there are always a large quantity of short floats, which interfere with the cutting, as they have a tendency to throw the cutter's knife out of the race, (see Fig. 2, where floats over two, three, and four warp-threads are seen at  $d d$  along both sides or edges of the pattern;) but according to my invention, (see Fig. 1,) as these short floats are thrown to the back of the cloth instead of to the face, the cutting is greatly facilitated. Even with a seven-thread float and one binder tie-up it would be rather easier to cut if all floats of five threads could be dispensed with by throwing them to the back of the cloth, and only leaving the full floats of seven threads on the face; but by so doing the pile would be robbed from the edge of the figure, which would injure the effect to a great extent.

Fig. 3 is a section of the uncut cloth, (magnified and exaggerated,) taken through the line C D in Fig. 1, the circles representing the warp-threads,  $e e$  the binding or back pick, and  $f$  the short float, of less than five threads, at the edges of the pattern, carried to the back of the cloth instead of to the face, as heretofore.

In order to enable a weaver or other person skilled in the art of weaving clearly to understand my invention, I have also shown at Fig. 4 a diagram or weaver's draft of part of a pattern designed in accordance with my invention, the class of velvet chosen for illustration being an ordinary E 1 cloth, with a float of seven threads and one binder to each four floats. The black crosses denote where the warp is lifted. Numbers 1, 6, 11, 16, or every fifth pick, are plain ground-picks. The races are on every even warp-thread—that is, two, four, six, and so on. The edges of the pattern

will be seen always to “step in races”—that is, in twos or in fours, or other multiples of two—and all short floats over less than five warp-threads are carried to the back of the cloth. 45

I have only thought it necessary to give an illustration of one kind of weft-pile tie-up; but the same system applies to any weft-pile velvet or velveteen tie-up, of course varying the stepping or moving of the pattern at the edges in designing according to the tie-up used. For instance, in a pile which has a race for every three warp-threads, the pattern would step or move at the edges in threes, and in a pile which has a race for every four warp-threads the pattern would step or move in fours, and so on. 50 55

It will be seen from the foregoing statement that my improvement in figured weft-pile fabric known as “velvets” or “velveteens” consists in the combination of two elements or principles—namely, stepping always by the exact number of threads equivalent to a race, or a multiple thereof, at the edges of the pattern, and throwing the short floats to the back of the cloth. These two principles combined will be found so greatly to facilitate the cutting that figured weft-pile fabrics woven according to my invention may be cut almost as easily and cheaply as plain velvet. 60 65 70

I claim as my invention—

As a new manufacture, a figured weft-pile fabric having the figures made with marginal steps that are aligned with the races, and having the short floats all thrown to the back of the cloth, as specified. 75

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 80

THOS. ANDERSON.

Witnesses:

DUGALD SCOTT,  
JNO. HUGHES.