

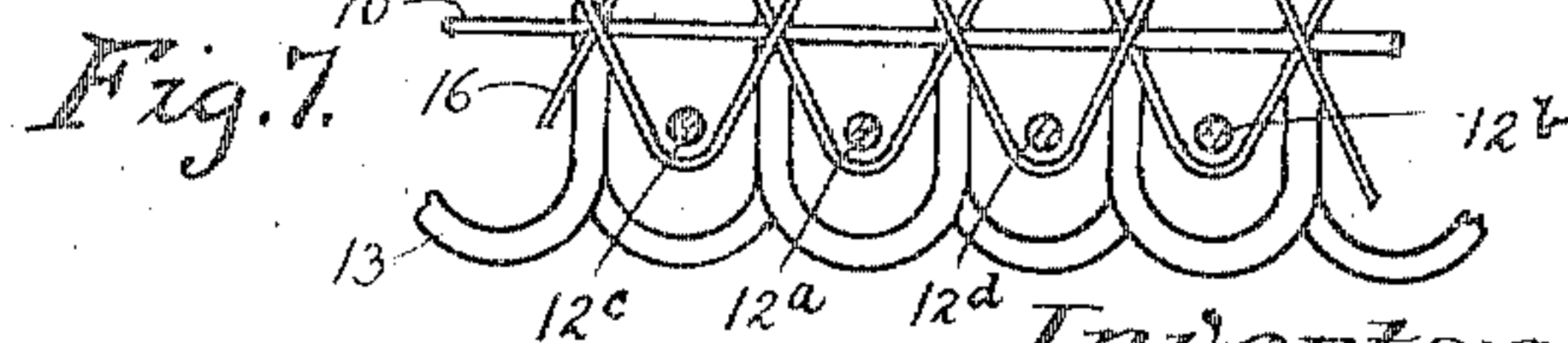
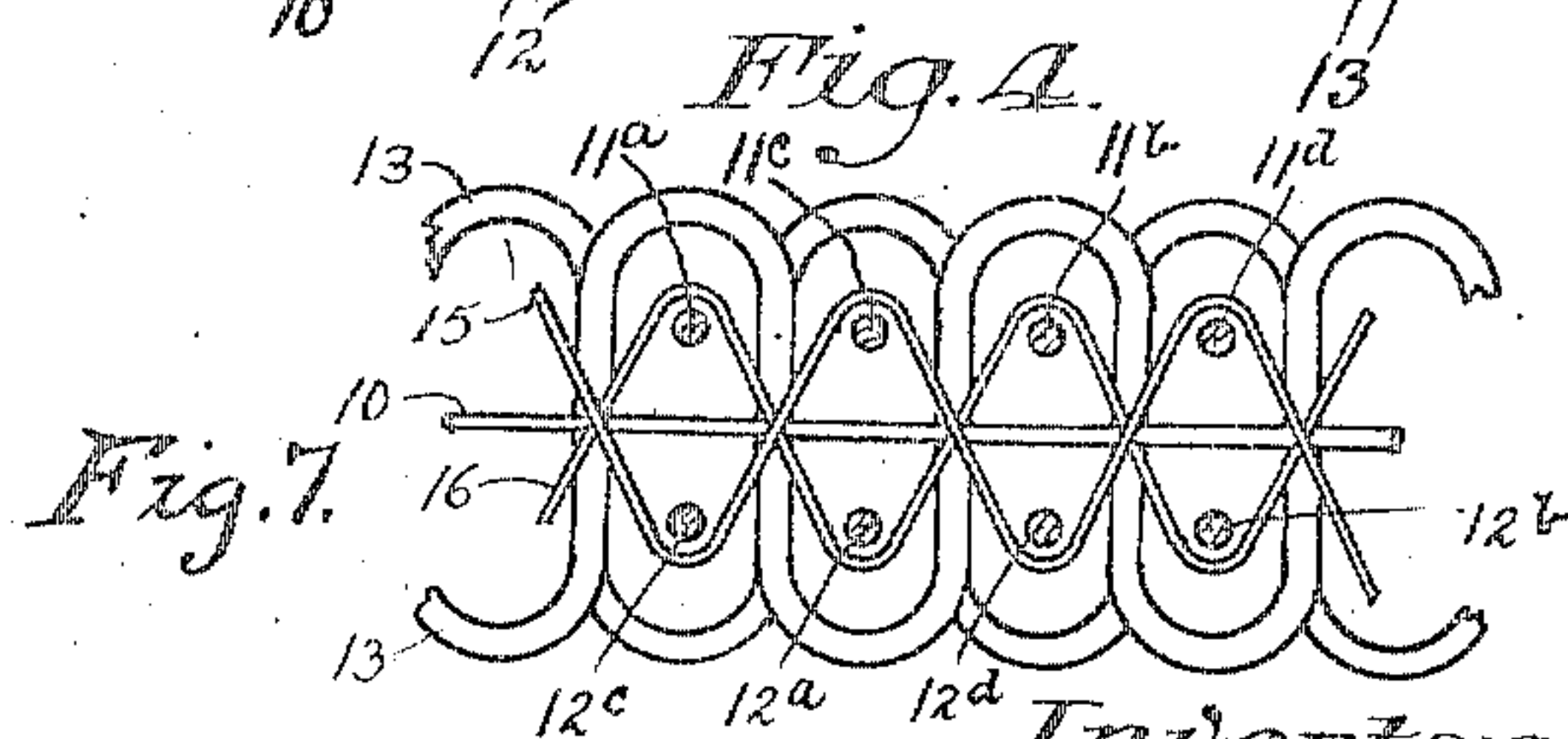
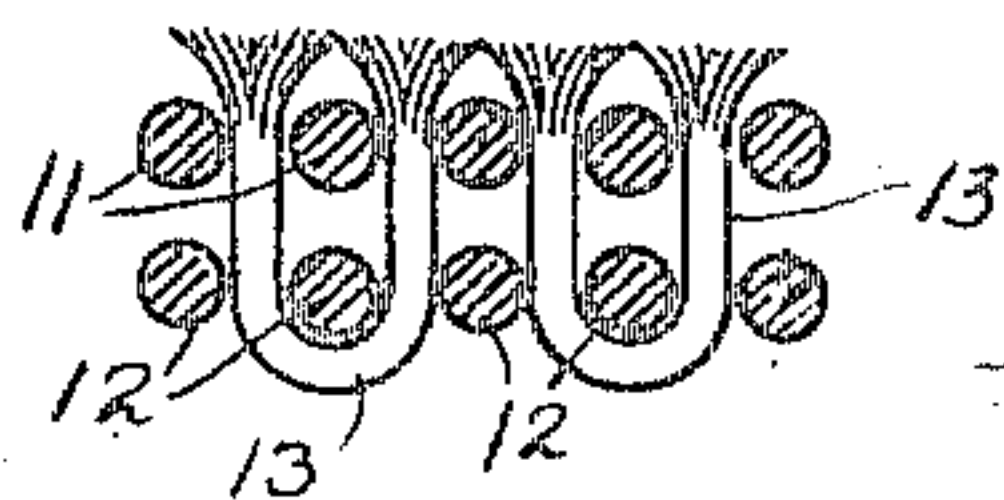
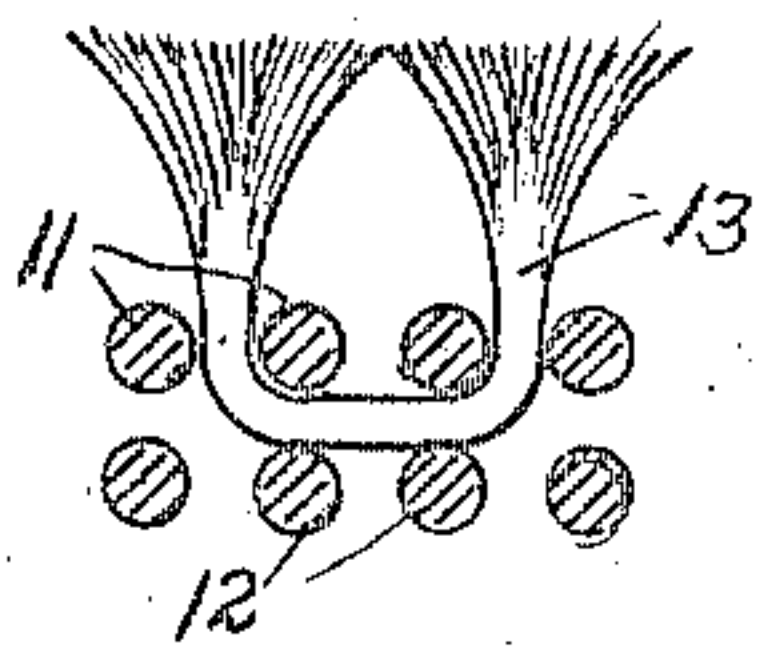
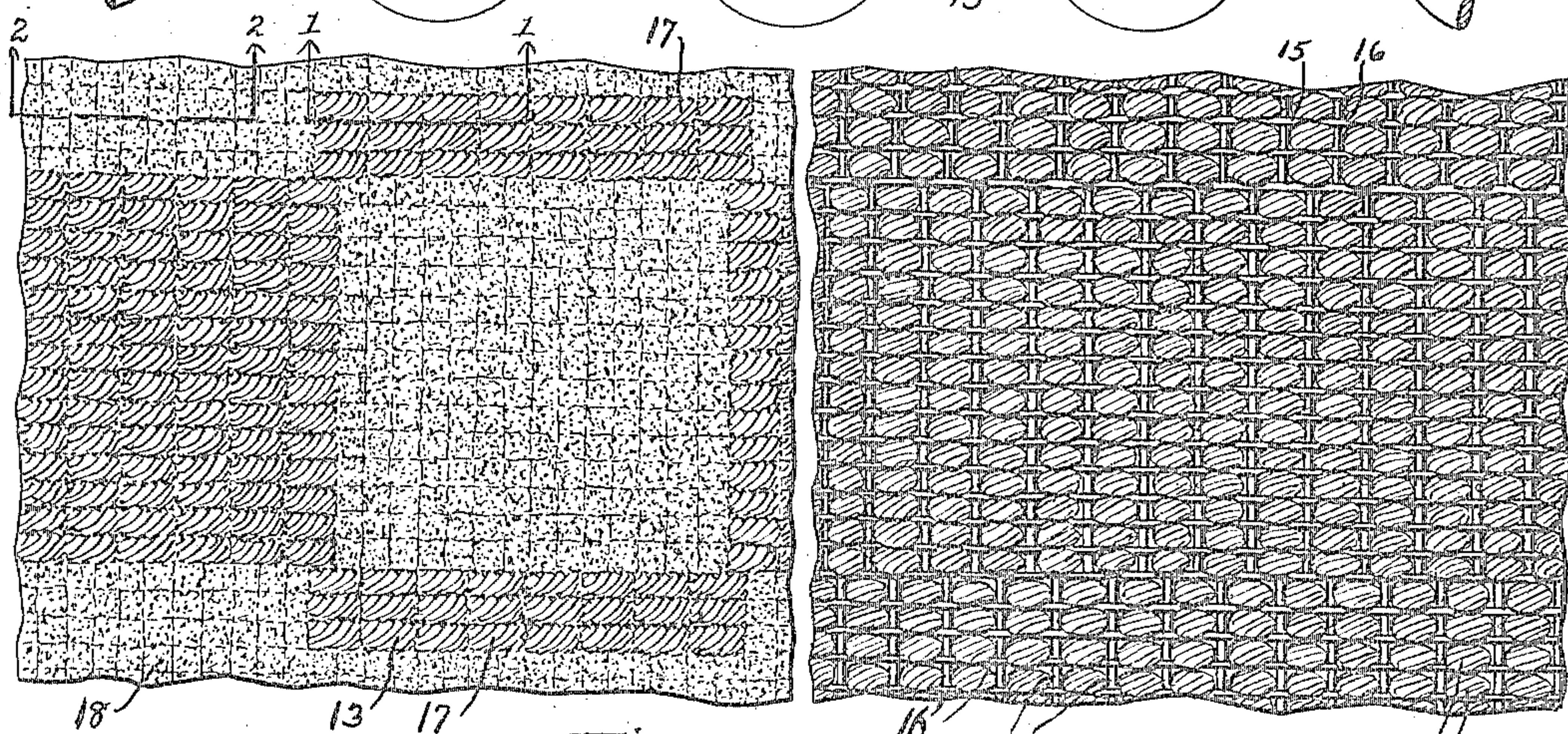
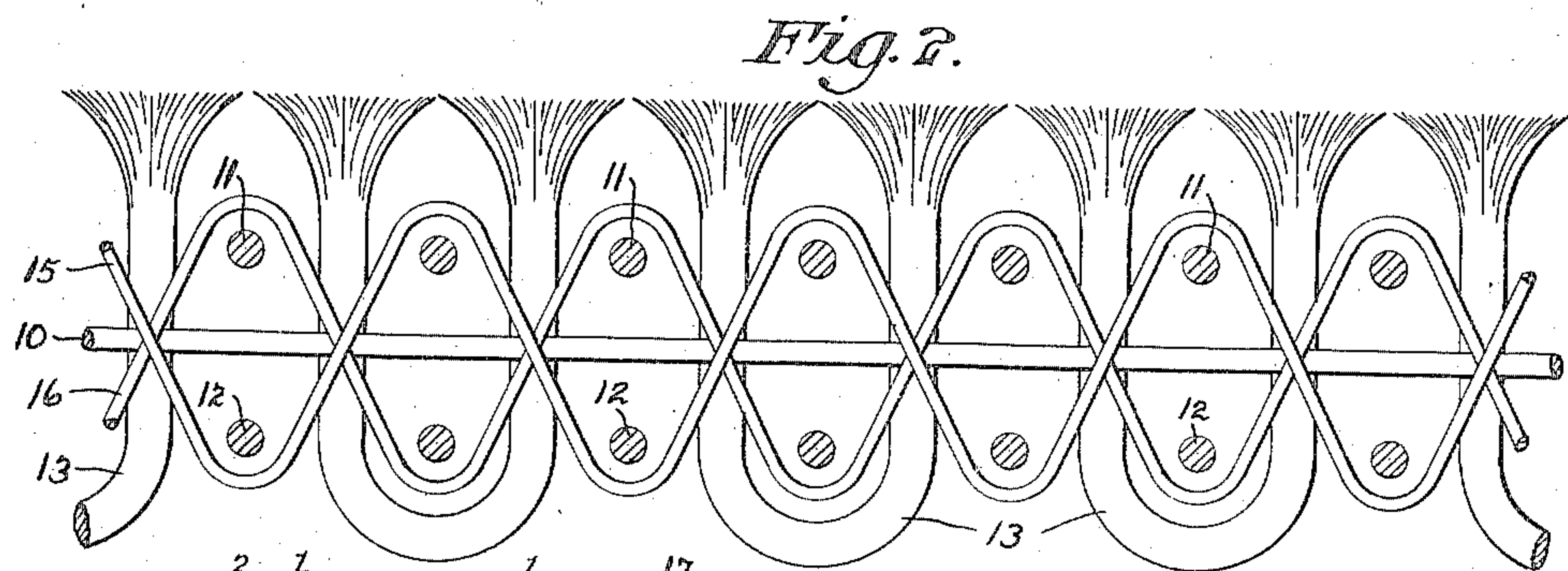
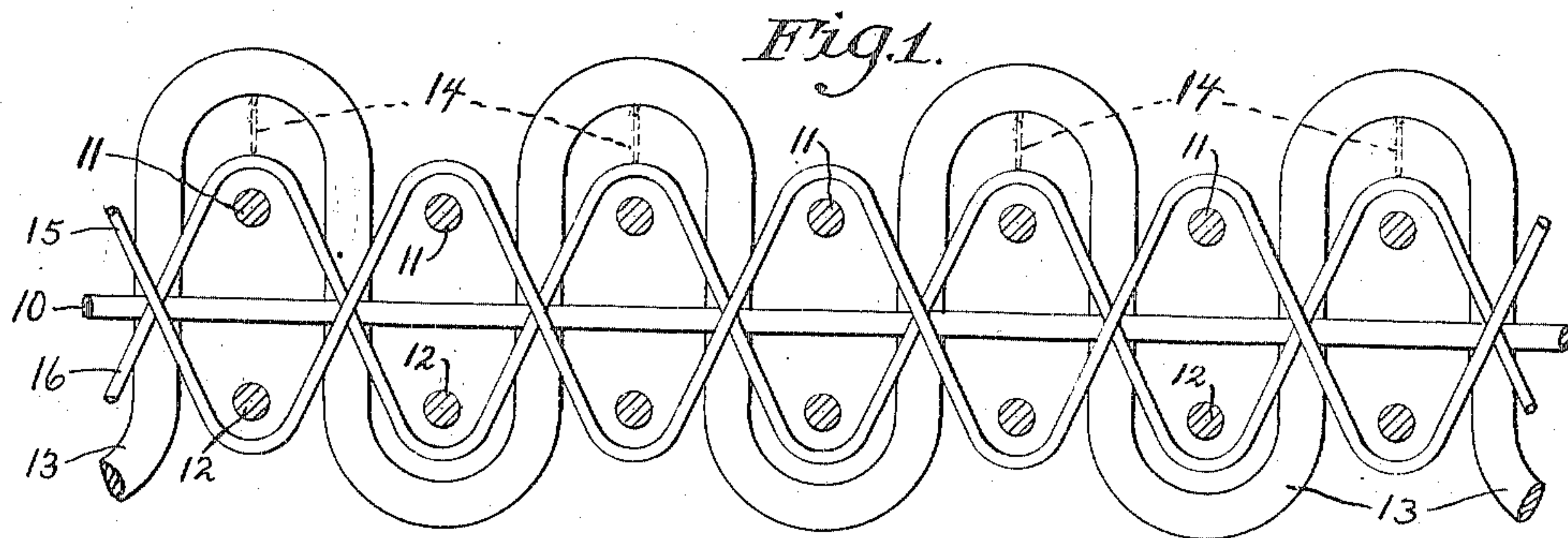
Aug. 2, 1938.

W. H. WALSH

2,125,745

PILE FABRIC AND METHOD OF MAKING THE SAME

Filed Aug. 11, 1934



Inventor
William H. Walsh
By W. B. Williamson
Attorney.

UNITED STATES PATENT OFFICE

2,125,745

PILE FABRIC AND METHOD OF MAKING
THE SAME

William H. Walsh, Philadelphia, Pa.

Application August 11, 1934, Serial No. 739,400

2 Claims. (Cl. 139—403)

My invention relates to new and useful improvements in a pile fabric and method of making the same, and has for one of its objects to produce a unique fabric which can have lines running lengthwise as well as crosswise in the formation of a pattern or design on the face thereof.

Another object of my invention is to fashion a pattern or design on the face of a pile fabric without the use of a Jacquard, such pattern or design having lines running lengthwise and crosswise of the fabric and composed of cut and looped or uncut pile or consisting of high and low piles, strands or loops.

Another object of my invention is to produce the pile fabric in such manner as to utilize the pile strands to provide a soft cushion back on the fabric.

Another object of the invention is to form a fabric in which the pile threads or strands will be securely bound in place by the chain or binder warp strands.

Another object of the present invention is to weave the fabric in a manner such that the base, which is composed of the stuffer, binder warp and filling threads, will be well covered by the pile because of a more even distribution of the pile strands or threads.

A further object of my invention is to produce a pile fabric by a method which permits the use of a velvet carpet loom instead of a Jacquard loom thereby accomplishing the desired result in a more simple manner and at less expense.

A still further object of this invention is to manufacture a pile fabric by a method which consists of placing a shot of filling above and below the stuffer during each weave cycle, carrying the pile strand between every adjacent pair of filling shots, and arranging the loops of the pile threads of the courses which are to be cut, in staggered relation to the loops of the pile threads of the courses which are to remain uncut.

With these and other objects in view, this invention consists of the details of construction, combination of elements and the steps necessary to produce the article as hereinafter more fully set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, I will describe the construction of an article and the method of making it, in detail, referring by numerals to the accompanying drawing, in which:—

Fig. 1 is a diagrammatic section on the line 1—1 of Fig. 3.

Fig. 2 is a similar view on the line 2—2 of Fig. 3.

Fig. 3 is a fragmentary face view of a pile fabric constructed in accordance with the invention.

Fig. 4 is a fragmentary view of the back of the fabric.

Fig. 5 is a view of the filling threads and pile strand of one weave cycle illustrating the usual relation of these parts of the ordinary pile fabric.

Fig. 6 is a similar view of the same parts of two weave cycles in a pile fabric when produced according to my invention, and

Fig. 7 is a diagrammatic section showing two different courses adjacent each other to illustrate a feature of the invention.

In carrying out my invention as herein embodied, 10 represents the stuffer warps laid in a single stuffer plane and each one of the stuffer warps may consist of a plurality of strands, but they are here shown for convenience of illustration, as single threads.

In each weave cycle there is a single shot of filling or weft thread placed above and below the stuffer warps so there will be a series of top fillings or wefts 11 and a series of bottom fillings 12.

The pile strand or thread 13 of each course is woven so that a loop is formed over the upper shot of filling 11 of one pair of fillings, then under a lower shot of filling of the adjacent pair of fillings, then over the upper shot of filling of the next pair of fillings and so on throughout the complete fabric. The top or face loops are produced by projecting them over pile wires in the usual manner and said pile wires may be plain or of the cutting type according to the final results desired in the finished fabric. These pile wires are shown in dotted lines denoted by the reference numeral 14.

In each course there are also two chain or binder warps 15 and 16 which are arranged in zig-zag fashion over and under the shots of filling. In other words the chain or binder warp 15 projects under the lower shot of filling 12 of one pair of fillings and over the upper shot of filling of the adjacent pair of fillings and then down under the lower shot of filling of the next pair, while the chain or binder warp 16 projects over the upper shot of filling 11 of first pair of fillings and under the lower shot of filling of the adjacent pair of fillings and then over the upper shot of filling of the next pair and so on throughout the length of the fabric. Therefore, it will be obvious from Figs. 1 and 2 that where one

chain or binder warp passes over the upper shot of filling of one pair of fillings, the other or companion chain or binder warp passes under the lower shot of filling of the same pair of fillings.

5 If the pile is to be left looped or uncut, the weaving is done over plain pile wires and when the latter are withdrawn, the loops will remain as in 17 in Fig. 3, but if tufts are to be formed then the pile strands are woven over cutter pile
10 wires, so that when said cutter pile wires are withdrawn they will sever the loops to produce the tufts or tufted areas as at 18.

By providing both looped or uncut and cut or tufted areas, as illustrated in Fig. 3, various
15 designs can be produced in which case predetermined numbers of courses are woven, as in Fig. 7, so as to pass over a plain pile wire above the upper shot of filling 11a of one pair of fillings, then under the lower shot of filling 12a of the ad-
20 jacent pair, then over another plain pile wire above the upper shot of filling 11b of the next pair of fillings and then under the lower shot of filling 12b of the fourth pair of fillings, and so on throughout the length of the fabric. At the
25 same time, other predetermined numbers of courses are woven so as to pass under the lower shot of filling 12c, which is paired with the shot of filling 11a, then over a cutter pile wire located above the shot of filling 11c, then under the shot
30 of filling 12d, which is paired with 11b, and then over a cutter pile wire located above the shot of filling 11d, which is paired with 12b, and so on throughout the length of the fabric.

This arrangement of the different courses
35 places the loops of some of the courses in staggered relation to the loops of the other courses and when the pile wires are withdrawn, the ones of the cutter type will sever the loops of courses passing over them and produce tufts, but it will
40 be especially noted that there is a straight shank of either a loop or tuft between all adjacent pairs of shots of filling thereby eliminating the usual bare spots between loops and making it possible to produce a pattern or design having or simulat-
45 ing lines running lengthwise and crosswise of the fabric. The lower loop of each course of pile yarn extends below the stuffer and provides a soft or cushion back of pleasing appearance.

As an example it will be assumed that a nine
50 series pattern is to be produced in which the finished product will have a configuration consisting of alternate blocks or rectangular areas of tufted and looped formation, the blocks of one row being short and wide while the blocks of an
55 adjacent row are long and narrow. The pile strands are grouped so that there will be nine courses in one series and four courses in an adjacent series. These courses are woven over a series of nine pile wires of two types, one type being
60 of the cutting variety and the other type of the non-cutting variety. Assuming the pile wires are numbered from one to nine, then those numbered one, three, five, seven and nine are of the non-cutting type and those numbered two, four, six and eight are of the cutting type. With the
65 pile wires in place, the series of pile strands having nine pile strands or courses is woven over the five non-cutting pile wires but the series of

pile strands having four courses is woven over the four cutting pile wires and so on throughout the breadth of the fabric for the first cycle. During the next cycle the series of pile strands having nine courses is woven over the four cutting
5 pile wires while the series of pile strands having four courses is woven over the five non-cutting pile wires. As the pile wires are withdrawn, the pile strands in all series having nine courses being woven over the cutting pile wires will be severed but the pile strands in all other series will
10 not be effected because the cutting pile wires pass between adjacent loops of their courses. During the next cycle the above action will be reversed. In other words the pile strands in all
15 series having four courses being woven over the cutting pile wires will be severed but those in the nine course series will not be affected.

By referring to Figs. 5 and 6, respectively illustrating the result of the usual method of weav-
20 ing this general class of fabric and the result obtained by the present method of weaving the same fabric, it will be seen that there is less space between the straight portions or shanks of the loops and tufts wherefore said loops and tufts
25 which are exposed on the obverse face of the fabric may be shorter or lower than usual and will still cover or obscure the base of the fabric.

Having thus fully described my invention, what I claim as new and useful is:—

1. The method of weaving a pile fabric of the character described which consists in providing
35 stuffer warps, shots of filling weft above the stuffer warps, other shots of filling weft below the stuffer warps, passing a series of pile strands comprising a multiplicity of pile yarns, and each strand of the series being unseparated from an adjacent pile strand of that series by a pile warp strand of another series, successively under and
40 over lower and upper shots of filling weft, and passing another series of pile strands comprising a multiplicity of pile yarns, and each strand of the series being unseparated from an adjacent pile strand of that series by a pile warp strand of another series, successively over and under the
45 alternate upper and lower shots of filling weft, whereby one entire series of pile strands is in staggered relation to all of the pile strands of the contiguous series.

2. A pile fabric comprising stuffer warps, shots
50 of filling weft above the stuffer warps, other shots of filling weft below the stuffer warps, a series of pile strands comprising a multiplicity of pile yarns, each strand of the series being unseparated from an adjacent pile strand of that series by a pile warp strand of another series, passing
55 successively under and over the lower and upper shots of filling weft, and another series of pile strands comprising a multiplicity of yarns, each strand of the series being unseparated from an adjacent pile strand of that series by a pile warp strand of another series, passing suc-
60 cessively over and under the alternate upper and lower shots of filling weft, whereby one entire series of pile strands is in staggered relation to all of the pile strands of the contiguous series.

WILLIAM H. WALSH.