

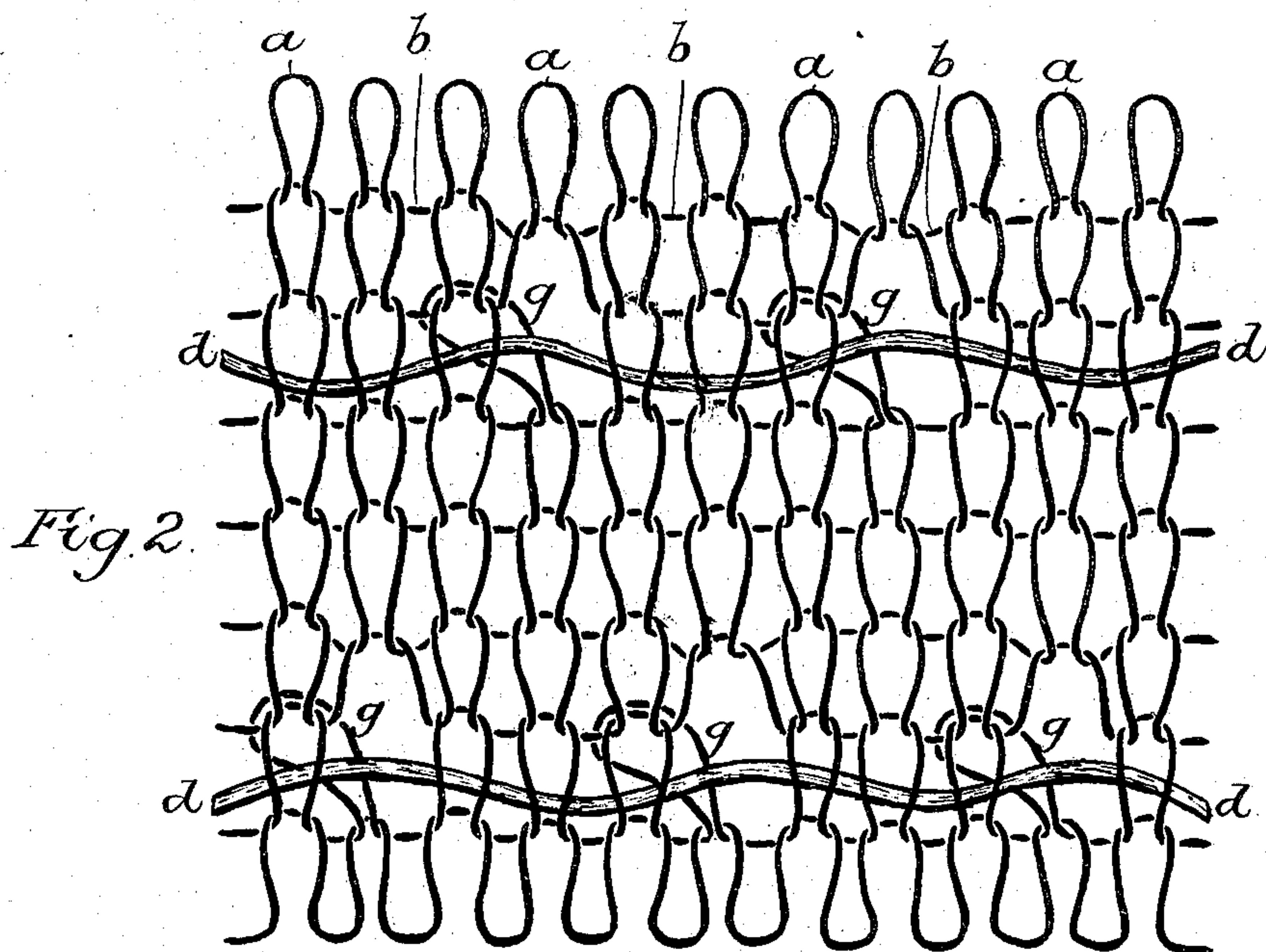
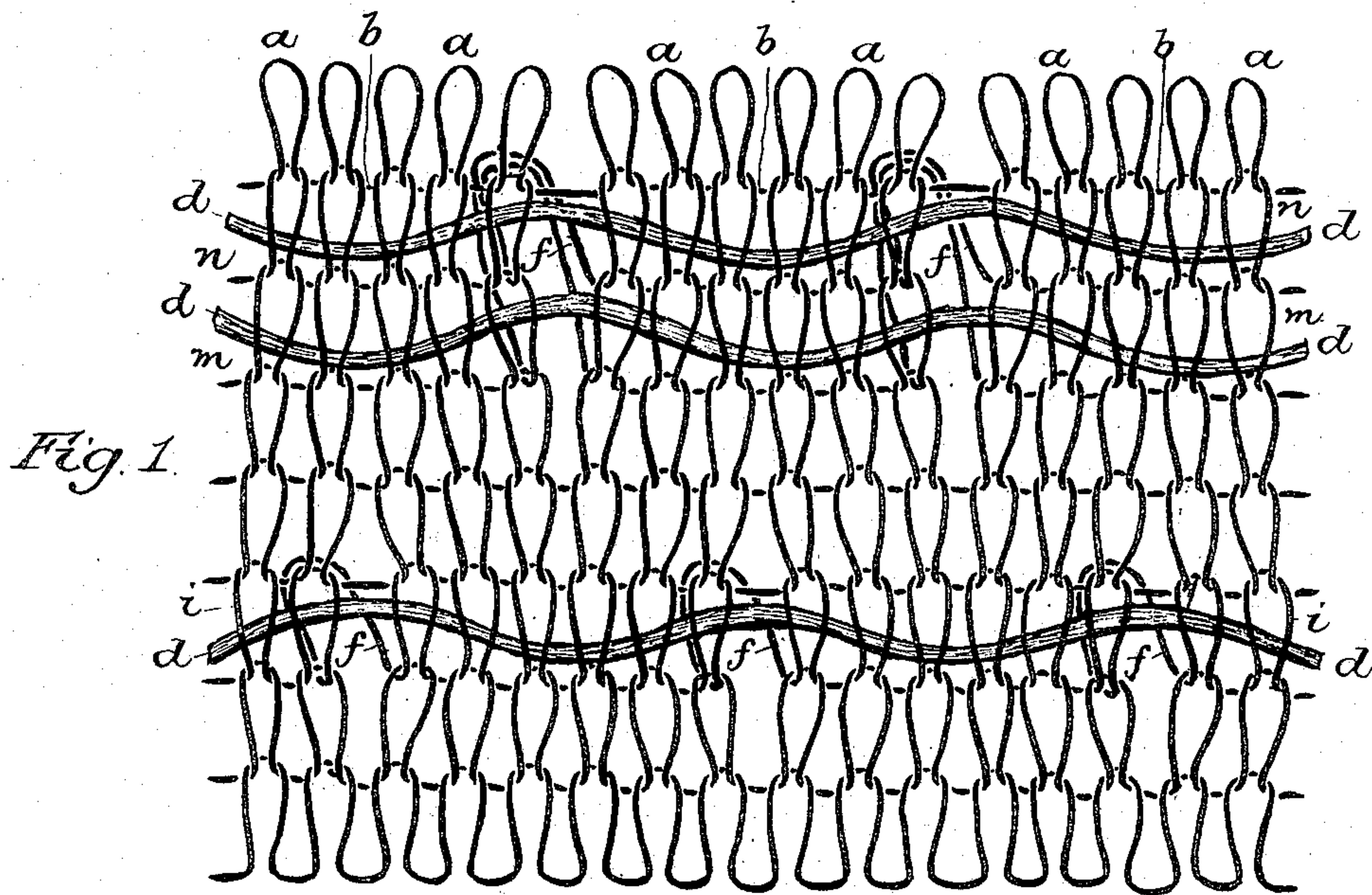
No. 881,495.

R. W. SCOTT.
KNITTED WEB.

PATENTED MAR. 10, 1908.

APPLICATION FILED APR. 5, 1907.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

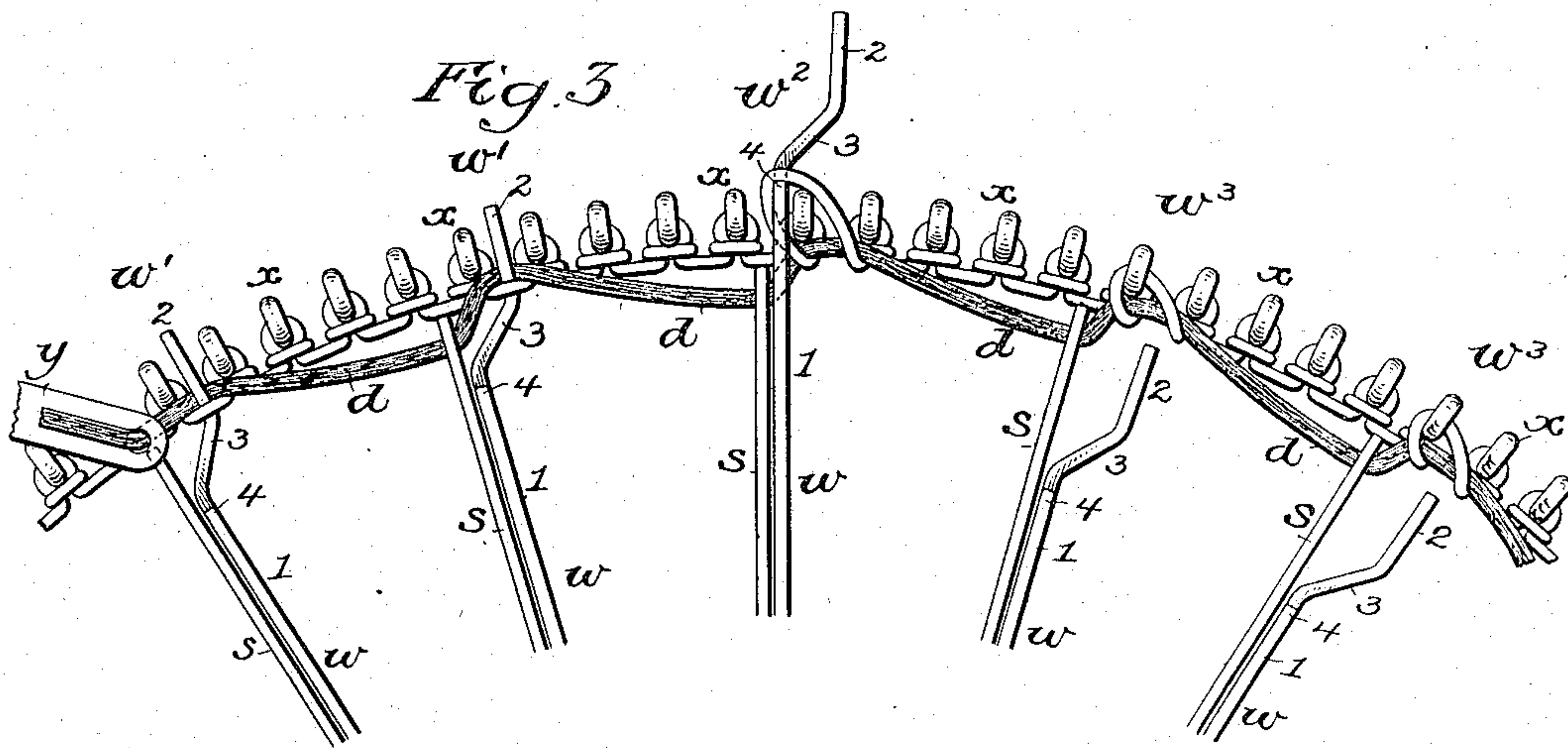


Fig. 4.

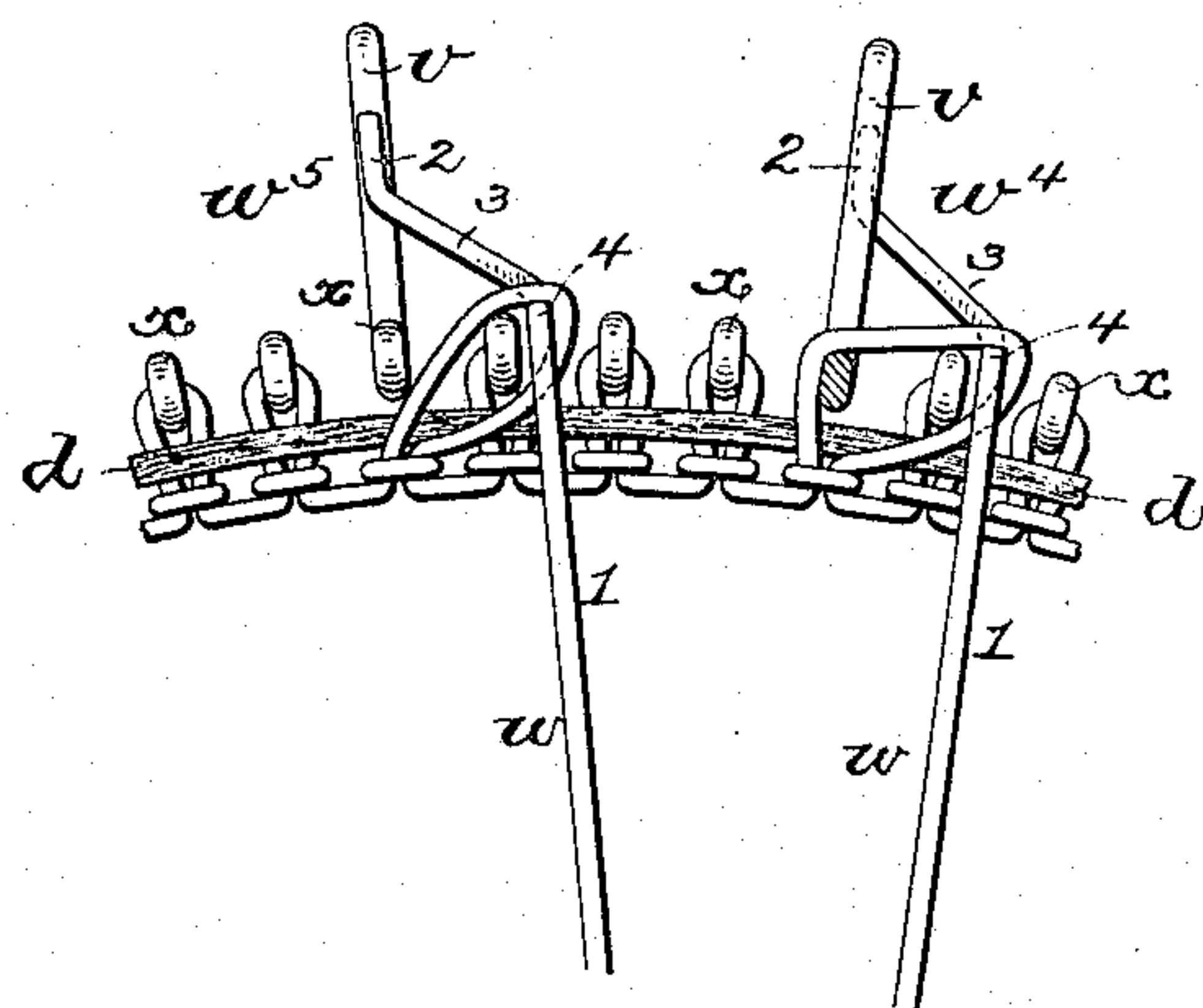


Fig. 5.

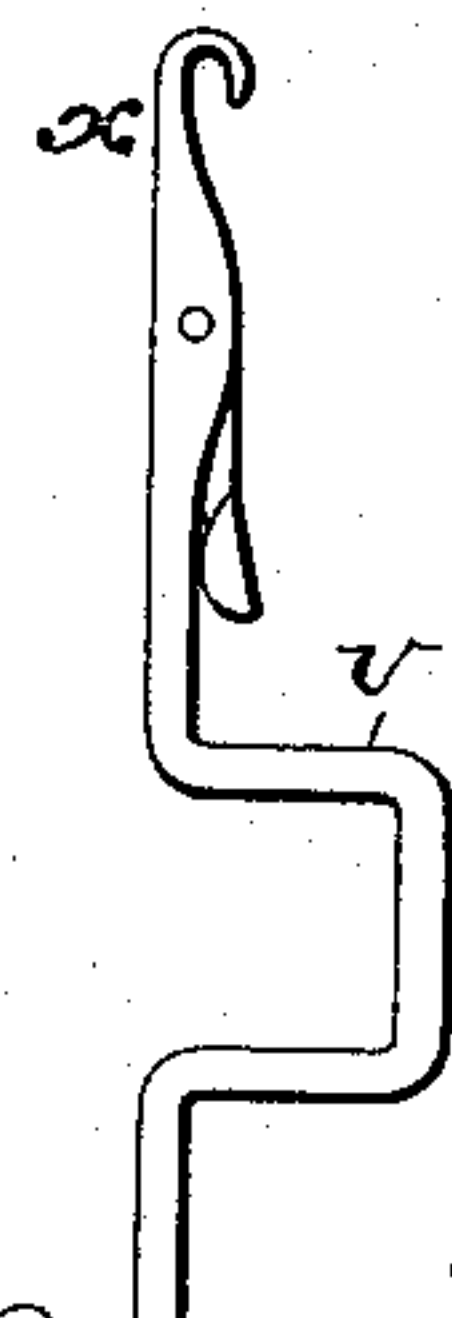
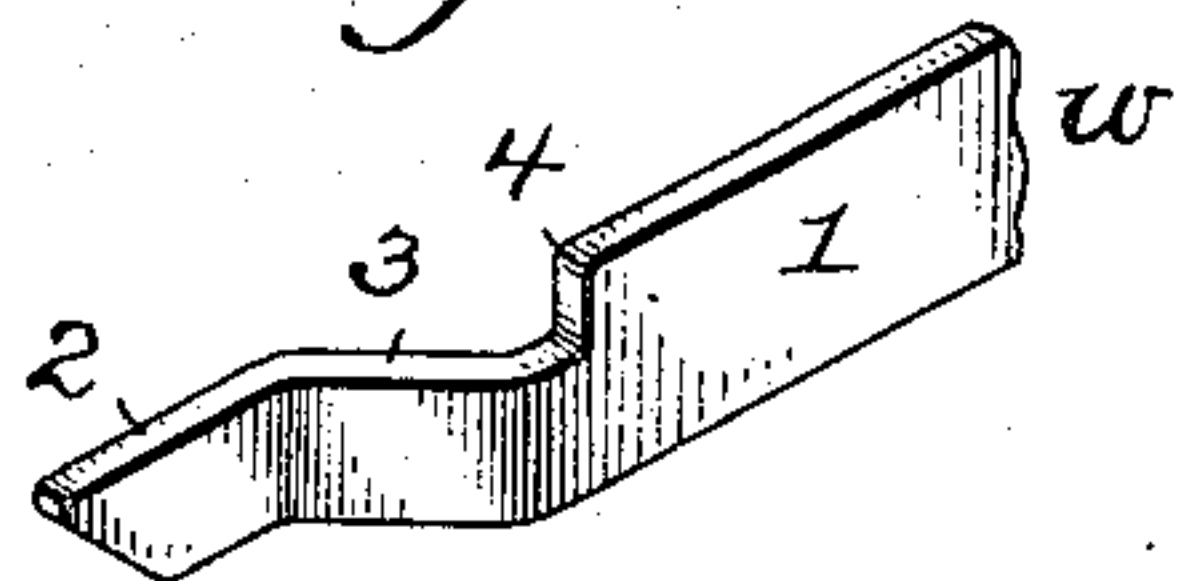


Fig. 6.

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UNITED STATES PATENT OFFICE.

ROBERT W. SCOTT, OF LEEDS POINT, NEW JERSEY, ASSIGNOR OF ONE-HALF TO LOUIS N. D. WILLIAMS, OF OGONTZ, PENNSYLVANIA.

KNITTED WEB.

No. 881,495.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed April 5, 1907. Serial No. 366,589.

To all whom it may concern:

Be it known that I, ROBERT W. SCOTT, a citizen of the United States, residing in Leeds Point, Atlantic county, New Jersey, have invented certain Improvements in Knitted Webs, of which the following is a specification.

My invention relates to that class of knitted webs which have a backing yarn combined therewith for fleecing or other purposes, one object of my invention being to so construct such a web that the backing yarn can be confined thereto without the use of an extra tying yarn, a further object being to provide a well ventilated web of this class, and a still further object being to produce certain ornamental effects in the web.

In the accompanying drawings Figure 1 is an exaggerated view of a piece of knitted web with backing yarns secured thereto in accordance with my invention, Fig. 2 is a similar view illustrating another embodiment of my invention, Figs. 3 and 4 are views on a still more exaggerated scale illustrating the manner in which my invention may be carried into effect, and Figs. 5 and 6 are views of certain instrumentalities employed in carrying out the invention.

In the fabrics shown in Figs. 1 and 2 *a* represents the needle wales and *b* the sinker wales, extending from one needle wale to the next, and *d* represents the backing yarn, which will usually be of heavier material than the yarn of which the web is composed. In order to secure this backing yarn to the web, loops in certain wales of the latter are displaced and engaged with the adjoining wales, and the backing yarn lying loosely on one face of the web is interlaced with the latter by passing it to the opposite face of the displaced loops.

In the web shown in Fig. 1 the displaced loops *f* are those of the sinker wales, and such displacement may be effected in any of the ways set forth in my Letters Patent No. 846,353 dated March 5th, 1907, that is to say, the displaced loops may be loops of a single course, or of a number of successive courses, and they may be displaced into a needle wale on one side of the sinker wale or into needle wales on each side of the same. In the present instance I have shown, in course *i*, sinker wale loops of a single course, and, in courses *m* and *n*, sinker wale loops of two suc-

cessive courses transferred to an adjoining needle wale. The result may also be attained by deflecting needle wales into an adjoining wale or distending them so as to engage with wales on each side of the same, and in Fig. 2 is represented a web in which the first of these methods has been adopted, as at *g* the backing yarn, in each of the webs shown, lying on one face of the web, and passing to the other face of the transferred loops. Either a single backing yarn or a plurality of the same may be introduced at each transfer, both of these plans being illustrated in Fig. 1, and said backing yarn is preferably formed into loops between its successive points of attachment to the web as shown both in Figs. 1 and 2, in order, firstly, that it may not detract from the elasticity of the web, and secondly, that it may be more conveniently and effectively brushed or gigged to form a fleece, if such a fleeced backing is desired. The transfer of sinker wale or needle wale loops in the manner described results in the formation of eyelet holes in the knitted web where such transfers take place, and this not only increases the attractiveness of such web, but also improves the same from a hygienic viewpoint, by providing proper ventilation. The attractiveness of the web may be still further enhanced by making the backing yarn *d* of a color different from that of the yarn of which the web is composed, the exposure of such differently colored yarn at each eyelet hole producing a polka-dot effect, which can not be readily produced in an ordinary knitted web.

The method of interlacing a backing yarn with the knitted web in the manner shown in Fig. 1 will be understood in reference to Fig. 3 in which *x* represents the needles for producing the face web and *w* represent transfer points for producing an elongated sinker wale and transferring the same to an adjoining needle wale, each of said transfer points consisting of a stem 1 having an outer end 2 and a diagonally inclined portion 3 with shoulder 4 at its inner end. The transfer point is first projected until its outer end 2 occupies a position between two of the cylinder needles as shown at *w*¹ in Fig. 3, such projection occurring either before or after the projection of the needles to receive the yarn from the yarn guide.

When the needles are retracted in order to engage and draw stitches of the knitting yarn, the sinker wale yarn will be engaged and held by the outer end 2 of the transfer point, and the latter may retain its position for one or more courses of the knitting, depending upon the number of sinker wale loops to be included in the transfer. The transfer point is then projected so as to bring its inclined member 3 into action upon the loop or loops hanging upon the end 2 as shown at w^2 in Fig. 3, thereby causing a lateral displacement of such loop or loops, as well as a slight outward displacement due to the action of the shoulder 4. This brings the loop or loops into the plane of the adjoining needle x and all that is necessary to complete the transfer is to project said needle into the loop or loops and then retract the transfer point as shown at w^3 in Fig. 3, so as to cast said loop or loops onto the needle. Before the needle is thus projected however, a backing yarn guide y lays the backing yarn d behind the needles x and under the transfer point, this operation preferably taking place before the transfer point has been projected so as to deflect the loop or loops hanging upon it. As a consequence of this operation the said backing yarn will be laid behind the stitches upon the needles and in front of the loop or loops upon the transfer point and hence will be bound into or interlaced with the fabric when the needle engages said loop or loops, and then draws a stitch through the same.

In producing a fabric of the character shown in Fig. 2 the transfer point acts upon a needle wale, as shown in Fig. 4, so as to distend the stitch upon one needle until the adjoining needle can enter the same, the stitch being then cast from the transfer point onto said receiving needle. In this case the needles from which the stitches are to be transferred should be provided with offsets, shoulders, or the like, whereby an abnormal projection of the needle will so locate the stitch upon it that the outer end of the transfer point can readily enter the same, as shown for instance at w^4 , in Fig. 4. One form of needle available for the purpose is that shown in Fig. 6, said needle having an outwardly extending loop v for the entrance of the transfer point, which engages the stitch hanging upon the upper member of said loop. In this case, the needle should be withdrawn after the loop has been engaged by the transfer point, in order to permit of the laying of the backing yarn behind the needles and below the transfer point, as shown at w^5 in Fig. 4, slight shogging movement of either needle or point being effected in order to prevent engagement of the outer end of the point with the loop v of the needle when the latter is retracted, or the needle or point springing laterally out of the way, as a result

of such contact. A needle having a stem at an angle to its shank, such as shown in my Letters Patent No. 837,763 dated Oct. 30, 1906, may be used, and in such case the transfer of the stitch may be effected by a shogging of the needle itself, and without the use of a special transfer point, the needle being first raised high enough to permit of the introduction of the backing yarn behind the standing wale stitches and in front of the stitch which is to be transferred. The looping of the backing yarn may be effected by sinkers or loopers disposed in any desired relation to the transfer point, one arrangement of such loopers being shown at s in Fig. 3.

I am aware that prior to my invention filling strands of rubber have been combined with knitted webs, by laying them between needle wale stitches and transferred sinker wale loops, but such transfer have been effected in every sinker wale and every course. The introduced strands therefore were not exposed on either face of the fabric, and were not susceptible of forming a fleeced back thereon, nor did the transferred loops form, in the face web, eyelet holes of the character which I have shown and described, there being no plain courses in the sinker wales between the courses in which the transfers were effected and no needle wales between the sinker wales in which the transfers were made.

One of the advantages of my invention is the facility which it affords for the production of webs having a back composed of linen yarn which material is preferred in many cases where the web is to be used for the making of undergarments.

Owing to the relatively harsh and unyielding character of such linen yarn, it does not lend itself readily to the formation of a knitted web upon an ordinary knitting machine, especially when the latter is of fine gage.

A knitted web such as that constituting my invention can, however, be composed of cotton or other soft yarn with a backing yarn of linen, which, owing to the fact that it does not have to be drawn into stitches by the needles of the machine, can be as heavy as may be desired.

I claim:—

1. A knitted web having a backing yarn exposed across one or more needle wales on one face of the web, and secured to said web by loops transferred from one wale to another.

2. A knitted web having a backing yarn exposed in the form of loops on one face of the same, and secured to said web by loops transferred from one wale to another.

3. A knitted web having eyelet holes therein and a backing yarn exposed on the back of the web, and crossing said eyelet

holes, whereby, at such eyelet holes it is also exposed on the other face of the web.

4. A knitted web having a backing yarn exposed across one or more needle wales on one face of the web, and secured to said web by loops transferred from one wale to another and forming eyelet holes in said web.

5. A knitted web having a backing yarn secured thereto by engagement with sinker wale loops transferred to an adjoining needle wale or wales, said backing yarn being exposed on the back of the web.

6. A knitted web having eyelet holes formed therein by transfer of sinker wale loops to an adjoining needle wale or wales, and having a backing yarn secured thereto by engagement with said transferred loops, said backing yarn being exposed on the back of the web.

7. A knitted web having eyelet holes formed therein by transfer of sinker wale loops of a plurality of successive courses to an adjoining needle wale or wales, and having a backing yarn secured thereto by engagement with said transferred loops, said backing yarn being exposed on the back of the web.

8. A knitted web having eyelet holes

therein, and having groups of backing yarns crossing said eyelet holes.

9. A knitted web having eyelet holes formed therein by transferring sinker wale loops of a succession of courses to an adjoining needle wale or wales, and a plurality of backing yarns engaged with said transferred loops.

10. A knitted web having eyelet holes separated from each other by one or more normal courses, and a backing yarn lying behind the web, but crossing said eyelet holes and thereby exposed on the opposite face of the web.

11. A knitted web having eyelet holes separated from each other by one or more normal courses and one or more needle wales, and a backing yarn lying behind said needle wales, but crossing the eyelet holes and thereby exposed on the face of the web.

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

ROBERT W. SCOTT.

Witnesses:

HAMILTON D. TURNER,
KATE A. BEADLE.