

No. 614,349.

Patented Nov. 15, 1898.

R. W. SCOTT.
KNITTED FABRIC.

(Application filed Dec. 20, 1897.)

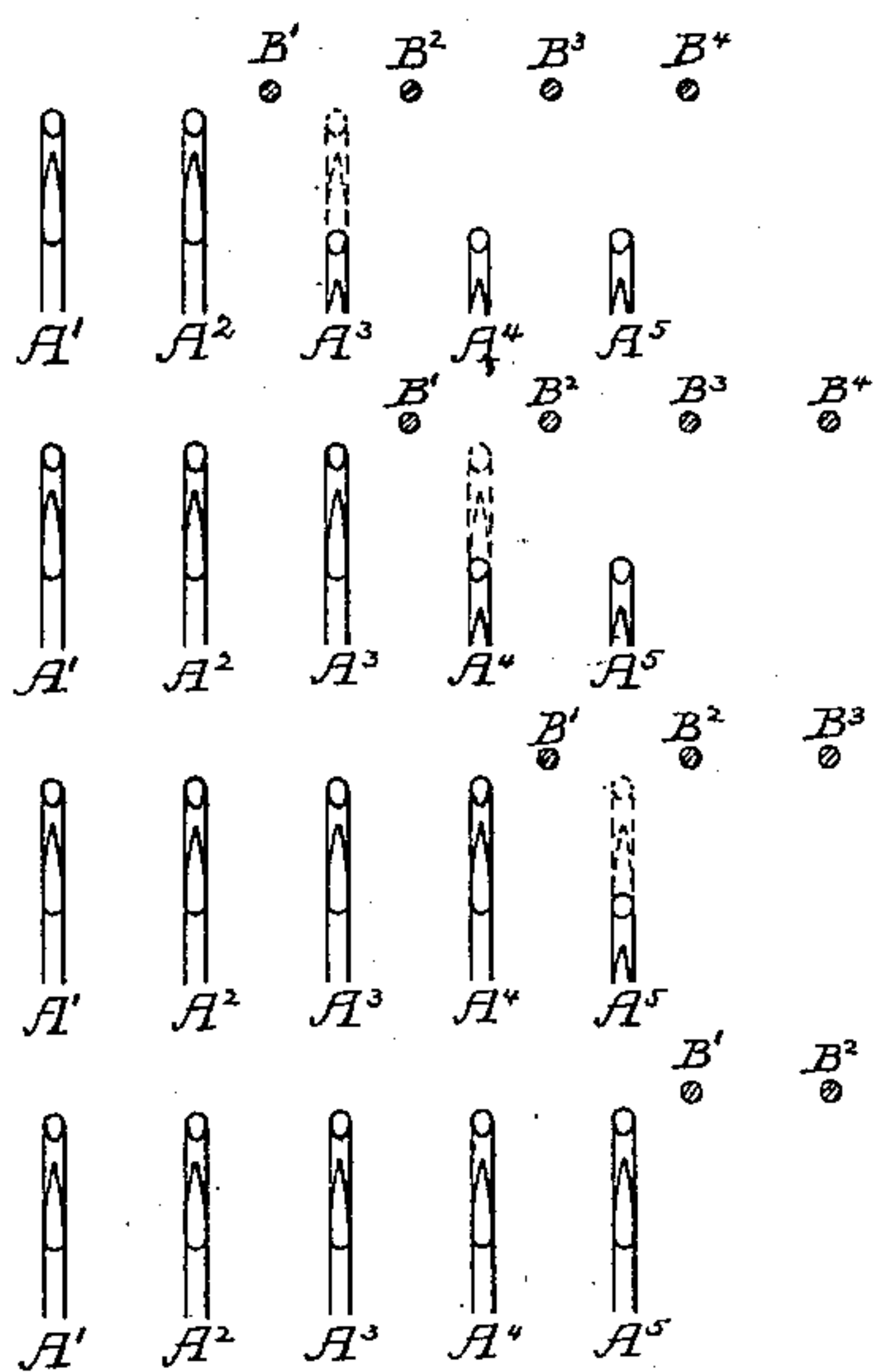
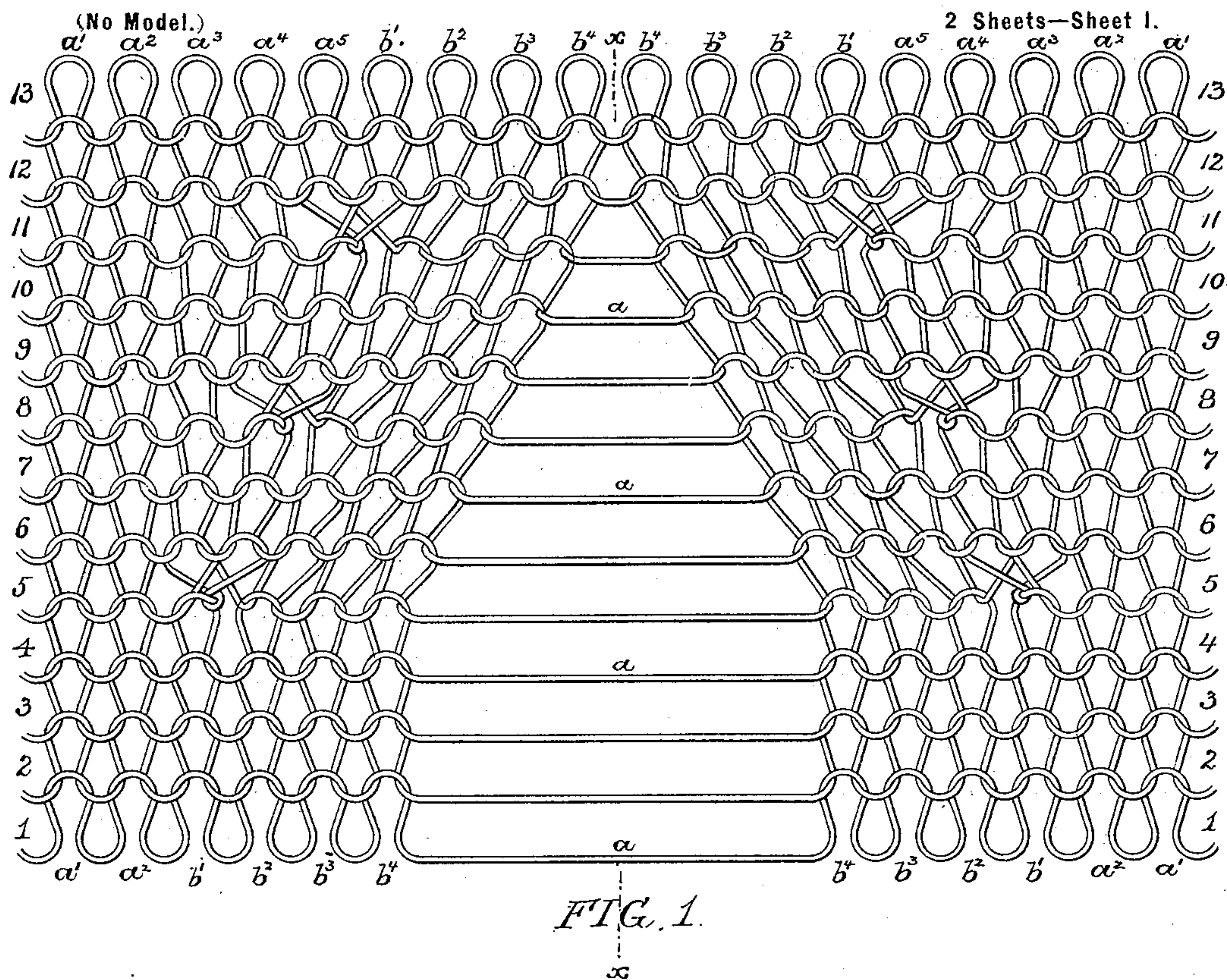


FIG. 2.

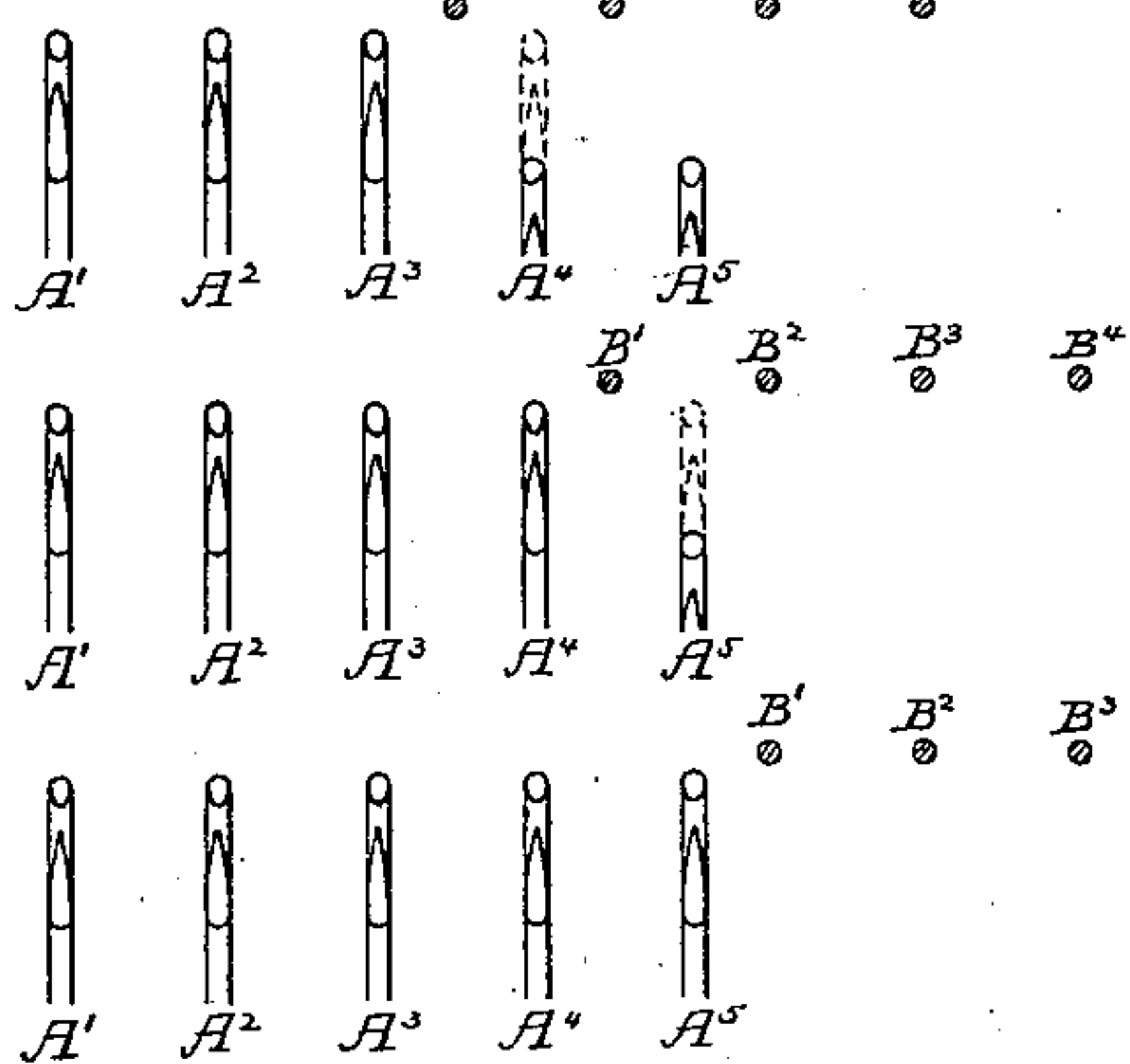


FIG. 3.

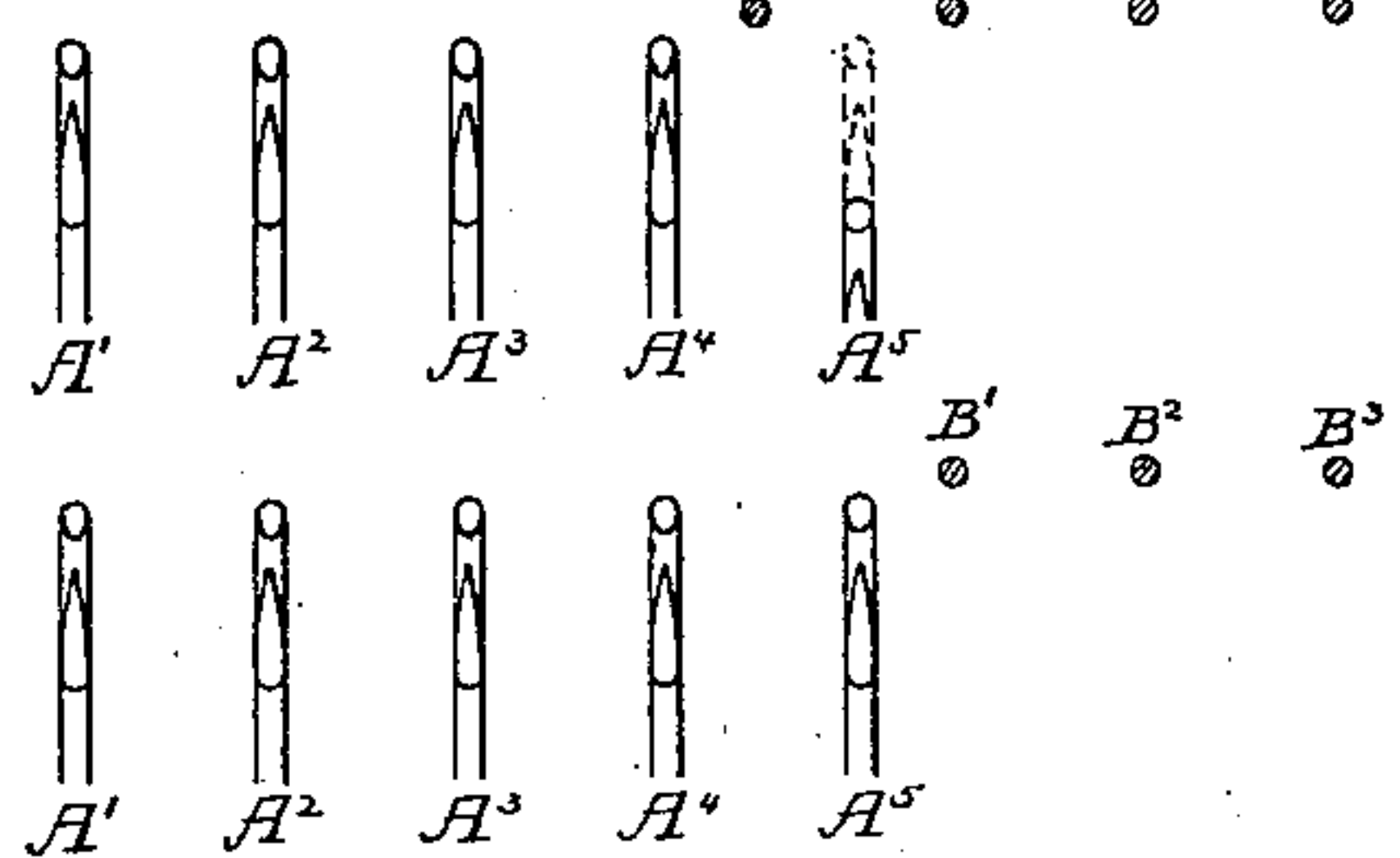


FIG. 4.

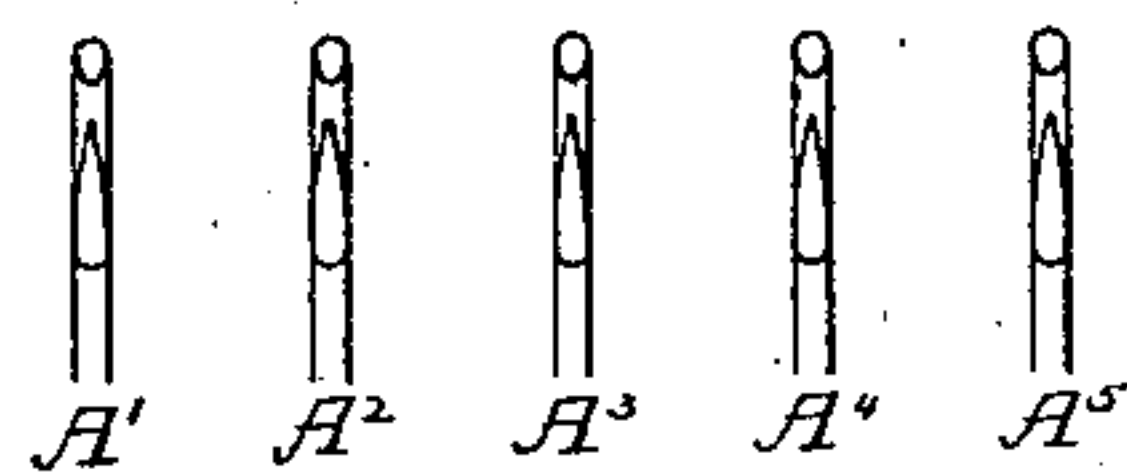
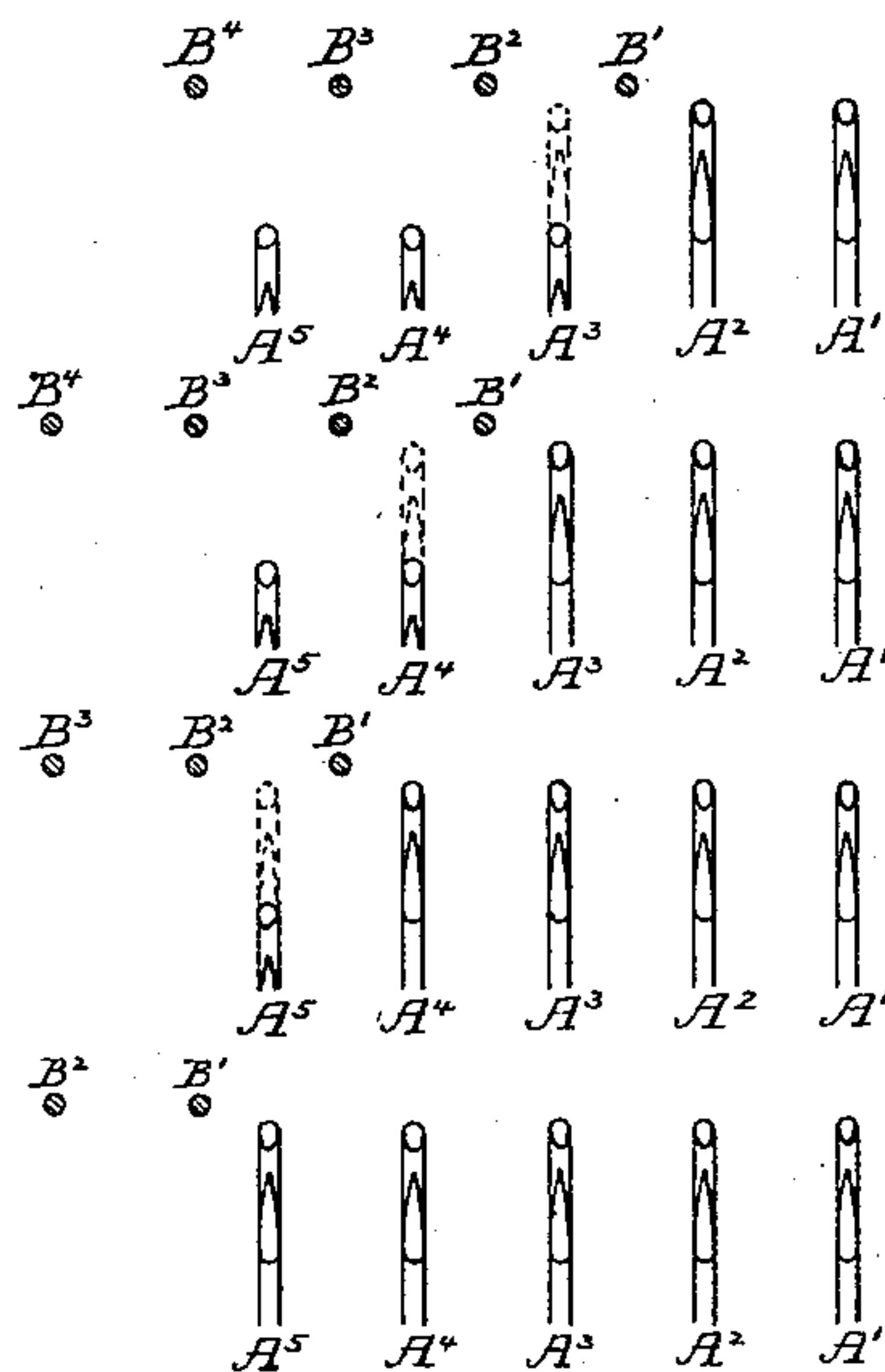


FIG. 5.



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2 Sheets—Sheet 2.

FIG. 6.

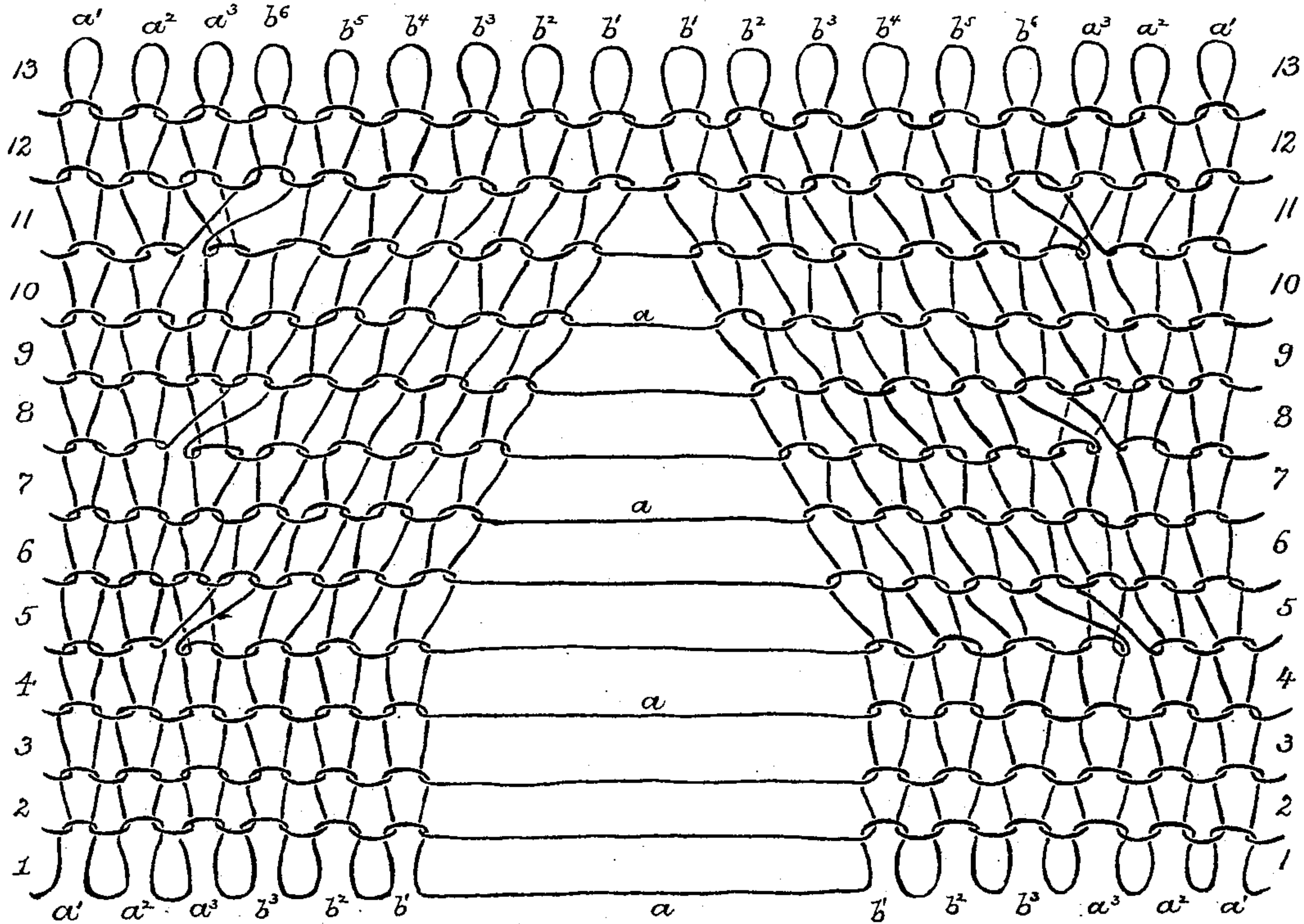


FIG. 7.

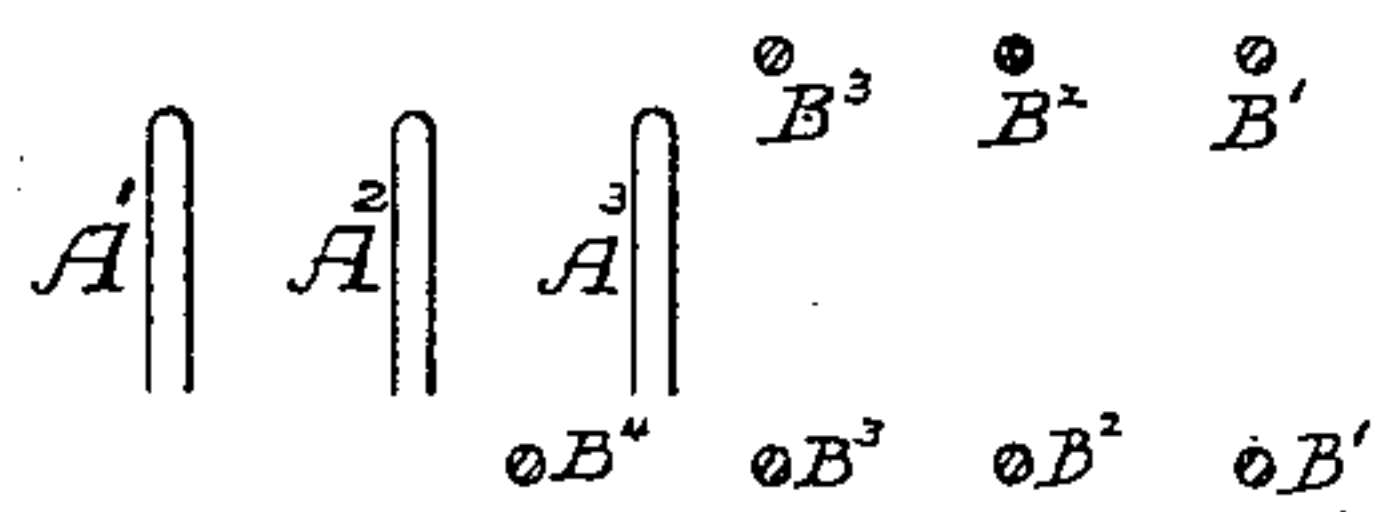


FIG. 8.

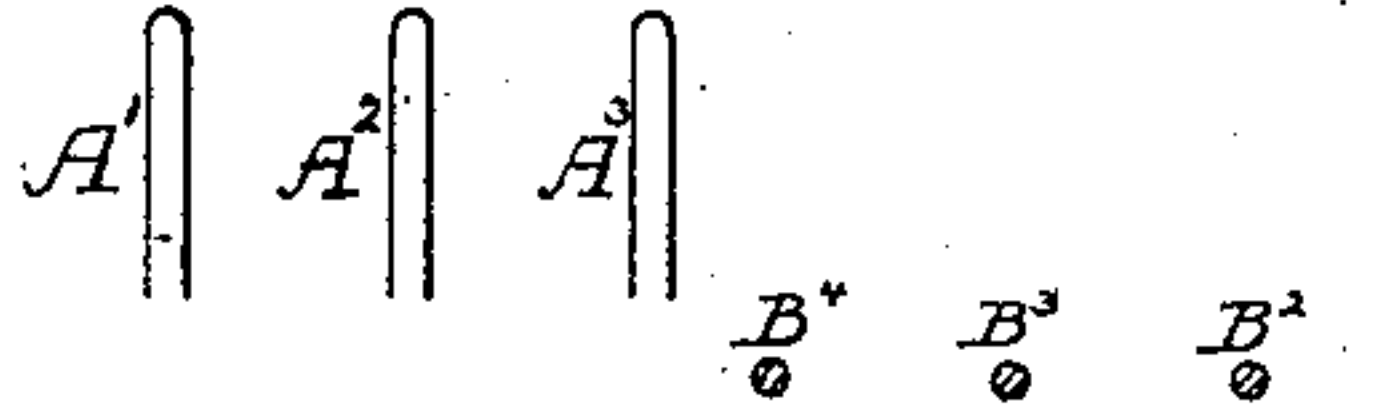


FIG. 9.

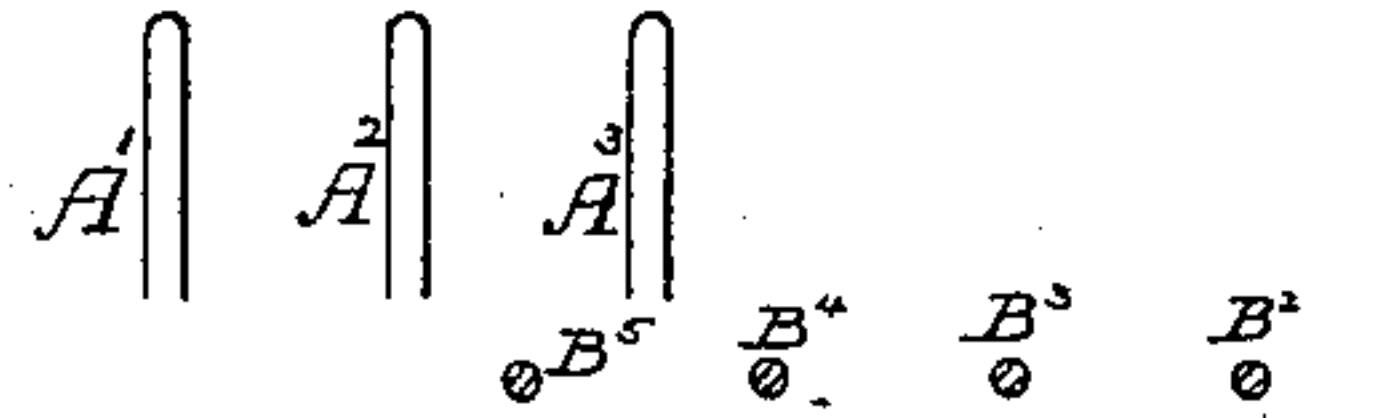


FIG. 10.

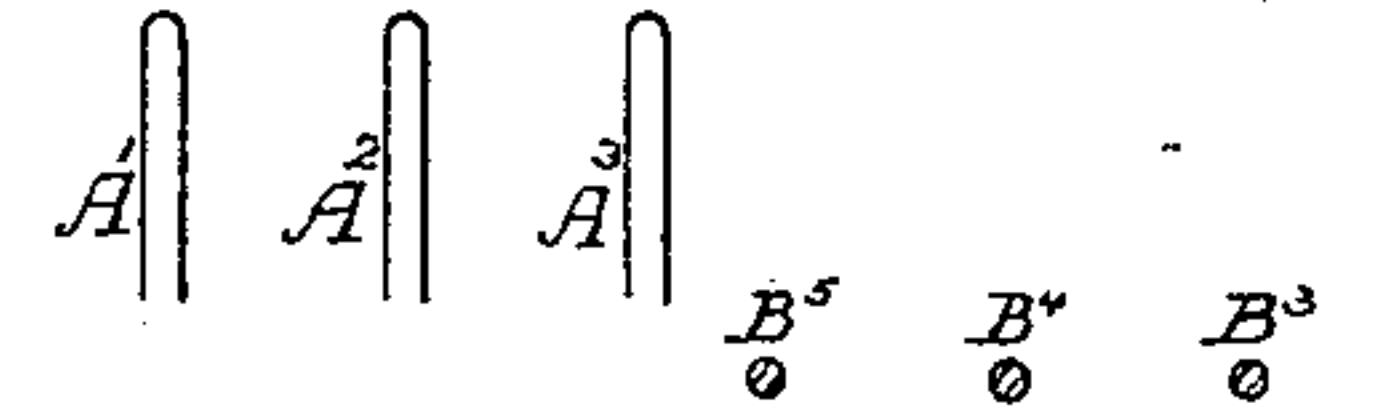


FIG. 11.

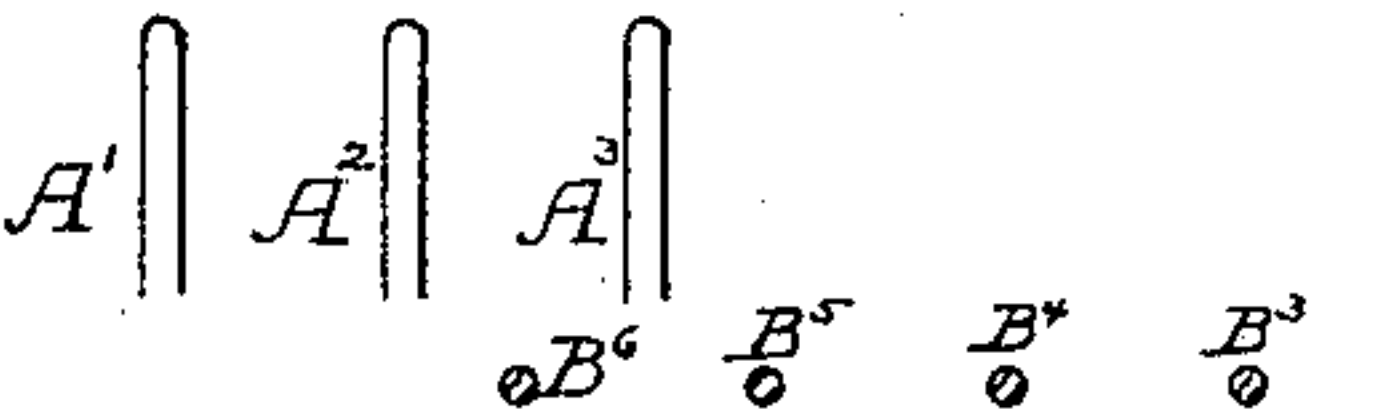


FIG. 12.

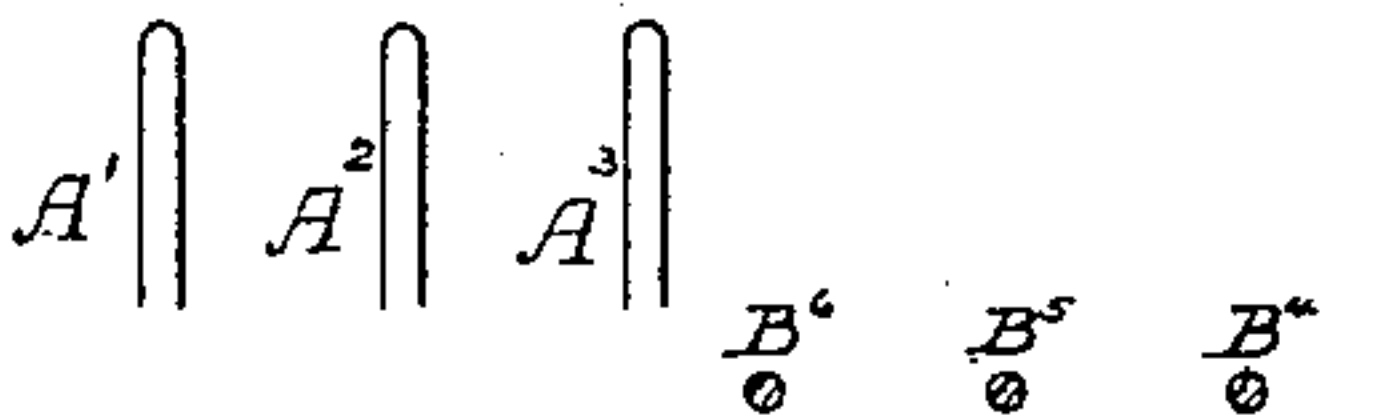
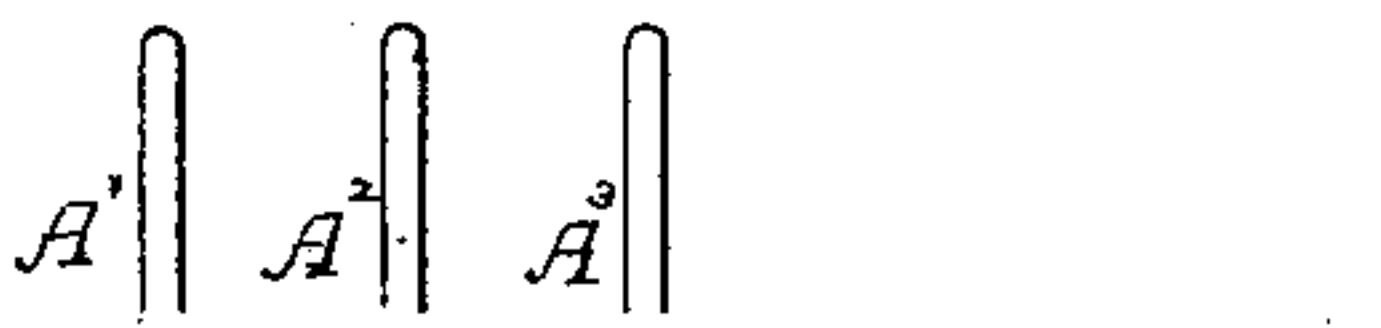


FIG. 13.



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UNITED STATES PATENT OFFICE.

ROBERT W. SCOTT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO LOUIS N. D. WILLIAMS, OF ASHBOURNE, PENNSYLVANIA.

KNITTED FABRIC.

SPECIFICATION forming part of Letters Patent No. 614,349, dated November 15, 1898.

Application filed December 20, 1897. Serial No. 662,612. (No specimens.)

To all whom it may concern:

Be it known that I, ROBERT W. SCOTT, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented an Improved Widened Knitted Fabric, of which the following is a specification.

My invention consists of a shaped or fashioned knitted web in which the widening-wales are introduced without the necessity of transferring stitches from needle to needle and without the formation of eyelet-holes or gaps in the knitted web at the points where the widening-wales are begun.

In the accompanying drawings, Figure 1 is an exaggerated diagram of a knitted web widened in accordance with my invention. Figs. 2, 3, 4, and 5 are diagrams illustrating the manipulation of the needles employed in knitting the same. Fig. 6 is a view of a modified form of the web, and Figs. 7 to 13, inclusive, are diagrams illustrating the manipulation of the needles employed in knitting the web.

In Fig. 1 I have shown thirteen successive courses of a web into which six widening-wales have been introduced, three on each side of the central line x . Thus it will be seen that in the first, second, third, and fourth courses of the web each side of the latter is composed of six wales, lettered, respectively, a' , a^2 and b' , b^2 , b^3 , and b^4 , an additional wale a^3 being introduced in the fifth course, a second additional wale a^4 being introduced in the eighth course, and a third additional wale a^5 being introduced in the eleventh course. The opposite portions of the web in the first, second, third, and fourth courses are separated by floating threads a , and the length of these floating threads is gradually diminished as the opposite portions of the web are widened by the introduction of the additional wales, until finally the two portions of the web join and form a continuous fabric. The opposite portions of the narrow web and of the web in which the widening has been effected can then be united by joining the wales b^4 of the opposite webs by means of an ordinary looping-machine or by sewing or in any other available manner, the floating threads a being then removed.

It will be observed that the four wales b' ,

b^2 , b^3 , and b^4 are continuous, so as to form a band of uniform width along the edge of each widened portion of the web; and it will be further observed that although the widening-wales a^3 , a^4 , and a^5 are introduced between the wales b' and b^2 in the respective courses 5, 8, and 11 they do not retain this position, but cross said wale b' and are interlooped with the fifth wale in the succeeding course, so that the eyelet-hole or gap in the knitted web which would otherwise be produced is closed and the appearance of the widened web is not marred by such eyelet-holes.

The manner of producing the above-described knitted web will be understood on reference to Figs. 2 to 5, in which the opposite sets of needles A' , A^2 , A^3 , A^4 , and A^5 represent vertical needles of a circular-knitting machine, the complete circle being broken by a gap representing eight needles, in place of which there are two sets of horizontal needles, (represented at B' , B^2 , B^3 , and B^4), these horizontal needles being disposed so as to draw their stitches to the same face of the fabric as the vertical needles and being in this respect the reverse of the needles of the ordinary rib-knitting machine. As shown in Fig. 2, each needle B' is between the needles A^2 and A^3 , the needle B^2 is between the needles A^3 and A^4 , the needle B^3 between the needles A^4 and A^5 , and the needle B^4 alongside of the needle A^5 , and in knitting the narrow web the needles A^3 , A^4 , and A^5 of each set are out of action, as shown in Fig. 2, the wales a' , a^2 being formed upon the needles A' , A^2 and the wales b' , b^2 , b^3 , and b^4 upon the needles B' , B^2 , B^3 , and B^4 , the thread being carried across the gap between the needles B^4 as the thread-guide rotates, so as to form the floating threads a . In knitting course 5 the needles A^3 are raised, as shown by dotted lines in Fig. 2, and before knitting course 6 the sets of needles B' , B^2 , B^3 , and B^4 are moved toward each other to the extent of one needle, as shown in Fig. 3, so as to widen each portion of the fabric to the extent of one wale and cross the wales b' and a^3 . When the next widening course 8 is reached, the needles A^4 are brought into operative position, as shown by dotted lines in Fig. 3, and before knitting course 9 the sets of needles B' , B^2 , B^3 , and B^4

are again moved toward each other to the extent of one needle, as shown in Fig. 4, so as to effect the crossing of the wales b' and a^4 , and in knitting course 11 the needles A^5 are brought into action, as shown by dotted lines in Fig. 4, the sets of needles B' , B^2 , B^3 , and B^4 being moved toward each other to the extent of one needle before knitting course 12 in order to cross the wales b' and a^5 . Both sets of needles A' , A^2 , A^3 , A^4 , and A^5 are now in action, and the gap between them is filled by the sets of needles B' , B^2 , B^3 , and B^4 , as shown in Fig. 5, so as to produce a continuous web of the desired width.

The number of wales in the band which borders the widened portion of the web may be varied as desired without departing from my invention. For instance, there may be as few as two wales or as many as ten or twelve, the object being to imitate those widened webs in which the series of stitches are removed from certain needles and transferred to adjoining needles.

It will be evident that my improved method of introducing the widening-wales and crossing the same over the adjoining wales, so as to close the eyelet-hole, may be adopted in the formation of flat webs produced by reciprocating knitting, as well as in the production of circular webs having divided portions connected by floating threads.

It will be evident also that the method of introducing and crossing the widening-wales can be employed in a web in which the bordering band is not of uniform width, or, in other words, in which the widening-wales are not always introduced at the same distance from the edge of the web in the widened portions. A web of this character is shown in Fig. 6, on reference to which it will be observed that the first introduced wale b^4 is the fourth, the second introduced wale b^5 is the fifth, and the third introduced wale b^6 is the sixth from the edge. In this case the widening-wales are formed upon needles of the sets B' , B^2 , B^3 , B^4 , B^5 , and B^6 . Thus the wales a' , a^2 , a^3 , b^3 , b^2 , b' of courses 1, 2, 3, and 4 are formed upon the needles A' , A^2 , A^3 , B^3 , B^2 , and B' , disposed as shown in Fig. 7. In knitting course 5 the needles B^4 are introduced, as shown in Fig. 8, and before knitting course 6 the sets of needles B' , B^2 , B^3 , and B^4 are shifted toward each other to the extent of one needle, as shown in Fig. 9. In knitting course 8 the needles B^5 are introduced, as shown in Fig. 10, and before knitting course 9 the sets of needles B' , B^2 , B^3 , B^4 , and B^5 are again shifted toward each other to the extent of one needle, as shown in Fig. 11, and in like manner needles B^6 are introduced, as shown in Fig. 12, before knitting course 11, and the sets of needles B' , B^2 , B^3 , B^4 , B^5 , and B^6 are

shifted to the position shown in Fig. 13 before knitting course 12.

While I prefer in all cases to shift the sets of needles B' , B^2 , B^3 , B^4 , B^5 , and B^6 immediately after the widening-needle is introduced, so as to cross the widening-wale as soon as it is begun, I may, if desired, knit several courses after the introduction of the widening-wale before shifting the needles B' , B^2 , B^3 , B^4 , B^5 , and B^6 , so as to cross the wales.

My present invention is distinct from that forming the subject-matter of my prior patent, No. 398,191, dated February 19, 1889, in that in the fabric of said prior patent the widening-wale as it is introduced into the fabric is not crossed by the adjoining wale, the knitting-thread being simply carried over one standing wale to the adjoining standing wale before forming the first stitch of the widening-wale, and two stitches being formed in a standing wale whenever a widening-wale is introduced. Moreover, there is not in the patented fabric any bordering band such as is found in the present fabric.

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

1. A knitted fabric having a widened portion in which each widening-wale, as it is introduced into the fabric, is crossed by the adjoining wale, substantially as specified.

2. A knitted fabric having a widened portion with a series of bordering-wales, each widening-wale, as it is introduced into the fabric, being crossed by the adjoining wale, substantially as specified.

3. A knitted fabric having a widened portion with a series of bordering-wales forming a band of uniform width, each widening-wale, as it is introduced into the fabric being crossed by one of said bordering-wales, substantially as specified.

4. A widened knitted fabric having in the narrow and widened portions webs connected by floating threads which decrease in length as the widening is effected, substantially as specified.

5. A widened knitted fabric having in the narrow and widening portions webs connected by floating threads which decrease in length as the web is widened, each of said widened portions having a series of bordering-wales and each widening-wale, as it is introduced into the fabric, being crossed by the adjoining wale, substantially as specified.

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

ROBERT W. SCOTT.

Witnesses:

FRANK E. BECHTOLD,
JOS. H. KLEIN.