R. W. SCOTT.

RIBBED KNITTED FABRIC.

APPLICATION FILED FEB. 13, 1909.

929,502.

Patented July 27, 1909.

2 SHEETS—SHEET 1.

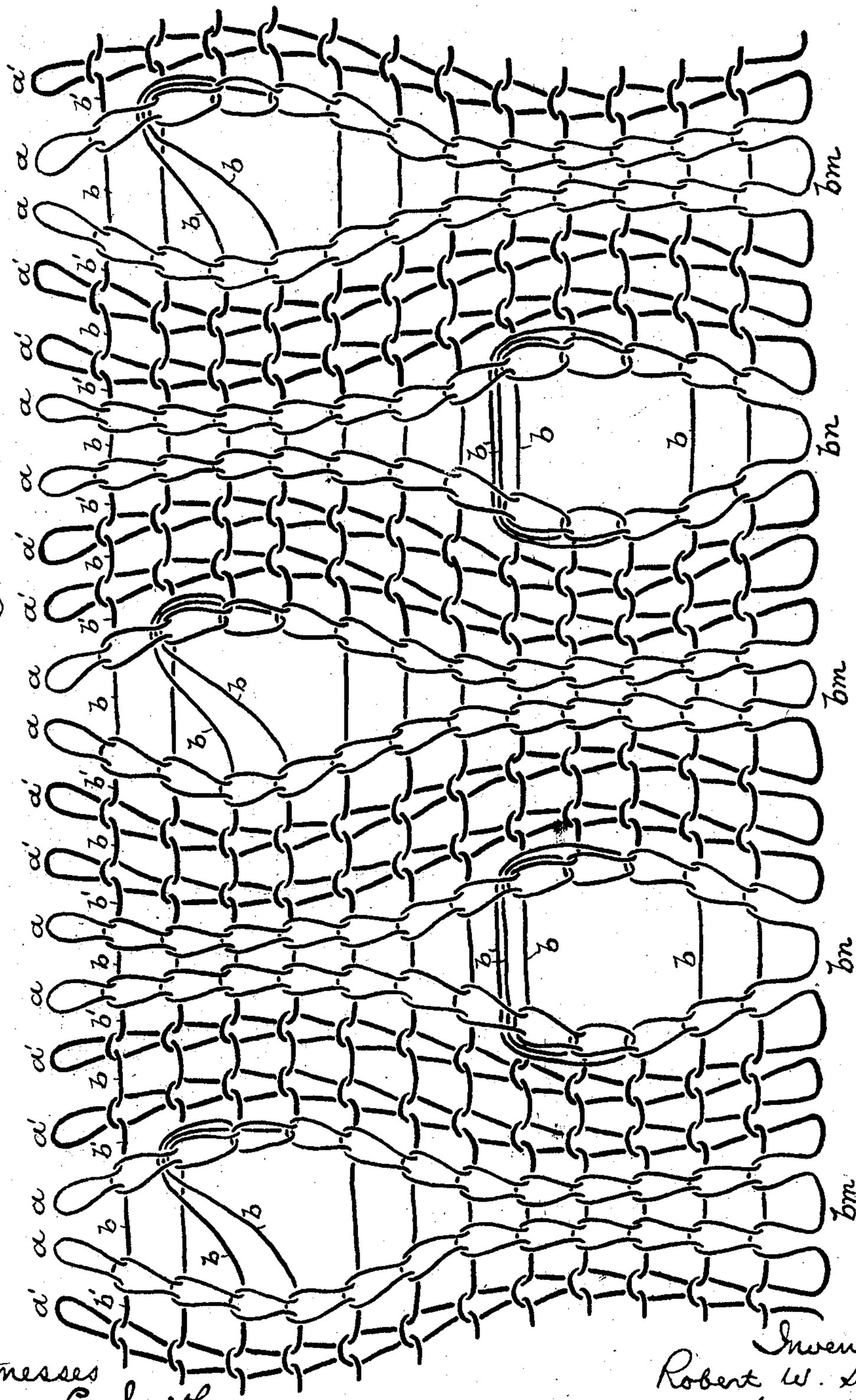

Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

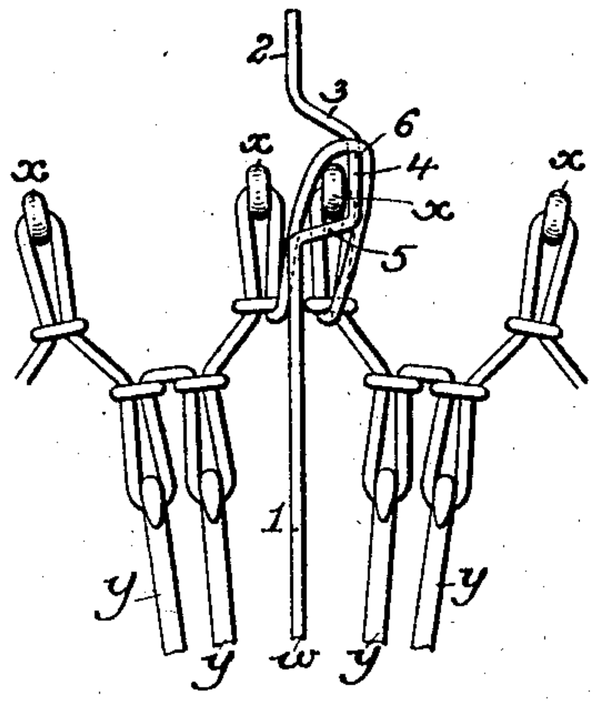


Fig. 3.

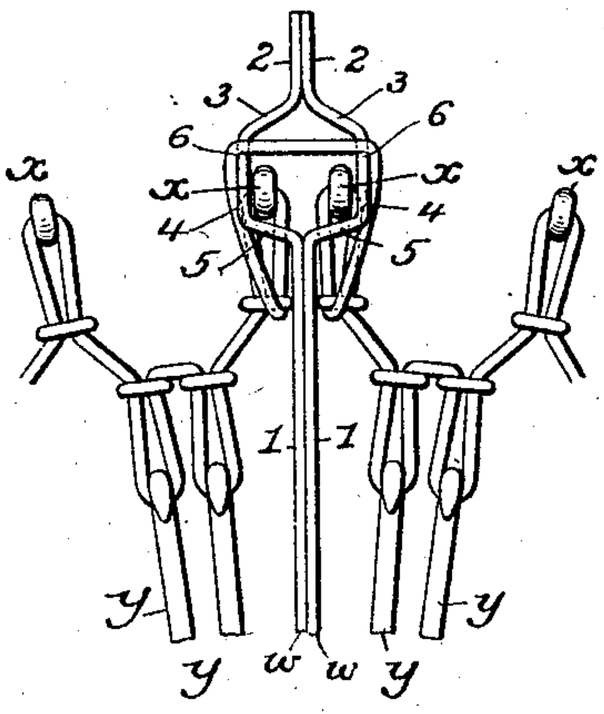


Fig. 6.

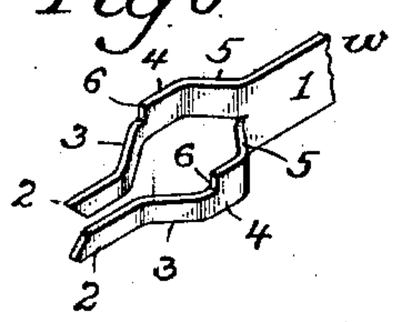


Fig. 5.

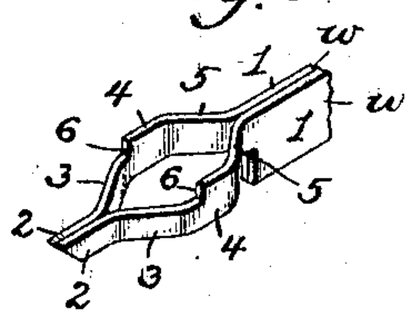
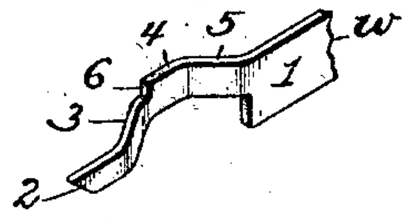


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

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RIBBED KNITTED FABRIC.

No. 929,502. Specification of Letters Patent. Patented July 27, 1909.

Application filed February 13, 1909. Serial No. 477,611.

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 Ribbed Knitted Fabrics, of which the following is a specification.

The object of my invention is to produce certain ornamental and useful effects in ribbed knitted fabrics. This object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is an exaggerated view of a piece of ribbed knitted web produced in accordance with my invention; Figs. 2 and 3 are diagrams illustrating the arrangement and operation of instrumentalities whereby ribbed knitted webs in accordance with my invention can be produced, and Figs. 4, 5 and 6 are perspective views of certain of said instrumentalities.

In Fig. 1 of the drawing, *a* represents the needle wales of the ribs on one face of the web, and a^1 represents the needle wales of the ribs on the other face of the web, thus the wales *a* may be those produced by the needles of the cylinder of an ordinary circular rib knitting machine, and the wales a^1 may be those produced by the dial needles of such a machine, *b* representing the sinker wales or portions of the knitting yarn passing from one needle wale to the other of the ribs of either face of the web and b^1 representing the sinker wales passing from needle wales of the ribs of one face of the web to needle wales of the ribs of the other face of the same. In order to better distinguish the wales from each other, I have, in the drawing, shown the stitches of one face of the web in heavier lines than those of the other face. It will be observed that the needle wales *a* constituting the ribs of one face approach and recede from each other so that the rib is alternately distended and contracted, the ribs of the other face being of uniform width but pursuing a waved or undulating course corresponding to the expansion and contraction of said ribs of the first face. The distention and contraction of the ribs are effected by the formation of eyelet holes between the needle wales of the rib at definite intervals, such eyelet holes being produced by transfer of sinker wale loops into adjoining needle wales, the eyelet holes being formed in the ribs of but one face of the web, the ribs on the other face of the web being normal.

The disposition and manipulation of the instrumentalities for effecting the production of eyelet holes of the character shown in Fig. 1 will be understood on reference to Figs. 2 and 3, in which *x* represents cylinder needles for producing the wales *a* of the fabric, *y* represents dial needles for producing the wales a^1 of the fabric, and *w* in Fig. 2 represents a transfer point for producing elongated sinker wales and transferring the same to adjoining standing wales. The transfer point consists of a stem 1 having an outer end 2 in the same plane as the stem, a diagonally inclined portion 3 and a short sub-stem 4 connected to the stem 1 by a neck 5 substantially at right angles to said stems 1 and 4, the diagonal member having, near its inner end, a shoulder 6, as shown in Fig. 4. The stems of these transfer points are guided in grooves in the dial midway between the needle grooves of the same. In order to effect transfer of a sinker wale between adjoining needle wales *a a* to one of said needle wales, the transfer point is first projected until its outer end 2 occupies a position between the adjoining cylinder needles 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 this position for one or more courses of the knitting until as many sinker wale loops as may be desired have been deposited upon the end 2 of the point, the fabric shown in Fig. 1 having loops of two successive courses thus caught and retained although but one loop or more than two may be thus acted upon. When it is desired to transfer the sinker wale loops the transfer point is projected so as to bring the inclined member 3 of the same into action upon said loops, thus causing the lateral displacement of the same as well as a slight outward displacement due to the action of the shoulder 6 thereon, the parts being now in the relation to each other shown in Fig. 2. The transfer point remains in its projected position until the receiving needle has been projected to such an extent as to enter the sinker wale loop or loops which have been deflected into the path of said needle, where-

upon the full withdrawal of the transfer point releases the loop or loops and causes the same to engage the needle so that in the next course of the knitting the new stitch will be drawn not only through the stitch already upon the needle but also through the sinker wale loop or loops previously deposited upon said needle.

In order to effect lateral spreading of a sinker wale loop or plurality of loops to engage a needle wale on each side of the same, as shown in the bottom row of Fig. 1, I may use a pair of transfer points of the character described placed back to back, as shown in Figs. 3 and 5, or I may use a single transfer point with forked head split horizontally as shown in Fig. 6, one member of said forked head having its diagonal portion extending in one direction and the other having its diagonal portion extending in the opposite direction, the outer end of each member of the fork being sufficiently resilient to permit the loop of yarn drawn down by the hooks of the needles to spread said outer members so as to pass between them when the transfer point is retracted, and the same being true of the double transfer points shown in Fig. 5.

The eyelet holes may be produced in any desired sinker wale courses of the web, a plurality of plain sinker wale courses intervening between those sinker wale courses in which transfers are effected and a plurality of needle wales intervening between the sinker wales in which transfers are effected.

In Fig. 1 of the drawing, I have shown my invention as applied to a web having a two-and-two rib but it will be evident that it is applicable to ribbed webs of any character having a plurality of needle wales in ribs of either face in which the eyelet holes are to be formed, and either single or multiple wales in the ribs which are not to be thus distended, preference being given to webs having an even number of needle wales in the ribs, in order that the eyelet holes may occupy a central position in the ribs in which they are formed.

The production of eyelet holes in a certain course or courses of a ribbed web has the effect of expanding the web to some extent at said course and this reduces to a corresponding degree the elasticity of this portion of the web. In order to lessen this expansion without corresponding lessening of the number of eyelet holes formed in the web I prefer to form the eyelet holes of successive rows in different wales, thus the eyelet holes of the first row in the web shown in Fig. 1 are formed in the wales marked *bm* while the eyelet holes of the second row are formed in the wales marked *bn*.

Independent of the ornamental effects due to the expansion and contraction of the ribs of the web, eyelet holes, when formed in the ribs constituting the outer face of a garment, serve their intended purpose better than eyelet holes formed in a plain web or between the ribs of the two faces of a ribbed web, because the needle wales between which such eyelet holes are formed are supported free from contact with the person of the wearer of the garment.

I claim:—

1. A knitted web having, on either face, ribs, each composed of a plurality of needle-wales, said ribs having eyelet holes formed therein by displacement of sinker wale loops between the needle wales of which the rib is composed, said displaced sinker wale loops being interknitted with needle wales of the ribs in which they are formed.

2. A knitted web having, on one face, ribs, each composed of a plurality of needle wales, said ribs having eyelet holes formed therein by displacement of sinker wale loops, between the needle wales of which the rib is composed, said displaced sinker wale loops being interknitted with needle wales of the ribs in which they are formed, the other face of the web having normal ribs thereon.

3. A knitted web having, on either face, ribs, each composed of a plurality of needle wales, said ribs having eyelet holes formed therein by displacement of sinker wale loops, between the needle wales of which the rib is composed, said displaced sinker wale loops being interknitted with needle wales of the ribs in which they are formed, the eyelet holes of successive rows being in different wales.

4. A knitted web having, on one face, ribs, each composed of a plurality of needle wales, said ribs having eyelet holes formed therein by displacement of sinker wale loops, between the needle wales of which the rib is composed, said displaced sinker wale loops being interknitted with needle wales of the ribs in which they are formed and the other face of the web having normal ribs thereon, the eyelet holes of successive rows being in different wales whereby the normal ribs are caused to pursue an undulating course.

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.