(No Model.)

E. E. SIBLEY.

KNITTED FABRIC.

No. 348,698. Patented Sept. 7, 1886.

Fig. 1.

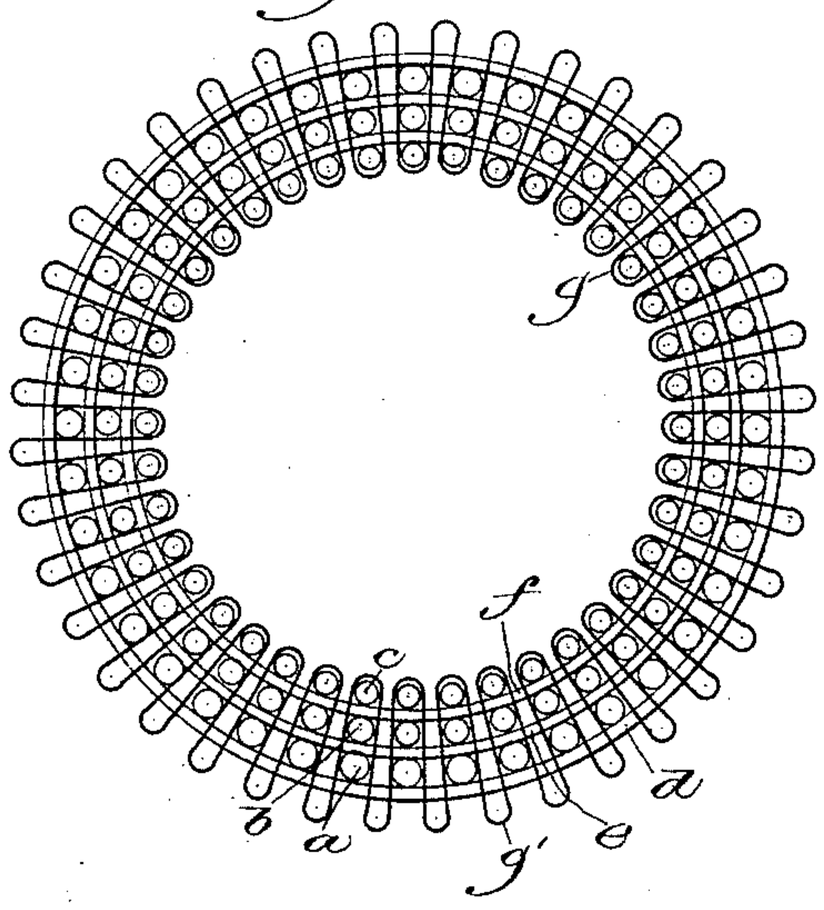


Fig. 3.

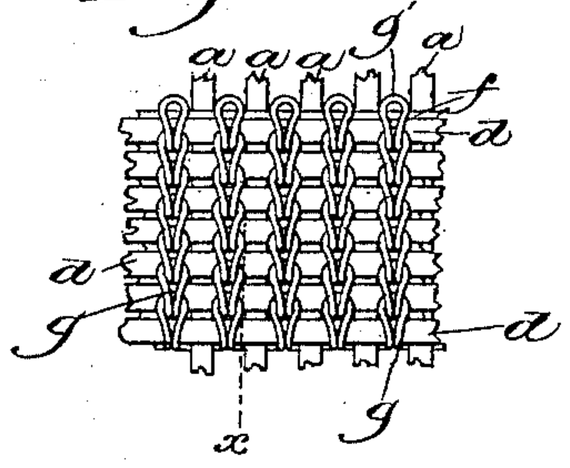


Fig. 2.

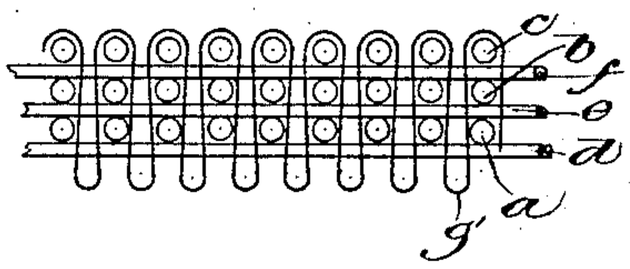
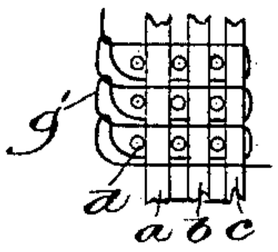


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

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KNITTED FABRIC.

SPECIFICATION forming part of Letters Patent No. 348,698, dated September 7, 1886.

Application filed March 27, 1886. Serial No. 196,790. (No specimens.)

To all whom it may concern:

Be it known that I, EDWIN E. SIBLEY, of Chelsea, county of Suffolk and State of Massachusetts, have invented an Improvement in Knitted Fabrics, of which the following description, taken in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of a thick strong knitted fabric, adapted, among other purposes, for use for machine-belts, and knitted in circular form especially adapted for hydraulic hose.

My improved fabric consists of two or more layers or sets of warp-threads extended through the fabric, two or more layers of weft-threads crossing the said warp-threads at but one side, and a knitting-thread, which is extended from the back to the other face of the fabric between the warp-threads, crossing all the weft-threads, the knitting-thread partially surrounding the warp-threads at the back of the fabric and being enchained at the face of the fabric, the said knitting-thread serving the purpose of a binder, the knitting-thread at the face of the fabric forming knitted wales crossing the outermost set of weft-threads.

Figure 1 in section shows a circular fabric or hose embodying my invention, the loops of knitting-thread at the face of the fabric not being shown as enchained; Fig. 2, a like cross-section of a flat web embodying my invention. Fig. 3 is a face view of a flat fabric embodying my invention, the knitting-thread being shown as enchained; and Fig. 4 is a partial section of Fig. 3 on the line *x x*.

In all the figures the threads are not shown as drawn snugly together as they will be in practice, for by leaving the threads somewhat separated my invention may be more readily understood.

My improved fabric is composed of two or more layers or sets of substantially-straight warp-threads, each layer occupying a separate plane. The drawings show three layers or sets of warp-threads, *a b c*, each set arranged in the fabric in the manner shown, so that warp-threads *a b c*, one of each set, will fall in substantially the same line from back to face of the fabric. If the fabric is circular or tubular, the warp at the inner side, or, as I shall say, the back of the fabric, will preferably be of smaller diameter than the warp *b* and *a* toward the face or outer side of the fabric, as shown in Fig. 1. If the fabric is flat, as in Fig. 2, then I prefer to have all the warp-threads of the same diameter. The filling or weft threads *d e f* will fall between the warp-threads *c b* and *b a*, and at the outer side of the outer or face warp, *a*, and between each set of warp-threads *a b c* and the adjacent set of threads *a b c*, and crossing the weft-threads, is a knitting-thread, *g*, the said knitting-thread being extended from the back to the face of the fabric in the form of loops, there being one loop between each adjacent set of warps *a b c*, and crossing each set of filling or weft threads *d e f*, and at the face of the fabric the loops of knitting-thread are enchained, as at *g'*. The warps *a*, *b*, and *c* each occupy the same relative position in the fabric from end to end—that is, the said warp-threads lie straight in the fabric, or, in other words, are not moved past each other, as in the formation of sheds in what is known as "plain weaving." The wefts remain continually between the same layers of warp-threads; but each crossing or round of weft is separated from the next crossing or round thereof by a loop of knitting-thread, which is extended from the back to the face of the fabric, where the said loops are enchained, the said loops being drawn through between the warps just after the wefts are laid.

In practice the knitting-machine needles, which take the knitting-thread, will be reciprocated horizontally, or be passed from the face of the fabric to its back, the said needles being moved in succession from the bed in which they slide, and then drawn back in such manner as to take the knitting-thread from a thread-guide and draw the said thread into loop form. The superimposed layers of weft-thread, viewing the fabric from face to back, are laid at substantially the same time, and each series of superimposed layers is crossed by the knitting-thread before a second layer of weft is laid.

I claim—

A knitted fabric having two or more layers or sets of warp-threads running through the fabric from end to end and separated each

layer or set of warp from the other by a layer of weft-thread, there being a layer of weft-thread for each layer of warp-thread, the said layers of warp-thread and of weft-thread being united or bound together, substantially as described, by a knitting-thread, which, partially surrounding the individual warp-threads at one side of the fabric, is passed through between the warp-threads in the direction of the thickness of the fabric, crossing the layers of weft-thread, the said knitting-thread at the face of the fabric being enchained about and to hold the outermost layers of weft-thread, substantially as described.

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

EDWIN E. SIBLEY.

Witnesses:
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