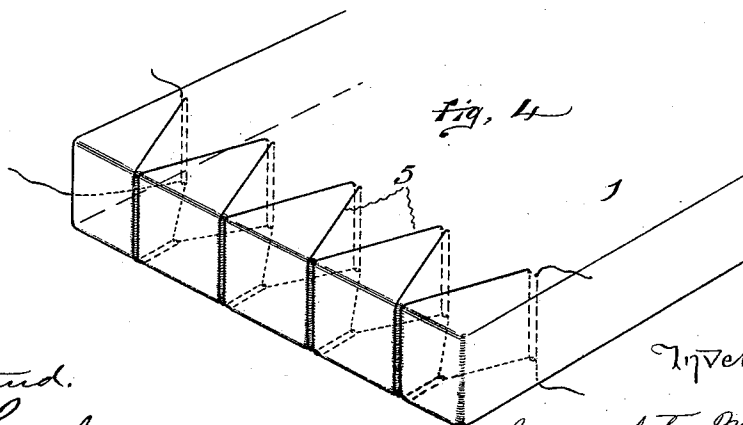
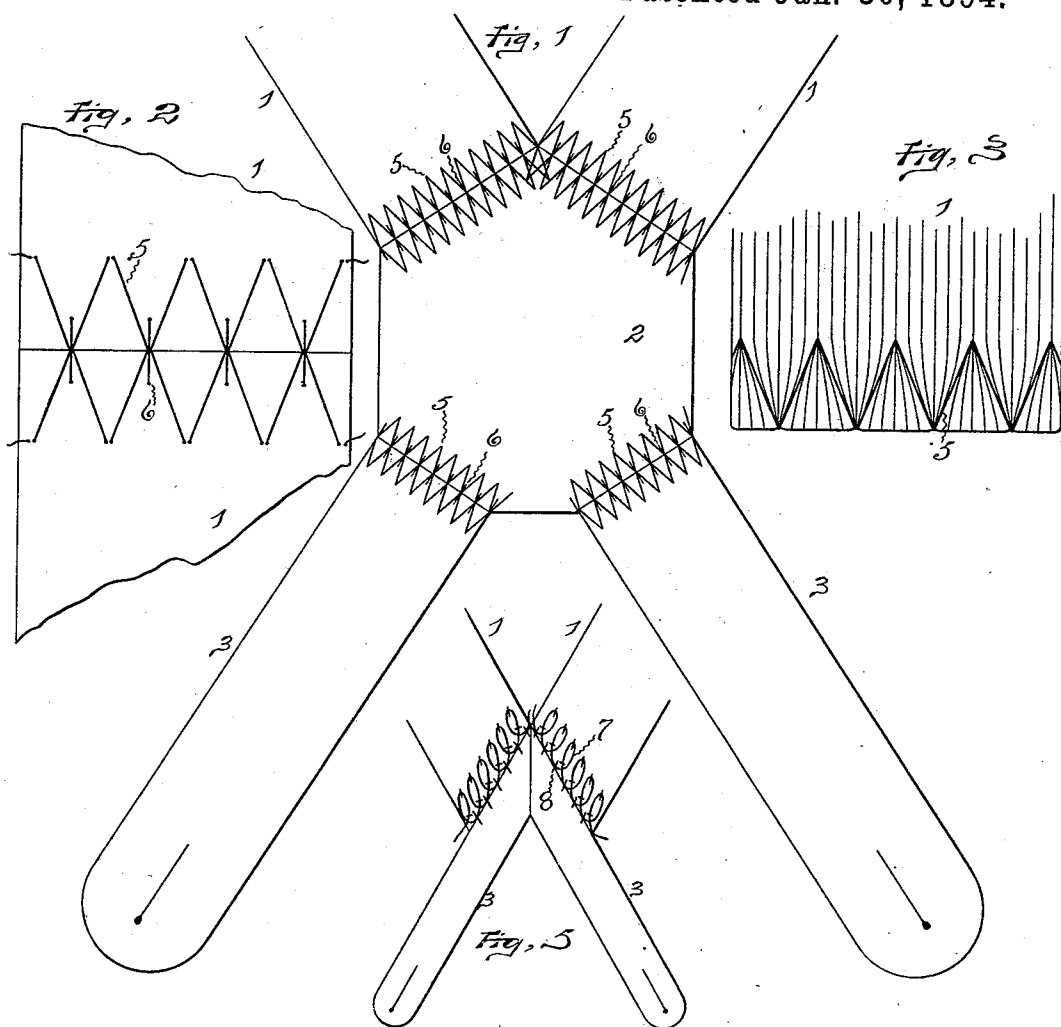


(No Model.)

J. A. MILLER.
SUSPENDERS.

No. 513,709.

Patented Jan. 30, 1894.



Witnesses:

C. Buckland.
John P. Healy

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UNITED STATES PATENT OFFICE.

JAMES ACTON MILLER, OF NEW HAVEN, CONNECTICUT.

SUSPENDERS.

SPECIFICATION forming part of Letters Patent No. 513,709, dated January 30, 1894.

Application filed January 31, 1893. Serial No. 460,387. (No model.)

To all whom it may concern:

Be it known that I, JAMES ACTON MILLER, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Suspenders, of which the following is a full, clear, and exact specification.

The invention relates more particularly to the manufacture of suspenders, but is applicable to, and can be practiced in connection with, any other article where it becomes necessary to fit and join the ends of fabrics in which the longitudinal fibers are elastic rubber; the object of the improvement being to construct such an article so that the elastic parts may be joined together in a strong, simple and durable manner without any thickening of the ends, or the forming of a bunch by the placing and stitching on of connecting strips at the place of junction.

Referring to the drawings:—Figure 1 represents a part of the back portion of a pair of suspenders made in accordance with my improvement. Fig. 2 is a diagram illustrating the manner in which the elastic portions are joined together. Fig. 3 is a similar view illustrating the position taken by the fibers of the material when joined to another piece according to my improvement. Fig. 4 is a perspective view illustrating the stitch employed to bind or strengthen the end of the elastic fabric before it is joined to another piece. Fig. 5 is a view illustrating the back portion of a pair of suspenders joined in the manner contemplated by my invention with a modified form of stitch.

In the views 1 represents the shoulder straps of a pair of suspenders, which, in the form illustrated, are made from elastic webbing. These straps are secured to a back piece, 2, also of elastic webbing, to which the button tabs, 3, are secured. The ends of the shoulder straps are first trimmed off squarely and evenly and then a row of stitching 5, forming a binding for the edge, is run across each end. This stitch, as illustrated in the first figures of the drawings where it is greatly exaggerated, runs in such manner as to bind the edge and form on the upper and lower surface zig-

zag loops. The two edges of the elastic material to be joined are bound or overcast by rows of stitching of this nature and then butted together and a line of stitching 6 made back and forth from one piece to the other so as to hold the ends together, this joining stitch passing through the material of the ends between the loops, usually at or near the points of the zig-zag. In this manner a strong connection can be made between the two ends without doubling over or thickening them or by stitching on an overlying piece, as in prior articles of this nature.

Formerly it has been considered impossible to join the ends of two elastic webs by means of simple stitching for the threads that pass from one to the other do not catch into the elastic rubber fibers but only hold on the silk or cotton cross fibers, that is the weft threads of the fabric, which soon ravel out and allow the ends to pull apart. When the edges of the elastic fabric are bound by the zig-zag stitch, as illustrated in Fig. 1, there is a tendency for the fibers to be pressed tightly together between the stitches, when the thread is pulled tight, as represented in Fig. 3, so that when the joining stitches are made they pull on the fibers thickened or matted together as well as upon the binding threads which extend back into the body of the fabric and cannot be pulled out as would be the silk or cotton weft fibers of the fabric.

In Fig. 5 a modified form of stitch is shown where the elastic parts are joined to the button tabs. In this case the connection is made in a similar manner, that is, the edges of the elastic fabric are bound or overcast by stitching 7 which reaches back into the fibers and also makes a cord along the edge so that the connecting or joining stitches 8 made from one to the other has a firm, strong pull upon this edge without danger of pulling out. By means of this arrangement a pair of suspenders or other article formed of elastic webbing, that is, of webbing in which the warp fibers are elastic rubber, can be made, and the parts fitted together, without forming a bunch or thickened part at the place of junction, which junction can be made cheaply by the use of machines employing stitches substantially

the same as above described, and an article made in this manner is cheap, as there is not only a saving of material but a saving of time in putting the parts together.

5 I claim as my invention—

As an improved article of manufacture, a pair of suspenders consisting of a body of elastic webbing, a back piece also of elastic webbing, and button tabs, the adjacent ends of

the elastic parts being butted together and provided with binding stitches to prevent fraying and joined by means of stitches passing from part to part around the binding stitches, substantially as herein described.

JAMES ACTON MILLER.

Witnesses:

HARRY R. WILLIAMS,
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