

(No Model.)

S. ARNOLD.
METHOD OF UNITING FABRICS.

No. 278,484.

Patented May 29, 1883.

Fig. 1.

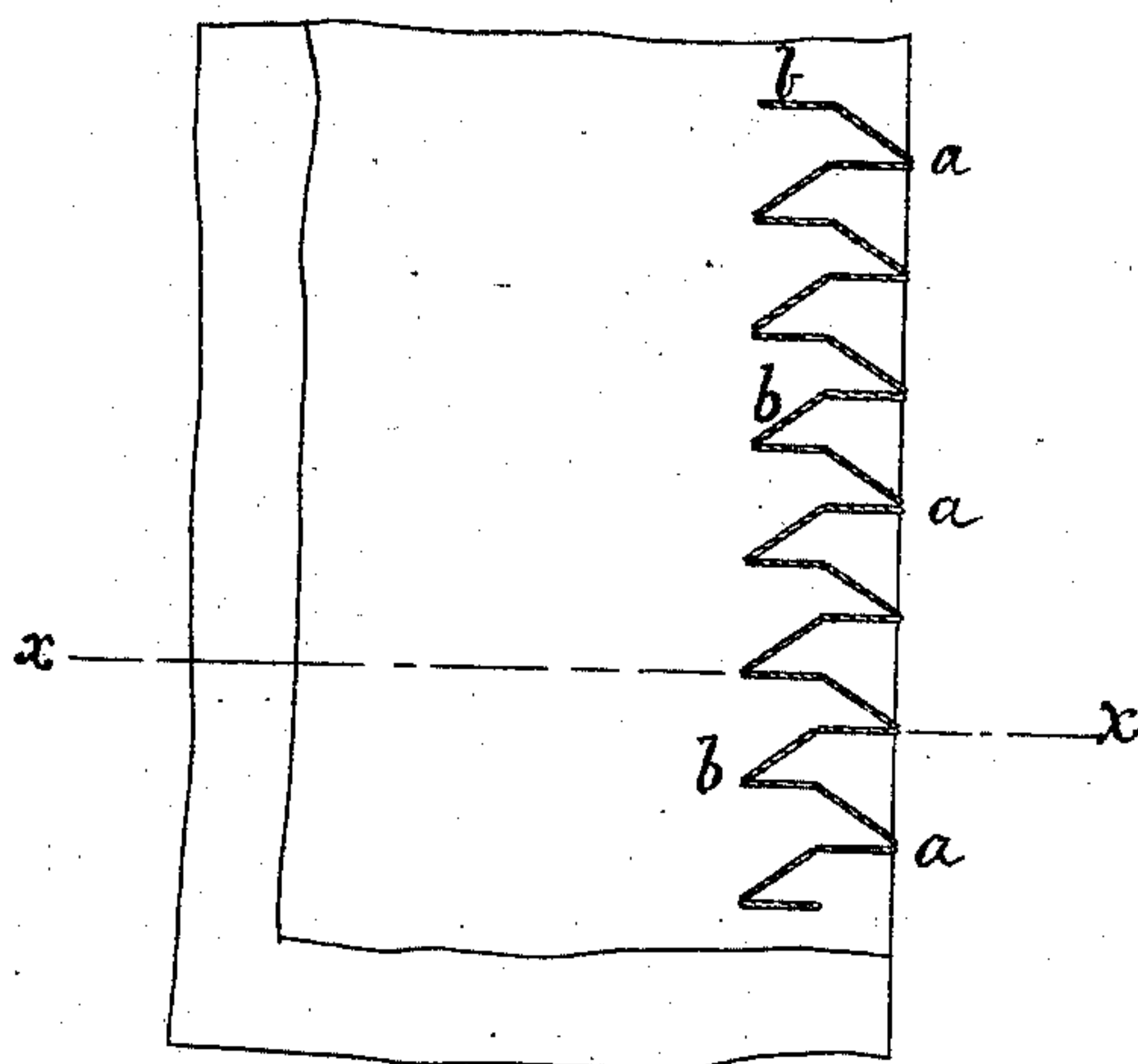
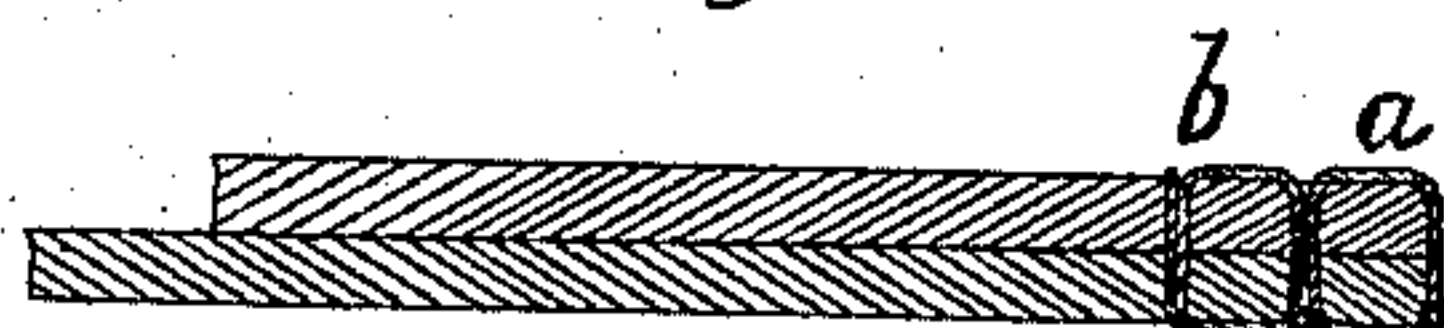


Fig. 2.



WITNESSES:

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METHOD OF UNITING FABRICS.

SPECIFICATION forming part of Letters Patent No. 278,484, dated May 29, 1883.

Application filed June 23, 1880. (No model.)

To all whom it may concern:

Be it known that I, SATTERLEE ARNOLD, a citizen of the United States, residing in the city of Troy, county of Rensselaer, and State of New York, have invented certain new and useful Improvements in Uniting Fabrics; and I do hereby declare that the following is a full, clear, and exact description thereof when taken in connection with the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view, showing the arrangement of the stitches, and Fig. 2 a section through the line *x x*.

My invention relates to a new mode of uniting fabrics; and it consists in forming a line of overseaming stitches sewed over the extreme outer edge of the fabric to hold the loose filaments to the body of the fabric, and re-enforcing said overseaming stitches by a series of auxiliary stitches having both their ends in the body of the fabric to anchor said overseaming stitches thereto.

To properly point out the difference between my invention and what has preceded it, I will first show the state of the art, so far as I know it, previous to the date of my invention, and will begin by premising that in this specification I mean by the word "stitch" the thread that ties the sewed fabric together between the two successive motions of a sewing-machine needle when in operation, in contradistinction to the perforation made by the needle, which is sometimes referred to as the stitch.

To further define my meaning, I will also state that when I use the words "overseaming stitch" I mean a stitch which is made by passing one end of the thread forming the stitch through the cloth, and the other or outer end over the extreme outer edge of the cloth, in contradistinction to passing said outer end of the stitch through an aperture or recess formed within the edge of the material; and where I use the word "anchoring stitch" I mean a stitch both of whose ends are in the body of the cloth and one end so combined with an overseaming stitch as to anchor the latter to the cloth.

In ordinary machine-work the seam consists of a series of stitches, arranged end to end, in

a straight or curved line coinciding with the line of union and line of feed. This form of seam holds the fiber only on a single line corresponding with the direction of the line of feed, and has no more breadth than the thickness of the thread of which it is composed. Next to this comes the zigzag-stitch seam in which the stitches do not run in a straight or curved line along the line of longitudinal feed, but run alternately from left to right and the reverse across said line, the needle descending on opposite sides of the central line of seam or line of union alternately. This stitch laces or binds over a portion of the fabric by each successive stitch, in short oblique lines across the line of longitudinal feed, thus gathering and holding a broader portion of the fiber along the line of union, thereby giving greater strength and elasticity to the seam than that given by the seam first described. Next to this is the seam formed by overseaming stitches, and is somewhat similar to the last described, but differs in having the thread forming the stitch running from a puncture made by the needle to and over the edge of the fabric, so that the thread when this stitch is used to form a seam runs back and forth across the line of union of the fabric being sewed, the needle or sewing mechanism being constructed to carry the thread in short lines from the perforations made by the needle to and over the edge of the fabric, the effect of which is substantially the same as with the zigzag-stitch seam, as the fiber of the fabric is not merely held between two threads in a comparatively straight line, but is held by a series of short lines of thread of a length equal to the distance between the puncture made by the needle and the edge of the fabric, thus inclosing between the thread of the seam a large amount of the fiber, the effect of which is the same as the zigzag-stitch seam in making a comparatively strong and elastic union of the fabric operated on. These different forms of sewing-machine seams are all that are practically known in the market; but a variety of stitches have been patented for ornamental, button-hole, and embroidery work, which are not designed for seaming purposes.

In a previous patent granted to me I have

shown the application of the overseaming stitch to the making of seams; but while I found that this stitch bound in the loose threads of the edge of the fabric and engaged broad portions of the fiber along the line of union, and was an improvement on what had been done before, yet it did not, without making the seam inconveniently broad, have that degree of strength necessary to stand the strain to which the seams are frequently subjected, and it was to overcome this difficulty that I have made my present invention, which consists, essentially, in adding to each overseaming or zigzag stitch an anchoring stitch in line therewith and connected thereto, thus anchoring or securely holding the thread forming the seam to the body of the fabric being sewed, so that there is no probability of the thread and the outer fibers of the fabric being separated from the body thereof, as the additional stitches re-enforce the overseaming stitches and hold them secure thereto, thus forming a very strong and elastic yet narrow seam having no appreciable welt.

In carrying out my invention I prefer to use a machine of my own invention, in which the needle has a pendulous or lateral motion to make side stitches while the feeding device moves the cloth longitudinally, for which machine a separate application for a patent will be made. In such machine the material to be sewed is placed under the foot in the usual manner in sewing seams—namely, with the two pieces overlapping each other and their edges flush—and the needle punctures the fabric a short distance from the edge, then moves sidewise and punctures the cloth a second time between the first puncture and the edge, making a stitch from the first to the second puncture. The cloth is then moved longitudinally by the feed-motion, and the needle is moved still farther across the line of feed until it has passed over the edge or edges of the fabric, when it descends and makes a stitch from the second puncture over the edge of the cloth, and thus finishes a short line of two stitches, the last of which is an overseaming stitch crossing the edge of the fabric being sewed and the other anchors the overseaming stitch to the fabric. The needle then rises, and, moving laterally in the contrary direction to its previous lateral movement, begins the formation of a second short line of stitches by puncturing the cloth and forming an overseaming stitch, after which the cloth is moved by the feed-motion longitudinally, and the needle again punctures the cloth, making another anchoring stitch, thus making two short lines of stitches, both running across the edge or line of union of the cloth, one crossing from right to left and the other running reversely or from left to right, both lines of stitches being connected together, and both having one overseaming stitch to hold the loose filaments or threads tightly in place, and another to firmly

anchor the overseaming stitch to the body of the cloth. The machine then repeats the stitches heretofore described, and a continuation of such motions will result in a line of sewing being formed, made up of a series of overseaming stitches over the edge or edges of the fabric, each overseaming stitch being re-enforced by an anchoring stitch to securely hold it to the body of the fabric in the manner shown in the accompanying drawings, in which *a a a* shows the overseaming stitches and *b b b* the anchoring stitches. When a seam has thus been formed the two pieces of fabric may be opened and pressed flat, when it will be found that there is no appreciable welt, and that but a slight seam is perceived, which, however, is of great strength and elasticity. This method of operation is particularly applicable to the manufacture of knit goods—viz., hose, undershirts, &c.—made from cut knit cloth having strong seams, without the objectionable welts heretofore usually found in such articles when made from cut fabrics. My method may also be applied to the production of fabrics to be sold in the stores. For instance, flannel or knit goods may be sewed up in the form of a long tube, and thus sold to dealers to be cut up into lengths to suit customers, or the same material may be supplied to makers of goods for underwear to be cut up and finished for use.

I am aware that it is not new to make a button-hole with long and short stitches which terminate at different distances from the edge, and make no claim to such invention.

I am also aware that it is not new to sew a stitch a short distance from the edge of the fabric, and then form between said stitch and edge, and nearly parallel with the latter, a "purl-stitch," with both ends of said stitch formed on the same side of the edge of the cloth, which edge is afterward trimmed off, leaving the outer edge of the purl-stitch in the aperture formed by the needle within the edge of the cloth. This method of sewing is essentially different from mine, as, independent of the difference in the arrangement of the stitches, both ends of the purl-stitches are formed in the cloth and not with one of their ends over the edge, as in my case.

What I claim as new is—

1. The improvement in the art of uniting fabrics, which consists in sewing over the edge of the line of union a series of overseaming stitches and binding them to the body of the fabric by a series of anchoring stitches, substantially as described.

2. The improvement in the art of uniting fabrics herein set forth, consisting in superimposing one piece upon another, then making along the line of union a series of groups of stitches, each group consisting, first, of an anchoring stitch made a short distance from the edge of the fabric; second, an outward overseaming stitch carried over the edge of the fab-

ric and binding the loose filaments; third, an inward overseaming stitch, also binding the filaments; and, fourth, a second anchoring stitch substantially in line with the first anchoring stitch; and, finally, opening the seam united by the line of sewing, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

SATTERLEE ARNOLD.

Witnesses:

T. J. W. ROBERTSON,
WM. TURNER.