(No Model.)

R. W. SCOTT.

ART OF NARROWING KNITTED WEBS.

No. 410,858. Patented Sept. 10, 1889.

FIG. 1.

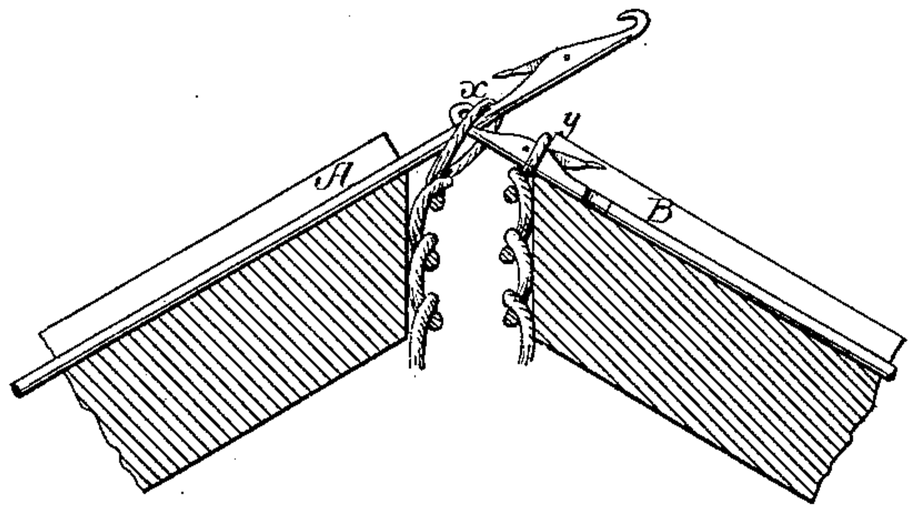


FIG. 2.

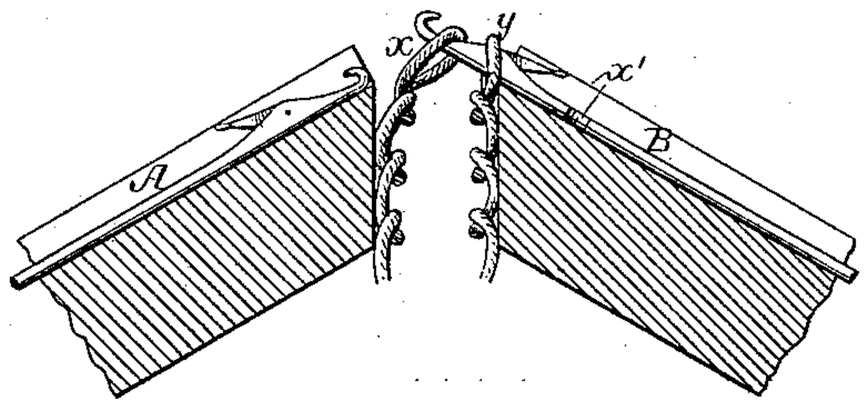


FIG. 6.

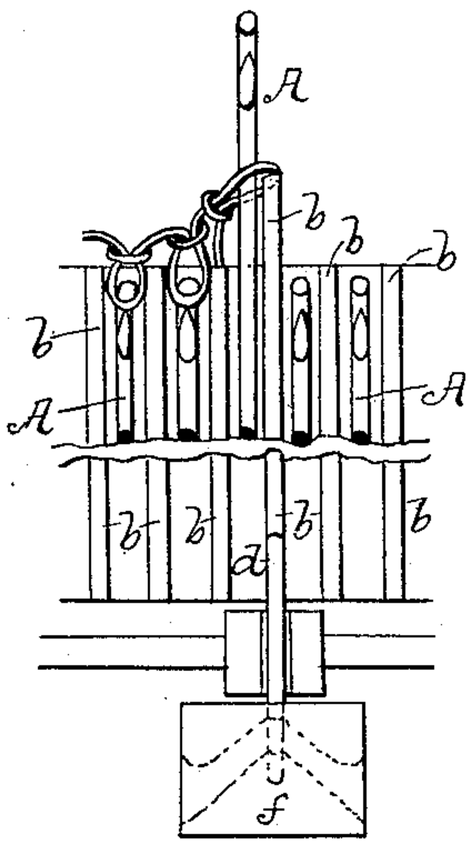


FIG. 3.

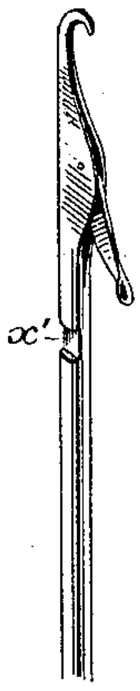


FIG. 4.

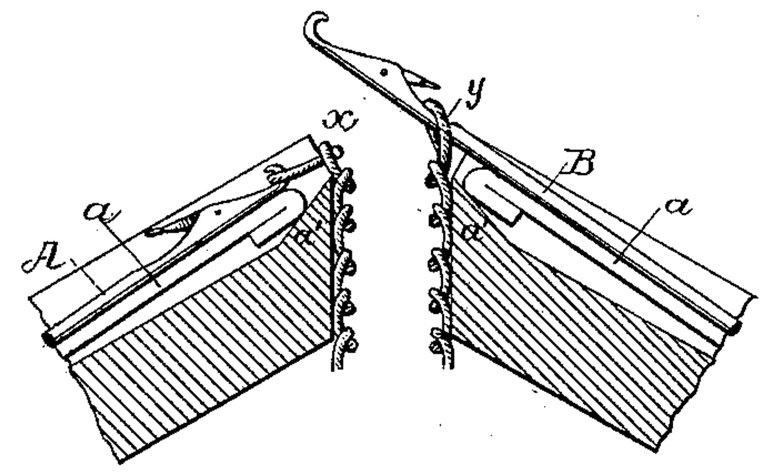
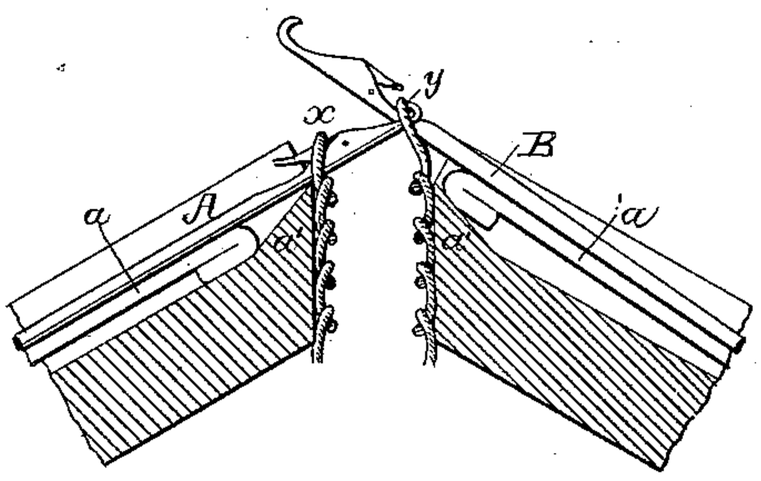


FIG. 5.



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UNITED STATES PATENT OFFICE.

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

ART OF NARROWING KNITTED WEBS.

SPECIFICATION forming part of Letters Patent No. 410,858, dated September 10, 1889.

Application filed May 16, 1889. Serial No. 310,965. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. SCOTT, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in the Art of Narrowing Knitted Webs, of which the following is a specification.

The object of my invention is to effect the narrowing of knitted webs without the use of transfer points or pickers for conveying the stitch to be dropped from one needle to another, and this object I attain by so manipulating the needles of the machine that a stitch may be transferred directly from one needle to the next needle of the machine.

In the accompanying drawings, Figures 1 and 2 are diagrams illustrating one method of carrying out my invention. Fig. 3 is a perspective view of a needle employed, by preference, for the purpose of facilitating this plan of carrying out the invention; and Figs. 4, 5, and 6 are diagrams illustrating other methods of carrying out the invention.

In the ordinary practice of narrowing knitted webs, it is usual to transfer a stitch from one needle to the next needle of the row by means of a transferring point or picker, which catches the loop, lifts it from the needle on which it was formed, and transfers it laterally to said next needle of the row; but the manipulation of such transferring-points is necessarily a comparatively slow one and interferes with the rapid operation of the machine. I therefore effect the transfer of the stitch from one needle to another by manipulation of the needles themselves in the following maner:

A B represent two needles suitably guided on opposite needle-beds set at an angle to each other in a manner common in certain classes of knitting-machines, the needles rising and falling in their inclined planes, so as to receive the thread from a guide traversed longitudinally along the machine, the thread being first applied to the needles on one side and then to the needles on the opposite side of the machine, if a single web is to be produced, or being applied in succession first to a needle on one side and then to a needle on the opposite side of the machine, if a ribbed web is desired.

In order to effect the narrowing of the web in accordance with the first of the plans shown in the drawings, I raise simultaneously the end acting needle on each side of the machine, such end needles being, for instance, represented by the needles A and B in Fig. 1. Supposing that the stitch is to be transferred from the needle A to the needle B, said needle A is raised somewhat higher than in the ordinary operation of the machine, so that the loop *x*, carried by the needle, is caught by a shoulder *x'*, formed on the needle, preferably by recessing one side of the same, as shown in Fig. 3, the loop being thereby stretched or elevated, as shown in Fig. 1. The needle B is then projected to such an extent that its hook is brought up into line with the shank of the needle A, this movement not being sufficient to slip back of its latch its own loop *y*, but insuring the opening of the latch, and on the descent of the needle A the loop *x* will be caught by the needle B and held thereby, the latch of the needle A closing as the needle is withdrawn, so as to cast off the loop *x*, which is now carried wholly by the needle B, as shown in Fig. 2, and is cast off said needle along with its own stitch *y* when the next course of stitches is formed. In the same way a stitch can be transferred from the end needle B to the next needle A until the web has been narrowed to the desired extent.

Although I have described and prefer the formation of a shoulder upon the needle as the means of catching and lifting the loop of thread as the needle rises, such construction of the needle is not absolutely necessary to the proper carrying out of my invention, as the stitch may be raised by means of movable sinkers *b*, these sinkers being actuated by a picker *d*, which is reciprocated by a traversing cam *f*, as shown in Fig. 6, the picker being moved from sinker to sinker as the narrowing progresses; or the reverse method of operation may be adopted—that is to say, the needle which is to receive the stitch may be caused to assume a lower plane than that in which it normally works, so that on being

projected it will be in position to receive the stitch hanging in its normal position on the needle on the opposite side of the machine. This method of operation is illustrated in Figs. 4 and 5, in which the needles are represented as supported by bars *a*, adapted at their outer ends to inclined bearings *a'* on the needle-bar, so that when advanced, as shown in Fig. 4, these bars hold the needles in their elevated or normal working position, but upon retracting a bar the needle supported thereby is dropped to a lower plane, as shown in Fig. 5, so as to enter the loop of the opposite needle.

My improved method of narrowing involves the transfer of the stitch which is to be dropped from a needle of one row to a needle of the opposite row, instead of to the next needle of the same row, as usual, and this results in a novel effect in the narrowed web, as set forth in a separate application for patent, which I have filed of even date herewith, Serial No. 310,964.

It will be evident that my invention may be carried out either in the production of tubular webs, or webs with opposite selvaged edges narrowed in the body of the web, or flat ribbed webs produced by the joint action of both sets of needles.

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

1. The mode herein described of narrowing a knitted web, said mode consisting in transferring a stitch directly from one needle to another by bringing the receiving-needle into position to take the stitch from the needle on which it was formed, and then operating the latter needle so as to cast the stitch, substantially as specified.

2. The mode described of effecting the narrowing of a knitted web, said mode consisting in raising the stitch to be transferred, bringing forward the receiving-needle into position to take said stitch, and then operating the needle on which the stitch was formed, so as to cast said stitch, 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:
WILLIAM D. CONNER,
HARRY SMITH.