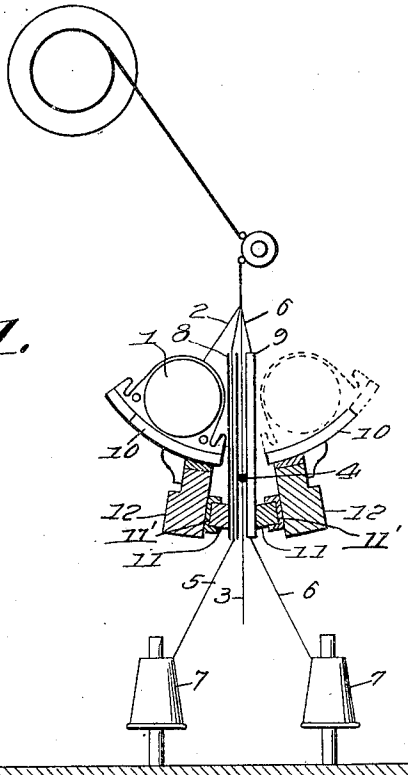
Mar. 27, 1923. 1,449,921

A. E. STROUD

TWIST LACE MACHINE

Filed Aug. 21, 1920 2 sheets-sheet 1

Fig. 1.



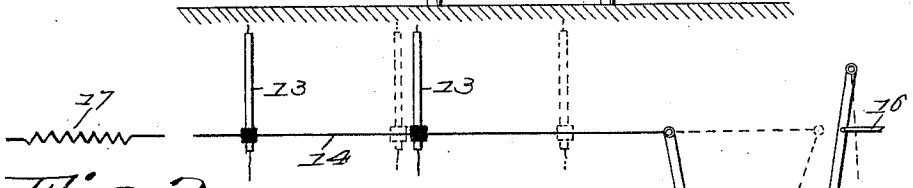
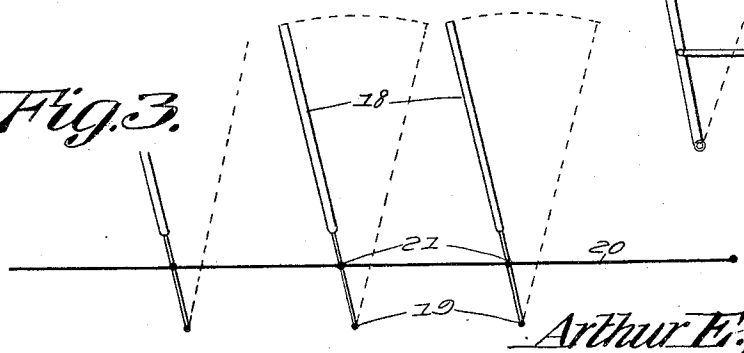


Fig. 2.

Fig. 3.



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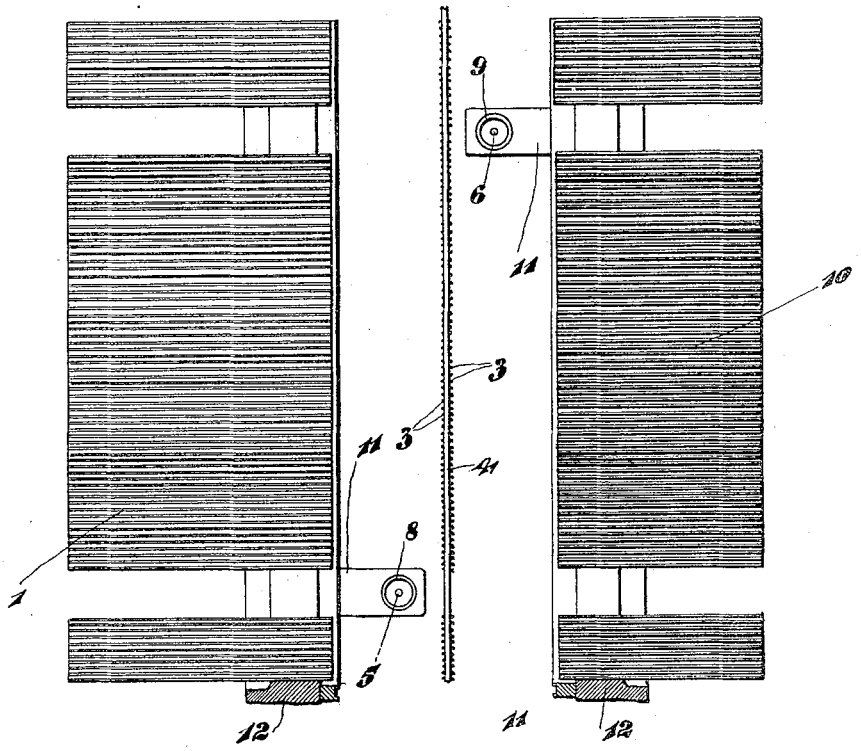

Fig. 4.

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UNITED STATES PATENT OFFICE.

ARTHUR EDWARD STROUD, OF LONG EATON, ENGLAND.

TWIST-LACE MACHINE.

Application filed August 21, 1920. Serial No. 405,083.

To all whom it may concern:

Be it known that I, ARTHUR EDWARD STROUD, a subject of the King of Great Britain, residing at Hycroft, Wellington Street, Long Eaton, in the county of Derbyshire, England, lace manufacturer, have invented certain new and useful Improvements in Twist-Lace Machines, of which the following is a specification.

This invention relates to improvements in and applicable to twist lace machines and has for its principal object to provide means for introducing a weft thread between the warp threads and the bobbin threads.

Further objects of this invention are improvements in the weft thread carriers and improvements in the means for and in the method of actuating same.

According to this invention the weft thread is introduced between the warp and bobbin threads by means of a carrier preferably extending beyond or up to the top of the bobbins when the same are in their central position. Such weft threads may be in the form of tubes through which the threads pass or may be in the form of needles through which the threads are threaded. There is preferably either one carrier at the front or back of the warp threads for each length or width of fabric to be made or one carrier at the front and back of the warp threads for every width of fabric to be made and such carriers are actuated to move backwards and forwards to lay their threads between the bobbin and warp threads.

In the accompanying drawings:—

Fig. 1 is a sectional elevation showing elements of a lace machine having reference to the present invention and weft thread carriers in position.

Fig. 2 is a diagrammatic view showing one method of actuating the weft thread carriers.

Fig. 3 is a digrammatic view showing another method of actuating same, and

Figure 4 is a diagrammatical plan view of the machine showing the relative disposition of the weft thread carriers to the carriages and comb bars.

According to this invention as shown in Fig. 1, the bobbins 1, bobbin threads 2, and warp threads 3, passing through thread guides 4, are all arranged and operated in the manner customary to twist lace machines. The weft threads 5 and 6 drawn off spools 7, preferably mounted on the floor, pass through weft thread carriers 8 and 9 up to the work.

The weft thread carriers may be in the form of tubes as shown or may be in the form of needles through which the weft thread is threaded.

Also there may be a weft thread carrier at the back and the front of the warp threads as shown or there may be only one carrier at either the back or the front of the warp threads.

For the purpose of description it is assumed that carrier 8 in Fig. 1 is shown as occupying a position to the front of warp threads 3 and carrier 9 a position to the back of such threads.

Referring to Fig. 1, carrier 8 moves in one direction to lay the weft threads 5 between warp threads 3 and bobbin threads 2. Bobbins 1 then swing through warp threads 3 along combs 10 being actuated as in the levers or go-through lace machines in the usual manner. The weft carrier 9 then moves in a direction opposite to or the same as that in which carrier 8 previously moved and lays the weft thread 6 between bobbin threads 2 and warp threads 3. Bobbins 1 once more swing back, weft thread 5 is laid between threads 2 and 3 and the cycle of movements is then completed. The bobbin threads 2 and warp threads 3 may be continually twisting with one another to hold the weft threads in position or such threads 2 and 3 may be held from twisting by holding the warps from being shogged. Also, when twisting, each warp preferably twists with the same bobbin at each motion.

There may, however, be any convenient number of thread guides 4 actuated by a jacquard or other suitable mechanism for varying the pattern of the fabric.

The carriers 8 and 9 are conveniently mounted on horizontal rods or the like 11 and actuated in any convenient manner to move backwards and forwards in bearings 11′ carried by the comb bars 12. Also the carriages are removed from the combs opposite the positions where such carriers rest.

In the method of actuating the improved weft thread carriers 13 as shown in Fig. 2 such carriers are mounted on a horizontal bar or the like 14 actuated through levers or the like 15 for increasing the travel of the carriers 13 and such levers are actuated through a rod or lever 16 by a jacquard or

other suitable mechanism, conveniently a spring may be provided as at 17 for providing return motion of the carriers 13. These carriers 13 are preferably hollow so as to permit the weft threads to pass therethrough as shown.

In the arrangement shown in Fig. 3 the weft thread carriers 18, pivoted at 19, are actuated to rotate about such a pivot by a rod or the like 20 connected to the carriers at 21 and actuated to move approximately horizontally backwards and forwards by a jacquard or other suitable means. A spring may be fitted for providing return motion. The weft thread is laid in position as the carriers 18 swing round the pivot 19 in front or behind the warp threads, the action being in principle the same as already described with reference to Fig. 1.

The weft thread or threads may be laid in position continuously throughout the length of the fabric or provision may be made whereby the weft thread carriers are idle at certain periods.

Also, after the weft thread carrier has completed its travel the weft thread may be picked up and placed in position by the point bar actuated in the usual manner.

The work is taken up in any convenient manner and such work may be taken up at a constant or variable rate.

I claim:

1. In a twist lace machine, a plurality of bobbins, warp thread guides arranged between said bobbins, front and rear comb bars arranged adjacent said warp thread guides, bars slidably mounted on said comb bars, and weft thread carriers mounted on said bars.

2. In a twist lace machine, a plurality of bobbins, warp thread guides arranged between said bobbins, front and rear comb bars arranged adjacent said warp thread guides, a substantially channelled shape bearing member secured to each of said comb bars, a bar slidably mounted in each of said bearing members, and weft thread carriers mounted on said bars.

ARTHUR EDWARD STROUD.

Witnesses:

ERIC POTTER,

FRANK AUGUSTUS DADY.