

Oct. 16, 1934.

F. RICKS

1,977,355

SEWING MACHINE

Filed Oct. 25, 1933

2 Sheets-Sheet 1

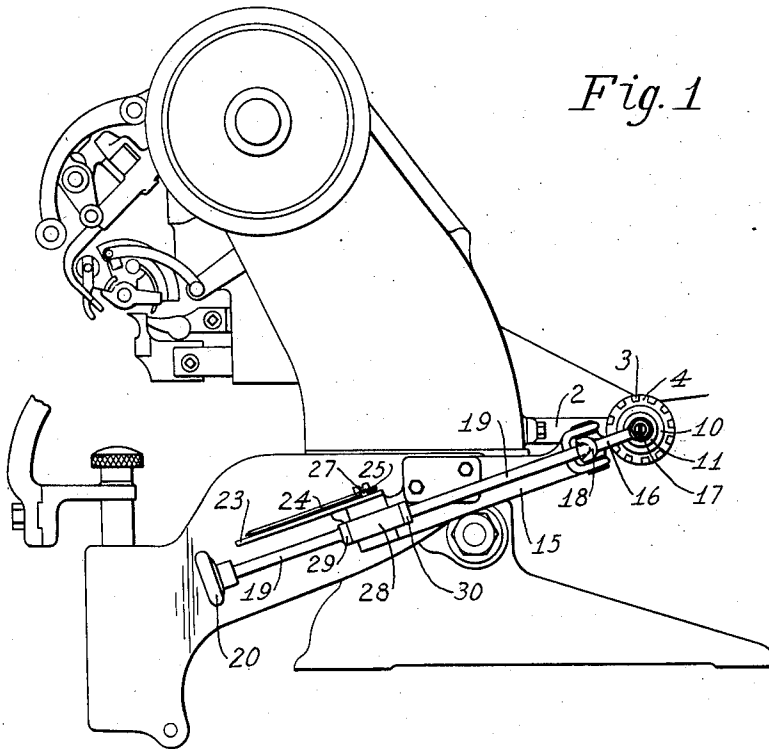
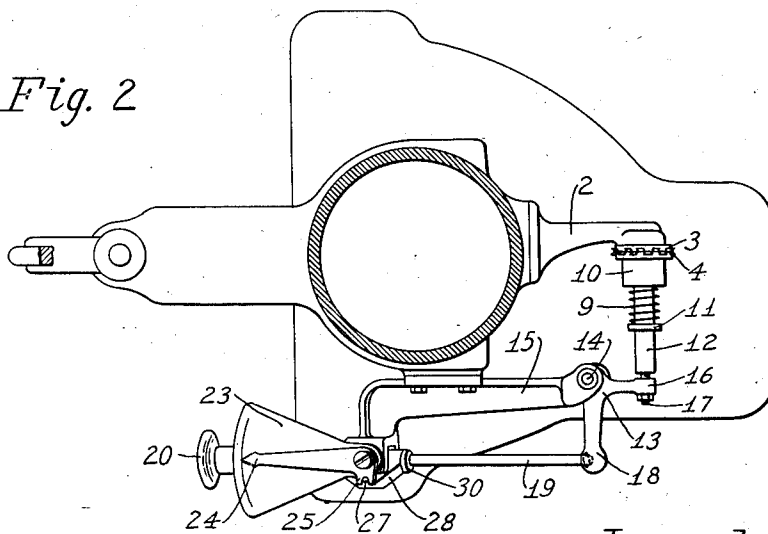


Fig. 2



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2 Sheets-Sheet 2

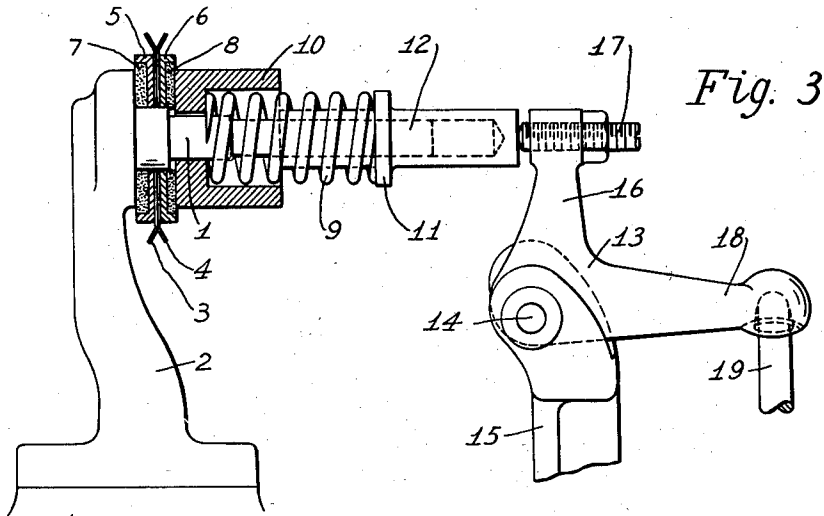


Fig. 3

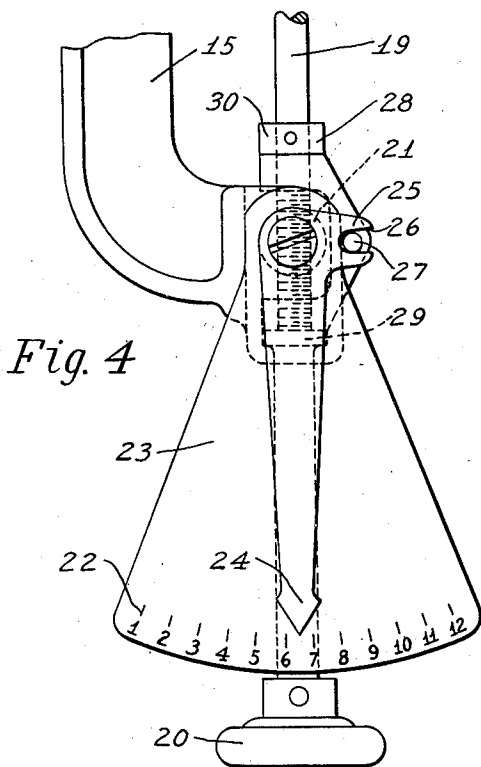


Fig. 4

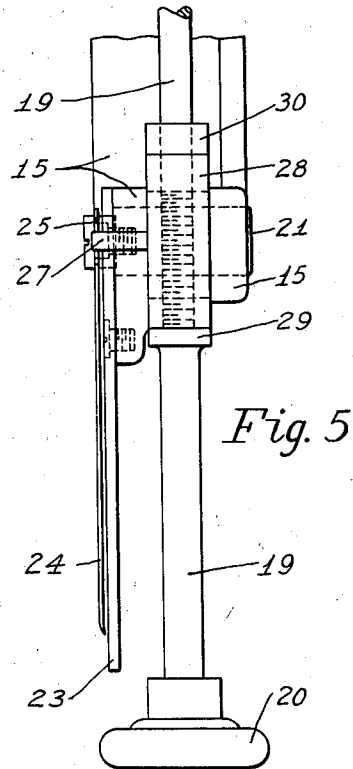


Fig. 5

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UNITED STATES PATENT OFFICE

1,977,355

SEWING MACHINE

Fred Ricks, Leicester, England, assignor to
United Shoe Machinery Corporation, Paterson,
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Application October 25, 1933, Serial No. 695,139
In Great Britain November 4, 1932

4 Claims. (Cl. 112-59)

The present invention relates to sewing machines, and more particularly to curved, hooked needle sewing machines such as are used, for instance, in the manufacture of shoes.

5 The invention will be explained by way of illustration and not of limitation in connection with curved hooked needle chain stitch shoe sewing machines of which the machine illustrated and described in the patent to Ricks No. 1,923,586
10 dated August 22, 1933 is an example.

In machines of the type disclosed in the patent to Ricks above referred to, the tension exerted on the thread by the agency of the usual tension device plays an important part in determining the
15 proper formation of the seam and requires to be adjusted with some nicety to deal with changing work conditions. The usual tension device is a friction device and the actual tension being exerted in any given circumstances of adjustment
20 is not, therefore, reliably constant or readily ascertainable by the operator of the machine, and the disturbance, to meet other conditions, of a condition of adjustment found by trial and error appropriate to one class of work makes it a matter
25 of no small difficulty for the operator to restore the same tension conditions when he so desires.

It is one of the several objects of the present invention to provide much increased facilities for effecting such restoration of conditions previously
30 determined as appropriate to a given case.

With the above object in view, a feature of the present invention is a curved hooked needle chain stitch shoe sewing machine having a thread tension device out of ready sight of the operator
35 of the machine, as is normally the case in many constructions of such machines, means readily accessible to the operator for adjusting the tension, and an indicating scale and indicator cooperating therewith set by adjustment of said adjusting means and readily visible by the operator
40 to indicate the condition of adjustment.

The above and other objects, and the several features of the invention will become evident to those skilled in the art from the following description of an illustrative construction according
45 to the invention given by way of example.

In the drawings Figure 1 is a right hand side elevation of part of a curved hooked needle sewing machine, such as disclosed in the patent to
50 Ricks above referred to, for sewing together the sole and upper of a turn shoe embodying a construction according to the present invention; Figure 2 is a plan view of part of the machine shown in Figure 1 and the said illustrated construction;
55 Figure 3 is a plan view to an enlarged scale, and

partly in section, of the illustrated construction shown in Figures 1 and 2; Figure 4 is a plan view of another part of the illustrative construction shown in Figures 1 and 2; Figure 5 is a side elevation of the part of the illustrative construction
60 shown in Figure 4.

In this illustrative construction a tension wheel, which is rotatably mounted at the rear of the machine on a horizontal spindle 1 secured in a bracket 2 fixed to the machine frame, comprises
65 as usual, two thin discs 3 and 4 the outer margins of which have formed round them a plurality of radial notches. The projections which are formed between the notches are bent laterally of the discs so that the projections on one disc project through the notches of the other disc and form between them a V-shaped groove which receives the thread wrapped round the tension wheel. The discs 3 and 4 are fixed to and
70 between a pair of collars 5 and 6 rotatably mounted on the tension wheel spindle 1 and having at each side of them a friction washer 7 and 8. The washer 7 is pressed against the bracket 2 which carries the tension wheel spindle by a spring 9 surrounding the spindle 1 and bearing at its left-hand end against a block 10 keyed to and sliding
75 on the spindle 1 and engaging the friction washer 8 at the right of the collars. The spring 9 at its right-hand end engages a flange 11 formed on a sleeve 12 slidably mounted on the spindle 1. The sleeve 12 may be adjusted along the spindle to
80 adjust the spring and vary the friction between the bracket 2, the block 10 and washers 7 and 8, and therefore the tension on the thread during sewing, by a bell-crank lever 13 pivoted on an
85 upwardly extending stud 14 fixed in a bracket 15 secured to the right hand side of the machine frame. A rearwardly extending arm 16 of the bell-crank lever has mounted on its rear end an adjustable screw 17, the end of which engages
90 the right-hand end of the sleeve 12. This screw 17 is provided so that by its adjustment an initial compression of the spring 9 may be obtained. The other arm 18 of the bell-crank lever extends
95 to the right from the hub of the lever and has formed in it a recess which receives the rounded rear end of a forwardly and slightly downwardly extending rod 19. The rod at its forward end has
100 fixed on it a hand-wheel 20 by which it may be rotated and about mid-way of its length the rod 19 has formed on it a screw threaded portion
105 which is threaded through a stud 21 at right angles to the axis thereof. The stud 21 is rotatably mounted in the bracket 15 to which the afore-said bell-crank lever 13 is pivoted. By rotating
110

the rod 19 and screwing it through the stud 21, the bell-crank lever 13 may be adjusted to adjust the compression of the spring 9. To indicate to the operator the amount of adjustment effected by rotation of the rod 19, an arcuate scale 22 is formed on a plate 23 which is fixed to the bracket 15 and a pointer 24 which is pivoted on the stud 21 is arranged to be moved over the scale when the rod 19 is adjusted. The pointer 24 and plate 23 extend forwardly and slightly downwardly from the stud 21 into a position at the right and in front of the operator when he is operating the machine so that they may be readily seen. The pointer 24 has extending to the right from its hub a short arm 25 having formed in it a recess 26 radial to the pivot of the pointer. A pin 27 extends upwardly into the said recess from a block 28 which is substantially U-shaped when viewed from above. The adjustable rod 19 is rotatably mounted in the arms of the block 28 and has on it a flange 29 which engages the forward end of the block 28 and has fixed on it a collar 30 which engages the rear end of the block 28 so that when the rod 19 is adjusted by screwing it through the said stud 21, the block is moved forwardly or rearwardly with the rod 19 and through the pin 27 fixed in it swings the pointer 24 over the scale 22. The block 28 is supported in the bracket 15 and its arms are arranged one at the front and one at the rear of the stud 21 and, by their alternative engagement with the stud 21, limit the amount of adjustment of the rod.

This construction is such that though the tension device is neither readily visible by, nor accessible to, the operator during operation of the machine by reason of its being at the rear of the latter where it is well out of the way, nevertheless, the operator can without changing from his working position at the front of the machine, and with the utmost readiness even in the course of sewing a shoe, if this prove desirable, adjust the tension by means of the hand wheel 20 which is ready to his right hand from one setting instantly visible to him on the scale 22 to another equally visible setting and so can make quick changes of tension between predetermined settings.

The nature and scope of the present invention having been indicated, and an embodiment of the invention having been specifically described, what is claimed is:

1. A curved hooked needle chain stitch shoe

sewing machine having, in combination, stitch forming devices, a thread tension mechanism located out of ready sight of the operator while at the front of the machine, means readily accessible to the operator for adjusting said mechanism, and an indicating device visible to the operator while at the front of the machine and actuated by said adjusting means for indicating the amount of tension placed on the thread by the tension mechanism.

2. A curved hooked needle chain stitch shoe sewing machine having, in combination, stitch forming devices, a thread tension mechanism located at the back of the machine, means extending to the front of the machine conveniently accessible to the operator for adjusting said mechanism, and an indicating device visible to the operator while at the front of the machine and actuated by said adjusting means for indicating the amount of tension placed on the thread by the tension mechanism.

3. A curved hooked needle chain stitch shoe sewing machine having, in combination, stitch forming devices, a thread tension mechanism located at the back of the machine, means extending to the front of the machine conveniently accessible to the operator for adjusting said mechanism comprising a longitudinally movable rod, a tension indicating scale visible to the operator while at the front of the machine, a pointer cooperating with the scale, and connections between the pointer and said rod for actuating the pointer from the longitudinal movement of the rod to indicate the amount of tension placed on the thread by the tension mechanism.

4. A curved hooked needle chain stitch shoe sewing machine having, in combination, stitch forming devices, a thread tension mechanism located at the back of the machine, means extending to the front of the machine conveniently accessible to the operator for adjusting said mechanism comprising a rotatable rod, means for imparting a longitudinal movement to the rod from its rotation, a tension indicating scale visible to the operator while at the front of the machine, a pointer cooperating with the scale, and connections between the pointer and said rod for actuating the pointer from the longitudinal movement of the rod to indicate the amount of tension placed on the thread by the tension mechanism.

FRED RICKS.