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STITCH CONTROL LEVER LIMITING DEVICE

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Fig. 1.

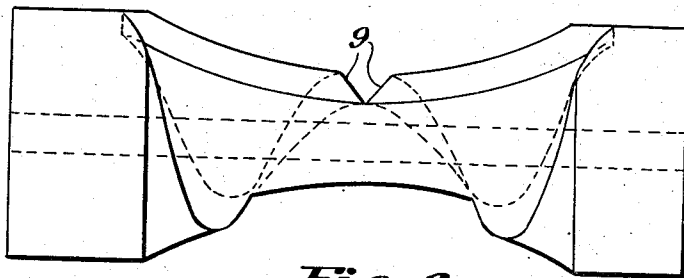
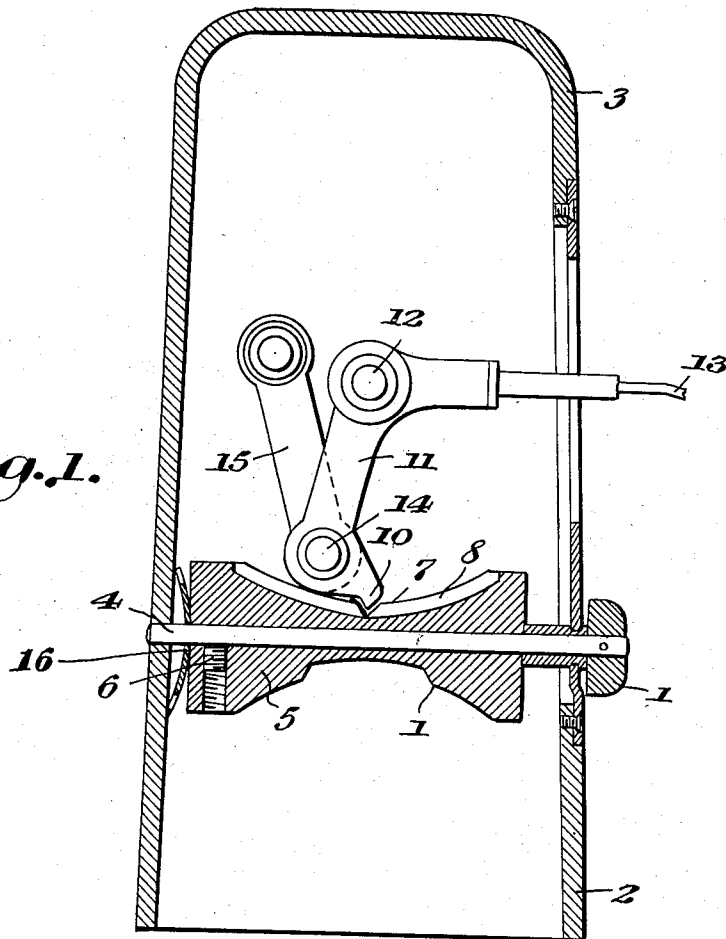


Fig. 2.

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STITCH CONTROL LEVER LIMITING DEVICE

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2 Claims. (Cl. 112—210)

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The device that realizes the intermittent feeding of fabrics in sewing machines provides stitch length adjustment means. In the case of sewing machines which allow also the carrying out of needle work for ornamental purposes, the adjusting mechanism, consisting in a lever, must be readily and rapidly shifted from a position corresponding to a given forward feed to a corresponding backward one. To this end, the known practice provides two indexes on a graduated scale along which the lever travels; these indexes mark two symmetrical positions in relation to the lever position corresponding to no advancement of the fabric and are provided with means for locking them in any two respectively symmetrical positions that, at the same time and once locked, act as stops for the lever in such two positions.

With the introduction of the zig-zag seam and of the electric drive also for sewing machines intended for domestic use, the problem of adjustment of the stitch control mechanism acquires an increased importance and, mainly, it becomes desirable that this adjustment shall ensure the possibility of quicker variations than those permitted by said lockable indexes and yet retain the same accuracy when passing from a forward to a backward advancement of equal stitch-length. This invention provides a solution to this problem whereby the rotation of a control-knob establishes with due accuracy any proper amount of advancement both for forward and backward feed.

The drawing shows, only for illustrating purposes, an example of embodiment of the device according to the invention. Fig. 1 shows a section of the device through the plane of rotation of the stitch control lever; Fig. 2 shows a view of the cam.

The device is operated by means of a knob 1 placed on the side 2 of the sewing machine standard 3 in front of the operator who is sewing.

Said knob 1 is fixed on a spindle 4 supported by the standard 3, which spindle carries also a grooved cam 5 held in place by a locking pin 6. Said cam, which has a profile 7 of a solid of revolution, is provided with a radial groove 8 of constant depth; the width of said groove or recess, as measured along the generatrix of the surface of revolution, varies constantly from a minimum to a maximum width through a whole revolution of the solid from 0° to 360° on its main axis coinciding with that of the spindle 4. The inner edges 9 of said groove 8 are so inclined in relation to the vertical plane that the groove

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takes a triangular form at the point of its minimum width. During the rotation of the cam around the spindle 4 this minimum triangular section, having its vertex at the bottom, turns into a constantly increasing trapezoidal section (see Fig. 2). Said shape of the groove facilitates the obtaining of the piece 5 by casting. Said groove receives in its depth a nose 10 which also has a reversed triangular shape. Said nose 10 is a projecting part of a lever 11 that is pivoted at 12 in the standard 3 and carries on the other end a knob 13 placed outside the machine in order to permit the known movement of the stitch control lever.

The lever 11 also carries a pin 14 connecting it to the link 15. This link represents the first element of the device operating the stitch control means, of which the description is herein omitted as forming part of the conventional art of sewing machines. 16 is a blade spring, curved as shown in the drawing, urging the cam 5 for axial movement. The resulting pressure is such as to provide friction contrasting the movements of the cam so that the rotation of the latter cannot take place freely but only if caused by the hand knob 14.

The adjustment of the device with reference to the zero point of the knob 13 is achieved by means of small radial adjustments of the cam that is subsequently fixed in place by pin 6 while the setting of the zero point of the graduated scale of the knob 1 is reached with recourse to small rotations of the cam in respect to the spindle 4.

The working of the illustrated device is as follows:

By turning the knob 1 the cam is rotated so that the groove 8 offers a width corresponding to the desired displacement of the stitch control lever.

Consequently the stitch control lever 13 having the nose 10 projecting into the groove 8 can be shifted only until said nose abuts one or the other of the two inner edges of the groove 8. Thus, one of the inner edges of the groove 8 provides the stitch length limit with the machine operating on forward feed, and the other inside edge of said groove 8 provides an identical stitch length limit for machine working on backward feed.

Hence, to any cam position determined by turning the knob 1, a different limitation of the possibility of displacing the stitch control is obtained; said limit is the same both for forward and backward feed of the sewing machine.

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Obviously, the aforesaid example can undergo many variations; particularly, the cam 5 may be made with a profile and shifting movement different from those herein shown and the operating knob may consist of another equivalent member.

From the preceding description it can be seen that the device according to the invention does not require any change in the usual stitch control lever and parts linked to it. Furthermore by rotating the knob 1 in the position of maximum stitch length, the known stitch control lever 13 can be used independently of the presence of the limiting device; this may be particularly useful in many instances, as for example, when using the machine for varying embroidery work.

Having now particularly described and ascertained the object of my said invention, and in what manner the same is to be performed, I declare that what I claim is:

1. A device controlling the symmetrical displacement of the stitch control lever in a sewing machine comprising a stitch control lever pivotally mounted in a sewing machine standard, a movable member having a recess therein, said lever having an end portion cooperating with the sides of said recess, the sides of said recess being divergent and symmetrical with respect to a plane perpendicular to the direction of displacement of said lever, means pivotally connected to said lever for operating the stitch control means of said sewing machine, said movable member being a cam consisting of a solid of

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revolution and said recess having a width varying from zero to a maximum stitch displacement.

2. A device controlling the symmetrical displacement of the stitch control lever in a sewing machine comprising a stitch control lever pivotally mounted in a sewing machine standard, a movable member having a recess therein, said lever having an end portion cooperating with the sides of said recess, the sides of said recess being divergent and symmetrical with respect to a plane perpendicular to the direction of displacement of said lever, means pivotally connected to said lever for operating the stitch control means of said sewing machine, said movable member being a cam consisting of a solid of revolution and said recess having a width varying from zero to a maximum stitch displacement, a horizontal cam spindle projecting from the standard of the machine and in front of the operator upon which said cam is secured and a knob for operating said spindle secured thereto.

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