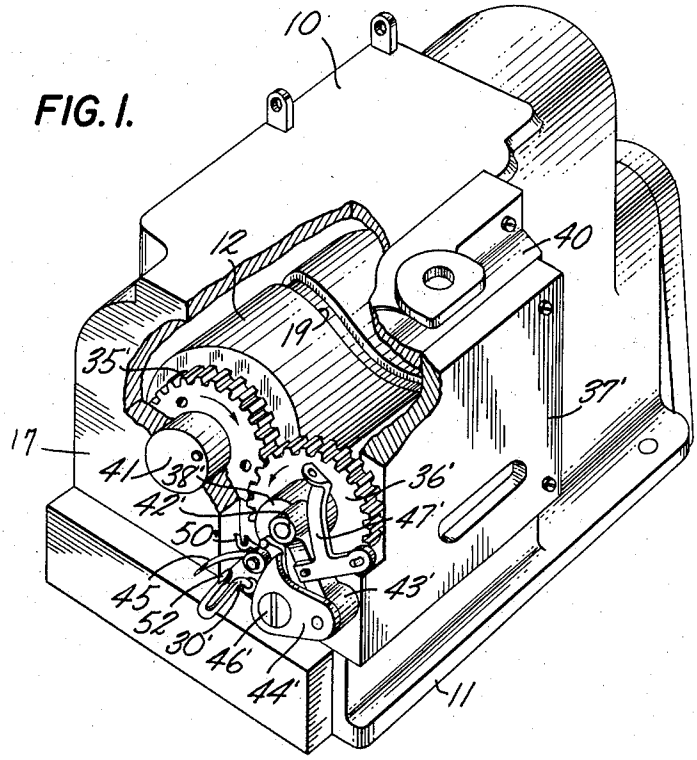
April 8, 1958 L. SCHWARTZ 2,829,612

MECHANISM FOR CONVERTING A RIGHT-HAND SEWING MACHINE INTO A LEFT-HAND SEWING MACHINE

Filed Dec. 7, 1953 3 Sheets-Sheet 1

FIG. 1.



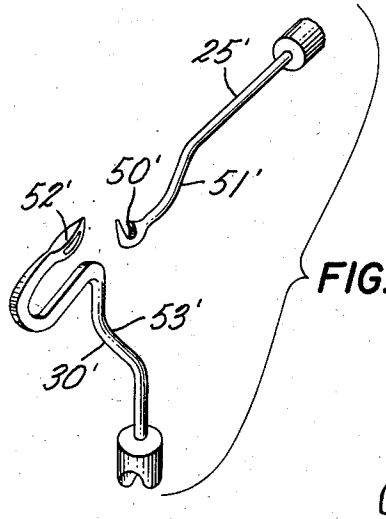


FIG. 4.

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Filed Dec. 7, 1953 3 Sheets-Sheet 2

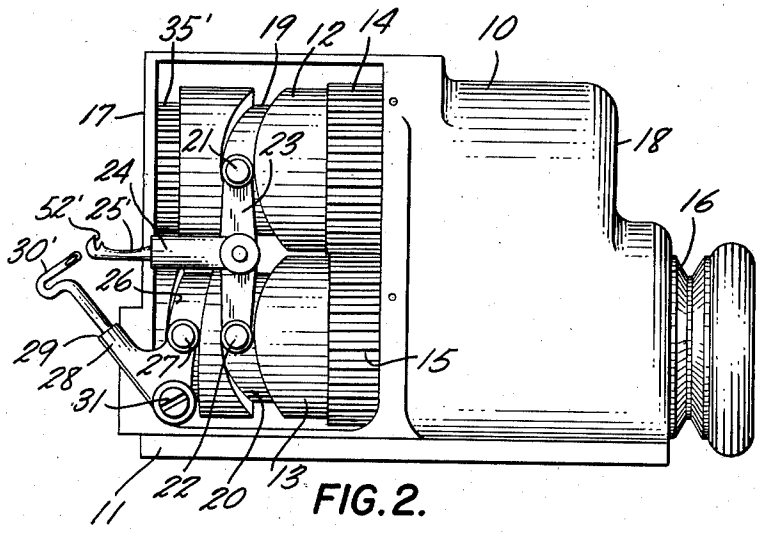


FIG. 2.

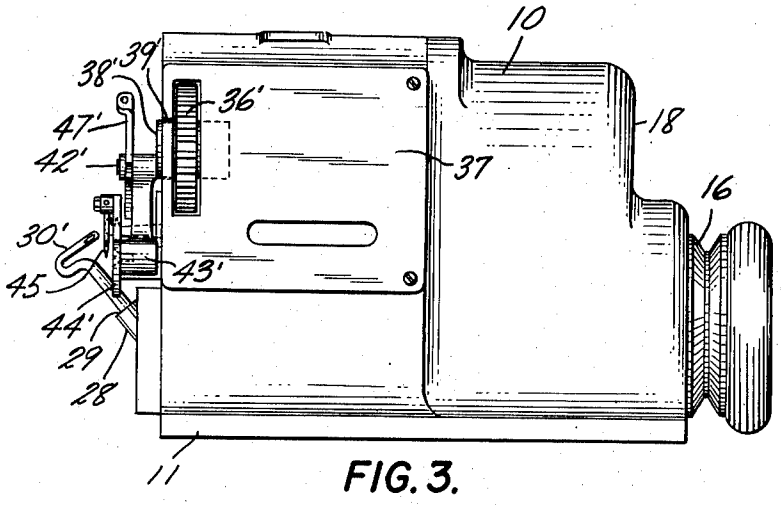


FIG. 3.

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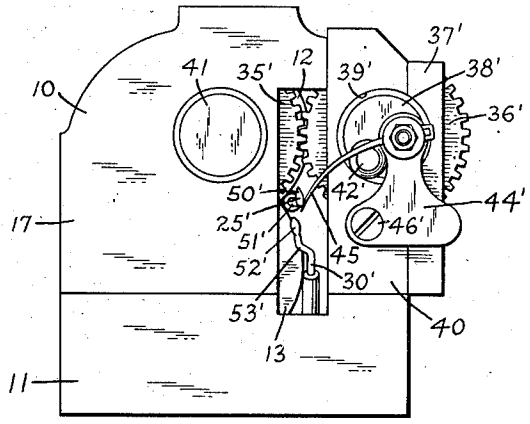
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MECHANISM FOR CONVERTING A RIGHT-HAND SEWING MACHINE INTO A LEFT-HAND SEWING MACHINE

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FIG.5.



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Patented Apr. 8, 1958

2,829,612

MECHANISM FOR CONVERTING A RIGHT-HAND SEWING MACHINE INTO A LEFT-HAND SEWING MACHINE

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Application December 7, 1953, Serial No. 396,414

4 Claims. (Cl. 112—162)

This invention relates to improvements in sewing machines of the type commonly used for overedging, overseaming and hemming and it relates particularly to an attachment for converting a right-hand sewing machine of the type indicated to a left-hand sewing machine.

The conventional overedge sewing machine includes a needle and a pair of loopers to provide a stitch which passes around or over the edge of the material being worked upon. The characteristic of the stitch produced by such an overedge sewing machine is that it has a definite visible pitch in the direction in which the material being sewn is fed through the machine. In many instances the pitch of the stitches is attractive in such uses as, for example, hemming the edges of handkerchiefs. However, an unsymmetrical effect is often produced when the stitches of several adjacent rows all have the same pitch.

In the use of such machines for attaching the fastening elements of slide fasteners to tapes, as disclosed in my copending application Serial No. 346,380, filed April 2, 1953, now abandoned, the pitch of the stitches is the same on both stringers of the slide fastener so that the unsymmetrical effect, referred to above, is produced. For that reason, it would be desirable in stitching the right and left-hand sides of such slide fasteners to have right and left-hand sewing machines which would provide stitches of opposite pitch thereby to provide a herringbone or chevron arrangement of the stitches on the two sides of the slide fastener. In like fashion, both right and left-hand sewing machines would be useful for simultaneously stitching the opposite edges of such articles as handkerchiefs, washcloths, teabags, window shades, belting, rugs and carpeting, and electrical condenser paper. It has been common in the past to sew one edge of the article, then shift it and sew the opposite edge of the article with the same machine. A left-hand sewing machine, if available, could be used in conjunction with a right-hand sewing machine to sew the opposite edges simultaneously thereby overcoming the need for changing the position and direction of the article being sewed.

The principal difficulty in providing a left-hand sewing machine is that it is necessary to provide completely new tooling set-up for the production of the machine. Thus, it was believed to be necessary to have entirely new molds, machine tools and the like to produce parts required for the production of a left-hand sewing machine. The cost of retooling has rendered the cost of production of left-hand overedge sewing machines prohibitive and as a consequence few, if any, left-hand machines have been produced commercially.

In accordance with the present invention, I have provided an attachment of simple and inexpensive nature which can be used with a conventional right-hand overedge sewing machine to convert it into a left-hand sewing machine. The attachment permits the machine to operate in its normal direction so that it can sew in the same direction as a right-hand machine but produce stitches which have their pitches reversed with respect to

the pitch of the stitches produced by a right-hand sewing machine.

The mechanism includes accessory means for reversing the drive for the sewing needle of the machine and a rearrangement of the relation of the loopers with respect to the sewing needle without, however, modifying, in any way, the direction of rotation of the main shaft of the machine and the cams driven thereby for operating the loopers or the mechanism driven by the cams which support the loopers. In this way, my attachment completely converts a right-hand machine into a left-hand sewing machine with a minimum of alteration of the machine and its drive and control elements.

For a better understanding of the present invention, reference may be had to the accompanying drawing in which:

Fig. 1 is a perspective view of a typical right-hand sewing machine modified in accordance with the present invention to convert it into a left-hand sewing machine, parts of the mechanism being broken away to disclose internal details of the machine;

Fig. 2 is a view in side elevation of the machine shown in Fig. 1, with the attachment cover plate removed thereon to disclose the cam actuating mechanism for the looper needles;

Fig. 3 is a view in side elevation of the attachment plate and associated mechanism embodying the present invention;

Fig. 4 is a perspective view of the looper needles for the sewing machine illustrating their new relation and configuration in accordance with the present invention; and

Fig. 5 is a front elevational view of the left-hand sewing machine illustrating the relation of the needle and needle holder to the loopers.

Figs. 1 and 2 illustrate a conventional overedge sewing machine commonly used for right-hand sewing operations which has been modified in accordance with the present invention. The sewing machine includes a hollow casing **10** which may be of substantially any desired configuration having a bottom plate **11** which may be secured to a table, platform or the like, as may be required and housing a pair of cam drums **12** and **13**. The cam drums **12** and **13** are connected by means of gears **14** and **15**, respectively, and are driven by means of a pulley **16** exposed at the right-hand end of the casing **10** and mounted on a shaft, not shown, which is journaled in the opposite ends of the casing **10**. Similarly, the cam drum **12** is provided with shafts which extend from its ends and are rotatably received in the ends **17** and **18** of the casing **10**. The pulley **16** may be driven by a belt connecting it with an electric motor or the like to rotate the cam drums **12** and **13** in opposite directions.

Each of the drums **12** and **13** is provided with a cam groove **19** and **20**, respectively, for receiving the cam follower rollers **21** and **22** on the opposite ends of a yoke **23** having an arm **24** thereon extending to the left, as viewed in Fig. 2 and detachably carrying the upper looper **25'** of the machine. The looper **25'** is reciprocated endwise by the cam grooves **19** and **20** in a known manner.

The lower drum **13** is provided with another cam groove **26** which receives a follower roller **27** on a lever **28** which is provided with a socket **29** for receiving the lower looper **30'**. The lever **28** is mounted for pivoting movement on a screw **31** secured to the casing **10**. Accordingly, rotation of the drums **12** and **13** will cause an oscillating movement of the lower looper **30'** and a reciprocating movement of the upper looper **25'** in a known manner. The structure described above is conventional except for the form of loopers **25'** and **30'** disclosed herein and is found in a conventional right-hand type of overedge sewing machine.

The present invention involves the use of such a right-hand machine in conjunction with certain attachments therefor to convert it to a left-hand machine. The added and modified parts are identified herein by primed reference characters.

In accordance with the present invention, a gear 35' is secured to the end of the upper cam drum 12, the gear 35' meshing with a gear 36' of similar size rotatably mounted on a modified cover plate 37' which is secured to the casing 10 of the machine and covering the side access opening to the cam drums. As shown in Fig. 3, the gear 36' is fixed to a countershaft 38' which is rotatable in an opening 39' in an extension of the plate 37' and a recess formed in a side plate 40 which is already present on the machine. The countershaft 38' rotates in the opposite direction from the upper cam drum 12 and in the opposite direction from the shaft 41 which extends through the end 17 of the casing from the drum 12 and on which the gear 35' is mounted. The shaft 41 in a right-hand machine is normally provided with an eccentrically positioned crank pin which is used to drive the sewing needle of the machine. This pin is removed inasmuch as it is not used in the left-hand machine.

The shaft 38' to which the reversing gear 36' is secured has on its end a crank pin 42' for driving the sewing needle. The pin 42' engages in one end of a link 43' which may be the same as the link used for driving the needle in the right-hand machine. The lower end of the link 43' is connected to a bellcrank shaped needle holder 44' in which the sewing needle 45 of the machine is mounted. The needle holder 44' is mounted on a supporting screw 46' which is carried by the side plate 40. The needle holder 44' is a mirror image of the needle holder of the right-hand machine and is shifted to a new position so that the needle holder is movable around a pivot on the opposite side of said loopers from the cams 12 and 13 instead of the same side as in the right-hand machine. The needle 45 faces in the opposite direction from the needle of the original machine. The apparatus is also provided with a thread guide 47' carried by the link 43'. The thread guide 47' is essentially a mirror image of the thread guide used in the conventional right-hand machine.

The mechanism for driving the upper and lower loopers is unmodified and the direction of rotation of the cams 12 and 13 is unchanged in the modified and new machine. However, the loopers are modified to conform to the changed position and direction of the needle 45. As shown in Fig. 4, the upper looper 25' for the left-hand machine has its hook end 50' facing in an upward direction as in the prior machines but it is provided with an offset or bent portion 51' which displaces its end to the right and into proper relation to the displaced and reversed needle 45.

The lower looper 30' has its looper head 52' facing in the opposite direction from the conventional needle and is also provided with a bent or offset shank portion 53' which places it on the opposite side of the upper looper 25' from the position formerly occupied by the lower looper in a conventional right-hand machine.

The changes indicated above now enable the machine to be turned end-for-end and while being driven in the direction of the arrows, which is the normal direction of operation of the right-hand machine, it will sew the opposite edge of a piece of material from a conventional right-hand machine while enabling the material to move in the same direction. In like manner, because of the changed relation of the needles and direction of movement, the pitch of the stitches will be reversed and will be inclined oppositely to the pitch of the stitches produced by the right-hand sewing machine. In this way, a right-hand sewing machine and a left-hand sewing machine of the type embodying the present invention can be used to sew or overedge the opposite edges of a tape or the like simultaneously or in succession without changing the direction of movement of the tape or the like. The sewing or over-edging operation produces a herringbone or chevron arrangement of stitches which is most attractive in slide fasteners or along the edges of window blinds, carpeting, handkerchiefs and many other articles.

My new attachment, therefore, makes possible the production of a sewing machine which has long been desired but heretofore has not been available because of the cost and difficulty involved in retooling for the manufacture of such a left-hand machine.

It will be understood that the invention is applicable to other types of sewing machines than the specific type of overedge machine chosen for purposes of illustration. Accordingly, the form of the invention disclosed herein should be considered as illustrative and not as limiting the scope of the following claims.

I claim:

1. A left-hand overedge sewing machine comprising a main drive shaft, upper and lower cams rotated in opposite directions by said drive shaft, a casing supporting said drive shaft and said cams, an upper looper, means including said cams for reciprocating said upper looper substantially horizontally, a lower looper, means including the lower cam for oscillating said lower looper, said loopers being positioned to one side of said cams, a needle carrier mounted for pivotal movement on said casing on the opposite side of said loopers from said cams, a countershaft on said casing having a crank pin thereon, a link connecting said crank pin to said needle carrier to oscillate it relative to said loopers upon rotation of said countershaft, and means connecting said countershaft to said upper cam to rotate the countershaft in the opposite direction from the upper cam.

2. Mechanism for converting a right-hand overedge sewing machine into a left-hand overedge sewing machine, said right-hand sewing machine including a main drive shaft, a pair of looper holders mounted for movement in zones offset to one side of said drive shaft, and means connecting said looper holders to said drive shaft for moving said looper holders relatively to each other; the attachment mechanism comprising a needle oscillating mechanism including a rotary member and a needle holder, a needle in said holder, demountable means on the opposite side of said looper holders from said drive shaft supporting said needle holder for oscillating movement, drive means interposed between said drive shaft and said needle holder for oscillating said needle holder to move the needle holder relative to the looper holders and loopers mounted in said looper holders in offset relation to said needle and facing in the proper direction for cooperation with said needle.

3. Mechanism for converting a right-hand overedge sewing machine into a left-hand overedge sewing machine, said right-hand machine having a casing, a main shaft and rotary cam members actuated thereby, looper holders mounted for pivoting movement about axes offset to one side of said cam members and drive shaft, and means connecting said holders to said cam members for moving said looper holders in proper relation, said cam members being rotatable in opposite directions; the converting mechanism comprising a countershaft parallel with said main shaft and offset to the opposite side of said looper holders from said main shaft and cam members, a plate demountably attached to said casing on the opposite side of said looper holders from said main shaft and cam members and supporting said countershaft for rotation, means connecting said main shaft and countershaft for rotating them in opposite directions, a pivot on said plate below said countershaft, an oscillating needle holding member mounted on said pivot, means connecting said needle holding member to said countershaft to oscillate said member upon rotation of said main shaft, upper and lower loopers in said looper holders and located between said cam means and said pivot and co-

operating with a needle in said needle holding member to produce a left-hand overedge seam.

4. The mechanism set forth in claim 3 in which said needle holding member is supported on the opposite side of said looper holders from said cam means with the needle facing toward said loopers.

References Cited in the file of this patent

UNITED STATES PATENTS

1,217,896	Avis	Mar. 6, 1917
1,217,975	Merrow	Mar. 6, 1917