

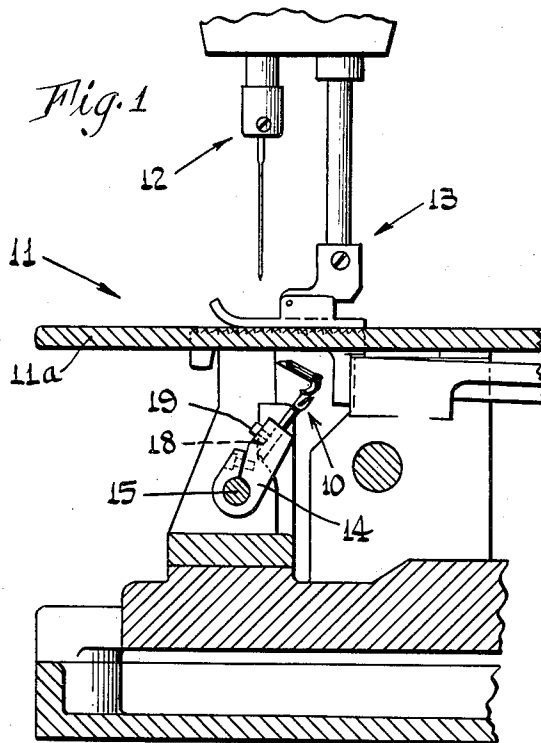
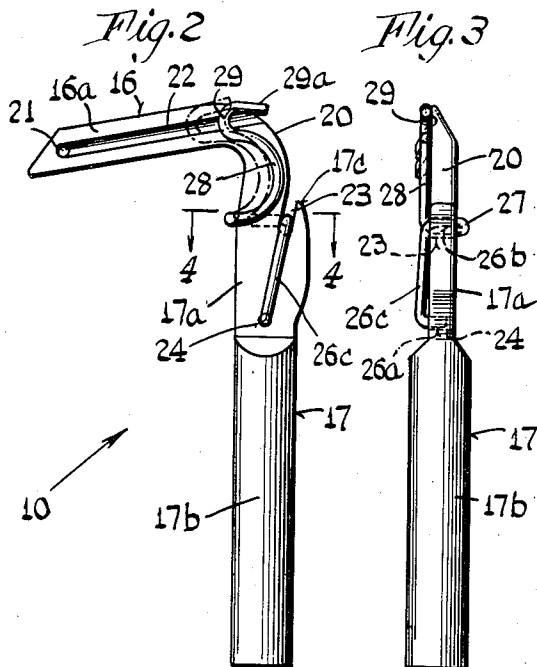
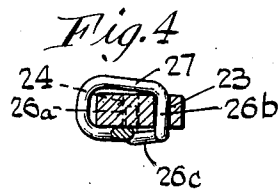
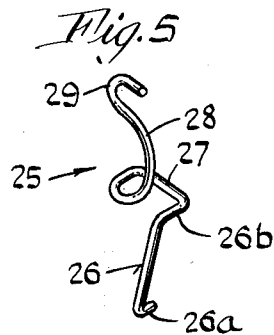
Jan. 22, 1957

J. D. HOWELL ET AL

2,778,329

LOOPER WITH REMOVABLE THREAD WIRE

Filed May 27, 1954



INVENTORS
John D. Howell
Clarence R. Nelson
BY
Johnson and Kline
ATTORNEYS

1

2,778,329

LOOPER WITH REMOVABLE THREAD WIRE

John D. Howell, New City, and Clarence R. Nelson, Central Nyack, N. Y., assignors to Willcox & Gibbs Sewing Machine Company, New York, N. Y., a corporation of New York

Application May 27, 1954, Serial No. 432,879

5 Claims. (Cl. 112—199)

The present invention relates to a novel longitudinal looper for sewing machines and particularly to a removable thread wire thereon.

Heretofore, it has been the practice to provide thread wires for longitudinal loopers in which an end of the wire is inserted into a longitudinally extending recess in the shank and the shank staked over into engagement with the wire to hold it in place. This has been a slow and tedious method of assembling and has the disadvantage that the shank cannot be hardened but must be maintained relatively soft so that the material can be staked over to securely hold the wire in place.

Another disadvantage of this construction resides in the fact that if the wire breaks it is extremely difficult from a practical standpoint to replace it.

The present invention overcomes these difficulties by providing a longitudinal looper for sewing machines in which the thread wire is arranged to be readily attached to or detached from the looper for replacement by having means interlocking the wire to the looper.

In the illustrated form of the invention this is accomplished by providing a thread wire having an anchoring portion adapted to interlock with the shank and having an intermediate portion adapted to substantially encircle the shank so as to effectively hold the wire in position with a thread-engaging portion thereof extending to a point adjacent the juncture of the looper portion and shank portion to effectively guide and hold the thread in position.

A feature of the invention resides in the fact that the looper can be completely hardened and the wire can be readily and easily attached during the assembly operation and detached and replaced should the wire be broken.

In accordance with the present invention the wire is so arranged on the shank that it does not interfere with the movement of the thread over the smooth, curved surface of the juncture of the stem and looper portion as the looper is threaded.

Another feature of the invention resides in the fact that the hook through the mounting of the thread wire is resiliently carried by the looper and yields under the pull of the thread and provides a take-up action during stitch formation and any pull on the hook portion of the thread wire by the thread tends to hold the thread wire in position rather than to disengage it from its anchor.

Other features and advantages of the invention will be apparent from the specification and claims when considered in connection with the drawings in which:

Figure 1 shows a diagrammatic view of a sewing machine with the looper in position.

Fig. 2 is a side view of the looper.

Fig. 3 is a back view of the looper.

Fig. 4 is a sectional view taken along line 4—4 of Fig. 2.

Fig. 5 is a perspective view of the thread wire per se. As shown in the drawings, the longitudinal looper 10

2

is adapted to be used with a sewing machine 11 having the usual needle mechanism 12 and presser foot assembly 13 and the usual looper carrier 14 mounted on the carrier shaft 15 below the bed 11a of the machine. The looper 10 comprises a looper portion 16 having a depending shank portion 17 at one end. In the illustrated form of the invention the looper portion and upper shank portion 17a are relatively thin, as shown in Fig. 3, while the remaining shank portion 17b, which is adapted to be inserted into the carrier, is of substantially heavy cylindrical construction and is adapted to fit in a socket 18 in the carrier and be locked in place by a suitable set screw 19. The juncture of the looper portion and shank portion provides a smooth, curved portion or surface 20 over which the thread passes during a threading operation. The looper portion has a thread-receiving eye 21 adjacent the other or free end thereof and has a thread-receiving channel 22 in the flat face 16a thereof extending from the eye to the curved portion.

The thread wire, according to the present invention, is detachably mounted on the looper so that it may be readily attached or removed. In the illustrated form of the invention the narrow shank portion 17a below the curved surface is curved inwardly at 17c toward the surface 20 and is provided with a downwardly extending, transverse slot 23 and below it is an end-receiving socket 24 formed in the side of the shank 17b. A thread wire 25 is formed as shown in Fig. 5 and is provided with a substantially U-shaped anchoring portion 26. One leg 26a of the U, as shown in Figs. 2 and 3, is adapted to be inserted into the socket and the other leg 26b of the U passes through the transverse slot and merges with a laterally disposed encircling portion 27 which is adapted to extend around and substantially encircle the shank as indicated in Fig. 4. The lateral portion 27 is connected by a curved portion 28 to a thread-engaging portion 29 at the other end in the form of a hook adapted to overlie the end of the channel adjacent the curved portion 20 at the juncture of the looper portion and stem. The curved portion and hook as shown in Fig. 4 lay substantially in the plane of the bow 26c of the U-shaped anchoring portion.

It will be apparent that with this construction the shank can be hardened and the thread wire can be quickly and easily inserted into position and snapped into place to securely hold the wire on the looper and can be readily removed and replaced should it become damaged.

The thread wire and its mounting do not interfere with the movement of the thread during the usual threading operation for, as shown in Fig. 4, the thread wire is located on the looper so that it is disposed entirely within the outline defined by the curved surface 17c and the smooth, curved surface 20 with the exception of the tip 29a of the hook which projects over the surface to intercept the thread moving over the surface during the threading operation so as to guide it into the channel.

In the preferred form of the invention, it will be noted that the hook is mounted at the end of the curved portion 28 so that it is resiliently carried by the looper and yields under the pull of the thread toward the tip so that it moves to the dotted position shown in Fig. 2 and provides a take-up during the stitch formation. Further, any such pull on the hook in the direction toward the tip of the looper portion will not disengage the thread wire from its anchor but will tend to draw it more tightly into the notch.

The present invention greatly simplifies the manufacture and maintenance of longitudinal loopers by providing for a convenient and easily operated mounting means for the thread wire.

Variations and modifications may be made within the

3

scope of the claims and portions of the improvements may be used without others.

We claim:

1. A longitudinal looper for a sewing machine comprising a looper portion and a depending shank portion adapted to be mounted in a carrier, and a detachable thread wire having an anchoring portion at one end releasably interlocked with said shank portion, an intermediate portion encircling the shank portion, and a thread-engaging portion at the other end overlying the side of the looper portion adjacent the juncture of the looper portion and shank portion.

2. A thread wire to be mounted on a longitudinal looper for a sewing machine having a looper portion and a shank portion comprising a substantially U-shaped anchoring portion at one end adapted to have one leg disposed in a socket in the shank and the other leg extend through a slot in the shank and merging with an intermediate lateral portion adapted to substantially encircle the shank to releasably secure the wire thereto and having a thread-engaging portion at the other end connected to the lateral portion and disposed in the plane of the bow of the U-shaped portion and provided with a hook portion adapted to engage the thread and guide it into position on the looper portion.

3. In a longitudinal looper for a sewing machine having a looper portion provided with a thread-receiving eye adjacent one end and a depending shank portion at the other end adapted to be mounted in a carrier, the juncture of the looper portion and shank portion forming a smooth, curved portion and the looper portion having a thread-receiving channel extending along one side thereof from the eye to the curved portion, and a thread wire having a thread-engaging portion overlying the channel in the side of the looper portion adjacent the juncture of the looper portion and shank portion, the improvement wherein said thread wire is detachably mounted on the shank portion and has at one end an anchoring portion releasably interlocked with said shank portion and an intermediate portion encircling said shank portion and connected to the thread-engaging portion whereby said thread wire can be readily attached and detached from the shank.

4

4. A longitudinal looper for a sewing machine comprising a looper portion having a thread-receiving eye adjacent one end and a depending shank portion at the other end adapted to be mounted in a carrier, the juncture of the looper portion and shank portion forming a smooth, curved portion and the looper portion having a thread-receiving channel extending along one side inereof from the eye to the curved portion and said shank having a downwardly extending, transverse slot located below said curved portion and an end-engaging socket on the side thereof below said slot; and a detachable thread wire comprising a substantially U-shaped anchoring portion at one end adapted to have one leg disposed in the socket and the other leg extend through the slot and merging with an intermediate lateral portion adapted to substantially encircle the shank to releasably secure the wire thereto and having a thread-engaging portion at the other end connected to the lateral portion and disposed in the plane of the bow of the U-shaped portion and provided with a hook portion adapted to engage the thread and guide it into and hold it in said channel as the thread is moved over said curved portion.

5. A longitudinal looper for a sewing machine comprising a looper portion and a depending shank portion adapted to be mounted in a carrier, and a detachable thread wire having one end releasably interlocked with said shank portion and having an intermediate portion engaging opposite sides of said shank portion and a thread-engaging portion at the other end overlying the side of the looper portion adjacent the juncture of the looper portion and shank portion.

References Cited in the file of this patent

UNITED STATES PATENTS

452,395	Staples	May 19, 1891
1,344,284	Weis	June 22, 1920
1,684,004	Becker	Sept. 11, 1928
2,550,628	Webster	Apr. 24, 1951
2,663,274	Sporney	Dec. 22, 1953