

May 24, 1949.

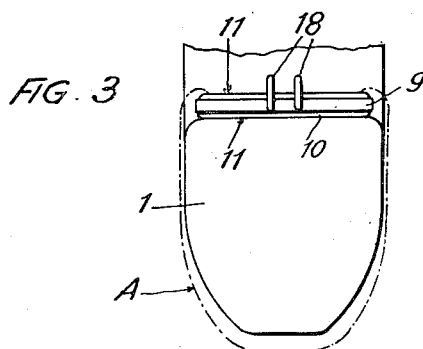
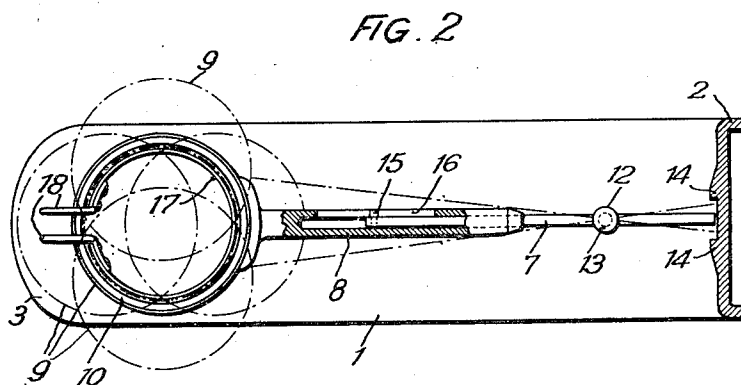
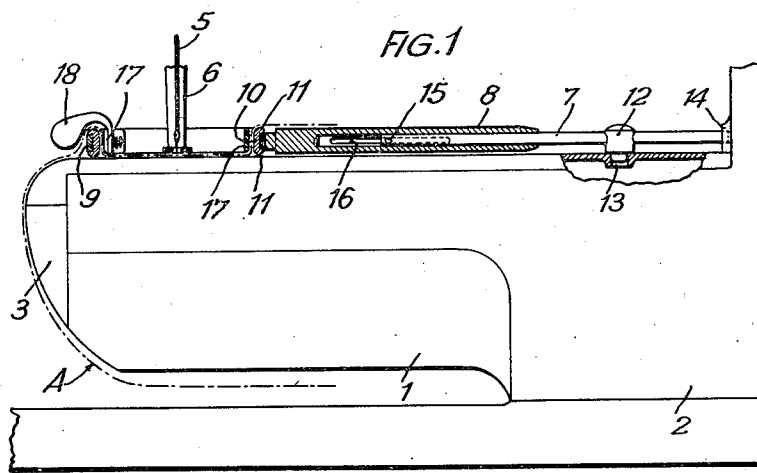
F. GEGAUF

2,471,370

MENDING OF STOCKINGS IN SEWING MACHINES

Filed Dec. 7, 1944

3 Sheets-Sheet 1



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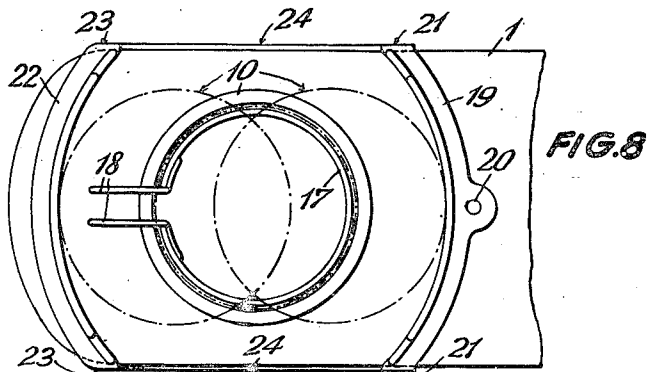
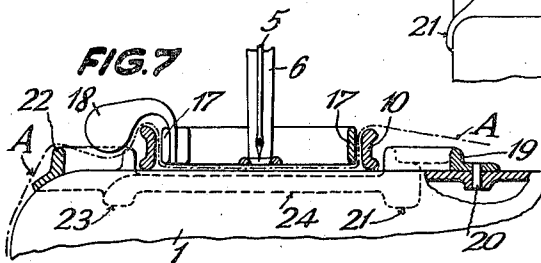
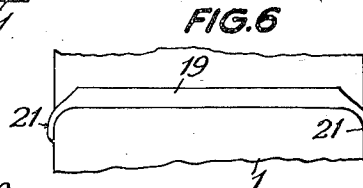
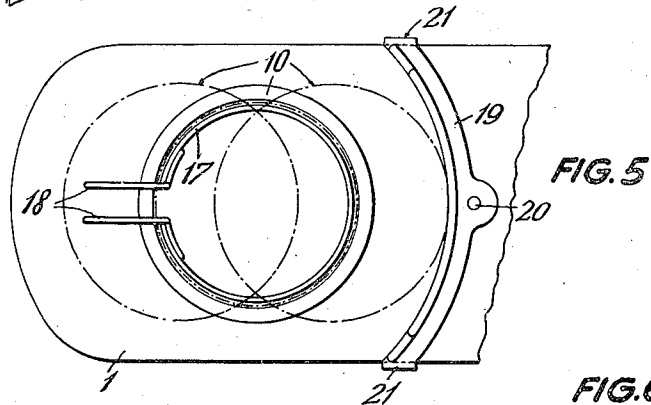
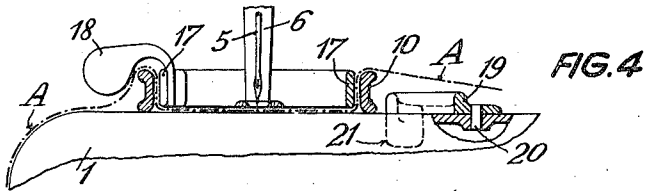
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MENDING OF STOCKINGS IN SEWING MACHINES

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3 Sheets-Sheet 2



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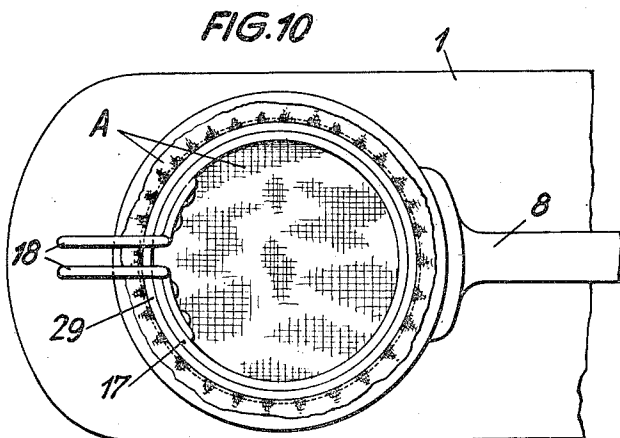
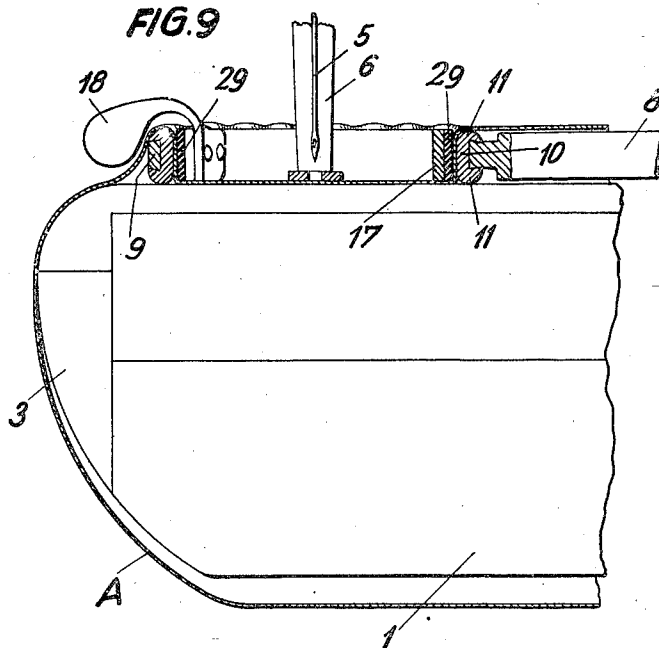
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MENDING OF STOCKINGS IN SEWING MACHINES

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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MENDING OF STOCKINGS IN SEWING MACHINES

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Patent expires July 31, 1963

4 Claims. (Cl. 112—121)

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This invention relates to an arrangement for mending stockings on sewing machines provided with a free arm that includes the looper and over which arm the stocking to be mended is drawn.

In accordance with the invention, support means are provided on the upper side of the free sewing machine arm for limiting the lateral movement of a closed holding ring used for holding the stocking, said ring being provided with an internal spreading clamping ring for clamping the stocking.

The stocking is therefore held in the holding ring when the clamping ring is manually released by the operator after the latter has inserted the stocking in correct position. The limited lateral range of movement of the holding ring facilitates clamping the stocking in said holding ring because the deflectional course of the holding ring is correspondingly limited, that is, the holding ring can be localized in predetermined position, and such position maintained within the range of the sewing machine needle. In order to permit shifting of the working position and therefore of the clamped portion of the stocking, the latter remains on the sewing machine arm and the same is true of the holding ring, since only the internal spreading clamping ring is removed from the holding ring (by squeezing the ends of the clamping ring together) and after the stocking is shifted, the clamping ring is again inserted. The use of an internal spreading clamping ring in the holding ring permits thin and thick stockings to be clamped with equal uniformity without damaging them, and this is of very great importance in the case of fine stockings, such as those made of artificial silk. The whole constitutes an easily and conveniently manipulated accessory for stocking mending operations.

The internal spreading clamping ring is, preferably, provided exteriorly with a special surface for engaging and supporting the stocking, said surface extending over the open portion of the periphery thereof so as also to provide a supporting surface for the stocking in this region in order to be able to retain the stocking free from folds in the holding ring.

The accompanying drawings serve for illustratively explaining the said two modes of carrying out the method according to the present invention. In this connection several forms of an auxiliary device which serves for effecting this work and also forms part of the present inven-

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tion are illustrated in said drawings, by way of example only, in which

Fig. 1 shows a longitudinal elevation partly in section of a first form of an auxiliary device which is arranged on a freely projecting arm of a sewing machine and includes a movably guided holding ring.

Fig. 2 is a corresponding top plan view partly in section;

Fig. 3 shows a respective end elevation as seen from the left hand side of Figs. 1 and 2;

Fig. 4 shows an elevation of a second form of the auxiliary device including a loose holding ring which is shown in section;

Fig. 5 is a top plan view of Fig. 4;

Fig. 6 shows an end elevation as seen from the left hand side of Figs. 4 and 5;

Fig. 7 shows an elevation of a further form of the auxiliary device also including a loose holding ring being shown in section.

Fig. 8 is a corresponding top plan view;

Fig. 9 is a view similar to Fig. 1 representing a modification of the first exemplification and Fig. 10 is a top plan view of Fig. 9.

In Figs. 1 to 3, the freely projecting arm of the sewing machine is designated by 1. This arm emanates from the base 2 of what may be termed a table board supported sewing machine and is provided at its free end face with a closure flap 3. By displacing this closure flap 3 downwardly free access to the looper which is located in the freely projecting arm 1 of the sewing machine is obtained at the side of the cloth feeder in a manner known. The numeral 5 designates the needle of the sewing machine and 6 refers to a mending presser foot which is detachably fastened to the needle bar.

A carrier arm which is denoted by 7 has pushed thereon a displaceable extension 8 the outer end of which is provided with an annular frame 9 in which a holding ring 10 is rotatably journaled. The holding ring 10 is prevented from separating from the guide frame 9 by end flanges 11. The carrier arm 7 is pivotally mounted by means of a pin 12 in a bore 13 which is arranged in the plane top surface of the hollow sewing machine arm 1. The pivotal movement of the carrier arm 7 is limited in that this arm projects by means of the end opposite the ring 10 (Fig. 2) into the space between two projections providing stops 14 on the upper part of the machine base 2. The extension 8 is guided by means of a pin 15 which is secured to the carrier arm 7 and extends into a longitudinal slot 16 in the displaceable extension 8. By this means the dis-

placeable extension 8 is secured against rotation relative to the carrier arm 7 and its range of displacing movement is limited at the same time. The displaceable extension 8 is pushed on the carrier arm 7 by means of a bore provided therein so as to be readily displaceable relative to the carrier arm 7.

In Figs. 1 and 3 a stocking A which is pushed on the freely projecting machine arm to be mended, for example, at the heel portion is indicated in chain-dotted lines. The stocking A is pushed on the arm 1 of the sewing machine in such manner that the portion of the stocking to be mended is moved within the embrace of the holding ring 10 of the auxiliary device. The stocking is pulled over the machine arm 1 with the opening for the leg directed toward the end of the arm adjoining the base 2 and the leg portion of the stocking is collapsed so that the portion of the stocking extending within the embrace of the holding ring does not wrinkle; that it becomes taut. The stocking is so applied to the auxiliary device that the damaged portion, that is, the portion to be mended lies over the holding ring 10, whereupon this portion of the stocking is pressed from above by means of an opened clamping ring 17 down into the holding ring 10 and is secured therein. Each of the two ends of the clamping ring 17 is provided with an angularly projecting finger piece 18 so that the handling of the clamping ring 17 is facilitated by the presence of the two finger pieces 18, as will be readily understood without any further explanation.

The stocking being secured to the holding ring 10 of the auxiliary device in the above-described manner can then be mended in businesslike manner with the needle 5 of the sewing machine while the carrier arm 7 can be pivoted as required about the pivot axis formed by the pin 12 and the bore 13; the extension 8 can be displaced relative to the carrier arm 7 and the holding ring 10 rotated relative to the guide frame 9.

In Fig. 2 the two outer end positions of the pivotally displaceable carrier arm 7 as defined by the two stops 14 are indicated by chain-dotted center lines of two circles which indicate corresponding positions of the guide frame 9. Two further chain-dotted circles indicate two other possible positions of the guide frame 9 which can arise if the carrier arm 7 is in median position and the displaceable extension 8 is either fully advanced or retracted from its full line position as shown. Naturally many other intermediate positions of the guide frame 9 are possible between the four end positions of this frame 9 as indicated in chain-dotted lines in Fig. 2. An accordingly great number of movements of the holding ring 10 are feasible; however, to a limited extent within the working range of the needle 5 of the sewing machine. A certain restriction of variability of movement of the holding ring is obviously caused also by the mending presser foot 6.

When the described auxiliary device is not in use the carrier arm 7 is retracted from the bearing bore 13 whereupon the device can be stored away.

In the exemplification shown in Figs. 4 and 5 the loose holding ring 10 is freely movably placed on top of the sewing machine arm 1. On this arm is set a cross stop member 19 which is removably connected by means of a bolt 20. At each end of the cross stop member 19 a lobe 21 is arranged which bears against the adjacent longitudinal side of the sewing machine arm 1,

whereby the cross stop member 19 is secured in position on the arm 1. By the presence of the cross stop member 19 the variability of movement of the holding ring 10 is limited in the direction away from the end face of the projecting arm 1 within the working range of the needle 5 of the sewing machine. The holding ring 10 can also be placed under the stocking A in the required manner only after the stocking 1 has been pushed on the freely projecting arm 1.

In the exemplification as shown in Figs. 7 and 8 the variability of movement of the holding ring 10 is limited within the working range of the needle of the sewing machine also in the direction toward the front end face of the freely projecting arm 1. For this purpose the ends of a cross stop member 22 are also provided with lobes 23 for entering into bearing engagement with the respective adjacent longitudinal sides of the arm 1 of the sewing machine. The cross stop member 22 is further united into a single piece with the cross stop member 19 by means of two connecting member 24, which piece is detachably set on the sewing machine arm 1 by means of the bolt 20. In this construction the holding ring 10 which is inserted between the two cross stop members 19, 22 is prevented from sliding out of the working range of the needle of the sewing machine during the operation of pushing the stocking A in position to be mended as well during the operation of removing it from said position. The holding ring 10 is prevented from sliding off of the front end face of the freely projecting arm 1 of the sewing machine while the stocking is being removed.

The restriction of variability of movement of the auxiliary device within the working range of the needle of the sewing machine enables the unskilled operator to readily handle the auxiliary device properly within the working range of the needle of the sewing machine. This handling can in case of necessity be carried out in modified manner from the description of the first exemplification in that the auxiliary device is arranged on the freely projecting machine arm for limited pivotal or shifting movement only. The holding ring may obviously be given a different form.

The exemplification illustrated in Figs. 9 and 10 differs from that first described in that the opened clamping ring 17 has applied to its outer periphery a closed self supporting ring 29 which consists, for example, of rubber. This self supporting ring has the function of bridging the gap, that is, the free space existing between the two hand pieces of the clamping ring 17, and presenting to the stocking a bearing surface, that is, a backing in this zone so as to give it the necessary support and obviate the formation of folds or uneven portions in the stocking interiorly of the clamping ring thereby to facilitate the mending work.

I claim:

1. Apparatus for mending stockings on sewing machines provided with a free arm in which the looper is located and over which arm the stocking to be mended is drawn comprising, a carrier arm supported by said free arm, a closed holding ring for holding the stocking, said ring being carried by said carrier arm support means on the upper side of the free sewing machine arm for limiting the lateral movement of the holding ring; and an internal spreading clamping ring for clamping the stocking in the closed holding ring; said carrier arm comprising two telescopic parts which are adjustable with respect to each other in a longitudinal direction.

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2. Apparatus for mending stockings on sewing machines provided with a free arm in which the looper is located and over which arm the stocking to be mended is drawn comprising, a closed holding ring for holding the stocking, said ring being carried by said arm and capable of both lateral and longitudinal movement, support means on the upper side of the free sewing machine arm for limiting the lateral movement of the holding ring, an internal spreading clamping ring for clamping the stocking in the closed holding ring, said inner spreading clamping ring having a gap between its ends, and rubber means extending exteriorly across and bridging the gap to support the stocking at said gap.

3. Apparatus for mending stockings on sewing machines provided with a free arm in which the looper is located and over which arm the stocking to be mended is drawn comprising, a closed holding ring for holding the stocking, said ring being carried by said arm and capable of both lateral and longitudinal movement, support means on the upper side of the free sewing machine arm for limiting the lateral movement of the holding ring, an internal spreading clamping ring for clamping the stocking in the closed holding ring, a carrier arm, on which the holding ring is rotatably supported, said carrier arm being positioned on the free sewing machine arm, a pivot for pivotally securing the carrier arm on the machine arm, and means for limiting the pivotal movement of the carrier arm.

4. Apparatus for mending stockings on sewing machines provided with a free arm in which the looper is located and over which arm the stocking to be mended is drawn comprising, a closed hold-

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ing ring for holding the stocking, said ring being carried by said arm and capable of both lateral and longitudinal movement, support means on the upper side of the free sewing machine arm for limiting the lateral movement of the holding ring, an internal spreading clamping ring for clamping the stocking in the closed holding ring, means for limiting the movement of the holding ring, said means comprising two stop members located on the free sewing machine arm, and means for connecting said stop members and comprising two connecting members bearing against the longitudinal sides of the free sewing machine arm.

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