

April 2, 1957

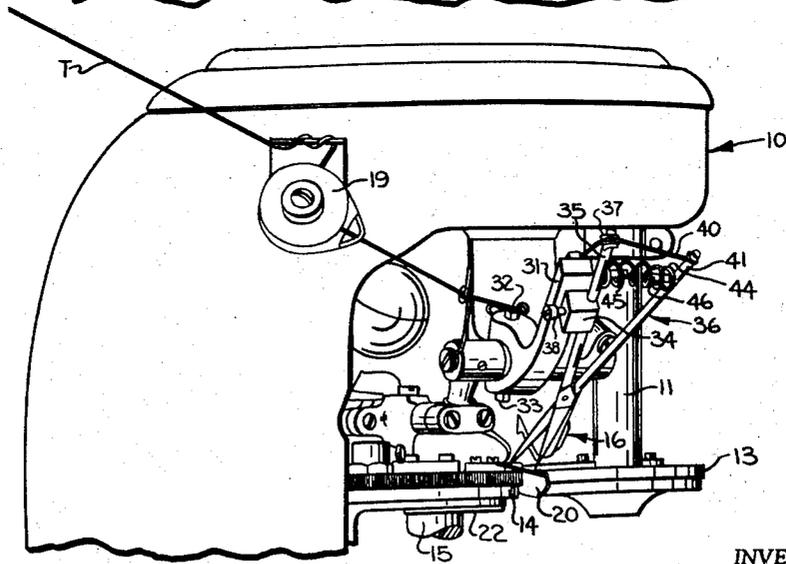
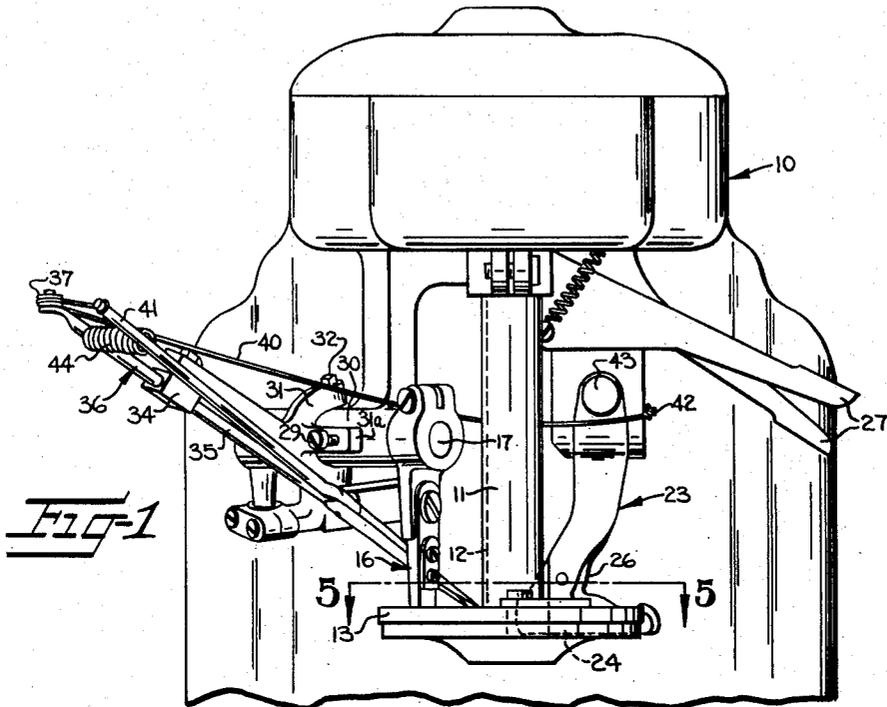
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2,787,231

STITCHING SEVERING DEVICE FOR SEAMING MACHINES

Filed Nov. 15, 1955

2 Sheets-Sheet 1



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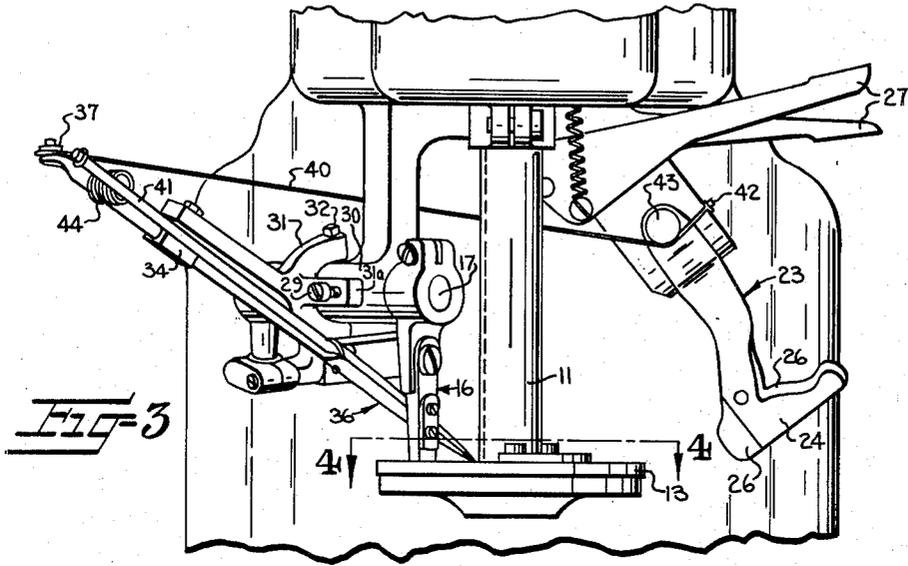


Fig-3

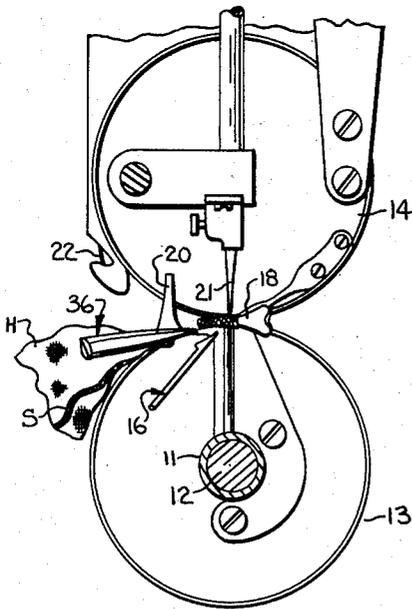


Fig-4

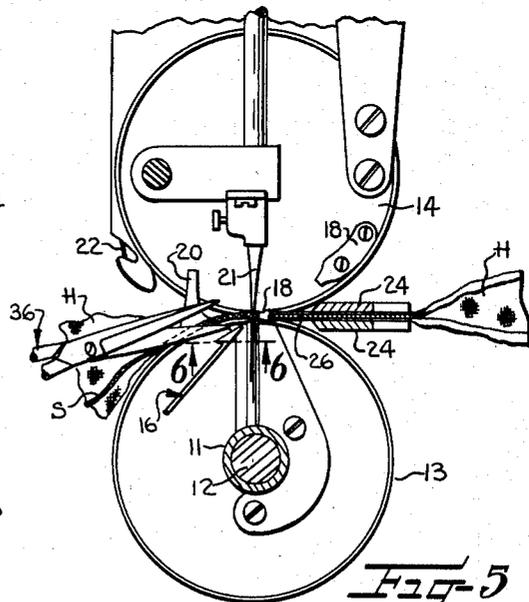
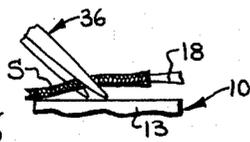


Fig-5

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Fig-6



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2,787,231

## STITCHING SEVERING DEVICE FOR SEAMING MACHINES

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9 Claims. (Cl. 112-16)

This invention relates to seaming machines and more particularly to a cutting device for a hosiery seaming machine for automatically cutting the stitching normally joining successive stockings together as they leave the machine after being seamed and to a new method of operating the seaming machine.

In the seaming of hosiery, an operator manually inserts a stocking to be seamed into the seaming machine wherein the same is seamed and connected to the successive stocking placed in the machine by the stitching. Heretofore, after only a short length of the successive stocking has been seamed the operator would stop the machine and manually move the previously seamed stocking with its connecting stitching to a stationary cutting blade to separate the two stockings by severing the connecting stitching. Afterwards the machine was started again to seam the unfinished stocking and the operation repeated. It is apparent that this stopping of the seaming machine before the completion of the seaming of the stocking thereon resulted in a great loss of production. With the present device the seamed stocking is automatically cut prior to the insertion of the next of successive stocking into the machine thus enabling the operator to continuously run the seaming machine until the stocking or garment inserted therein has been completely seamed.

Data obtained during normal plant operation disclosed that a seamer who heretofore seamed thirty dozen pairs of hose in an eight hour period was now able to seam over forty-five dozen pairs of hose in the same period and did not feel near as physically tired at the end of the day. The increase in production of over fifty percent and the reduction of physical fatigue is directly traceable to the elimination of the heretofore conventional step of the operator having to reach forwardly to move the connecting stitching joining adjacent hose over the stationary cutting blade to sever the same.

It is an object of this invention therefore to provide a cutting or severing device for a seaming machine wherein the same is automatically operated to sever the stitching normally connecting successive stockings prior to the insertion of the successive stockings into the machine.

It is another object of this invention to provide a new method for operating a seaming machine wherein the step of separating successive stockings from each other is accomplished prior to inserting the successive stocking to be seamed in the machine.

It is also an object of this invention to provide a cutting device so positioned with respect to the seamed stocking and the successive stocking that the loose ends of stitching extending from the ends of the stockings after the cutting operation will always be of a predetermined length so as not to be too short to endanger unraveling of the stocking or too long to interfere with uniform dyeing of the stockings.

It is a further object of the invention to provide a cutting device for a seaming machine adapted to seam

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stockings wherein the cutting device is in the form of a pair of scissors positioned adjacent the chaining finger or stitching tongue of the machine to sever the stitching connecting the stockings, to thereby reduce to a minimum the length of the ends of stitching extending from the welt and toe of the separated stockings.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which—

Figure 1 is a front elevation of a hosiery seamer showing the cutting device applied thereto with the cutting device in non-operative position;

Figure 2 is a side elevation as seen from the left side of Figure 1;

Figure 3 is a front elevation similar to Figure 1 but showing the cutting device in operative position;

Figure 4 is a fragmentary horizontal section taken along line 4-4 in Figure 3;

Figure 5 is a fragmentary horizontal section taken substantially along line 5-5 of Figure 1;

Figure 6 is a fragmentary side elevation taken substantially along the line 6-6 in Figure 5 showing the relationship of the scissors to the chaining finger or stitching tongue and to the connecting stitching to be severed.

Referring more specifically to the drawings, reference numeral 10 broadly indicates a hosiery seamer of conventional construction such as a Singer hosiery seamer as described in detail in "Singer Hosiery Seamer Catalogue 242-1," copyright 1940 and 1942 by The Singer Manufacturing Co. Since the invention is only concerned with the positioning and operation of a cutting device with respect to conventional parts of a seaming machine, only those parts of the seaming machine which are necessary for a clear description of the invention have been shown and will now be described.

Reference numeral 11 indicates a tubular housing extending downwardly from the upper portion of the seaming machine which encloses a shaft 12 upon which is secured a driven front feeding cup or disk 13. A rear feeding cup or disk 14 mounted on a shaft 15 is in horizontal alinement with the front feeding cup 13 and spaced therefrom a distance of substantially the thickness of the stocking to be seamed. A looper broadly indicated at 16 is mounted on a shaft 17 so as to be rocked thereon to feed one of the three threads T to a chaining finger or stitching tongue 18 to form the conventional chain stitch. Only one of the three threads T is shown with the same passing through its tensioning device 19. A needle 21 carrying a thread (not shown) secures the thread that has been laid on the chaining finger 18 by the looper 16 to the hose.

As will be seen in Figure 4 the garment, stocking or hose H which has been seamed at S is guided between the front and rear feeding cups 13 and 14 and after being seamed is deflected away from the rear feeding cup 14 by a deflector 20 positioned closely adjacent the front feeding cup 13. The hose H then passes between the deflector 20 and the front feeding cup 13 and is frictionally held therebetween while the operator is positioning another hose to be fed into the machine.

As will be seen in Figures 4 and 5 a stationary cutting member or blade 22 is provided adjacent the left side of the rear feeding cup 14 against which the connecting stitching joining successive stocking H is manually moved by the operator of the seaming machine to sever the same. With the instant invention this stationary cutting member or plate 22 may be omitted from the seaming machine since the same no longer has any function or utility.

Reference numeral 23 broadly indicates an uncurler or fabric guide mounted to be pivoted into the fabric guiding position of Figure 1 or fabric receiving position of Figure

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3 by a pair of levers 27 which also serve to lock the fabric guide in either position. The fabric guide 23 comprises an intermediate stationary plate 25 extending forwardly and rearwardly of side plates or uncurler plates 24. Opposed edge portions of the toe portion of the hose H to be seamed is manually placed by the operator against both faces of the member 26 and between the plates 24. The uncurler plates 24 are formed of spring steel and have enough spring therein to permit opposed edge portions of the hose toe portion to be readily inserted or slid against both faces of the member 26 as most clearly shown in Figure 5.

In normal operation when the hose or garment H to be seamed has been inserted in the uncurler or fabric guide 23, the same is manually moved from the position shown in Figure 3 to that shown in Figure 1 at which time the operator starts the machine by depressing a foot pedal, not shown, until a short portion of the foot portion of the hose has been seamed whereupon the machine is again stopped and the preceding hose which has been seamed is manually moved across the cutting blade 22 so that the connecting stitching joining the same with the successive hose is severed by the blade 22 after which the seamed hose is placed in a hopper.

With the instant invention, upon the fabric guide 23 being moved from the position shown in Figure 1 to Figure 3 to receive the next hose to be seamed, a cutting or severing device broadly indicated at 36 and being shown in the form of a pair of scissors, with their cutting ends positioned to overlie the deflector 20, automatically severs the connecting stitching adjacent the chaining finger 18 as shown in Figure 6. The cutting device 36 is operated by a flexible member 40 shown in the form of a cord which has one end connected to the fabric guide or uncurler 23 and the other end connected to a movable handle 41 of the cutting device.

For mounting the cutting device 36 on the seaming machine 10 a stationary bracket 31 is provided having bifurcated end portions connected by screws or bolts 32, 33 to a stationary arm 30 in which the shaft 17 for the looper 16 is mounted. To the outer end of the bracket 31 is secured a block 34 provided with a longitudinally extending bore to receive therein a stationary handle 35 of the scissors or cutting device 36. It is apparent that the block 34 may be formed integral with the bracket 31 if so desired. The stationary and movable arms or handles 35, 41 have the respective stationary and movable blades of the scissors fixed thereto or integral therewith.

A screw 38 is provided to adjustably secure the handle 35 in the bore of the block 34 to permit the cutting end of the scissors to be properly positioned vertically to sever the stitching. To position the cutting end of the scissors 36 in the correct angular position to straddle the stitching connecting adjoining hose or garments H an adjustment screw 29 is provided threadably penetrating a flange 31a of the bracket 31 and having its inner end bearing against the arm 30.

A pulley or guide 37 is provided on the outer end of the handle 35 around which the flexible member 40 is guided which member 40 has one end connected to a movable handle 41 of the cutting device or scissors 36 with the other end connected to a stud 42 provided on the right side of the fabric guide or uncurler 23.

It will be noted in Figure 3 that the flexible member 40 is guided underneath the head of a shaft 43 to increase the tension on the flexible member 40 when the fabric guide or uncurler 23 is moved from the position shown in Figure 1 to Figure 3 to thus insure that the movable handle 41 of the cutting device or scissors 36 is moved a sufficient distance toward the stationary handle 35 to sever the stitching normally connecting successive hose or garments. A coil spring 44 is provided with its opposite ends encircling opposed studs 45, 46 connected to the inner surfaces of the handles 35, 41 to move the handle 41 from the position

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shown in Figure 4 to the position shown in Figure 5 after the completion of a cutting operation.

In Figure 6 is illustrated a fragmentary view showing the positioning of the end of the cutting device 36 with respect to the chaining finger or stitching tongue 18 to always sever the stitching normally connecting successive hose or garments at a predetermined point to leave a predetermined amount or end of stitching extending from the ends of the disconnected hose or stockings H. Only enough stitching is left extending from the ends of the hose to prevent the unraveling of the same. No longer is the length of the stitching extending from severed hose dependent on the judgment of the operator of the machine as has been the case heretofore when the operator manually moved the seamed hose to the stationary cutting member 22 to sever the stitching connecting the same to the successive hose.

This control of the amount of stitching extending from the ends of the hose or stockings in addition to insuring that the ends will be long enough to prevent unraveling of the hose also completely eliminates having ends of stitching unduly long. The formation of unduly long ends interferes with the dyeing and subsequent drying operations and causes many hose that would ordinarily be sold as first quality hose to be sold as seconds or imperfects. This lowering of the quality of the hose is brought about by the unduly long ends of stitching saturated with dye coming into contact with the knitted fabric during the drying operation which results in streaked places appearing in the fabric.

It is thus seen that there has been provided a cutting member for a seaming machine which is operated automatically upon the operator of the machine moving the fabric guide or uncurler levers 27 from the position shown in Figure 1 to Figure 3 to receive the next successive hose between the uncurler plates 24. No longer is there any need for the operator of the seaming machine to stop the operation of the same during the seaming of a hose to sever the preceding hose from the same as has been the case heretofore.

It will also readily be understood that the seaming of hose on a seaming machine heretofore utilizing the stationary cutting member 22 to sever adjacent hose, relied on the judgment of the operator of the same to sever the connecting stitching at substantially the midpoint between adjacent hose to insure a sufficient end of stitching extending from the hose to insure against the unraveling of the same. It has been observed that with the heretofore manner of operation of the seaming machine that the operators of the same would operate the machine to run an unnecessary long length of chain stitching between adjacent hose to facilitate their moving the stitching over to the cutting member 22 and that when the stitching was severed the operator would many times sever the stitching with one of the ends of stitching extending from the garment being too short and the other end of stitching extending from the adjacent garment being too long which resulted in the unraveling of one garment during the subsequent steps of preparing the hose for market or the unraveling of the hose after a short time of use. The hose with the stitching extending therefrom of too long a length would result in imperfections in the dyeing since this unduly long loose end of stitching would flop around during the subsequent steps after the dyeing operation when the hose were still wet with dye solution and would strike adjacent areas of the hose and thus make streaks or imperfections in the hose. With the present invention these ends of stitching extending from each of the garments is of a predetermined length so as to be as short as possible to insure that the hose do not unravel and that the ends are not unduly long to streak the dyed fabric.

Although the invention has been described as particularly adaptable for the seaming of hosiery, the invention is not restricted thereto since the same may well be practiced in the seaming of other types of garments.

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In the drawings and specification there has been set forth a preferred embodiment of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being defined in the claims.

I claim:

1. In a seaming machine for hosiery having a pair of feeding cups for feeding a hose therebetween to be seamed, a fabric guide for guiding a hose to be seamed between the feeding cups, and means for moving the fabric guide to the seaming position adjacent the feeding cups and to a hose receiving position away from the feeding cups; the combination of a severing device located adjacent the bight of the feeding cups and being so positioned as to operate in the path of travel of the seam of a hose to sever stitching extending therefrom closely adjacent the bight of the feeding cups, and means operatively interconnecting the fabric guide and the severing device and being responsive to movement of the fabric guide from one of said positions to the other of said positions to actuate the severing device whereby the stitching which would normally extend between and connect adjacent hose will be severed.

2. A structure according to claim 1 having means responsive to movement of said guide to said one of said positions from said other of said positions to reset the severing device for the next severing operation.

3. In a seaming machine having stitch forming means, front and rear feeding cups for feeding successive hose to be seamed therebetween and past the stitch forming means, a fabric guide mounted to be moved between a position closely adjacent the rear portion of the bight of the feeding cups and an outermost position spaced from the cups to receive a hose thereon, and lever means for manually moving said fabric guide; the combination of a cutting device mounted on the machine and located adjacent the bight of the feeding cups and being so positioned as to straddle the seamed hose as it leaves the bight of the feeding cups, and means operatively interconnecting the cutting device and the fabric guide whereby, upon the fabric guide being moved from one of said positions to the other, the cutting device will automatically be operated to sever the stitching extending from the seamed hose to the stitch forming means.

4. A machine for seaming hosiery comprising a pair of feeding cups, a pivotally mounted fabric guide adapted to be pivoted from a fabric guiding position closely adjacent the feeding cups to an outermost position to receive a hose thereon, a severing device mounted on the machine and located adjacent the bight of the feeding cups whereby the severing device is so positioned as to operate in the normal path of travel of the seam of the hose passing from between the cups to sever the stitching extending from the hose, and means interconnecting the fabric guide and the severing device and being responsive to the outward movement of the fabric guide to the hose receiving position to actuate the severing device.

5. A device according to claim 4 wherein said severing device comprises a pair of scissors.

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6. A device according to claim 5 wherein means are provided to open the scissors after a severing operation upon the fabric guide being returned to fabric guiding position closely adjacent the feeding cups.

7. In a seaming machine having a pair of feeding disks for feeding a garment therebetween to be seamed, a fabric guide for guiding a garment to be seamed between the feeding disks, and means for moving the fabric guide to the seaming position adjacent the feeding disks and to a garment receiving position away from the feeding disks; the combination of a cutting device located adjacent the bight of the disks whereby the cutting device is so positioned as to operate in the path of travel of the seam of a garment to sever stitching extending therefrom at a point closely adjacent the bight of the feeding disks, and means operatively interconnecting the fabric guide and the cutting device and being responsive to the movement of the fabric guide to actuate the cutting device upon the fabric guide being moved to the garment receiving position away from the feeding disks whereby the stitching which would normally extend between and connect adjacent garments will be severed.

8. In a seaming machine for hosiery having a pair of feeding cups for feeding the hose to be seamed therebetween, a fabric guide mounted for lateral movement, and a chaining finger overlying the bight of the feeding cups and around which the stitching is formed; the combination of a cutting device located adjacent the bight of the feeding cups and being so positioned as to operate in the path of travel of the seam of a hose passing from the cups, said cutting device comprising a pair of scissors provided with a pair of operating handles thereon, means securing one handle of said scissors to a stationary portion of the seaming machine, a pulley provided on said one handle of said scissors, the other handle of said scissors being free to be pivoted, and a flexible member having one end secured to said other handle of said scissors and guided around said pulley with the other end of said flexible member being secured to said fabric guide whereby, upon outward movement being imparted to the fabric guide upon the completion of seaming a hose, the flexible member will be drawn taut to close the scissors to sever the stitching extending from the seamed hose to the chaining finger.

9. A device according to claim 8 having resilient means for moving the scissors to open position after the stitching has been severed, and means for vertically and angularly adjusting the position of the scissors with respect to the feeding cups to permit the scissors to be positioned to straddle the stitching to be severed.

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