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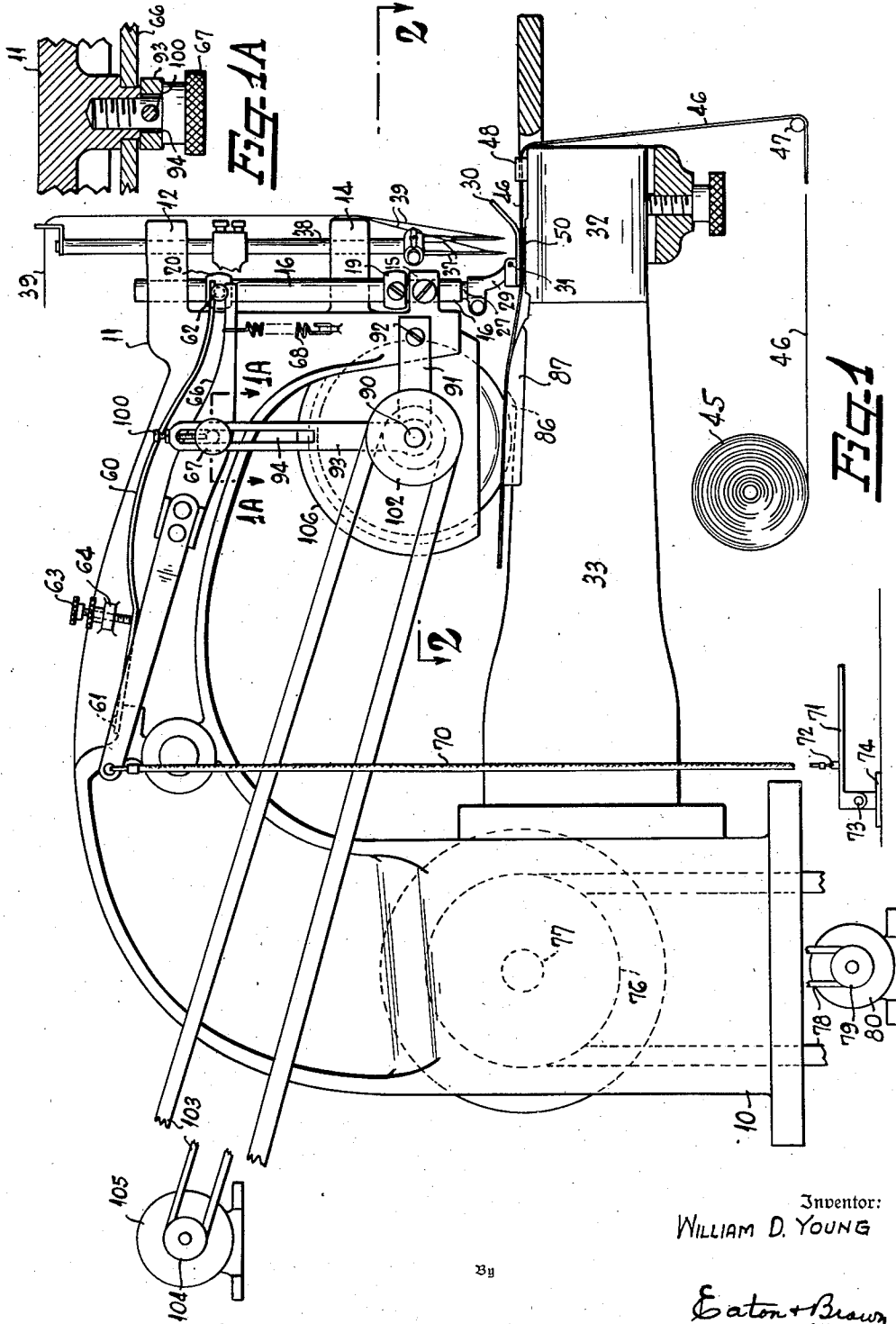
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METHOD AND MEANS FOR ATTACHING TIE TAPES TO BANDAGE STRIPS

Filed Nov. 30, 1942

2 Sheets-Sheet 1



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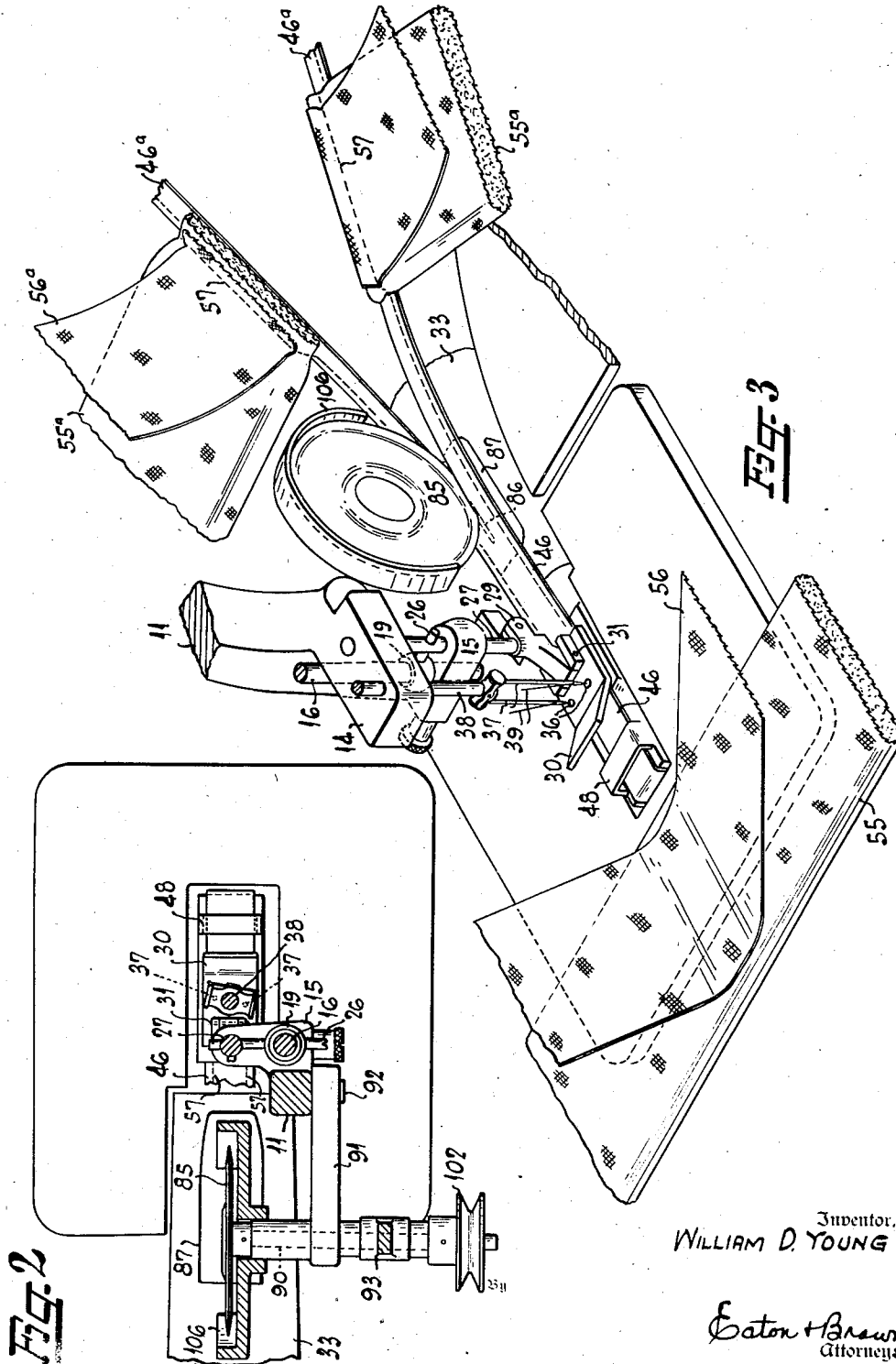
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METHOD AND MEANS FOR ATTACHING TIE
TAPES TO BANDAGE STRIPS

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Application November 30, 1942, Serial No. 467,352

2 Claims. (Cl. 112—2)

This invention relates to the manufacture of surgical bandages, and more particularly to bandages such as shown and described in co-pending patent application, Serial No. 460,252, filed September 30, 1942.

It is an object of this invention to provide an improved method of attaching tie tapes to bandage strips such as shown in the above-mentioned patent application in which a series of bandage strips and associated tie tapes are positioned transversely of a longitudinal base strip, and then the positioned parts are seamed and severed longitudinally of the base strip. After seaming and severing, the end of each bandage strip is then united to a portion of the longitudinally severed base strip. Also the end of each bandage strip has the end of a tie tape secured thereto by one of the above-mentioned seam lines.

It is another object of this invention to provide a machine for carrying out a method of the class described comprising the combination of a multiple-needle sewing head, and a rotary cutting disc associated therewith for severing a workpiece intermediate the seam lines formed by two adjacent needles.

It is another object of this invention to provide a machine of the class described having means for feeding a continuous base strip beneath the presser foot of a sewing machine so that the respective needle and bobbin strands will be united to form a continuous seam regardless of whether other articles are present beneath the presser-foot. Such a strip permits the machine to operate continuously without knotting the looper and needle strands when spaced articles are being successively seamed. For example, where a series of separated bandages are being successively seamed, it is desirable to operate a sewing machine at a continuous rate; however, it is almost impossible to maintain a bandage, or a portion thereof beneath the presser foot at all times. When no material is disposed between the needle thread and the bobbin or looper thread of a sewing machine, these respective threads will become knitted and tangled, and therefore render the machine inoperable. The present base strip is usually made of some thin material in which the needle and bobbin or looper threads are united to permit the machine to continue operating in a normal manner even though a workpiece may not be disposed beneath the presser-foot.

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 an elevation, showing certain portions thereof in section, illustrating a sewing machine having an improved apparatus associated therewith for attaching tie tapes and the like to bandages, and then subsequently severing the same;

Figure 1A is a sectional detail view taken along line 1A—1A in Figure 1;

Figure 2 is a sectional plan view taken along the line 2—2 in Figure 1;

Figure 3 is an isometric view of the opposite side of the right-hand portion of Figure 1, illustrating the material upon which the machine operates.

Referring more particularly to the drawings, the numeral 10 denotes the base portion of a sewing machine, having integral with the upper portion thereof an overhanging goose-neck 11 which supports a needle operating and a presser-foot mechanism. The outer end of goose neck 11 has lugs 12, 14, and 15 integral therewith which serve as bearings for parts hereinafter to be described.

Lugs 12 and 15 have mounted therein for vertical sliding movement a shaft 16. Around the shaft 16 and disposed between lugs 12 and 15 are a pair of collars 19 and 20, said collar 19 serving as a stop to limit the downward movement of the shaft, and the collar 20 being adapted to limit the upward movement. By observing the drawings, it can be seen that the collar 19 has extended therefrom a laterally disposed pin 26 which, in turn, penetrates a vertically disposed presser-foot shaft 27. This presser-foot shaft is mounted for vertical sliding movement in lugs 14 and 15, and the lower end of the shaft has a bracket 29 fixedly secured thereon, upon which a presser-foot 30 is pivotally secured as at 31. During the normal operation of the machine, the presser-foot 30 is adapted to rest above the upper surface of a bobbin or looper housing 32, said housing being secured to the right-hand extremity of a cantilevered bracket 33 extending from base member 10 previously described. (See Figure 1.)

By observing Figure 3, it will be noted that the presser-foot 30 has a pair of spaced holes 36 therein which are adapted to be penetrated by a pair of needles 37 on the lower end of a needle shaft 38. This needle shaft is mounted for vertical reciprocatory motion in lugs 12 and 14 previously described. The operating means for the conventional parts 37 and 38 are not shown, however, it might be stated that during operation, the shaft 38 and associated needles 37 reciprocate up and down to cause associated needle threads

39 to penetrate presser-foot holes 36 and the fabric therebeneath, and also to cause these threads to become interlocked with conventional bobbin or looper threads, not shown, which is drawn from housing 32.

As heretofore stated, it is desirable to provide a base strip which continuously moves beneath the presser foot 30 and above the bobbin or looper casing 32 to form a ground work in which the bobbin or looper thread and needle threads are united when the machine is continuously operating and when there is no other material between the parts 30 and 32. With this in view, a suitable reel 45 of tape 46 is provided, said tape 46 being normally disposed beneath the machine and extending upwardly to the presser foot 30. A guide rod 47 is provided, around which the tape 46 passes after leaving reel 45. From this rod the tape passes upwardly over the end of the bobbin or looper casing 32, and then horizontally beneath a guide loop 48. During the operation of the machine, suitable conventional feeder dogs 50 engage the bottom of the tape 46 and press it upwardly and rearwardly against the bottom of the presser foot 30 to advance the tape and associated fabric.

A specific illustration of the use of the present invention is illustrated in Figure 3. In the manufacture of bandages, it is often necessary to attach tie tapes to bandage strips and to simultaneously sever the strips and tapes intermediate the attaching seam line. For example, a bandage strip 55 is initially formed with a sufficient length for making several bandages. Likewise, tie tapes 56, which are to be secured to the bandage strips, are sufficiently long to form several tie strips on the finished bandages; consequently, a series of assembled parts 55 and 56 are successively passed beneath the presser foot and above the transversely disposed strips 46 to cause the tie tapes 56 to be successively sewed to the associated bandages 55 by a pair of parallel seam lines 57, these seam lines being also formed in base strip 46 by needles 37. Since it is impractical to keep a bandage strip 55 and tie tape 56 beneath the presser foot 30 at all times when the machine continuously operates, it is necessary to provide the base strip 46 so that there will be a ground work in which the seams 57 can be placed to prevent the bobbin or looper threads from becoming entangled.

It is desirable to provide a yielding means for normally forcing the presser foot 30 and its associated parts downwardly upon the workpiece which is disposed therebeneath. In order to accomplish this result, a leaf spring 60 has one end thereof fixedly secured to goose neck 11 as at 61 and has its free end yieldingly engaging a pin 62 extending laterally from collar 20 on shaft 16. The free end of this spring normally presses shaft 16 downwardly which, in turn, presses shaft 27 and presser foot 30 downwardly. An adjustment screw 63 is threadably secured in a lug 64 on goose neck 11. The lower end of this screw engages the intermediate top portion of spring 60 to thus regulate the amount of initial downward pressure exerted by the spring 60 upon the presser foot 30.

A foot-actuated mechanism is provided for raising the presser foot 30 when desired. This raising mechanism, in part, comprises a lever 66, pivoted intermediate its ends as at 67, and having one end thereof disposed beneath pin 62 previously described. A spring 68, however, normally prevents this end of lever 66 from ex-

erting upward pressure upon the pin 62. The other end of lever 66 has a downwardly extending cord 70 connected thereto, said cord being connected to a foot pedal 71 as at 72. Pedal 70 is pivoted as at 73 to bracket 74. When it is desired to raise the presser foot 30, a sufficient pressure is applied to the free end of pedal 71 to overcome the normal downward pressure exerted by the springs 60 and 68 and to raise the presser foot.

The above-described sewing machine is operated through a conventional driving mechanism, not shown, by a pulley 76 mounted on shaft 77 extending from the base 10 of the machine. Mounted upon this pulley 76 is a belt 78, and this belt is also mounted upon a motor pulley 79 of motor 80.

It is seen by observing Figure 3 that when a bandage strip 55 and tie tape 56 pass beneath the presser foot 30 and above the base strip 46, the portions 55 and 56 are united by a pair of spaced parallel seam lines 57. The next operation in the manufacture of the bandage is to sever the members 46, 55, and 56 along lines substantially midway between the seam lines 57 to thus form a separate tie strip 56a attached on the end of each bandage strip 55a. This severing is effected by a rotary disc 85 which has its lower cutting edge rotatably mounted in a slot 86 cut in base plate 87, said base plate being mounted on top of the bracket 33, immediately behind the presser foot 30. Disc 85 is fixedly secured upon a shaft 90, and this shaft is rotatably mounted in one end of a bracket 91 (Figure 2), said bracket being pivotally secured as at 92 to goose neck 11.

As a means for vertically supporting the shaft 90 and the associated cutting disc 85, a hanger link 93 is provided, which link extends upwardly and has a slot 94 in the upper end thereof which is penetrated by screw 67, previously described. (See Figures 1 and 1A.) This screw 67 also serves as a pivot for lever 66.

The upper end of link 93 has an adjusting screw 100 threadably mounted therein. The lower end of adjusting screw 100 extends longitudinally of slot 94 and is adapted to contact the periphery of adjusting screw 67 to thus adjust the elevation of link 93, and the shaft 90 on the lower end thereof, and control the depth that rotary disc 85 penetrates the fabric and the slot 86.

As a means for driving the rotary disc 85, a pulley 102 is fixedly secured on the end of shaft 90. A belt 103 is mounted on this pulley, said belt being also mounted on a motor pulley 104 of motor 105. A guard 106 is positioned around the upper periphery of rotary disc 85 to shield the enclosed cutting edge from contact while in operation.

It is thus seen by observing Figure 3 that when the strips 55 and tie tapes 56 are assembled upon base strip 46 and successively moved transversely beneath the presser foot 30, the parts will be united by a pair of parallel seam lines 57. When the assembled strips 55 and 56 are spaced some distance apart, the machine will place seams 57 in the base strip 46 only at the spaces where a bandage strip 55 and tie tape 56 is absent. Immediately after the seam lines 57 are placed in the members 55 and 56, the united members 46, 55 and 56 are moved longitudinally beneath rotary blade 85 to thereby sever the united portions along a line substantially mid-way the seam lines 57 to thereby produce a pair of bandage strips

55a also together with the attached severed tie tapes 56a. A split portion 46a of base strip 46 will also connect the bandage strips 55a on each side of the rotary disc 85.

Although the present invention is shown and described in connection with a multiple needle sewing head which is employed for sub-dividing bandage strips 55 and the associated tie tapes 56 into two bandage strips, each having a tie tape secured thereto, it is to be understood that the present invention could be employed for attaching the end of a single tie tape 56 to the end of a single bandage strip 55 by a single seam line, and then trimming the overhanging edges along a line substantially parallel to the seam line. In other words, a single needle sewing head can be employed along with the base strip 46 and when the ends of the tie tapes and associated bandage strips are united, the end of these parts could be subsequently trimmed by the rotary knife 85. Of course, when the method is carried out in this manner, the production will be approximately one-half of the production when carried out in the manner disclosed in Figure 3.

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. That method of sub-dividing bandage strips into shorter lengths and attaching tie tapes thereto which comprises successively positioning a plurality of parallel bandage strips upon a transversely disposed base strip, positioning a tie tape upon each bandage strip, then successively uniting the tie tapes, bandage strips, and base strip by a pair of substantially parallel seam lines extending longitudinally of the base strip, and then severing said tie tapes, bandage strips, and base strip along a line between said seam lines to thereby subdivide each bandage strip and associated tie tape into two bandage strips, with each strip having a tie tape attached thereto.

2. That method of subdividing bandage strips into shorter lengths and attaching tie tapes thereto, which comprises positioning a plurality of parallel bandage strips upon a transversely disposed base strip, positioning a tie tape upon each bandage strip, then uniting the tie tapes, bandage strips, and base strip by a pair of substantially parallel seam lines extending longitudinally of the base strip, and then severing said tie tapes, bandage strips and base strips along a line between said seam lines to thereby subdivide each bandage strip and associated tie tape into two bandage strips, each strip having a tie tape attached thereto.

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