United States Patent [19]

Schramayr

[11] **3,739,733**

[45] **June 19, 1973**

[54] **AUTOMATIC POINT TRIMMING MACHINE FOR USE IN SHIRT MAKING APPARATUS AND THE LIKE**

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[22] Filed: **June 21, 1971**

[21] Appl. No.: **154,789**

[52] **U.S. Cl.** **112/121.12,** 112/130

[51] **Int. Cl.** **D05b 21/00**

[58] **Field of Search** 112/130, 129, 121.12, 112/121.14, 121.11, 121.15

[56] **References Cited**

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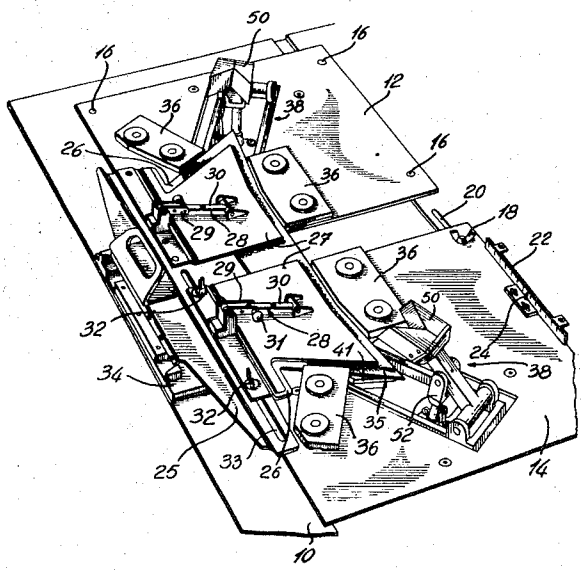
[57] **ABSTRACT**

A machine for trimming the points of collars and the like garments comprising a holder having a pair of fixed platens each having a movable platen hinged thereon, guide means between which a collar is placed over the pair of fixed platens, means for clamping the collar between the fixed and movable platens, and means for trimming the points of the collar held between the fixed and movable platens.

8 Claims, 5 Drawing Figures



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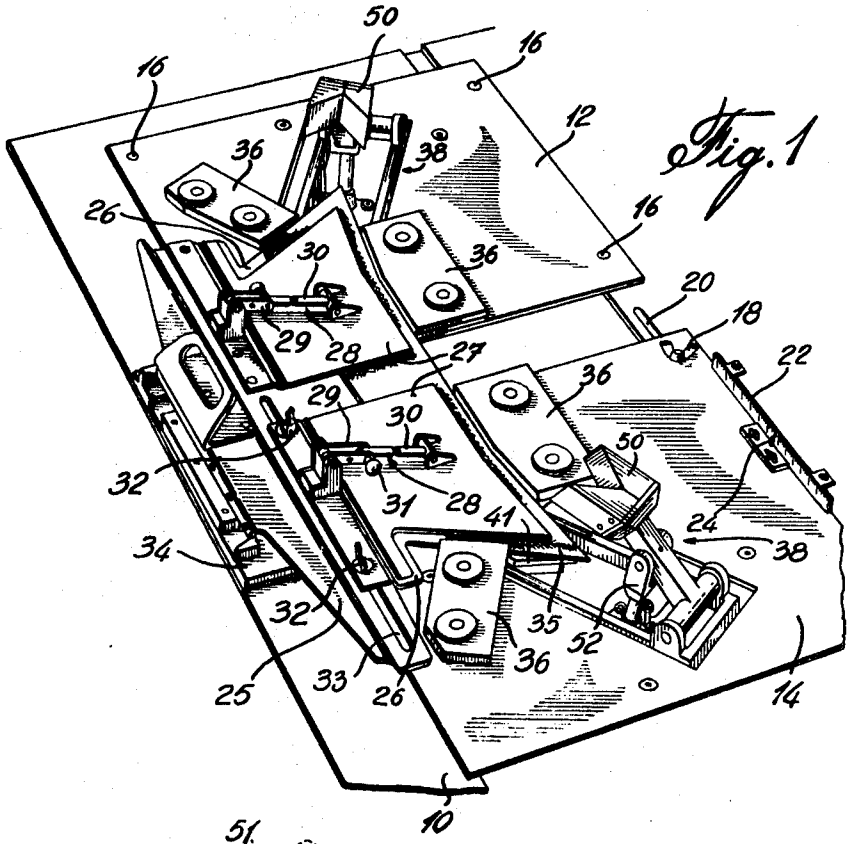

Fig. 1

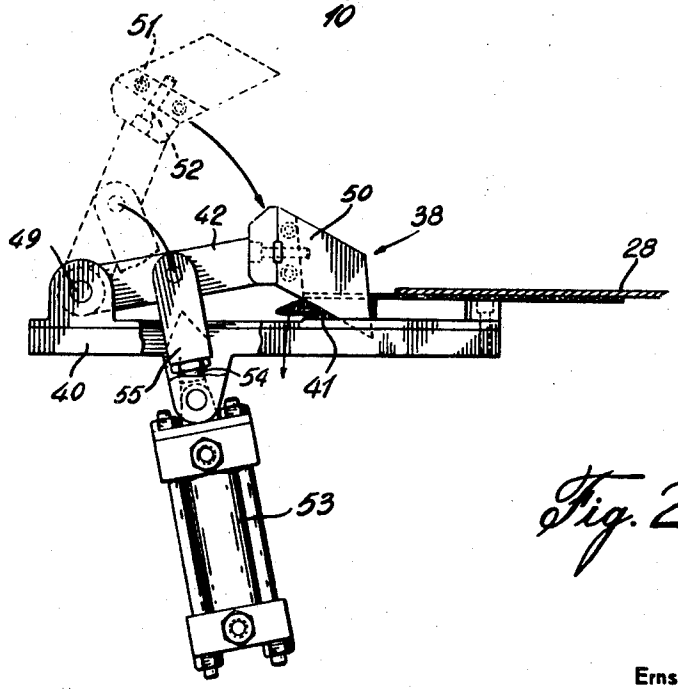

Fig. 2

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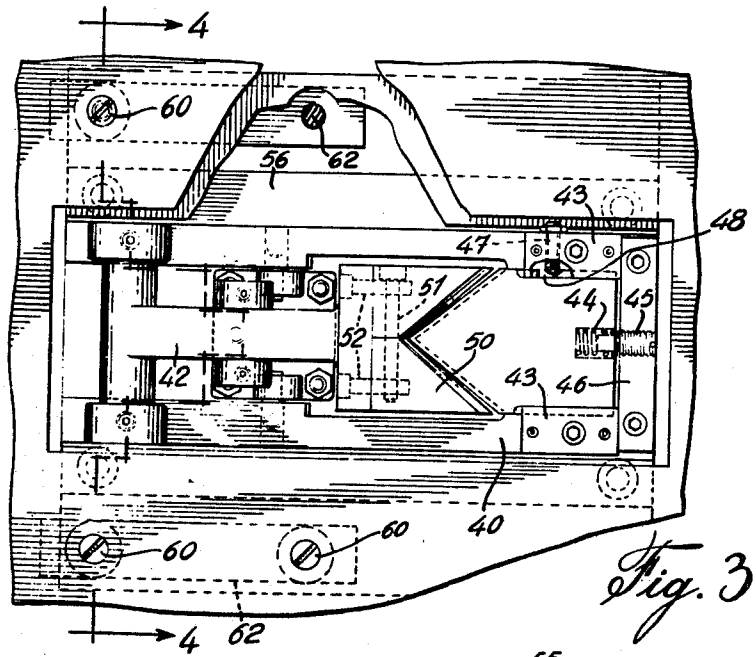

Fig. 3

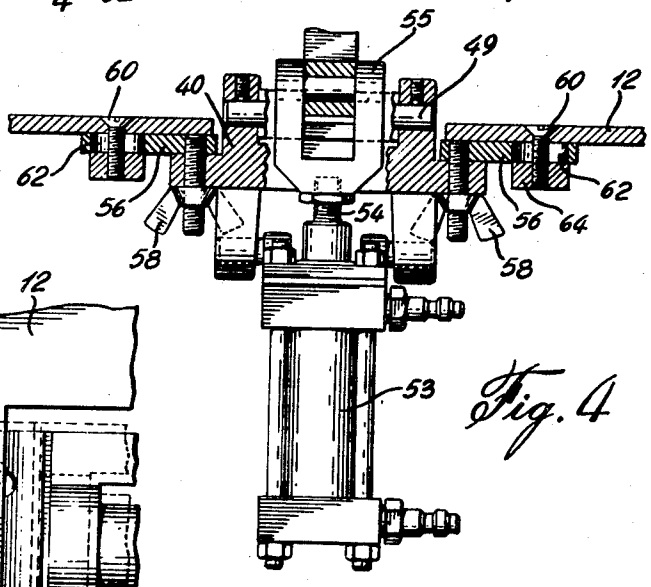

Fig. 4

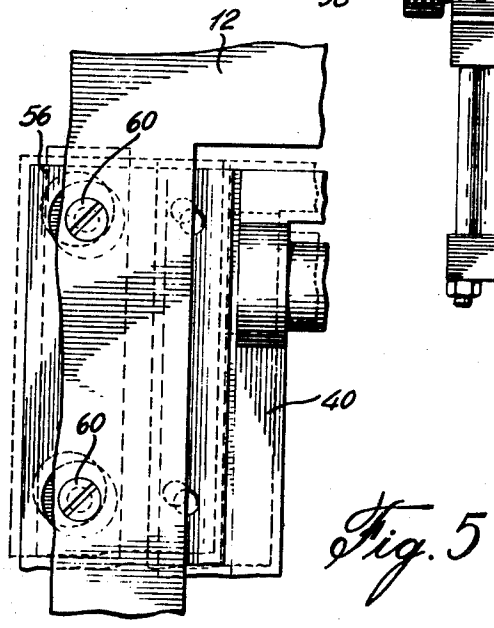

Fig. 5

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AUTOMATIC POINT TRIMMING MACHINE FOR USE IN SHIRT MAKING APPARATUS AND THE LIKE

This invention relates to an improvement in industrial shirt making machinery, and particularly to machines for trimming the points of collars and the like garments.

Shirt collars are normally made from at least two layers of fabric which are initially stitched together so that the outside surfaces of the finished collar face each other. Prior to turning the thus stitched layers, it has long been the practice to trim the excess material outside the stitch line in the area of the collar points to avoid the unsightly bundling of such excess material that would otherwise occur in the vicinity of the collar points.

One object of the invention is to provide a machine whereby to do away with point trimming as a distinct and time consuming manufacturing task or operation to be performed independently of other operations on collars and the like. The object of the invention is best realized by providing point trimming means on a shirt making machine of the type whereon to effect loading of the multiple layers of fabric into removable clamps before transfer of same to, and return from, a contour stitching machine; said point trimming means being disposed so as to effect trimming of the points from the collars as these are still held by the removable clamps following return thereof from the contour stitching machines and immediately prior their release therefrom. This object is best realized where the aforementioned point trimming means are synchronously linked to the means whereby to cause unlocking and/or opening of the clamps, so as to operate instantaneously and automatically each time these are energized.

A further object of the invention is to permit the achievement of a more constant and rigorously precise relationship between the collar contour stitching line and the adjacent trim lines of the point thereof than had hitherto been possible.

The machine in accordance with the invention comprises a holder having a pair of fixed platens each having a movable platen hinged thereon, guide means between which a collar is placed over the pair of fixed platens, means for clamping the collar between the fixed and movable platens, and means for trimming the points of the collar held between the fixed and movable platens.

Each point trimming means includes a frame secured to the table of the machine and holding a knife tongue, a movable knife arm pivotally mounted on the frame at one end and carrying a knife cooperating with the tongue at its other end, and means for operating such arm for trimming the collar. The means for operating the arm may include a bracket pivotally mounted on the arm at a point intermediate the ends thereof and an hydraulic or air cylinder having its operating piston connected to the bracket.

The collar point trimming machine, in accordance with the invention, also comprises means for positioning the knife frame with respect to the collar for accurately trimming the collar.

The collar point trimming machine comprises a fixed table plate and an adjustable table plate which may be moved longitudinally for accommodating various sizes of collars. One of the trimming means is attached to the fixed table plate while the other is attached to the movable table plate. In addition, one of the fixed platens of the holder is also adjustable in the longitudinal direction for accommodating various sizes of collars.

The invention will now be disclosed with reference to a preferred embodiment thereof and to the accompanying drawings in which:

FIG. 1 illustrates a perspective top view of the point trimming machine in accordance with the invention;

FIG. 2 illustrates a side elevation of the trimming means of the machine of FIG. 1;

FIG. 3 illustrates a top view of the trimming means;

FIG. 4 illustrates a section view of the trimming means along line 4—4 of FIG. 3; and

FIG. 5 illustrates a partial enlarged view of the trimming means of FIG. 3.

In FIG. 1, there is shown the top portion of a collar point trimming machine including a structure 10 upon which are mounted fixed table plate 12 and adjustable table plate 14. Fixed table plate 12 is secured to the structure of the machine by screws 16 whereas adjustable plate 14 is secured to the structure by wing nuts 18 cooperating with bolts arranged to slide in slots 20 of the structure of the machine and which may be unscrewed manually for moving table plate 14 longitudinally. The table plate 14 is thus adjustable for accommodating various sizes of collars and the position thereof may be determined by graduation 22 secured to the structure of the machine and cooperating with a pointer 24 secured to the table plate 14.

A collar holder including a body 25 is mounted on the machine and comprises a pair of fixed platens 26 upon each one of which is hinged a movable platen 27 operated by a mechanism 28. The operating mechanism 28 includes two members 29 and 30 which are pivotally connected together at one end. The other end of member 29 is pivotally connected to a bracket which is secured to fixed platen 26, whereas the other end of member 30 is pivotally connected to a bracket which is secured to movable platen 27. The mutual pivotal connection of members 29 and 30 includes a handle 31 which permits opening and closing of the movable platen 27. One of the fixed platens is permanently fastened to the body 25 of the holder whereas the other fixed platen is arranged to move longitudinally with respect to the body of the holder by means of wing nuts 32 cooperating with bolts sliding in slots 33 in the body of the holder. It will be easily understood that the adjustable portion of the holder is for accommodating various sizes of collars. In addition, the holder is positioned with respect to the structure of the machine by means of a positioning bracket 34 which is not shown in detail because it does not form part of the present invention. Copending application Ser. No. 154,790 entitled Holder for Collars and the Like Garments was filed on June 21st 1971 to cover the subject matter of the holder and a reference is made to such application for a more detailed description of it.

At the beginning of the operation, movable platens 27 are opened by mechanism 28 and a collar 35 or the like garment is placed on top of the fixed platens 26 between guide means 36. To trim the points of the collar, when such collar is secured in position by the holder, there are provided a pair of trimming devices 38 shown in FIGS. 2 and 3 of the drawings. Each trimming device includes a frame 40 holding a knife tongue 41 at one end thereof and a knife arm 42 at its other end. Tongue

41 is held against frame 40 by means of brackets 43 secured to the frame but is arranged to move slightly in the longitudinal direction against the biasing force of spring 44 for a purpose which will be disclosed later. Spring 44 is held in position in tongue 41 by means of a bolt 45 threaded through a bracket 46 secured to frame 40. The longitudinal movement of tongue 41 is controlled by bolt 47 threaded through frame 40 and bearing against a slot 48 in the side of the tongue.

Arm 42 is pivoted on frame 40 about pivot axis 49 at one end and holds knife 50 at its other end. Knife 50 is made of two parts held together by bolt 51 and both parts are secured to arm 42 by bolts 52. Arm 42 is operated by an hydraulic or air cylinder 53 secured to frame 40, such cylinder 53 having a piston 54 connected to a bracket 55 pivotally mounted on arm 42 at a point intermediate the ends thereof.

Referring more particularly to FIGS. 3 to 5, it will be noted that knife frame 40 is secured to the top plate of the machine through a pair of plates 56. Indeed, frame 40 is secured to plates 56 by wing nuts 58 and plates 56 are secured to the top plates 12 or 14 by means of screws 60 which pass through holes 62 in the plates 56 and are threaded into bars 64 placed underneath plates 56. It will be noted that the holes 62 in bars 64 are of a size large enough to permit positioning of the trimming means 38 with respect to the collar points to be trimmed. It will also be noted that once the trimming devices are adjusted in position, frame 40 may be removed from the machine by unscrewing wing nuts 58 without disturbing the adjustment of the trimming means.

In operation, a collar 35 is placed on the fixed platens 26 between guide means 36. The movable platens 27 are then lowered on the fixed platens 26 by pressing on handles 31. The hydraulic or air cylinders 54 are subsequently operated to lower the knives 50 to trim the points of the collar 35. It will be easily understood that due to the angular position of tongue 41 with respect to knife 50, it is necessary that the tongue 41 be slightly movable longitudinally with respect to the axis of arm 42. Such longitudinal movement of tongue 41 is made against the biasing force of spring 44 which, upon return of the knife 50 to its raised position, forces the tongue 41 back into its original position.

Although the invention has been disclosed with reference to a preferred embodiment thereof, it is to be understood that various modifications may be made thereto without departing from the scope of the invention.

I claim:

1. In a machine wherein a plurality of blank pieces of material may be disposed and clamped together on a holder prior to being sewn together to form an inside out collar or the like garment part and wherein, said inside out collar or the like garment part may be unclamped and removed from said holder; said machine comprising:

a. a fixed table plate;

b. means adjacent said fixed table plate for removably securing said holder in predetermined overlying position with respect to said fixed table plate;

c. adjustable table plates secured on said fixed table plate;

d. adjustable longitudinal and terminal guide means on said adjustable table plates and adapted to be disposed adjacent said predetermined overlying position of the holder on the fixed table plate; and thereby provide exact guidance for the positioning and centering of the blank pieces of material on said holder prior to the clamping of same thereon; the provision in said machine of means for trimming the points of said inside out collar prior to unclamping same from the holder and after sewing the said blank pieces of material together.

2. A machine as defined in claim 1, wherein each of the means for trimming the collar points comprises a frame secured to one of the adjustable table plates of the machine and holding a knife tongue, a movable knife arm pivotally mounted on said frame at one end thereof and carrying a knife cooperating with said knife tongue at the other end thereof, and means for operating said knife arm for trimming said collar points.

3. A machine as claimed in claim 2, wherein said means for operating said knife arm comprises a bracket pivotally mounted on said knife arm at a point intermediate the ends thereof, and a fluid pressure responsive double acting piston unit comprising a cylinder pivotally mounted on said frame and a piston rod fixedly connected to said bracket.

4. A machine as claimed in claim 2, further comprising means for positioning said frame on said one of said adjustable tables and with respect to said collar for accurately trimming one of the points of said collar.

5. A machine as claimed in claim 1, wherein said adjustable table plates are movable longitudinally for accommodating various collar sizes.

6. A machine as claimed in claim 5, wherein each holder comprises a base support, a pair of fixed platens, a movable platen hingedly connected to each fixed platen, each fixed platen being associated with one of the said movable table plates and similarly movable longitudinally for accommodating various collar sizes.

7. A machine as claimed in claim 6, wherein the said guide means are provided on the adjustable table plates for engaging the blank pieces of material along the edges thereof which are to be sewn.

8. A machine as claimed in claim 7, wherein there are provided powered means for causing the release of the clamping action of the holder on the inside out collar and switch means for actuating said powered means, said switch means automatically causing simultaneous actuation of the collar point trimming means.

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