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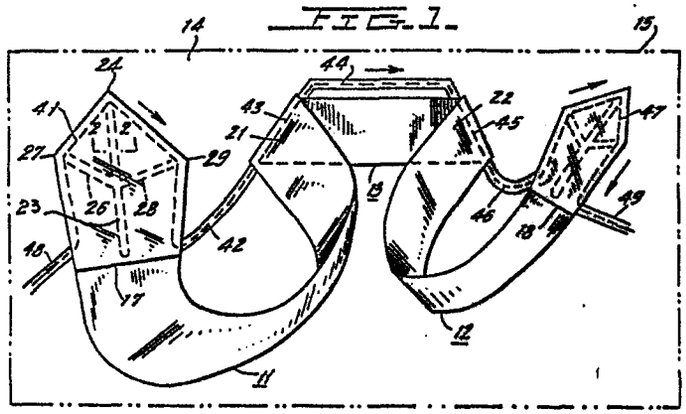
(54) **Process for the manufacture of neckties.**

(57) A necktie is manufactured by placing a neckband (13) face up on a support surface (14), positioning the straight tips (21,22) of the large and small end sections (11,12) face down and partially overlapping opposite ends of the neckband (13), placing the V tips of the end sections face up on the support surface (14), using blades (31) moved downward to pinch the V tips, placing linings or facings (17,18) over the V tips, and thereafter running a continuous seam (41-47) that sews the linings (17,18) to the end sections (11,12) and sews the latter to the neckband (13).

FIG. 1.



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PROCESS FOR THE MANUFACTURE OF NECKTIES

This invention relates to neckties in general and more particularly relates to mechanisms and procedures for reducing manufacturing costs thereof.

Conventionally, neckties are manufactured by sewing end pieces of shell or face fabric to opposite ends of a joining piece or neckband also of face fabric. The free end of each end piece is provided with a V-shaped tip, and a lining, otherwise known as a tipping, is sewn in an overlapping relationship. Typically, a tipping is made of a silk-like fabric such as satin or rayon, and in some cases even the face fabric is used. The lining is first assembled to the front surface of the V tip, and the assembly is turned inside out so that the lining is behind the V tip. In order to make certain that the shell does not bulge or curve but is flat, the stitch used to sew the lining to the V-shaped tip is sewn after the tip is "pinched", the last-mentioned operation being performed in a manner such that the stitching encompasses a larger area of the V-shaped tip than of the tipping. Thus, when the assembly is turned inside out, at the front of the end piece, the V tip border is defined by fold lines of the end piece fabric and the stitching is considerably inboard of these fold lines.

The prior art has provided apparatus to facilitate the manufacture of neckties but such apparatus has proved to be less than satisfactory. That is, prior art apparatus often requires many sub-operations to be performed before the main pieces of the tie are connected. As will hereinafter be seen, in accordance with the instant invention the two end pieces of a tie are sewn to the neckband and linings are sewn to each of the V-shaped tips in a single operation. Typically, in some but not all prior art constructions, the end pieces are joined to the neckband and thereafter tippings are applied to each of the end pieces.

In addition, conventionally, a manual operation is usually utilized to "pinch" the face fabric at the apex of the V-shaped tip and manual pinching is also done at the sides or ends of the V. In a known prior art device for pinching at the apex of the V-shaped tip, a pinch forming blade is held in fixed position underneath the tip of the end piece which is then forced downward over the blade by a clamping die having a slotted end. This type of pinching device utilizes a three-section clamp, in which the tipping is between the fixed lower clamp section and a pivoted middle clamp section. The tip of the end piece must be slipped between the top and middle sections of the clamp. Closing the three section clamp brings cooperating blades on the middle and top clamp sections to engage the end piece therebetween to achieve a pinching action. When the pinched tip of the tie end section is stitched to attach the tipping, the pinching blade and the clamp are positioned so that the sewing needle must be swung considerably in front of the apex of the V. The result is that excess material is sewn, with this excess having to be removed at a later time. In addition, when this excess material is cut off, stitching at the tip is also cut away and has to be replaced by a separate sewing operation known as "crossing the tip".

Accordingly, the primary object of the instant invention is to provide a novel economical process for attaching tippings to the ends of a tie and attaching the ends of the tie to the joining or neckpiece thereof.

Another object is to provide a process of this type that is accomplished by utilizing a single continuous run of stitching.

Still another object is to provide a process of this type wherein machine performance is obtained without the necessity of generating waste fabric or the need for a "crossing the tip" operation.

A further object is to provide a process of this type that may be carried out utilizing automatic sewing apparatus.

A still further object is to provide a process of this type which may be carried out by a single relatively unskilled operator.

These objects as well as other objects of this invention shall become readily apparent after reading the following description of the accompanying drawings in which:

Figure 1 is a plan view illustrating the tie elements in operative positions they occupy on a platen while they are being sewn together.

Figures 2 and 3 are fragmentary cross-sections through line 2-2 of Figure 1 looking in the direction of arrows 2-2. In Figure 2 the pinching element is shown in its raised or inactive position and in Figure 3 the pinching element is shown in its lowered or active position.

Now referring to the Figures which show necktie end sections 11 and 12 sewn to opposite ends of neckband or joining section 13 by respective seam portions 43, 45. Section 11 is designated as the large end section and section 12 is designated as the small end section primarily because section 11 is wider than section 12. Lining or tipping 17 is sewn by seam portion 41 to large end section 11 at the V-shaped

tip thereof located remote from joining section 13. Similarly, lining or tipping 18 is sewn by seam portion 47 to small end section 12 at the V-shaped tip thereof located remote from joining section 13.

Joining section 13 is in the shape of an elongated trapezoid having ends that slope at approximately 45° to the parallel sides. The ends of sections 11, 12 that are sewn by seam portions 43, 45 to joining section 13 are provided with edges that are sloped at approximately 45° with respect to the longitudinal axis of end sectons 11, 12 when the latter are extended.

Sections 11, 12, 13 are assembled by placing joining section 13 face up on upper support surface 14 of platen 15 at a predetermined location defined by suitable markings (not shown) on surface 14. Joining section 13 is held in place by suction applied from the bottom of platen 15.

End 21 of large end section 11 remote from its V-shaped tip is positioned to partially overlap joining section 13 in face-to-face relationship with their angled edges in alignment. Similarly, end 22 of small end section 12 remote from the V-shaped tip thereof is positioned to partially overlap joining section 13 in face-to-face relationship therewith and their angled edges in alignment. Suitable clamps (not shown) are utilized to maintain end section ends 21, 22 in their operative positions of Fig. 1. Large end section 11 is then folded transversely and the V-shaped tip thereof brought to rest with its rear against support surface 14 in a predetermined position indicated by markings (not shown). Similarly, small end section 12 is folded transversely and the rear of the V-shaped tip thereof is brought to rest at a predetermined located on support surface 14. Suction means (not shown) holds these V-shaped tips in these operative positions.

The V-shaped tip at the free end of large end section 11 includes apex 24 from which the sides of the V extend outward and rearward, terminating in ends 27, 29. The

V-shaped tip of end section 11 overlies three depressions 23, 26, 28 in support surface 14. Depression 23 extends longitudinally rearward from apex 24 and depressions 26, 28 extend inward and rearward from the respective ends 27, 29, reaching depression 23. The latter extends substantially the full length of lining 17 since seam portion 41 extends substantially to the rear of V ends 27, 29.

After section 11 is placed over depressions 23, 26, 28, pinching blades 31, one of which is shown in Figs. 2 and 3, mounted to plastic carrier 32 and aligned with depressions 23, 26, 28 are moved downward, thereby driving portions of end section 11 into depressions 23, 26, 28. This draws the edges defining the free end portion of end section 11 inward so that they will coincide with the V-shaped edge and rearward extension thereof on lining or tipping 17 when the latter is placed over the V-shaped tip of end section 11. The V-shaped tip of small end section 12 is pinched in the same manner as the pinching of large end section 11 and thereafter lining 18 is placed over the free end of small end section 12 so that the edges of lining or tipping 18 coincide with the drawn in edges at the V tip of section 12.

A continuous stitch run is used to sew the tie sections together. This run includes portion 41 extending parallel to the edges defining the V tip and rear extensions of tipping 17 to sew the latter to the free end of large end section 11, portion 42 to cross the gap between tipping 17 and straight, though angled, end 21, portion 43 parallel to the left end of joining section 13 sewing section 11 and 13 together, portion 44 parallel to and outboard of the shorter parallel side of joining section 13, portion 45 parallel to the other slanted end of joining section 13 sewing small end section 12 to joining section 13, portion 46 across the gap between angled end section 22 and lining 18, and portion 47 along and parallel to the edges defining the rear extension and V tip of tipping 18 sewing the latter to the free end of

small end section 12. Sewing clearance in platen 15 is provided by a continuous slot aligned with stitching run 41-47 and beginning with lead-in section 48 at the left of platen 15 and runout section 49 at the right end of platen 15.

Pinching blade support 32 is removed from the pocket-like construction formed partially by tipping 17. A similar pinching die support (not shown) is removed from the pocket partially formed by lining 18, and tippings 17, 18 are turned inside out so that they lie against the rear, rather than against the face, of end sections 11, 12. Now when the free ends of end sections 11, 12 are extended in opposite directions away from joining section 13, the longitudinal axes of end sections 11, 12 are generally in alignment with a line parallel to the parallel edges of joining section 13, with the seam portions that join sections 11 and 12 with section 13 being behind the faces thereof.

It should now be apparent to those skilled in the art that platen 15 may be carried by a pivot table (not shown) that is mounted for movement between loading and sewing stations. Platen 15 is movable radially with respect to the center about which its support table pivots. At the loading station tie sections 11-13 and tippings 17, 18 are mounted to platen 15 in the positions shown in Fig. 1. Platen 15 then moves to and through the sewing station where seam 41-47 is sewn, preferably using a lock stitch or chain stitch, as movement of platen 15 is automatically controlled by a selected predetermined program. Platen 15 is then returned to the loading station, the tie in very rough form is removed from platen 15, and another set of tie elements are loaded on platen 15. Portions 42, 44, 46 of stitch run 41-47 are then cut away and the pockets formed by linings 17, 18 are turned inside out. Thereafter, in a manner well known to the art, suitable stiffening is added and the edges of tie sections 11-13 are folded inward.

While this invention has been described in connection with ties having V-shaped tips, the usefulness of this invention for making square end ties should be apparent. It should also be apparent that this invention is useful for making so-called full face ties in which the tippings overlap the joining section.

In addition, those skilled in the art should now realize that this invention is useful in sewing together other fabric constructed parts, such as pockets.

Although the present invention has been described in connection with a preferred embodiment thereof, many variations and modifications will now become apparent to those skilled in the art. it is preferred, therefore, that the present invention be limited not by the specific dislosure herein, but only by the appended claims.

Claims

1. Apparatus for joining a piece of fabric and a selected section of fabric, said apparatus being characterized by including means (15) defining a surface (14) for supporting the section (11;12) face up, a tool (31,32, Fig. 2 and 3) operable downward from above said section to engage the latter and force selected regions (23,26,28) of said section (11,12) below said surface thereby drawing the edges of said section inward, a sewing device for running a stitch (41;47) through said section (11;12) and a flat piece of fabric (17;18) supported on said section after said section has had its edges drawn inward, said stitch (41;47) running generally parallel to the drawn in edges of said section (11;12).

2. Apparatus as set forth in claim 1 further characterized by having said selected section comprising a tip (11;12) of an elongated neckwear article and said piece comprising a tipping (17;18).

3. Apparatus as set forth in claim 2 further characterized by having the tip defined by a V-shaped peripheral portion having an apex (24) and ends (27,29) remote from said apex, said selected regions including first (23), second (26) and third (28) narrow bands extending inward from the apex (24) and the ends (27,29) of said V-shaped peripheral portion.

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4. Apparatus as set forth in claim 3 being further c h a r a c t e r i z e d by having the section (11) elongated, having the first narrow band (23) extend from the apex (24) of the V and lengthwise of the section, and having the second (26) and third (28) bands extend from the ends (27,29) of the V and away from the apex (24).

5. Apparatus as set forth in claim 2 further c h a r a c t e r i z e d by having the tip (11;12) V-shaped and having the tipping (17;18) extend beyond the V-shaped tip in a direction away from the apex (24) thereof, said section (11) having side edge portions extending from the ends (27,29) of the V and away from the apex (24), said side edge portions being drawn inward by said tool (31) as it engages said end section from above to force another region of said end section below said support surface (14), said stitch (41;47) also joining said tipping (17;18) to said end section (11;12) along said edge portions.

6. Apparatus as set forth in claim 4 further c h a r a c t e r i z e d by having the lining (17;18) extend beyond the V-shaped tip in a direction away from the apex (24) thereof, said section having side edge portions extending from the ends (27,29) of the V and away from the apex (24), said side edge portions being drawn inward by said tool (31) as it engages said end section (11) from above to force another region of said end section below said support surface, said stitch (41,47) also joining said tipping (17;18) to said end section

(11;12) along said edge portions, said first narrow band (23) extending between said edge portions for drawing the latter inward.

7. A method for manufacturing a necktie by connecting first and second end section (11,12) of face fabric each having a tip at one end thereof to a joining section (13) of face fabric, and connecting first (17) and second (18) tippings to the tips of the respective first (11) and second (12) end sections, said method being
c h a r a c t e r i z e d by including the steps of placing the joining section (13) face up on a support surface (14), placing those ends (21,22) of the end sections (11,12) remote from the tips in partially overlapping face-to-face relation with said joining section (13) with those ends having straight edges coinciding with respective first and second straight edges at opposite ends of said joining section (13), folding each of said end sections intermediate its ends and placing said tips face up on said support surface (14), placing the first and second tippings (17,18) over the tips of the respective first and second end section (11,12) and running stitches (41,47) along the edges of the tips to connect the first and second linings (17,18) to the tips of the respective first and second end sections (11,12) and running stitches (43,45) along opposite ends of the joining section (13) to connect the ends thereof to the first and second end sections (11,12).

8. A method as set forth in claim 7 being further
c h a r a c t e r i z e d by having the stitches

connect the first tipping (17) to the tip of the first section (11), then connect the first (11) and joining (13) section, then connect the second (12) and joining (13) sections, followed by connecting the second tipping (18) to the tip of the second section (12).

9. A method as set forth in claim 8 being further c h a r a c t e r i z e d by having the tips of the first and second end sections (11,12) positioned on the support surface (14) in the region of the respective first and second straight edges of the joining section (13) prior to running the stitches.

10. A method as set forth in claim 8 being further c h a r a c t e r i z e d by having the stitches as part of a continuous run (41-49) that includes a first stitch section (42) across a gap between the tip of the first end section (11) and the first straight (43) edge, a second stitch section (44) running lengthwise of said joining section (13) and outboard thereof, and a third stitch section (46) across a gap between the second straight edge (45) and the tip of the second end section (12).

11. A method as set forth in either of claims 8 or 10 being further c h a r a c t e r i z e d by having the first (43) and second (45) straight edges angled in opposite directions with respect to the length of the joining section (13).

12. A method as set forth in claims 7,8,9 or 10 being further
c h a r a c t e r i z e d by having each of the tips V-shaped.

FIG. 1

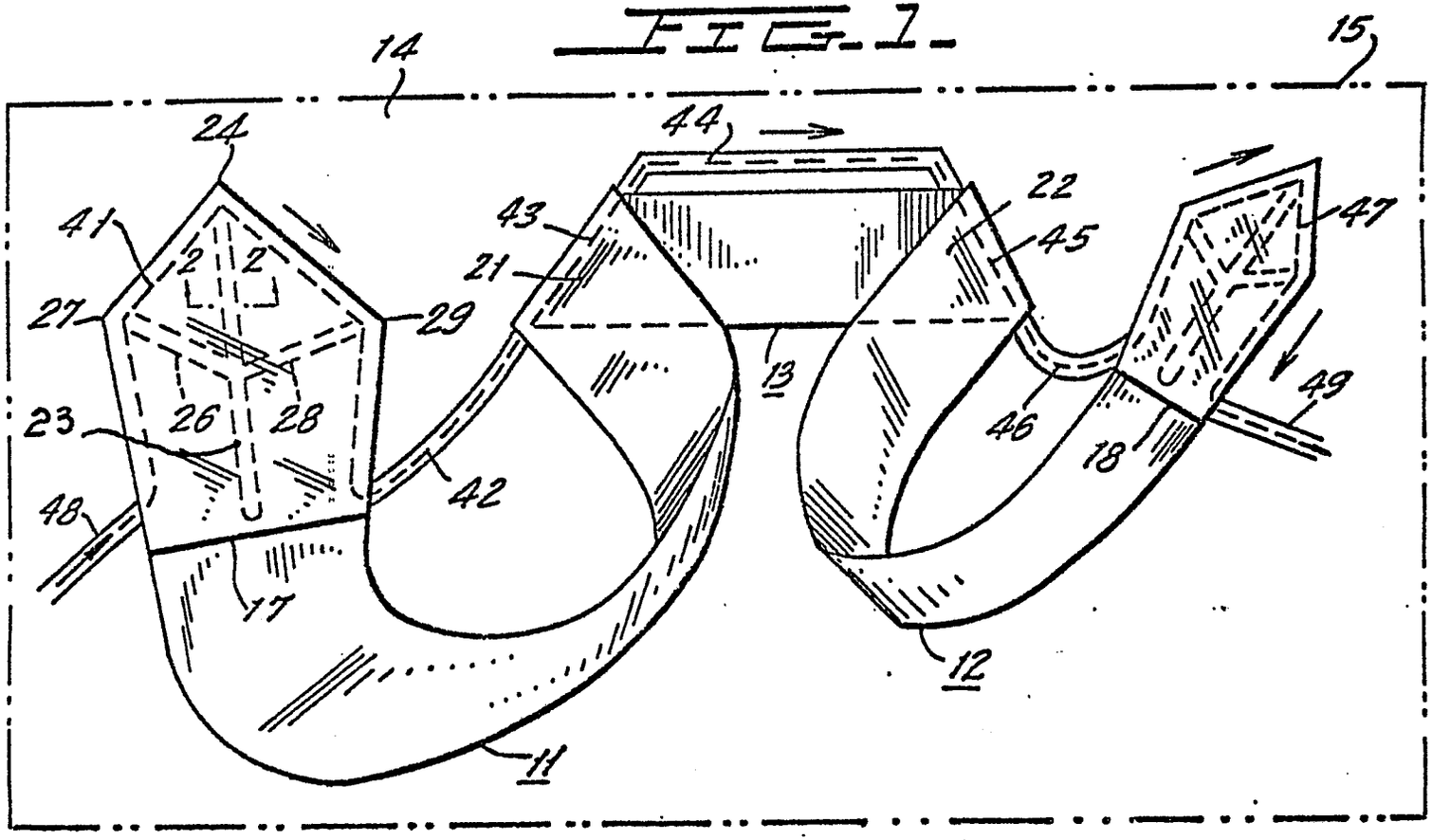
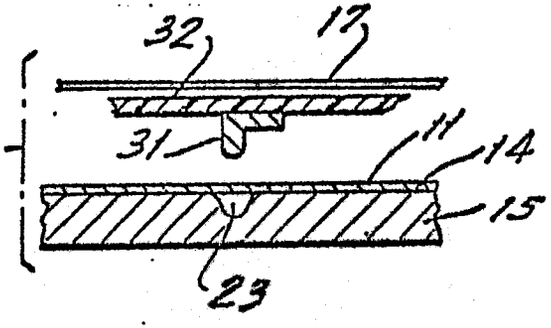


FIG. 2



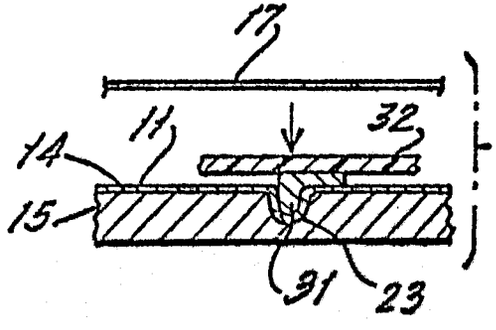


FIG. 3

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European Patent Office

EUROPEAN SEARCH REPORT

Application number

DOCUMENTS CONSIDERED TO BE RELEVANT

EP 83108500.6

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
A	DE - A1 - 3 039 878 (KRAWATTEN-FABRIK SEPP HALBRITTER GMBH) * Fig. 1-3 * --	1,7	A 41 D 25/00
A	DE - A1 - 2 843 826 (HELLENTHAL GMBH & CO KG) * Fig. 1,4 * ----	1,7	

TECHNICAL FIELDS SEARCHED (Int. Cl. ³)

A 41 D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
VIENNA	21-12-1983	NETZER

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
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