

[54] COLLAR CONSTRUCTION

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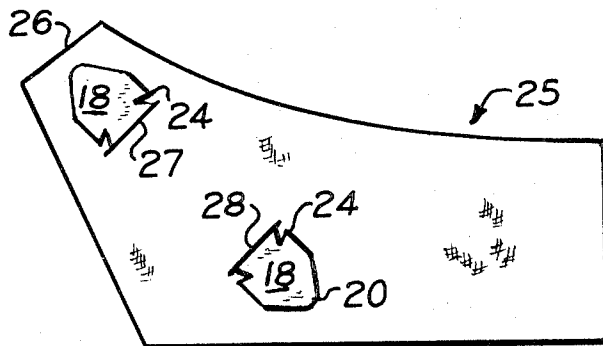
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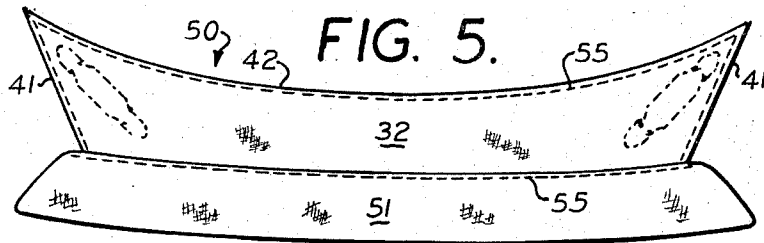
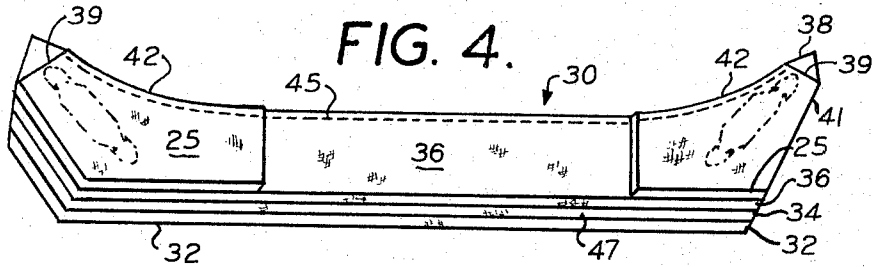
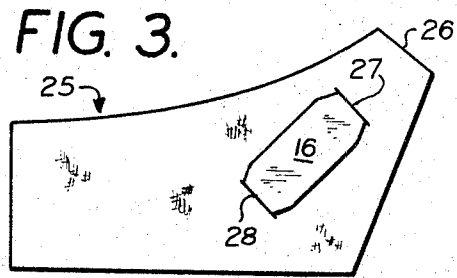
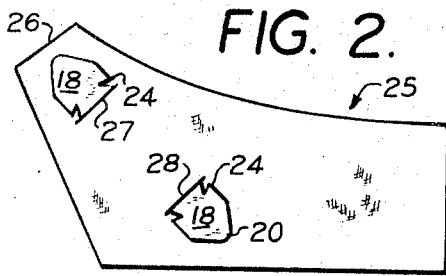
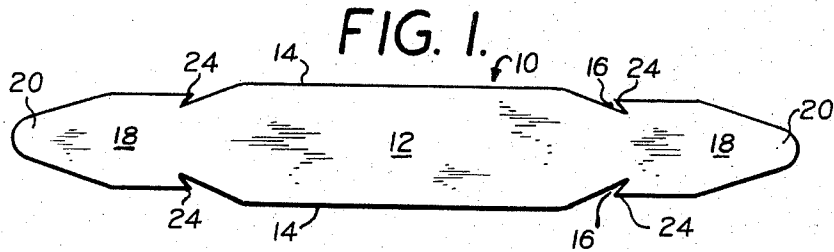
Primary Examiner—James R. Boler

[57] ABSTRACT

A soft (non-fused) collar structure and controlled floating collar stay implementing production, and subsequent use of the collar; and method for forming the collar. An improved stay is formed of an elongate strip of flat resilient flexible sheet material having a central portion and end portions at opposed ends of said central portion, each of which end portions is narrower in width than the width of the central portion. Hook means are formed on the end portions of said stay extending from said end portions toward said central portion, with an indent formed on said central portion beneath said hook means. The collar is formed by inserting the stays in pre-cut slits in a collar end piece. One end piece is then arranged over each end of the bottom collar ply after it has been superposed on an upper collar ply which has been placed on a collar lining to form a sewing package. The package is then stitched to connect the end pieces, lining and the collar plies. Thereafter the stitched package is turned to form a collar with the tips of the stay sandwiched and floatingly held between the collar lining and end pieces to prevent abrasion of the outer upper and lower collar plies.

10 Claims, 5 Drawing Figures





## COLLAR CONSTRUCTION

### BACKGROUND OF INVENTION

This invention relates to the art of soft collar constructions, and an improved collar stay serving to facilitate collar production, and to maintain the collar in desired orientation in use with minimal abrasion of the collar plies by the stay.

Collars have long been provided with reinforcing stays positioned at the end of the collar to maintain the collar points in desired orientation. These stays as conventionally employed comprise an elongate strip of flexible material having a rigidity greater than that of the fabric of which the collar is made, so that the rigidity of the stay acts to prevent distortion of the collar fabric. These stays as previously employed have either been inserted through one or more slits provided in the collar fabric, or laminated or sewn in position on a collar lining, with the stay intended to remain in position between the collar plies.

In the past, such stays have been removably positioned so that the consumer could remove the stays during laundering, so as to prevent damage to the stay and/or collar fabric, re-inserting the stays when the shirt was to be worn. Such removably positioned stays were found unsatisfactory, in that the stays got lost, and the consumer often found it burdensome to have to remove and re-insert the stays, often forgetting with resultant damage to the stay and/or collar.

Accordingly, stays have been evolved which have been fixed in position at the time of manufacture of the collar. Such stays increased the cost of production, in that the manipulative steps required in positioning of the stay increased production costs. Further it was found that the desired precise location of the stay between the collar plies at the collar ends was not readily attainable, so that in the event of stay mispositioning, desired rigidity was often not present at the collar points which turned up as a result.

To minimize the likelihood of stay displacement, collars have been formed with two interlining plies sewn together along stitch lines defining a pocket for the stay. However, this additional sewing to form the stay pockets increased costs, and the pocket stitch lines often interfered with desired collar smoothness, where outer collar plies are thin.

In an attempt to minimize costs, and lack of smoothness produced by forming stay pockets, a fused collar technique has been evolved, as shown by U.S. Pat. No. 3,132,347 to Light in which a stay is fused between two collar interlining layers, and one of the stay sandwiching interlining layers is bonded to an outer collar ply. Though this fusing of the stay eliminates the need for stitching, and eliminates the need for stay removal, the saving in stitching costs is substantially negated by the fusing costs, and more significantly, the resultant fused collar structure is found excessively stiff and uncomfortable by many wearers. Further, the stretching of collar fabric over the points and edges of the stay produces undesirably rapid wear and tearing of the collar.

### BRIEF DESCRIPTION OF INVENTION

It is with the above considerations in mind that the present improved collar structure along with an improved floating stay, and method of construction have

been evolved, providing for a soft collar, stiffened at its points by a stay which is subject to relatively simple positioning during manufacture and which minimizes collar wear or stay damage.

It is accordingly among the primary objects of this invention to provide an improved soft collar construction with stay reinforced collar tips in which wear and tear of the collar by abrasion of the collar fabric over the stays is minimized.

A further object of the invention is to provide an improved stay subject to floating positioning in a collar in a secure position at a desired location.

An additional object is to provide an improved method of forming a stay reinforced soft collar requiring minimal stitching and manual manipulation during manufacture, thereby minimizing production cost and manufacturing errors.

These and other objects of the invention which will become hereafter apparent are achieved by forming a stay of an elongate strip of flexible resilient sheet material such as nylon, Mylar or any of a variety of natural or synthetic materials known to be suitable in forming collar stays. The elongate strip forming the stay is shaped with a central portion having undercut indents. End portions extend outwardly from said central portion from the end points of each of said indents, and a hook portion extends toward said central portion from said end portions over said indents. The collar employing the stay is formed by forming end pieces for the collar, one for each collar end, with two spaced slits in each end piece. A stay is threaded through the slits in each end piece. A sewing package is formed by positioning the top collar ply on a collar lining ply. The bottom collar ply is then arranged on the superpositioned top and bottom plies, and the end pieces with stays inserted on the lining are positioned over the ends of the superposed plies. The package is then stitched along its edges, leaving the neck band edge open, and the collar is turned by separating the bottom ply from the top ply and inverting the top ply so that the lining ply and end pieces are sandwiched between the top and bottom plies.

A feature of the invention resides in the provision of a controlled floating stay in a soft collar construction, in which the stay though held in a desired position in the collar to provide desired stiffening of the collar points, is subject to shifting with respect to the collar plies so that stretching of the fabric over the stay points and edges is minimized and abrasion and wear and tear of the collar fabric is minimized.

Another feature of the invention resides in the novel method of construction permitting desired positioning of the stay in the collar during manufacture with a minimum of manipulative and sewing steps and requiring minimal operator's skill.

### BRIEF DESCRIPTION OF DRAWINGS

The specific details illustrating how to make and use a preferred embodiment of the invention, and the best mode contemplated for carrying out of the invention will be described in clear concise and exact terms in conjunction with the accompanying drawings wherein:

FIG. 1 is an enlarged plan view of a stay made in accordance with the invention;

FIG. 2 is a top plan view of an end piece of a collar made in accordance with the invention illustrating a

preferred mode of using the stay of FIG. 1, and showing the end piece surface which should be positioned facing the interlining with the stay in position;

FIG. 3 is a top plan view of the obverse face of the end piece shown in FIG. 2, illustrating the end piece surface which should be positioned facing the bottom ply;

FIG. 4 is a schematic perspective view of an assembled sewing package for forming a collar prior to turning with the desired relative positions of the top and bottom collar plies, lining and end pieces illustratively shown, along with desired stay position, dot dash lines indicating the hidden stay points, and dash lines indicating stitching; and

FIG. 5 is a top plan view of an assembled collar formed from the sewing package of FIG. 4, dot dash lines indicating the hidden stay, and dash lines indicating the line of top stitching.

#### DESCRIPTION OF PREFERRED EMBODIMENT

Referring now more particularly to the drawings, like numerals in the various figures will be employed to designate like parts.

As shown in FIG. 1, the novel stay 10 is formed of an elongate strip of flat flexible sheet material. A variety of different flexible sheet materials may be employed in fabricating the stay 10 such as known to those skilled in the art. Thus, materials ranging from the now out of use natural products such as whalebone through sheet steel and the more contemporarily used synthetics such as the plastics, including nylon, Mylar, Teflon or the like, may be satisfactorily employed.

The strip of flexible sheet material forming the stay 10 is formed with a central portion 12 having parallel edges 14. Indents 16 are formed by tapered parts on said central portion, the tapered parts formed by the edges of the central portion converging towards each other and terminating at a point spaced from the ends of the stay.

End portions 18 as best seen in FIG. 1 are formed at opposite ends of the central portion 12, extending outwardly from the point of termination of the converging edges of the central portion forming indents 16. The end portions 18 are narrower in width, as measured on an axis transverse to the longitudinal axis of the stay across the widest part of the end portion 18. The free terminal ends 20 of the end portions are preferably tapered and rounded as illustrated to provide an entry tip facilitating insertion of the stay into a slot in a collar end piece as will become hereinafter apparent. Hook portions 24 extend from the end portions 18 over the indents 16 of the central stay portion 12, at a spaced distance from the tapered edges of the central portion forming the indents 16, as best seen in FIG. 1.

In using the stay 10 in accordance with the invention it is preferred that the stay 10 be employed with collar end pieces 25, as illustratively shown in FIGS. 2 and 3. End pieces 25 may be formed of any one of a variety of materials, such as known to those skilled in the art to be suitable in forming collar interlinings. Thus, though, as will be understood by those skilled in the art, the end piece may be formed of the same material as the collar to be formed, it is preferable to employ a lining material stiffer than the fabric employed in forming the outer plies of the collar. Woven Dacron has been found eminently suitable. The end pieces as illustrated are contoured in the shape of the collar to be formed,

of a dimension to lie over the ends of other plies of the collar with the points 26 of the end pieces cut off as shown so as not to extend over the points of the unturned collar plies. Spaced slits 27 and 28 are cut into the end pieces spaced apart a distance slightly less than the distance between the end points of the tapered edges of the stay forming indents 16 and preferably equal to the distance between the tips of opposed stay hooks 24. Each slit 27 and 28 is of a length greater than the maximum width of stay end portions 18, and less than the width of stay central portion 12.

Stay 10 is assembled with end piece 25 by threading stay tips 20 through end piece slits 27 and 28, the stay 12 being flexed to bring the stay entry tip into position for insertion into slits 27 and 28. Upon release of the stay flexing forces, the stay will assume the flat extended orientation shown in FIGS. 2 and 3, with the stay end portions 18 and hooks 24 lying on one face of the end piece 25, as seen in FIG. 2, and the central portion 12 of the stay lying on the opposed face of the end piece 25, as seen in FIG. 3.

A sewing package 30 as shown in FIG. 4 is formed for producing a collar by forming a lining 32, top collar ply 34 and bottom collar ply 36 of a contour like that of the collar to be formed, with the lining and plies dimensioned slightly larger than the finished collar. The points 38 of the top and bottom collar plies are cut to form an angle larger than the angle between the normal line of extension of the thrust edge 41 and cape edge 42 of the collar to be formed. The lining 32 is formed with cut off points like points 26 on end pieces 25 as seen in FIGS. 2 and 3, the line 39 of lining point and end piece point, cut off preferably lying on the base of the triangle formed by the points 38 of the collar plies, as seen in FIG. 4.

The sewing package 30 is formed by superposing top ply 34 on lining 32, and positioning bottom ply 36 on superposed ply 34 and lining 32. End pieces 25 with stays 10 positioned in the slots thereof are arranged over the ends of bottom ply 36 with the central stay portion sandwiched between bottom ply 36 and end piece 25 as seen in FIG. 4. All of the plies, lining and end pieces are oriented with their cape edges 42 and thrust edges respectively aligned as viewed in FIG. 4.

A running seam 45 is then sewn through the above described aligned plies, lining and end pieces, with the line of the running seam lying along the desired boundary of the collar to be formed, and preferably about 1/4 inch from the edge of the package 30 as seen in FIG. 4. The running seam extends only along the thrust edges 41 and cape edge 42, leaving the neck band attaching edge 47 of the package unsewn, and passing beyond the tips of stays 10, so as to leave the stays free.

Thereafter, formation of the collar 50, as illustratively shown in FIG. 5 is accomplished by turning the plies of the package 30 by separating the bottom ply 36 from top ply 34 and turning the separated plies in opposite directions about the running seam 45 as an axis of rotation so as to invert and expose the top and bottom plies 34 and 36 as the exterior of the package, with running seam 45 hidden and defining the edge of the collar along the cape edge 42 and thrust edge 41. The open neck band attaching edge 47 is then attached to a neck band 51 in conventional fashion.

As illustratively shown, top stitching 55 is run around the cape edge 42 and thrust edges 41 of the collar, and along the neck band attaching edge 47 to secure the neck band, and close the previously open neck band edge 47.

#### OPERATION

The collar 50 is formed as above described with the stay 10 floatingly positioned in the slits 27 and 28 of end pieces 25. In forming the collar, under mass production, factory conditions, it is preferred to die cut the end pieces 25, simultaneously die cutting the slits 26 and 27 in these end pieces, so that the dimension and position of the slits is consistently and precisely located on each end piece.

Thereafter, the stays 10 are subject to relatively rapid manual threading through the slits, by relatively unskilled operators, who merely have to make certain that the stay hooks 24 are exposed on the same face of the end piece.

Assembly of the end piece with the stay into the package 30 insures desired positioning of the stay at the desired location, and merely requires lining up the thrust and cape edges of the end pieces with the thrust and cape edges of the previously aligned plies in the package 30.

After sewing the running stitch 45 to maintain the package plies in position, turning does not present a problem with maintaining the desired stay position, since the limited floating action of the stay accommodates the turning forces, with the stay thereafter shifting back to its desired orientation.

In use, the stay reinforced collar 50 is subject to less ply abrasion than encountered with previously employed permanently secured stays, since the controlled floating of the stay by permitting relative shifting of the collar plies with respect to the stay, minimizes stretching of the ply fibers over the edges of the stay.

It is thus seen that a relatively simple soft collar construction has been provided employing a controlled floating stay adapted for simple inexpensive accurate positioning in the collar during assembly which facilitates collar production, and minimizes collar wear in use.

The above disclosure has been given by way of illustration and elucidation and not by way of limitation, and it is desired to protect all embodiments of the herein disclosed inventive concept within the scope of the appended claims.

What is claimed is:

1. A collar stay comprising an elongate strip of flat flexible sheet material having a central portion extending longitudinally over a major portion of the length of said strip; indents formed by tapered parts on said central portion the edges of which converge towards each other, terminating at a point spaced from the end of said strip; end portions on said strip one on each end of said central portion extending from the point of termination of said tapered parts on said central portion, said end portions being narrower than said central portion; tapered ends on said end portions providing an entry tip on said end portions; and a hook portion on said end portions extending over said indents on said central portion at a spaced distance therefrom and extending toward said central portion.

2. A stay as in claim 1 in which said end portions comprise straight parallel edges leading from said hook

portions to a point transitioning into tapered edges forming said tapered ends, the spacing between said parallel edges being less than the maximum spacing between the edges of said central portion.

3. A stay as in claim 1 in which said central portion has parallel straight edges extending between the tapered portions defining said indents, the spacing between said parallel straight edges being greater than the maximum spacing between the edges of said end portions.

4. A collar end piece for floatingly supporting and in combination with a stay as in claim 1 in a collar, said end piece formed of a flexible piece of lining material contoured to conform to the shape of the ends of the collar; and spaced slits in said end piece, each slit having a length less than the maximum width of said central portion of said stay, and greater than the maximum distance across said end portions, said slits spaced apart a distance greater than the length between the transition of said central portion into the tapered parts forming said indents, and less than the distance between the points of termination of said tapered parts, whereby a stay inserted into said slots will be floatingly positioned with the slits extending over said indents of said stays.

5. A collar end piece as in claim 4 in which the points of said end piece are cut off along a line beyond the entry tip of said stay held in said slits.

6. A sewing package forming a collar employing a stay as in claim 1, said sewing package comprising: a lining ply contoured in the shape of the collar to be formed; a collar top ply contoured like said lining and positioned thereover; a bottom collar ply contoured like said top ply and positioned thereover; two end pieces contoured like the ends of said lining ply, one end piece positioned over each end of said bottom collar ply, said end pieces having spaced slits through which said stay is extended with an entry tip spaced from the points of the collar shaped plies; and a running seam stitched about the thrust and cape edges of said collar shaped plies between the stay tips and ply edges.

7. A sewing package as in claim 6 in which the points of said top and bottom plies are formed at an angle larger than the angle formed by the extension of the lines defining the cape and thrust edges of the collar.

8. A sewing package as in claim 6 in which said end piece has its points cut off along a line corresponding to the base of the triangle defining the angle of said collar ply points.

9. A soft collar construction employing the stay of claim 1, said collar comprising: an elongate bottom ply contoured in the shape of the desired collar with ends of desired shape; a top ply contoured like said top ply; two end pieces, one interposed between said top and bottom plies at the ends of said top and bottom plies, said end pieces having a pair of spaced slits therein of a dimension less than the maximum width of said central portion of said stay and wider than the maximum width of said stay end portions, said stay interlaced in said slots with an end portion of said stay lying adjacent a point of said collar; and a line of stitching securing said plies and end pieces along their edges, said stitching line extending beyond the entry tips of said stays, whereby said stays will be floatingly secured at a desired location in said collar.

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10. A method of forming a collar with a floating stay as in claim 1, said method comprising the steps of shaping a flexible fabric into a lining ply contoured like that of the collar to be formed with an edge extending beyond the desired bounds of the collar; shaping a fabric into a top ply of a contour and dimension like that of the lining ply; shaping a fabric into a bottom ply congruent to said top ply; forming two end pieces dimensioned and contoured to be congruent with the end portions of said lining ply; forming two spaced slits in said end pieces; threading one of said stays through the two spaced slits in each end piece, with the end portions of said stay lying on one surface of said end piece and the central portion lying on the opposite surface of said end piece; superposing the top ply over the lining

with cape and thrust edges aligned; positioning the bottom ply over the top ply with cape and thrust edges aligned; positioning a stay threaded end piece over the superposed bottom ply and top ply adjacent the ends of said plies with cape and thrust edges aligned; running a line of stitching around the superposed edges of the plies and end pieces along the edges of said plies which form the cape and thrust edges of the collar to be formed, said stitching line running beyond the tips of said stays, and leaving the edges of the plies normally connected to a neck band unstitched; and turning the collar by separating the upper ply from the lower ply and inverting the plies to sandwich the end pieces therebetween.

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