Dec. 7, 1937. L. P. MADSEN 2,101,798

COLLAR AND METHOD OF MAKING THE SAME

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Fig. 1.

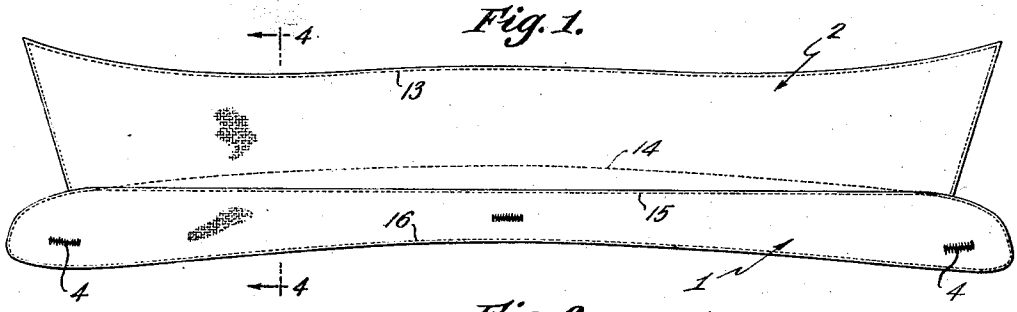


Fig. 2.

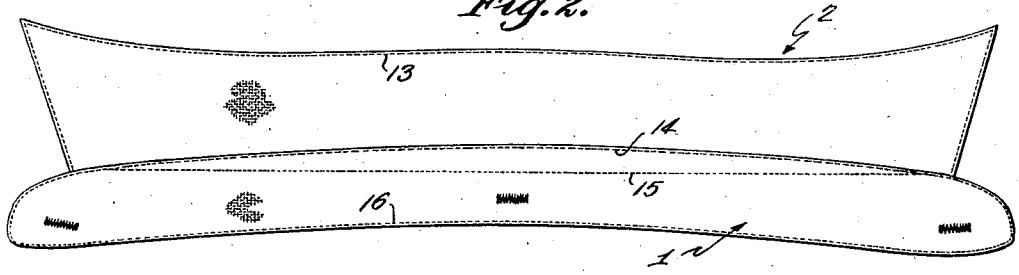


Fig. 3.

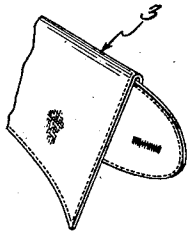


Fig. 4.

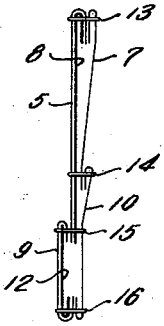


Fig. 5.

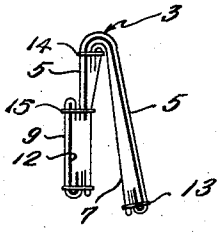
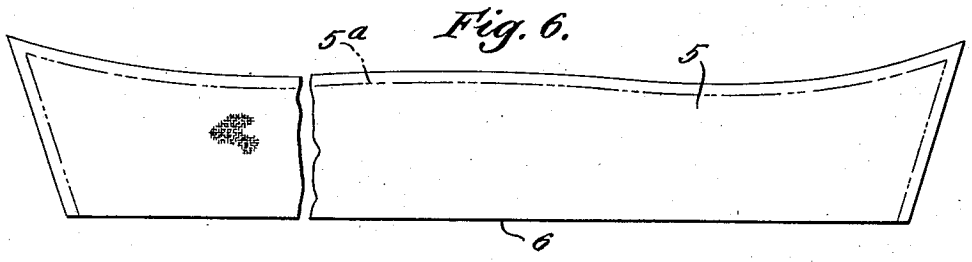


Fig. 6.



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COLLAR AND METHOD OF MAKING THE SAME

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Fig. 7.

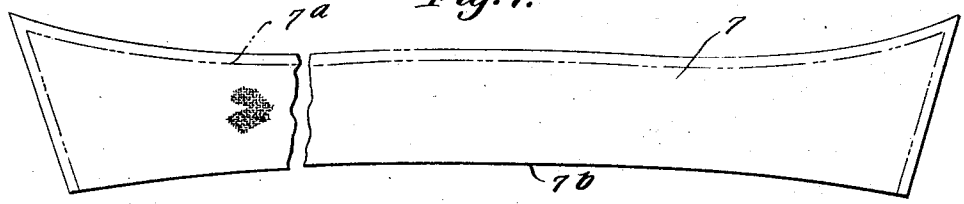


Fig. 8.

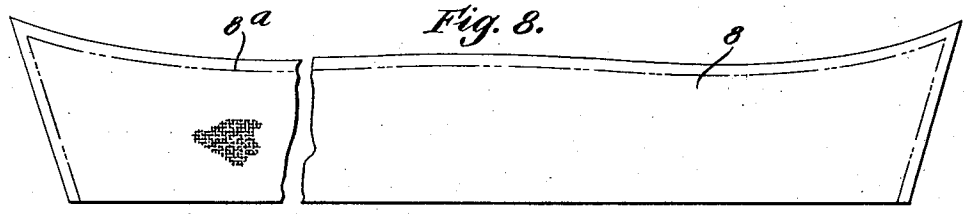


Fig. 9.

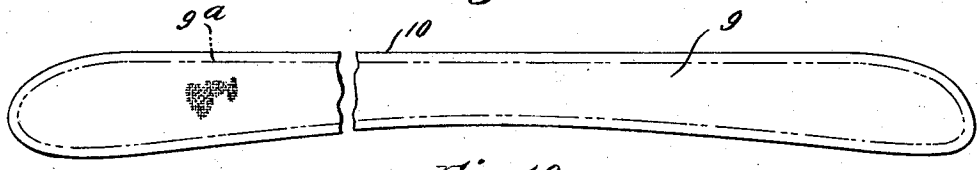


Fig. 10.

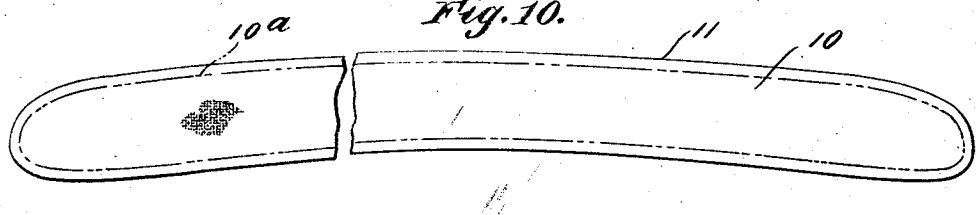


Fig. 11.

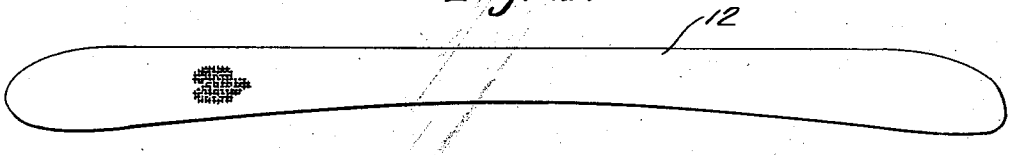


Fig. 12.

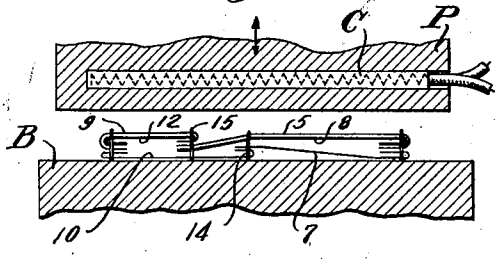
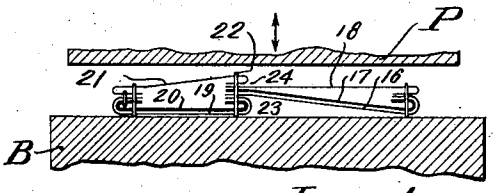


Fig. 13.



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Patented Dec. 7, 1937 2,101,798

UNITED STATES PATENT OFFICE

2,101,798

COLLAR AND METHOD OF MAKING THE SAME

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Application February 19, 1936, Serial No. 64,695

2 Claims. (Cl. 2—143)

This invention pertains to the manufacture of collars of the fold-over type wherein the top and band portions of the collar are separate independent parts united by seams, and relates more particularly to self-stiffened collars wherein constituent plies of the top at least are bonded or fused together, for example by the inclusion of a bonding substance which becomes actively adhesive and effective as a bond for the plies when subjected to appropriate treatment including pressure and/or heat.

In accordance with usual constructions the front and rear plies of the top, and also those of the band, are of substantially equal width so that the seam which unites the top and band includes folded margins of the front, rear and interliner plies of the band, between which are disposed the lower edges of the front and rear plies and the interlining of the top. This results in a heavy ridge or wale immediately below the fold line of the top (which in fact is defined by the upper edge of such ridge or wale) so that if it be attempted to fuse the collar after union of the top and band, this heavy ridge or wale relieves the pressure upon the thinner material just above the ridge or wale to such an extent as to prevent thorough fusion of the plies in the region at which folding takes place. Thereafter, when in use, these plies tend to separate or blister adjacent to the line of fold thus destroying the utility of the collar as an article of the self-stiffened type. For this reason it has heretofore been deemed essential to fuse the top before it is associated with the band in order to insure thorough fusion of the top plies. However, such fusion of the top before its association with the band makes its attachment to the band more difficult and, if the band is also to be fused, necessitates a second fusing operation after union of the top and band, a procedure which adds materially to the cost of manufacture and which is not conducive to the long life or good appearance of the top.

The principal object of the present invention is to provide a collar of the fused type comprising distinct top and band portions and having the constituent plies of the top firmly and permanently integrated at the region of the fold line. A further object is to provide a collar comprising distinct top and band portions in which the constituent plies of both the top and band are fused and permanently united throughout the areas of the top and band respectively.

Another object is to provide a method of making collars of the above type whereby the effective fusion of the top plies may be carried out easily and with certainty in a single operation after union of the top and band.

Other objects and advantages of the invention will appear from the following more detailed description and by reference to the accompanying drawings, wherein;—

Fig. 1 is a front elevation of the improved collar in its completed state and before folding;

Fig. 2 is a rear elevation of the collar illustrated in Fig. 1;

Fig. 3 is a fragmentary perspective view of one end of the collar after folding;

Fig. 4 is a diagrammatic vertical section, substantially on the line 4—4 of Fig. 1;

Fig. 5 is a diagrammatic view, generally similar to Fig. 4, but indicating the relative positions of the several parts after the collar has been folded;

Fig. 6 is a plan view of a facing ply blank for the top of the collar;

Fig. 7 is a plan view of a rear ply blank for the top of the collar;

Fig. 8 is a plan view of a stiffening and integrating interlining for the top;

Fig. 9 is a plan view of a front or facing ply blank for the band portion of the collar;

Fig. 10 is a plan view of the rear ply blank for the band portion of the collar;

Fig. 11 is a plan view of a stiffening and integrating interlining for the band portion of the collar;

Fig. 12 is a diagrammatic view illustrating the step of applying pressure in fusing the plies of the improved collar together; and

Fig. 13 is a view similar to Fig. 12 but illustrating a collar of usual type undergoing the fusing operation in a press.

Referring to the drawings, the improved collar, in accordance with the present invention, comprises the band portion 1 and the top portion 2. In Fig. 1 the collar is illustrated as being flat, that is to say unfolded, and presenting to view that side which, after the collar is folded, forms the exposed face or surface of the band and the exposed or outer face of the top. When in use the collar is folded as indicated at 3 in Fig. 3, the fold line extending longitudinally of the collar intermediate its upper and lower edges. The band portion is provided with the usual buttonholes 4 if, as illustrated, the collar is a detached collar, it being understood, however, that the present invention is also applicable to collars of the attached type in which event the band portion will be secured to the shirt by stitches in the usual manner.

In the manufacture of the collar in accordance with the present invention a facing ply blank 5 (Fig. 6) is cut from a material appropriate to form the outer or exposed surface of the collar top. This piece 5 is cut to somewhat larger dimensions than the finished top of the collar to provide the requisite material to be turned in along its margins at the indicated fold lines 5a and for the attachment of its lower edge to the band portion. A rear ply blank 7 is also cut from suitable material to form the rear face of the collar top, such rear member 7 also being cut to somewhat larger dimensions than the top of the finished collar to provide the requisite material for folding in at the margins along the fold line indicated at 7a. By comparison of Figs. 6 and 7 it will be evident that the rear ply member 7 is substantially narrower (at least at its mid-portion) than the front ply member 5, the latter having a downwardly convex lower edge 6 which makes it substantially wider at its center than at its ends while the member 7 has an upwardly concave lower edge 7b.

An interliner member 8 (Fig. 8) is cut from appropriate material, such material preferably having inclusions of a substance which when properly treated becomes adhesive and capable of bonding together or integrating the several plies of the collar. For example, this interliner 8 may be made from woven textile fabric in which threads at regular intervals, either warp or weft threads, or both, are of a cellulose derivative, for instance cellulose acetate, which when subjected to an appropriate solvent and then to pressure and/or heat becomes sticky and then sets so firmly as to unite parts with which it may contact. The adhesive material employed for this purpose should be distinguished from starch or other adhesive substances which are affected by moisture, since the adhesive here employed is moisture-resistant and is designed to form a permanent stiffener not substantially affected by laundering operations and which will permanently unite the parts between which it is interposed. Preferably this adhesive or integrating element should not extend over the entire surface area of the part 8,—desirably being distributed substantially uniformly over such area in such a way as to constitute not more than 30% of the latter. The part 8 is preferably substantially of the same dimensions as the part 5 so as to be coextensive with the latter when the parts are registered, the part 8 being cut to proper dimensions to permit its margin to be folded in along the fold line at 8a.

A facing ply blank 9 for the band portion of the collar is also cut from material appropriate for such use, such band portion preferably having a concavely curved upper edge 10 and being cut to dimensions such as to allow for a margin folded along the line indicated at 9a. A rear ply blank 10 for the band portion is also cut from suitable material, such rear ply 10 being substantially as wide as the front ply 9 and having the convexly curved edge 11 so that the central portion of this ply 10 is substantially wider than its ends. An interliner 12 is also cut from suitable material, preferably of a size approximating that of the front ply member 9 although it is not essential nor perhaps desirable that this interliner member 12 have a turned or folded margin. This interliner 12 may be of any usual textile material such as is commonly used as an interliner for a collar if the band is to be left soft or unfused, or, if preferred, this interliner may be of material like or similar to that of the interliner 8.

Having prepared the several constituent elements of the collar, the margins of the parts 5, 7 and 8 are folded and seamed together in the usual way by a seam 13 extending along the upper edge and the ends of the top portion of the collar. The constituent parts of the collar may be united by hand or machine methods, but preferably by the latter, the procedure then being substantially as follows:—

The margins of the members 9, 10 and 12 are folded,—the members are placed in registry, and then united along their lower edges and at their ends by a seam 16, (Fig. 4). The lower edges of the united top plies 5, 7 and 8 are then introduced between the folded upper margins of the band plies 9 and 12 and the rear band ply 10 and united by a seam 15 which extends through all of the plies. Finally, the free turned upper edge of the band ply 10 is united by a seam 14 to the lower edge of the ply 7 of the top, the stitches of the seam 14 also passing through the top plies 5 and 8. Thereafter, the buttonholes 4 are formed in the ends of the band portion.

From inspection of Fig. 4 it may be noted that the front or facing ply 5 of the top, together with the interliner member 8, extends downwardly below the seam 14 which unites the top of the rear ply of the band to the lower edge of the rear ply 7 of the top. It will also be noted that the rear ply 7 of the top terminates immediately below the seam 14 so that the interliner member 8 is directly exposed, below the seam 14, for contact with the upper part of the rear ply 10 of the band. Below the lower edge of the interliner 8, the interliner 12 of the band is exposed for contact with the rear ply 10 of the band.

After the collar has been thus far completed it is treated with some appropriate solvent for the stiffener material in the interliner members 8 and 12 and is then placed upon the bed B of an appropriate press (Fig. 12) having a movable platen P which may be heated by means of a heating coil C, if desired. When the platen of the press is brought down upon the collar resting on the bed B, the interliner 8 and the facing ply 5 are forced downwardly against the rear plies 7 and 10, and since the seam 14 includes but two thicknesses of the band material, the several plies are compressed and integrated thoroughly and completely so that throughout the region at which folding takes place (which is immediately above the seam 14) the plies are firmly united so that they do not show any tendency to separate during use. In so fusing the parts together, the lower portion of the plies 5 and 8, which extend continuously and without interruption from the top of the collar downwardly across the seam 14 as far as the seam 15, are united to the rear ply 7 throughout its entire area and also directly to the upper part of the rear ply member 10. The remaining portion of the rear ply member 10 is at the same time directly united to the front ply 9 by means of the interliner member 12, if the latter be of fusible type. Thus a completely integrated self-stiffened collar is produced in a single fusing operation and without necessitating fusing of the top before its union with the band. Furthermore the fold of the rear ply 10, at the seam 14, defines the fold line for the collar and since the curvature of the edge 11 of the ply member 10 may easily be made of any contour desired, it is readily possible to design the collar for proper folding and fitting without recourse to the use of auxiliary elements such as included

in tapes or the like to define a proper line of fold.

As compared with the results of the present method of procedure, the method of fusion as applied to a collar of ordinary construction is illustrated in Fig. 13. In this view there is illustrated a collar having a top portion comprising a front ply **16**, the interliner **17** and the rear ply **18**, all of the same width, and the band comprising the front ply **19**, the interliner **20** and the rear ply **21**, also all of equal width. The top and band are united by a seam at **22**. By reason of the large number of thicknesses of material at the region of the seam **22** it is substantially impossible to apply sufficient pressure by means of the platen to cause secure fusion or adhesion of the plies of the top at the points **23** and **24** adjacent to the seam **22**, since the thick bulk of material at the seam **22** relieves the pressure upon the plies of the top at the regions indicated at **23** and **24** so that insufficient pressure is exerted at these points to insure proper fusion.

As already noted, the front ply **5** and the interliner **8** both extend continuously from the top edge of the collar and across the fold line and as they are firmly and uniformly united at the region of the fold, repeated foldings do not occasion any separation or blistering at this point.

For convenience in description that side of the collar shown in Fig. 1 has been referred to as the "front" side and that side illustrated in Fig. 2 as the "rear" side, while the uppermost edge as shown in Fig. 1 is regarded as the "top" and the opposite edge as the "bottom" edge of the collar, although it is understood that in use, after the collar has been folded, such relationships do not necessarily apply.

It is further to be understood that the exact sequence of steps in assembling the collar parts as above suggested need not necessarily be followed and that any usual and desirable mode of uniting the several plies may be practiced.

It is further obvious that any appropriate materials useful in collar manufacture may be employed in forming the constituent elements of the collar with the understanding, however, that the interlining and stiffening ply **8**, (and also the ply **12** if the band is to be stiff) will be of a character such as is commonly used in the manufacture of "fused" collars or the equivalent thereof, that is to say capable of becoming adhesive thereby permanently to unite adjacent plies.

I claim:

1. A multi-ply fold-over collar of the fused, self-stiffened type comprising a top portion including a facing ply and a rear ply, the facing ply being wider than the rear ply at the central portion at least of the collar, an integrating stiffeing element substantially coextensive with the facing ply, a band portion comprising a facing ply, an interliner, and a rear ply, the upper edge of the front ply of the band being concave and the upper edge of the rear ply of the band being convex, the facing plies of the top and band being united by a seam located below the fold line, said seam uniting but six thicknesses of material, and the rear plies of the top and band being united by a curved seam which substantially defines the fold line, said seam uniting but five thicknesses of material,—the integrating stiffening element extending uninterruptedly across the fold line and permanently uniting the front ply of the top directly to both the rear ply of the top and the upper part of the rear ply of the band.

2. The method of making multi-ply fold-over collars of the fused, self-stiffened type which comprises as steps preparing front and rear top blanks, the rear top blank being of less width than the front top blank, preparing an interliner blank for the top, said top interliner blank being of substantially the same width as the front top blank and comprising a normally dry adhesive substance, preparing front, interliner and rear band blanks, the band interliner blank being narrower than the front band blank, arranging and uniting the top blanks to form a top in which the front and interliner top blanks extend down below the lower edge of the rear top blank, arranging and uniting the band blanks to form a band in which the rear band blank extends upwardly beyond the upper edges of the front and interliner band blanks, folding the upper edge of the front band blank over the unfolded edge of the interliner band blank to form a margin of triple thickness, folding the upper edge of the rear band blank upon itself to form a margin of double thickness, interposing the lower edges of the front and interliner top blanks between the triple thickness margin of the band and the rear band blank thereby to form six thicknesses of material, uniting said six thicknesses by a sewed seam, interposing the lower edge of the rear top blank between the double thickness margin of the rear band blank and the intermediate and front top blanks thereby providing five thicknesses of material, uniting said five thicknesses of material by a sewed seam which defines the fold line, subjecting the parts to the action of a solvent for the adhesive substance of the interliner and to pressure, and in a single pressing operation causing the adhesive substance of the interliner blank to unite the front blank of the top to the rear blank of the top and also to that portion of the rear blank of the band which is immediately below the fold line.

LOUIS P. MADSEN.