

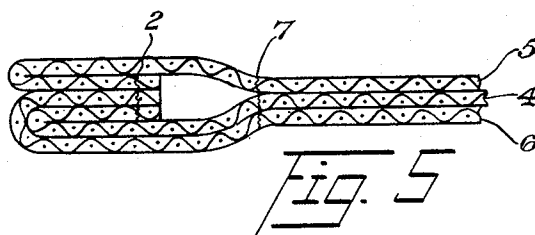
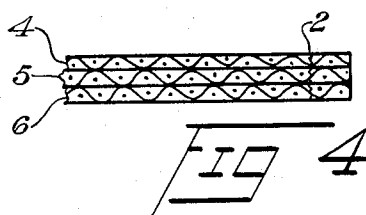
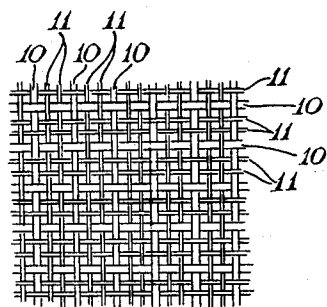
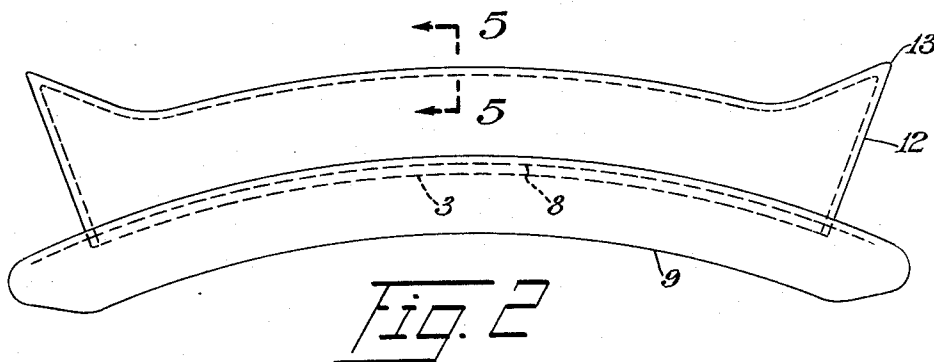
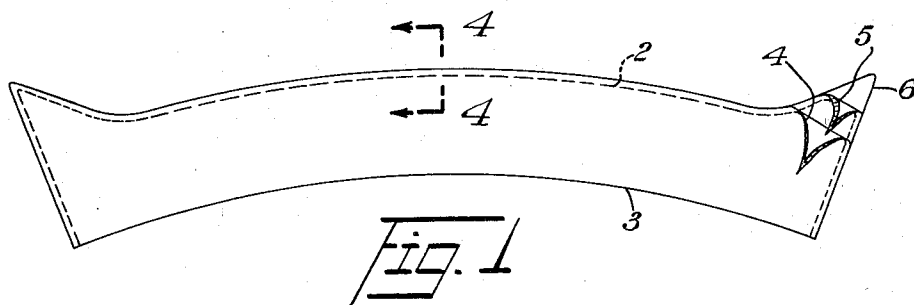
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F. C. HILBERG

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SEMISTIFF COLLAR

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Frank C. Hilberg INVENTOR.

BY Frank C. Hilberg
ATTORNEY.

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SEMISTIFF COLLAR

Frank C. Hilberg, Wilmington, Del., assignor to
E. I. du Pont de Nemours & Company, Wilmington,
Del., a corporation of Delaware

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3 Claims. (Cl. 154-46)

This invention relates to wearing apparel and more particularly to collars and cuffs and the like, and to a fabric from which they may be prepared.

5 There are several types of fabric garments, particularly shirts, manufactured according to the present state of the art, e. g., those which are manufactured and worn in the untreated state, that is, the collars and cuffs having no stiffening agent; and those having collars and cuffs 10 stiffened with a temporary stiffening agent such as starch. Further certain cellulose derivative coated fabrics have been prepared as a stiffening interlining for collars and cuffs. Still 15 further it has been proposed to employ a stiffening interliner for collars and cuffs comprising a woven fabric composed of yarns or threads of cotton or other suitable substance and additional 20 yarns or threads of a suitable cellulose derivative capable of being rendered cementitious by treatment with a suitable solvent.

Of these various types mentioned none are entirely satisfactory. Those garments which are made of untreated fabrics soil quickly and 25 wrinkle easily; the starched type while presenting a very satisfactory initial appearance is sensitive to water spotting and soon becomes wilted and wrinkled especially in warm weather. In the case of the coated fabric stiffening interliner, 30 considerable difficulty is encountered in the turning of the plies inside out after they are stitched. The cellulose derivatives-cotton mixed weave interliner does not give entirely satisfactory adhesion, the separate plies of collars and cuffs 35 made with this process tend to separate after a few launderings and the recombining or cementing of the separate plies is not readily accomplished in the home after the shirt has been in use since the solvents necessary to dissolve the 40 cellulose derivative yarns are not usually available in the home.

It is an object of this invention to overcome the disadvantages of the prior art collars and cuffs.

45 A further object is to provide a method of producing collars and cuffs which does not interfere with the customary procedure employed in the art.

A further object is to provide a new and novel 50 stiffening interliner for collars and cuffs capable of an improved and more permanent adhesion of the separate plies.

Other objects are to provide collars and cuffs which may be readily laundered and which are 55 comfortable to the wearer, and in addition will

withstand several launderings without substantial loss of their initial stiffness.

A further object is to provide a means for laminating separate plies of fabric with a mixed weave interliner by the application of heat and 5 pressure.

A further object is to provide a mixed weave interlining fabric which does not require the use of solvents to activate the adhesiveness of the interlining fabric. 10

A further object is the provision of a mixed weave interlining fabric for collars which is not affected by alkaline soaps used in the normal laundering operation.

In the preferred embodiment of this invention, 15 the separate plies of the collar are bonded together by means of an interliner fabric composed in part or entirely of yarns of a suitable resin which is non-cementitious per se but which is capable of being rendered cementitious by the ap- 20 plication of heat and pressure.

In order that the invention may be more fully understood the following definitions of terms used are given.

By the term "thermoplastic" I mean the prop- 25 erty by which certain materials have their adhesiveness increased sufficiently to enable them to firmly bond or unite fabrics of other materials to themselves or to other materials under the influence of heat and pressure and by which 30 they retain their bonding capacity after the influences have been removed. The thermoplastic yarns should soften under the influence of heat and pressure to the extent that it would be rendered cementitious to the materials to be united. 35 The thermoplastic yarns should soften between 250° F. and 350° F. which corresponds to normal ironing temperatures. On the other hand, the resin yarns must be sufficiently flow resistant at the temperature of boiling water and at the iron- 40 ing temperature used to prevent migration of the resin through the interstices of the outer plies of the collar.

By the term "interliner" I mean woven yarns which are sandwiched between other plies of 45 fabrics or other materials.

The accompanying drawing illustrates one embodiment of the invention as applied to a folded collar. Figure 1 is a plan view of a collar laid 50 flat with the fabrics turned back at one cape portion showing the arrangement of the parts. Figure 2 is a plan of the cloth top after it has been turned and the neckband inserted. Figure 3 is an enlarged diagrammatic plan view of the interliner. Figure 4 is a cross section along the 55

line 44 of Figure 1. Figure 5 is a cross section along the line 55 of Figure 2.

In the drawing, 4 represents an interliner, 5 and 6 are the front and back plies respectively which are stitched together by the stitching shown as 2. The neckband portion is indicated as 9 and is attached to the cape 12 by stitching 8. The thermoplastic resin yarns are indicated as 10 and are shown as being spaced apart from the cotton yarn indicated as 11.

The interliner 4 shown in Figure 3 consists of cotton yarns 11 and resin yarns 10 woven into a fabric. The resin yarns 10 may comprise the warp threads and the cotton yarns 11 the filler threads or vice versa. The resin yarns may also comprise only a portion of the warp threads, e. g., every second or third yarn to be of resinous composition this is also true in the filler direction. The interlining fabric 4 may also consist wholly of resin yarns.

The resin yarns 10 per se may be of any resinous composition which is rendered plastic under the influence of heat and pressure and capable of being spun into yarns and woven into fabric. They may also consist of mixtures of cellulose derivative and resins which are capable of being rendered cementitious by the application of heat and pressure.

The composition from which the resin yarns are spun is adjusted to produce thermoplastic yarn which is rendered cementitious by the influence of heat and pressure and does not require the use of solvents to activate the adhesiveness of the resin yarn. By the addition of suitable plasticizers to the spinning composition, it is possible to produce an interlining fabric of varying degrees of stiffness.

I have found that any thermoplastic resin which may be spun or formed into a thread may be used to fabricate a suitable cloth for the purpose intended. Resins which are thermoplastic or rendered so by plasticizers which may be used are the polyhydric alcohol-polybasic acid resins, vinyl resins including polymers of vinyl chloride and acetate or interpolymers, phenol-formaldehyde resins and toluene sulfonamide-formaldehyde resins.

In cases where some thermoplastic resins are desired to be used, which can be spun only with great difficulty, a modification of the invention may be resorted to in which a cotton, wool, linen or other thread is coated with the resin with or without a cellulose derivative and plasticizer by passing the thread through a solution or emulsion of the composition selected.

In the fabrication of the collar, the two outer plies 5 and 6 and the interliner 4 are cut to the desired shape with suitable dies. The back ply 5 is placed on top of the face ply 6 and the interliner ply 4 on top of the two outer plies 5 and 6 as is shown in Figure 1. The three separate plies 4, 5 and 6 are stitched together along the line 2 as is shown in Figure 1. After the three separate plies 4, 5 and 6 are stitched together, the assemblage is turned in the usual manner, the interliner 4 then becomes sandwiched between the two outer plies 5 and 6. After the collar top or cape portion 12 is turned, the collar points 13 are shaped and pressed by means of suitable dies. The turned assemblage 12 is stitched along line 7 as is shown in Figure 2.

The separate plies 4, 5 and 6 may be bonded together by means of heat and pressure at this stage to complete the fabrication of the top or cape portion 12 of the collar. An alternate pro-

cedure may be followed wherein the parts are assembled and then fused. In either case, the interliner ply 4 together with the outer plies 5 and 6 extend beyond the fold line of the cape portion 12 as is indicated by line 3 in Figure 2. The fold line is formed by folding the cape portion 12 of the collar over the neckband portion 9. The collar top 12 is then fused after being attached to the neckband 9 which completes the manufacturing operation of collars.

The foregoing detailed description has been given for clearness of understanding only and no unnecessary limitations should be understood therefrom, but it should be construed as broadly as permissible in view of the prior art.

It is also within the scope of this invention to employ resin yarns which depend upon the influence of solvent to activate the adhesive properties of the resin yarns. In some cases it is necessary to use a solvent to activate the adhesiveness of the resin yarn as well as the application of heat and pressure.

It is to be understood that where cellulose derivative yarns (such as cellulose acetate) are used a resin should be selected which is compatible with the cellulose derivative. Suitable solvents and plasticizers will be apparent to those skilled in the art.

This invention is not limited to any particular class of resins. Any resin, synthetic or natural, may be employed so long as it is capable of being spun into yarns and is rendered adhesive by means of heat and pressure with or without the assistance of softening agents or solvents so as to unit separate plies of fabric.

While the above detailed description relates to production of a collar top or cape portion of the collar, the same construction may be employed in the production of the neckband portion of the collar. The stiffening interliner may also be used to produce the bosom of dress shirts for formal wear as well as cuffs.

The mixed weave interliner which comprises thermoplastic yarns will also find use in the shoe industry for the production of box toes. The interliner will find use wherever it is desired to laminate different materials, capable of being bonded with resinous compositions.

The interliner is also useful in joining initials, motifs, and other decorations to clothing merely by heat and pressure. In this modification the interliner is usually joined to the decoration before the design is cut out.

The advantages of this invention will be readily apparent to those skilled in the art. By the incorporation of certain thermoplastic resin yarns in the interliner there is considerable improvement in the permanent bond of the separate plies.

A further advantage over the fully coated interliner for collars is that the mixed weave interliner is porous and allows water to pass through thereby allowing the collar to absorb more moisture from the body of the wearer and at the same time retain its original shape.

A further advantage is over the cellulose derivative-cotton mixed weave interliner in that the resinous yarns are rendered cementitious by the influence of heat and pressure and do not require the use of solvents to activate the adhesiveness of the resin yarns.

A further advantage is by virtue of the thermoplastic properties of the resin yarns, the separate plies are re-fused each time the collar is subjected to an ironing operation. In the case of

the mixed weave interliner which consists of cotton and a cellulose derivative, it is necessary to wet or soak the collar in a solvent for the cellulose derivative to re-fuse the collar to re-combine the plies which tend to separate after a few launderings.

These solvents are not usually available in the home, and, furthermore, are not desirable to have in the home in view of their inflammable properties. With the thermoplastic resin yarns in the interliner, the plies are re-fused by the normal ironing operation and do not require the use of hazardous solvents in the home.

In the case of the interliner which employs cellulose derivative yarns to bond the outer plies, the cellulose derivative tends to disintegrate and is washed away after a few launderings. An advantage of the resinous yarns in the interlining fabric is that the alkali soap employed in the normal laundering operation does not affect the resinous yarns and they will not be washed away.

It is apparent that many widely different embodiments of this invention may be made without

departing from the spirit and scope thereof, and, therefore, it is not intended to be limited except as indicated in the appended claims.

I claim:

1. A semistiff collar capable of being washed and pressed many times without deleterious effects, comprising a face ply, a back ply, and an interliner all firmly bonded together, said interliner comprising non-thermoplastic threads and thermoplastic threads woven in alternate relation, said thermoplastic threads composed of a composition containing a resin and being soft and cementitious at normal ironing temperatures at 250° F. to 350° F. under light pressure.

2. The article of claim 1 in which the resin is selected from the group consisting of vinyl resins, toluene sulfonamide formaldehyde resins and polymerized phenol formaldehyde resins.

3. The article of claim 1 in which the composition comprising the resin also contains a cellulose derivative compatible therewith in amount less than the resin.

FRANK C. HILBERG.