July 16, 1929. F. H. TABER 1,720,771

COLLAR OR LIKE GARMENT PART AND METHOD OF MAKING THE SAME

Filed April 3, 1928 2 Sheets-Sheet 1

Fig. 1

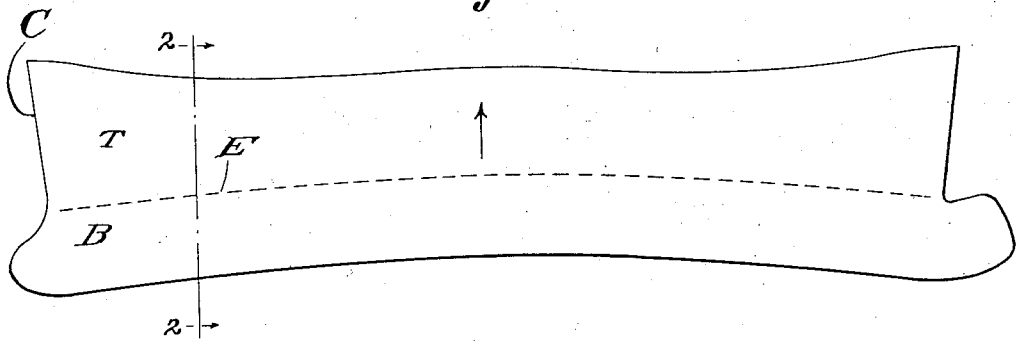
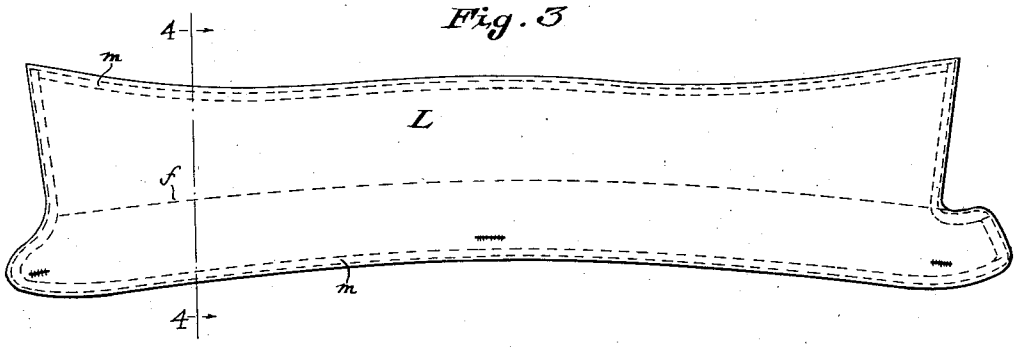



Fig. 3



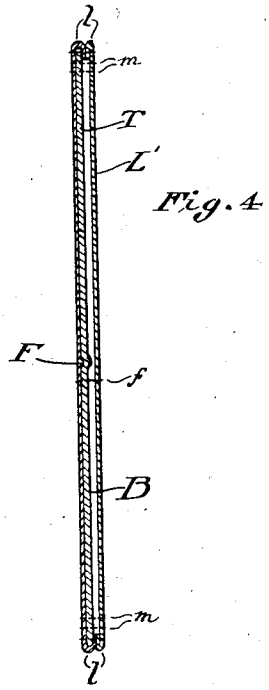




Fig. 4

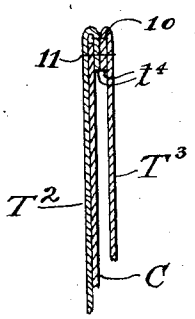



Fig. 8

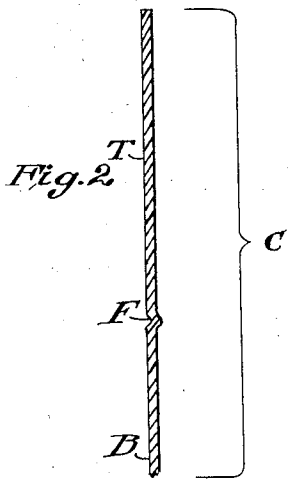



Fig. 2

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COLLAR OR LIKE GARMENT PART AND METHOD OF MAKING THE SAME

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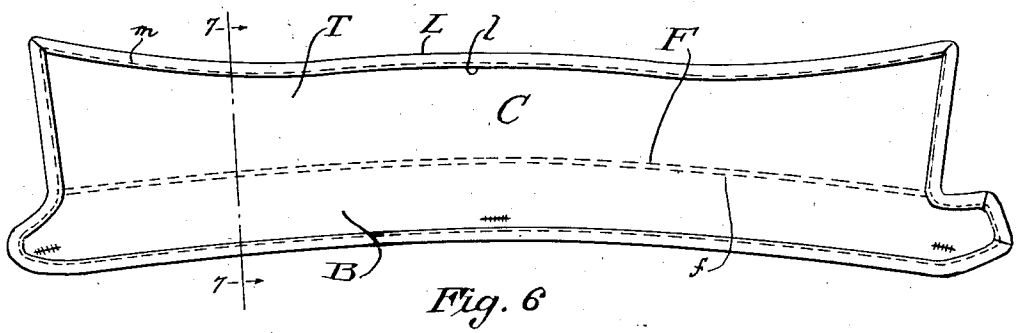



Fig. 6

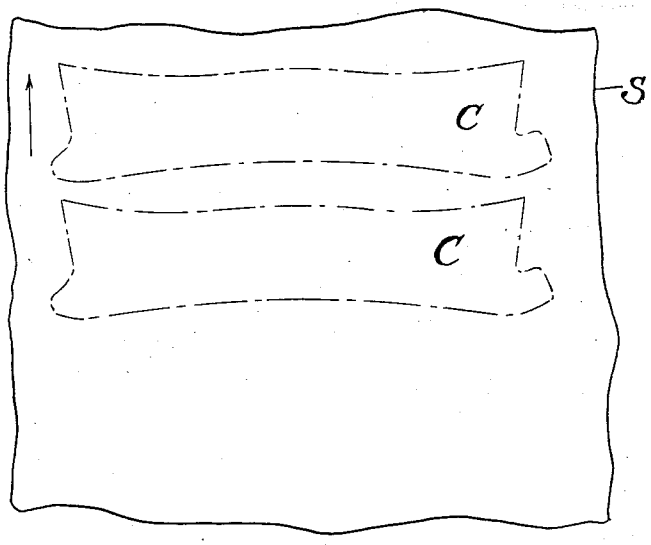



Fig. 5

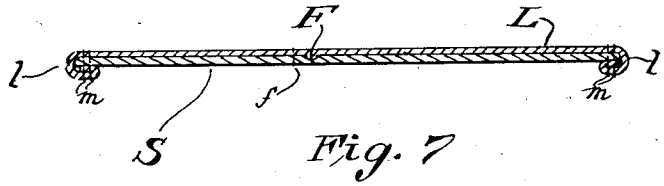



Fig. 7

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# UNITED STATES PATENT OFFICE.

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## COLLAR OR LIKE GARMENT PART AND METHOD OF MAKING THE SAME.

Application filed April 3, 1928. Serial No. 266,952.

My invention relates to the manufacture of collars, by which term I definitely include such analogous articles of apparel as cuffs and collar bands, and has for objects the provision of a collar which shall be self-standing (whether of the stand-up or fold-over type) without the aid of starch or other periodically applied stiffening material; which shall present to view facings or surfaces of textile material; which, as to such textile material, may be washed, starched, ironed and glossed if desired; which may be worn as an unstarched collar; which does not lose itself-standing capacity on being washed; which shall be permeable to gases and vapors and therefore as comfortable as a soft unstarched collar; and which may be reversible. These and other objects and characteristics will be made manifest by the description which follows.

In the drawings hereto annexed, which illustrates my invention as embodied in a fold-over type of collar,

Figure 1 is a plan view of the master-blank, unfolded and laid flat;

Figure 2 is a cross section taken at the line 2—2 of Fig. 1, but drawn to a larger scale;

Figure 3 is a plan view of the collar with facing material as attached to the master-blank, and finished with stitches and button-holes;

Figure 4 is a cross section taken at the line 4—4 of Fig. 3, but drawn to a larger scale;

Figure 5 is a diagram showing in plan a piece of the material of which the master-blanks are made;

Figure 6 is a plan view of a collar having facing material covering one side only of the master-blank;

Figure 7 is a cross section, taken at the line 7—7 of Fig. 6, but drawn to a larger scale; and

Figure 8 is a detail cross section illustrating the effect of a modified mode of assembly.

The basis of my improved collar consists of a master-blank, C, which virtually constitutes the collar itself, and could be worn as a collar without more adjuncts, were it superficially of such appearance as to be acceptable to the average man. The master-blank is cut to the full size and shape of a collar, and for a collar of the fold-over type comprises the top portion T and band portion B, which is provided with usual end tabs.

The sheet material of which the master-blank consists, is made in the following manner:

A sheet of carded cotton fleece, in which the cotton fibres predominantly lie in one direction, about one quarter inch thick, lightly sized on its surfaces to give it sufficient strength and consistency to be drawn from a folded pile and conducted to and through a cement applying machine, is passed between the rolls of such a machine, and has applied to it at its upper surface a viscous rubber solution in gasoline, the proportions of material in the cement solution being preferably about 80% gasoline and 20% rubber. Heavy pressure is applied at the nip of the rolls, which squeezes the viscous cement solution into and through the cotton fleece, coating all its fibres. On emergence from the impregnating rolls, the elasticity of the cotton fibres exerts itself, and the fleece re-expands to about a quarter of its original thickness, the cement solution, while the volatile solvent remains unevaporated, being slimy or slippery, and thus not sufficiently adhesive to hold the cotton fibres in complete restraint. This re-expansion of the sheet of solution-coated fibres restores the open character of the sheet-structure to a substantial degree, thus giving access of air to the coatings of the individual fibres. The sheet of solution-coated cotton fleece is then subjected to air currents, preferably warmed, during a forward movement long enough to permit all but a small residue of cement solvent to evaporate; at the close of this stage each fibre is coated with a rubber cement which is highly adhesive and tenacious. Then the material is passed through heavy calendering rolls, and compressed to a thin, dense sheet, the cement binding the fibres together.

The fibres of such a carded fleece lie predominantly parallel to the length of the sheet, the rubber cement, being unvulcanized, is slightly plastic, the finished sheet as a whole is superficially repellent to water, but the rubber thereof is not so continuous as to make the sheet impermeable to gases and vapors.

Fig. 5 represents a portion of such a sheet, from which master-blanks C for collars are preferably cut crosswise of the sheet, so that the predominantly parallel lay of the textile fibres is across the collar blank, in the direction indicated by the arrow. Under tension

exerted at right angles to the lay of the fibres the sheet material is more yielding and extensible than under tension exerted parallel to the lay of the fibres, although the slight plasticity of the rubber cement permits extension in that direction if the stress be great enough. A tensile pull on the material, above a critical value, will extend it; it can be similarly extended or moulded, within limits, by smoothing or ironing pressure. Thus, a material of this character, fibrous in structure, but unwoven, integrated with a cement which is slightly plastic, lends itself to that modeling which is essential to the proper "tailored" fit of a collar around the neck of the wearer; the top portion T of a master-blank C, such as shown, will, in the ironing, assume the slight extension lengthwise which is precisely what is required.

Cementitious materials other than rubber, provided they possess in reasonable degree this slight plasticity may be employed.

If the collar, when completed, is to be a white collar, the cotton fibres of the fleece should be clean and white, and the rubber used in making up the cement-solution should be as light colored as can be obtained.

A plurality of sheets such as S, (Fig. 5) if assembled and calendered in superposition while the rubber cement is fresh will integrate into a thicker material. The thickness of the material will depend wholly on the desired thickness and body of the master-blanks C. I call these master-blanks for the reason that the physical characteristics of such a blank are, in effect, those of the collar as a whole; they dominate. The material, S, made as above described, is flexible and supple, but possesses ample rigidity to make the collar self-standing; it is, moreover, suitably elastic, and returns to shape and position after being flexed. It is water repellent, can be repeatedly washed without alteration of character, but, being permeable to gases, does not sweat the neck of the wearer. It is amply strong and tenacious to hold stitches.

In a collar of the fold-over type, the master-blank C may be mechanically set for a fold or otherwise made preferentially flexible along the fold line F, where the boundary between top and band is located. This mechanical setting or preparation for folding may be produced before or after assembly by pressing a groove in the material, at F, or indented after assembly; by providing a row of perforations; or by both expedients. The master-blank C having been prepared, the facing blanks, L and L′ are cut, each having a margin for turning, in the usual manner; their area inside the turning line being substantially the same in extent and outline as that of the master-blank C. When, as is generally preferred by users, both sides of the master-blank are faced with cloth, the turn *l* of facing L will be folded over the edges of the blank C, the turn *l′* of facing L′ placed in register, and the marginal row or rows of stitches *m*, *m*, run through facings and master-blank. A line of stitches, at *f*, is run close to and parallel with the place for the fold line F of the master-blank C. Button-holes are cut and stitched in the usual manner. The stitch line *f* will preferably be on the band side of the fold line F.

The lay of the fibres in the master-blank C being preferably transverse thereto, in the direction of the arrow shown in Fig. 1, the material will yield plastically more readily lengthwise than crosswise of the blank and may thus be stitched loosely to the limit of stretch of the cloth facings. The assembled collar, (Figs. 3 and 4) having been washed, and if desired starched, is then ironed, first flat, and again ironed after folding along the fold line F. The first ironing (usually on a fold collar curling ironer of familiar use) puts the major strain on the top portion T, the slightly plastic cement yields, the fibres of the master-blank separate very slightly one from another laterally, and the master-blank then sets in its elongated moulded new condition, thus adapting itself to the exigencies of curvature of the collar as a whole. Very little strain will be exerted on the facing fabrics at the fold line, and these will therefore endure many trips to the laundry before becoming cracked or frayed. A collar faced on both sides and made as above described will be found readily reversible.

If it be desired to dispense with one of the cloth facings, a collar may be made as shown in Figs. 6 and 7, wherein the single facing L is double turned at its margin, the double turn *l* closed over the margin of the master-blank C, and the two members stitched at *m* and *f*. Button holes can be cut and sewed as usual.

The materials and relation of the parts of this collar facilitate and cheapen manufacturing at low costs. The master-blank C is plastic and normally very slightly adhesive, so that temporary assembly of the master-blank and a facing blank or blanks may readily be performed by pressing, and the aggregated blanks then sewed without slippage on each other of the component blanks during handling or sewing. This minimizes irregularities of assembly and lessens the skill required and cost of the sewing operations.

Collars of the construction above described can be made as detachable collars, or be united by stitching permanently to a shirt band. As soft or unstarched collars they will maintain a satisfactory upstanding stiffness. Starching the facings will add a little to the stiffness of the collar, but not so much as sensibly to impair its suppleness; the effect of starching is more on appearance, and in rendering the facings less susceptible to hold dirt.

While I have explained my invention in

connection with an assemblage of blanks adapted to be superposed and then sewed as an entirety, it will be apparent that other modes of assembling the several parts of the collar may be resorted to.

For example, in Fig. 8 I have illustrated a construction in which a cloth blank $T^2$ and another cloth blank $T^3$ of suitable shape to constitute exterior and interior faces of the collar are superposed in a flat state and sewed parallel to the margin at a seam 10, this seam not extending all the way across at least one margin of the assembled blanks; and in which the cloth bag so made has been then turned wrong side out, so as everywhere to bring the seam 10 to the interior position illustrated in Fig. 8. For example, the concave line at the bottom of the kind of the collar shown in Fig. 3 may be left without any surrounding seam 10 in the juxtaposed blanks $T^2$ and $T^3$ of Fig. 8, and the structure then turned inside out. In this mode of manufacture the master-blank C is now inserted in the turned bag, and the collar may then be completed by sewing one or more seams 11, Fig. 8, around the entire margin. It will be understood that whichever side of the bag is left open for turning, that side, after the insertion of the master-blank C, will have the edges of its cloth elements in-turned, so that the seam 11, and if desired another seam parallel to it, not shown, may complete the closure of the facing blanks $T^2$, $T^3$ at that side of the collar which has been left open for the insertion of the master-blank C. The qualities of pliability and and plastic stiffness of the master-blank C enable the operation of entering it into such a preformed pocket or bag to be performed effectively and rapidly.

I claim:

1. Collar blank, coextensive with substantially the full area of the collar and comprising both top and band portions, consisting of a sheet of unwoven and unspun predominantly parallel textile fibres, compressively integrated with a flexible, water repellent, slightly plastic cementitious binder.

2. Collar blank, coextensive with substantially the full area of the collar and comprising both top and band portions, consisting of a sheet of unwoven and unspun predominantly parallel textile fibres lying transversely of the blank, compressively integrated with a flexible, water repellent, slightly plastic cementitious binder.

3. Collar blank, coextensive with substantially the full area of the collar and comprising both top and band portions, consisting of a sheet of unwoven predominantly parallel textile fibres, compressively; integrated with a flexible, water repellent, slightly plastic cementitious binder, the sheet being permeable to gases.

4. Collar blank, of an extent comprising substantially the full area of the collar and comprising both top and band portions, consisting of a sheet of unwoven and unspun predominantly parallel textile fibres, the individual fibres being compressively held together with unvulcanized rubber.

5. Collar blank adapted to extend throughout the full area of a collar containing it and comprising both top and band portions, consisting of a sheet of unwoven predominantly parallel textile fibres lying transversely of the blank, compressively integrated with unvulcanized rubber, the sheet being permeable to gases.

6. Blank for a fold-over collar adapted to extend throughout the full area of a collar containing it and comprising both top and band portions, consisting of a sheet of unwoven and unspun predominantly parallel textile fibres, compressively integrated with a flexible, water repellent, slightly plastic cementitious binder, said sheet being made preferentially flexible along the line between top and band portions to facilitate folding.

7. Blank for a fold-over collar, cut to the full area of the collar and comprising both top and band portions, consisting of a sheet of unwoven and unspun predominantly parallel textile fibres lying transversely of the blank, compressively integrated with a flexible, water repellent, slightly plastic cementitious binder, said sheet being set in a fold along the line between top and band portions to facilitate folding.

8. Blank for a fold-over collar, cut to the full area of the collar and comprising both top and band portions, consisting of a sheet of unwoven predominantly parallel textile fibres lying transversely of the blank, compressively integrated with a flexible, water repellent, slightly plastic cementitious binder, said sheet being permeable to gases and made preferentially flexible along a line transverse to the predominant lay of its fibres between top and band portions to facilitate folding.

9. Collar, comprising a master-blank cut to the full area of the collar and comprising both top and band portions and consisting of a sheet of unwoven and unspun predominantly parallel textile fibres the individual fibres being compressively held together with a flexible, water repellent, slightly plastic cementitious binder, and facing material of woven fabric turned over and stitched to said master-blank at the edges.

10. Collar, comprising a master-blank cut to the full area of the collar and comprising both top and band portions and consisting of a sheet of unwoven predominantly parallel textile fibres compressively integrated with a flexible, water repellent, slightly plastic cementitious binder, said sheet permeable to gases, and facing material of gas permeable woven fabric fastened about and in covering relation to said master-blank.

11. Collar, comprising a master-blank ex-

tending throughout the full area of the collar and comprising both top and band portions and consisting of a sheet of unwoven predominantly parallel textile fibres lying transversely of said blank, compressively integrated with a flexible, water repellent, slightly plastic cementitious binder, and facing material of woven fabric fastened about and in covering relation to said master-blank, the top portion of the collar being longitudinally stretched in relation to the band.

12. Collar, comprising a master-blank extending throughout the full area of the collar and comprising both top and band portions and consisting of a sheet of unwoven predominantly parallel textile fibres compressively integrated with unvulcanized rubber, and facing material of woven fabric in covering relation and fastened to said master-blank at the edges.

13. Collar, comprising a master-blank coextensive with substantially the full area of the collar and comprising both top and band portions and consisting of a sheet of unwoven predominantly parallel textile fibres, said sheet permeable to gases and compressively integrated with unvulcanized rubber, and facing material of woven fabric turned over the attached about said master-blank at the edges.

14. Collar, comprising a master-blank extending throughout the full area of the collar and comprising both top and band portions and consisting of a sheet of unwoven predominantly parallel textile fibres lying transversely of said blank, said sheet permeable to gases and compressively integrated with unvulcanized rubber, and facing material of woven fabric turned over and stitched to said master-blank at the edges, the woven fabric and the master-blank being stretched longitudinally of the top portion and retained in a stretched state by plastic deformation of said master-blank.

15. Collar of the fold-over type, comprising a master-blank cut to the full area of the collar and comprising both top and band portions, consisting of a sheet of unwoven predominantly parallel textile fibres compressively integrated with a flexible, water repellent, slightly plastic cementitious binder, and facings of woven fabric turned over and stitched to each other at the edges of said master-blank.

16. Collar of the fold-over type, comprising a master-blank substantially coextensive with the full area of the collar and comprising both top and band portions, consisting of a sheet of unwoven predominantly parallel textile fibres lying transversely of the collar, compressively integrated with a flexible, water repellent, slightly plastic cementitious binder, said sheet being permeable to gases, and facing material of woven fabric turned over and stitched through said master-blank about the margins of the collar, and close to and parallel with the line of fold between top and band portions.

17. Collar of the fold-over type comprising a master-blank cut to the full area of the collar and comprising both top and band portions, consisting of a sheet of unwoven predominantly parallel textile fibres compressively integrated with a flexible, water repellent, slightly plastic cementitious binder, said master-blank being formed for preferential flexibility along a line between top and band portions, and facing material of woven fabric covering and attached to said master-blank.

18. Collar of the fold-over type comprising a master-blank coextensive with the full area of the collar and comprising both top and band portions, consisting of a sheet of unwoven predominantly parallel textile fibres compressively integrated with unvulcanized rubber, and facings of woven fabric turned over and stitched to each other and said master-blank at the edges.

19. Collar of the fold-over type comprising a master-blank coextensive with the full area of the collar and comprising both top and band portions, consisting of a sheet plastically extensible in at least one dimension made of unwoven predominantly parallel textile fibres lying transversely of the collar compressively integrated with unvulcanized rubber, said collar having a woven fabric facing turned over and fastened about said master-blank at the edges, the collar being folded on a curved line of juncture of a band portion and a top portion severally conformable to conic surfaces of differing acuity.

20. Art of making collars comprising forming a master-blank of a sheet of unwoven predominantly parallel textile fibres compressively integrated with unvulcanized rubber and having plasticity and slight adhesiveness, superposing a facing piece on said blank, attaching these component parts together temporarily by pressure, and attaching the temporarily assembled parts together in their assembled relation by sewing.

21. Art of making collars comprising forming a master-blank of a sheet of unwoven predominantly parallel textile fibres compressively integrated with unvulcanized rubber and having plasticity and slight adhesiveness, determining a line of preferential flexibility transversely to the line of fibres in said master-blank by deforming the material of the master-blank, and superposing a facing piece on said blank, attaching these component parts together temporarily by pressure, and attaching the temporarily assembled parts together in their assembled relation by sewing.

Signed by me at Boston, Massachusetts, this second day of April, 1928.

FREDERIC H. TABER.