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A. S. PHILLIPS ET AL

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WOVEN FABRIC FOR COLLARS AND CUFFS

Filed April 28, 1928

Fig. 1.

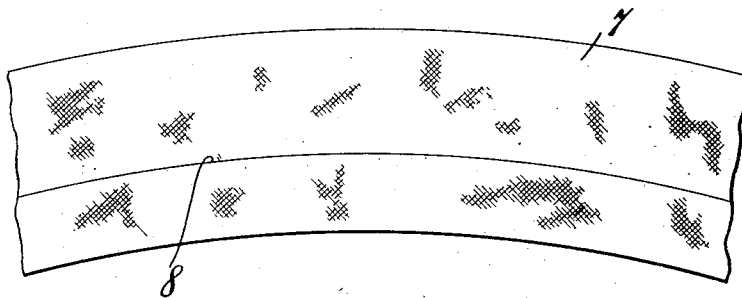


Fig. 2.

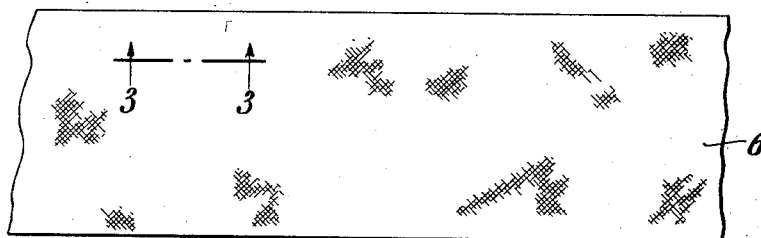


Fig. 3.

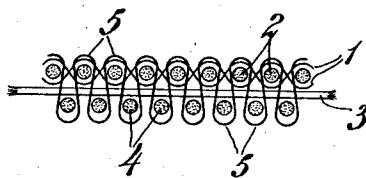
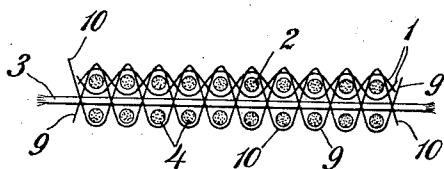
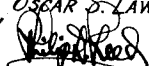


Fig. 4.



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WOVEN FABRIC FOR COLLARS AND CUFFS

Application filed April 23, 1928. Serial No. 273,454.

This invention relates to woven fabric particularly adapted to the manufacture of collars and cuffs of the type commonly known as "semi-soft" and made popular by the well known Van Heusen collar.

The fabric which has had widest use in collars and cuffs of this character is known as multiple ply interwoven fabric. It comprises two complete, distinct layers or webs, each having warp threads and weft threads interlaced, these layers being bound into a composite integral fabric by binder or interweave threads which pass repeatedly from one layer to the other. In some cases an intermediate layer of warp threads known as stuffer or gut threads is used to give added strength and body to the fabric.

This fabric, while wholly satisfactory from the standpoint of strength and starchless stiffness, has certain objections which it is one of the objects of this invention to overcome. In the first place, the fabric is expensive to weave, requiring high quality of yarns and skilled weavers. Our improved fabric is more economical to weave. Secondly, the surface of multiple ply interwoven fabric is made slightly irregular by the presence of a great number of little indentations produced by the tension of the binder threads drawing the several layers together. This gives the fabric a characteristic appearance which, while not unpleasant, is not all that could be desired from the standpoint of a smooth linen-like finish. Our preferred fabric has a smoother, finer surface and is substantially free from the indentations and corrugations found in multiple ply interwoven fabric. Thirdly, our fabric is less bulky than multiple ply interwoven fabric, but its increased firmness preserves the desirable quality of pliable stiffness which is so essential in collars and cuffs of this type. And fourthly, our fabric is more readily bleached and cleansed than multiple ply interwoven fabric, as will be more particularly pointed out hereinafter in discussing our improved fabric in connection with the drawings.

In the drawings,

Fig. 1 shows a curved collar fabric woven in accordance with the present invention;

Fig. 2 shows a straight fabric for collars or cuffs woven in accordance with the present invention;

Fig. 3 is a section taken along the line 3—3 of Fig. 2 showing diagrammatically the position of the threads and the weave construction in one form of our improved fabric.

Fig. 4 is a section similar to that of Fig. 3 and showing diagrammatically the position of the threads and the weave construction in another, and in some respects more advantageous, form of our invention.

It is to be noted that our improved fabric is not a true multiple ply fabric since it has no second layer of interlaced warp and filling threads. This will be made clear by an examination of Figs. 3 and 4. The warp threads 1 are shown interlaced with filling threads 2 to form the face of the cloth. Under the face web lies a layer of warp threads 3 which may be of comparatively cheap, coarse yarn. This layer of threads does not interlace with filling threads, but is held in place by a set of filling threads 4 which lie under it and which are caught and bound to the cloth by the binder warps 5 (in Fig. 3) and 9 and 10 (in Fig. 4) which pass alternately over the filling threads 2 of the face web and under the filling threads 4.

It will be clear from the foregoing that our improved fabric is composed of a single web of interlaced warp and filling reinforced by a set of floating warp threads and by a set of weft threads lying under said floating warp threads, these reinforcing threads being secured to the face web by warp binders which catch the underlying weft threads and draw them, together with the floating warp layer, tightly against the back surface of the face web. In other words, the reinforce consists of two layers of threads crossing each other but not interlaced, and binder threads which secure said layers to the face web.

As hereinbefore stated, the face surface of our fabric is smoother than that of multiple ply interwoven fabric, and this is accomplished without sacrificing firmness or inherent stiffness. The fact is that with our weave

construction the reinforcing layers can be drawn against the face web by the binder threads without producing, to any such degree, the characteristic marks or indentions which are found in multiple ply interwoven fabric. And it is our opinion that with the same amount of yarn a stiffer, finer piece of semi-soft collar fabric can be produced with our weave construction than with any multiple ply interwoven fabric weave construction. From the standpoint of fineness of surface and the absence of indentations, depressions or corrugations the weave shown in Fig. 4 is to be preferred. It will be noted that this weave differs from that of Fig. 3 in that there are two sets of binder threads (9 and 10 in Fig. 4) working oppositely and interlacing with every second weft thread in face and back rather than one set of binder threads (5 in Fig. 3) working together and interlacing with every weft thread in face and back. We believe the reason for this difference to be that in the fabric of Fig. 3 the binder threads pass back and forth at almost direct right angles to the surface of the cloth thus exerting a straight downward pull on the face weft threads, while in the fabric of Fig. 4 the binder threads exert a sideward as well as downward pull thus minimizing the tendency for the weft threads to be drawn out of the proper plane.

When multiple ply interwoven fabric is moistened either in the process of washing or bleaching, the interlaced threads on both face and back tend to swell and close the interstices through which the liquid should pass in order properly to cleanse or bleach the inner portions or plies. This has made it difficult to get a thorough bleach without weakening or tendering the fabric, and it has been equally difficult to remove dirt which has worked its way under the surface.

Our fabric as shown in Figs. 3 and 4 is a great improvement over multiple ply interwoven fabric in this respect, the reason being that the back of our fabric does not consist of interlaced back warp threads, back weft threads and binders but simply a layer of weft threads held in place by binders. The fabric is more readily penetrated by cleansing and bleaching liquids and a better and more permanent white is thus obtainable.

The fabric of our invention may, as has been said, be used in the manufacture of collars, cuffs and kindred articles. It may be woven in straight pieces, wide or narrow and the flap portion or the band portion, or both, of the collar may be cut therefrom. A piece of straight, narrow fabric 6 is illustrated in Fig. 2 but it will be apparent that the cloth may be woven in any width desired. In Fig. 1 our fabric 7 is shown woven curved and provided with a woven folding line 8 which predetermines the line along which the collar will fold and insures a sharp, neat crease.

The straight fabric of Fig. 2 may, if desired, have a natural folding line woven therein, and this would be particularly advantageous where the fabric is to be used for double or French cuffs.

The terms and expressions which we have employed are used as terms of description and not of limitation, and we have no intention, in the use of such terms and expressions of excluding any equivalents of the features shown and described, or portions thereof, but recognize that various modifications are possible within the scope of the inventions claimed.

What we claim is:

1. A woven semi-stiff fabric for collars and cuffs, having a face of close, smooth texture and a back of relatively coarse, permeable texture, said fabric comprising a face layer of interlaced warp and weft threads, an intermediate gut thread layer, and a back layer consisting of threads running at right angles to said gut thread layer, all said layers being bound firmly together by binder threads.
2. A single ply fabric for collars and cuffs reinforced by a separate, non-interlaced layer of warp threads and a separate non-interlaced layer of weft threads, and by binder threads which hold said layers and said single ply fabric in close and permanent union.
3. A woven semi-stiff fabric for collars and cuffs, having a face of close, smooth texture and a back of relatively coarse, permeable texture, said fabric comprising a face layer of interlaced warp and weft threads, an intermediate gut thread layer, and a back layer consisting of threads running at right angles to said gut thread layer, all said layers being bound firmly together by two sets of binder threads working oppositely.
4. A single ply fabric for collars and cuffs reinforced by a separate, non-interlaced layer of warp threads and a separate non-interlaced layer of weft threads, and by two sets of binder threads working oppositely.
5. A woven semi-stiff fabric for collars and cuffs, having a face of close, smooth texture and a back of relatively coarse, permeable texture, said fabric comprising a face layer of interlaced warp and weft threads, an intermediate gut thread layer, and a back layer consisting of threads running at right angles to said gut thread layer, all said layers being firmly bound together by binder threads passing alternately from the face layer to the back layer, no individual binder thread interlacing with consecutive weft threads either in the face layer or the back layer.
6. A single ply fabric for collars and cuffs reinforced by a separate, non-interlaced layer of warp threads and a separate non-interlaced layer of weft threads, and by binder

threads passing alternately from said single
ply fabric to said layer of weft threads, no
individual binder thread interlacing with
consecutive weft threads either in the single
ply fabric or in the layer of weft threads.

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