

Jan. 29, 1946.

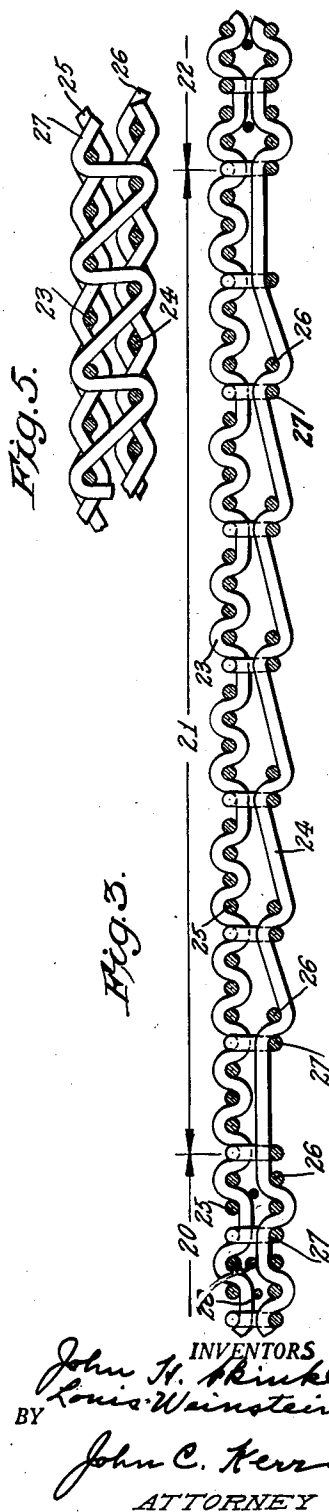
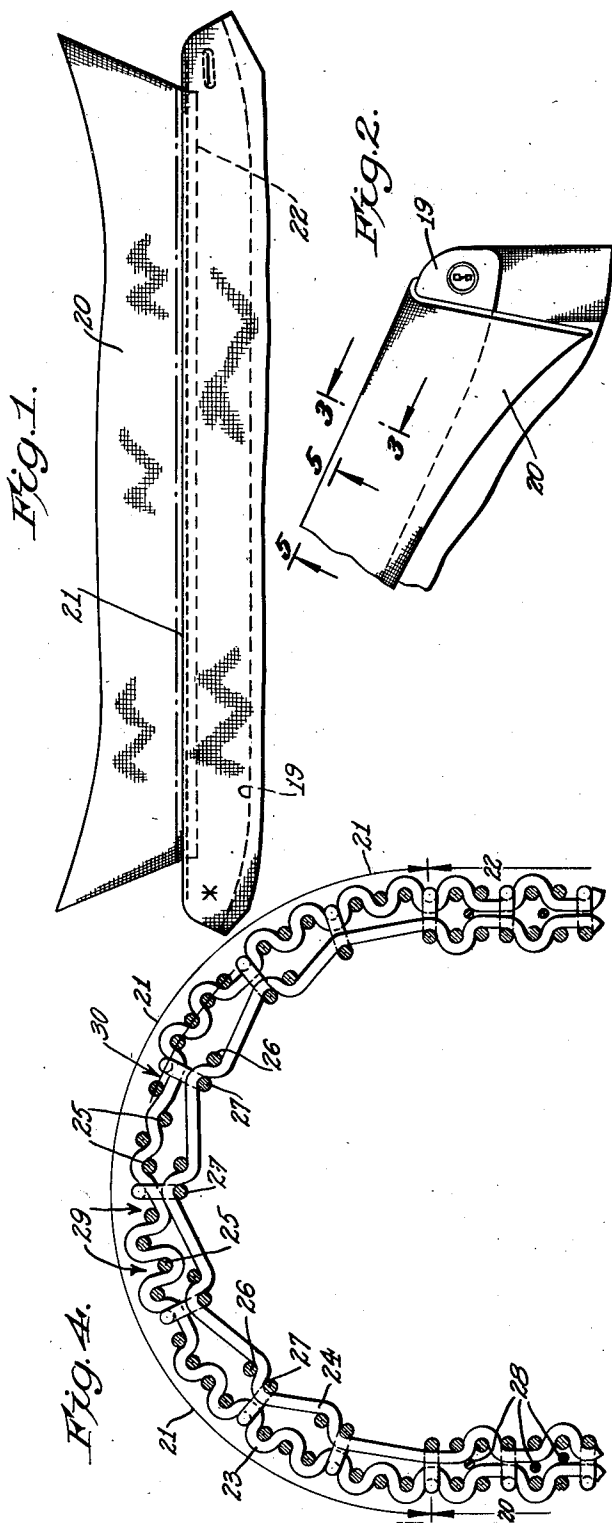
J. H. SKINKLE ET AL

2,393,828

COLLAR AND THE LIKE

Filed April 20, 1944

2 Sheets-Sheet 1



INVENTORS
John H. Skinkle
Louis Weinstein
BY
John C. Kever
ATTORNEY

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Fig. 7.

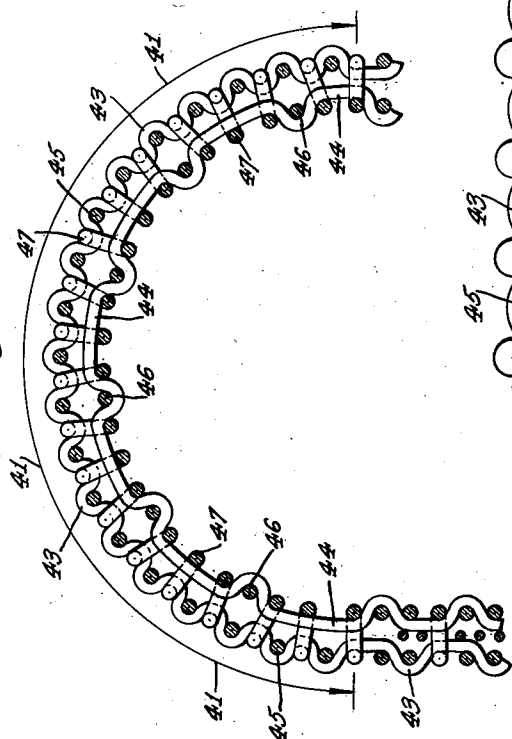


Fig. 8.

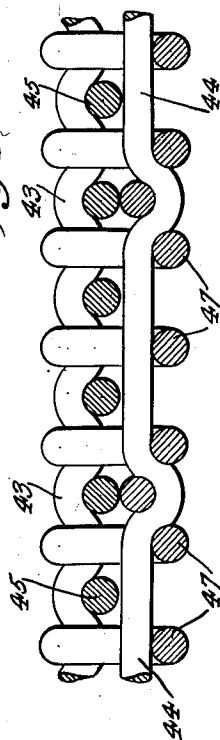
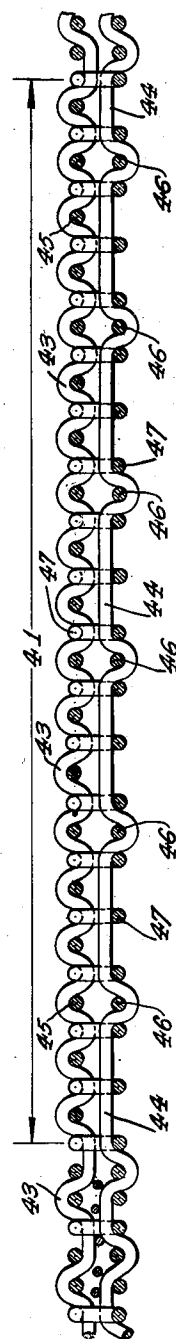


Fig. 6.



INVENTORS
John H. Skinkle
BY Louis Weinstein

John C. Kerr
ATTORNEY

UNITED STATES PATENT OFFICE

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COLLAR AND THE LIKE

John H. Skinkle, Chelmsford, Mass., and Louis Weinstein, Yonkers, N. Y., assignors to Phillips-Jones Corporation, New York, N. Y., a corporation of New York

Application April 20, 1944, Serial No. 531,856

2 Claims. (Cl. 139—385.5)

This invention relates to collars of multi-ply construction, by which we mean collars made of multi-ply, interwoven fabric and having a body or turned-over portion constituting the outer flap of the collar. The invention will be described in reference to a collar permanently attached to the shirt but it is, of course, equally adaptable to the separate collar.

One shortcoming of the multi-ply collar, in use, has been the rather early development of a raspy condition at the fold and this invention provides simple and effective means for eliminating that defect and thus prolonging the useful life of the collar.

It has been thought that the rasping effect was caused simply by the application of starch in the laundry, but we have discovered that the effect is occasioned primarily by warp yarns moving out of place at the fold-line. This movement of the warp threads forms troughs, and the edges of the troughs are exposed to more than their share of the surface friction in wearing and washing and consequently are soon abraded and become raspy.

The present invention, while maintaining flexibility at the fold-line, provides a structure in which the warp yarns are not only of sufficient number, but are so arranged and held in the weave, and with respect to the underlying ply or plies, as to be substantially incapable of migration or appreciable separation when the collar is folded at the fold-line, even after many launderings and folding operations.

In the drawings:

Figure 1 shows a type of prior art collar;

Fig. 2 is a fragmentary perspective view showing the collar of Fig. 1 as folded over and attached to a shirt;

Fig. 3 is an enlarged cross-section of the fold-zone (before folding), on line 3—3 of Fig. 2;

Fig. 4 is a view of Fig. 3 curved as in the folded collar;

Fig. 5 is a cross-section on line 5—5 of Fig. 2;

Figs. 6 and 7 are views similar to Figs. 3 and 4, respectively, but illustrating improvements of fold-zone construction according to the present invention; and

Fig. 8 is a view enlarged (as in a photomicrograph) to better show the relationship of the yarns in the fold-zones of Figs. 6 and 7.

The collar of Figs. 1, 2, 3, 4 and 5 comprises a body or outer panel 20, a narrow fold-line, or zone, 21, and an insertion band 22 which is sewed to the neckband 19 of the shirt. The portions 20, 21 and 22 are woven in one piece of

multi-ply fabric, the body portion 20 consisting of successive "warp-repeats," each of which comprises two face warp threads 25, two back warp threads 26, a binder warp thread 27, with face and back weft or filling threads 23 and 24, respectively. Gut warp threads 28 float between the face and back plies and are held intermediate the binder threads of successive repeats. For the sake of simplicity "warp threads" and "binder threads" are hereinafter referred to simply as "warps" and "binders," while the weft or filling threads are usually referred to as "fillers" or "fillings."

It will be noted that, in the fold-zone, many of the binder warps 27 are omitted, leaving only one binder for every three or four face warps 25, and at the same time the number of back warps 26 is reduced. Furthermore, the gut warps 28 are omitted entirely. With this construction flexibility of the fold-zone was achieved, but despite the fact that the face ply was well filled with warp and filling threads, there being many more face warps than back warps within the fold-zone, durability and comfort, as measured by use and wash resistance, was not obtained. In fact, a collar so constructed would not, in many cases, last as long as other parts of the shirt, even though it had far greater tensile strength than the fabric used in making the balance of the garment.

Reference to Fig. 4 will illustrate what we have found to be the seat of difficulty at the fold in collars of this type. It will be noted that because of insufficient binding of the face ply to the back ply, and because of the relatively open construction of the back ply, a number of the face warps 25 have moved radially inwardly with reference to their proper positions on arc 30, forming troughs 29. The edges of these troughs after abrasion in laundering with consequent breakage of fibers provide the rasping effect when stiffened with starch, the troughs being forced open when the collar is folded after ironing.

Figs. 6, 7 and 8 illustrate the present invention. The fabric of the fold-zone 41 consists of equally spaced face warps 45 alternating with equally spaced binders 47, a back warp 46 opposite each third face warp, face filling 43 engaging the face warps and binders, and back fillings 44 engaging the back warps and binders. By this construction the face warps are held securely against migration, firstly by reason of the anchoring effect of the binders, and secondly by reason of the relationship of the back warps, the latter being similarly held against migration so

that there is no space into which the face warps may migrate.

It is to be understood that the invention is not limited to the specific embodiment herein illustrated and described, but may be used in other ways without departure from its spirit as defined by the following claims.

What we claim is:

1. Multiply fabric for collars and the like, including a fold zone portion and body portions on both sides thereof, comprising face ply and rear ply weft threads disposed substantially perpendicular to the longitudinal extent of said fold zone, face ply warps woven with said face ply weft

threads, rear ply warps woven with said rear ply weft threads, and binder warps woven with both said face and rear ply weft threads, said fold zone portion having a face ply warp contiguous to each binder warp and having a ratio of one face ply warp to one binder warp and one rear ply warp to each three binder warps.

2. A multiply fabric in accordance with claim 1, comprising in addition gut warps adjacent to the junction lines only between said fold zone portion and at least one of said body portions.

JOHN H. SKINKLE.
LOUIS WEINSTEIN.