J. B. BOLTON.

COLLAR.

APPLICATION FILED FEB. 26, 1914. RENEWED OCT. 29, 1919.

1,383,694.

Patented July 5, 1921.

2 SHEETS—SHEET 1.

Fig. 1

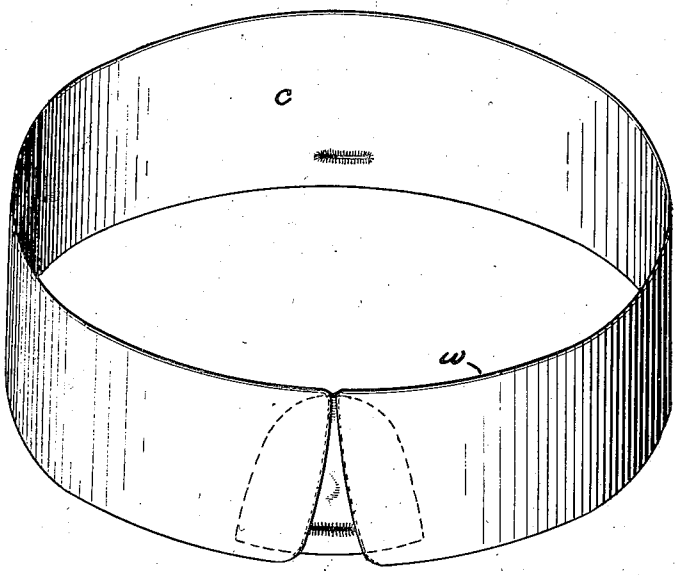


Fig. 7.

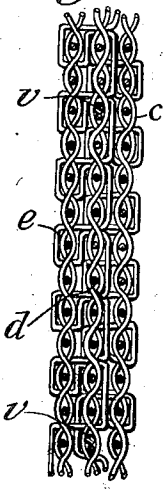


Fig. 2,

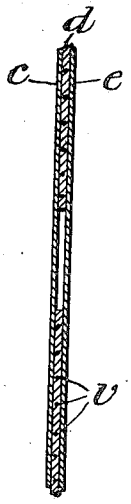


Fig. 4.a

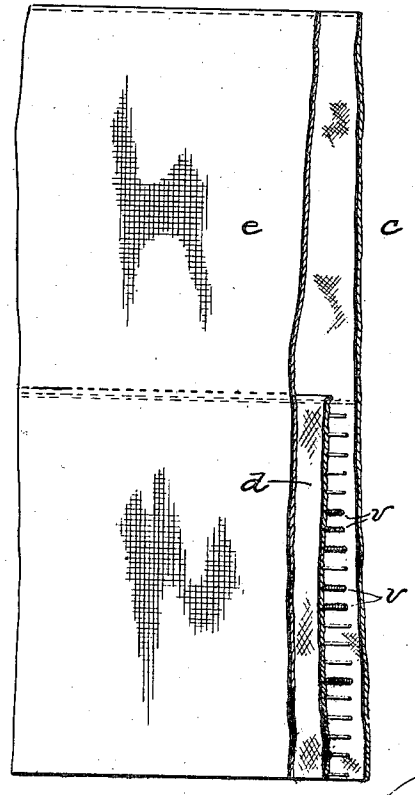
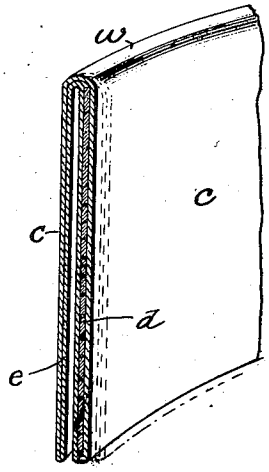


Fig. 3,



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 4,

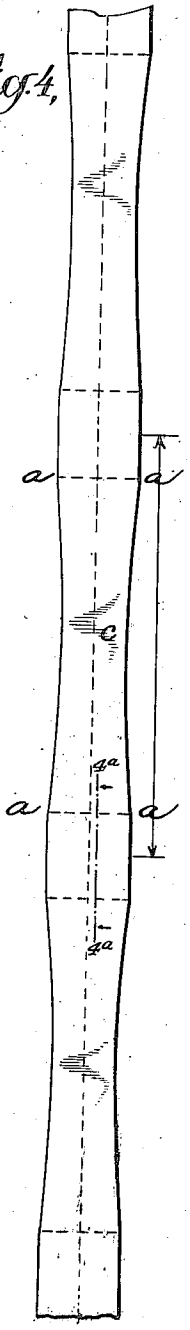


Fig. 5,

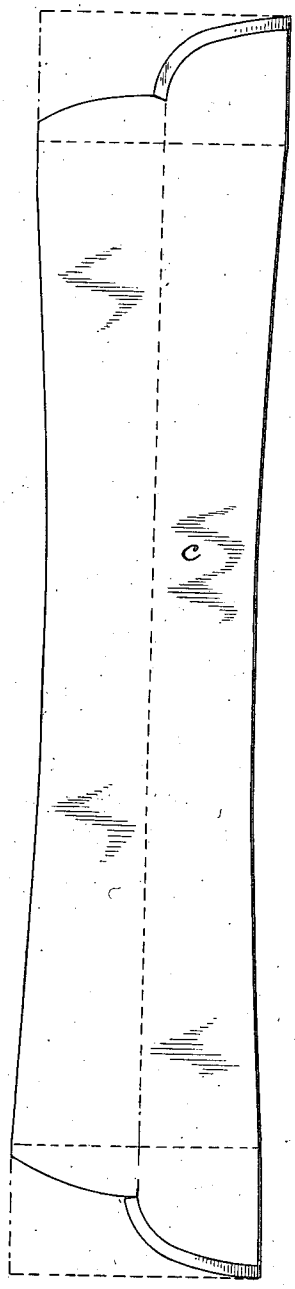
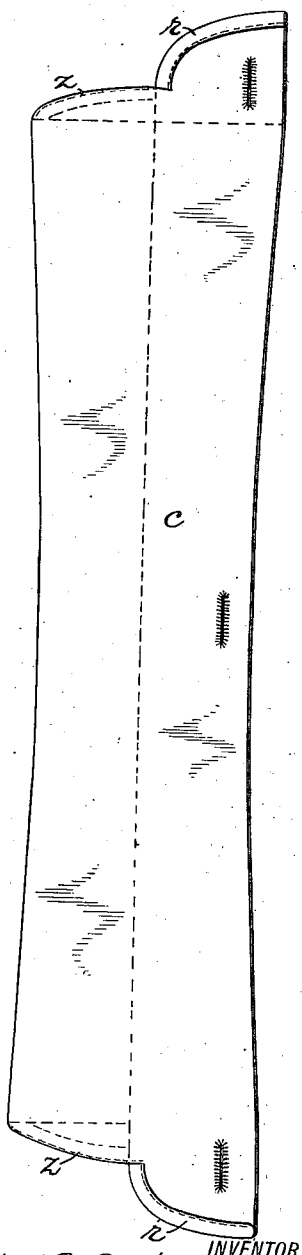


Fig. 6,



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COLLAR.

1,383,694. Specification of Letters Patent. Patented July 5, 1921.

Application filed February 26, 1914, Serial No. 821,351. Renewed October 29, 1919. Serial No. 334,378.

To all whom it may concern:

Be it known that I, JOHN B. BOLTON, a citizen of the United States, residing at Methuen, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Collars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

In an application for Letters Patent of the United States, filed of even date herewith Serial No. 821,350, I have described and claimed a collar sufficiently stiff to maintain its upright shape without the employment of starch and nevertheless sufficiently pliable, by reason of the introduction of reinforcing threads in the fabric to receive and maintain a curvilinear set appropriate to the wearer's use.

The present invention comprises a modification of the structure shown in my said application, and is illustrated in the accompanying drawings, as applied to a collar of the turn-over type, for which use it is particularly adapted.

In the drawings,—

Figure 1 represents a collar of the turn-over type embodying the present invention;

Fig. 2 represents, in plan, a fragmentary view of a portion of the multiple ply interwoven fabric from which the collar is made, said view being on a larger scale than Fig. 1;

Fig. 3 represents a cross-sectional view of a portion of the same fabric, showing it folded along the intended upper edge of the collar;

Fig. 4 represents a strip of fabric made up of a series of blanks woven in a continuous length and adapted to be subsequently severed and to be then fashioned into individual collars;

Fig. 4^a is a longitudinal section taken along the line 4^a—4^a of Fig. 4 showing the non-interwoven portions of the blanks.

Figs. 5 and 6 represent, respectively, the preferred manner of forming the collar from the individual blank in such manner that one of the layers of the composite fabric shall furnish a binding edge for the free ends of the collar.

Fig. 7 is an enlarged view showing one form of interweaving of the multiply fabric.

Referring to the drawings, *c* indicates the intended outer layer of woven fabric (for instance, of cotton or linen), *d* the intermediate reinforce and *e* the innermost layer. The layers *d* and *e* are likewise intended to be woven from cotton or linen, all three fabrics being of the usual quality familiar to the art, except that the reinforce layer, which is preferably the intermediate one, shall be provided with reinforcing threads of the kind hereinbefore indicated.

These reinforcing threads, illustrated in Figs. 2 and 3 as longitudinal components *v* of the intermediate layer *d* are interwoven in the fabric and are preferably made up of soft annealed copper wire, of small gage and having a coating of spun cotton fiber, the diameter of the wire and its spun coating not exceeding usually, more than once or twice the gage of the cotton or linen thread from which the fabric *d* is woven. The copper wire with its spun coating is of the kind frequently employed in the construction of the insulated conductors of galvanometer coils and the like, and is of such softness and purity as to be susceptible of flexure without tending to break. When interwoven in the fabric, it is invisible in the completed article, and the composite fabric may be scrubbed and washed, mangled, and the like, without taking any special precautions to avoid injury to the reinforce. The number of the copper wires employed will vary somewhat with the choice of the manufacturer but will, in general, be in about the ratio of 20 to 500 of the cotton threads when cotton constitutes the remainder of the fabric layer.

It will be noted that the intermediate layer *d* is of only half the width of the fabric, in the form illustrated in the drawings. The function of thus limiting its width is to permit the fold of the fabric, corresponding to the upper edge *w* of the collar (see Figs. 1 and 3) to consist of the two outer soft layers *c* and *e*, thereby diminishing the thickness of the collar along this line of fold and therefore lessening the frictional effect of the rollers of the mangle when the collar is being washed and laundried. The fabric, as a whole, that is to say, the three layers thereof are preferably woven in a single operation upon an appropriate loom, and the longitudinal threads of the several layers are caught into the adjacent member of the series, so as to connect them together

into a multiple ply interwoven fabric and avoid wrinkling, for example, as illustrated in Fig. 7. Between the points indicated by the lines *a*—*a* of Fig. 4, each of the individual blanks of the woven strip shown therein are narrowed on the loom toward the center, so as to conform to the prevailing style of the turn-over collars, in this respect, although it will be understood that this conformation of the blank may be altered within wide limits to conform to variations in configuration as they may be determined by the choice of the manufacturer and the requirements of the trade.

In order to provide for protecting the otherwise raw edges of the free ends of the collar, the buttonhole tabs of the several layers are not interwoven but remain separate from the intermediate layer of the fabric in the weaving operation, as indicated in Fig. 4ª; so that when the blank is cut to the configuration shown in Fig. 5, the cut edges of one of the outside fabrics may be folded reversely and stitched as shown at *r* in Fig. 6, and so that the other outer fabric may be similarly reversed in the opposite direction and likewise sewed, as shown at *z* in said Fig. 6, thereby adding to the acceptable appearance of the completed article.

While, as hereinbefore described, the reinforcing layer may be provided with soft copper reinforcing threads, these threads may be, in some instances omitted, provided that the reinforcing layer is of such a character as to allow the collar as a whole to take on a permanent set when bent to collar form, which is the main purpose and intent of the invention. This function can be attained, in some instances, by so close a weave of the composite fabric and such an interweave of the individual layers thereof that the necessity of employing threads of a kind corresponding to the soft copper wires may be avoided.

What I claim is:—

1. A shirt collar, made up of a composite fabric comprising an inner and an outer layer together with an intermediate reinforce, said inner and outer layers and said reinforce being interwoven and inherently capable, in an unstarched condition, of taking and maintaining a curvilinear set.

2. A folding shirt collar, made up of a composite fabric comprising an inner and an outer layer with an intermediate reinforce, said reinforce being provided with threads interwoven therewith and inherently capable in an unstarched condition of receiving and maintaining a curvilinear set, said reinforce extending upwardly to the folded edge of the collar.

3. A shirt collar, comprising a composite fabric made up of an inner and an outer layer of woven fiber of the entire width of the collar and an intermediate reinforcing layer of half the width of the collar, said reinforcing layer being provided with longitudinal threads of soft metal capable of taking and maintaining a curvilinear set, the folded edge of the collar being constituted by the two outer layers.

4. A shirt collar made up of a composite fabric, comprising an inner and an outer layer of fabric, and an intermediate reinforcing layer, said several layers being interwoven, so as to avoid wrinkling when folded, and the reinforcing layer being provided with pliable longitudinal threads of a material inherently capable in an unstarched condition of taking and maintaining a curvilinear set, the outer layers being continued beyond the intermediate layer at the free ends of the collar and being reversely bent and sewed so as to bind said free ends.

5. A folding shirt collar, made up of a composite fabric comprising an inner and an outer layer with an intermediate reinforce, said several layers being interwoven and inherently capable, as a whole, in an unstarched condition of receiving and maintaining a curvilinear set, said reinforce extending upwardly to the folded edge of the collar.

6. A folding collar, made up of a neck band portion and a folding portion woven integral therewith of multiple ply interwoven fabric, the neck band being woven thicker and stiffer than the folding portion, and the collar folding along the edge of said neck band.

7. A folding collar, made up of a neck band portion and a folding portion woven integral therewith of multiple ply interwoven fabric, one of said portions being of 2-ply interwoven fabric, and the other portion having a third layer of fabric interwoven therewith to form a thicker and stiffer portion, and the collar folding along the edge of said thicker portion.

8. A folding collar, made up of a neckband portion and a folding portion, the neckband portion being of multiple-ply interwoven fabric and having an integral thin extension forming the fold portion of the collar.

9. A folding collar, made up of a neckband portion and a folding portion woven integral therewith, the folding portion being of multiple-ply interwoven fabric and the neckband comprising a thicker portion of the fabric than the folding portion.

In testimony whereof I affix my signature, in presence of two witnesses.

JOHN BLAKESLY BOLTON.

Witnesses:
HERBERT C. LARKE,
WALTER BATES FARR.