May 28, 1957 S. F. STEIN 2,793,370

TEXTILES

Filed July 9, 1953

FIG. 1

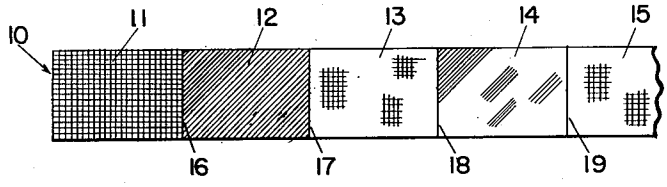


FIG. 2

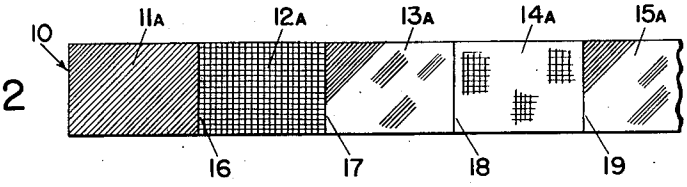


FIG. 3

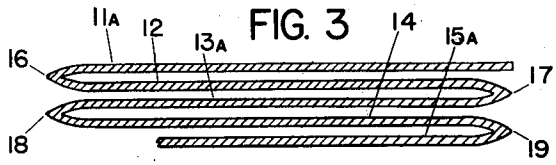


FIG. 4

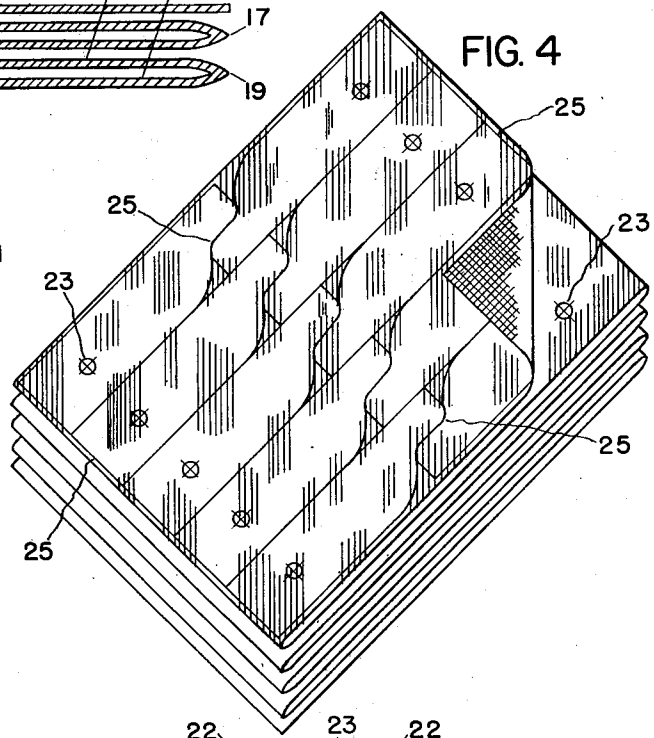


FIG. 5

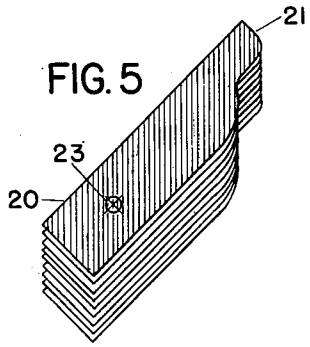


FIG. 6

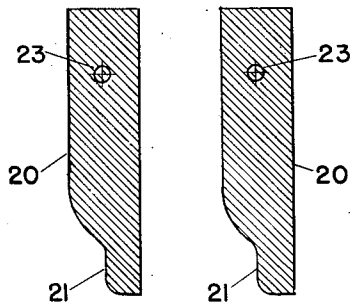
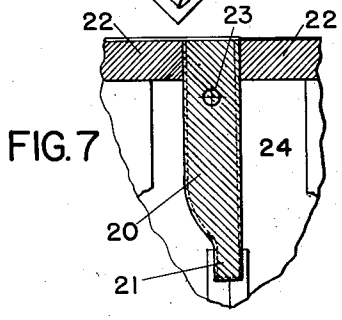


FIG. 7



INVENTOR

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United States Patent Office 2,793,370 Patented May 28, 1957

2,793,370

TEXTILES

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Application July 9, 1953, Serial No. 366,973

3 Claims. (Cl. 2—243)

The present invention relates to textiles such as twill fabrics, for instance, usually employed in the trouser industry for the formation of fly-linings for the fly assembly of the trousers and in particular it relates to the linings covering the back side of the inner fly flap that enters into the construction of the trouser fly assembly.

This invention provides for the facilitation in forming the flap linings referred to, with the object of saving considerable time and material.

In order that those skilled in the art may better understand how the present invention be carried into effect the following description is given.

In the drawings:

Fig. 1 illustrates a portion of fabric cut away from a piece comprising considerable length;

Fig. 2 illustrates the opposite side of the portion shown in Fig. 1;

Fig. 3 illustrates the portion shown in Fig. 1 as having been folded in zig-zag form;

Fig. 4 illustrates a stack of layers folded in zig-zag form having fly-linings marked in grouped relation on the surface of the top layer of the stack;

Fig. 5 illustrates a batch of fly-linings as they would appear when cut out and removed from the stack shown in Fig. 4;

Fig. 6 illustrates two fly-linings taken from the top of the batch and laid side by side, either of the fly linings being readily usable as a lining for the inner fly flap of the trouser fly assembly;

Fig. 7 illustrates the fly-lining applied to a trouser fly structure, showing the fly-lining extension strip covering the crotch seam adjacent the lower portion of the fly flaps.

In Fig. 1, reference numeral **10** represents a portion of fabric cut away from a piece comprising considerable length; numerals **11, 12, 13, 14** and **15** represent sections; numerals **16, 17, 18** and **19** represent dividing lines between said sections. Sections **11, 13** and **15** display a square-weave surface while sections **12** and **14** display a twill-weave surface.

In Fig. 2 in which the opposite side of the piece is shown, sections **11A, 13A** and **15A** illustrate a distinct twill weave, while sections **12A, 14A** display an indistinct twill-weave surface. To fold the piece in the manner shown in Fig. 3, referring to Fig. 1 in this instance, the fabric is folded transversely on line **16**, causing section **11** to overlap section **12**; then the fabric is folded transversely on line **17**, and in sequence on line **18** causing section **13** to overlap section **14** and section **12** to overlap section **13** then the fabric is folded transversely on line **18**, causing section **13** to overlap section **14** and then section **14** is made to overlap section **15** by folding the fabric transversely on line **19** and so on progressively as long as there are alternate sections in the length of the piece. In accordance with the folding arrangement stated above, each of the layers shown in Fig. 4 will comprise a definite twill-weave surface face-up; the batch of fly-linings shown in Fig. 5 will be likewise face-up; said

fly-linings being designated by numeral **20** and the right-hand lower extension is designated by numeral **21**. The waistband lining **22**, as shown in Fig. 7 harmonizes with the fly-lining **20** with respect to the twill-weave surface of each.

By referring to the drawings it will be observed that the fly-linings referred to herein are devoid of symmetrical form as a consequence of the extension strip **21** extending at the right hand side lower end of the fly-linings and because only one of such linings is required for the assembly of the fly structure, a problem to be solved is involved with reference to the production of said fly-linings to accomplish a saving of labor and material over the ordinary procedure.

It is essential that each and every one of the fly-linings contained in the batch when cut to form be piled in the same manner, either face-up or face-down, face-up in this case, and as a consequence of this particular requirement considerable time is consumed in the production of nonsymmetrical fly-linings when following the ordinary procedure. There is also considerable waste of material with the ordinary procedure because when the layers are cut and piled singly it is not likely that all layers will be of the same length; some will be longer while some may be shorter than what is required and a loss of material is the result.

In the ordinary practice when nonsymmetrical fly-linings are produced, the procedure is as follows:

A bolt of twill lining material is provided; a ply is pulled off the bolt and spread over the surface of the cutting table. This lining material is required to match the waistband lining of the trousers, so that a harmonized assembly is produced with respect to the waistband lining and the fly-lining. After the ply is spread over the surface of the cutting table with the twill-weave face-up in this case, the outlines of the nonsymmetrical fly-linings are marked on the surface of said ply by following the contour of a pattern designed for the purpose. This ply called the "marker" is then detached from the bolt and chalk lines are marked on the table top to indicate the length of the marker and more layers are cut off the bolt accordingly and piled one on the top of the other; all layers must be face-up in this case as the marker is so marked, with the extension **21** at the right hand side of the fly-linings marked on the marker. The lining material of which the waist-band lining and the harmonizing fly-lining are produced have a definite twill-weave on one side of the lining material throughout the entire length as the material leaves the loom. The waistband lining being symmetrical is not involved in the same problem as applies to the fly-lining.

In order to overcome the shortcomings referred to as experienced with the usual twill fabrics generally used for non-symmetrical fly-linings, it is the object of the present invention to weave a fabric of a specified texture and fold the woven fabric in a zig-zag form to constitute a stack of layers comprising predetermined dimensions suitable for the production of nonsymmetrical fly-linings for the inner fly flaps of trousers, and this can be accomplished when the lining material is produced at the mill and when the material reaches the trouser manufacturer the same is in readiness to be cut into the nonsymmetrical fly-linings.

Each and every one of the layers compiled in the zig-zag folded stack has a surface that comprises the desired weave effect; it may be a twill-weave, or any other weave suitable for fly-linings used as a backing for the inner fly flap of men's trousers; said weave of such layers being disposed in relation to one another in such a manner that each and every layer contained in the stack folded in zig-zag form comprises the said weave in the same orderly manner, namely: either face-up or face-down. In this

instance as illustrated in the drawings the upper surface of each layer is face-up.

The waistband lining such as twill fabric may be woven on a three harness loom comprising two up and one down which fabric has more warp ends above the filling and thus a definite twill is produced on one side only, the back side of the fabric however has more of the filling yarn showing and comprises an inferior and undesirable appearance which would not suitably match with the waistband lining 22 when the fly-lining would have the back side of the fabric exposed and so attached to the fly flap of the trousers. The techniques referred to may be well understood by those skilled in the art of weaving without any further explanation.

In order to weave a fabric as illustrated in the drawing as an example, the technique employed in connection with the loom would require a dobby shedding motion with a long pattern chain, but preferably a dobby equipped with a multiplier so that the chain pattern would not be so long. However, by employing the technique of operation in connection with the loom a harness arranged in an order of two up and two down a two-face twill or other fabric of a specified texture may be produced, in which case it will be necessary to have an even amount of warp and filling exposed on the opposite sides of the fabric and will require a four harness arrangement to be operated in an order of two up and two down which will produce a definite weave effect on both sides for the production of a specified texture to produce non-symmetrical fly-linings, as referred to herein.

It is contemplated in connection with the present invention to imprint an appropriate design 23 on one or both surfaces of the lining material before the lining material is folded in zig-zag form; the design would be so disposed as to register within the boundary of the outlines of the respective fly-linings and in this manner when the fly-linings are applied to the trousers the imprint of the design will be visible. Indicative characters relative to the kind of trousers, size of fly-linings or other indicia may be included in the imprint on the outer surface of the fly-lining.

The square-weave surface referred to in relation to sections **11**, **13** and **15**, is not restricted exactly to a square weave, but the drawing illustrates a square weave in order to differentiate the opposite side of the respective sections with respect to the twill sections; the opposite sides, however, may appear to be an indistinct twill weave, as the conventional twill lining has on the back side thereof.

Referring to Fig. 4 it will be seen that the main body of the fly-lining as marked out on the upper layer of the stack is substantially rectangular in shape and a comparatively short strip **21** narrower than the main body extends at the right hand side thereof; the outlines **25** of the fly-linings being so arranged that a symmetrical shape is produced by outlining a pair of such fly-linings in grouped relation as a pair-unit with the inner edges of the respective strips **21** adjacent one another, thereby eliminating waste of lining material. The width and length of the respective layers of the zig-zag folded stack being predetermined in accordance with the outlining plan with respect to the pair-units over the area of the marker.

It is also feasible that the twill-weave or any other texture effect may be produced by printing instead of weaving to accomplish the purpose described herein.

While I have shown and described a preferred embodiment of my invention, it is understood that the same is susceptible of modification in various forms without departing from the spirit and scope of my invention. I therefore desire that what I claim be given broad interpretation and be limited only by the prior art pertaining thereto.

I claim:

1. A lining material of a length that comprises similar longitudinally spaced sections of predetermined length separated by intervening sections of the same length woven in the same pattern but with the weave pattern reversed to present the face of the weave pattern on opposite sides of the lining material alternately in adjacent sections, said lining material being folded in alternate directions at the boundaries between said sections to produce a stack of layers of said predetermined length in which the face of the weave pattern is disposed the same way in every layer of the stack whereby cutting through the stack can produce a batch of similar asymmetrical lining blanks each of which has the face of the weave pattern on the same side of the blank.

2. A stack of textile layers having a textile weave pattern on the upper sides thereof said layers being substantially of the same length and connected by transverse folds by being folded in alternate directions at the boundaries between layers, each of said layers thus having said weave pattern on the upper side thereof, the arrangement being such that by cutting through the stack a batch of similar asymmetrical textile blanks can be produced, each complete blank being cut from a single layer and presenting the said weave pattern on the upper side of each blank cut from the said stack.

3. The method of producing asymmetrical lining blanks which comprises: weaving a lining material having similar longitudinally spaced sections of the same predetermined length woven in the same pattern but with the weave pattern reversed to present the face thereof on opposite sides of the lining material alternately in adjacent sections, folding said lining material alternately in opposite directions on transverse lines at the boundaries between said sections thereby producing a stack of layers of said predetermined length in which the face of the weave pattern is disposed the same way in every layer of the stack, cutting through the stack and thereby producing a batch of similar asymmetrical lining blanks each complete lining blank being cut from a single layer and presenting the face of the weave pattern on the same side of all blanks in the batch.

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