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PRODUCING WRINKLE-FREE, PERMANENTLY CREASED GARMENTS

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This application is a continuation-in-part of our copending application Ser. No. 384,261, filed July 21, 1964, now abandoned.

This invention relates to improvements in the art of manufacturing articles of wearing apparel, made of rigid and/or stretch fabrics, including outer garments, of the type characterized by the features of (1) permanent (or, at least, long continued) resistance to wrinkling or musing and/or, (2) having at least one permanent (or, at least, long-lasting) crease or pleat where desired in the garment, which articles of clothing retain—after repeated wearings, washings and dryings—a very acceptable wrinkle-free appearance and/or creases (or pleats) of a very sharp nature. By crease or pleat it is meant anywhere the fabric is folded and pressed down permanently or long-lasting with heat and pressure (i.e., either at the desired crease or seam area of the fabric or garment).

According to the present invention, in manufacturing garments of the type above mentioned we make use of a fabric which contains a synthetic thermo-setting resin in substantially (80% or more) or fully polymerized state and, hence, is wrinkle-resistant. The fabric after being cut into parts, segments or pieces may be assembled into the desired garments and is then folded where a crease (or pleat) is desired, and the affected pieces, segments, parts or garments are hot-pressed, at a temperature of at least 350° F. and within the range from about 350° F. to about 500° F. for a brief interval of sufficient duration to re-polymerize, reform or re-cure the resin in the affected areas and simultaneously to impress in a predetermined zone of such area at least one crease if desired which shall be permanent. By this procedure those areas which had not been affected by the hot-pressing operation remain wrinkle-resistant and relatively un-mussable. In the affected areas the original wrinkle-resistance had been recovered and the desired permanent crease or creases had been created at the desired zones.

The fabric per se may be formed from acrylic or polyester fibers or fibers of nylon or cellulosic fibers such as cotton, or blends containing significant amounts of these fibers, and may vary in weight from lightweight (2-4 oz./sq. yd.) to light medium (e.g., 4-6 oz./sq. yd.) to medium (6-8 oz.) to medium heavy (8-11.25 oz.) to heavy (11.25-13.75 oz.). Illustrative examples of such fabrics include:

All cotton;
Fortrel polyester 50%; cotton 50%;
Dacron polyester 65%; cotton 35%;
Nylon 29%; cotton 71%;
Nylon 30%; rayon 30%; cotton 40%;
Acrylic 55%; nylon 45%;
Dacron polyester 55%; wool 45%;
Lycra spandex 8%; dacron polyester 7%; cotton 35%;
Tetoron polyester 50%; cotton 50%;
Tetoron polyester 50%; wool 50%.

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While the main function of the polymerized water insoluble thermo-setting resin is to create and maintain within the fabric or article the wrinkle resistant characteristic, it also assists to some degree in forming the desired shape e.g., durable crease or shape. However, fabrics containing thermo-plastic synthetic fibers e.g., nylon, polyester, acrylics can be permanently creased or shaped through heat setting of the synthetic thermo-plastic fibers. Importantly, the higher percentage of these thermo-plastic fibers the more readily the desired durable crease or shape may be formed.

Any one of the above fabrics is pretreated, e.g., by its manufacturer, to contain a small but effective amount of the monomer of a thermo-setting resin, e.g., an epoxy resin, an urea-formaldehyde resin, a glyoxal resin, a known type of melamine resin, or other of the known group of thermo-setting resins, and then the monomer is, in situ, converted to the fully polymerized (i.e., "fully cured"), or at least substantially (e.g., 80% or more) polymerized state by conventional procedures. The resulting material is, in the present application, styled "cured fabric."

Operable resins contained in the fabrics include resins of the polymethane type, propylene urea type, sulphone resin, resins of the methylol-urea type, and, other thermo-setting resins. The resin bath as applied during processing at the mill or finishing plant usually will contain a catalyst and lubricant or softener in order to bring about the necessary reaction during processing of the fabric or garment under heat and pressure and effect the desired results in the finished product.

For instance, when a resin of the propylene urea type is used in conjunction with a fluorescent dyestuff on fabric to be used for white shirts, a magnesium chloride catalyst is mixed in the resin bath and a softening agent in sufficient amount to bring about desired results in the finished product. In this particular case when treating a polyester and cotton blend a suitable formulation is as follows:

Resin, 25%
Polyethylene softener, 2%
Wetting agent, 0.1%
Brightener and blueing as required

The fabric should be padded with the above solution, dried and cured in the usual manner and then afterwashed through a five-box washer. These washings should be arranged in the following sequence:

Box 1:	
Soda Ash, percent	25
Detergent, percent	1
Temperature, ° F.	180
Box 2:	
Clear Water, ° F.	180
Box 3:	
Clear Water, ° F.	180
Box 4:	
Acetic Acid, percent	1
Temperature, ° F.	140
Box 5:	
Clear Water, ° F.	140

After washing the fabric should be dried and compressively shrunk.

The above procedure renders the fabric receptive to a permanent type crease provided the fabric contains a

sufficient proportion of a thermo-plastic fiber and the thermo-plastic fiber can be "set" at a temperature reached by the high temperature press. In the case of a fabric of 65% polyester 35% cotton an excellent crease can be formed by the technique.

When fabrics containing a substantially small amount of polyester are employed or if even smooth seams or creases are desired, it is possible to re-apply the catalyst after the resin has been washed and in this manner the fabric is rendered sensitive to reformation of cross-links so that the creases are readily inserted on the high-temperature pressing equipment and these seams are exceptionally durable to multiple washings.

This example is meant to illustrate, however, *not limit*, the use of certain resin type baths for certain purposes. In this specific example for instance this type resin and catalyst are ones whose characteristics are desirable from the standpoint of rendering the fabric highly resistant to chlorine damage, limits color change due to application of heat, has a high degree of light fastness, is resistant to scorching, and produces a softer "hand" to the fabric or finishing garment.

The development of the crease may occur before the components of the eventual garment have been sewn together, i.e., may occur in the cut-out piece. However, in most instances the cut-out pieces first are sewn together and the resulting entity given the approximate garment shape ultimately desired, and then the garment treated to develop the crease or creases in predetermined areas.

We have found that in the cases of most fabrics (and, most garments) it is possible to develop the desired crease without preliminarily treating the fabric, in the area to be creased, with an agent effective for "unlocking" the resin from the fabrics. It is, of course, desirable to use fabrics or finishes within this process which do not require this "unlocking" procedure since this is not only an extra step in processing and handling but makes this step economically unattractive. However, this embodiment of the invention will be described hereinbelow.

In some instances, it is necessary to preliminarily treat the area (of the fabric) where a crease is desired with a suitable liquid reagent which functions to "unlock" the resin-fiber bond (i.e., to "un-cure" the fabric) and to allow the reagent to contact the fabric (in the aforesaid area) for some minutes, in order that its function may be fully realized.

The reagent used for un-curing the resin in a selected area of a piece, segment or part of this "cured fabric" is or consists essentially of an acid-acting chemical, e.g., an acid per se or an acid-acting salt. Included in this category are: aqueous solutions of mineral acids such as H_3PO_4 , HNO_3 , H_2SO_4 and HCl ; one of the so-called "stronger" organic acids such as formic, lactic, chloroacetic and oxalic acids; and salts of one of these acids with a weak base. Specific examples are (a) an aqueous solution of a metal nitrate, e.g., zinc nitrate and (b) a dilute aqueous solution of sulphuric acid or hydrochloric acid. As will be understood by those skilled in the art, the concentration of the reagent in the reagent solution depends on the relative "strength" of the reagent per se: in the case of sulphuric acid the concentration of this reagent in the reagent solution should not be greater than about 1%, whereas in the case of magnesium nitrate a 3% concentration is both safe and desirably effective.

Example 1

A. Fully cured fabric of nylon and cotton fibers is received at the garment manufacturing plant. This nylon and cotton fabric has been treated with a resin finish which imparts to the fabric wrinkle-resistant finish of a fully cured permanent nature. This fabric may be handled, stored, etc. in a normal manner until ready for the production cycle.

B. The fabric is spread, marked and cut in a normal manner and otherwise prepared for the production sewing operations.

C. The parts, segments or pieces of the article or garment are sewn and assembled as is the usual procedure.

D. The article or garment then goes through the finishing operation of applying buttons, working button-holes, and in some cases applying tags and labels, and is made ready for the final pressing operation.

E. The article or garment if desired or necessary is then pressed normally or pre-pressed in preparation of the final pressing which will create the permanent crease or pleat.

F. The final step is to use the electric head type pressing device to place the crease or pleat in the article or garment part or segment or piece permanently, with or without steam, at a temperature of from about 400° F. to about 500° F., with or without the use of a special protective cloth or head cover and for a time interval of from ten seconds to one minute.

In the instance of thermo-plastic fibers such as the synthetic of polyester, nylon, acrylics, etc. (or blends thereof), it is not necessary to use the "un-curing" reagent in some instances, as pressing at high (over 340°) temperatures alone can create the desired creasing effect.

In the above specific example a fully cured fabric of polyester and cotton fiber, may be substituted for the fully cured nylon and cotton fabric with comparable results as regards wrinkle-resistance and permanence of creases.

Example 2

A. Fully cured fabric formed of polyester and cotton fibers is received at the garment manufacturing plant. This fabric has been treated with a resin finish which imparts to the fabric a wrinkle-resistant finish of a permanent nature. This fabric may be handled, stored, etc. in a normal manner until ready for the production cycle.

B. The fabric is spread, marked and cut in a normal manner and otherwise prepared for the production sewing operations. Rather than sewing and assembling the article or garment at this stage, some of the parts, segments or pieces of the eventual article or garment are "made up" in preparation for pressing.

C. The next step is to use the electric head type pressing device and place a crease or pleat in the article or garment part or segment or piece permanently, or if a crease is not desired the garment part or segment or piece may be pressed to the desired shape or pressed flat to open seams or permanently cure or "set" the fibers in a flat state, with or without steam, at a temperature of from about 400° F. to about 500° F., with or without the use of a special protective cloth or head cover and for the time interval of from one second to one minute. As indicated in some cases, the electric type pressing operation is used not to crease or pleat the article but only to reform or fully cure the resin or set the thermo-plastic fibers so the fabric itself or seams in parts of the garment are permanently pressed in the flat state. For instance, it may be desirable on some garments to only permanent press the garment in order to press the seams in a flat state for the life of the garment and press the balance of the garment so a flat wrinkle-free characteristic is maintained and where a crease as such is not important or desired.

In this instance, as in Example 1, it is not necessary to use the "un-curing" reagent in most instances, as pressing at extreme temperatures alone can reform the thermo-setting resin and thereby create the desired effect.

D. The parts, segments or pieces of the eventual article or garment then are sewn and assembled as is the usual procedure.

E. The so-formed article or garment then goes through the finishing operation of applying buttons, working buttonholes, and in some cases applying tags and labels; and

is made ready for the folding and stocking of the finished article.

F. The article or garment if desired or necessary is given a normal steam press and, since the permanent creasing or "set" of the seams has previously been accomplished in the part, segment or piece (Step C) the article or garment is considered complete in all respects.

Example 3

A. Fully cured fabric is received at the garment manufacturing plant. This fabric has been treated with a resin finish which imparts to the fabric a wrinkle resistant finish of a permanent nature. Such fabric is composed of synthetic or so-called "man-made" polyester fiber. This fabric may be handled, stored, etc. in a normal manner until ready for the production cycle.

B. The fabric is spread, marked and cut in a normal manner and otherwise prepared for the production sewing operations.

C. The parts, segments or pieces of the article or garment then are sewn and assembled as is the usual procedure.

D. The article or garment then goes through the finishing operation of applying buttons, forming buttonholes, and is made ready for the final pressing operation.

E. The article or garment if desired or necessary is then pressed normally or pre-pressed in preparation of the final pressing which will create the permanent crease or pleat.

F. The article or garment is then treated with reagent solution in the area in which a crease or pleat is desired, to "unlock" the curing previously accomplished and remove the wrinkle resisting feature from this particular area. The reagent-treated garment is allowed to stand for a period of several (e.g., fifteen) minutes to enable the reagent to create this uncured effect.

G. The final step is to use an electric head type pressing device to re-cure the fabric and reform the resin and place the crease or pleat in the article or garment part or segment or piece permanently, with or without steam, at a temperature of from about 340° F. to about 500° F., with or without the use of a special protective cloth or head cover and for a time interval of from one second to one minute.

The resulting finished garment or article is relatively "un-mussable," wrinkle-free and contains a relatively permanent crease which is not lost upon repeated wearings, washings and dryings.

Example 4

A. Fully cured fabric is received at the garment manufacturing plant. This fabric has been treated with a resin finish which imparts to the fabric a wrinkle-resistant finish of a permanent nature. Such fabric is composed of nylon and cotton fibers. This fabric may be handled, stored, etc. in a normal manner until ready for the production cycle.

B. The fabric is spread, marked and cut in a normal manner and otherwise prepared for the production sewing operations. Rather than sewing and assembling the eventual article or garment at this stage, the parts, segments or pieces are notched or marked in cutting so as to indicate where the crease or pleat line or lines is or are to appear.

C. The particular parts, segments, or pieces are then treated with reagent solution in the area in which the crease or pleat is desired, to "unlock" the curing previously accomplished and to remove the wrinkle-resistant feature from this particular area. The part, segment or piece is allowed to stand for a period of three to fifteen minutes to enable the reagent to create this uncured effect.

D. The next step is to use the electric head type pressing device to re-cure the fabric and to place the crease or pleat in the article (or garment) part or segment or piece

permanently, with or without steam, at a temperature of from about 340° F. to about 500° F., with or without the use of a special protective cloth or head cover, and for a time interval of from one second to one minute.

E. The parts, segments or pieces of the eventual article or garment are then sewn and assembled as is the usual procedure.

F. The article or garment then goes through the finishing operation of applying buttons, working buttonholes, and in some cases applying tags and labels, and is made ready for the conventional pressing operation.

G. The garment is then given normal steam pressing, and, since the permanent creasing or pleating has previously been accomplished in the part, segment or piece (Steps C and D), the article or garment is considered complete in all respects.

A further example is as follows. The fabric was approximately an 8 ounce fabric 50% fortrel polyester and 50% cotton. It contained a thermo-setting resin which was 85-90% cured at the mill. The mill directions were to complete the curing (after a garment had been made up) in a batch oven after a pre-press with a hot head. In accordance with our process we finished curing the top of the garment (specifically, pants) without employment of a reagent, with an electric topper press for 30 seconds at a temperature of 425° F. at the head, which resulted in a temperature of 362° F. on the inside of the garment, and the legs of the garment with an electric "legger" press for 15 seconds at a temperature of 455° F. at the head which resulted in a temperature of 372° F., both using a pressure of 8,000 lbs. The heads of the presses were provided with a scorch-preventing covering of specially treated nylon fabric. Over 50 washings and dryings failed to obliterate the creases and the balance of the article retained its wrinkle-free appearance through these repeated washings.

In each of the above examples care must be taken in the heat-setting or pressing step that unwanted creases or wrinkles are not present as these will also be cured or reformed into the article or garment in a rather permanent position, and it is both costly and difficult to remove same.

POSSIBLE VARIATIONS IN SEQUENCE OF PRESSING OPERATION

1. Pressing garment segments or panels previous to assembly:

A. Press with normal steam-type finishing press only.

B. Press with electric press only.

C. Press with normal steam-type finishing press; then use electric press to set crease.

D. Press with electric press to set crease; then press with normal steam-type finishing press.

2. Pressing garment after assembly:

A. Press with normal steam-type finishing press; then use electric press for setting permanent crease.

B. Press for a short time with electric press to indicate crease, etc.; then use electric press for setting permanent crease.

C. Press with electric press to set permanent crease; then press with normal steam-type finishing press.

D. Press with normal steam-type finishing press only for time interval necessary to effect permanent crease.

E. Press with electric press only to set permanent crease.

As will be apparent, operations of both Section 1 and Section 2 may be combined to effect the desired results. Any of these combinations may be needed to accomplish the desired results. To illustrate: it may be found that operation 1. B will be performed before the garment actually assembled, then after the garment is completely sewn, etc. operation 2. C will be used to press garment for the desired results.

In reference to the electric press used in these operations, steam may or may not be used, depending upon the quality of the pressing, on the particular fabric being used. On most ordinary type fabrics used in the production of outerwear, working clothing, sportswear and casual type clothing, dry heat using no steam has been shown to produce better results than when steam is used.

Following is a description of the type of particular electric press presently being used by us in producing the above-described permanent-crease-type garments. According to this invention this description is not, in any regard, meant to limit the production of these garments to this particular type pressing unit, but rather simply to disclose the best currently known mode of practicing the invention. Also, it should be noted that different types of wearing apparel may require different head and buck shapes of the pressing machine. For example, it is logical that certain areas of a shirt such as collars, cuffs or fronts or backs are pressed more effectively through the use of head and buck shapes specially designed for the specific purpose.

The electric head is capable of maintaining temperatures of from 80° F. to 500° F. Its temperature is controlled by one or more temperature sensing thermostats. Since controlled heat is extremely important in this process, the temperature is controlled so that it will not vary by more than 15° F. from one point to any other on the press head.

Controls are also mounted on the press to automatically time the amount of steam, dwell (or down time) and vacuum, and any one of these three controls can be set individually or in conjunction with any other.

The control panel also contains switches by which the steam and/or vacuum can be turned off or on as desired.

Due to the extreme temperature range available in this type pressing unit, a specially designed press cloth may be used between the electric head and the garment (or panel or segment) being pressed. If it is desirable, the press cloth, or cloths rather than being placed between the head and the garment, can be fabricated into a more or less permanent type covering secured over the head of the press. The purpose of the cloth is to allow the use of high temperatures; its presence greatly assists in preventing scorching, fusing, glazing, or destruction of the fibers, discoloration, and—most important of all from an economic standpoint—makes possible a very much shorter cycle of pressing.

The use of the previously mentioned special protective cloth covering the head of the electric head-type pressing device has, in the cases of some fabrics, been found to have a very significant effect in preventing the scorching

(or melting) of the fabric undergoing high temperature pressing—particularly so in those cases wherein the permanent crease is being imparted at a temperature materially higher than 340° F., e.g., at temperatures of 450° F. and higher. This protective cloth preferably is a specially treated nylon fabric supplied by E. I. du Pont de Nemours & Co.

As has been suggested in the above disclosure, the exact temperature at which the re-curing or re-forming operation is to be effected is determined by the content of the particular fabric employed in the article or garment and by the type (and concentration) of the fully or substantially cured thermo-setting resin contained in the fabric and by the weight (i.e., the thickness) of the part, segment or piece in which the re-curing is to be effected and by the time interval during which the fabric is subjected to the high temperature pressing operation for returning the resin to fully polymerized (i.e., "fully cured") state. As regards the time interval, we have found that the same may be shortened by correspondingly raising the temperature at which the high temperature pressing is effected. This concept has a very significant advantage from the standpoint of over-all operating cost, since so many more creases can be produced per press unit of time. Much more importantly, we have found that pressing at, say, 450° F. for, say, 15 seconds is less destructive to the fiber of the garment being operated on than pressing at, say 300° F. for the several time 15 seconds required—at this relatively low temperature—to secure the same crease. We prevent scorching of the fabric and eliminate "shine," glazing and splintering of the fibers, even at the high pressures (4 lbs. p.s.i. to 16 lbs. p.s.i. on the press head) used.

CRITICALITY OF TEMPERATURE

Control in Hot-Pressing Operation.—It has been noticed that in the literature on producing permanent creases in garments (or fabrics) the temperatures to be maintained are always quoted in terms of the instrumentality which effects the creasing (i.e., oven, iron, press or the like). We have found that in the usual case there is a very substantial—but not predictable—discrepancy between the temperature of the instrumentality and the temperature reached in the fabric in the crease or area being permanently pressed in the flat state. Our extensive tests have shown that there may be a variance of as much as one hundred degrees between the head or platen temperature and the temperature within the fabric in the crease area. This fact is evident in the data shown in the following table:

TABLE 1.—CHART OF ACTUAL DEGREES OF TEMPERATURE REGISTERED ON VARIOUS AREAS OF GARMENT AS COMPARED TO PRESS

Fabric	Head Temp., ° F.	Head Down Time	Fabric Lay No. 1 (Head Cover), ° F.	Fabric Lay No. 2 (Top of Garment), ° F.	Fabric Crease Temp. (Inside Layer 2 and 3), ° F.	Under Fabric Lay No. 3, ° F.
1a*-----	455	Approx. 23 Secs.-----	420	408	372	342
1b*-----	455	Approx. 21 Secs.-----	420	408	371	342
1c*-----	455	Approx. 18 Secs.-----	420	408	373	342
1d*-----	455	Approx. 13 Secs.-----	420	408	372	343
2a-----	455 430	Approx. 19 Secs.-----	420 405	408 400	372 362	345 334
2b-----	455 430	Approx. 15 Secs.-----	420 405	408 400	373 360	345 335
2c*-----	455 430	Approx. 12 Secs.-----	420 405	408 400	371 361	346 338
3a-----	425	Approx. 15 Secs.-----	404	400	365	336
3b*-----	425	Approx. 12 Secs.-----	404	400	362	334
3c*-----	425	Approx. 10-12 Secs.-----	403	401	364	335
3d*-----	350	Approx. 16 Secs.-----	334	329	314	303
3e*-----	380	Approx. 12 Secs.-----	365	357	339	322
4*-----	455	Approx. 15 Secs.-----	420	408	370	343

In the above table the fabrics actually tested are indicated with an asterisk (*). Other indicated results are based upon these tests.

4. The method of fabricating an article of wearing apparel from a fabric comprising a blend of cellulosic or wool fibers and synthetic, thermo-plastic fibers, said fabric

TABLE II

Fabric Symbol	Trade Designation	Content	Weight
1a CO-1-----	Heavyweight.....	All/Cotton.....	Approx. 11¼ to 13¾ oz.
1b CO-5-----	Medium Heavyweight.....	do.....	Approx. 8 oz. to 11¼ oz.
1c CO-3-----	Medium.....	do.....	Approx. 6 oz. to 8 oz.
1d LO-6-----	Lightweight.....	do.....	Approx. 2 oz. to 4 oz.
2a-----	Heavyweight.....	50% Fortrel Polyester, 50% Cotton.....	Approx. 11¼ to 13¾ oz.
2b-----	Medium Heavyweight.....	do.....	Approx. 8 to 11¼ oz.
2c CO-12-----	Medium.....	do.....	Approx. 6 to 8 oz.
3a-----	Heavyweight.....	65% Dacron Polyester, 35% Cotton.....	Approx. 11¼ to 13¾ oz.
3b CO-16-----	Medium Heavyweight.....	do.....	Approx. 8 to 11¼ oz.
3c CO-8-----	Medium.....	do.....	Approx. 6 to 8 oz.
3d KL-4-----	Lightweight.....	do.....	Approx. 2 oz. to 4 oz.
3e KL-4-----	do.....	do.....	Approx. 2 oz. to 4 oz.
4 CO-14-----	Medium Heavyweight (Stretch Denim Type).....	71% Cotton 29% Nylon.....	Approx. 8 to 11½ oz.

Since, as we have found, it is necessary to attain (for the stated time interval) the above-recited high temperatures in the fabrics it follows that it is necessary to attain the recited much higher temperatures in the press head per se.

We claim:

1. Method of manufacturing an article of wearing apparel from a fabric comprising a blend of cellulosic or wool fibers and synthetic, thermo-plastic fibers, said fabric containing synthetic thermo-setting resin in at least partially cured state, which article in finished state is relatively unwrinkleable and has at least one relatively permanent crease in a predetermined area thereof, which method consists essentially of cutting patterned pieces of the fabric, sewing the pieces together into a unitary, shaped body, folding the shaped body at a predetermined zone where a permanent crease is to be formed, and subjecting said zone to hot pressing for a time interval of from ten seconds to 30 seconds and at a temperature, within the range 350°-500° F., the time, temperature and pressure being correlated to set at least the thermoplastic fibers into a permanent crease.

2. Method of manufacturing an article of wearing apparel from a fabric comprising a blend of cellulosic or wool fibers and synthetic, thermo-plastic fibers, said fabric containing synthetic thermo-setting resin in at least partially cured state, which article in finished state is relatively unwrinkleable and has at least one relatively permanent crease in a predetermined area thereof, which method consists essentially of cutting patterned pieces of the fabric, marking the pieces to indicate zones wherein permanent creases are to be developed, folding the pieces at said zones, subjecting the folded fabric in said zones to hot pressing for a time interval of from one second to 30 seconds, at a temperature, within the range 350°-500° F., the time, temperature and pressure being correlated to set at least the thermoplastic fibers into a permanently creased condition, sewing the pieces together into a unitary body and shaping the unitary body into the desired article.

3. Method of manufacturing an article of wearing apparel from a fabric comprising a blend of cellulosic or wool fibers and synthetic, thermo-plastic fibers, said fabric containing synthetic thermo-setting resin in at least partially cured state, which article in finished state remains relatively unwrinkleable and has been shaped into a desired form or pressed in the flat state and which remains in the shaped form or flat state permanently and these characteristics are durable through repeated wearings and washings, said procedure consisting essentially of cutting patterned pieces of the fabric, subjecting the desired parts or pieces to hot pressing for a time interval of from one second to 30 seconds, at a temperature within the range of 350° to 500° F., the time, temperature and pressure being correlated to set at least the thermoplastic fibers in a permanent shape, then sewing the pieces together into a unitary body and into the desired article.

20 containing synthetic thermo-setting resin in at least partially cured state, which methods comprises imparting a permanent crease in a predetermined area of the fabric by folding the fabric at such area and subjecting the folded area to hot pressing at a temperature of from about 350° F. to 500° F. for a time interval of from 1 second to 30 seconds, the time, temperature and pressure being correlated to set at least the thermoplastic fibers into a permanent crease.

25 5. The method of claim 4 wherein said folded fabric is pressed at a pressure of from 4 to 16 p.s.i.

30 6. The method of claim 4, wherein said folded fabric is subjected to hot pressing at a temperature within the range of 400° to 500° F.

35 7. The method of claim 4, wherein said entire fabric is subjected to said hot pressing operation and wherein the temperature within said folded area reaches from 314° F. to 373° F. during said hot pressing.

40 8. The method of claim 1 wherein said hot pressing operation is conducted at a temperature within the range of 400° to 500° F.

9. The method of claim 2 wherein said hot pressing operation is conducted at a temperature within the range of 400° to 500° F.

45 10. The method of fabricating an article of wearing apparel from a fabric comprising a blend of cellulosic or wool fibers and synthetic, thermo-plastic fibers, said fabric containing synthetic thermo-setting resin in at least partially cured state, which method comprises imparting permanently smooth seams in the fabric by subjecting the area containing seams to hot pressing at a temperature of from about 350° F. to 500° F. for a time interval of from 1 second to 30 seconds, the time, temperature and pressure being correlated to set at least the thermoplastic fibers into a permanently flat state.

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