NO-STITCH SHIRT AND PRODUCTION METHOD THEREOF

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The present invention provides a no-stitch shirt which is anti-wrinkle and no-ironing and its production method, wherein all garment pieces of the no-stitch shirt are jointed together via skeleton adhesion or darning process, without sew threads. The present invention avoids wrinkles caused by sewing thread, and the no-stitch shirt is made easy, cost saving and uses environmentally friendly materials, achieving the dual object of comfort and fashion.
NO-STITCH SHIRT AND PRODUCTION METHOD THEREOF

BACKGROUND OF THE INVENTION

[0001] 1. Field of Invention

The present invention relates to shirt field, and more particularly to a no-stitch shirt which is anti-wrinkle and no-ironing and its production method.

[0002] 2. Description of Related Arts

Conventionally, the production of a shirt is cutting a fabric into pieces firstly, and then sewing the pieces by sewing thread. It is inevitable that stitches are left in seams of the pieces. The greatest weakness of this conventional production is easy to appear wrinkles in seams. Especially with the development of the garment industry, the wrinkling problem becomes a tough problem after the advent of shirt made of no-ironing fabric and functional fabric. Although people has thought a lot of way to solve above problem, such as adding resin solution into the seams for no-ironing, or sewing the adhesive materials into the seams, all of the ways fail to leave sewing thread, that is, the wrinkling problem is not settled thoroughly.

[0005] It is found that the main causes of wrinkles are sewed by sewing thread, such as the shrinkage of sewing thread, the elongation of sewing thread, and the extrusion after sewing the sewing thread into fabric, etc. Therefore, to solve the wrinkling problem, sewing thread must be removed.

[0006] On Aug. 24, 2008, the applicant filed a Chinese utility model titled “no-stitch shirt”, with an Appl. No.: 200820027138.0 for the initial idea of “no-stitch sewing”, and received a grant of patent on May 20, 2009.

[0007] The present invention is an improvement based on the above utility model. The applicant enlarges ranges of the trials of skeleton adhesion process and darning process, and accumulates a large number of trial data, which prepare for a reliable basis for the no-stitch technology further applied into industrial production.

SUMMARY OF THE PRESENT INVENTION

[0008] A main object of the present invention is to provide a no-stitch shirt and its production method to overcome above shortcomings. Instead of using sewing threads to joint all garment pieces (collar, body, sleeves, pocket, etc.) together, the present invention applies skeleton adhesion or darning process to obtain a no-stitch shirt which is anti-wrinkle and no-ironing.

[0009] Accordingly, in order to accomplish the above object, the present invention provides a no-stitch shirt, which is characterized in that collar piece, front piece, rear piece, shoulder pieces, sweep piece, sleeve pieces, front fly piece and pocket piece of the no-stitch shirt are jointed or cover-seamed together via skeleton adhesion or darning process, without sew threads.

[0010] The no-stitch shirt as recited above further comprises an inner pocket piece provided on an inner surface of the no-stitch shirt, directly opposite the pocket piece.

[0011] The present invention also provides a method of producing the no-stitch shirt recited as above, wherein fabric for producing the no-stitch shirt does not contain adhesive fiber, comprising:

[0012] (a) cutting the fabric into garment pieces, wherein the garment pieces comprises collar piece, front piece, rear piece, shoulder pieces, sweep piece, sleeve pieces, front fly piece and pocket piece;

[0013] (b) applying no-stitch processes to join all of the garment pieces: the collar piece, the front piece, the rear piece, the shoulder pieces, the sweep piece, the sleeve pieces, the closure piece and the pocket piece together, obtaining a no-stitch shirt;

[0014] (c) ironing and molding the no-stitch shirt.

[0015] Furthermore, in the step (a), all or part of the garment pieces are cut as a whole.

[0016] In the step (b), all or part of no-stitch processes apply skeleton adhesion process, alternatively, all or part of no-stitch processes apply darning process.

[0017] In the step (c), for the no-stitch shirt joined via skeleton adhesion process, applying a stereo ironing machine to mold at high-temperature, then cooling to room temperature, a finished no-stitch shirt is obtained, while for the no-stitch shirt joined via darning process, a finished no-stitch shirt is obtained only by conventional ironing.

[0018] Alternatively, in the step (b), part of no-stitch processes apply skeleton adhesion process, and the other part of no-stitch processes apply darning process.

[0019] For the skeleton adhesion process, firstly, cut the fabric into pieces, then select skeleton adhesion material from the group consisting of: TPU (thermoplastic polyurethanes) film; TPU (thermoplastic polyurethanes) hot melt adhesive film; PA (polyamide) hot melt adhesive; and PES (polyester) hot melt adhesive. Furthermore, coat the skeleton adhesion material on seams of the garment pieces, wherein a width of the skeleton adhesion material coating on seams of the garment pieces is set to 0.2~4 cm, then stick relative garment pieces together in forms selected from a group consisting of U-shape sticking; liner-shape sticking; and bilayer parallel sticking. It is worth to mention that according to different parts of the no-stitch shirt, adopt the following mode to coat the skeleton adhesion material on seams of the pieces: half-coverseam, butted adhesive, or pasting from outside.

[0020] As for a fabric for producing the no-stitch shirt containing adhesive fiber, a method of producing the no-stitch shirt recited as above, comprises:

[0021] (a) cutting the fabric into garment pieces, wherein the garment pieces comprises collar piece, front piece, rear piece, shoulder pieces, sweep piece, sleeve pieces, closure piece and pocket piece;

[0022] (b) applying no-stitch processes to join all of the garment pieces: the collar piece, the front piece, the rear piece, the shoulder pieces, the sweep piece, the sleeve pieces, the closure piece and the pocket piece together, obtaining a no-stitch shirt;

[0023] (c) ironing and molding the no-stitch shirt.

[0024] Furthermore, in the step (a), all or part of the garment pieces is cut as a whole.

[0025] In the step (b), the garment pieces are joined or fittingly and buttedly joined via hot melt.

[0026] In the step (c), applying a stereo ironing machine to mold at high-temperature, then cooling to room temperature, then a finished no-stitch shirt is obtained.

[0027] Furthermore, adhesion manner is selected from the group consisting of hot melting; laser ultrasonic wave; and iron.

[0028] For the darning process, firstly, cutting the fabric into garment pieces; secondly, selecting the yarns which are
same with the fabric in warp and weft texture, yarn count density, material, color, etc., then dealing with the yarns by no-ironing process, wherein the no-ironing process for the yarns is same with the no-ironing process for the fabric; thirdly, using darning machine or darning needle to deal with seams of the relative pieces by joining and darning warps and wefts of the yarns of the darns; fourthly, trimming the seams to make the warps and wefts of the yarns of the darns distributed uniformly and as fine as normal fabric’s, then a finished no-stitch shirt is obtained, for which, both inside and outside are smooth.

[0029] The method of producing the no-stitch shirt recited as above, wherein in producing collar process, adding a special memory type lining to replace ordinary collar corner, wherein the special memory type lining is selected from the group consisting of plastic shape-memory corn-spun lining, plastic shape-memory metal lining, and shape-memory polyurethane lining.

[0030] The method of producing the no-stitch shirt recited as above, wherein use no-stitch buttons which are installed without sewing thread, wherein the no-stitch button is prong snap button, pressing button, lifting button, snap button, or electrodes button.

[0031] The method of producing the no-stitch shirt recited as above, wherein in the step (c), during the ironing and forming process of the no-stitch shirt at high-temperature by the stereo ironing machine, respectively select the are-match stereo ironing machines to iron and mold all of the joints, the fitting butted joints and the coverseams, according to the select the different fabric or adhesive material, the parameter ranges of the ironing and molding process are set as follows: temperature 100~190°C., pressure of 0.5~8 kg/cm², time 3~40 sec; then cooling to room temperature, a finished no-stitch shirt is obtained.

[0032] The method of producing the no-stitch shirt recited as above, wherein in step (a), cutting modes comprises:

[0033] (1) the front piece, the rear piece, the sleeve pieces and the shoulders pieces are cut as a whole, while the collar piece, the front fly piece and the pocket piece are cut separately;

[0034] (2) the front piece, the rear piece, and shoulders pieces are vertically cut as a whole, while the sleeve pieces, the collar piece, the front fly piece and the pocket piece are cut separately;

[0035] (3) the front piece and the rear piece are horizontally cut as a whole, while the sleeve pieces, the collar piece, the front fly piece and the pocket piece are cut separately;

[0036] (4) all of the pieces are cut separately as conventional manner

[0037] The method of producing the no-stitch shirt recited as above, wherein all of the joints, the fitting butted joints or the coverseams apply skeleton adhesion process or darning process; or part of the joints, the fitting butted joints or the coverseams apply skeleton adhesion process or darning process; or for a same no-stitch, different seams respectively apply skeleton adhesion process or darning process.

[0038] The no-stitch shirt provided by the present invention is not easy to see seams from outside, so it is good looking and comfortable to wear. More importantly, the no-stitch shirt avoids wrinkle resulting from sewing in conventional shirt.

[0039] The method of producing the no-stitch shirt is cost saving and uses uncomplicated process and environmental materials, achieving the dual object of comfort and fashion.

At the same time in the pursuit of trendy style, people also can wear comfortably, that is, they no longer have to be comfortable to ignore the fashion.

[0040] The sewing machine has a history of several hundred years, over the centuries people use the sewing machine to product clothing. The present invention will partially or completely replace traditional sewing machine and sewing thread, which will be a profound change of idea for the future. The present invention saves a plenty of resources and labor, producing clothing production easily. The present invention ends the history of sewing clothing by sewing thread, which is a second revolution in clothing history. The no-stitch technology will extend to other areas of clothing sewing.

[0041] The advantages of the no-stitch shirt provided by the present invention are as follows:

[0042] 1. Avoiding wrinkles of all of the joints, the fitting butted joints or the coverseams, causing by sewing threads. At present, an ordinary shirt only has a 3.0 degree planeness after washed 20 times, while the planeness of the no-ironing shirt a can reach to 3.5~4.5 degree.

[0043] 2. The seams of the no-stitch shirt have high strength. The ordinary shirt is sewed by sewing threads, which destroy the seams of the shirt, and reduce its power. The no-ironing shirt has high fracture resistance and washing resistance. Under the base of no destroying fabric, adding skeleton adhesive materials to adhere the pieces together, all of the joint seams, the fitting butted joints or the coverseams of the no-stitch shirt enhance their fracture resistance and washing resistance, wherein the washing resistance can reach to 100 times or more times.

[0044] 3. Having good overall effect, strong three-dimensional effect, and same color effect. In the no-stitch process, the skeleton adhesive materials will be melted inside seams, so the outside shows the color of the fabric, avoiding the color differences between the sewing thread and the fabric, so as to enhance the same color effect.

[0045] 4. The no-stitch processes are cost saving and uses uncomplicated process and environmental materials, achieving the dual object of comfort and fashion.

[0046] 5. Resulting from no swing thread in the seams, it is not necessary to distinguish the right side and the wrong side of the no-stitch shirt. The seams look same from both sides, so people can wear the no-stitch shirt from both sides. Therefore, the no-stitch shirt achieves multi-purpose effect, further increases the added value of one no-stitch shirt.

[0047] These and other objectives, features, and advantages of the present invention will become apparent from the following detailed description, the accompanying drawings, and the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0048] FIG. 1 is a structure schematic drawing of a no-stitch shirt according to a preferred embodiment of the present invention.

[0049] FIG. 2 is a structure schematic drawing of a conventional shirt.

[0050] FIG. 3 is a structure schematic drawing of a first alternative cutting mode.

[0051] FIG. 4 is a structure schematic drawing of a second alternative cutting mode.

[0052] FIG. 5 is a structure schematic drawing of a third alternative cutting mode.
FIG. 6 is a structure schematic drawing of three adhesion modes of two relative garment pieces.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The following is the further elaboration of the present invention with the combination of drawings and embodiments thereof.

As shown in FIG. 1, a no-stitch shirt comprises a plurality of garment pieces, wherein the garment pieces are embodied as collar piece 1; front piece 2; rear piece 3; shoulder pieces 4; sleeve pieces 5; sleeve opening pieces 6; lower hem piece 7; front fly piece 8; pocket piece 9; and buttons 10 wherein all seams of the whole no-stitch shirt has no stitch of sewing threads.

As shown in FIG. 2, a conventional shirt comprises sewing thread stitches 11; collar piece 1; front piece 2; rear piece 3; shoulder pieces 4; sleeve pieces 5; sleeve opening pieces 6; lower hem piece 7; front fly piece 8; pocket piece 9; and buttons 10 wherein all seams, comprising joints, fitting butted joints, and coverseams, of the whole conventional shirt are sewed by sewing threads, existing obvious sewing thread stitches 11.

As shown in FIG. 3, the front piece 2, the rear piece 3, and the sleeve pieces 5 apply one-piece cutting, that is, a main body of the no-stitch shirt, comprising the front piece 2, the rear piece 3, and the sleeve pieces 5 are connected as a whole, while other garment pieces are cut separately.

As shown in FIG. 4, the front piece 2 and the rear piece 3 apply one-piece cutting, wherein the front piece 2 and the rear piece 3 are connected by vertical connection of the shoulder pieces 4.

As shown in FIG. 5, the front piece 2 and the rear piece 3 apply one-piece cutting, wherein the front piece 2 and the rear piece 3 are connected by horizontal connection of the seams between the front piece 2 and the rear piece 3.

Referring to FIG. 6 of the drawings, three adhesion modes of two relative garment pieces are shown respectively: a. U-shape adhesion; b. liner-shape adhesion; c. bilayer parallel adhesion.

First Embodiment (Referring to a No-Stitch Shirt which is Made of a Fabric without Containing Adhesive Fiber)

Use a “Luthai” no-ironing yarn-dyed cotton fabric which is produced by applicant itself; Cut the “Luthai” no-ironing yarn-dyed cotton fabric as the following first cutting mode: the front piece 2, the rear piece 3, the sleeve pieces 5 and the shoulders pieces 4 are cut as a whole, while the collar piece 1, the front fly piece 8 and the pocket piece 9 are cut separately, as shown in FIG. 3. Apply skeleton adhesion process alone; Select TPU (thermoplastic polyurethanes) film or TPU (thermoplastic polyurethanes) hot melt adhesive film (made in Taiwan, Hong Kong or the United States) as skeleton adhesive material, wherein the models of the TPU film or TPU hot melt adhesive film can be 208, 218, 238, 258, 268, 104, 200, 808, 3065, 3405, 3412, 3415, 3428, 3302, 3106, etc.

Coat the skeleton adhesive material on seams of the garment pieces, wherein according to different requirements of different parts of the no-stitch shirt, a width of the skeleton adhesive material coating on the seams of the garment pieces is set to 0.2-4 cm. Then, stick relative garment pieces together, wherein the front fly piece 8, the collar 1, the sleeve opening pieces 6, and the pocket piece 9 all apply U-shape sticking to be stuck. It is worthy to mention that according to different parts of the no-stitch shirt, adopt the following mode to coat the skeleton adhesive material on seams of the garment pieces: half-coverseam, butted adhesive, or pasting from outside. At last, adhere the relative garment pieces which are stuck together tightly in a manner selected from a group consisting of hot melt, laser, ultrasonic wave, and iron.

For producing a stiff collar, add a special memory type lining to replace ordinary collar corner, wherein use plastic shape-memory corn-spin lining (made in Hong Kong) as special memory type lining.

The buttons 10 of the no-stitch shirt are installed without sewing thread, which are prong snap buttons, press buttons, lifting buttons, snap buttons, or electrodes buttons.

After adhering the garment pieces together, the no-stitch shirt is needed to be ironed and molded. During the ironing and molding process at high-temperature by the stereo ironing machine (bought from market), respectively select the arc-match stereo ironing machine to iron and mold all of the parts, the fitting butted joints and the coverseams, according to the thickness of the different fabric or skeleton adhesive material, the ironing and molding process parameters are set as follows: temperature 160-190°C, pressure of 2.5-3.5 kg/cm², time 3-10 sec; then cooling to room temperature, a finished no-stitch shirt is obtained.

In accordance with the provisions of the national sampling standard (GB-T2660-2008) to sample the no-stitch shirt involving following aspects: fiber content of fabric and accessories, content of formaldehyde, PH, color fastness, washing fastness (resistance to dry cleaning and washing), odor and biodegradable aromatic amine dyes, etc., further involving the permissible range of clothing fabric defects various parts, limit deviation of specification test, limit difference between symmetrical lines, lattices or parts, etc. All above aspects must be tested rigorously, and only the qualified products are issued certificates and packed for leaving factory.

After testing, the no-ironing performance of the no-stitch shirt of the present invention is 4.5 level after washed 20 times, which achieves superior grade standard. The skeleton adhesive materials are melted inside seams, and the outside of the no-stitch shirt is still the fabric itself, avoiding the color differences between the sewing thread and the fabric, so as to enhance the same color effect. The other performances of the no-stitch shirt provided by the present invention are all equal or larger than the qualified product.

Second Embodiment (Referring to a No-Stitch Shirt which is Made of a Fabric without Containing Adhesive Fiber)

Use “Luthai” no-ironing post-curing yarn-dyed cotton fabric which is produced by applicant itself; Cut the “Luthai” no-ironing post-curing yarn-dyed cotton fabric as the following second cutting mode: the front piece 2, the rear piece 3, and shoulders pieces 4 are vertically cut as a whole, while the sleeve pieces 5, the collar piece 1, the front fly piece 8 and the pocket piece 9 are cut separately, as shown in FIG. 4. Apply skeleton adhesion process alone; Select PA (polyamide) hot melt adhesive or PES (polyester) hot melt adhesive (made in Taiwan, Hong Kong or the United States) as skeleton adhesive material, wherein the model of the PA hot melt adhesive or the PES hot melt adhesive is 204 or 224.
Coat the skeleton adhesive material on seams of the garment pieces, wherein according to different requirements of different parts of the no-stitch shirt, a width of the skeleton adhesive material coating on the seams of the garment pieces is set to 0.2–4 cm. Then, stick relative garment pieces together, wherein the front fly piece 8, the collar 1, the sleeve opening pieces 6, and the pocket piece 9 all apply parallel sticking to be stuck. It is worth to mention that according to different parts of the no-stitch shirt, adopt the following mode to coat the skeleton adhesive material on seams of the garment pieces: half-coverseam, butted adhesive, or pasting from outside. At last, adhere the relative garment pieces which are stuck together tightly by high-frequency ultrasonic wave.

For producing a stiff collar, add a special memory type lining to replace ordinary collar corner, wherein use plastic shape-memory metal lining as special memory type lining.

After adhering the garment pieces together, the no-stitch shirt is needed to be ironed and molded. During the ironing and molding process at high-temperature by the stereo ironing machine, respectively select the arc-match stereo ironing machine to iron and mold all of the joints, the fitting butted joints and the coverseams, according to the thickness of the different fabric or skeleton adhesive material, the parameter ranges of the ironing and molding process are set as follows: temperature 160–180°C, pressure of 0.5–2.0 kg/cm², time 30–40 sec; then cooling to room temperature, a finished no-stitch shirt is obtained.

For producing a stiff collar, add a special memory type lining to replace ordinary collar corner, wherein use shape-memory polyurethane lining as special memory type lining.

After adhering the garment pieces together, the no-stitch shirt is needed to be ironed and molded. During the ironing and molding process at high-temperature by the stereo ironing machine, respectively select the arc-match stereo ironing machine to iron and mold all of the joints, the fitting butted joints and the coverseams, according to the thickness of the different fabric or skeleton adhesive material, the parameter ranges of the ironing and molding process are set as follows: temperature 160–180°C, pressure of 0.5–2.0 kg/cm², time 30–40 sec; then cooling to room temperature, a finished no-stitch shirt is obtained.

For producing a stiff collar, add a special memory type lining to replace ordinary collar corner, wherein use plastic shape-memory metal lining as special memory type lining.

After adhering the garment pieces together, the no-stitch shirt is needed to be ironed and molded. During the ironing and molding process at high-temperature by the stereo ironing machine, respectively select the arc-match stereo ironing machine to iron and mold all of the joints, the fitting butted joints and the coverseams, according to the thickness of the different fabric or skeleton adhesive material, the parameter ranges of the ironing and molding process are set as follows: temperature 160–180°C, pressure of 0.5–2.0 kg/cm², time 30–40 sec; then cooling to room temperature, a finished no-stitch shirt is obtained.

After testing, the no-ironing performance of the no-stitch shirt made by the third embodiment is 4.5 level after washed 20 times. The rest of descriptions of the third embodiment are same as the first embodiment’s.

Third Embodiment (Referring to a No-Stitch Shirt which is Made of a Fabric without Containing Adhesive Fiber)

Use a “Luthai” no-ironing linen fabric which is produced by applicant itself. Cut the “Luthai” no-ironing linen fabric as the following fourth cutting mode: all of the garment pieces, comprising the collar piece 1; the front piece 2; the rear piece 3; the shoulder pieces 4; the sleeve pieces 5; the sleeve opening pieces 6; the lower hem piece 7; the front fly piece 8; the pocket piece 9 are cut separately; Apply skeleton adhesion process alone; Select TPU (thermoplastic polyurethanes) film or TPU (thermoplastic polyurethanes) hot melt adhesive film (made in Taiwan, Hong Kong or the United States) as adhesive material, wherein the models of the TPU film or TPU hot melt adhesive film is 208 and 218.

Coat the skeleton adhesive material on seams of the garment pieces, wherein according to different requirements of different parts of the no-stitch shirt, a width of the skeleton adhesive material coating on the seams of the garment pieces is set to 0.2–4 cm. Then, stick relative garment pieces together, wherein the front fly piece 8, the collar 1, the sleeve opening pieces 6, and the pocket piece 9 all apply parallel sticking to be stuck. It is worth to mention that according to different parts of the no-stitch shirt, adopt the following mode to coat the skeleton adhesive material on seams of the garment pieces: half-coverseam, butted adhesive, or pasting from outside. At last, adhere the relative garment pieces which are stuck together tightly by high-frequency ultrasonic wave.

For producing a stiff collar, add a special memory type lining to replace ordinary collar corner, wherein use plastic shape-memory metal lining as special memory type lining.

Use a “Luthai” no-ironing cotton fabric which is produced by applicant itself;

Cut the “Luthai” no-ironing cotton fabric as the first following cutting mode: the front piece 2, the rear piece 3, the sleeve pieces 5 and the shoulders pieces 4 are cut as a whole, while the collar piece 1, the front fly piece 8 and the pocket piece 9 are cut separately, as shown in FIG. 3;

Apply darning process alone, wherein select yarns which are same with the fabric in warp and weft texture, yarn count density, material, color, etc.; deal with the yarns by no-ironing process, wherein the no-ironing process for the yarns is same with the no-ironing process for the fabric; use darning machine or darning needle to deal with seams of the relative pieces by joining and darning warps and wefts of the yarns of the darts; trim the seams to make the warps and wefts of the yarns of the darts distributed uniformly and as fine as normal fabric’s.

Here, the process parameters are set as follows: temperature 100–130°C, pressure of 0.5–1.5 kg/cm², time 10–20 sec.

After testing, the no-ironing performance of the no-stitch shirt made by the fourth embodiment is 4.5 level after washed 20 times. The rest of descriptions of the fourth embodiment are same as the first embodiment’s.

Fifth Embodiment (Referring to a No-Stitch Shirt which is Made of a Fabric without Containing Adhesive Fiber)

Use a “Luthai” no-ironing yarn-dyed cotton fabric which is produced by applicant itself;

Cut the “Luthai” no-ironing yarn-dyed cotton fabric as the following third cutting mode: the front piece 2 and the rear piece 3 are horizontally cut as a whole, while the sleeve pieces 5, the collar piece 1, the front fly piece 8 and the pocket piece 9 are cut separately, as shown in FIG. 5;

Apply skeleton adhesion process and darning process respectively, wherein the collar piece 1, the front fly piece 8 and the pocket piece 9 are adhered via darning process, while the rest of pieces are joined via skeleton adhesion process.
For the darning process, the darning process is same as described in the fourth embodiment.

For the skeleton adhesion process, select TPU (thermoplastic polyurethanes) film as skeleton adhesive material.

The rest of descriptions of the fifth embodiment are same as the second embodiment’s.

Sixth Embodiment (Referring to a No-Stitch Shirt which is Made of a Fabric without Containing Adhesive Fiber)

Use “Luthai” no-ironing post-curing yarn-dyed cotton fabric which is produced by applicant itself;

Use a laser to cut the “Luthai” no-ironing post-curing yarn-dyed cotton fabric as the following second cutting mode: the front piece 2, the rear piece 3, and shoulders pieces 4 are vertically cut as a whole, while the sleeve pieces 5, the collar piece 1, the front fly piece 8 and the pocket piece 9 are cut separately, as shown in FIG. 4;

Apply skeleton adhesion process alone;

Select TPU (thermoplastic polyurethanes) film as skeleton adhesive material.

The rest of descriptions of the sixth embodiment are same as the third embodiment’s.

Seventh Embodiment (Referring to a No-Stitch Shirt which is Made of a Fabric without Containing Adhesive Fiber)

Use a “Luthai” no-ironing linen fabric which is produced by applicant itself;

Use a laser to cut the “Luthai” no-ironing linen fabric as the following first cutting mode: the front piece 2, the rear piece 3, the sleeve pieces 5 and the shoulders pieces 4 are cut as a whole, while the collar piece 1, the front fly piece 8 and the pocket piece 9 are cut separately, as shown in FIG. 3;

Apply skeleton adhesion process alone;

Select PA (polyamide) hot melt adhesive as skeleton adhesive material.

The rest of descriptions of the seventh embodiment are same as the third embodiment’s.

Eighth Embodiment (Referring to a No-Stitch Shirt which is Made of a Fabric Containing Adhesive Fiber)

Use a “Luthai” no-ironing linen fabric which is produced by applicant itself;

Use a laser to cut the “Luthai” no-ironing linen fabric as the following first cutting mode: the front piece 2, the rear piece 3, the sleeve pieces 5 and the shoulders pieces 4 are cut as a whole, while the collar piece 1, the front fly piece 8 and the pocket piece 9 are cut separately, as shown in FIG. 3;

Apply skeleton adhesion process alone;

Select PES (polyester) hot melt adhesive as skeleton adhesive material.

The rest of descriptions of the eighth embodiment are same as the first embodiment’s.

Ninth Embodiment

Use a “Luthai” no-ironing cotton fabric which is produced by applicant itself;

Use a laser to cut the “Luthai” no-ironing cotton fabric as the following first cutting mode: the front piece 2, the rear piece 3, the sleeve pieces 5 and the shoulders pieces 4 are cut as a whole, while the collar piece 1, the front fly piece 8 and the pocket piece 9 are cut separately, as shown in FIG. 3;

Apply skeleton adhesion process alone;

Select TPU (thermoplastic polyurethanes) film or TPU (thermoplastic polyurethanes) hot melt adhesive film as skeleton adhesive material.

The rest of descriptions of the ninth embodiment are same as the second embodiment’s.

Tenth Embodiment

Use “Luthai” no-ironing post-curing yarn-dyed cotton fabric which is produced by applicant itself;

Use a laser to cut the “Luthai” no-ironing post-curing yarn-dyed cotton fabric as the following second cutting mode: the front piece 2, the rear piece 3, and shoulders pieces 4 are vertically cut as a whole, while the sleeve pieces 5, the collar piece 1, the front fly piece 8 and the pocket piece 9 are cut separately, as shown in FIG. 4;

Apply skeleton adhesion process alone;

Select PA (polyamide) hot melt adhesive or PES (polyester) hot melt adhesive as skeleton adhesive material.

The rest of descriptions of the tenth embodiment are same as the first embodiment’s.

In present invention, all or part of the joints, the fitting butted joints and the overseams among the collar piece 1, the front piece 2, the rear piece 3, the shoulder pieces 4, the sleeve pieces 5, the sleeve opening pieces 6, the lower hem piece 7, the front fly piece 8, and the pocket piece 9 applies skeleton adhesion or darning process, instead of sewing threads, to joint the relative pieces together.

The present invention avoids the inevitable defects of the conventional technology caused by using sewing threads, which results in wrinkles owing to the shrinkage of sewing thread, the elongation of sewing thread, and the extrusion after sewing the sewing thread into fabric, etc. At the same time, the no-stitch shirt of present invention has good overall effect and strong three-dimensional effect, enhances resistance washing, and avoids the color differences between the sewing thread and the fabric. Furthermore, the no-stitch shirt of present invention is made easy, cost saving and uses environmentally friendly materials, achieving the dual object of comfort and fashion. The present invention has achieved the purpose of sewing shirts without sewing thread.

One skilled in the art will understand that the embodiment of the present invention as shown in the drawings and described above is exemplary only and not intended to be limiting.

It will thus be seen that the objects of the present invention have been fully and effectively accomplished. Its embodiments have been shown and described for the purposes of illustrating the functional and structural principles of the present invention and is subject to change without departure from such principles. Therefore, this invention includes all modifications encompassed within the spirit and scope of the following claims.

1-11. (canceled)
12. A method of producing a no-stitch shirt, comprising:
   (a) cutting out fabric into garment pieces;
   (b) applying no-stitch process to join the garment pieces together, so as to obtain the no-stitch shirt, wherein the no-stitch process is selected from a group consisting of skeleton adhesion process, and darning process;
   (c) ironing and molding the no-stitch shirt.
13. The method as recited in claim 12, wherein in step (b), the skeleton adhesion process comprises:
   (b1) selecting a skeleton adhesive material;
   (b2) coating the skeleton adhesive material on seams of relative garment pieces, wherein coating width is set to 0.2-4 cm;
   (b3) sticking the relative garment pieces together;
   (b4) adhering the relative garment pieces which are stuck together tightly in a manner selected from a group consisting of hot melting, laser, ultrasonic wave, and iron.

14. The method as recited in claim 12, wherein in step (b), the darning process comprises:
   (b1') selecting yarns which have same warp and weft texture, yarn count density, material, and color with the fabric;
   (b2') dealing with the yarns by a no-ironing process;
   (b3') joining and darning warps and wefts of the yarns of the relative garment pieces, so as to join the relative garment pieces together;
   (b4') trimming the warps and wefts of the yarns of the relative garment pieces to be distributed uniformly and as smoothly as normal fabric's.

15. The method as recited in claim 13, wherein in step (b), the darning process comprises:
   (b1') selecting yarns which have same warp and weft texture, yarn count density, material, and color with the fabric;
   (b2') dealing with the yarns by a no-ironing process;
   (b3') joining and darning warps and wefts of the yarns of the relative garment pieces, so as to join the relative garment pieces together;
   (b4') trimming the warps and wefts of the yarns of the relative garment pieces to be distributed uniformly and as smoothly as normal fabric's.

16. The method as recited in claim 13, wherein in step (b1), the skeleton adhesive material is selected from a group consisting of TPU film, TPU hot melt adhesive film, PA hot melt adhesive; and PES hot melt adhesive.

17. The method as recited in claim 15, wherein in step (b1), the skeleton adhesive material is selected from a group consisting of TPU film, TPU hot melt adhesive film, PA hot melt adhesive; and PES hot melt adhesive.

18. The method as recited in claim 13, wherein in step (b3), the relative garment pieces are stuck together in form of U-shape sticking, liner-shape sticking, or bilayer parallel sticking.

19. The method as recited in claim 17, wherein in step (b3), the relative garment pieces are stuck together in form of U-shape sticking, liner-shape sticking, or bilayer parallel sticking.

20. The method as recited in claim 13, wherein for the garment pieces jointed by skeleton adhesion process in step (b), step (c) further comprises molding the no-stitch shirt at high temperature by a stereo ironing machine; cooling the no-stitch shirt to room temperature.

21. The method as recited in claim 14, wherein for the garment pieces jointed by skeleton adhesion process in step (b), step (c) further comprises molding the no-stitch shirt at high temperature by a stereo ironing machine; cooling the no-stitch shirt to room temperature.

22. The method as recited in claim 17, wherein for the garment pieces jointed by skeleton adhesion process in step (b), step (c) further comprises molding the no-stitch shirt at high temperature by a stereo ironing machine; cooling the no-stitch shirt to room temperature.

23. The method as recited in claim 19, wherein for the garment pieces jointed by skeleton adhesion process in step (b), step (c) further comprises molding the no-stitch shirt at high temperature by a stereo ironing machine; cooling the no-stitch shirt to room temperature.

24. The method as recited in claim 21, wherein in step (c), select arc-match stereo ironing machines which are are marched to the seams to iron and mold the seams of the relative garment pieces respectively, wherein in accordance to thickness of different fabric and skeleton adhesive material, ironing and molding process parameters are set as follows: temperature 100-190°C, pressure 0.5-8 kg/cm², time 3-40 sec.

25. The method as recited in claim 22, wherein in step (c), select arc-match stereo ironing machines which are are marched to the seams to iron and mold the seams of the relative garment pieces respectively, wherein in accordance to thickness of different fabric and skeleton adhesive material, ironing and molding process parameters are set as follows: temperature 100-190°C, pressure 0.5-8 kg/cm², time 3-40 sec.

26. The method as recited in claim 23, wherein in step (c), select arc-match stereo ironing machines which are are marched to the seams to iron and mold the seams of the relative garment pieces respectively, wherein in accordance to thickness of different fabric and skeleton adhesive material, ironing and molding process parameters are set as follows: temperature 100-190°C, pressure 0.5-8 kg/cm², time 3-40 sec.

27. The method as recited in claim 12, further comprising using no-stitch buttons which are installed without sewing thread, wherein the no-stitch button is selected from a group consisting of prong snap button, pressing button, lifting button, snap button, and electrodes button.

28. The method as recited in claim 26, further comprising using no-stitch buttons which are installed without sewing thread, wherein the no-stitch button is selected from a group consisting of prong snap button, pressing button, lifting button, snap button, and electrodes button.

29. The method as recited in claim 12, further comprising adding a special memory type lining to replace ordinary collar corner, wherein the special memory type lining is selected from a group consisting of plastic shape-memory corn-spin lining, plastic shape-memory metal lining, and shape-memory polyurethane lining.

30. The method as recited in claim 28, further comprising adding a special memory type lining to replace ordinary collar corner, wherein the special memory type lining is selected from a group consisting of plastic shape-memory corn-spin lining, plastic shape-memory metal lining, and shape-memory polyurethane lining.

31. A no-stitch shirt which is anti-wrinkle and no-ironing, comprising a plurality of garment pieces, wherein the garment pieces are jointed together via no-stitch process selected from a group consisting of skeleton adhesion process, and darning process.

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