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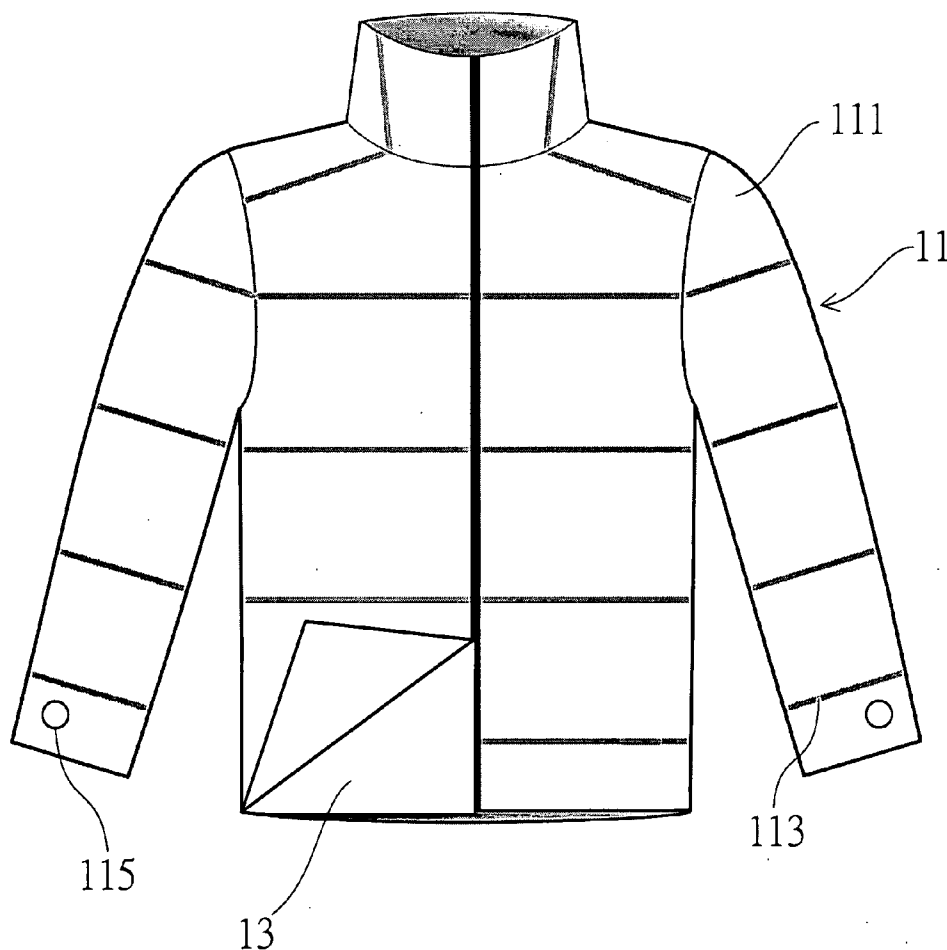
(19) **United States**(12) **Patent Application Publication**
Huang(10) **Pub. No.: US 2007/0294800 A1**(43) **Pub. Date: Dec. 27, 2007**(54) **SEAMLESS DOWN CLOTH AND
MANUFACTURING METHOD THEREOF****Publication Classification**(51) **Int. Cl.**
A41D 3/02 (2006.01)(52) **U.S. Cl.** 2/97(57) **ABSTRACT**

A seamless down cloth and manufacturing method thereof are provided. The cloth comprises a shell fabric, a lining, and down, wherein the down are filled between the shell fabric and the lining, several down areas and pasted areas are spread around the shell fabric, wherein the shell fabric is seamless. The manufacturing method comprises the steps of patterning, cutting, forming down cloth, down filled, and pasting, further, the shell fabric is divided into several down areas by the seamless skill, and every down area is filled the down. The seamless shell fabric can overcome the problem of that the down will bore from the suture, such that can prevent from rain leaking through the suture. The shell fabric can be made by the material with the functions of water proof, wind proof, and moisture conductivity, such that the down cloth can be with water proof, wind proof, and warm keeping surely.

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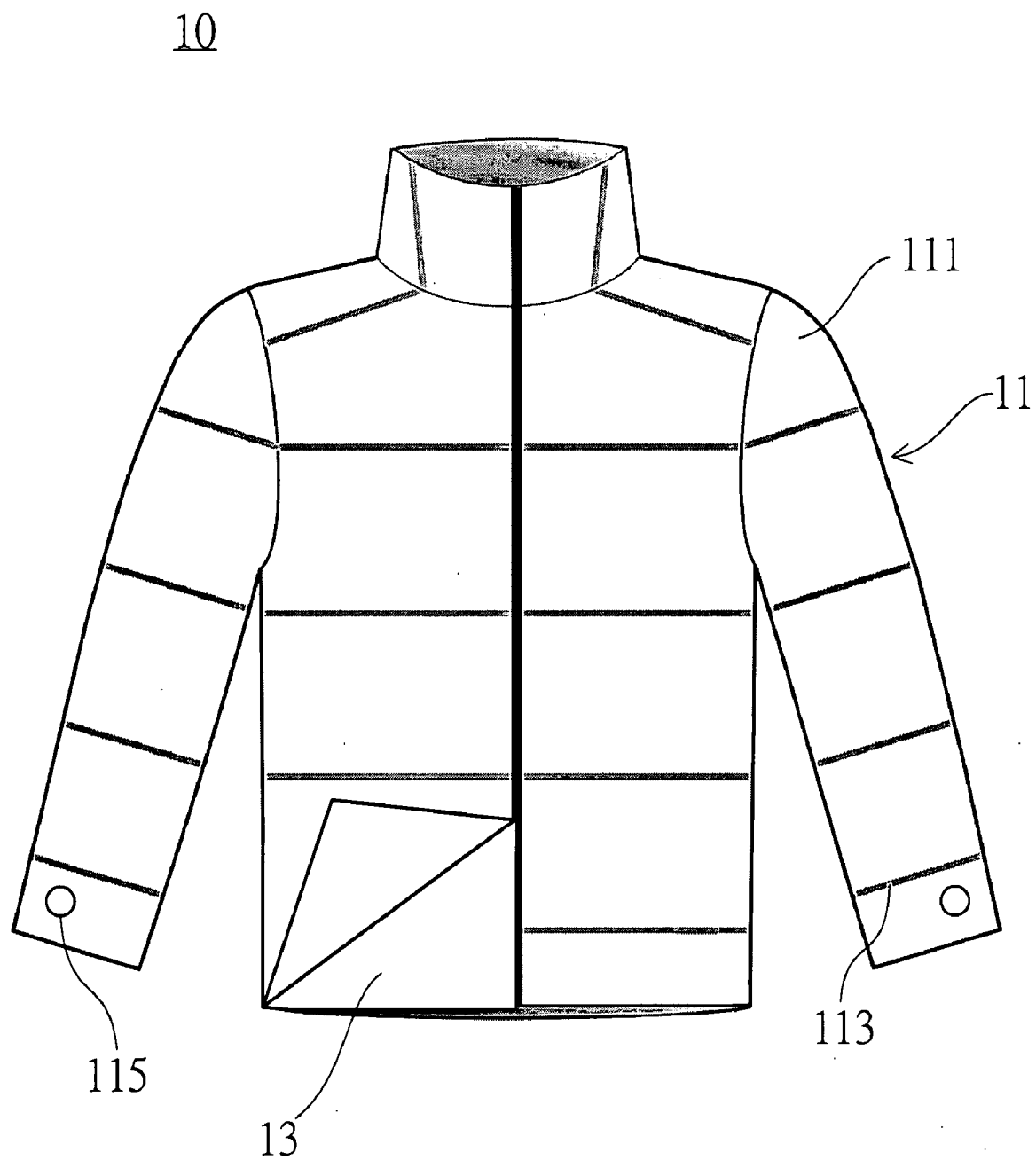


FIG. 1

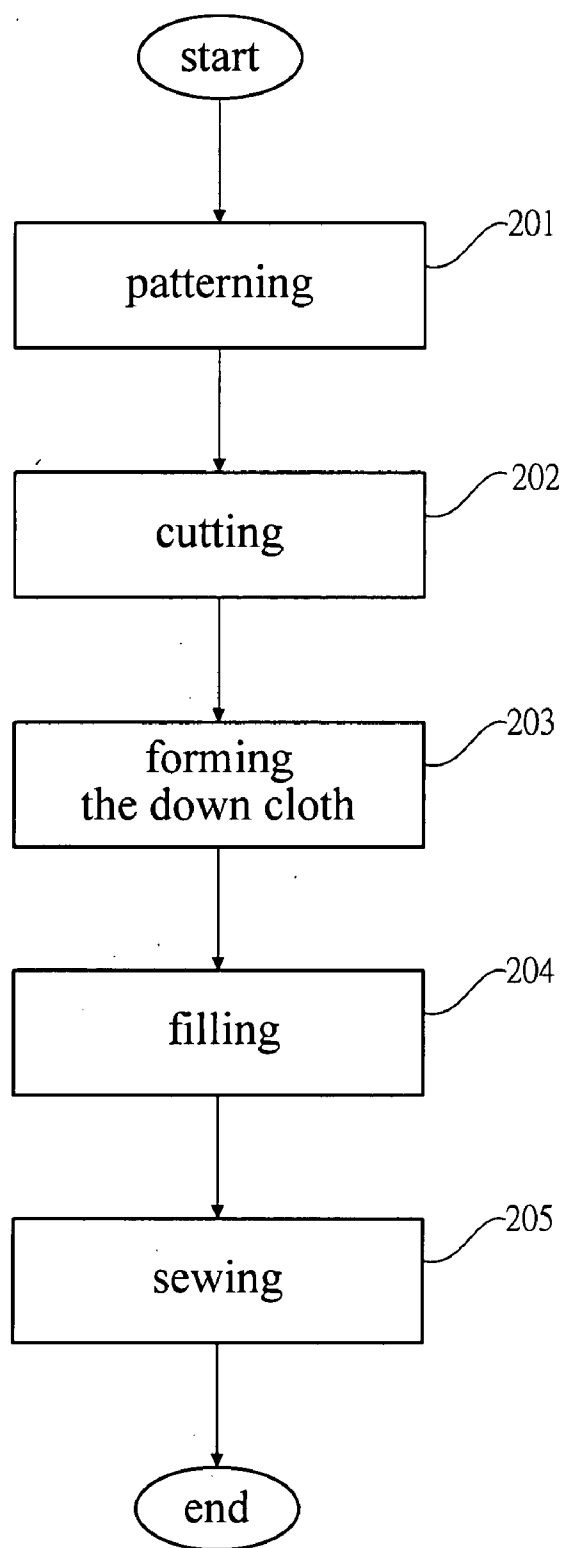


FIG. 2

SEAMLESS DOWN CLOTH AND MANUFACTURING METHOD THEREOF

FIELD OF THE INVENTION

[0001] The present invention relates to a down cloth and manufacturing method thereof, and more particularly to a seamless down cloth and manufacturing method thereof.

BACKGROUND OF THE INVENTION

[0002] Since various down clothes were at the market, the clothes are sewed into several areas for preventing from down shifting, and such clothes are with many shortcomings as following descriptions. The down includes the feature of slippery that will cause the down spilled from the suture to effect the outlook and be discomfort. And, due to the clothes have sutures, the clothes cannot be used for water proof and wind proof. Accordingly, as the ventilations of the shell fabric, the lining, and the padding are worse, the moisture will not be emanated easily, therefore, comfortable and warm keeping will not be provided sequentially. Under that, the clothes will not be dried after laundering; thereafter, the down will be denaturalization easily, such that will emanate odor. Furthermore, the down clothes are heavier that effects the moving for people at many circumstances, and the clothes are looked without featly in accordance with the seams.

SUMMARY OF THE INVENTION

[0003] It is a primary object of the present invention to provide a seamless down cloth and manufacturing method thereof, wherein a shell fabric of which can be divided into several square areas by hot pasting, such that the shell fabric can be with seamless.

[0004] It is a secondary object of the present invention to provide a seamless down cloth and manufacturing method thereof to solute the problem of down spilled from the sutures and provide better water proof and warm keeping, consequently, the weight of cloth is lighter, the outlook is more featly.

[0005] It is another object of the present invention to provide a seamless down cloth and manufacturing method thereof, wherein the pasted areas of cloth can be designed to any patterns for various outlook of the cloth.

[0006] To achieve the previous mentioned objects, the present invention provides a seamless down cloth, comprising a shell fabric, a lining, and down, the down provided between the shell fabric and the lining, wherein a plurality of down areas and a plurality of pasted areas are spread around the shell fabric, the shell fabric is with seamless.

[0007] To achieve the previous mentioned objects, the present invention further provides a seamless down cloth manufacturing method, comprising the steps of patterning for a designed pattern of a down cloth; cutting the pattern; forming the down cloth; designing a pasted pattern; cutting the pasted pattern and a shell fabric; stacking a lining, the pasted pattern, and the shell fabric in order according to the pattern and pasting; filling down into a plurality of down

areas regarding as the required weight for each; and sewing at least one accessory on the down cloth.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] It will be understood that the figures are not to scale since the individual layers are too thin and the thickness differences of various layers too great to permit depiction to scale.

[0009] FIG. 1 is a structure diagram of a preferred embodiment of the present invention seamless down cloth; and

[0010] FIG. 2 is a flow chart of a preferred embodiment of the present invention seamless down cloth manufacturing method.

DETAILED DESCRIPTION OF THE INVENTION

[0011] The structural features and the effects to be achieved may further be understood and appreciated by reference to the presently preferred embodiments together with the detailed description.

[0012] First, referring to the FIG. 1, is a structure diagram of a preferred embodiment of the present invention seamless down cloth. The down cloth **10** comprises a shell fabric **11**, a lining **13**, and down (not shown), wherein the down are provided between the shell fabric **11** and the lining **13**, a plurality of down areas **111** and a plurality of pasted areas **113** are spread around the shell fabric **11**, the shell fabric **11** is with seamless. The pasting material of the pasted areas can be a PU adhesive film or s PU glue, and the pasted areas can be designed as any patterns, such as a line type, a curve type, or a ravine type, therefore, the down cloth **10** will be with various outlooks.

[0013] The present invention disclosed a seamless skill that provides several pasted areas to divide the shell fabric **11** into several down areas **111**, and fills proper down into each down area, such that the down will not be spilled easily from suture, even the down is very slippery, thus, the cloth will be more comfortable and good looking, furthermore, since the cloth is without any sutures and stitches, the water proof can be more efficiency according to the various functions of the cloth, sequentially, the material of shell fabric **11** can be with functions of water proof, wind proof, moisture conductivity, or the combination thereof, such that can provide the functions of well water proof for the cloth, and since the seamless feature of the cloth can be used for preventing the air convection that can cause heat flowing away, the cloth will be better on warm keeping. And further, the hem width of the shell fabric **11** is lesser, according to the seamless for the cloth. Especially, the down cloth can be altered to comprise two layers only, which are the shell fabric **11** and the lining **13**, instead of the original three layers, which are the shell fabric, the lining, and the padding, thus, the weight of the cloth can be reduced efficiently.

[0014] Referring to FIG. 2, is a flow chart of a preferred embodiment of the present invention seamless down cloth manufacturing method. The method comprises the steps of:

[0015] Step **201**, patterning for a designed pattern of a down cloth **10** according to the determined size;

[0016] Step **202**, cutting a sample (not shown) provided after patterning;

[0017] Step **203**, forming the down cloth **10**, designing a pasted pattern (not shown), cutting the pasted pattern and

a shell fabric **11**, stacking a lining **13**, the pasted pattern, and the shell fabric **10** in order according to the pattern, and pasting that;

[0018] Step **204**, filling proper down into a plurality of down areas **111** regarding as the required weight for each, that is, much-down filled will cause the cloth too heavy, on the other hand, less-down filled will cause the cloth too light and effect the outlook and the warm keeping; and

[0019] Step **205**, sewing at least one accessory **115** on the down cloth **10**, such as zippers, buttons, and so on.

[0020] The mentioned way of cutting can be selectively as a manual cutting, a punching cutting, and a laser cutting. Accordingly, the laser cutting can be implemented by the process of designing the pasted pattern by the computer software, setting the energy and the velocity of the laser cutting machine, and cutting the pasted pattern by the laser cutting machine, wherein the energy of that can be set around 90 to 98, the velocity of that can be set around 12 to 15, consequently, the different widths of pasted area **113** material and shell fabric **11** are required different energy and velocity. The outermost layer of the shell fabric **11** is processed with a thinnest long lasting spray-on PU film during the manufacturing of the shell fabric **11**, thus, drops will be pushed through under certain moist circumstances, the seamless and smoother surface of the cloth can be used to alter the water run-off, such that the drops will be slipped off rapidly, therefore, the water proof function can be provided according to the down cloth **10** surely. At raining, the down cloth having water proof function can prevent the lost of body temperature, furthermore, which is more comfortable for people.

[0021] The lining **13**, pasted pattern, and the shell fabric **11** are pasted by hot pasting, for example, setting the parameters of the temperature, the pressure, and the pressing period time of a hot pasting machine (not shown), the lining **13**, the pasted pattern, and the shell fabric **11** are stacked in order according to the sample and pasted by the hot pasting machine. Of course, the manufacturer can test the parameters of temperature, the pressure, and the pressing period time first for obtaining the optimal value to set the parameters of the hot pasting machine. Sequentially, once the temperature is higher, or the pressing period time is longer, the shell fabric **11** will be burned, that is, the shell fabric **11** will be with bad ventilation and effect the function of water proof; on the other hand, once the pressing period time is shorter, the temperature is lower, or the pressure is insufficient, the shell fabric **11** and the lining **13** will be pasted insecurely, such that the down between the shell fabric **11** and the lining **13** will move together since the insecure pasted. Accordingly, the function of warm keeping for the cloth will be affected.

[0022] Finally, the seamless down cloth **10** manufactured from the pervious mentioned methods can prevent the attrition of stitches and sutures in accordance the laser cutting, hot pasting, and so on. The outlook of the down cloth **10** is more featly and smoother. Wherein, the material of the shell fabric **11** can be selected with lighter, tender, and more comfortable, further, the function of that can be selected with water proof, snow proof, wind proof, moisture conductivity, ventilation, oil proof, dirty proof, and so on.

[0023] The foregoing description is merely one embodiment of present invention and not considered as restrictive.

All equivalent variations and modifications in process, method, feature, and spirit in accordance with the appended claims may be made without in any way from the scope of the invention.

I claim:

1. A seamless down cloth, comprising a shell fabric, a lining, and down, said down provided between said shell fabric and said lining, wherein a plurality of down areas and a plurality of pasted areas are spread around said shell fabric, said shell fabric is with seamless.

2. The down cloth of claim **1**, wherein said pasted areas are separated by seamless skill.

3. The down cloth of claim **1**, wherein said pasted areas are as a line type.

4. The down cloth of claim **1**, wherein said pasted areas are as a curve type.

5. The down cloth of claim **1**, wherein said pasted areas are as a ravine type.

6. The down cloth of claim **1**, wherein the material of said shell fabric can be selected from one of a water proof fabric, a wind proof fabric, a moisture conductivity, and a combination thereof.

7. A seamless down cloth manufacturing method, comprising the steps of:

 patterning for a designed pattern of a down cloth;

 cutting a sample provided after patterning;

 forming said down cloth;

 designing a pasted pattern;

 cutting said pasted pattern and a shell fabric;

 stacking a lining, said pasted pattern, and said shell fabric in order according to said pattern and pasting thereafter;

 filling down into a plurality of down areas regarding as the required weight for each; and

 sewing at least one accessory on said down cloth.

8. The method of claim **7**, wherein the way of cutting said pattern can be selected from one of a manual cutting, a punching cutting, and a laser cutting.

9. The method of claim **8**, wherein the energy of said laser cutting is around 90 to 98, the speed of that is around 12 to 15.

10. The method of claim **7**, wherein said pasting way on said lining, said pasted pattern, and said shell fabric is a hot pasting.

11. The method of claim **10**, wherein said hot pasting is processed by a hot pasting machine according to set the parameters as the temperatures the pressure, and pressing period time on which.

12. The method of claim **11**, wherein the way of said hot pasting is to process of testing the parameters as the temperature, the pressure, and pressing period time, and further setting the optimal parameters of said hot pressing machine according to previous testing.

13. The method of claim **7**, wherein said shell fabric is with seamless.

14. The method of claim **13**, wherein the material of said shell fabric can be selected from one of a water proof fabric, a wind proof fabric, a moisture conductivity, and a combination thereof.

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