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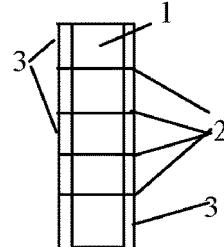
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(54) SKELETON CLOTHING

(57) A skeleton clothing, comprising: an adjustable skeleton (2), a cloth (3) and a filler that match each other and the materials of which may be selected as required. The adjustable skeleton (2) realizes a small void between the body and the clothing. The present invention is beneficial for heat dissipation, and has a masking and beautifying effect, and a dynamic aesthetic feeling. There can be a variety of skeleton clothing, for example, skeleton raincoat, skeleton thermal clothing, skeleton fire-proof clothing, skeleton bullet-proof clothing, skeleton diving clothing, skeleton space clothing, skeleton flying clothing, skeleton anti-radiation clothing, and skeleton motorcycle clothing.

**Fig. 1**

Description**FIELD OF THE INVENTION**

[0001] The present invention relates to the field of clothing technologies, and in particular, to a skeleton clothing. 5

BACKGROUND OF THE INVENTION

[0002] A parasol needs to be supported by a hand when used for sun screening, the sun screening area of the parasol is small, and most of the body is still exposed. Traditional clothing is skin-tight, it is uncomfortable and adverse to heat dissipation when it is hot. The body shape is basically the shape of the clothing, without any masking and beautifying effect. The clothing is stationary relative to the body. The clothing is not suitable for both the thin and the fat, that is, the size of the clothing is nonadjustable. Mosquitoes may bite a body through the clothing. Down jackets have the problem of down bristles. Anti-mosquito clothing of CN201010223578.5 uses sponge for isolation, which may be hot and uncomfortable. The Chinese application No. 201510620759 of the present inventor solves the problem of mosquito prevention during sitting, lying and standing, but one may still be bit by a mosquito without the protection of a mosquito net. Traditional clothing has no protection on the pudendal region of a person, and a lifelong regret may be caused once it is hurt. The day-use type clothing from the Chinese application No. 201310324622.5 of the present inventor may not be ideal in the effect of avoiding embarrassment. 10 15 20 25 30

SUMMARY OF THE INVENTION

[0003] In order to solve the above problems, the present invention provides: 35

1) A skeleton clothing, comprising: an adjustable skeleton and a cloth that match each other, wherein the adjustable skeleton and the cloth may be freely combined and separated for the cleaning of the cloth. The adjustable skeleton is a three-dimensional structure matching the body shape of a human, which is consisted of one or more sets of concentric circles, and each set of concentric circles take the body as the center of circle in the horizontal direction, the inner small circle is fixed to the body, the outer large circle is used to fix the cloth, and the two circles are connected by several support frames, wherein the inner small circle, the outer large circle and the support frames may be fixed or movable relative to each other. The inner small circle has a function similar to that of a waist belt, and it may be adjusted and fixed according to the perimeter of the corresponding body part, and small holes favorable for gas permeation may exist. It may be suitable for both the thin 40 45 50 55

and the fat with similar body heights, i.e., the size of the clothing may be adjusted by adjusting the perimeter of the small circle. The length of the support frames may be the same or different, and the support frames may have an elasticity that adds the dynamic beauty. The variability of the length of the support frames realizes a function of body remodeling, and the body shape after wearing the clothing of the invention may be changed by setting different length of the support frames in the horizontal direction. It may have a beautifying effect, for example, a long support frame on the chest exhibits a big chest, and a short support frame on the waist exhibits a slim waist. The length of the support frames realizes a small void between the body and the clothing which is favorable for air circulation and makes one feel cooler. In the vertical direction, an upper circle and a lower circle may be connected via support frames. The support frames may be partially or fully arranged on each circle as required, for example, there may be no support frames on the back when one needs to carry a weight on the back, and there may be no support frames on the hips when one needs to be seated. The material and the coverage area of the cloth may be selected as required, and it is not limited to ordinary cloth. The adjustable skeleton, the cloth and the skeleton clothing may cover a part of the body or the whole body. Each circle may be a closed and whole circle or a non-closed partial circle with several notches. When the cloth is a waterproof material, the skeleton clothing will be a skeleton raincoat.

2) A pair of skeleton underpants, wherein, the skeleton underpants is a three-circle H-shaped adjustable skeleton with the "H" being rotated 90 degrees, the upper transversal line of the 90-degree rotated "H" corresponds to the large circle on the waist, the lower transversal line of the 90-degree rotated "H" corresponds to the small circles on the two thighs, and the middle vertical line of the 90-degree rotated "H" corresponds to the support protection frames, and the three circles may be adjusted and fixed according to the perimeter of the corresponding body part. Support protection frames may further exist between the two small circles in order to prevent impact from the bottom up. The support protection frames should fully cover, including fully cover for the strongest protection and partially cover for air permeation, the pudendal region. In order to avoid head-on impact, camber-line support legs matching the body exist on the front side of the two thighs and the abdominal part, the support protection frames may be resilient, and several permeable voids with unlimited shape and number may be reserved. During impact, the impact force is transmitted to the thighs and the abdominal part after being partially absorbed by the support protection frames, thus the pudendal region will be protected from being hurt. A groove may be

reserved for men's support protection frames for accommodating an erectile penis, thus the pudendal region may be protected, and at the same time it will be comfortable and embarrassment of erection may be avoided. The skeleton underpants may be used independently or together with other underpants. Support protection frames in the front part of the pudendal region are indispensable, and support protection frames in the rear part may be further added.

3) A skeleton sun-screening clothing, comprising: an adjustable skeleton and a sun-screening cloth. Sun-flower sun screening clothing, i.e., partially-covering sun-screening cloth, may move freely to the direction of sunlight and be fixed relative to the adjustable skeleton. The moving mode may be as follows: the whole moves relative to the body; the small circle is kept stationary, and the support frame, the large circle and the cloth move together; the small circle and the support frame are kept stationary, and the large circle and the cloth move together; the adjustable skeleton is kept stationary, and the cloth moves on the support frame. The free movement of the cloth should be guaranteed, and at the same time skin clamping should be avoided.

4) A skeleton anti-mosquito clothing: the cloth comprises net and other materials and covers the whole body; the length of the support frames should guarantee a small void between the body and the cloth that prevents a mosquito from biting the body, i.e., that is larger than the valid blood-sucking vessel of a mosquito (for example, 5 mm). If required, enough cloth needs to be reserved for covering a larger range and guaranteeing the tightness. The skeleton anti-mosquito clothing is a "carried-about mosquito net", and it may protect a person wearing the same, that is, a person wearing it will not be bit by a mosquito no matter being stationary or walking.

5) A skeleton clothing, comprising: a skeleton, two layers of cloth and a filler between the two layers of cloth, and a small circle of the skeleton is fixed to the body or the inner cloth. The skeleton comprises a fixed skeleton and a adjustable skeleton, the adjustable skeleton may be adapted for different body shapes. The skeleton clothing will be a skeleton thermal clothing when the skeleton, the cloth and the filler are made of a heat insulating material. The material of the filler may be selected as required: when it is an air bag, the cost will be very low, the weight will be very small, and the space usage will be very small after being blown off when it is not in use; when it is vacuum, it may has a similar thermal insulation effect as that of a "thermos bottle"; when it is down feather, down bristles of common down jacket will not exist because a very small stress is laid on the down feather due to the support action of the skeleton. The skeleton clothing will be a skeleton fire-proof clothing when the skeleton, the cloth and the filler are made of a high temperature-resistant fireproof

material. The skeleton clothing will be a skeleton bullet-proof clothing when the skeleton, the cloth and the filler are made of a bullet-proof material. A variety of skeleton clothings may further be made in various fields with the same principles and the similar structures, for example, skeleton diving clothing, skeleton space suit, skeleton flying suit, skeleton anti-radiation clothing and skeleton motorcycle clothing.

10 [0004] The present invention has the beneficial effects below: 1) in comparison with the traditional clothing, a small void exists between the body and the clothing due to the support function of the adjustable skeleton, which is comfortable and is favorable for heat dissipation; the 15 clothing may fluctuate relative to the body and have a dynamic aesthetic feeling; the clothing is suitable for both the thin and the fat, that is, the size of the clothing is adjustable; it may be a "carried-about mosquito net", and one will be protected so long as he/she wears it; the down 20 jacket will not have a problem of down bristles; 2) in comparison with parasol sun screening, the two hands are released, and sun screening may be realized on the sunward side of the whole body; 3) the pudendal region is 25 protected from being hurt; 4) embarrassment of erection in public may be completely avoided; 5) it has a wide extension space: a variety of skeleton clothings may further be made in various fields with the same principles and the similar structures.

30 BRIEF DESCRIPTION OF THE DRAWINGS

[0005] All the drawings and scales are schematic, rather than being precise and being accurate design papers for production.

35 Fig. 1 is a front view in the horizontal direction; Fig. 2 is a top view in the vertical direction showing the concentric circles of a three-dimensional skeleton; and Fig. 3 and Fig. 4 show a three-circle H-shaped adjustable skeleton and a variation thereof.

- 40 1 Human Body
- 2 Concentric Circles and Three-Dimensional Skeleton
- 3 Cloth
- 4 Outer Circle or Cloth
- 5 Support Frame
- 6 Small Circle
- 7 Large Circle Corresponding to the Waist
- 8 Support Protection Frame
- 9 Small Circles Corresponding to Two Thighs
- 10 Reserved Groove or Partially-Covered Air Permeation Part

55 DETAILED DESCRIPTION OF THE EMBODIMENTS

[0006] The technical solutions in the embodiments of

the invention will be described clearly and fully below in conjunction with the drawings in the embodiments of the invention. Apparently, the embodiments described are only a part of the embodiments of the invention, rather than being the whole embodiments. All the other embodiments obtained by one of ordinary skills in the art based on the embodiments of the invention without creative work pertain to the protection scope of the invention.

- 1) Skeleton Underpants: by respectively adjusting the large circle corresponding to the waist, the small circles corresponding to two thighs and the support protection frame of the three-circle H-shaped adjustable skeleton, the pudendal region can be perfectly protected from being hurt. Men's skeleton underpants are comfortable, and at the same time embarrassment of erection may be avoided. 10
- 2) Skeleton Sun-Screening Clothing: from the top to the bottom, a set of concentric circles exists on the vertex, the oxter, the chest and the waist respectively, and the location and number of the concentric circles may be adjusted and changed as required for a specific product; the sun-screening cloth on the vertex may affect the visual field, and the concentric circles on the vertex may be cancelled. The partially-covering sun-screening cloth may move freely and be fixed to the four directions of front, back, left and right, i.e., to the sunward side, relative to the adjustable skeleton and the body, thus a sun screening function may be realized. If it is a fully-covering sun-screening cloth, the moving function will no longer be required. Because a small void favorable for air circulation exists between the sun-screening cloth and the body, it will be more comfortable and cooler during sun screening. 15
- 3) Skeleton Anti-Mosquito Clothing: the cloth may cover the whole body except for the two hands and the two feet, the skeleton should guarantee a large enough void between the body and the cloth, i.e., the skeleton should guarantee that the body will not be bit by a mosquito. The cloth includes net and other materials. If required, support frames may not be used on the hips and the back; and for positions where it is unsuitable to use net, for example, the hips, the back, the wrists, the ankles and the part between the two legs, a material that the blood-sucking vessel of a mosquito cannot penetrate through may be employed. The larger the coverage area of the net is, the cooler it will be. If a sun-screening cloth, i.e., a sun screening function, is added, anti-mosquito, sun screening and cooling functions will be realized at the same time. 20
- 4) Wide Expansion Space: a variety of skeleton clothings may further be made in various fields with the same principles and the similar structures, for example, skeleton thermal clothing, skeleton fire-proof clothing, skeleton bullet-proof clothing, skeleton diving clothing, skeleton space suit, skeleton fly- 25

ing suit, skeleton anti-radiation clothing and skeleton motorcycle clothing.

5 Claims

1. A skeleton clothing, wherein the skeleton clothing comprises an adjustable skeleton and a cloth that may be freely combined and separated; the adjustable skeleton is a three-dimensional structure consisted of one or more sets of concentric circles, and each set of concentric circles take the body as the center of circle in the horizontal direction, an inner small circle is fixed to the body, and an outer large circle is used to fix to the cloth, and the two circles are connected by several support frames, wherein the inner small circle, the outer large circle and the support frames may be fixed or movable relative to each other; the inner small circle may be adjusted and fixed and may have small holes; the lengths of the support frames may be the same or different, and the support frames may have an elasticity; in the vertical direction, an upper circle and a lower circle may be connected via support frames; the support frames may be partially or fully arranged on each circle as required; the material and the coverage area of the cloth may be selected as required; the adjustable skeleton, the cloth and the skeleton clothing may cover a part of the body or the whole body; each circle may be a closed and whole circle or a non-closed partial circle with several notches; when the cloth is a waterproof material, the skeleton clothing will be a skeleton raincoat. 30
2. A pair of skeleton underpants or the skeleton clothing as claimed in claim 1, wherein the skeleton underpants is a three-circle H-shaped adjustable skeleton with the "H" being rotated 90 degrees, the upper transversal line of the 90-degree rotated "H" corresponds to the large circle on the waist, the lower transversal line the 90-degree rotated "H" corresponds to the small circles on the two thighs, and the middle vertical line of the 90-degree rotated "H" corresponds to the support protection frames, and the three circles may be adjusted and fixed; support protection frames may further exist between the two small circles; the support protection frames should fully cover, including fully cover and partially cover, the pudendal region, and camber-line support legs exist on the front side of the two thighs and the abdominal part, the support protection frames in the front part of the pudendal region are indispensable, and the support protection frames may be further added to the rear part, the support protection frame may be resilient, several permeable voids may be reserved; a groove may be reserved for men's support protection frames. 35

3. A skeleton sun-screening clothing or the skeleton clothing as claimed in claim 1, wherein the skeleton clothing comprises an adjustable skeleton and a sun-screening cloth, wherein a partially-covering sun-screening cloth may move freely and be fixed relative to the adjustable skeleton. 5

4. A skeleton anti-mosquito clothing or the skeleton clothing as claimed in claim 1, wherein the cloth comprises net and other materials; the length of the support frames should guarantee a small void between the body and the cloth that is larger than the valid blood-sucking vessel of a mosquito; if required, enough cloth needs to be reserved for covering a larger range and guaranteeing the tightness. 10 15

5. A skeleton clothing or the skeleton clothing as claimed in claim 1, wherein the skeleton clothing comprises a skeleton, two layers of cloth and a filler between the two layers of cloth, the small circle of the skeleton is fixed to the body or the inner cloth; the skeleton comprises a fixed skeleton and a adjustable skeleton; the material of the filler may be selected as required; the skeleton clothing will be a skeleton thermal clothing when the skeleton, the cloth and the filler are made of a heat insulating material; the skeleton clothing will be a skeleton fire-proof clothing when the skeleton, the cloth and the filler are made of a high temperature-resistant fire-proof material; the skeleton clothing will be a skeleton bullet-proof clothing when the skeleton, the cloth and the filler are made of a bullet-proof material; a variety of skeleton clothings may further be made in various fields with the same principles and the similar structures, for example, skeleton diving clothing, skeleton space suit, skeleton flying suit, skeleton anti-radiation clothing or skeleton motorcycle clothing. 20 25 30 35

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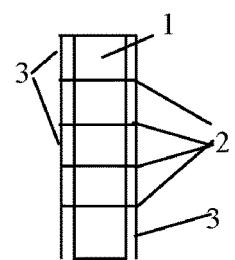


Fig. 1

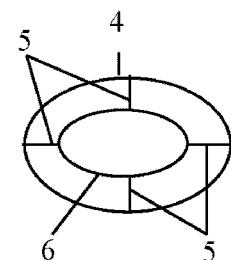


Fig. 2

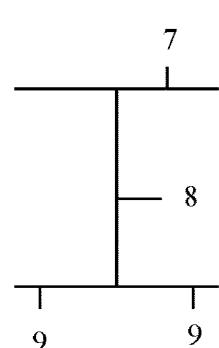


Fig. 3

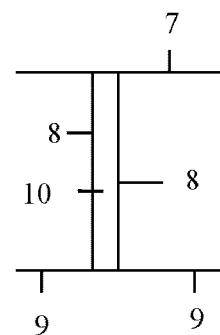


Fig. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2016/103027

5	A. CLASSIFICATION OF SUBJECT MATTER		
	A41D 15/00 (2006.01) i According to International Patent Classification (IPC) or to both national classification and IPC		
10	B. FIELDS SEARCHED		
	Minimum documentation searched (classification system followed by classification symbols)		
	A41D 15/-; A41D 3/-		
15	Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
	Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
20	CNABS; TWABS; CNTXT; TWTXT; CNKI; WPI; EPODOC; EPTXT; USTXT; WOTXT: tong jianlun, skeleton, cloth, adjustable, insect, framework, formed, three-dimensional, spatial, fixed, permanent, framework, round, body, support, frame, cover, fabric, isolation, material, cover, inner side, hole, side, ventilat+, gap, middle, protective, concentric circles, groove, filler, gap, clothes, dissipation, mutual, conceal, beautification, protection, avoided, space, raincoat, warmth-preservation, fireproof garment, bulletproof, diving suit, space suit, flight clothing, radiation-proof, motorcycle suit		
25	C. DOCUMENTS CONSIDERED TO BE RELEVANT		
	Category*	Citation of document, with indication, where appropriate, of the relevant passages	
30	PX	CN 105380318 A (TONG, Jianlun) 09 March 2016 (09.03.2016) claims 1-5	1-5
	X	CN 204032426 U (JIANG, Zhongnan) 24 December 2014 (24.12.2014) description, paragraphs [0020]-[0025], and figures 1-5	1-5
	A	CN 202287304 U (HUANG, Luping) 04 July 2012 (04.07.2012) the whole document	1-5
	A	US 2002083513 A1 (GABRIEL, EDWIN ZENITH) 04 July 2002 (04.07.2002) the whole document	1-5
35	<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
	* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed		
40	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
45			
50	Date of the actual completion of the international search 20 December 2016	Date of mailing of the international search report 29 December 2016	
55	Name and mailing address of the ISA State Intellectual Property Office of the P. R. China No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088, China Facsimile No. (86-10) 62019451	Authorized officer LIU, Shixiong Telephone No. (86-10) 62414492	

INTERNATIONAL SEARCH REPORT		International application No. PCT/CN2016/103027	
5	C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
10	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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	A	KR 20130000127 A (KOLON IND. INC.) 02 January 2013 (02.01.2013) the whole document	1-5
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Form PCT/ISA/210 (continuation of second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
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