

REISSUE PATENT APPLICATION TRANSMITTAL

Address to: Mail Stop Reissue Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450	Attorney Docket No. THMTE-001X First Named Inventor William THOMPSON Original Patent Number 8,898,812 Original Patent Issue Date (Month/Day/Year) 2 December 2014 Express Mail Label No.																					
APPLICATION FOR REISSUE OF: (Check applicable box) <input checked="" type="checkbox"/> Utility Patent <input type="checkbox"/> Design Patent <input type="checkbox"/> Plant Patent																						
<div style="display: flex; justify-content: space-between;"> <div style="width:48%;"> APPLICATION ELEMENTS (37 CFR 1.173) </div> <div style="width:48%;"> ACCOMPANYING APPLICATION PARTS </div> </div>																						
<div style="display: flex; justify-content: space-between;"> <div style="width:48%;"> <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Fee Transmittal Form (PTO/SB/56) 2. <input checked="" type="checkbox"/> Applicant asserts small entity status. See 37 CFR 1.27 3. <input type="checkbox"/> Applicant certifies micro entity status. See 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent. 4. <input checked="" type="checkbox"/> Specification and Claims in double column copy of patent format (amended, if appropriate) 5. <input checked="" type="checkbox"/> Drawing(s) (proposed amendments, if appropriate) 6. <input checked="" type="checkbox"/> Reissue Oath/Declaration or Substitute Statement (37 CFR 1.175) (PTO/AIA/05, 06, or 07) 7. <input checked="" type="checkbox"/> Application Data Sheet NOTE: Benefit claims under 37 CFR 1.78 and foreign priority claims under 37 CFR 1.55 MUST be set forth in an Application Data Sheet (ADS). 8. <input checked="" type="checkbox"/> Original U.S. Patent currently assigned? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, check applicable box(es)) <input checked="" type="checkbox"/> Written Consent of all Assignees (PTO/AIA/53) <input checked="" type="checkbox"/> 37 CFR 3.73(c) Statement (PTO/AIA/96) 9. <input type="checkbox"/> CD-ROM or CD-R in duplicate, Computer Program (Appendix) or large table <input type="checkbox"/> Landscape Table on CD 10. Nucleotide and/or Amino Acid Sequence Submission (If applicable, items a. – c. are required) <ol style="list-style-type: none"> a. <input type="checkbox"/> Computer Readable Form (CRF) b. <input type="checkbox"/> Specification Sequence Listing on: <ol style="list-style-type: none"> i. <input type="checkbox"/> CD-ROM (2 copies) or CD-R (2 copies); or ii. <input type="checkbox"/> Paper c. <input type="checkbox"/> Statements verifying identity of above copies </div> <div style="width:48%;"> <ol style="list-style-type: none"> 11. <input checked="" type="checkbox"/> Statement of status and support for all changes to the claims. See 37 CFR 1.173(c). 12. <input checked="" type="checkbox"/> Power of Attorney 13. <input checked="" type="checkbox"/> Information Disclosure Statement (IDS) PTOSB/08 or PTO-1449 <input checked="" type="checkbox"/> Copies of citations attached 14. <input type="checkbox"/> English translation of Reissue Oath/Declaration (if applicable) 15. <input type="checkbox"/> Return Receipt Postcard (MPEP § 503) (Should be specifically itemized) 16. <input checked="" type="checkbox"/> Preliminary Amendment (37 CFR 1.173; MPEP § 1453) 17. <input checked="" type="checkbox"/> Other: IPR Petition No. 2017-01529; IPR Exhibit 1006 Corrected Brookstein Declaration; IPR Exhibit 1007 Brookstein CV; IPR; Notice of Supplemental Declaration of David Brookstein; VanEmden Publication; (all of the above are included on the Information Disclosure Statement) </div> </div>																						
18. CORRESPONDENCE ADDRESS																						
<input checked="" type="checkbox"/> The address associated with Customer Number: 007663 OR <input type="checkbox"/> Correspondence address below																						
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">Name</td> <td colspan="3"></td> </tr> <tr> <td>Address</td> <td colspan="3"></td> </tr> <tr> <td>City</td> <td style="width:25%;">State</td> <td style="width:25%;">Zip Code</td> <td></td> </tr> <tr> <td>Country</td> <td>Telephone</td> <td colspan="2"></td> </tr> <tr> <td>Email</td> <td colspan="3"></td> </tr> </table>			Name				Address				City	State	Zip Code		Country	Telephone			Email			
Name																						
Address																						
City	State	Zip Code																				
Country	Telephone																					
Email																						
Signature /mbg/		Date 31 August 2017																				
Name (Print/Type) Mark B. Garred		Registration No. 34,823																				

This collection of information is required by 37 CFR 1.173. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop Reissue, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:

Filing Date:

Title of Invention:

GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS

First Named Inventor/Applicant Name:

WILLIAM THOMPSON

Filer:

Mark B. Garred/Andrea Levine

Attorney Docket Number:

Filed as Small Entity

Filing Fees for Reissue (Utility)

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY REISSUE BASIC	2014	1	140	140
DESIGN AND UTILITY REISSUE BASIC	2114	1	300	300
DESIGN AND UTILITY REISSUE BASIC	2314	1	1080	1080

Pages:

Claims:

Miscellaneous-Filing:

Petition:

Patent-Appeals-and-Interference:

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1520

Electronic Acknowledgement Receipt

EFS ID:	30241552
Application Number:	15692851
International Application Number:	
Confirmation Number:	9140
Title of Invention:	GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS
First Named Inventor/Applicant Name:	WILLIAM THOMPSON
Customer Number:	7663
Filer:	Mark B. Garred/Andrea Levine
Filer Authorized By:	Mark B. Garred
Attorney Docket Number:	
Receipt Date:	31-AUG-2017
Filing Date:	
Time Stamp:	16:58:53
Application Type:	Reissue (Utility)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 1520
RAM confirmation Number	090117INTEFSW16593800
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	ApplicationDataSheet.pdf	1822882	no	8
			d5ed436b931f6c45d0377330285e1c86ddf d8ca9		
Warnings:					
Information:					
2		PreliminaryAmendment_31Aug2017.pdf	388706	yes	19
			e26cd072886a6c851990dc40e2d52926bec a8b07		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Preliminary Amendment		1	1	
	Specification		2	2	
	Claims		3	7	
	Applicant Arguments/Remarks Made in an Amendment		8	19	
Warnings:					
Information:					
3		Issued_Patent_US8898812B2.pdf	108518	yes	8
			ed0c90f7168485fe6dac85475384fabd9d75 4486		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Abstract		1	2	
	Drawings-only black and white line drawings		3	4	
	Specification		5	6	

	Claims		7	8	
Warnings:					
Information:					
4	Miscellaneous Incoming Letter	CertificateofCorrection.pdf	105673	no	1
			f6acf538c0cdc066c2390be3f2fd0a74b01e8c7d		
Warnings:					
Information:					
5	Miscellaneous Incoming Letter	Statement_of_Status.pdf	37598	no	2
			af84afeb5a93718a33c67f8f88306c7d5ac2c63a		
Warnings:					
Information:					
6	Assignee showing of ownership per 37 CFR 3.73	Statement_37CFR.pdf	427154	no	2
			9dde1bcc83f5e0395f82d3c64ee0e11453b4dda6		
Warnings:					
Information:					
7	Miscellaneous Incoming Letter	First_Assignment_inventors.pdf	600705	no	2
			fbfbbe90c97641b059e06cc8fb26aa1b4eb9de99		
Warnings:					
Information:					
8	Miscellaneous Incoming Letter	Second_Assignment_3PakHoldings.pdf	193080	no	1
			9ea5d8cdccdf14cf88ae66b366ac18dbc6a406a9		
Warnings:					
Information:					
9	Information Disclosure Statement (IDS) Form (SB08)	Information_Disclosure_State ment_Reissue.pdf	613266	no	6
			7693a41d75ffe9674afb9b9b680cc0d5a82c211e		
Warnings:					
Information:					
10	Other Reference-Patent/App/Search documents	PCTSearchReport.pdf	2803437	no	8
			6efe982f298488867fef8acf237538ac1a0d4aaa		

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WEARABLE CONFIDENCE

Warnings:					
Information:					
11	Foreign Reference	VanEmden.pdf	2448105	no	54
			e596a7b684a27ed17e3978409330c69ea62a28f0		
Warnings:					
Information:					
12	Other Reference-Patent/App/Search documents	IPR_Petition_PDF.pdf	1163988	no	52
			a7f6faf3f87db1c884b3c88ec77c17e9de4cf51f		
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Information:					
13	Other Reference-Patent/App/Search documents	Ex1006_Corrected_Brookstein_Declaration_PDF.pdf	966482	no	30
			94592202ea2bfae22e9159b924c116938c217c76		
Warnings:					
Information:					
14	Other Reference-Patent/App/Search documents	Ex1007BrooksteinCV.pdf	665325	no	9
			f1295be158a4726242b6098fe7490f86dae5535e		
Warnings:					
Information:					
15		SignedReissueDocs.pdf	1236275	yes	10
			3e79284bc13e92246344ef625296669324df3b04		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Power of Attorney		1	2	
	Reissue dec filed in accordance with MPEP 1414		3	5	
	Consent of Assignee accompanying the declaration		6	7	
	Reissue dec filed in accordance with MPEP 1414		8	10	
Warnings:					
Information:					

16	Other Reference-Patent/App/Search documents	Notice_of_Supplemental_Declaration_of_David_Brookstein_PDF.pdf	239287 2727f39f9ca34def26569c22cb809fb4fb97223f	no	4
Warnings:					
Information:					
17	Transmittal Reissue Application	Transmittal_Reissue_updated.pdf	290353 1cb07aa04087c6c96efcf52d6015cac27147db42	no	2
Warnings:					
Information:					
18	Fee Worksheet (SB06)	fee-info.pdf	34394 9459c7d775bef6ccfa08cedee7004501c00b46ff	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			14145228		
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	THMTE-001X
		Application Number	
Title of Invention	GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.</p> <p>This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

Secrecy Order 37 CFR 5.2:

<input type="checkbox"/>	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
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Inventor Information:

Inventor	1				Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	William		Thompson			
Residence Information (Select One) <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service						
City	Placentia	State/Province	CA	Country of Residence	US	

Mailing Address of Inventor:

Address 1	1890 E. Miraloma Ave, Suite E					
Address 2						
City	Placentia	State/Province	CA			
Postal Code	92870	Country	US			

Inventor	2				Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Randy	Hyun	Choi			
Residence Information (Select One) <input checked="" type="radio"/> US Residency <input type="radio"/> Non US Residency <input type="radio"/> Active US Military Service						
City	Anaheim	State/Province	CA	Country of Residence	US	

Mailing Address of Inventor:

Address 1	1890 E. Miraloma Ave, Suite E					
Address 2						
City	Placentia	State/Province	CA			
Postal Code	92870	Country	US			

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button.

[Add](#)**Correspondence Information:**

Enter either Customer Number or complete the Correspondence Information section below.

For further information see 37 CFR 1.33(a).

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	THMTE-001X
		Application Number	
Title of Invention	GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS		

☐ An Address is being provided for the correspondence information of this application.

Customer Number	007663		
Email Address		<input type="button" value="Add Email"/>	<input type="button" value="Remove Email"/>

Application Information:

Title of the Invention	GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS		
Attorney Docket Number	THMTE-001X	Small Entity Status Claimed	<input checked="" type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	2	Suggested Figure for Publication (if any)	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	<input checked="" type="radio"/> Customer Number	<input type="radio"/> US Patent Practitioner	<input type="radio"/> Limited Recognition (37 CFR 11.9)
Customer Number	007663		

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	THMTE-001X
		Application Number	
Title of Invention	GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status		Patented		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
	reissued of	13282148	2011-10-26	8898812	2014-12-02
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			Remove
Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

<input type="checkbox"/> This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number THMTE-001X	
	Application Number	
Title of Invention	GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	THMTE-001X
		Application Number	
Title of Invention	GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant	1	Remove
<p>If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.</p>		
Clear		
<input checked="" type="radio"/> Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:		
<div style="border: 1px solid black; height: 20px; width: 100%;"></div>		
Name of the Deceased or Legally Incapacitated Inventor: <div style="border: 1px solid black; height: 20px; width: 100%;"></div>		
If the Applicant is an Organization check here. <input checked="" type="checkbox"/>		
Organization Name	3 Pak Holdings, LLC	
Mailing Address Information For Applicant:		
Address 1	1800 E. Miraloma Ave., Suite E	
Address 2		
City	Placentia	State/Province
Country	US	Postal Code
Phone Number		Fax Number
Email Address		
Additional Applicant Data may be generated within this form by selecting the Add button. Add		

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	THMTE-001X
		Application Number	
Title of Invention	GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS		

Assignee	1			
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.				
				<input type="button" value="Remove"/>
If the Assignee or Non-Applicant Assignee is an Organization check here.				<input type="checkbox"/>
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Mailing Address Information For Assignee including Non-Applicant Assignee:				
Address 1		<input type="text"/>		
Address 2		<input type="text"/>		
City	<input type="text"/>	State/Province	<input type="text"/>	
Country ⁱ	<input type="text"/>	Postal Code	<input type="text"/>	
Phone Number	<input type="text"/>	Fax Number	<input type="text"/>	
Email Address	<input type="text"/>			
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.				<input type="button" value="Add"/>

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/mbg/		Date (YYYY-MM-DD)	2017-08-31
First Name	Mark B.	Last Name	Garred	Registration Number
				34,823
Additional Signature may be generated within this form by selecting the Add button.				<input type="button" value="Add"/>

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	THMTE-001X
		Application Number	
Title of Invention	GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS		

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Preliminary Amendment
Serial No.: unassigned (Reissue of patent 8,898,812)
Attorney Docket: THMTE-001X

REISSUE LITIGATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Thompson et al.	)	Confirmation No.:	unassigned
)		
Serial No.:	Unassigned (Reissue of 8,898,812)	)	Art Unit:	unassigned
)		
Filed:	Herewith	)	Examiner:	unassigned
)		
For:	GARMENT HAVING)		
	INTEGRATED PERSPIRATION)		
	BARRIERS)		

PRELIMINARY AMENDMENT

Mail Stop Reissue
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Prior to examination on the merits, please amend the application as follows:

Amendments to the Specification begin on page **2** of this paper;

Amendments to the Claims begin on page **3** of this paper; and

Remarks begin on page **8** of this paper.

Amendments to the Specification:

Please amend the paragraph starting at column 1, line 7 as follows:

The present application is a reissue of US Application Serial No. 13/282148, filed Oct. 26, 2011, which claims priority to U.S. Provisional Patent Application Ser. No. 61/436,841 entitled GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS filed Jan. 27, 2011, the disclosures of which ~~[[is]]~~ are incorporated herein by reference.

Amendments to the Claims:

1. (Original) A garment having an internal surface adapted to contact a wearer's skin and an external surface, the garment comprising:
 - a torso portion fabricated from a garment material;
 - a pair of sleeve portions fabricated from the garment material, the sleeve portions being attached to and extending from the torso portion; and
 - a pair of perspiration barriers each of the perspiration barriers comprising:
 - a first layer fabricated from a cotton material;
 - a second layer disposed adjacent the first layer and fabricated from a terry cloth material;
 - a third layer disposed adjacent the second layer and fabricated from a hydrophilic breathable film; and
 - a fourth layer disposed adjacent the third layer and fabricated from the garment material;
 - the pair of perspiration barriers defining respective barrier peripheral edge regions, each barrier peripheral edge region being coupled to and at least partially circumvented by a corresponding peripheral edge region collectively defined by the torso portion and a respective one of the sleeve portions such that the external surface of an underarm area of the garment is collectively formed by each of the fourth layers of the perspiration barriers and the respective torso and sleeve portions;
 - wherein at least the first and fourth layers of each of the perspiration barriers is segregated into a sleeve panel piece and a torso panel piece, the sleeve panel piece and torso panel piece of the first layer being joined together by a first stitched seam and the sleeve panel piece and torso panel piece of the fourth layer being joined together by a second stitched seam separate from the first stitched seam.
2. (Original) The garment of Claim 1 wherein the terry cloth material is fabricated from a blend of about 80% cotton and about 20% polyester.

3. (Original) The garment of Claim 1 wherein the hydrophilic breathable film is fabricated from polyurethane.

4. (Original) The garment of Claim 1 wherein the garment material is fabricated from a cotton material.

5. (Original) The garment of Claim 1 wherein the first layer is fabricated from a 100% cotton material.

6. (Original) The garment of Claim 1 wherein the second and third layers are joined to each other via an adhesive bond.

7. (Original) The garment of Claim 6 wherein the first, second, third and fourth layers are joined to each other and to the torso and sleeve portions of the garment via a peripheral overlock stitch.

8. (Original) The garment of Claim 7 wherein each of the first, second, third and fourth layers of each of the perspiration barriers is segregated into a sleeve panel piece and a torso panel piece, the sleeve panel piece and torso panel piece of each of the first, second, third and fourth layers being joined together by a separately stitched seam to define a foldable crease therebetween.

9. (Original) The garment of Claim 8 wherein:

the sleeve panel piece of each of the first, second, third and fourth layers has a generally trapezoidal configuration defining a peripheral base segment of greatest length;

the torso panel piece of each of the first, second, third and fourth layers has a generally semi-circular configuration defining a non-arcuate peripheral edge segment; and

the crease extends along the base segment of the sleeve panel piece and along the non-arcuate peripheral edge segment of the torso panel piece.

10. (Original) The garment of Claim 8 wherein each of the sleeve portions defines a distal end and the sleeve panel pieces of each of the perspiration barriers extend to the distal end of a respective one of the sleeve portions.

11. (Original) The garment of Claim 8 wherein each of the perspiration barriers is attached to the torso portion and a respective one of the sleeve portions via a peripheral overlock stitch.

12. (Original) The garment of Claim 1 wherein each of the first, second, third and fourth layers of each of the perspiration barriers is segregated into a sleeve panel piece and a torso panel piece, the sleeve panel piece and torso panel piece of each of the first, second, third and fourth layers being joined together by a separately stitched seam to define a foldable crease therebetween.

13. (Original) The garment of Claim 1 wherein each of the perspiration barriers is attached to the torso portion and a respective one of the sleeve portions via a peripheral overlock stitch.

14. (Original) The garment of Claim 13 wherein the overlock stitch is covered by a cover stitch.

15. (Cancelled)

16. (New) A garment having an internal surface adapted to contact a wearer's skin and an external surface, the garment, comprising:

a torso portion;

a pair of sleeve portions attached to and extending from the torso portion in opposed relation to each other; and

a pair of perspiration barriers, each of the perspiration barriers comprising:

a first layer fabricated from a soft, pliable material adapted to permit the transmission of moisture therethrough;

a second layer disposed adjacent the first layer and fabricated from a loosely woven material for channeling moisture therethrough;

a third layer disposed adjacent to and bonded to the second layer, and fabricated from a hydrophilic breathable film, the second and third layers together defining a bonded piece; and

a fourth layer disposed adjacent the third layer, the pair of perspiration barriers defining respective barrier peripheral edge regions, each barrier peripheral edge region being coupled to and at least partially circumvented by a corresponding peripheral edge region collectively defined by the torso portion and a respective one of the sleeve portions such that the external surface of an

underarm area of the garment is collectively formed by each of the fourth layers of the perspiration barriers and the respective torso and sleeve portions;

wherein the first layer, the bonded piece, and the fourth layer of each perspiration barrier are joined together solely at the barrier peripheral edge region of each perspiration barrier, such joining solely at the barrier peripheral edge region permitting outside air to be drawn into and between the first layer and the second layer, and into and between the third layer and the fourth layer, thus enhancing evaporative cooling and moisture vapor transmission.

17. (New) The garment of Claim 16, wherein the third layer is bonded to the second layer via a finely dispersed adhesive dot pattern.

18. (New) The garment of Claim 17, wherein the joining solely at the barrier peripheral edge region comprises stitching.

19. (New) The garment of Claim 18, wherein the stitching comprises an overlock stitch covered by a continuous cover stitch.

20. (New) A garment having an internal surface adapted to contact a wearer's skin and an external surface, the garment, comprising:

a torso portion;

a pair of sleeve portions attached to and extending from the torso portion in opposed relation to each other; and

a pair of perspiration barriers, each of the perspiration barriers comprising:

a first layer fabricated from a soft, pliable material adapted to permit the transmission of moisture therethrough;

a second layer disposed adjacent the first layer and fabricated from a loosely woven material for channeling moisture therethrough;

a third layer disposed adjacent to and bonded to the second layer, and fabricated from a hydrophilic breathable film, the second and third layers together defining a bonded piece; and

a fourth layer disposed adjacent the third layer, the pair of perspiration barriers defining respectively barrier peripheral edge regions, each barrier peripheral edge region being coupled to and at least partially circumvented by a

corresponding peripheral edge region collectively defined by the torso portion and a respective one of the sleeve portions such that the external surface of an underarm area of the garment is collectively formed by each of the fourth layers of the perspiration barriers and the respective torso and sleeve portions;

wherein the first layer, the bonded piece, and the fourth layer of each perspiration barrier are joined together solely at the barrier peripheral edge region and at a foldable crease region of each perspiration barrier, such joining solely at the barrier peripheral edge regions and the foldable crease regions permitting outside air to be drawn into and between the first layer and the second layer, and into and between the third layer and the fourth layer, thus enhancing evaporative cooling and moisture vapor transmission, and further allowing a wearer to lift and lowers their arms more easily and with reduced noise.

21. (New) The garment of Claim 20, wherein the third layer is bonded to the second layer via a finely dispersed adhesive dot pattern.

22. (New) The garment of Claim 20, wherein the joining solely at the barrier peripheral edge region and at a foldable crease region comprises stitching.

23. (New) The garment of Claim 22, wherein the stitching comprises an overlock stitch covered by a continuous cover stitch.

24. (New) A garment having an internal surface adapted to contact a wearer's skin and an external surface, the garment, comprising:

a torso portion;

a pair of sleeve portions attached to and extending from the torso portion in opposed relation to each other; and

a pair of perspiration barriers, each of the perspiration barriers comprising:

a first layer fabricated from a soft, pliable material adapted to permit the transmission of moisture therethrough;

a second layer disposed adjacent the first layer and fabricated from a loosely woven material for channeling moisture therethrough;

a third layer disposed adjacent to and bonded to the second layer, and fabricated from a hydrophilic breathable film, the second and third layers together defining a bonded piece; and

a fourth layer disposed adjacent the third layer, the pair of perspiration barriers defining respective barrier peripheral edge regions, each barrier peripheral edge region being coupled to and at least partially circumvented by a corresponding peripheral edge region collectively defined by the torso portion and a respective one of the sleeve portions such that the external surface of an underarm area of the garment is collectively formed by each of the fourth layers of the perspiration barriers and the respective torso and sleeve portions;

wherein at least one of the first layer and the fourth layer of each perspiration barrier is joined to the bonded piece of its respective perspiration barrier solely at the barrier peripheral edge region of that perspiration barrier, such joining solely at the barrier peripheral edge region enhancing evaporative cooling and moisture vapor transmission via permitting at least one of: outside air to be drawn into and between the first layer and the second layer, outside air to be drawn into and between the third layer and the fourth layer.

25. (New) The garment of Claim 24, wherein the third layer is bonded to the second layer via a finely dispersed adhesive dot pattern.

26. (New) The garment of Claim 24, wherein the joining solely at the barrier peripheral edge region and at a foldable crease region comprises stitching.

27. (New) The garment of Claim 26, wherein the stitching comprises an overlock stitch covered by a continuous cover stitch.

REMARKS

This Reissue Application is for the purpose of correcting an error in the original patent U.S. Patent No. 8,898,812 (the “’812 Patent”) which is believed to be partially inoperative or invalid by reason of the patentees claiming more than they had a right to claim in the original patent. It is believed that the patentee did not have the right to claim the full extent of the subject matter of Claim 15 as issued.

Specifically, on June 6, 2017, a Petition for *Inter Partes* Review (“IPR”) of the ‘812 Patent was filed (IPR 2017-01529), with this filing for the first time making the patentee aware of the existence of PCT Application WO 2004/089614 to Van Emden (“Van Emden”). The Van Emden reference was previously unknown to the patentee, and was not cited by the Examiner during the prosecution of the issued patent. In the Petition for *Inter Partes* review, it is alleged that the broadest reasonable interpretation of Claim 15 as issued is obvious under 35 U.S.C. § 103(a) in view of the combination of Van Emden and U.S. Patent Application Publication No. 2008/0052802 to Bryan (“Bryan”), a document that appears on the face of the ‘812 Patent. A copy of the IPR petition is filed with this Reissue Application.

This Reissue Application seeks to correct this alleged error by cancelling Claim 15, and submitting new Claims 16-27, all of which incorporate each and every limitation of issued Claim 15 and add new limitations, such that each of the new claims could have been written as depending from previously issued Claim 15. Thus, this Reissue full extent allowed by law.” *In re Tanaka*, 640 F.3d 1246, 1251 (Fed. Cir. 2011); MPEP 1402 Application is a narrowing reissue that is specifically permitted as one where “the omission of a narrower claim from a patent can render a patent partly inoperative by failing to protect the disclosed invention to the (I). Patentee contends that all of the presently presented new Claims 16-27 are allowable over the combination of Van Emden and Bryan.

Contemporaneously with the filing of this Reissue Application, Patentee intends to file with the Patent Office a statutory disclaimer under 35 U.S.C. §253(a) of issued Claim 15 of the ‘812 Patent. This statutory disclaimer will result in the termination of the *Inter Partes Review* petition due to mootness. As such, a merger or stay as outlined in MPEP 1449.01 is not warranted.

The '812 Patent is additionally the subject of a presently-stayed litigation in the District Court for the Central District of California, *3 Pak Holdings LLC v. Aussie Armor, LLC et al*, 8:16-cv-02044-AG-KES. As this litigation is stayed, this Reissue Application should proceed with all possible expedience.

Claims 1-14 and 16-27 are pending, of which Claims 16-27 are newly added by this preliminary amendment. Support for these new claims may be found throughout the originally filed specification and drawings. The Commissioner is authorized to charge the undersigned's deposit account #19-4330 in whatever amount is necessary for the entry of these papers and the continued pendency of the captioned application. Prompt and favorable consideration is earnestly requested.

I. The Error in Claim 15

Claim 15 as issued (and corrected via a certificate of correction) reads as follows:

15. A garment having an internal surface adapted to contact a wearer's skin and an external surface, the garment, comprising:

- a torso portion;

- a pair of sleeve portions attached to and extending from the torso portion in opposed relation to each other; and

- a pair of perspiration barriers, each of the perspiration barriers comprising:

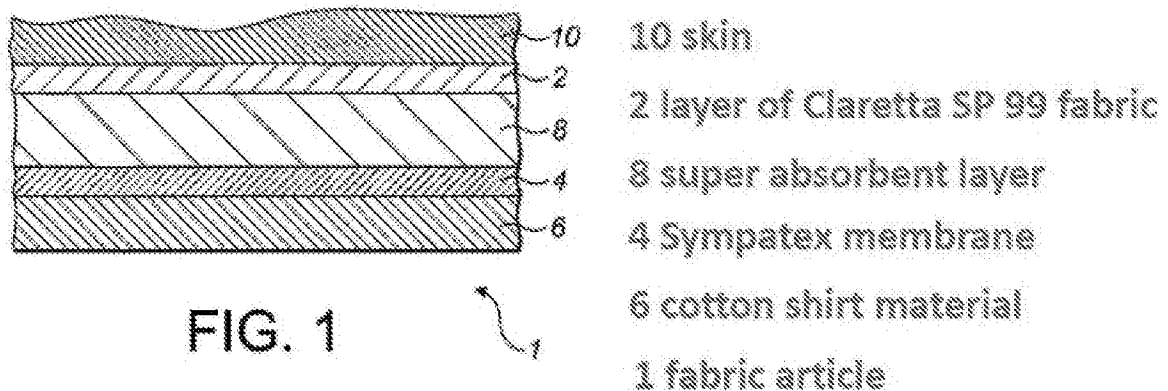
- a first layer fabricated from a soft, pliable material adapted to permit the transmission of moisture therethrough;

- a second layer disposed adjacent the first layer and fabricated from a loosely woven material;

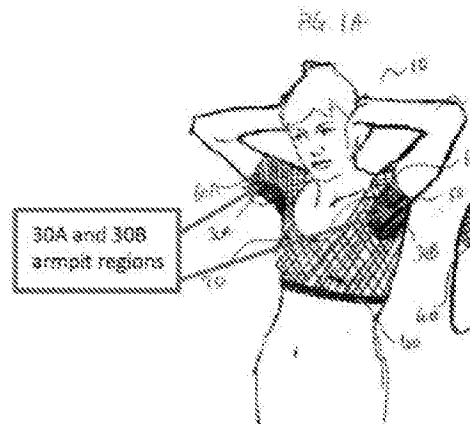
- a third layer disposed adjacent the second layer and fabricated from a hydrophilic breathable film; and

- a fourth layer disposed adjacent the third layer, the pair of perspiration barriers defining respectively barrier peripheral edge regions, each barrier peripheral edge region being coupled to and at least partially circumvented by a corresponding peripheral edge region collectively defined by the torso portion and a respective one of the sleeve portions such that the external surface of an underarm area of the garment is collectively formed by each of the fourth layers of the perspiration barriers and the respective torso and sleeve portions.

The IPR petition alleges that Claim 15 as issued is obvious under 35 U.S.C. § 103(a) in view of the combination of Van Emden and Bryan. Specifically, it alleges that Van Emden discloses a torso portion, a pair of sleeve portions, and a four-layer laminate structure comprising a layer of Claretta SP 99 fabric, a super absorbent layer, a Sympatex membrane, and a cotton shirt material, which are alleged to correspond to the claimed first, second, third, and fourth layer respectively, as shown in the following annotated Fig. 1:

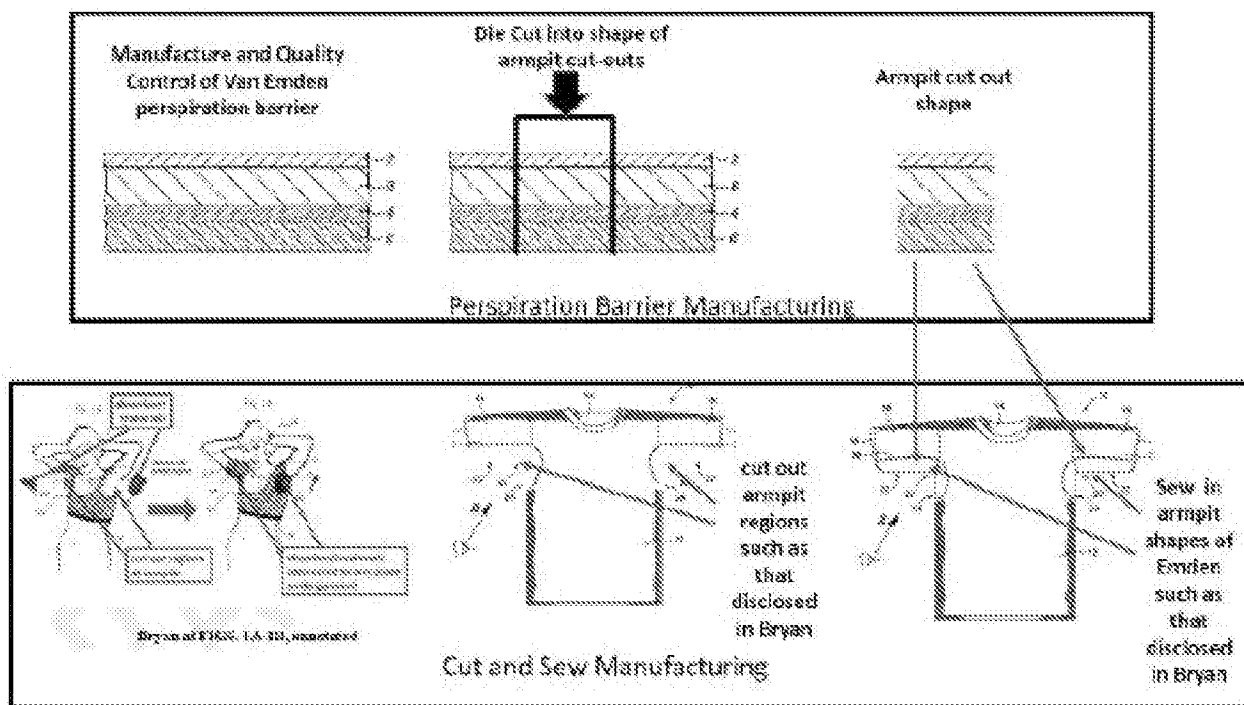


It is further alleged that Bryan discloses the feature of each barrier peripheral edge region being coupled to and at least partially circumvented by a corresponding peripheral edge region collectively defined by the torso portion and a respective one of the sleeve portions. Bryan discloses embodiments in which the armpit regions of the garments are cut out as holes, wherein “[t]he armpit pads in this preferred method would have an outer edge with adhesive that attaches to the thin area of the absorbent material around the hole.” Bryan at [0047].



Bryan at FIG. 1A, annotated

According to the IPR petition, one of ordinary skill in the art would thus be motivated to “manufacture and construct the laminate perspiration barriers disclosed in Van Emden in continuous sheets and then die cut to the shape that fits into the armpit of a shirt” and then to “insert and attach the laminate perspiration barrier of Van Emden into the holes disclosed by Bryant.” It is alleged that doing so would result in a garment that meets each and every limitation of Claim 15, as shown by the following illustration from the IPR petition:



II. New Claims 16-27 are Fully Supported by the Original Specification

The presently submitted new Independent Claim 16 reads very similarly to Claim 15, but includes a few narrowing limitations, with these limitations shown in bold and underline as follows:

16. (New) A garment having an internal surface adapted to contact a wearer's skin and an external surface, the garment, comprising:

a torso portion;

a pair of sleeve portions attached to and extending from the torso portion in opposed relation to each other; and

a pair of perspiration barriers, each of the perspiration barriers comprising:

a first layer fabricated from a soft, pliable material adapted to permit the transmission of moisture therethrough;

a second layer disposed adjacent the first layer and fabricated from a loosely woven material **for channeling moisture therethrough;**

a third layer disposed adjacent **and bonded to** the second layer, and fabricated from a hydrophilic breathable film, **the second and third layers together defining a bonded piece;** and

a fourth layer disposed adjacent the third layer, the pair of perspiration barriers defining respective barrier peripheral edge regions, each barrier peripheral edge region being coupled to and at least partially circumvented by a corresponding peripheral edge region collectively defined by the torso portion and a respective one of the sleeve portions such that the external surface of an underarm area of the garment is collectively formed by each of the fourth layers of the perspiration barriers and the respective torso and sleeve portions;

wherein the first layer, the bonded piece, and the fourth layer of each perspiration barrier are joined together solely at the barrier peripheral edge region of each perspiration barrier, such joining solely at the barrier peripheral edge region permitting outside air to be drawn into and between the first layer and the second layer, and into and between the third layer and the fourth layer, thus enhancing evaporative cooling and moisture vapor transmission.

The presently submitted new Claim 17-19, which depend from Claim 16, read:

17. (New) The garment of Claim 16, wherein the third layer is bonded to the second layer via a finely dispersed adhesive dot pattern.

18. (New) The garment of Claim 17, wherein the joining solely at the barrier peripheral edge region comprises stitching.

19. (New) The garment of Claim 18, wherein the stitching comprises an overlock stitch covered by a continuous cover stitch.

Support for the additional limitations of these claims may be found, *inter alia*, at:

- Col. 4, Ln. 5 – “The third layer 30 is preferably a hydrophilic breathable film which is fabricated from polyurethane and bonded by a finely dispersed adhesive dot pattern to the second layer 28.”
- Col. 4, Ln. 56 – “the resultant first, second, third and fourth layers 26, 28, 30, 32 are stacked upon each other such that the first layer 26 is positioned against the second layer 28, and the fourth layer 32 is positioned against the third layer 30.... Once each perspiration barrier 20 has been fabricated or assembled in the aforementioned manner, it is sewn into the torso portion 12 and a corresponding sleeve portion 16 of the garment 10 using a continuous overlock stitch which extends solely along the peripheral edge thereof.”
- Col. 5, Ln 19 – “Advantageously, the manner in which the perspiration barriers 20 are assembled, and in turn integrated into the remainder of the garment 10, provides enhanced evaporative cooling and moisture vapor transmission attributable to a billowing effect in each of the perspiration barriers 20. This billowing effect, and the resultant evaporative cooling and moisture vapor transmission process, also serves to decrease perspiration by lowering body temperature. Such billowing effect is achieved by the particulars of the construction of each of the perspiration barriers 20, and is enhanced by the minimal amount of stitching which extends through areas other than the peripheral portions thereof (thereby reducing the number of interiorly located needle holes).
- Col 5, Ln 51 – “The “perimeter only” stitching used to facilitate the attachment of each of the fully fabricated perspiration barriers 20 to the remainder of the garment 10 allows outside air to be drawn into and between the first and second layers 26, 28, as well as the third and fourth layers 30, 32, of each of the perspiration barriers 20.”
- Col. 5, Ln 62 – “Such moisture is then channeled through the second layer 28...”
- Fig. 4, which illustrates the four layer scheme, and shows how the second and third layers together define the bonded piece.

New Independent Claim 20 is very similar to Claim 16, except that it further provides that the first layer, the bonded piece, and the fourth layer of the perspiration barriers are

additionally joined at a **foldable crease region of each perspiration barrier**, with the additional joining at the foldable crease regions **further allowing a wearer to lift and lowers their arms more easily and with reduced noise**. Support for this additional feature may be found, *inter alia*, at:

- Col 5, Ln 32 - “[t]he only stitching that extends through the interior thereof are the three separate, elongate stitches 34 that are used to join the sleeve and torso panel pieces 22, 24 of the first, second, third and fourth layers 26, 28, 30, 32 to each other. These stitches 34 within each perspiration barrier 20 provide the advantage of collectively creating a crease which allows the wearer of the garment 10 to more easily lift and lower his or her arms without undue resistance by the perspiration barriers 20, while further preventing an excessive amount of noise being generated by the arm lifting and lowering process.
- Figs. 2 and 5, which prominently illustrate embodiments which additionally contain the claimed crease region.

New Claims 21-23 depend from new Claim 20, and are analogous to Claims 17-19. As such, they find support at the same portions of the specifications.

New Independent Claim 24 is analogous to Claim 17, except that Claim 24 further encompasses embodiments in which **at least one of the first layer and the fourth layer of each perspiration barrier is joined to the bonded piece of its respective perspiration barrier solely at the barrier peripheral edge region of that perspiration barrier**. This also is supported by the above cited portions of Col. 5, Ln. 51.

New Claims 25-27 depend from new Claim 24, and are analogous to Claims 17-19 and 21-23. As such, they find support at the same portions of the specifications.

III. New Claims 16-27 are Allowable over Van Emden and Bryan

Patentee respectfully submits that the subject matter of Claims 16-27 is allowable over the combination of Van Emden and Bryan, and over all of the other references previously cited by the Office.

Neither Van Emden nor Bryan is understood to teach or motivate the construction of the garment of Claim 16, wherein in the perspiration barrier, the first layer, the bonded piece defined by the bonded second and third layers, and the fourth layer are joined together solely at the barrier peripheral edge region of each perspiration barrier, with such joining solely at the barrier peripheral edge region permitting outside air to be drawn into and between the first layer and the second layer, and into and between the third layer and the fourth layer, thus enhancing evaporative cooling and moisture vapor transmission.

Van Emden is understood to primarily disclose embodiments in which all layers are formed into a laminate structure. Van Emden attempts to define “laminate” very broadly as “includ[ing] in its definition a layered item comprising two or more layers” which “may be of different materials and may or may not be bonded together.” Van Emden at 5. However, this definition is belied by Van Emden’s complete focus upon a “laminate structure” wherein all layers are completely bonded together, preferably via chemical means such as glue. Van Emden’s teachings of only totally bonded layers are fully illustrated by the failure to show or describe any embodiments in which all layers are not completely bonded together.

Rather, Van Emden focuses, with a marked emphasis, on the ways in which the layers may preferentially be bonded, and exactly how tightly together those layers are bonded. Specifically, it may be seen by Figs. 4a, 4b, 4c, and 4d of Van Emden that according to “a cross sectional view of the present invention at various magnifications (x45, x90, x180, and x360 respectively)... the vapour permeable, liquid impermeable membrane may be seen interposed between a non-woven polyester layer and the woven material suitable for use in a shirt. The polyester glue is also shown in these cross-sectional Figures.” Van Emden at 26. Van Emden also discusses embodiments in which the fabric layers may be bonded via being “integrated” with one another, such as by “weaving of the fibers of the first layer 4 into the fabric 6 during manufacture of the article 1,” Van Emden at 27

Nowhere, however, does Van Emden discuss or teach the benefits of a peripheral-only joining between the claimed first layer and second layer, and the claimed third layer and fourth layer, in that such peripheral-only joining providing enhanced evaporative cooling and moisture vapor transmission via a billowing effect whereby outside air is permitted to be drawn into and between the first layer and the second layer, and into and between the third layer and fourth

layer. The advantages flowing from these claimed embodiments are clearly explained in the issued patent, in that the “airflow through the fully fabricated perspiration barrier 20 ... enhanc[es] an evaporative cooling effect provided thereby.” ‘812 patent at Col. 3, Ln. 65. Rather, Van Emden discloses that:

“the perspiration in the form of vapour is able to traverse the first layer 4 *whereas any patches of liquid perspiration will remain within the absorbent intermediate layer 8, until the person's body heat vaporises the liquid, such as it may then traverse through the first layer 4.* Any vapour passing through the first layer 4 will then traverse to the fabric 6, which consists of the polyester shirt fabric, and be wicked out of the fabric article 1.”

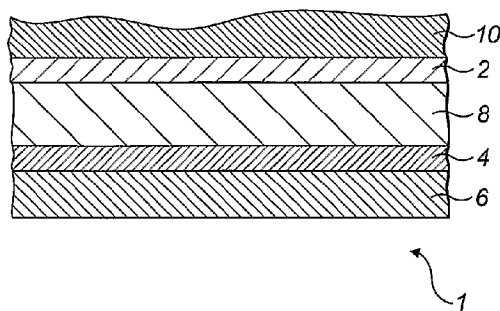
Van Emden at 28 (emphasis added).

It is thus clear that Van Emden does not contemplate the benefits that may be derived from introducing airflow between the first and second, and/or third and fourth layers of the perspiration barriers, nor of the peripheral-only joining that results in these benefits. Instead, this is taught and disclosed only in the ‘812 patent, which prominently discusses how the introduction of airflow in between these layers results in a billowing effect that aids in the processes of (1) evaporating the liquid absorbed by the second layer fabricated from a loosely woven material into vapor, and (2) removing the water vapor transmitted through the breathable (vapor pervious) third layer prior to such water vapor contacting and recondensing in the fourth layer. Instead, Van Emden only contemplates (1) the liquid absorbed into the absorbent intermediate layer 8 (corresponding to the second layer) of Van Emden being evaporated into vapor via the wearer’s body heat alone, and (2) such water vapor subsequently traversing the first layer 4 whereupon it is wicked into the fabric 6 (corresponding to the fourth layer). At no point does Van Emden contemplate the introduction of airflow in between any of the layers of its laminate, which, despite the initial broad definition, is in all disclosed embodiments is actually formed together in a true unitary, completely bonded laminate structure that does not permit or enable the formation of billowing air pockets.

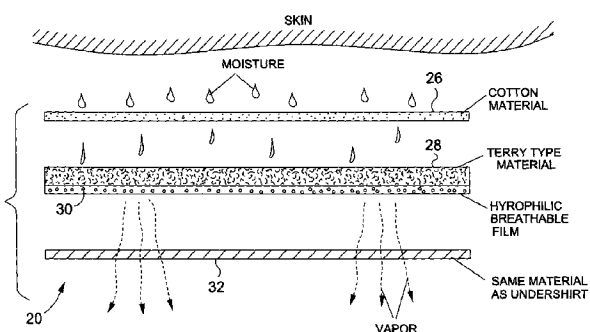
This billowing effect is directly attributable to the “perimeter only” joining disclosed in the ‘812 patent and the resulting “space or air chamber” that is formed between the first and second layer and between third and fourth layer when such perimeter only joining is utilized. As is described and shown by the ‘812 patent, such perimeter only joining permits air to drawn into

the spaces or air chambers between such layers, the air chambers billowing outwards and inwards to draw in and expel air during use of the garment, such as when the wearer raises and lowers their arms. Van Emden also at no points teaches, motivates, or discloses any embodiment in which the joining between the layers is at the periphery only. While Van Emden discusses various ways in which the layers can be adhered together, all such discussion relates to total adherence of the layers into a flat, laminated structure that are substantially joined across their entire areas. Van Emden is simply not concerned with any aspects of joining the different layers at select locations.

This novel and nonobvious aspect of the dual-air chamber scheme is evident and prominently illustrated in the differences between figures of Van Emden and the '812 patent, where it may be seen that no gaps are present between the layers of Van Emden, while such spacing is prominent in the illustrations of the '812 patent:



Van Emden, Fig. 1



'812 Patent, Fig. 4

Simply put, this dual-air chamber scheme, whereby a billowing effect is created in order to introduce airflow into the perspiration barrier on both sides of the bonded piece, which results in improving of both the process of evaporation of the absorbed liquid, and the process of diffusion of the transmitted vapor, is not taught, suggested, or disclosed by Van Emden or Bryan, which was cited by the Office and in the IPR petition for propositions unrelated to the novel and nonobvious aspects of Claim 16. As such, Claim 16 is novel and nonobvious.

New Claims 17-19 are also allowable for the foregoing reasons, for at least the reason of their dependence from New Independent Claim 16. New Independent Claim 20 and Claims 21-23 dependent therefrom are similarly allowable, as Claims 20 include each and every limitation

of New Claim 16, and adds further limitations related to an additional crease portion.

New Independent Claim 24 encompasses embodiments in which the perimeter-only joining may be optionally utilized on only one side of the bonded piece, thus allowing for the creation of only a single air chamber, as opposed to the dual-air chamber of Claim 16. Claim 24, and Claims 25-27 dependent therefrom, are likewise allowable for the aforementioned reasons, as Van Emden and Bryant, alone or in combination, do not even teach or motivate a single air chamber scheme.

IV. Conclusion

For the foregoing reasons, Patentee respectfully submits that all pending claims are believed to be in condition for allowance. An early notice of allowance is therefore respectfully requested. Should the Examiner have any suggestions for expediting allowance of the application, the Examiner is invited to contact Patentee's representative at the telephone number listed below. If any additional fee is required, please charge Deposit Account Number 19-4330.

Respectfully submitted,



By: _____

Date: August 31, 2017

Customer No.: 007663

Mark B. Garred
Registration No. 34,823
STETINA BRUNDA GARRED & BRUCKER
75 Enterprise, Suite 250
Aliso Viejo, California 92656
Telephone: (949) 855-1246
Fax: (949) 855-6371



US008898812B2

(12) **United States Patent**
Thompson et al.

(10) **Patent No.:** **US 8,898,812 B2**
(45) **Date of Patent:** **Dec. 2, 2014**

(54) **GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS**

(75) Inventors: **William Thompson**, San Diego, CA (US); **Randy Hyun Choi**, Anaheim, CA (US)

(73) Assignee: **3 Pak Holdings, LLC**, Placentia, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 139 days.

(21) Appl. No.: **13/282,148**

(22) Filed: **Oct. 26, 2011**

(65) **Prior Publication Data**

US 2012/0192333 A1 Aug. 2, 2012

Related U.S. Application Data

(60) Provisional application No. 61/436,841, filed on Jan. 27, 2011.

(51) **Int. Cl.**
A41D 27/12 (2006.01)
A41D 27/13 (2006.01)

(52) **U.S. Cl.**
CPC **A41D 27/13** (2013.01)
USPC **2/53**

(58) **Field of Classification Search**
USPC 2/53–55, 78.1, 105, 113, 115
See application file for complete search history.

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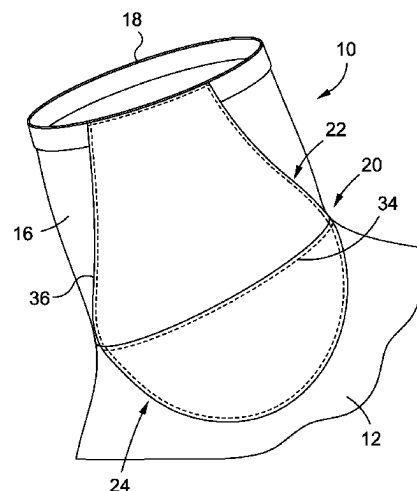
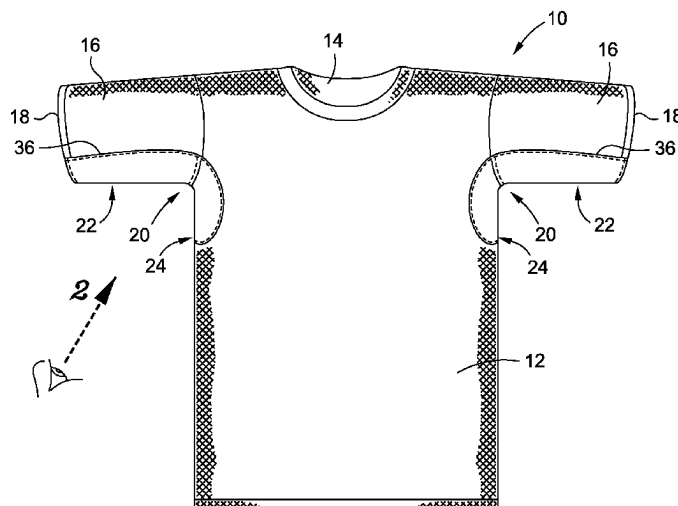
Primary Examiner — Katherine Moran

(74) *Attorney, Agent, or Firm* — Stetina Brunda Garred & Brucker

(57) **ABSTRACT**

In accordance with the present invention, there is provided a garment or undergarment (e.g., a T-shirt) which is provided with integrated multi-layer perspiration barriers uniquely configured to provide high levels of evaporative cooling and moisture vapor transmission. The perspiration barriers are integrated into the sleeve and torso portions of the garment such that such perspiration barriers actually define the under-arm portions thereof. Each of the perspiration barriers is preferably comprised of four layers, each of which is formed from two separate panel pieces. The various layers included in each of the perspiration barriers, the manner in which such layers are stacked upon and attached to each other, and the manner in which the layers forming each perspiration barrier are integrated into the garment are specifically adapted to collectively promote evaporative cooling and a vapor transmission effect which provides superior perspiration absorption and evaporation, in addition to enhanced user comfort.

15 Claims, 2 Drawing Sheets



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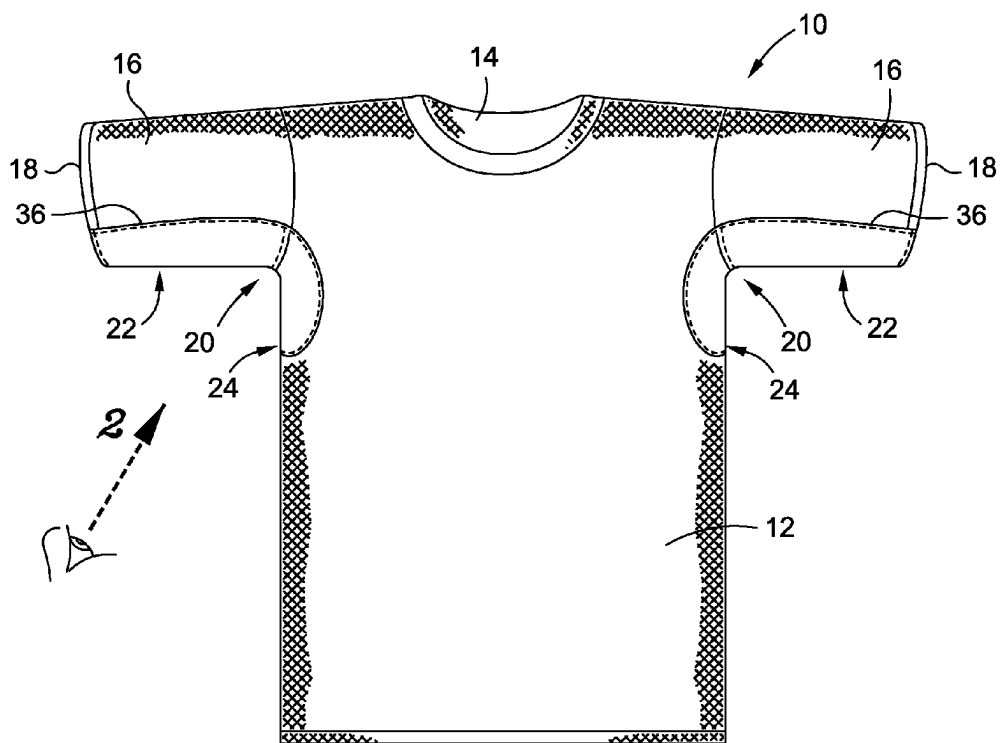


Fig. 1

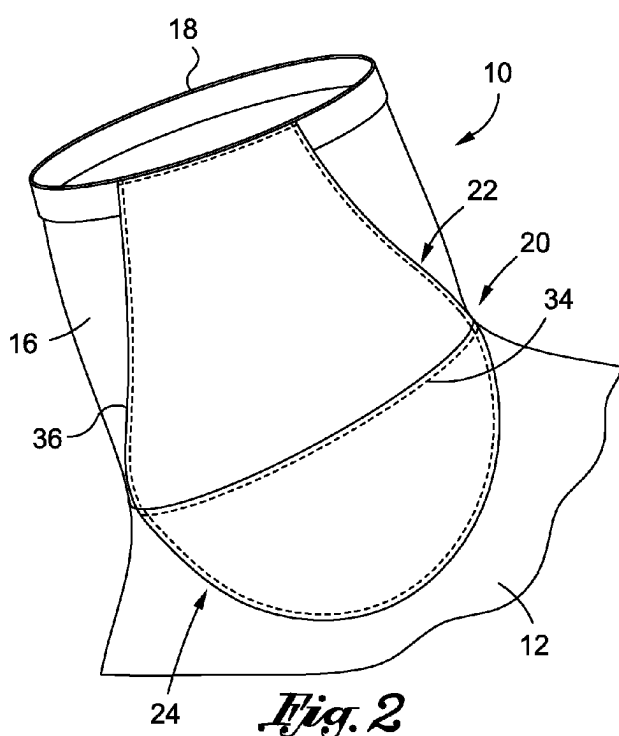


Fig. 2

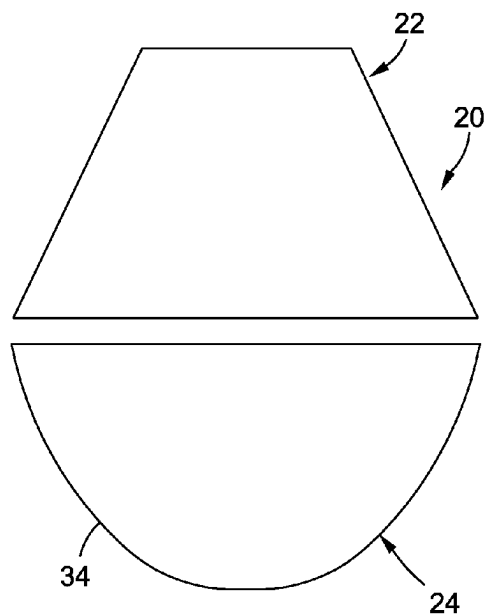


Fig. 3

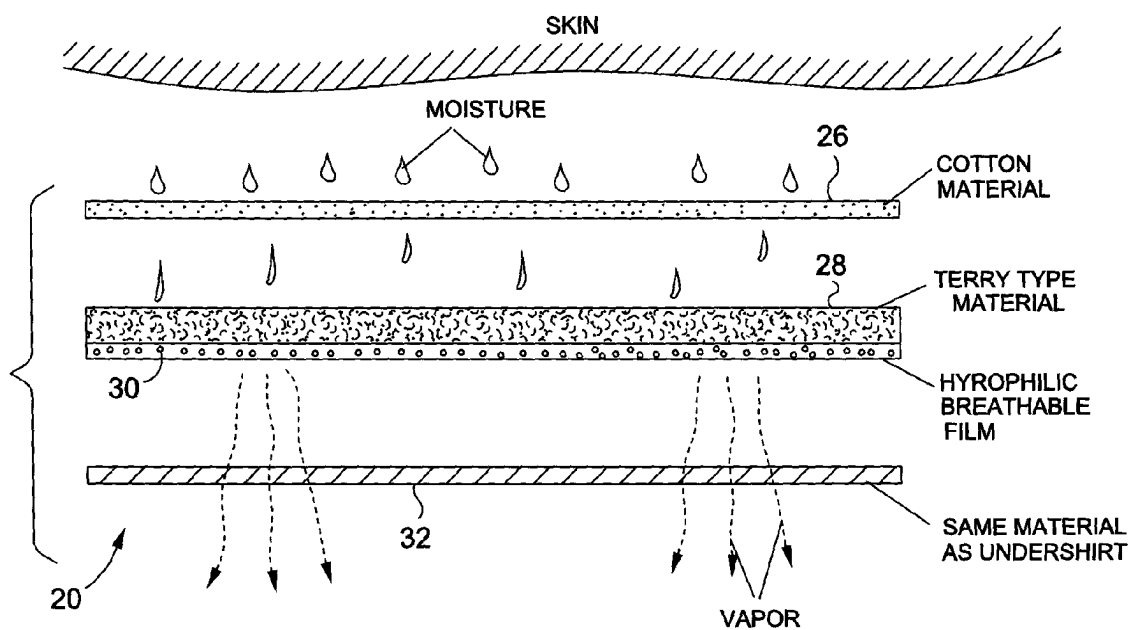


Fig. 4

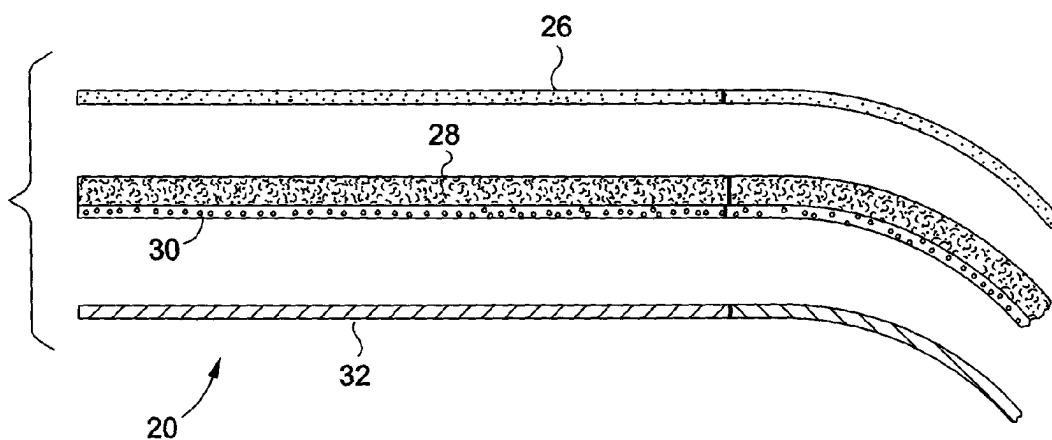


Fig. 5

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**GARMENT HAVING INTEGRATED
PERSPIRATION BARRIERS****CROSS-REFERENCE TO RELATED
APPLICATIONS**

The present application claims priority to U.S. Provisional Patent Application Ser. No. 61/436,841 entitled GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS filed Jan. 27, 2011, the disclosure of which is incorporated herein by reference.

**STATEMENT RE: FEDERALLY SPONSORED
RESEARCH/DEVELOPMENT**

Not Applicable

BACKGROUND OF THE INVENTION**1. Technical Field of the Invention**

The present invention relates generally to wearing apparel and, more particularly, to a garment or undergarment (e.g., a T-shirt) which is provided with integrated multi-layer perspiration barriers uniquely configured to provide high levels of evaporative cooling and moisture vapor transmission.

2. Description of the Related Art

As is known in the medical field, hyperhidrosis is a condition characterized by abnormally increased perspiration, in excess of that required for the regulation of body temperature. Hyperhidrosis can either be generalized or localized to specific parts of the body. Hands, feet, armpits and the groin area are among the most active regions of perspiration due to the relatively high concentration of sweat glands.

Of the various manifestations of hyperhidrosis, one of the most problematic for many individuals is axillary hyperhidrosis, or excessive underarm sweating. Because of the various stigmas that society has perpetuated about people who sweat excessively, as well as the unsightly appearance of excessive underarm perspiration, sufferers of axillary hyperhidrosis are often reluctant to wear certain fabrics or colors which exacerbate the appearance of the perspiration. In addition, these sufferers are often compelled to leave jackets, sweaters, sport coats or other garments on to their discomfort, solely for the shielding effect provided by these outer garments. Moreover, in extreme circumstances, sufferers may resort to actually bringing changes of clothes with them to work or other events, assuming that the level of perspiration in a worn garment will reach a level of severity which mandates a disruptive, yet necessary change of clothes.

For the treatment of axillary hyperhidrosis, the aluminum chloride used in regular antiperspirants is typically insufficient, with sufferers often needing solutions with higher concentrations to effectively treat the symptoms of the condition. However, one of the major side effects of antiperspirant solutions which are adaptive to facilitate the treatment of axillary hyperhidrosis is a high level of irritation to the skin. Though surgical options are available for the treatment of axillary hyperhidrosis, including sweat gland removal or destruction, many sufferers seek treatment options which do not require a surgical procedure due to the cost of the procedure, the risks associated therewith, or other factors.

In recognition of the social difficulties experienced by many axillary hyperhidrosis sufferers and the reluctance of many of these sufferers to seek medical or surgical intervention for the treatment of their condition, there has been developed in the prior art various undergarments with permanently attached perspiration shielding which are adapted to protect

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outer clothing for underarm perspiration. Such undergarments are described, for example, in U.S. Pat. No. 6,591,425 to Zellers, and in U.S. Patent Publication Nos. 2006/0168704 to Mayer, et al, and 2008/0086791 to Kirkwood Samuels, et al. Though the undergarments described in these and other references provide the general effect of protecting a wearer's outer clothing from underarm perspiration, they possess certain deficiencies which detract from the overall utility. For example, in certain ones of these prior art undergarments, the perspiration shield includes a waterproof layer and is placed proximate the wearer's skin in the underarm area, thus actually causing increased levels of perspiration attributable to the shield acting as a barrier to air flow, in addition to causing discomfort to the wearer. Additionally, in certain ones of these prior art garments, the layered construction of the perspiration shields included therein is not adapted to facilitate cooling air flow via a billowing effect, or to promote wearer comfort.

The present invention addresses and overcomes the deficiencies highlighted above by providing a garment or undergarment (e.g., a T-shirt) which is provided with integrated multi-layer perspiration barriers uniquely configured to provide high levels of evaporative cooling and moisture vapor transmission. These, as well as other features and advantages of the present invention will be described in more detail below.

BRIEF SUMMARY OF THE INVENTION

In accordance with the present invention, there is provided a garment or undergarment (e.g., a T-shirt) which is provided with integrated multi-layer perspiration barriers uniquely configured to provide high levels of evaporative cooling and moisture vapor transmission. More particularly, in the garment construction in accordance with the present invention, the perspiration barriers are integrated into the sleeve and torso portions of the garment such that such perspiration barriers actually define the underarm portions thereof. This is in contrast to prior art garment constructions wherein the perspiration shields are attached to the interior or exterior surfaces of the underarm portions of an existing garment, as opposed to the shield themselves defining such underarm portions.

In addition, each of the perspiration barriers integrated into the garment of the present invention is preferably comprised of four separate layers, each of which has a two-piece or panel construction. The materials of the various layers included in each of the perspiration barriers, the manner in which the layers are stacked upon and attached to each other, and the manner in which the stacked layers of joined panel pieces forming each perspiration barrier are integrated into the garment are specifically adapted to collectively promote evaporative cooling and a vapor transmission effect which provides superior perspiration absorption and evaporation, in addition to enhanced user comfort.

The present invention is best understood by reference to the following detailed description when read in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

These, as well as other features of the present invention, will become more apparent upon reference to the drawings wherein:

FIG. 1 is a front elevational view of an undergarment constructed in accordance with the present invention;

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FIG. 2 is a plan view of one of the multi-layer perspiration barriers integrated into the undergarment of the present invention, as viewed from the perspective of the view angle 2 shown in FIG. 1;

FIG. 3 is a partially exploded view of one of the layers included in each of the multi-layer perspiration barriers integrated into the undergarment of the present invention, depicting the two-piece primary construction thereof;

FIG. 4 is an exploded view of one of the multi-layer perspiration barriers integrated into the undergarment of the present invention, depicting the various layers included therein; and

FIG. 5 is a cross sectional view of the multi-layer perspiration barrier, wherein each layer includes a sleeve-panel piece and a torso panel piece joined by a respective stitched seam.

Common reference numerals are used throughout the drawings and detailed description to indicate like elements.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings wherein the showings are for purposes of illustrating a preferred embodiment of the present invention only, and not for purposes of limiting the same, FIGS. 1 and 2 depict a garment 10 constructed in accordance with the present invention. In an exemplary embodiment, the garment 10 is an undergarment and, more particularly, a T-shirt. In this regard, the garment 10 comprises a torso portion 12, one end of which includes an opening 14 therein to accommodate the head and neck of a wearer. In addition to the torso portion 12, the garment 10 includes an opposed pair of sleeve portions 16 which are attached to the torso portion 12 and are sized to cover the upper arms of the wearer of the garment 10. As further seen in FIGS. 1 and 2, each of the sleeves 16 defines a distal rim or end 18.

The garment 10 further comprises an identically configured pair of perspiration barriers 20 which are integrated into the remainder of the garment 10 in a manner which will be described in more detail below. As seen in FIG. 4, each of the perspiration barriers 20 preferably comprises a plurality (e.g., four) stacked layers. Additionally, as seen in FIG. 3, each of these layers has a two-piece construction, comprising a sleeve panel piece 22 and a torso panel piece 24 which are preferably sewn to each other as also described in more detail below. As further seen in FIG. 3, the sleeve panel piece 22 of each layer has a generally trapezoidal configuration, with the torso panel piece 24 having a generally semi-circular configuration.

As indicated above, each perspiration barrier 20 is provided with a four-layer construction. More particularly, as seen in FIG. 4, each perspiration barrier comprise a first layer 26 which will normally be in direct contact with the skin in the underarm of the wearer of the garment 10. As such, the first layer 26 is preferably fabricated from 100% cotton to provide an increased level of comfort to the wearer. The use cotton material of the first layer 26 is advantageous due to the ability of odor molecules emanating from the wearer's skin to easily break away from the cotton fibers, thus combating odor issues. Positioned against the first layer 26 is a second layer 28 which, according to one embodiment, is formed from a loosely woven material, preferably a terry-cloth material fabricated from 80%-20% cotton/polyester blend. As will also be discussed in more detail below, the "loop" design of the terry-cloth material used for the second layer 28 facilitates better airflow through the fully fabricated perspiration barrier 20, thus enhancing an evaporative cooling effect provided thereby.

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In addition to the first and second layers 26, 28, each of the perspiration barriers comprises a third layer 30 which is positioned against the second layer 28 such that the second layer 28 is effectively oriented between the first and third layers 26, 30. The third layer 30 is preferably a hydrophilic breathable film which is fabricated from polyurethane and bonded by a finely dispersed adhesive dot pattern to the second layer 28. Positioned against the third layer 30 is a fourth layer 32, the third layer 30 thus being oriented between the second and fourth layers 28, 32. The fourth layer 32 is preferably made of the same material as the torso and sleeve portions 12, 16 of the garment 10 (e.g., a cotton material) for aesthetic consistency when the perspiration barriers 20 are integrated therein. In this regard, whereas the first layer 26 defines the innermost surface of each perspiration barrier 20 in the completed garment 10 which will directly contact the skin of the wearer thereof, the fourth layer 32 defines the outermost surface of each perspiration barrier 20 in the completed garment 10 which is visually exposed when the same is being worn by the wearer.

As indicated above each of the first, second, third and fourth layers 26, 28, 30, 32 of each of the perspiration barriers 20 comprises a pair of the sleeve and torso panel pieces 22, 24 which are joined (e.g. sewn) to each other. More particularly, in fabricating each of the first and fourth layers 26, 32, a portion of the sleeve panel piece 22 extending along the peripheral base edge segment thereof of greatest length is joined to a portion of the torso panel piece 24 extending along the linear, non-arcuate peripheral edge segment thereof by an elongate stitch 34 which defines a foldable crease between the sleeve and torso panel pieces 22, 24.

However, in fabricating the second and third layers 28, 30, the sleeve panel pieces 22 of such second and third layers 28, 30 are initially bonded to each other in the aforementioned manner, as are the torso panel pieces 24 thereof. Thereafter, the bonded sleeve panel pieces 22 of the second and third layers 28, 30 are sewn to the bonded torso panel pieces 24 thereof by a single, elongate stitch 34. As described above in relation to the first and fourth layers 26, 32, the stitch 34 joining the bonded sleeve panel pieces 22 of the second and third layers 28, 30 to the bonded torso panel pieces 24 thereof extends along the peripheral base edge segments of the bonded sleeve panel pieces 22 of greatest length and the linear, non-arcuate peripheral edge segments of the bonded torso panel pieces 24, such stitch 34 also defining a foldable crease therebetween. Advantageously, the materials from which the second and third layers 28, 30 are fabricated, in concert with the manner in which they are attached to each other, enhances vapor transmission and breathability between the adjacent second and third layers 28, 30 in each of the fully fabricated perspiration barriers 20.

Once the various corresponding pairs of sleeve and torso panel pieces 22, 24 have been sewn to each other in the aforementioned manner, the resultant first, second, third and fourth layers 26, 28, 30, 32 are stacked upon each other such that the first layer 26 is positioned against the second layer 28, and the fourth layer 32 is positioned against the third layer 30. As indicated above, each perspiration barrier 20 of the garment 10 comprises the first, second, third and fourth layers 26, 28, 30, 32 as stacked upon each other in this particular sequence. Once each perspiration barrier 20 has been fabricated or assembled in the aforementioned manner, it is sewn into the torso portion 12 and a corresponding sleeve portion 16 of the garment 10 using a continuous overlock stitch which extends solely along the peripheral edge thereof. It is contemplated

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plated that this peripheral overlock stitch will be covered by a continuous cover stitch 36 to provide a more desirable appearance to the garment 10.

Additionally, as best seen in FIG. 2, each perspiration barrier 20 is preferably orientated relative to the remainder of the garment 10 such that the peripheral base edge segments of shortest length within the stacked sleeve panel pieces 22 of each perspiration barrier 20 extend along the distal end 18 of a respective one of the sleeve portions 16. Extending each perspiration barrier 20 to the distal end 18 of a respective one of the sleeve portions 16 helps reduce any occurrences of undesirable dripping of perspiration down the wearer's arm when the garment 10 is being worn. However, those of ordinary skill in the art will recognize that each perspiration barrier 20 may alternatively be orientated within the remainder of the garment 10 such that a gap or space of a prescribed width separates each perspiration barrier 20 from the distal end 18 of a corresponding sleeve portion 16.

Advantageously, the manner in which the perspiration barriers 20 are assembled, and in turn integrated into the remainder of the garment 10, provides enhanced evaporative cooling and moisture vapor transmission attributable to a billowing effect in each of the perspiration barriers 20. This billowing effect, and the resultant evaporative cooling and moisture vapor transmission process, also serves to decrease perspiration by lowering body temperature. Such billowing effect is achieved by the particulars of the construction of each of the perspiration barriers 20, and is enhanced by the minimal amount of stitching which extends through areas other than the peripheral portions thereof (thereby reducing the number of interiorly located needle holes). In this regard, as previously explained, within each perspiration barrier 20, the only stitching that extends through the interior thereof are the three separate, elongate stitches 34 that are used to join the sleeve and torso panel pieces 22, 24 of the first, second, third and fourth layers 26, 28, 30, 32 to each other. These stitches 34 within each perspiration barrier 20 provide the advantage of collectively creating a crease which allows the wearer of the garment 10 to more easily lift and lower his or her arms without undue resistance by the perspiration barriers 20, while further preventing an excessive amount of noise being generated by the arm lifting and lowering process. Moreover, since the stitches 34 within each perspiration barrier 20 are only generally aligned with each other and do not give rise to the creation of continuous needle holes which span through each the first, second, third and fourth layers 26, 28, 30, 32, there is a significantly reduced potential for moisture or perspiration to travel along the stitches 34 and through the needle holes in a manner comprising the integrity of each perspiration barrier 20.

The "perimeter only" stitching used to facilitate the attachment of each of the fully fabricated perspiration barriers 20 to the remainder of the garment 10 allows outside air to be drawn into and between the first and second layers 26, 28, as well as the third and fourth layers 30, 32, of each of the perspiration barriers 20. At the same time, the stitches 34 of each of the perspiration barriers 20, due to thereof relative orientations, do not unduly compromise the billowing effect. As a result, as seen in FIG. 4, moisture produced and emanating from the underarm skin of the wearer is initially transported through the first layer 26, and into a space or air chamber between the first and second layers 26, 28. Such moisture is then channeled through the second layer 28 and is thereafter transported along the molecular chains of the block co-polymer of the third layer 30 to reach equilibrium with the outside atmosphere, which also facilitates the transition of the moisture to a vapor state. As is also shown in FIG. 4, the vapor which

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emanates from the third layer 30 in turn flows into the space or air chamber between the third and fourth layers 30, 32. As indicated above, the bonding of the third layer 30 to the second layer 28 by the finely disbursed adhesive dot pattern of the third layer 30 allows for better vapor transmission and breathability through such third layer 30. The vapor within the space between the third and fourth layers 30, 32 is thereafter released from the perspiration barrier 20 through the exterior fourth layer 32.

This disclosure provides an exemplary embodiment of the present invention. The scope of the present invention is not limited by this exemplary embodiment. Numerous variations, whether explicitly provided for by the specification or implied by the specification, such as variations in structure, dimension, type of material and manufacturing process may be implemented by one of skill in the art in view of this disclosure. For example, those of ordinary skill in the art will recognize that the above-described perspiration barriers 20 may be integrated into a garment other than for an undergarment such as a T-shirt. Additionally, some or all of the stitching described above could potentially be substituted with a suitable fabric adhesive.

What is claimed is:

1. A garment having an internal surface adapted to contact a wearer's skin and an external surface, the garment comprising:

- a torso portion fabricated from a garment material;
- a pair of sleeve portions fabricated from the garment material, the sleeve portions being attached to and extending from the torso portion; and
- a pair of perspiration barriers each of the perspiration barriers comprising:

- a first layer fabricated from a cotton material;
- a second layer disposed adjacent the first layer and fabricated from a terry cloth material;
- a third layer disposed adjacent the second layer and fabricated from a hydrophilic breathable film; and
- a fourth layer disposed adjacent the third layer and fabricated from the garment material;

the pair of perspiration barriers defining respective barrier peripheral edge regions, each barrier peripheral edge region being coupled to and at least partially circumvented by a corresponding peripheral edge region collectively defined by the torso portion and a respective one of the sleeve portions such that the external surface of an underarm area of the garment is collectively formed by each of the fourth layers of the perspiration barriers and the respective torso and sleeve portions;

wherein at least the first and fourth layers of each of the perspiration barriers is segregated into a sleeve panel piece and a torso panel piece, the sleeve panel piece and torso panel piece of the first layer being joined together by a first stitched seam and the sleeve panel piece and torso panel piece of the fourth layer being joined together by a second stitched seam separate from the first stitched seam.

2. The garment of claim 1 wherein the terry cloth material is fabricated from a blend of about 80% cotton and about 20% polyester.

3. The garment of claim 1 wherein the hydrophilic breathable film is fabricated from polyurethane.

4. The garment of claim 1 wherein the garment material is fabricated from a cotton material.

5. The garment of claim 1 wherein the first layer is fabricated from a 100% cotton material.

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6. The garment of claim 1 wherein the second and third layers are joined to each other via an adhesive bond.

7. The garment of claim 6 wherein the first, second, third and fourth layers are joined to each other and to the torso and sleeve portions of the garment via a peripheral overlock stitch.

8. The garment of claim 7 wherein each of the first, second, third and fourth layers of each of the perspiration barriers is segregated into a sleeve panel piece and a torso panel piece, the sleeve panel piece and torso panel piece of each of the first, second, third and fourth layers being joined together by a separately stitched seam to define a foldable crease therebetween.

9. The garment of claim 8 wherein:

the sleeve panel piece of each of the first, second, third and fourth layers has a generally trapezoidal configuration defining a peripheral base segment of greatest length; the torso panel piece of each of the first, second, third and fourth layers has a generally semi-circular configuration defining a non-arcuate peripheral edge segment; and the crease extends along the base segment of the sleeve panel piece and along the non-arcuate peripheral edge segment of the torso panel piece.

10. The garment of claim 8 wherein each of the sleeve portions defines a distal end and the sleeve panel pieces of each of the perspiration barriers extend to the distal end of a respective one of the sleeve portions.

11. The garment of claim 8 wherein each of the perspiration barriers is attached to the torso portion and a respective one of the sleeve portions via a peripheral overlock stitch.

12. The garment of claim 1 wherein each of the first, second, third and fourth layers of each of the perspiration barriers is segregated into a sleeve panel piece and a torso panel piece, the sleeve panel piece and torso panel piece of

8

each of the first, second, third and fourth layers being joined together by a separately stitched seam to define a foldable crease therebetween.

13. The garment of claim 1 wherein each of the perspiration barriers is attached to the torso portion and a respective one of the sleeve portions via a peripheral overlock stitch.

14. The garment of claim 13 wherein the overlock stitch is covered by a cover stitch.

15. A garment having an internal surface adapted to contact a wearer's skin and an external surface, the garment, comprising:

a torso portion;

a pair of sleeve portions attached to and extending from the torso portion in opposed relation to each other; and

a pair of perspiration barriers, each of the perspiration barriers comprising:

a first layer fabricated from a soft, pliable meat adapted to permit the transmission of moisture therethrough;

a second layer disposed adjacent the first layer and fabricated from a loosely woven material;

a third layer disposed adjacent the second layer and fabricated from a hydrophilic breathable film; and

as fourth layer disposed adjacent the third layer the pair of perspiration barriers defining respectively barrier peripheral edge regions, each barrier peripheral edge region being coupled to and at least partially circumvented by a corresponding peripheral edge region collectively defined by the torso portion and a respective one of the sleeve portions such that the external surface of an underarm area of the garment is collectively formed by each of the fourth layers of the perspiration barriers and the respective torso and sleeve portions.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 8,898,812 B2
APPLICATION NO. : 13/282148
DATED : December 2, 2014
INVENTOR(S) : William Thompson and Randy Hyun Choi

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims:

Col. 8, lines 9-32, should read:

15. A garment having an internal surface adapted to contact a wearer's skin and an external surface, the garment, comprising:

a torso portion;

a pair of sleeve portions attached to and extending from the torso portion in opposed relation to each other; and

a pair of perspiration barriers, each of the perspiration barriers comprising:

a first layer fabricated from a soft, pliable material adapted to permit the transmission of moisture therethrough;

a second layer disposed adjacent the first layer and fabricated from a loosely woven material;

a third layer disposed adjacent the second layer and fabricated from a hydrophilic breathable film; and

a fourth layer disposed adjacent the third layer, the pair of perspiration barriers defining respectively barrier peripheral edge regions, each barrier peripheral edge region being coupled to and at least partially circumvented by a corresponding peripheral edge region collectively defined by the torso portion and a respective one of the sleeve portions such that the external surface of an underarm area of the garment is collectively formed by each of the fourth layers of the perspiration barriers and the respective torso and sleeve portions.

Signed and Sealed this
Ninth Day of June, 2015



Michelle K. Lee
Director of the United States Patent and Trademark Office

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Thompson et al.	)	Confirmation No.:	unassigned
)		
Serial No.:	Unassigned (Reissue of 8,898,812)	)	Art Unit:	unassigned
)		
Filed:	Herewith	)	Examiner:	unassigned
)		
For:	GARMENT HAVING)		
	INTEGRATED PERSPIRATION)		
	BARRIERS)		

Statement of the Status of Claims and Support for Claim Amendments

Assistant Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In accordance with 37 C.F.R. §1.173(c), Applicant hereby states that the status of each of Claims 1-14 of U.S. Patent No. 8,898,812 (the “‘812 patent”) and each of Claims 16-27 added in this reissue application is pending, and the status of Claim 15 is cancelled.

Support in the disclosure for added Independent Claim 16 can be found, *inter alia*, at 4:5-4:7, 4:56-4:67, 5:19-5:31, 5:51-5:56, 5:62-5:63, and Fig. 4 of the ‘812 Patent.

Support in the disclosure for added Dependent Claims 17-19 can be found, *inter alia*, at 4:5-4:7, 4:56-4:67, and 5:51-5:56 of the ‘812 Patent.

Support in the disclosure for added Independent Claim 20 can be found, *inter alia*, at 4:5-4:7, 4:56-4:67, 5:19-5:31, 5:51-5:56, 5:62-5:63, and Figs. 2 and 5 of the ‘812 Patent.

Support in the disclosure for added Dependent Claims 21-23 can be found, *inter alia*, at 4:5-4:7, 4:56-4:67, and 5:51-5:56 of the ‘812 Patent.

Support in the disclosure for added Independent Claim 24 can be found, *inter alia*, at 4:5-4:7, 4:56-4:67, 5:19-5:31, 5:51-5:56, 5:62-5:63, and Fig. 4 of the '812 Patent.

Support in the disclosure for added Dependent Claims 25-27 can be found, *inter alia*, at 4:5-4:7, 4:56-4:67, and 5:51-5:56 of the '812 Patent.

Respectfully submitted,



By: _____

Date: August 31, 2017

Customer No.: 007663

Mark B. Garred
Registration No. 34,823
STETINA BRUNDA GARRED & BRUCKER
75 Enterprise, Suite 250
Aliso Viejo, California 92656
Telephone: (949) 855-1246
Fax: (949) 855-6371

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: 3 PAK HOLDINGS LLC

Application No./Patent No.: 8898812 Filed/Issue Date: Dec 2, 2014

Titled: GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS

3 PAK HOLDINGS, LLC, a Limited Liability Company

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest in;
2. ☐ an assignee of less than the entire right, title, and interest in
(The extent (by percentage) of its ownership interest is _____ %); or
3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

the patent application/patent identified above, by virtue of either:

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy therefore is attached.

OR

B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: William Thompson, Randy Hyun Choi To: THE WILLIAM THOMPSON CO., LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 027132, Frame 0896, or for which a copy thereof is attached.

2. From: THE WILLIAM THOMPSON CO., LLC To: 3 PAK HOLDINGS, LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 033865, Frame 0860, or for which a copy thereof is attached.

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☒ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/mbg/

Signature

Mark B. Garred

Printed or Typed Name

31 August 2017

Date

Attorney of Record, 34,823

Title

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ASSIGNMENT OF APPLICATION

Docket Number
THMTE-001A

Whereas, I, William Thompson, hereafter referred to as Assignor, have invented certain new and useful improvements in Garment Having Integrated Perspiration Barriers for which an application for a United States Patent was filed on or about the date of this assignment.

Whereas, The William Thompson Co., LLC of San Diego, California herein referred to as "Assignee" whose mailing address is 10601-G Tierrasanta Blvd., Suite 180, San Diego, CA 92124 is desirous of acquiring the entire right, title and interest in the same;

Now, therefore, in consideration of the sum of One dollars (\$1.00), the receipt whereof is acknowledged, and other good and valuable consideration, I, the applicant, by these presents do sell, assign and transfer unto said Assignee the full and exclusive right to the said improvement in the United States, and by these presents do hereby sell, assign, transfer and set over, unto Assignee, its successors, legal representatives and assigns, Assignor's entire right, title and interest in, to and under said improvements, and said application and all divisions, renewals, continuations, and continuations-in-part thereof, and all United States Letters patent which may be granted thereon and all reissues and extensions thereof, and all applications for Letters Patent which may hereafter be filed for said improvements in any country or countries foreign to the United States, including the full right to claim for any such application the priority benefits of the International Convention for the Protection of Industrial Property and other priority-conferring treaties, and all Letters Patent which may be granted for said improvements in any country or countries foreign to the United States and all extensions, divisions, continuations, continuations-in-part, renewals and reissues thereof; and Assignor hereby authorizes and requests the Commissioner of Patents and Trademarks of the United States, and any official of any country or countries foreign to the United States, whose duty it is to issue patents on applications as aforesaid, to issue all Letters Patent for said improvements to said Assignee, its successors, legal representatives and assigns, in accordance with the terms of this instrument; I hereby authorize and request the Commissioner of Patents and Trademarks to issue said United States Patent to said Assignee, of the entire right, title, and interest in and to the same, for his sole use and behoof, and for the use and behoof of his legal representatives, to the full end of the term for which said Patent may be granted, as fully and entirely as the same would have been held by me had this assignment and sale not been made.

Executed this 21 day of Oct, 2011

at 2:20 pm

10-21-11
DATE

[Signature]
NAME: William Thompson

State of _____
County of _____)

On _____ before me, (insert name and title of the officer), personally appeared

_____ who proved to me on the basis of satisfactory evidence, to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or entity upon behalf of which the person acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Seal)

ASSIGNMENT OF APPLICATION

Docket Number
THMTE-001A

Whereas, I, Randy Hyun Choi, hereafter referred to as Assignor, have invented certain new and useful improvements in Garment Having Integrated Perspiration Barriers for which an application for a United States Patent was filed on or about the date of this assignment.

Whereas, The William Thompson Co., LLC of San Diego, California herein referred to as "Assignee" whose mailing address is 8814 Donaker St., San Diego, CA 92129, is desirous of acquiring the entire right, title and interest in the same,

Now, therefore, in consideration of the sum of One dollars (\$1.00), the receipt whereof is acknowledged, and other good and valuable consideration, I, the applicant, by these presents do sell, assign and transfer unto said Assignee the full and exclusive right to the said improvement in the United States, and by these presents do hereby sell, assign, transfer and set over, unto Assignee, its successors, legal representatives and assigns, Assignor's entire right, title and interest in, to and under said improvements, and said application and all divisions, renewals, continuations, and continuations-in-part thereof, and all United States Letters patent which may be granted thereon and all reissues and extensions thereof, and all applications for Letters Patent which may hereafter be filed for said improvements in any country or countries foreign to the United States, including the full right to claim for any such application the priority benefits of the International Convention for the Protection of Industrial Property and other priority-conferring treaties, and all Letters Patent which may be granted for said improvements in any country or countries foreign to the United States and all extensions, divisions, continuations, continuations-in-part, renewals and reissues thereof, and Assignor hereby authorizes and requests the Commissioner of Patents and Trademarks of the United States, and any official of any country or countries foreign to the United States, whose duty it is to issue patents on applications as aforesaid, to issue all Letters Patent for said improvements to said Assignee, its successors, legal representatives and assigns, in accordance with the terms of this instrument. I hereby authorize and request the Commissioner of Patents and Trademarks to issue said United States Patent to said Assignee, of the entire right, title, and interest in and to the same, for his sole use and behoof, and for the use and behoof of his legal representatives, to the full end of the term for which said Patent may be granted, as fully and entirely as the same would have been held by me had this assignment and sale not been made.

Executed this 24 day of October, 2011

at 4:50 pm

10/24/2011

DATE

NAME: Randy Hyun Choi

State of _____
County of _____

On _____ before me, (insert name and title of the officer), personally appeared _____

who proved to me on the basis of satisfactory evidence, to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or entity upon behalf of which the person acted, executed the instrument

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct

WITNESS my hand and official seal

Signature _____ (Seal)

- Total of _____ forms are submitted.

ASSIGNMENT OF APPLICATION

Docket Number
THMTE-001A

Whereas, **The William Thompson Company, LLC**, hereafter referred to as Assignor, have invented certain new and useful improvements in **GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS** for which an application for a United States Patent was filed on **October 26, 2011** (Serial No. 13/282,148).

Whereas, **3 PAK HOLDINGS, LLC** of **Placentia, California** herein referred to as "Assignee" whose mailing address is **1800 E. Miraloma Ave., STE D, Placentia, CA 92870** is desirous of acquiring the entire right, title and interest in the same;

Now, therefore, in consideration of the sum of One dollars (\$1.00), the receipt whereof is acknowledged, and other good and valuable consideration, I, the applicant, by these presents do sell, assign and transfer unto said Assignee the full and exclusive right to the said improvement in the United States, and by these presents do hereby sell, assign, transfer and set over, unto Assignee, its successors, legal representatives and assigns, Assignor's entire right, title and interest in, to and under said improvements, and said application and all divisions, renewals, continuations, and continuations-in-part thereof, and all United States Letters patent which may be granted thereon and all reissues and extensions thereof, and all applications for Letters Patent which may hereafter be filed for said improvements in any country or countries foreign to the United States, including the full right to claim for any such application the priority benefits of the International Convention for the Protection of Industrial Property and other priority-conferring treaties, and all Letters Patent which may be granted for said improvements in any country or countries foreign to the United States and all extensions, divisions, continuations, continuations-in-part, renewals and reissues thereof; and Assignor hereby authorizes and requests the Commissioner of Patents and Trademarks of the United States, and any official of any country or countries foreign to the United States, whose duty it is to issue patents on applications as aforesaid, to issue all Letters Patent for said improvements to said Assignee, its successors, legal representatives and assigns, in accordance with the terms of this instrument; I hereby authorize and request the Commissioner of Patents and Trademarks to issue said United States Patent to said Assignee, of the entire right, title, and interest in and to the same, for his sole use and behoof; and for the use and behoof of his legal representatives, to the full end of the term for which said Patent may be granted, as fully and entirely as the same would have been held by me had this assignment and sale not been made.

Executed this 1 day of OCTOBER, 20 14, at _____.

By: William Thompson
William Thompson - President

State of CA

County of ORANGE

On _____ before me, _____
(date) (Name, Title of the Officer)

personally appeared **William Thompson** who proved to me on the basis of satisfactory evidence, to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same in his/her authorized capacity, and that by his/her signature on the instrument the person, or entity upon behalf of which the person acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of _____ that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Seal)

-- Total of 1 forms are submitted.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	WILLIAM THOMPSON	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	THMTE-001X	

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7111568	B1	2006-09-26	Sakuma et al.	
	2	6591425	B1	2003-07-15	Zellers, Mary P.	
	3	6282720	B1	2001-09-04	Mayer, Judy A.	
	4	6145129	A	2000-11-14	CZEKALLA GERD et al.	
	5	6138276	A	2000-10-31	ASCIUTTO; CATHY L. et al.	
	6	5778457	A	1998-07-14	CONWAY DAVID W et al.	
	7	5042088	A	1991-08-27	SHERROD EARLE H et al.	
	8	4805240	A	1989-02-21	SIQVELAND THOMAS T et al.	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		
First Named Inventor	WILLIAM THOMPSON	
Art Unit		
Examiner Name		
Attorney Docket Number	THMTE-001X	

9	4603440	A	1986-08-05	Hale	
10	4393521	A	1983-07-19	Jones	
11	3885247	A	1975-05-27	KOST; ROSEMARY J. et al.	
12	3588916	A	1971-06-29	GLATT LINDA R	
13	2438771	A	1948-03-30	DANIEL TOPJIAN et al.	
14	2005232	A	1935-06-18	MARSH HARRY V et al.	
15	387454	A	1908-05-12	BASCH DAVID et al.	

If you wish to add additional U.S. Patent citation information please click the Add button.

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U.S.PATENT APPLICATION PUBLICATIONS

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Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	20090183292	A1	2009-07-23	PRICE	
	2	20080086791	A1	2008-04-17	Kirkwood Samuel et al.	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		
First Named Inventor	WILLIAM THOMPSON	
Art Unit		
Examiner Name		
Attorney Docket Number	THMTE-001X	

3	20080052802	A1	2008-03-06	Bryan	
4	20060288463	A1	2006-12-28	Bernard et al.	
5	20060168704	A1	2006-08-03	Mayer et al.	
6	20060150294	A1	2006-07-13	Yanamadala	
7	20060085885	A1	2006-04-27	Williams	
8	20080096001	A1	2008-04-24	Van Emden et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button. [Add](#)

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Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² i	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	2004089614	WO		2004-10-21	Van Emden et al.		

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NON-PATENT LITERATURE DOCUMENTS

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		
First Named Inventor	WILLIAM THOMPSON	
Art Unit		
Examiner Name		
Attorney Docket Number	THMTE-001X	

1	International Search Report and Written Opinion for PCT/US2012/021689. April 24, 2012.
2	Petition for Inter Parties Review of United States Patent No. 8,898,812 filed on 6 June 2017; Case IPR 2017-01529.
3	IPR Exhibit No. 1007: David Brookstein, Sc.D.; Curriculum Vitae; Engineering and Litigation Consultant in Fields of Textiles, Garment Systems, Fibers, Fabrics and Composites.
4	IPR Petitioner's Exhibit No. 1006: Declaration of Dr. David Brookstein; 1 June 2017.
5	Supplemental Declaration of Dr. David Brookstein; 24 August 2017.

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

***EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	
First Named Inventor	WILLIAM THOMPSON
Art Unit	
Examiner Name	
Attorney Docket Number	THMTE-001X

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/mbg/	Date (YYYY-MM-DD)	2017-08-31
Name/Print	Mark B. Garred	Registration Number	34823

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

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3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference THMTE-001PC	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2012/021689	International filing date (day/month/year) 18 January 2012	(Earliest) Priority Date (day/month/year) 27 January 2011
Applicant THE WILLIAM THOMPSON CO., LLC		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 7 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of:

☒ the international application in the language in which it was filed.

☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (see Box No. II).

3. ☐ Unity of invention is lacking (see Box No. III).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2012/021669

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A41D 27/13 (2012.01)

USPC - 2/54

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8) - A41D 27/13 (2012.01)

USPC - 2/53, 54

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)

PatBase, Google Patents

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X — Y	US 2008/0052802 A1 (BRYAN) 06 March 2008 (06.03.2008) entire document	1, 4, 5, 13, 15, 20
Y	US 4,805,240 A (SIOVELAND) 21 February 1989 (21.02.1989) entire document	2, 3, 6-12, 14, 16-19
Y	US 4,805,240 A (SIOVELAND) 21 February 1989 (21.02.1989) entire document	2
Y	US 2006/0085885 A1 (WILLIAMS) 27 April 2006 (27.04.2006) entire document	3, 6-11, 17-19
Y	US 6,991,425 B1 (ZELLERS) 16 July 2003 (16.07.2003) entire document	8-12, 16
Y	US 2009/0183292 A1 (PRICE) 23 July 2009 (23.07.2009) entire document	9
Y	US 7,111,568 B1 (SAKUMA et al) 26 September 2006 (26.09.2006) entire document	14, 19
A	US 5,042,068 A (SHERROD et al) 27 August 1991 (27.08.1991) entire document	1-20
A	US 2006/0150294 A1 (YANAMADALA) 13 July 2006 (13.07.2006) entire document	1-20
A	US 2008/0088791 A1 (KIRKWOOD SAMUEL et al) 17 April 2008 (17.04.2008) entire document	1-20

☐ Further documents are listed in the continuation of Box C.

* 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

"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

"Z" document member of the same patent family

Date of the actual completion of the international search

16 April 2012

Date of mailing of the international search report

24 APR 2012

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents

P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-3201

Authorized officer:

Blaine R. Copenhaver

PCT Helpdesk: 571-273-4302

PCT OSP: 571-273-7774

Form PCT/ISA/210 (second sheet) (July 2009)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To: **MARK GARRED**
STENTINA BRUNDA GARRED & BRUCKER
75 ENTERPRISE, SUITE 250
ALISO VIEJO, CA 92656

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing
(day/month/year)

24 APR 2012

Applicant's or agent's file reference:
THMTE-001PC

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/US2012/021689

International filing date (day/month/year)

18 January 2012

Priority date (day/month/year)

27 January 2011

International Patent Classification (IPC) or both national classification and IPC

IPC(8) - A41D 27/13 (2012.01)

USPC - 2/54

Applicant **THE WILLIAM THOMPSON CO., LLC**

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/IJS

Mail Stop PCT, Attn: ISA/IJS
Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450
Facsimile No. 571-273-3201

Date of completion of this opinion

16 April 2012

Authorized officer:

Blaine R. Copenheaver

PCT Helpdesk: 571-273-4306
PCT OESP: 571-272-7774

Form PCT/ISA/237 (cover sheet) (July 2011)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2012/021669

Box No. 1 Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
☒ the international application in the language in which it was filed.
☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2. ☐ This opinion has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43bis 1(a)).
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:
 - a. (means)
☐ on paper
☐ in electronic form
 - b. (time)
☐ in the international application as filed
☐ together with the international application in electronic form
☐ subsequently to this Authority for the purposes of search
4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US2012/021683

Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	2, 3, 6-12, 14, 16-19	YES
	Claims	1, 4, 5, 13, 15, 20	NO
Inventive step (IS)	Claims	None	YES
	Claims	1-20	NO
Industrial applicability (IA)	Claims	1-20	YES
	Claims	None	NO
2. Citations and explanations:			
<p>Claims 1, 4, 5, 13, 15 and 20 lack novelty under PCT Article 33(2) as being anticipated by Bryan.</p> <p>Referring to claim 1, Bryan discloses of a garment (undergarment 10), comprising: a torso portion (body portion 20) fabricated from a prescribed garment material (Para. [0031]); a pair of sleeve portions (sleeves 60A and 60B) fabricated from the garment material (Para. [0031]), the sleeve portions being attached to and extending from the torso portion (20; Para. [0030]; Fig. 1); and a pair of perspiration barriers (armpit regions 30A and 30B; Para. [0033]) integrated into the torso portion (20) and respective ones of the sleeve portions (60A, 60B), each of the perspiration barriers (30A, 30B) comprising: a first layer fabricated from a cotton material (Para. [0036]); a second layer disposed adjacent the first layer and fabricated from a terry cloth material (Para. [0034]); a third layer disposed adjacent the second layer and fabricated from a hydrophilic breathable film (Para. [0035]); and a fourth layer disposed adjacent the second layer and fabricated from the garment material (Para. [0037]).</p> <p>Referring to claim 4, Bryan discloses the garment of Claim 1, further wherein the garment material is fabricated from a cotton material (Paras. [0031], [0036] and [0051]).</p> <p>Referring to claim 5, Bryan discloses the garment of Claim 1, further wherein the first layer is fabricated from a 100% cotton material (Para. [0036]).</p> <p>Referring to claim 13, the modified Bryan discloses the garment of Claim 1, further wherein each of the perspiration barriers is attached to the torso portion and a respective one of the sleeve portions via a peripheral overlock stitch (Para. [0037]).</p> <p>Referring to claim 15, Bryan discloses of a garment (undergarment 10), comprising: a pair of perspiration barriers integrated into respective ones of a pair of underarm areas of the garment (armpit regions 30A and 30B; Para. [0033]), each of the perspiration barriers (30A, 30B) comprising: a first layer fabricated from a cotton material (Para. [0036]); a second layer disposed adjacent the first layer and fabricated from a terry cloth material (Para. [0034]); a third layer disposed adjacent the second layer and fabricated from a hydrophilic breathable film (Para. [0035]); and a fourth layer disposed adjacent the second layer and fabricated from a material which is aesthetically compatible to that used to fabricate the garment (Para. [0037]).</p> <p>Referring to claim 20, Bryan discloses of a garment (undergarment 10), comprising: a torso portion (body portion 20); a pair of sleeve portions (sleeves 60A and 60B) attached to and extending from the torso portion (20) in opposed relation to each other (Fig. 1A); and a pair of perspiration barriers (armpit regions 30A and 30B; Para. [0033]) integrated into the torso portion (20) and respective ones of the sleeve portions (60A, 60B), each of the perspiration barriers (30A, 30B) comprising: a first layer fabricated from a soft, pliable material adapted to permit the transmission of moisture therethrough (Para. [0036]); a second layer disposed adjacent the first layer and fabricated from a loosely woven material (Para. [0034]); a third layer disposed adjacent the second layer and fabricated from a hydrophilic breathable film (Para. [0035]); and a fourth layer disposed adjacent the second layer and fabricated from a material which is aesthetically compatible to that used to fabricate the garment (Para. [0037]).</p> <p>Claim 2 lacks an inventive step under PCT Article 33(3) as being obvious over Bryan in view of Sigveland.</p> <p>Referring to claim 2, Bryan discloses the garment of Claim 1, but fails to explicitly disclose wherein the terry cloth material is fabricated from a blend of about 80% cotton and about 20% polyester.</p> <p>Sigveland, however, teaches of a perspiration resistant garment (Title) comprising a fabric material of about 80% cotton and about 20% polyester (Col. 1, Lns. 54-57).</p> <p>It would have been obvious to one having ordinary skill in the art at the time of the invention to provide wherein the terry cloth material of Bryan is fabricated from a blend of about 80% cotton and about 20% polyester, as taught by Sigveland, since the selection of a known material on the basis of its suitability for an intended use involves only routine skill in the art. The motivation being to provide a garment having the desired cost, comfort, durability and stretch characteristics.</p>			

Form PCT/ISA/237 (Box No. V) (July 2011)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US2012/021689

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Claims 3, 6, 7, 17 and 18 lack an inventive step under PCT Article 33(3) as being obvious over Bryan in view of Williams.

Referring to claim 3, Bryan discloses the garment of Claim 1, but fails to explicitly disclose wherein the hydrophilic breathable film is fabricated from polyurethane.

Williams, however, teaches of a perspiration shield (Title) having a hydrophilic breathable film (membrane 28) which is fabricated from polyurethane (Para. [0024]).

It would have been obvious to one having ordinary skill in the art at the time of the invention to provide wherein the hydrophilic breathable film of Bryan is fabricated from polyurethane, as taught by Williams, since the selection of a known material on the basis of its suitability for an intended use involves only routine skill in the art. The motivation being to provide a garment having the desired cost, comfort, durability and stretch characteristics.

Referring to claim 6, Bryan discloses the garment of Claim 1, but fails to explicitly disclose wherein the second and third layers are joined to each other via an adhesive bond.

Williams, however, teaches of a perspiration shield (Title) having a plurality of layers (Fig. 3) which are joined to each other via an adhesive bond (via adhesive particle 30; Para. [0025]).

It would have been obvious to one having ordinary skill in the art at the time of the invention to provide wherein the second and third layers of Bryan are joined to each other via an adhesive bond, as taught by Williams, in order to ensure a secure connection between cooperating layers of the unitary device, such that it remains effective in use and comfortable for the user.

Referring to claim 7, the modified Bryan discloses the garment of Claim 5. Bryan further discloses wherein the first, second, third and fourth layers (Para. [0035]) are joined to each other and to the torso (20) and sleeve portions (60A, 60B) of the garment (10) via a peripheral overlock stitch (Para. [0037]).

Referring to claim 17, Bryan discloses the garment of Claim 15, but fails to explicitly disclose wherein the second and third layers are joined to each other via an adhesive bond.

Williams, however, teaches of a perspiration shield (Title) having a plurality of layers (Fig. 3) which are joined to each other via an adhesive bond (via adhesive particle 30; Para. [0025]).

It would have been obvious to one having ordinary skill in the art at the time of the invention to provide wherein the second and third layers of Bryan are joined to each other via an adhesive bond, as taught by Williams, in order to ensure a secure connection between cooperating layers of the unitary device, such that it remains effective in use and comfortable for the user.

Referring to claim 18, the modified Bryan discloses the garment of Claim 17. Bryan further discloses wherein the first, second, third and fourth layers (Para. [0035]) are joined to each other and to the torso (20) and sleeve (60A, 60B) portions of the garment via a peripheral overlock stitch (Para. [0037]).

Claims 8, 10 and 11 lack an inventive step under PCT Article 33(3) as being obvious over Bryan in view of Williams and Zellers.

Referring to claim 8, the modified Bryan discloses the garment of Claim 7. Bryan further discloses wherein each of the first, second, third and fourth layers (Para. [0035]) of each of the perspiration barriers (30A, 30B) is segregated into a sleeve panel (60A, 60B) piece and a torso panel piece (20) which are attached to each other via said stitching (Para. [0037]), but fails to explicitly disclose of a segment of stitching which defines a foldable crease therebetween.

Zellers, however, teaches of an undergarment with permanently attached perspiration collecting shield (Title) having a plurality of layers segregated into a sleeve panel piece and a torso panel piece which are attached to each other via a segment of stitching (seam 18d) which defines a foldable crease therebetween (Figs. 1, 3 and 4).

It would have been obvious to one having ordinary skill in the art at the time of the invention to provide a segment of stitching which defines a foldable crease therebetween, as taught by Zellers, to the modified garment of Bryan, in order to ensure a secure connection between cooperating layers of the unitary device, such that it remains effective in use and comfortable for the user.

Referring to claim 10, the modified Bryan discloses the garment of Claim 8. Bryan further discloses wherein each of the sleeve portions (60A, 60B) defines a distal end and the sleeve panel pieces of each of the perspiration barriers (30A, 30B) extend to the distal end of a respective one of the sleeve portions (Fig. 1A).

Referring to claim 11, the modified Bryan discloses the garment of Claim 8. Bryan further discloses wherein each of the perspiration barriers (30A, 30B) is attached to the torso portion (20) and a respective one of the sleeve portions (60A, 60B) via a peripheral overlock stitch (Para. [0037]).

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Claim 9 lacks an inventive step under PCT Article 33(3) as being obvious over Bryan in view of Williams, Zellers and Price.

Referring to claim 9, the modified Bryan discloses the garment of Claim 8. Bryan fails to explicitly disclose wherein: the sleeve panel piece of each of the first, second, third and fourth layers has a generally trapezoidal configuration defining a peripheral base segment of greatest length; the torso panel piece of each of the first, second, third and fourth layers has a generally semi-circular configuration defining a non-arcuate peripheral edge segment; and the crease extends along the base segment of the sleeve panel piece and along the non-arcuate peripheral edge segment of the torso panel piece.

Zellers, however, teaches of a crease (16d) which extends along a base segment of a sleeve panel (portion 7a) and along a peripheral edge segment of a torso panel piece (portion 8a).

It would have been obvious to one having ordinary skill in the art at the time of the invention to provide a segment of stitching which defines a foldable crease therebetween, as taught by Zellers, to the modified garment of Bryan, in order to ensure a secure connection between cooperating layers of the unitary device, such that it remains effective in use and comfortable for the user.

Further, Price teaches of an underarm garment protector (Title) having a generally trapezoidal configuration (Fig. 2) defining a peripheral base segment of greatest length (generally defined by sections A, B and C in Fig. 2); and the torso panel piece has a generally semi-circular configuration defining a non-arcuate peripheral edge segment (section D in Fig. 2).

It would have been obvious to one having ordinary skill in the art at the time of the invention to provide wherein: the sleeve panel piece of each of the first, second, third and fourth layers of Bryan has a generally trapezoidal configuration defining a peripheral base segment of greatest length; and the torso panel piece of each of the first, second, third and fourth layers of Bryan has a generally semi-circular configuration defining a non-arcuate peripheral edge segment, as taught by Price, since a change in shape of an element involves only routine skill in the art. The motivation being to provide an absorbent pad having a shape which is both effective in use and comfortable for the user.

Claims 12 and 16 lack an inventive step under PCT Article 33(3) as being obvious over Bryan in view of Zellers.

Referring to claim 12, Bryan discloses the garment of Claim 1, further wherein each of the first, second, third and fourth layers (Para. [0035]) of each of the perspiration barriers (30A, 30B) is segregated into a sleeve panel piece (60A, 60B) and a torso panel piece (20) which are attached to each other via a segment of stitching (Para. [0037]), but fails to explicitly disclose wherein said stitching defines a foldable crease therebetween.

Zellers, however, teaches of an undergarment with permanently attached perspiration collecting shield (Title) having a plurality of layers segregated into a sleeve panel piece and a torso panel piece which are attached to each other via a segment of stitching (seam 18d) which defines a foldable crease therebetween (Figs. 1, 3 and 4).

It would have been obvious to one having ordinary skill in the art at the time of the invention to provide a segment of stitching which defines a foldable crease therebetween, as taught by Zellers, to the garment of Bryan, in order to ensure a secure connection between cooperating layers of the unitary device, such that it remains effective in use and comfortable for the user.

Referring to claim 16, Bryan discloses the garment of Claim 15, further wherein each of the first, second, third and fourth layers (Para. [0035]) of each of the perspiration barriers (30A, 30B) is segregated into a pair of panel pieces (20, 60A, 60B) which are attached to each other via a segment of stitching (Para. [0037]), but fails to explicitly disclose wherein said stitching defines a foldable crease therebetween. Zellers, however, teaches of an undergarment with permanently attached perspiration collecting shield (Title) having a plurality of layers segregated into a sleeve panel piece and a torso panel piece which are attached to each other via a segment of stitching (seam 18d) which defines a foldable crease therebetween (Figs. 1, 3 and 4).

It would have been obvious to one having ordinary skill in the art at the time of the invention to provide a segment of stitching which defines a foldable crease therebetween, as taught by Zellers, to the garment of Bryan, in order to ensure a secure connection between cooperating layers of the unitary device, such that it remains effective in use and comfortable for the user.

Claim 14 lacks an inventive step under PCT Article 33(3) as being obvious over Bryan in view of Sakuma et al. (hereafter Sakuma).

Referring to claim 14, Bryan discloses the garment of Claim 13, but fails to explicitly disclose wherein the overlock stitch is covered by a cover stitch.

Sakuma, however, teaches of a cover stitch sewing machine capable of producing an overlock stitch which is covered by a cover stitch (Col. 1, Ln. 66 - Col. 2, Ln. 4).

It would have been obvious to utilize the sewing machine of Sakuma to produce an overlock stitch which is covered by a cover stitch, on the garment of Bryan, since Bryan discloses that any sewing or knitting machine may be used to generate the one piece undergarment with absorbent material (Para. [0037]). The motivation being to produce a secure stitch which isn't prone to unraveling over time or with repeated use.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US2012/021689

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Claim 19 lacks an inventive step under PCT Article 33(3) as being obvious over Bryan in view of Williams and Sakuma et al. (hereafter Sakuma).

Referring to claim 19, the modified Bryan discloses the garment of Claim 18, but fails to explicitly disclose wherein the overlock stitch is covered by a cover stitch.

Sakuma, however, teaches of a cover stitch sewing machine capable of producing an overlock stitch which is covered by a cover stitch (Col. 1, Ln. 66 -- Col. 2, Ln. 4).

It would have been obvious to utilize the sewing machine of Sakuma to produce an overlock stitch which is covered by a cover stitch, on the modified garment of Bryan, since Bryan discloses that any sewing or knitting machine may be used to generate the one piece undergarment with absorbent material (Para. [0037]). The motivation being to produce a secure stitch which isn't prone to unraveling over time or with repeated use.

Claims 1-20 meet the criteria set out in PCT Article 33(4) and thus have industrial applicability because the subject matter claimed can be made or used in industry.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
21 October 2004 (21.10.2004)

PCT

(10) International Publication Number
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(71) Applicant (for all designated States except US): **LIGHT-
TEX LIMITED** [GB/GB]; Business Creation Unit, Zo-
chonis Building, Brunswick Street, Manchester M13 9PL
(GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **VAN EMDEN,
Oliver** [GB/GB]; 11 Ashcombe Gardens, Edgware,
Middlesex HA8 8HR (GB). **CARR, Chris** [GB/GB]; 20
Fallowfield Close, Littler Cross, Winsford, Cheshire CW7
2NW (GB).

(74) Agents: **SETNA, Rohan, Piloo** et al.; Verulam Gardens,
70 Gray's Inn Road, London WC1X 8BT (GB).

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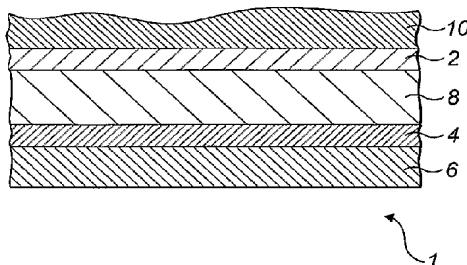
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(54) Title: IMPROVEMENTS IN OR RELATING TO FABRICS



(57) **Abstract:** The present invention relates to a laminate structure suitable for use in fabric articles and on other surfaces that may have liquid water thereon. One embodiment of the present invention is an article of clothing comprising a laminate which includes the following layers: a fabric layer, at least part of which is permeable to water vapour, a first layer, at least part of which is permeable to water vapour and resistant to permeation of liquid water, and a second layer comprising one or more sanitary agents, wherein said first layer is interposed between said fabric layer and said second layer, said second layer is, in use, the closest of said layers to the intended wearer of the article of clothing and the fabric layer is irremovably connected directly or indirectly to one or more of the other layers of the laminate.

IMPROVEMENTS IN OR RELATING TO FABRICS

The present invention relates to a laminate structure suitable for use in fabric articles and, in particular, to articles of clothing, footwear, headgear and other items likely to come into contact with a person's skin and its associated perspiration.

Liquid water-impermeable films, coatings or membranes can be adhered or bonded to layers on the inside or outside of garment fabrics. The purpose of these layers is to waterproof the fabric of the garment, primarily to prevent rain ingress through the garment. However, while many of these "traditional" water-impermeable layers are impermeable to liquid water, they are also impermeable to water vapour and as a result are not regarded as "breathable". This technical deficiency can lead to wearer discomfort because of the "build-up" of water vapour/moisture inside the wearer's garment, and the inefficient release of water vapour from inside the garment microclimate.

More recently there has been the development of "breathable" waterproof films, membranes and coatings, which allow the passage of water vapour out of the wearer/garment microclimate, but still prevent liquid water passage. Hence the wearer remains dry and comfortable in the rain. These films/coatings or membranes can be microporous or hydrophilic in nature, and are typically manufactured from polytetrafluoroethylene, silicones, rubbers, polyurethanes, acrylates, polyethers, polyesters, polyolefins, polyamino acids, polyamides or copolymers thereof. "Polyolefins" includes, but is not

limited to polyethylenes. If it is desired to limit the expansion of the first layer when exposed to water, preferably the first layer does not comprise polyurethane. Preferably the films, coatings or membranes comprise a polyolefin. Preferably at least part of, ideally all of, the first layer is hydrophobic and microporous, preferably comprising a hydrophobic microporous membrane comprising a polyolefin, preferably polyethylene. This list is not exhaustive and may contain others not listed here.

10

A feature of impermeable garment constructions is the potential for moisture build-up and subsequent microbial growth leading to odour.

Another feature of high physical activity in humans wearing clothes is the generation of heat and associated perspiration inside the garment, i.e. in the wearer's "microclimate". The perspiration can be absorbed by the garment, which is in contact with the skin, and produce an obvious discolouration, which will appear unsightly and embarrass the wearer. A possible solution to this problem is to apply disposable absorbable pads under the arms. These pads are separable components of the garment, easily visible, but will absorb the moisture. Furthermore disposable breathable pads and liners display other disadvantages in that they tend to be non-reusable or non-washable and thus a user must keep purchasing and adhering the liners or pads to articles of clothing as and when required.

30

It would therefore be advantageous to provide a breathable fabric in which the fabric having improved sanitary properties. It would also be advantageous to

provide a breathable fabric in which sweat and moisture in liquid form could be kept away from a user's skin and wicked away by the breathable fabric.

5 It would furthermore be advantageous to provide fabric articles especially clothing articles, which include breathable material as an integral part of the article, which have sanitary properties, and preferably which prevents visible moisture build-up on or within the
10 article. The visibility of the moisture absorption is important in shirting materials. There is a need to produce a garment or article of clothing that is able to mitigate the visibility from the exterior of the garment of perspiration produced by the wearer.

15

It is therefore an aim of preferred embodiments of the invention to overcome or to mitigate at least one problem of the prior art, whether expressly disclosed herein or not.

20

The present invention provides an article of clothing comprising a laminate which includes the following layers:

a fabric layer, at least part of which is permeable to water vapour,

25 a first layer, at least part of which is permeable to water vapour and resistant to permeation of liquid water, and

a second layer comprising one or more sanitary agents, wherein said first layer is interposed between said
30 fabric layer and said second layer, said second layer is, in use, the closest of said layers to the intended wearer of the article of clothing and

the fabric layer is irremovably connected directly or indirectly to one or more of the other layers of the laminate. Preferably, the second layer comprises low denier fibres.

5

The present invention provides an article of clothing comprising a laminate which includes the following layers: a fabric layer, at least part of which is permeable to water vapour, a first layer, at least part of which is permeable to water vapour and resistant to permeation of liquid water, and a second layer comprising low denier fibres and, optionally, one or more sanitary agents, wherein said first layer is interposed between said fabric layer and said second layer, and wherein said second layer is, in use, the closest of said layers to the intended wearer of the article of clothing. Preferably, the fabric layer is irremovably connected directly or indirectly to one or more of the other layers of the laminate. Preferably, the fibres are microfibres.

20

"Connected includes", but is not limited to, connected by adhesion or by mechanical means such as sewing. Preferably the connection is by adhesion. Preferably, the fabric layer is irremovably connected either directly or indirectly to each of the other layers in the laminate.

25

"Fabric" includes the definition given in the Collins Concise English Dictionary, published in 2001, as "any cloth made from yarn or fibres by weaving, knitting, felting, etc." In the present context, fabric also include leather, rubber, plastic materials, and other materials mentioned herein, wherein at least part of the fabric layer is permeable to water vapour. The fabric

30

layer is preferably suitable for making clothing garments. Materials such as rubber, leather and plastic not commonly permeable to water vapour may be made permeable by incorporating pores into said materials.

5

The second layer may comprise or consist of yarns comprising fibres. A yarn may be defined as "a continuous twisting strand of natural or synthetic fibres" (Collins Concise Dictionary, 2001 edition). Preferably, the yarns
10 comprise the fibres as herein described. Typically, a yarn will comprise many fibres. "Low denier" is a term known to those skilled in the art. "Low denier" includes, but is not limited to, a denier of 15 or lower, more preferably 11 denier or lower, even more preferably 5
15 denier or lower, still more preferably 3 denier, most preferably lower than 2 denier. A microfibre is a fibre having a denier of 1 or lower. Preferably the microfibres have a denier of 1 or lower, more preferably less than 0.5, more preferably a denier of less than 0.05, most
20 preferably a denier of from 0.005 to 0.05. It has been found that a clothing article in which the second layer comprises low denier fibres, particularly microfibres, is significantly better than the articles of the prior art at wicking moisture away from the skin of a wearer.
25 Preferably the second layer comprises more than 50% low denier fibres, more preferably more than 80% low denier fibres, most preferably more than 95% low denier fibres.

A "laminate" includes in its definition a layered
30 item comprising two or more layers. Said layers may be of different materials and may or may not be bonded together.

At least part of the fabric layer is permeable to water vapour, but the entire fabric layer may be permeable to water vapour. The fabric layer may be impermeable or permeable to liquid water, depending on the intended use
5 of the article of clothing.

At least part of the first layer is permeable to water vapour and resistant to permeation of liquid water, but the entire first layer may have these two properties.
10

Preferably, at least part of the second layer contains one or more sanitary agents. The sanitary agent may be evenly distributed over the entire second layer. Ideally, the second layer should be permeable to liquid
15 water and water vapour, and more ideally all components of perspiration.

Preferably, said first layer comprises a woven, knitted or non-woven fabric.
20

The article is preferably a non-disposable fabric article or fabric-containing article in which one or more of the layers of the laminates is/are adhered to the adjacent layers. Chemical adhesion, as opposed to
25 mechanical adhesion such as sewing, is preferable in adhering the layers together, as this allows a garment to be made in which the laminate is not visible. This is particularly useful when the laminate structure forms part of a garment, for instance being located in the under-arm
30 area of a shirt. It has been found that the laminate is significantly less noticeable in articles in which the laminate layers are chemically adhered together compared to those where the layers have been sewn together. The

articles of the present invention can generally be washed and cleaned without disturbance of the laminate structure and its properties. It has been found that as the laminate structure as a whole is vapour permeable, this
5 enables articles containing the laminate to be ironed or steamed without undue damage to the fabric or article.

The first layer preferably comprises at least one sheet or membrane having a resistance to moisture vapour permeability (breathability) of no more than 15m^2 Pa/W,
10 more preferably no more than 10m^2 Pa/W, still more preferably no more than 6m^2 Pa/W, most preferably no more than 4m^2 Pa/W especially no more than 2m^2 Pa/W.

15 The breathability can be measured using the ISO DIS 11092 test.

The first layer may comprise a woven, knitted or non-woven material, but typically is a coating, film or
20 membrane. The liquid water-impermeable, water vapour-permeable sheet or membrane is preferably non-porous, but may be micro-porous. The sheet or membrane may comprise any suitable materials, such as polytetrafluoroethylene, rubbers, silicones, polyurethanes, acrylates, polyethers,
25 polyesters, polyolefins, polyamino acids, polyamides or copolymers thereof, for example. Suitable commercially available materials include Sympatex(RTM), manufactured by Sympatex Technologies Limited, UK or Faitplast(RTM) films, Faitgom(RTM), thermoplastic polyurethane films or
30 Faitex(RTM) manufactured by Faitplast Corporation.

The sheet or membrane may preferably comprise hydrophilic and/or hydrophobic materials. Preferably, the sheet or membrane includes hydrophilic components.

5 Suitably, the thickness of the sheet or membrane, or the total thickness of the sheets or membranes in the first layer, is no more than 2mm, preferably no more than 1.5mm or more preferably no more than 1mm. Suitably the thickness of the sheet or membrane, or the total combined
10 thickness of the sheets or membranes is at least 0.5µm, preferably at least 0.75µm and more preferably at least 1µm. Preferably the thickness of the sheet or membrane is less than 20µm, more preferably from 5µm to 20µm, more preferably 8µm to 16µm, most preferably, 10 to 14µm.

15 The weight of the sheet or membrane is preferably less than 20 gsm, from 10 to 17 gsm (grams per square metre), more preferably 12 to 16 gsm and most preferably, about 14 gsm.

20 The water vapour transmission rate is preferably in the range 500 to 800 gsm over a 24 hour period, most preferably 600 to 700 gsm over a 24 hour period, more preferably about 650 gsm over a 24 hour period (using the
25 following test: STM 201, ref. ASTM E96 to 96, procedure B).

 The sheet or membrane may be translucent, preferably substantially unpigmented, more preferably transparent and
30 may be colourless.

The sheet or membrane in the first layer is preferably elastic and can preferably be stretched to at least 200% of its resting dimensions in a direction parallel to the plane of the sheet, more preferably at least 300% and most preferably at least 500%, up to rupture at elongation yield point. In some embodiments the sheet or membrane is preferably stretchable to more than 1000% of its resting dimensions.

Suitably the sheet or membrane has a tear propagation of at least 50 N/mm, more preferably at least 100 N/mm and most preferably at least 125 N/mm.

The skilled person would appreciate how it would be possible to produce or obtain membranes or sheets with the above properties.

"Sanitary agent" encompasses any agent capable of imparting a sanitary or sanitising characteristic or property, which may be an anti-microbial, biocidal, biostatic, deodorising, or anti-perspirant, for example.

The sanitary agent may be distributed on the surface of fibres that constitute the second layer, within said fibres or a combination thereof. The sanitary agent may be present on the interior of the second layer or distributed on one or both sides of said layer.

The sanitary agent may comprise an anti-microbial agent. The anti-microbial agent may be a biocidal agent, a biostatic agent or both. The anti-microbial agent is preferably an anti-bacterial agent, an anti-fungal agent or both an anti-bacterial and anti-fungal agent.

Suitable anti-microbial agents include, sulphur-containing compounds and/or nitrogen-containing compounds, and other types of anti-microbial agent known to the skilled person.

Suitable sulphur-containing anti-microbial compounds may include thiocarbamates, thiocyanates, isothiocyanates, dithiocarbamates and mixtures thereof, for example.

Suitable nitrogen-containing anti-microbial compounds may include quaternary ammonium compounds, amides, triazine and guanidines, and mixtures thereof, for example.

The sanitary agent may comprise substances which degrade or bind to ammonia, denatured proteins or lactic acid, or any combination thereof. Suitable substances include silver-containing compounds. Silver includes, but is not limited to, Ag(I).

A particularly suitable anti-microbial agent is triclosan (2,4,4' - trichloro-2-hydroxydiphenyl ether) or its derivatives.

Alternatively, the anti-microbial agent may be based on metals, such as, silver-containing compounds, tin-containing compounds, copper compounds, glutaraldehyde or an iodophor, for example.

There may be more than one different anti-microbial agents present in the second layer.

The sanitary agent may comprise a deodorising agent.

The deodorising agent may effect deodorising by a chemical odour-neutralising action, a photo-catalytic
5 reaction or both.

The deodorising agent may also be an anti-microbial agent or have anti-microbial activity.

10 The sanitary agent may comprise an agent capable of encapsulating odour-emitting chemicals. Alternatively the sanitary agent may be in the form of microcapsules per se.

Suitable deodorising agents may include activated
15 carbon, zeolites, inorganic compounds such as silicon metal oxides of titanium (TiO_2), zinc (ZnO) and aluminium, ceramics and ceramic-coated sheath fibres (such as sheath-core biocomponent polyester fibres in which the sheath side includes ceramics).

20

Preferably the sanitary agent comprises both an anti-microbial agent and a deodorising agent, or single agent providing both anti-microbial and deodorising properties.

25 The second layer may comprise a woven, knitted or non-woven textile material cover, finish or sheet. The textile sheet may comprise synthetic or natural material. Preferably, at least part of, and preferably all of, the second layer is suitable for wicking liquid water from a
30 surface with which the second layer is in contact.

Suitable synthetic materials include polyesters, polyamides, polyvinyl alcohols, cellulosics (for example

Lyocell, rayon or viscose) and nylon, and mixtures thereof, for example. Suitable natural materials include cotton, linen, flax, hemp, jute, wool and mixtures thereof, for example. The textile sheet may comprise a mixture of synthetic and natural materials.

The second layer may comprise a single sheet or may comprise a plurality of layers and said layers may be laminated by heat, mechanical or chemical means.

10

Particularly suitable sheet materials for use in the second layer include those containing Claretta(RTM) SP-99 fibres, manufactured by Kuraray Co., Ltd Japan and Takeda Chemical Industries Ltd, Japan as well as BIOSAFE (RTM) fibres, manufactured by Kanebo Ltd, Japan and Biofresh(RTM) antimicrobial fibres from Sterling Fibres, UK.

The second layer preferably comprises one or more sheets comprising nylon, polyester, viscose or a mixture thereof. If the second layer comprises both polyester and viscose, preferably the polyester to viscose ratio is, by weight, 30:70 to 70:30, more preferably 40:60 to 60:40, and most preferably 45:55 to 55:45. Preferably, the fibres of the second layer are 100 % polyester woven microfibres.

Suitably the second layer has a thickness of no more than 1cm, preferably no more than 5mm, more preferably no more than 2mm and most preferably no more than 1mm. The second layer may have a weight lower than 400 gsm. Preferably, the second layer has a weight of from 10 to 50

gsm, more preferably 12 to 35 gsm and most preferably 15 to 30 gsm.

Polyester has been found to aid in the wicking of liquid moisture from a person's skin and viscose has been found to be a good absorbent of moisture. The combination of these two materials in a fabric allows for sweat to be removed quickly from a person's skin when in contact with a laminate of the present invention. In any of the laminates of the present inventions, preferably the second layer comprises low denier fibres comprising polyester, nylon or a mixture thereof.

An absorbent may also be disposed adjacent the first layer, and preferably disposed between the first and second layers. The absorbent may be in the form of a layer, which may be a continuous layer between the first and second layers, or alternatively as discrete particles. The absorbent layer may comprise a sheet of material capable of absorbing moisture. The sheet may comprise any suitable absorbent material, such as a synthetic material, cotton or an absorbent material applied to the textile fibre, or micro fibres. Preferably, the absorbent comprises a cellulosic fibre. Examples of cellulosic fibres include, but are not limited to, cotton, viscose, woodpulp. Cotton has been found to be particularly preferred.

Preferably the absorbent layer has a thickness of at least 2 μ m, more preferably at least 5 μ m and most preferably at least 10 μ m.

The resultant fabric article may be impregnated with or coated with a layer of anti-microbial agent, (separate to any anti-microbial agent comprising or within the sanitary agent). Suitable anti-microbial agents for
5 impregnating or coating the article include Tinosan HP100 (RTM), supplied by CIBA-Geigy Inc. Coating or impregnating the article prevents bacteria or other micro-organisms from entering the article from the exterior of the article through airborne contaminants such as sweat,
10 smoke and the like.

Preferably, said first layer comprises a sheet or membrane that is permeable to water vapour and resistant to the permeation of liquid water.
15

Preferably, the article is selected from a shirt, T-shirt, pullover, male or female brief, bra, cardigan, skirt, dress, blouse, trousers, shorts, sock, tie, pair of jeans, glove, coat, jacket, boxing glove, mitt.
20

The laminate structure may stretch over the entire article, or it may be located in parts where absorption of perspiration is most required. For a shirt, for example, the laminate may be located in the armpit region and/or
25 over at least part of the back of the shirt.

The article may be an item of footwear. Preferably, the footwear is selected from shoes, boots, slippers, sandals, sports shoes, trainers.
30

The articles of clothing the present invention are suitable have improved sanitary qualities over those of the prior art.

The present invention further provides an article for making clothing comprising a laminate as herein described. Said article for making clothing may be in the form of a laminate sheet comprising a fabric layer, a first layer and a second layer as herein described.

The present invention also provides a method of manufacturing an article of clothing comprising an outer fabric permeable to water vapour, said method comprising: providing a fabric which will form the outer fabric of the article of clothing,

providing a first layer of material that is permeable to water vapour and resistant to the permeation of liquid water,

providing a second layer of material comprising one or more sanitary agents, and

adhering said first layer of material to at least part of one side of the fabric intended to form the outer fabric, said one side of the fabric intended to be towards the interior side of the article of clothing,

adhering said second layer of material to at least part of one side of the first layer, said one side of the first layer intended to be towards the interior side of the clothing, and

forming said fabric into the article of clothing, said first layer being on the interior side of the outer fabric in the article of clothing.

The present invention further provides a method of manufacturing an article of clothing comprising an outer fabric, said method comprising:

providing a fabric which will form the outer fabric of the article of clothing,

providing a first layer of material that is permeable to water vapour and resistant to permeation of liquid

5 water,

providing a second layer of material comprising one or more sanitary agents, and

providing an absorbent material,

adhering said first layer of material to at least
10 part of one side of the fabric, said one side intended to be the interior side of the article of clothing,

adhering said absorbent layer of material to the side of first layer of material not adhered to the outer fabric and

15 adhering said second layer of material to the side of absorbent layer of material not adhered to the first layer of fabric and

forming said fabric into the article of clothing, said first layer being on the interior side of the outer
20 fabric in the article of clothing.

By "outer fabric", this is meant relative to the other fabrics in the laminate when in use and does not preclude other exterior fabrics being present on the
25 "outer fabric".

Preferably, at least one or more of said layers is adhered to one or more of its adjacent layers. The adhesion may be achieved by using any one of liquid
30 adhesives, flame lamination or powder adhesive, or a mixture thereof.

Said adhesive is preferably distributed in spot locations on each layer and is not uniformly distributed over each layer.

5 The present invention also provides a use of a laminate structure in an article of clothing to prevent or mitigate the visibility, from the exterior of the clothing, of a wearer's perspiration in the region of said laminate, and allow transmission of said water from said
10 perspiration through the clothing, wherein said laminate includes the following layers:

 a fabric layer, at least part of which is permeable to water vapour, said fabric layer being optionally the exterior layer of said article of clothing,
15 a first layer disposed, in use, on at least part of the interior side of said fabric layer wherein, said first layer is permeable to water vapour and resistant to the permeation of liquid water, and said first layer comprises or consists of an unpigmented translucent membrane or
20 sheet that has a thickness of from 5 μ m to 20 μ m and a weight of from 11 to 17 gsm, and

 said laminate further comprises a wicking layer disposed, in use, on the interior side of said first layer, and said wicking layer comprising polyester,
25 viscose or a mixture thereof.

 The laminate construction may be as defined above in relation to the article of clothing of the present invention. Preferably, in the use of the present
30 invention, the laminate further comprises a wicking layer disposed, in use (i.e. when worn by a wearer), on the interior side of said first layer, and said wicking layer comprise polyester, viscose or a mixture thereof. Said

wicking layer may comprise the same components as the second layer mentioned in connection with the article of clothing of the present invention.

5 It has been found that the laminate construction may also be applied to other articles that may come into contact with human or animal body and their associated perspiration or surface which may be damp, such as the interior side of house walls or the surface of domestic
10 pipes. Further embodiments of the present invention will be discussed below. The embodiments below use the same nomenclature for the layers of their laminates as those for the article of clothing. The preferences detailed above for each layer of the laminate, and the associated
15 parts of the laminate, such as the absorbents and methods of adhering the layers are also applicable to the embodiments below.

The present invention also provides an article for
20 covering a piece of furniture, said article comprising a laminate which includes the following layers:

a fabric layer, at least part of which is permeable to water vapour and liquid water,

a first layer, at least part of which is permeable to
25 water vapour and resistant to permeation of liquid water, and

a second layer, at least part of which contains one or more sanitary agents, and

optionally, an absorbent,

30 wherein said second layer is interposed between said fabric layer and said first layer, said absorbent, if present, is located between said first layer and said second layer and said fabric layer which is permeable to

water vapour is, in use, the closest of said layers towards the exterior of said piece of furniture.

Furniture is defined in the Collins Concise English Dictionary, published 2001, as "movable articles that equip a room, house, etc." This encompasses items such as sofas, chairs, stools and beds, and for the present purposes also encompasses items such as cushions and pillows typically found on or near furniture where such items are typically covered with a fabric likely to come into contact with a person's skin. The article for covering a piece of furniture may replace existing covers for pieces of furniture, or may provide an additional cover which is intended to cover at least part of an existing cover.

In this embodiment, the second layer may be the first layer, i.e. a fabric layer comprising one or more sanitary agents.

Preferably, one or more of said layers is/are adhered to one or more of the adjacent layers in the laminate.

The article for covering a piece of furniture may be an article of bed linen. Said Bed linen may be selected from a pillow case, a quilt cover or a laminate bed sheet.

The present invention also comprises an article of furniture comprising a covering of the present invention.

The article of furniture comprising a covering of the present invention may be selected from a chair, sofa, wheelchair, car seat, mattress or stool seat.

The present invention also provides an article for covering a handle-grip, said article comprising a laminate which includes the following layers:

- 5 a first layer, at least part of which is permeable to water vapour and resistant to the permeation of liquid water, and
- a second layer, at least part of which contains one or more sanitary agents, and
- 10 wherein said second layer, in use, is the closest of said first and second layers towards the exterior of said handle-grip.

- Preferably, said article for covering a handle-grip
- 15 further comprises an absorbent. Said absorbent may be located between said first layer and said second layer.

- The present invention also provides a handle-grip comprising an article for covering a handle grip of the
- 20 present invention.

- Handle-grips, and particularly those on sports equipment, that come into frequent contact with human perspiration would find the handle-grip covering to be
- 25 particularly advantageous in improving the sanitary properties of the handle-grip.

- The present invention also provides a receptacle, said receptacle comprising a laminate which includes the
- 30 following layers:

 a fabric layer, at least part of which is permeable to water vapour and liquid water,

a first layer, at least part of which is permeable to water vapour and resistant to permeation of liquid water, and

a second layer, at least part of which contains one
5 or more sanitary agents, and
optionally, an absorbent,

wherein said second layer is interposed between said fabric layer and said first layer, said absorbent, if present, is located between said first layer and said
10 second layer.

In this embodiment, the second layer may be the first layer, i.e. a fabric layer comprising one or more sanitary agents.

15

The laminate may be of two orientations relative to the exterior of the article. In one orientation, said fabric layer is closest of said layers to the exterior of said receptacle. This particular orientation is most
20 suitable for receptacles, the exterior of which is most likely to come into contact with human skin and its associated perspiration. Said receptacle may be selected from a rucksack, a holdall, a suitcase, handbag, shoulder bag, purse, wallet, beach bag or sports bag.

25

In an alternative orientation of the laminate in said receptacle, said fabric layer is closest of said layers in the laminate to the interior of said receptacle. This orientation would be most appropriate when the interior of
30 said receptacle is likely to come into contact with human skin and its associated perspiration. Preferably, said receptacle is a sleeping bag.

The fabric may comprise a textile article or material or an article comprising a layer of textile material based on knitted, woven or nonwoven structures. The fabric material can be based on man-made synthetic fibres or
5 natural fibres.

The present invention further provides an article for covering or incorporation into a floor, wall or ceiling, said article comprising a laminate which includes the
10 following layers:

a fabric layer, at least part of which is permeable to water vapour,

a first layer, at least part of which is permeable to water vapour and resistant to permeation of liquid water,
15 and

a second layer, at least part of which contains one or more sanitary agents, and

optionally, an absorbent,
wherein said second layer is interposed between said
20 fabric layer and said first layer, said absorbent, if present, is located between said first layer and said second layer.

The present invention further provides an item
25 comprising an article for covering or incorporation into a floor, wall or ceiling of the present invention. The wall, floor or ceiling surfaces may be the interior surfaces of a room, in, for instance, a domestic house. If the article is used to cover wall, floor or ceiling surfaces,
30 the laminate may be in two alternate orientations. In a first orientation, the second layer may be closest of the laminate layers to the surface being covered. In a second

orientation, the second layer may be the furthest of the laminate layers from the surface being covered.

The article for covering or incorporation into a
5 floor, wall or ceiling may be selected from a rug, a
carpet, bath mat, wall paper, tiles, floor board,
structural members of a wall, floor or ceiling, the fabric
roof of a cabriolet car. Said rug, carpet, bath-mat , wall
paper, tiles, floor board, structural members of a wall,
10 floor or ceiling may be for a domestic use, and said
fabric layer may comprise fabrics typical of carpets,
rugs, or bath mats known to those skilled in the art. The
article may be for use in relatively damp domestic
conditions, such as a bathroom.

15

Said wall may be the wall of a receptacle. Said
receptacle may be a receptacle that is not water
resistant, of instance a receptacle comprising or
consisting of paper, such as card board.

20

The laminate of the present invention could be used in
wallpaper or wall/ceiling construction in order to protect
structures against condensation and the growth of fungi,
mould etc. Condensation has become one of the most common
25 causes of dampness within buildings. A report by the
British building research establishment estimated that 1.5
million homes in the UK are badly affected by
condensation. Condensation occurs when warm moist air is
cooled that it no longer has the capacity to hold so much
30 water in vapour form. Typically this can be seen to incur
cold surfaces such as window panes as mist or cold water
pipes as droplets of water. Moisture from condensation can

assist in spreading bacteria and also causes illnesses such as asthma.

Ideally to reduce moisture, and hence condensation, in a domestic environment, it is recommended that the
5 environment's humidity is reduced, air circulation, insulation and back ground heating are improved..

The present invention provides a laminated article comprising a laminate as described herein. Said laminated
10 article may be for industrial use. An industrial use is one for which the article is necessarily durable and resistant to tear. The fabric layer of such an industrial article may comprise or consist of a toughened material, including, but not limited to, Kevlar.

15

The laminate constructions of the present invention improves insulation (the first layer, which preferably comprises a membrane), reduces humidity (wicking layer) and thus improves air circulation. The laminate
20 constructions will prevent liquid moisture passing through the laminate but still allow passage of vapour and air through the laminate. Thus, this would prevent the spread of water, leaks and its associated bacteria and mould growth. The fabric not only acts as a barrier to bacteria,
25 fungi and mould but in fact degrades them. It also is self drying. The fabric can be used on the underside of tiles, carpets, floor boards, wallpaper, between wall structures, ceilings, roofs and around piping especially hot and cold systems including air conditioning. The laminate
30 construction may also be incorporated or be used to form storage sheets, even inside cardboard boxes in order to protect the goods. The fabric could also be incorporated into the soft tops of cars, as at present mould appears to

grow on the inside due to moisture condensation and pet baskets or mats.

The present invention further provides an article for
5 covering piping, said article comprising a laminate which includes the following layers:

a first layer, at least part of which is permeable to water vapour and resistant to the permeation of liquid water, and

10 a second layer, at least part of which contains one or more sanitary agents.

wherein said second layer, in use, is the closest of said first and second layers towards the piping. Said laminate further comprises a fabric layer, and said first
15 layer is interposed between said fabric layer and said second layer.

The articles of clothing of the present invention may further be selected from laces and bandages. The
20 laminate construction may be further applied to linen and curtains, mattresses and fabrics for covering interior parts of vehicles, such as car seats.

The fabric layer may comprise a non-textile material.
25 Suitable non-textile materials include, but are not limited to, rubber, plastics material, wood, metals (including alloys), stone, aggregates, composite materials, glass, ceramics materials. The fabric layer may comprise part of an article comprising non-textile
30 materials or an article per se, for example the fabric may comprise rubber surfaces on sports equipment, rubber handles or the like; plastics surfaces such as toilet seats, plastic handles, hair brushes, plastic bags,

baskets furniture or cutlery; metal or wood surfaces on furniture, taps/faucets, cutlery, ceramics tiles or surfaces; or medical plaster casts. The fabric may comprise a toughened material such as Kevlar, especially
5 if used for covering or incorporation into wall, floor or ceiling, or for covering piping.

The present invention will be now be described further, by way of example only, with reference to the
10 following drawings, in which:

Figure 1 illustrates a part cross-sectional view of a laminate for use in an article of clothing of the present invention;

Figure 2 illustrates a part cross-sectional view
15 of a laminate for use in a covering of the present invention suitable for a handle grip.;

Figure 3 illustrates an article of clothing of the present invention, more specifically a shirt in which the armpit regions of the shirt have a laminate construction;
20 and

Figures 4a, 4b, 4c and 4d show a cross sectional view of a laminate article of the present invention at various magnifications (x45, x90, x180 and x360, respectively). In this particular laminate, the vapour permeable, liquid
25 impermeable membrane may be seen interposed between a non-woven polyester layer and the woven material suitable for use in a shirt. The polyester glue is also shown in these cross-sectional Figures.

30 Examples

We refer firstly to Figure 1, which illustrates a preferred embodiment of a fabric article of clothing of

the present invention, located next to a person's skin. More specifically, Figure 1 shows the laminate construction of said article. The fabric article 1 comprises a second layer 2 in the form of a layer of
5 Claretta(RTM) SP-99 fabric, which comprises the sanitary agent having a double deodorising mechanism which provides (a) a chemical neutralising reaction and (b) a photocatalytic reaction. The sanitary agent within the Claretta(RTM) SP-99 is a ceramic deodorant agent mixed in
10 with the polyester fibres (sheath-side) of the material. Connected to one side of the inner layer 2 is an intermediate layer 8 comprising 100% cotton to provide a super absorbent layer. Connected to the other side of the intermediate layer 8 is a first layer 4 consisting of a
15 Sympatex(RTM)10-micrometre membrane, which is liquid impermeable but vapour permeable. Integral with the first layer 4 is an outer fabric 6 consisting of the fabric material of a cotton shirt. Integration of the first layer 6 and fibre 6 is achieved by weaving the fibres of
20 the first layer 4 into the fabric 6 during manufacture of the article 1. The fabric article 1 shown in Figure 1 is shown next to a person's skin 10 such that the second layer 2 is located abutting the person's skin 10.

25 In use a person puts on the fabric article 1, which is in the form of a shirt defined by the outer fabric 6. When the user perspires, perspiration from the skin 10 will firstly traverse to the second layer 2, where any bacteria and or odours will be neutralised, substantially,
30 by the double deodorising mechanism, which provides deodorising and anti-microbial action. Any moisture will then travel through the second layer 2 to the intermediate layer 8 where the moisture will be absorbed by the cotton

of the intermediate layer 8 in order to wick the moisture from the skin 10 or the person. The moisture present in the intermediate layer 8 will then contact the first layer 4 of Sympatex(RTM). The Sympatex (RTM) fabric membrane enables water vapour to traverse through the first layer 4 but prevents liquid moisture from traversing the layer 4. Thus perspiration in the form of vapour is able to traverse the first layer 4 whereas any patches of liquid perspiration will remain within the absorbent intermediate layer 8, until the person's body heat vaporises the liquid, such as it may then traverse through the first layer 4. Any vapour passing through the first layer 4 will then traverse to the fabric 6, which consists of the polyester shirt fabric, and be wicked out of the fabric article 1.

Thus the fabric article 1 provides an article of clothing in which perspiration from a user is firstly neutralised in terms of odour and bacteria by the second layer 2; large quantities of perspiration are absorbed by the intermediate super absorbent layer 8; liquid perspiration is retained within the super absorbent layer 8 whilst vapour is wicked through the liquid impermeable, vapour permeable first layer 4 and out of the fabric of the outer fabric 6. Thus bacteria and liquid, which discolour normal clothing fabrics, are prevented from reaching the fabric material of the fabric 6, and thus discolouration is prevented or mitigated. Furthermore, the liquid impermeable first layer 4 prevents any liquid falling on the outside of the fabric article 1 from passing the first layer 4, and through the intermediate 8 and second 2 layers to the wearer's skin 10. Thus is the

fabric article 1 is worn by a user in rain or showers, the user will remain substantially dry.

The second layer 2, consisting of Claretta(RTM) SP-99 material, is effective for deodorising a wide range of odours, not only from a user's perspiration, but from odours that may travel through the fabric article 1 from the outside of the article towards the user's skin such as cigarette smoke, pet and food odours. The second layer 2 itself has a double deodorising mechanism absorbing malodours and degrading the chemical constituents of the odours. The photo-catalyst component of the second layer 2 continues to react as long as there is an odour, as the photo-catalyst has no saturation point. The sanitary agent present within the second layer 2 is maintained after repeated washing of the fabric article 1 as the agent is integrated into the fibres of the Claretta(RTM) SP-99 material. Many other materials may be used in the second layer 2 other than Claretta(RTM) SP-99. Any suitable synthetic or natural material, whether fibrous or not, and whether non-woven or woven may be used, when combined with a sanitary agent.

The intermediate layer 8 is 100% cotton, which has excellent moisture absorbing properties. The cotton may be interweaved with the second layer 2 and or first layer 4, or may be laminated, connected or adhered thereto. "Laminated" in these Examples includes in its definition 'adhered in the form of a layer by means of heat or otherwise'. "Adhered" includes in its definition 'adhering by heat or chemical means', but not necessarily in a layered form. The intermediate layer 8 not only serves as an absorbent layer, but bulks out the fabric article 1 to

regulate the speed at which any moisture or odour entering the fabric article 1 will traverse through the article. The cotton material of the absorbent layer 8 is suitable for repeated washing and has excellent durability. Many other types of material may be used for the absorbent layer 8. Super absorbent polymers and synthetic materials may be used, which may have higher moisture absorbency than cotton.

10 The first layer 4 comprises a Sympatex(RTM)10-micrometer membrane, which individually has a breathability (resistance to moisture vapour permeability) of approximately $1.7\text{m}^2 \text{ Pa/W}$, (according to ISO DIS 11092). When laminated to intermediate layer 8 and fabric 6, the
15 breathability is still less than $13\text{m}^2 \text{ Pa/W}$. The first layer 4 is a non-porous polyester membrane comprising hydrophilic zones. It is wind and water resistant but highly breathable to water vapour. The material is light, durable and is stretchable (can be stretched up to 300 per
20 cent elongation at rupture in any direction). The layer 4 can be integrated with woven, non-woven, knitted and fleece fabrics or leather fabrics or non-fabric material. The first layer 4 is also machine washable and dry cleanable and repeated washing is possible. The first
25 layer 4 is integrated to the fabric 6 by any suitable method. The second layer 4 also has temperature resistance from between minus 40°C to 215°C and retains its breathability within this temperature range. The Sympatex 10-micrometre membrane also has a tensile
30 strength of between one and one hundred N/mm^2 (Mpa) and a tear propagation of up to one hundred and fifty N/mm^2 . The fabric article 1 is washable and re-usable. The fabric 6 in this embodiment is a cotton shirt fabric, but

maybe any suitable clothing fabric, footwear fabric, headgear fabric. The fabric 6 may also be fabric of an article other than clothing, headgear or footwear, and may be for example be a surface or fabric material of upholstery, carpet, rugs, linen, curtains, mattresses, bags, rucksacks, sleeping bags, holdalls, suitcases, bedclothes, laces, medical bandages and plasters, furniture surfaces (such as chairs, sofas, couches, wheelchairs etc). The outer fabric 6 may also be a non-fabric material layer such as part of a surface of a non-fabric article. Suitable articles which may form the third layer 6 include rubber, plastics, wood, metals, stone, aggregates, composite materials, glass, ceramic materials and the like. The third layer 6 may comprise a rubber surface on sports equipment, handles and the like; plastic surfaces such as toilet seats, handles, hair brushes, plastic bags, baskets, furniture and cutlery; metal or wood surfaces on furniture, taps, faucets or cutlery or ceramics tiles or surfaces for example.

20

The following Examples illustrate tests carried out on fabric articles of the present invention.

Example 1

25 A first fabric construction, based on an outer polyester/ cotton (65%/35%) fabric laminated to a perspiration impermeable, water vapour polyurethane permeable hydrophilic membrane, and an inner polyester/ viscose nonwoven fabric layer bonded to the membrane (said
30 non woven fabric layer containing 55% polyester and 45% viscose, by weight, and having a weight of 32gsm; said membrane having a thickness of 12 microns) was

manufactured into a first shirt garment. The inner fabric layer comprised 1% triclosan, by weight.

A second fabric construction, based on an outer
5 polyester/ cotton (65%/35%) fabric laminated to a
perspiration impermeable, water vapour permeable
microporous polyethylene membrane of 12 microns thickness,
and an inner 100% microfibre polyester woven fabric layer
bonded to the membrane (said microfibre layer having a
10 weight of 30 to 40 gsm; said membrane having a thickness
of 12 microns) was manufactured into a second shirt
garment.

Five human subjects wearing the shirts then undertook
15 vigorous activity in order to generate perspiration. A
panel of assessors evaluated the shirt wearers appearance
in order to detect obvious visual staining of the shirt by
the perspiration from the wearer's skin. Little or no
staining/ discolouration of the exterior of the shirts was
20 observed. Little or no odour from the exterior of the
shirts was detected.

The same shirt wearers were subsequently tested under
identical conditions wearing polyester/ cotton shirts,
25 with no membrane or inner nonwoven layer, and all
assessors detected obvious discolouration of the exterior
of the shirt by the absorption of the perspiration from
the skin on the interior of the shirt. Odour transmission
was detected from the exterior of the shirt.

30

Example 2

The test conditions in Example 1 were repeated, but
in this example the shirt wearers wore shirts constructed

of the identical polyester/cotton material but the "breathable" membrane/ polyester/viscose nonwoven was only located in a section specifically under the armpit region, as shown in Figure 3. Again the assessors observed no odour transmission and no perspiration discolouration of the fabric in the region where the liquid impermeable barrier layer was present.

Example 3

A further benefit of the novel shirt construction identified by the trial wearers was the perceived "comfort" of the garments under test conditions due to the dissipation/release of water vapour inside the garment. This feature is a result of the "breathability" of the membrane layer. In similar evaluations of non-breathable constructions the wearers observed an obvious increase in garment microclimate temperature and moisture, leading to discomfort.

Example 4

The novel perspiration impermeable, water vapour permeable garments were subjected to repeated domestic laundering, tumble drying, and ironing cycles and the non-discolouration performance of the shirts, by the perspiration, was unaffected after the wash/ wear processing.

The second fabric construction was found to offer superior qualities over the first construction as the polyurethane was found to expand on wetting, whereas the polyethylene did not seem to expand as much, if at all. The microfibres also displayed significantly improved wicking properties over the cotton/viscose blend. After

continuous wear, the shirts that comprised triclosan were noticeably more pleasant in their odour than those made without triclosan.

5 We turn now to Figure 2 which shows a second preferred embodiment of a fabric article of the invention. The fabric article is similar to that shown in Figure 1, and like numerals represent like components. In the embodiment shown in Figure 2 the article 1 consists of a
10 second sanitary layer 2 thermally laminated to a first layer 4 which is liquid impermeable and vapour permeable, and to which is integrally woven a fabric layer 12 comprising part of the rubber surface of an exercise bike handle. The second and first surfaces 2 and 4 are
15 identical to those in Figure 1, and comprise Claretta(RTM) SP-99 and Sympatex(RTM) materials respectively. The fabric 12 comprises latex rubber. When a user grips the rubber handle 12 of the exercise bike, any perspiration from their hands will first of all travel into the second
20 layer 2 and be deodorised by the sanitary agents contained therein. Perspiration then travels into the first layer 4 where it is prevented from traversing into the rubber third layer 12. An intermediate layer may be connected between the first and second layers 4 and 2, the
25 intermediate layer being an absorbent layer. Thus with an intermediate layer present, perspiration from the user's hand would be trapped within the absorbent layer, and thus prevent the rubber handle 12 from becoming slippery, thereby increasing the grip of the user on the handle.

30

In further embodiments (not shown) the second layer 2 may be omitted, such that the article does not comprise a sanitary layer or agent, or the second layer 2 may be

omitted but the fabric article 1 be impregnated or coated with a separate sanitary agent, such as impregnating the first layer 4 or an absorbent layer with a sanitary agent.

5 Attention is directed to all papers and documents which are filed concurrently with or previous to this specification in connection with this application and which are open to public inspection with this specification, and the contents of all such papers and
10 documents are incorporated herein by reference.

 All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or
15 process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive.

 Each feature disclosed in this specification
20 (including any accompanying claims, abstract and drawings) may be replaced by alternative features serving the same, equivalent or similar purpose, unless expressly stated otherwise. Thus, unless expressly stated otherwise, each feature disclosed is one example only of a generic series
25 of equivalent or similar features.

 The invention is not restricted to the details of the foregoing embodiment(s). The invention extends to any novel one, or any novel combination, of the features
30 disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.

The present invention thus provides a number of articles containing a laminate construction comprising a perspiration impermeable, water vapour permeable layer in combination with a sanitary layer. The articles of the present invention assist in the removal of liquid perspiration from the skin of a person in contact with said article and the articles have improved sanitary properties over those known in the prior art.

10

It has been found, particularly for articles of clothing of the present invention, the laminate construction and the use of vapour permeable, liquid impermeable materials results in articles which reduce water-marks/stains visible from the outside of the article resulting from the wetting of the interior side of the article.

In addition to the absence of visible perspiration staining, the fabric/garment construction reduces odour transmission and improves the hygienic properties of an article.

The incorporation of anti-microbial reagents or fibres into either the outer face textile or the inner lining textile will reduce or eliminate the perspiration-enhanced odour/ microbial development.

The ideal fabric/garment construction is based on an outer textile based face fabric, an inner "breathable", waterproof layer, and an inner 100% polyester microfibre nonwoven substrate impregnated with an anti-microbial agent.

The location of the multiple layered waterproof breathable "fabric" construction can be either as a localised panel, such as under the armpit region of a shirt or T-shirt, or as a complete garment.

The breathable layer and textile fabrics can be laminated together using liquid adhesives, flame lamination or powder adhesives. Preferably, the adhesive is not uniformly located over the fabric/ breathable layer interface, but in localised spot locations.

In addition to anti-microbial reagents applied to the fabrics, crease resist agents, water repellent, oil repellent and softeners may also be applied. This list may be typical of finishes to be applied to the multi-layered textile article. Other finishes known to the skilled man may be added to the laminate or layers of the laminate either before or after construction of the article therefrom.

The fabric/garment construction is typically stable to laundering in domestic washing machines and the non-discolouration performance is unaffected.

Ironing of the laundered, waterproof breathable garment does not appear to affect non-discolouration performance.

In the article of clothing of the present invention, preferably the fabric layer forms at least part of the exterior layer, in use, of the article of clothing. The fabric layer may form substantially all of, or all of, the

exterior layer of the article of clothing. The article of clothing may be an article of inner wear, including, but not limited to, a shirt, a t-shirt, trousers, shorts, gloves, socks, underwear, and other examples of inner wear
5 mentioned herein. "Inner wear" indicates an article of clothing, wherein a substantial part of, or all of, its innermost layer, in use, would generally be in direct contact with a wearer's skin.

Claims:

1. An article of clothing comprising a laminate which includes the following layers:
- 5 a fabric layer, at least part of which is permeable to water vapour,
- a first layer, at least part of which is permeable to water vapour and resistant to permeation of liquid water, and
- 10 a second layer comprising one or more sanitary agents, wherein said first layer is interposed between said fabric layer and said second layer,
- said second layer is, in use, the closest of said layers to the intended wearer of the article of clothing
- 15 and
- the fabric layer is irremovably connected directly or indirectly to one or more of the other layers of the laminate.
- 20 2. An article of clothing as claimed in claim 2, wherein the second layer comprises low denier fibres.
3. An article of clothing comprising a laminate which includes the following layers:
- 25 a fabric layer, at least part of which is permeable to water vapour,
- a first layer, at least part of which is permeable to water vapour and resistant to permeation of liquid water, and a second layer comprising low denier fibres and,
- 30 optionally, one or more sanitary agents,
- wherein said first layer is interposed between said fabric layer and said second layer, and said second layer

is, in use, the closest of said layers to the intended wearer of the article of clothing.

4. An article of clothing as claimed in claim 3, wherein
5 the fabric layer is irremovably connected directly or indirectly to one or more of the other layers of the laminate.

5. An article of clothing as claimed in any one of claims
10 2 to 4, wherein the fibres are microfibres.

6. An article as claimed in any one of the preceding claims, wherein said first layer comprises a woven, knitted or non-woven fabric.

15 7. An article as claimed in any one of the preceding claims, wherein said first layer comprises a sheet, membrane or coating that is permeable to water vapour and resistant to the permeation of liquid water.

20 8. An fabric article as claimed in any one of the preceding claims, wherein said sheet, membrane or coating comprises polytetrafluoroethylene, rubbers, silicones, polyurethanes, acrylates, polyethers, polyesters,
25 polyolefins, polyamino acids, polyamides or copolymers thereof.

9. An article as claimed in any one of the preceding claims, wherein said first layer comprises a sheet or
30 membrane that has a water vapour permeability of no more than $4\text{m}^2 \text{ Pa/W}$

10. An article as claimed in claim 9, wherein said first layer comprises a sheet or membrane that has a water vapour permeability of no more than 2m^2 Pa/W.

5 11. An article as claimed in any one of the preceding claims, wherein said first layer comprises one or more hydrophilic components, microporous components or semi-permeable components, hydrophobic components, or any combination thereof.

10

12. An article as claimed in any one of the preceding claims, wherein the thickness of the first layer is from $5\mu\text{m}$ to $20\mu\text{m}$.

15 13. An article as claimed in claim 12, wherein the thickness of the first layer is from $8\mu\text{m}$ to $16\mu\text{m}$.

14. An article as claimed in claim 13, wherein the thickness of the first layer is from $10\mu\text{m}$ to $14\mu\text{m}$.

20

15. An article as claimed in any one of preceding claims, wherein said first layer comprises a sheet or membrane that is permeable to water vapour and resistant to the permeation of liquid water, said sheet or membrane being
25 elastically deformable in a direction parallel to the plane of the sheet to at least 300% of its resting dimension in said direction.

16. An article as claimed in claim 15, wherein the sheet
30 or membrane is elastically deformable in a direction parallel to the plane of the sheet to at least 500% of its resting dimension in said direction.

17. An article as claimed in claim 16, wherein the sheet or membrane is elastically deformable in a direction parallel to the plane of the sheet to at least 1000% of its resting dimension in said direction.

18. An article as claimed in any one of the preceding claims, wherein said first layer comprises a sheet or membrane that is permeable to water vapour and resistant to the permeation of liquid water and the sheet or membrane has a tear propagation of at least 50 N/mm.

19. An article as claimed in claim 18, wherein the sheet or membrane has a tear propagation of at least 100 N/mm.

20. An article as claimed in claim 19, wherein the sheet or membrane has a tear propagation of at least 125 N/mm.

21. An article as claimed in any one of the preceding claims, wherein the one or more sanitary agents are selected from an anti-microbial agent, deodorising agent or anti-perspirant agent.

22. An article as claimed in claim 21, wherein the anti-microbial agent is selected from an anti-bacterial or an anti-fungal agent.

23. An article as claimed in claim 22, wherein the anti-microbial agent is selected from thiocarbamates, thiocyanates, isothiocyanates, dithiocarbamates, quaternary ammonium compounds, amides, triazines, guandidines, silver-containing compounds, tin-containing compounds or copper-containing compounds.

24. An article as claimed in claim 23, wherein the anti-microbial agent is 2,4,4'-trichloro-2-hydroxydiphenyl ether.

5

25. An article as claimed in claim 22, wherein the deodorising agent is selected from activated carbon, zeolites, silicon, metal oxides of titanium (TiO₂), zinc (ZnO) and aluminium, ceramics and ceramic-coated sheath
10 fibres.

26. An article as claimed in any one of the preceding claims, wherein the second layer comprises a non-woven textile material or sheet.

15

27. An article as claimed in any one of the preceding claims, wherein the second layer comprises nylon, polypropylene, polyester, viscose or a mixture thereof.

20 28. An article as claimed in claim 27, wherein the second layer comprises a sheet comprising a mixture of polyester and viscose, wherein said polyester to viscose ratio is, by weight, 30:70 to 70:30.

25 29. An article as claimed in any one of the preceding claims, wherein said second layer has a weight of from 12 to 35 gsm.

30 30. An article as claimed in any one of the preceding claims, wherein an absorbent is disposed between the first and second layers.

31. An article as claimed in claim 30, wherein said absorbent forms a layer and said layer has a thickness of from 10 μ m to 1mm.

5 32. An article as claimed in any one of claims 29 to claim 31, wherein said absorbent comprises a cellulosic fibre, said cellulosic fibre being selected from cotton, viscose, woodpulp, or a mixture thereof.

10 33. An article as claimed in any one of the preceding claims, wherein one or more of said layers is/are adhered to one or more of the adjacent layers in the laminate.

15 34. An article as claimed in claim 33, wherein one or more of said layers are adhered to one or more adjacent layers by means of liquid adhesives, flame lamination or powder adhesives, or a mixture thereof.

20 35. An article as claimed in claim 34, wherein the article is selected from a shirt, T-shirt, pullover, male or female brief, bra, cardigan, skirt, dress, blouse, trousers, shorts, sock, tie, pair of jeans, glove, coat, jacket, boxing glove, mitt, hats, caps, skull caps, helmets.

25 36. An article as claimed in any one of claims 1 to 34, wherein the article is an item of footwear.

30 37. An article as claimed in claim 36, wherein the footwear is selected from shoes, boots, slippers, sandals, sports shoes or trainers.

38. An article as claimed in any one of the preceding claims, wherein the fabric layer comprises a textile material having a knitted, woven or non-woven structure.

5 39. An article as claimed in any one of the preceding claims, wherein said fabric layer comprises one or more of polyester, polyamides, polyvinyl alcohols, lyocell, rayon, viscose, nylon, cotton, linen, flax, hemp, jute and wool.

10 40. An article for covering a piece of furniture, said article comprising a laminate which includes the following layers:

a fabric layer, at least part of which is permeable to water vapour and liquid water,

15 a first layer, at least part of which is permeable to water vapour and resistant to permeation of liquid water, and

a second layer, at least part of which contains one or more sanitary agents, and

20 optionally, an absorbent,

wherein said second layer is interposed between said fabric layer and said first layer, said absorbent, if present, is located between said first layer and said second layer and said fabric layer which is permeable to
25 water vapour is, in use, the closest of said layers towards the exterior of said piece of furniture.

41. An article as claimed in claim 40, wherein one or more of said layers is/are adhered to one or more of the
30 adjacent layers in the laminate.

42. An article as claimed in claim 41, wherein said covering is an article of bed linen.

43. An article as claimed in claim 42, wherein said article of bed linen is selected from a pillow case, a quilt cover or a laminate bed sheet.

5

44. An article of furniture comprising a covering as claimed in claim 40 or claim 44.

45. An article of furniture comprising a covering as claimed in claim 44, said article of furniture being selected from a chair, sofa, wheelchair, car seat, mattress or stool seat.

46. An article for covering a handle-grip, said article comprising a laminate which includes the following layers:

a first layer, at least part of which is permeable to water vapour and resistant to the permeation of liquid water, and

a second layer, at least part of which contains one or more sanitary agents, and

wherein said second layer, in use, is the closest of said first and second layers towards the exterior of said handle-grip.

47. An article as claimed in claim 46, wherein said laminate further comprises an absorbent and said absorbent is located between said first layer and said second layer.

48. A handle-grip comprising an article as claimed in claims 46 or claim 47.

49. A receptacle, said receptacle comprising a laminate which includes the following layers:

a fabric layer, at least part of which is permeable to water vapour and liquid water,

a first layer, at least part of which is permeable to water vapour and resistant to permeation of liquid water,

5 and

a second layer, at least part of which contains one or more sanitary agents, and

optionally, an absorbent,

wherein said second layer is interposed between said
10 fabric layer and said first layer, said absorbent, if present, is located between said first layer and said second layer.

50. A receptacle as claimed in claim 49, wherein said
15 fabric layer is the closest of said layers to the exterior of the receptacle.

51. A receptacle as claimed in claim 50, wherein said
receptacle is selected from a rucksack, a holdall, a
20 suitcase, handbag, shoulder bag, purse, wallet, beach bag or sports bag.

52. A receptacle as claimed in claim 51, wherein said
fabric layer is closest of said layers in the laminate to
25 the interior of said receptacle.

53. A receptacle as claimed in claim 52, wherein said
receptacle is a sleeping bag.

30 54. A method of manufacturing an article of clothing comprising an outer fabric permeable to water vapour, said method comprising:

providing a fabric which will form the outer fabric of the article of clothing,

providing a first layer of material that is permeable to water vapour and resistant to the permeation of liquid
5 water,

providing a second layer of material comprising one or more sanitary agents, and

adhering said first layer of material to at least part of one side of the fabric intended to form the outer
10 fabric, said one side intended to be the interior side of the article of clothing,

adhering said second layer of material to at least part of one side of the first layer, said one side of the first layer intended to be towards the interior side of
15 the article of clothing, and

forming said fabric into the article of clothing, said first layer being on the interior side of the outer fabric in the article of clothing.

20 55. A method of manufacturing an article of clothing comprising an outer fabric, said method comprising:

providing a fabric which will form the outer fabric of the article of clothing,

providing a first layer of material that is permeable
25 to water vapour and resistant to permeation of liquid water,

providing a second layer of material comprising one or more sanitary agents, and

providing an absorbent layer of material,
30 adhering said first layer of material to at least part of one side of the outer fabric, said one side intended to be the interior side of the article of clothing,

adhering said absorbent layer of material to the side of first layer of material not adhered to the outer fabric and

adhering said second layer of material to the side
5 of absorbent layer of material not adhered to the first layer of fabric and

forming said fabric into the article of clothing, said first layer being on the interior side of the out fabric in the article of clothing.

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56. A method as claimed in claim 54 or 55, wherein each layer is adhered to one or more adjacent layers using any one of liquid adhesives, flame lamination or powder adhesive.

15

57. A method as claimed in claim 56, wherein said adhesive is distributed in spot locations on each layer and is not uniformly distributed over each layer.

20 58. Use of a laminate structure in an article of clothing to prevent or mitigate the visibility, from the exterior of the clothing, of a wearer's perspiration in the region of said laminate, and allow transmission of said water from said perspiration through the clothing, wherein said
25 laminate includes the following layers:

a fabric layer, at least part of which is permeable to water vapour, said fabric layer being optionally the exterior layer of said article of clothing,

a first layer disposed, in use, on at least part of
30 the interior side of said fabric layer wherein, said first layer is permeable to water vapour and resistant to the permeation of liquid water, and said first layer comprises or consists of an unpigmented translucent membrane or

sheet that has a thickness of from 5 μ m to 20 μ m and a weight of from 11 to 17 gsm and

wherein said laminate further comprises a wicking layer disposed, in use, on the interior side of said first layer, and said wicking layer comprising polyester, viscose or a mixture thereof.

59. An article for covering or incorporation into a floor, wall or ceiling, said article comprising a laminate which includes the following layers:

a fabric layer, at least part of which is permeable to water vapour,

a first layer, at least part of which is permeable to water vapour and resistant to permeation of liquid water, and

a second layer, at least part of which contains one or more sanitary agents, and

optionally, an absorbent, wherein said second layer is interposed between said fabric layer and said first layer, said absorbent, if present, is located between said first layer and said second layer.

60. An article as claimed in claim 59, wherein said article is selected from a rug, a carpet, bath mat, wall paper, tiles, floor board, structural members of a wall, floor or ceiling, the fabric roof of a cabriolet car.

61. An article for covering piping, said article comprising a laminate which includes the following layers:

a fabric layer at least part of which is permeable to water vapour,

a first layer, at least part of which is permeable to water vapour and resistant to the permeation of liquid water, and

a second layer, at least part of which contains one or
5 more sanitary agents.

wherein said second layer, in use, is the closest of said first and second layers towards the piping, and

said first layer is interposed between said fabric layer and said second layer.

10

62. An article for making clothing comprising a laminate as defined in any one of claims 1 to 38.

63. An laminated article comprising a laminate as claimed
15 in any one of the preceding claims.

64. An laminated article as claimed in claim 63, wherein said article is for industrial use.

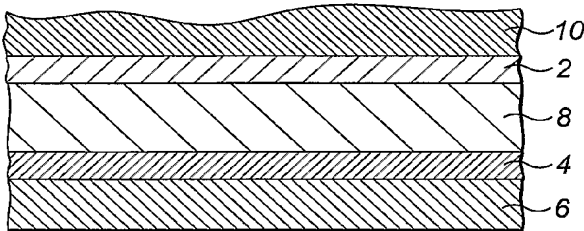


FIG. 1

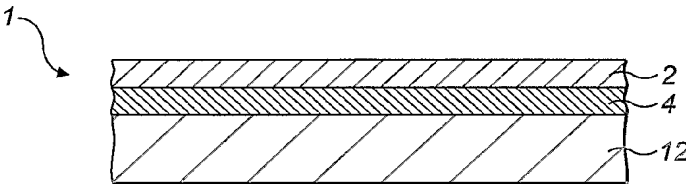


FIG. 2

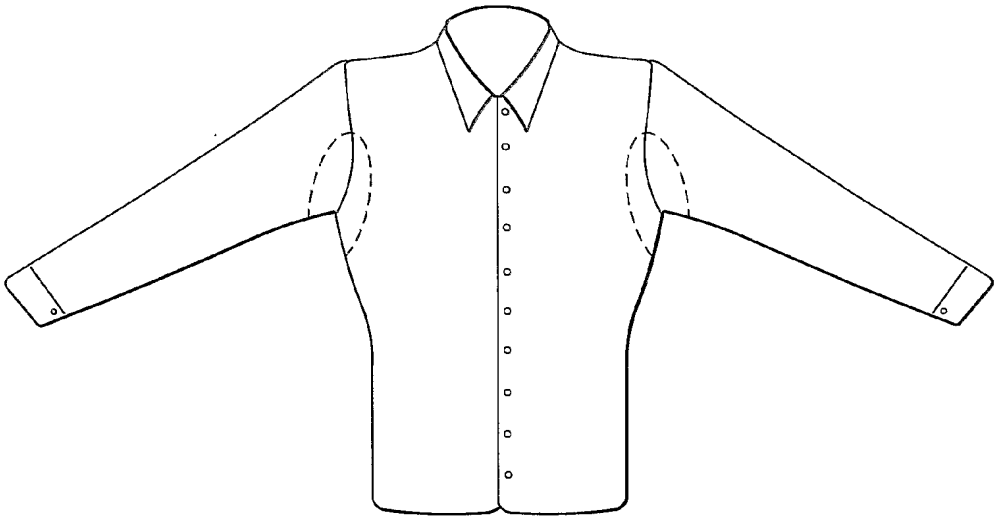


FIG. 3

SUBSTITUTE SHEET (RULE 26)

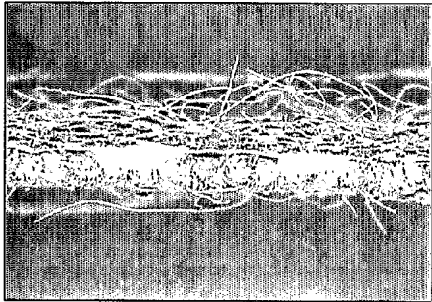


FIG. 4a

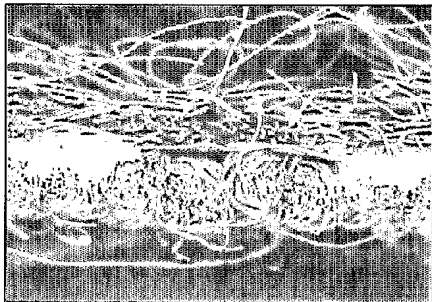


FIG. 4b

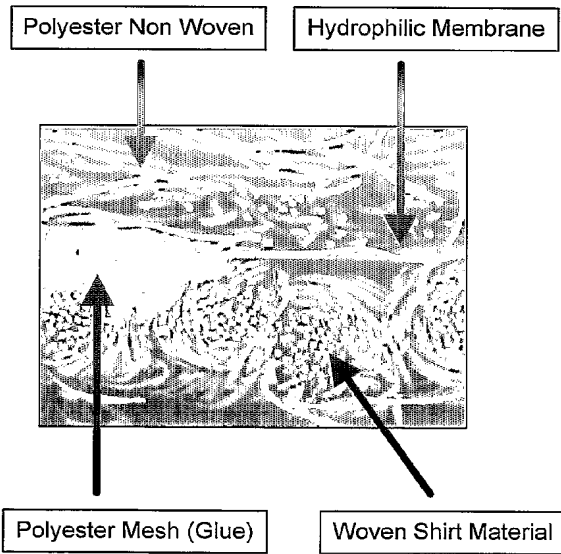


FIG. 4c

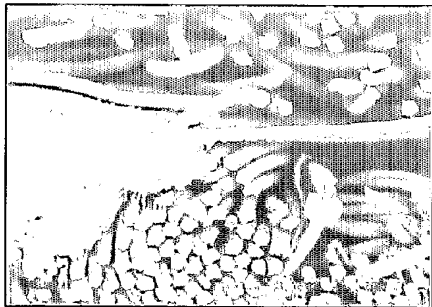


FIG. 4d

SUBSTITUTE SHEET (RULE 26)

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:

☒ Practitioners associated with the Customer Number:

007663

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:

☒ The address associated with Customer Number:

007663

OR

<input type="checkbox"/> Firm or Individual Name			
Address			
City	State	Zip	
Country			
Telephone			Email


Assignee Name and Address:

3 PAK HOLDINGS, LLC
1890 E. MIRALOMA AVE., STE E.
PLACENTIA CA 92870

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	9-31-17
Name	William Thompson	Telephone	714-831-1482
Title	PRESIDENT		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

REISSUE APPLICATION DECLARATION BY THE INVENTOR	Docket Number (Optional) THMTE-001X
--	---

I hereby declare that:
Each inventor's residence and mailing address are stated below next to their name.
I believe I am the original inventor or an original joint inventor of the subject matter which is described and claimed in patent number 8898812, granted Dec. 2, 2014 and for which a reissue patent is sought on the invention titled GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS,
the specification of which
☒ is attached hereto.
☐ was filed on _____ as reissue application number _____.

The above-identified application was made or authorized to be made by me.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

I believe the original patent to be wholly or partly inoperative or invalid, for the reasons described below. (Check all boxes that apply.)

☐ by reason of a defective specification or drawing.

☒ by reason of the patentee claiming more or less than he had the right to claim in the patent.

☐ by reason of other errors.


At least one error upon which reissue is based is described below. If the reissue is a broadening reissue, a claim that the application seeks to broaden must be identified:

We believe that, through error, the original patent (US Patent No. 8,898,812) is partially inoperative or invalid by reason of the patentees claiming more than they had a right to claim in the original patent. In particular, we believe that we did not have a right to claim the full extent of the subject matter of claim 15 as issued. We believe that we have a right to claim the narrower subject matter of the reissue application, such as claims 16-27.

[Page 1 of 2]

This collection of information is required by 37 CFR 1.175. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

(REISSUE APPLICATION DECLARATION BY THE INVENTOR, page 2)				Docket Number (Optional) THMTE-001X	
<p>Note: To appoint a power of attorney, use form PTO/AIA/81.</p> <p>Correspondence Address: Direct all communications about the application to:</p> <p><input checked="" type="checkbox"/> The address associated with Customer Number: 007663</p> <p>OR</p>					
<input type="checkbox"/> Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone			Email		
<p>WARNING:</p> <p>Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.</p>					
Legal name of sole or first inventor (E.g., Given Name (first and middle (if any) and Family Name or Surname) William Thompson					
Inventor's Signature 				Date (Optional) 8-31-17	
Residence: City PLACENTIA		State CA		Country USA	
Mailing Address 1890 E. Miraloma Ave, Suite E.					
City Placentia		State CA		Zip 92870	
Country USA					
■ Additional joint inventors are named on the <u>1</u> supplemental sheet(s) PTO/AIA/10 attached hereto.					

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

REISSUE APPLICATION: CONSENT OF ASSIGNEE; STATEMENT OF NON-ASSIGNMENT		Docket Number (Optional) THMTE-001X
This is part of the application for a reissue patent based on the original patent identified below.		
Name of Patentee(s) William THOMPSON, Randy Hyun CHOI		
Patent Number 8898812	Date Patent Issued Dec. 2, 2014	
Title of Invention GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS		
1. <input checked="" type="checkbox"/> Filed herein is a statement under 37 CFR 3.73(c). (Form PTO/AIA/96) 2. <input type="checkbox"/> Ownership of the patent is in the inventor(s), and no assignment of the patent is in effect.		
One of boxes 1 or 2 above must be checked. If multiple assignees, complete this form for each assignee. If box 2 is checked, skip the next entry and go directly to "Name of Assignee." The written consent of all assignees and inventors owning an undivided interest in the original patent is included in this application for reissue.		
The assignee(s) owning an undivided interest in said original patent is/are <u>3 PAK HOLDINGS, LLC</u> , and the assignee(s) consents to the accompanying application for reissue.		
Name of assignee/inventor (if not assigned) 3 PAK HOLDINGS, LLC		
Signature 	Date 8-31-17	
Typed or printed name and title of person signing for assignee (if assigned) William Thompson, President		

This collection of information is required by 37 CFR 1.172. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
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REISSUE APPLICATION DECLARATION BY THE INVENTOR

Docket Number (Optional)

THMTE-001X

I hereby declare that:

Each inventor's residence and mailing address are stated below next to their name.

I believe I am the original inventor or an original joint inventor of the subject matter which is described and claimed in patent number 8898812, granted Dec. 2, 2014 and for which a reissue patent is sought on the invention titled GARMENT HAVING INTEGRATED PERSPIRATION BARRIERS,

the specification of which



is attached hereto.



was filed on _____ as reissue application number _____.

The above-identified application was made or authorized to be made by me.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

I believe the original patent to be wholly or partly inoperative or invalid, for the reasons described below. (Check all boxes that apply.)



by reason of a defective specification or drawing.



by reason of the patentee claiming more or less than he had the right to claim in the patent.



by reason of other errors.

At least one error upon which reissue is based is described below. If the reissue is a broadening reissue, a claim that the application seeks to broaden must be identified:

We believe that, through error, the original patent (US Patent No. 8,898,812) is partially inoperative or invalid by reason of the patentees claiming more than they had a right to claim in the original patent. In particular, we believe that we did not have a right to claim the full extent of the subject matter of claim 15 as issued. We believe that we have a right to claim the narrower subject matter of the reissue application, such as claims 16-27.

[Page 1 of 2]

This collection of information is required by 37 CFR 1.175. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

(REISSUE APPLICATION DECLARATION BY THE INVENTOR, page 2)

Docket Number (Optional)

THMTE-001X

Note: To appoint a power of attorney, use form PTO/AIA/81.

Correspondence Address: Direct all communications about the application to:



The address associated with Customer Number:

007663

OR

Firm or
Individual Name

Address

City

State

Zip

Country

Telephone

Email

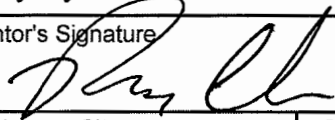
WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

Legal name of sole or first inventor (E.g., Given Name (first and middle (if any) and Family Name or Surname)

Randy Hyun Choi

Inventor's Signature



Date (Optional)

Residence: City

ANAHEIM

State

CA

Country

USA

Mailing Address

1890 E. Miraloma Ave, Suite E.

City

Placentia

State

CA

Zip

92870

Country

USA

Additional joint inventors are named on the 1 supplemental sheet(s) PTO/AIA/10 attached hereto.

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Privacy Act Statement

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