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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/891,726	12/24/2019	10513801	10859CC	3266

27752 7590 12/04/2019
THE PROCTER & GAMBLE COMPANY
GLOBAL IP SERVICES
CENTRAL BUILDING, C9
ONE PROCTER AND GAMBLE PLAZA
CINCINNATI, OH 45202

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 81 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Steven Lee Barnholtz, West Chester, OH;
The Procter & Gamble Company, Cincinnati, OH;
Paul Dennis Trokhan, Hamilton, OH;
Michael Donald Suer, Cincinnati, OH;
Douglas Jay Barkey, Maineville, OH;
Jonathan Paul Brennan, Cincinnati, OH;
Ronald Thomas Gorley, Cincinnati, OH;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)	COMPLETE IF KNOWN	
	Application Number	15/891,726
	Confirmation Number	3266
	Filing Date	February 8, 2018
	First Named Inventor	Steven Lee Barnholtz
	Art Unit	Not yet assigned
	Examiner Name	Not yet assigned
SHEET 4 of 8	Docket Number	10859CC

	103	US-6,739,023 B2	05-25-2004	Vonfeldt, et al.	
	104	US-6,759,356 B1	07-06-2004	Myers,	
	105	US-6,797,226 B2	09-28-2004	Annable	
	106	US-6,811,638 B2	11-02-2004	Close, et al.	
	107	US-6,811,638 B2	11-02-2004	Close, et al.	Equivalent to WO 02/053365 A2
	108	US-6,823,568 B1	11-30-2004	Kobayashi, et al.	
	109	US-6,836,937 B1	01-04-2005	Boscolo	
	110	US-6,926,931 B2	08-09-2005	Qashou, et al.	Equivalent to WO 2004/092474 A2
	111	US-6,946,413 B2	09-20-2005	Lange, et al.	
	112	US-6,979,386	12-2005	Wallajapet, et al.	
	113	US-6,986,932	01-2006	Zink, et al.	
	114	US-6,992,028 B2	01-31-2006	Thomaschefskey, et al.	
	115	US-7,000,000 B1	02-14-2006	O'Brien	
	116	US-5,427,696 06/1995 ~~08-16-2006~~	~~08-16-2006~~	Phan, et al.	
	117	US-7,029,620	01-2006	Gordon, et al.	
	118	US-7,041,369	05-2006	Mackey et al.	
	119	US-7,176,150 B2	02-13-2007	Kopacz, et al.	
	120	US-7,208,429 B2	04-24-2007	Vinson, et al.	Equivalent to WO 2006/060814 A2
	121	US-7,371,701 B2	05-13-2008	Inagaki	Equivalent to EP 1 589 137 A1
	122	US-7,410,683 B2	08-12-2008	Curro, et al.	
	123	US -7,425,517 B2	09-16-2008	Deka, et al.	
	124	US-7,601,657 B2	10-13-2009	Zhou, et al.	Equivalent to WO 2005/065932
	125	US-7,681,756 B2	03-23-2010	Baer, et al.	Equivalent to WO 02/053003 A2
	126	US-7,696,109	04-2010	Ouellette, et al.	
	127	US-7,972,986	7-5-2011	Barnholtz, et al.	
	128	US-7,879,172 B2	02-01-2011	Kopcz, et al.	
	129	US-7,902,096 B2	03-08-2011	Brandner, et al.	
	130	US-7,976,679 B2	07-12-2011	Vinson, et al.	Equivalent to WO 2006/060813 A1
	131	US-7,994,079 B2	08-09-2011	Chen, et al.	
	132	US-7,994,081 B2	08-09-2011	Farrell, et al.	

Change(s) applied
to document,
/B.P./
10/29/2019

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

SHEET 3 of 8

COMPLETE IF KNOWN

Application Number	15/891,726
Confirmation Number	3266
Filing Date	February 8, 2018
First Named Inventor	Steven Lee Barnholtz
Art Unit	Not yet assigned
Examiner Name	Not yet assigned
Docket Number	10859CC

	70	US-6,013,349	01-11-2000	Takeuchi, et al.	Equivalent to EP 0 865 755 A1
	71	US-6,028,018	02-22-2000	Amundson, et al.	Equivalent to WO 98/03713 A1
	72	US-6,103,061	08-15-2000	Anderson, et al.	
	73	US-6,110,848	08-29-2000	Bouchette	Equivalent to EP 0 992 338 A2
	74	US-6,150,005	11-21-2000	Williams, et al.	
	75	US-6,162,180	12-19-2000	Miesel, et al.	Equivalent to WO 00/38565 A1
	76	US-6,172,276 B1	01-09-2001	Hetzler, et al.	
	77	US-6,177,370 B1	01-23-2001	Skoog, et al.	
	78	US-6,179,325	01-2001	King	
	79	US-6,200,120 B1	03-13-2001	Fish, et al.	
Change(s) applied to document, /B.P./ 10/29/2019	80	US-7,972,986 B2	~~07-05-2001~~ 07/2011	Barnholtz, et al.	Equivalent to WO 2009/010938 A1
	81	US-6,621,679	9-16-2003	Segervall	
	82	US-6,296,936 B1	10-02-2001	Yahiaoui, et al.	
	83	US-6,319,342 B1	11-20-2001	Riddell	
	84	US-6,383,336	05-2002	Shannon	
	85	US-6,348,133 B1	02-19-2002	Woodrum	
	86	US-6,348,253 B1	02-19-2002	Daley, et al.	
	87	US-6,361,784 B1	03-26-2002	Brennan, et al.	
	88	US-6,417,120 B1	07-09-2002	Mitchler, et al.	
	89	US-6,423,884	07-2002	Oehmen	
	90	US-6,465,073 B1	10-15-2002	Morman, et al.	
	91	US-6,488,801 B1	12-03-2002	Bodaghi, et al.	
	92	US-6,494,974 B2	12-17-2002	Riddell	
	93	US-6,503,370	01-2003	Hollmark, et al.	
	94	US-6,506,873	01-2003	Ryan, et al.	
	95	US-6,550,115 B1	04-22-2003	Skoog, et al.	
	96	US-6,589,892 B1	07-08-2003	Smith, et al.	Equivalent to WO 00/29655 A1
	97	US-6,589,892 B1	07-08-2003	Smith, et al.	
	98	US-6,608,236 B1	08-19-2003	Burns, et al.	
	99	US-6,638,884 B2	10-28-2003	Quick, et al.	Equivalent to WO 00/21476
	100	US-6,686,303 B1	02-03-2004	Haynes, et al.	
	101	US-6,709,526	03-2004	Bailey, et al.	
	102	US-7,028,429	~~05-13-2004~~ 04/2006	Druliner	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.B.T/

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

27752 7590 08/28/2019
THE PROCTER & GAMBLE COMPANY
Global IP Services
Central Building, C9
One Procter and Gamble Plaza
CINCINNATI, OH 45202

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/891,726	02/08/2018	Steven Lee Barnholtz	10859CC	3266

TITLE OF INVENTION: PROCESS FOR MAKING FIBROUS STRUCTURES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	11/29/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
TENTONI, LEO B	1742	264-131000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 C. Brant Cook

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

The Procter & Gamble Company

Cincinnati, OH

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. **16-2480**

5. **Change in Entity Status** (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /C. Brant Cook/

Date November 20, 2019

Typed or printed name C. Brant Cook

Registration No. 39,151

Electronic Patent Application Fee Transmittal				
Application Number:		15891726		
Filing Date:		08-Feb-2018		
Title of Invention:		PROCESS FOR MAKING FIBROUS STRUCTURES		
First Named Inventor/Applicant Name:		Steven Lee Barnholtz		
Filer:		Christopher Brant Cook/Mary Bryan		
Attorney Docket Number:		10859CC		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	1000	1000

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1000

Electronic Acknowledgement Receipt

EFS ID:	37802047
Application Number:	15891726
International Application Number:	
Confirmation Number:	3266
Title of Invention:	PROCESS FOR MAKING FIBROUS STRUCTURES
First Named Inventor/Applicant Name:	Steven Lee Barnholtz
Customer Number:	27752
Filer:	Christopher Brant Cook/Mary Bryan
Filer Authorized By:	Christopher Brant Cook
Attorney Docket Number:	10859CC
Receipt Date:	20-NOV-2019
Filing Date:	08-FEB-2018
Time Stamp:	09:15:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 1000
RAM confirmation Number	E2019AJ015543165
Deposit Account	162480
Authorized User	Mary Bryan

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

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)
37 CFR 1.20 (Post Issuance fees)
37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	10859CCIssueFeecbc.pdf	308504	no	1
			3b446ab97bd513002055089cd2f78e0bda d8a978		

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30248	no	2
			9489848787311bd6b8f77a509aaa059a9bb ec8cf		

Warnings:

Information:

Total Files Size (in bytes):	338752
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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.

New Applications Under 35 U.S.C. 111

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.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

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.



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NOTICE OF ALLOWANCE AND FEE(S) DUE

27752 7590 08/28/2019
THE PROCTER & GAMBLE COMPANY
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Central Building, C9
One Procter and Gamble Plaza
CINCINNATI, OH 45202

EXAMINER	
TENTONI, LEO B	
ART UNIT	PAPER NUMBER

1742

DATE MAILED: 08/28/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/891,726	02/08/2018	Steven Lee Barnholtz	10859CC	3266

TITLE OF INVENTION: PROCESS FOR MAKING FIBROUS STRUCTURES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	11/29/2019

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

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(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/891,726	02/08/2018	Steven Lee Barnholtz	10859CC	3266

TITLE OF INVENTION: PROCESS FOR MAKING FIBROUS STRUCTURES

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EXAMINER	ART UNIT	CLASS-SUBCLASS
TENTONI, LEO B	1742	264-131000

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(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

1 _____

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

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(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

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☐ Applicant asserting small entity status. See 37 CFR 1.27

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NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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27752	7590	08/28/2019	EXAMINER	
THE PROCTER & GAMBLE COMPANY			TENTONI, LEO B	
Global IP Services			ART UNIT	
Central Building, C9			PAPER NUMBER	
One Procter and Gamble Plaza			1742	
CINCINNATI, OH 45202			DATE MAILED: 08/28/2019	

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. 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 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, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. 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.

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.

Notice of Allowability	Application No. 15/891,726	Applicant(s) Barnholtz et al.	
	Examiner LEO B TENTONI	Art Unit 1742	AIA (FITF) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to terminal disclaimer of 16 August 2019.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1-25. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some *c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)	5. ☐ Examiner's Amendment/Comment
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date ____.	6. ☐ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material ____.	7. ☐ Other ____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date ____.	

/LEO B TENTONI/ Primary Examiner, Art Unit 1742	
--	--

Issue Classification 	Application/Control No. 15/891,726	Applicant(s)/Patent Under Reexamination Barnholtz et al.	
	Examiner LEO B TENTONI	Art Unit 1742	

CPC						
Symbol					Type	Version
D01D	/	5	/	0985	F	2013-01-01
B32B	/	5	/	022	I	2013-01-01
D04H	/	1	/	565	I	2013-01-01
D04H	/	3	/	16	I	2013-01-01
D04H	/	1	/	425	I	2013-01-01
D04H	/	1	/	4291	I	2013-01-01
D04H	/	1	/	56	I	2013-01-01
D04H	/	5	/	06	I	2013-01-01
D10B	/	2401	/	12	A	2013-01-01
D10B	/	2509	/	026	A	2013-01-01

CPC Combination Sets					
Symbol				Type	Set

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 25	
/LEO B TENTONI/ Primary Examiner, Art Unit 1742 (Primary Examiner) _____ (Date) 23 August 2019		O.G. Print Claim(s) 1	O.G. Print Figure 10

<i>Issue Classification</i> 	Application/Control No. 15/891,726	Applicant(s)/Patent Under Reexamination Barnholtz et al.
	Examiner LEO B TENTONI	Art Unit 1742

INTERNATIONAL CLASSIFICATION			
CLAIMED			
D01D	/	5	/ 098
NON-CLAIMED			
/		/	

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
264	518

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					
264	131	171.1	555			

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	25	
/LEO B TENTONI/	23 August 2019	O.G. Print Claim(s)	O.G. Print Figure
Primary Examiner, Art Unit 1742	(Date)	1	10

Issue Classification 	Application/Control No. 15/891,726	Applicant(s)/Patent Under Reexamination Barnholtz et al.
	Examiner LEO B TENTONI	Art Unit 1742

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	10	19	19										
2	2	11	11	20	20										
3	3	12	12	21	21										
4	4	13	13	22	22										
5	5	14	14	23	23										
6	6	15	15	24	24										
7	7	16	16	25	25										
8	8	17	17												
9	9	18	18												

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 25	
/LEO B TENTONI/ Primary Examiner, Art Unit 1742 (Primary Examiner) _____ (Date) 23 August 2019		O.G. Print Claim(s) 1	O.G. Print Figure 10

<i>Index of Claims</i> 	Application/Control No. 15/891,726	Applicant(s)/Patent Under Reexamination Barnholtz et al.
	Examiner LEO B TENTONI	Art Unit 1742

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS										
☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☒ T.D. ☐ R.1.47										
CLAIM			DATE							
Final	Original		08/23/2019							
1	1	=								
2	2	=								
3	3	=								
4	4	=								
5	5	=								
6	6	=								
7	7	=								
8	8	=								
9	9	=								
10	10	=								
11	11	=								
12	12	=								
13	13	=								
14	14	=								
15	15	=								
16	16	=								
17	17	=								
18	18	=								
19	19	=								
20	20	=								
21	21	=								
22	22	=								
23	23	=								
24	24	=								
25	25	=								

<i>Search Notes</i> 	Application/Control No. 15/891,726	Applicant(s)/Patent Under Reexamination Barnholtz et al.
	Examiner LEO B TENTONI	Art Unit 1742

CPC - Searched*		
Symbol	Date	Examiner
B32B 5/022	06/25/2019	LBT
D01D 5/0985	06/25/2019	LBT
D04H 1/425, 1/4291, 1/565, 3/16, 5/06	06/25/2019	LBT
D10B 2401/12, 2509/026	06/25/2019	LBT
ABOVE UPDATED	08/23/2019	LBT

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
264	131, 171.1, 518, 555	06/25/2019	LBT

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
CHECKED PARENT AND PROVISIONAL APPLICATIONS	06/25/2019	LBT
INVENTOR NAME SEARCH	06/25/2019	LBT

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<i>Search Notes</i> 	Application/Control No. 15/891,726	Applicant(s)/Patent Under Reexamination Barnholtz et al.
	Examiner LEO B TENTONI	Art Unit 1742

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
264	131, 171.1, 518, 555	08/23/2019	LBT
B32B	5/022	08/23/2019	LBT
D01D	5/0985	08/23/2019	LBT
D04H	1/425, 1/4291, 1/565, 3/16, 5/06	08/23/2019	LBT
D10B	2401/12, 2509/026	08/23/2019	LBT

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Doc Code: DIST.E.FILE Document Description: Electronic Terminal Disclaimer - Filed		PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce
Electronic Petition Request	TERMINAL DISCLAIMER TO OBIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	
Application Number	15891726	
Filing Date	08-Feb-2018	
First Named Inventor	Steven Barnholtz	
Attorney Docket Number	10859CC	
Title of Invention	Process for Making Fibrous Structures	
☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action ☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.		
Owner	Percent Interest	
The Procter & Gamble Company	100%	
The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s) 8852474 as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns. In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later: - expires for failure to pay a maintenance fee; - is held unenforceable; - is found invalid by a court of competent jurisdiction; - is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321; - has all claims canceled by a reexamination certificate; - is reissued; or - is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer. ☒ Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.		

☐ I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.	
Applicant claims the following fee status: ☐ Small Entity ☐ Micro Entity ☒ Regular Undiscounted	
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.	
THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES I certify, in accordance with 37 CFR 1.4(d)(4) that I am: ☒ An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application Registration Number <u>39151</u> ☐ A sole inventor ☐ A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application ☐ A joint inventor; all of whom are signing this request	
Signature	/C. Brant Cook/
Name	C.. Brant Cook

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
 Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	15891726			
Filing Date:	08-Feb-2018			
Title of Invention:	Process for Making Fibrous Structures			
First Named Inventor/Applicant Name:	Steven Lee Barnholtz			
Filer:	Christopher Brant Cook/Mary Bryan			
Attorney Docket Number:	10859CC			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	1814	1	160	160
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				160

Doc Code: DISQ.E.FILE

Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 15891726

Filing Date: 08-Feb-2018

Applicant/Patent under Reexamination: Barnholtz

Electronic Terminal Disclaimer filed on August 16, 2019

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt

EFS ID:	36899494
Application Number:	15891726
International Application Number:	
Confirmation Number:	3266
Title of Invention:	Process for Making Fibrous Structures
First Named Inventor/Applicant Name:	Steven Lee Barnholtz
Customer Number:	27752
Filer:	Christopher Brant Cook/Mary Bryan
Filer Authorized By:	Christopher Brant Cook
Attorney Docket Number:	10859CC
Receipt Date:	16-AUG-2019
Filing Date:	08-FEB-2018
Time Stamp:	14:45:42
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 160
RAM confirmation Number	E20198FE45279698
Deposit Account	162480
Authorized User	Mary Bryan

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

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)
37 CFR 1.20 (Post Issuance fees)
37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	33513	no	2
			6b2acdb49b17330ca691de8d03e083048b672e34		

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30573	no	2
			310a2fd02092be0607d83503adbc72ef85a0d		

Warnings:

Information:

Total Files Size (in bytes):	64086
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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.

New Applications Under 35 U.S.C. 111

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.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

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.

Electronic Acknowledgement Receipt

EFS ID:	36899432
Application Number:	15891726
International Application Number:	
Confirmation Number:	3266
Title of Invention:	Process for Making Fibrous Structures
First Named Inventor/Applicant Name:	Steven Lee Barnholtz
Customer Number:	27752
Filer:	Christopher Brant Cook/Mary Bryan
Filer Authorized By:	Christopher Brant Cook
Attorney Docket Number:	10859CC
Receipt Date:	16-AUG-2019
Filing Date:	08-FEB-2018
Time Stamp:	14:41:35
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Arguments/Remarks Made in an Amendment	10859CCReply.pdf	18527	no	2
			114f6b63ad915c65e5ada9ecac3177aabb4777e0		

Warnings:

Information:	
Total Files Size (in bytes):	18527
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. <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. <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. <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.	

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 15/891,726
Inventor(s) : Steven Lee Barnholtz, et al.
Filed : February 8, 2018
Art Unit : 1742
Examiner : Leo B. Tentoni
Docket No. : 10859CC
Confirmation No. : 3266
Customer No. : 27752
Title : Process for Making Fibrous Structures

REPLY

This is in response to the Office Action of June 28, 2019. Please consider the following remarks and reconsider the application.

The Director is hereby authorized to charge all required fees (including any extension of time fees) and to credit any overpayments in this and any concurrent or future correspondence to Deposit Account No. 16-2480.

Remarks begin on page 2 of this paper.

Appl. No. 15/891,726
Docket No. 10859CC
Reply dated August 16, 2019
Reply to Office Action dated June 28, 2019
Customer No. 27752

2

REMARKS

Claim Status

Claims 1-25 are pending in the present application.

Objection to the Specification

Applicants respectfully submit that MPEP 211.02 indicates that the parent application data is preferably included in an ADS, which Applicants have submitted in this application.. Therefore, Applicants respectfully request withdrawal of this objection.

Double Patenting

Claims 1-25 are rejected on the ground of nonstatutory double patenting as being unpatentable over Claims 1-25 of U.S. Patent No. 8,852,474 B2.

Applicants respectfully submit herewith an eTerminal Disclaimer that overcomes this rejection.

CONCLUSION

This response represents an earnest effort to place the present application in proper form and to distinguish the invention as claimed from the applied references. In view of the foregoing, the Applicant respectfully requests the Examiner to reconsider this application, and allow the pending claims.

Respectfully submitted,

THE PROCTER & GAMBLE COMPANY

By /C. Brant Cook/
C. Brant Cook
Registration No. 39,151
(513) 983-1004

Date: August 16, 2019
Customer No. 27752



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/891,726	02/08/2018	Steven Lee Barnholtz	10859CC	3266
27752	7590	06/28/2019	EXAMINER	
THE PROCTER & GAMBLE COMPANY			TENTONI, LEO B	
Global IP Services			ART UNIT	
Central Building, C9			PAPER NUMBER	
One Procter and Gamble Plaza			1742	
CINCINNATI, OH 45202			NOTIFICATION DATE	
			DELIVERY MODE	
			06/28/2019	
			ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

centraldocket.im@pg.com
mayer.jk@pg.com
pair_pg@firsttofile.com

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Specification

2. The disclosure is objected to because of the following informalities: On page 1, all of the parent application data should be included (including application number, filing date and patent number (if applicable)).

Appropriate correction is required.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting

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provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(I)(1) - 706.02(I)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

4. Claims 1-25 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-25 of U.S. Patent No. 8,852,474 B2. Although the claims at issue are not identical, they are not patentably distinct from each other because a contact angle of less than 10° as recited in the instant claims is encompassed by a contact angle of less than 30° as recited in claims 1-25 of U.S. Patent 8,852,474 B2.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LEO B. TENTONI whose telephone number is (571)272-1209.

The examiner can normally be reached on 6:30-3:00 ET M-F.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina A. Johnson can be reached on (571)2721176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LEO B. TENTONI
Primary Examiner
Art Unit 1742

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/LEO B TENTONI/
Primary Examiner, Art Unit 1742

<i>Search Notes</i> 	Application/Control No. 15/891,726	Applicant(s)/Patent Under Reexamination Barnholtz et al.
	Examiner LEO B TENTONI	Art Unit 1742

CPC - Searched*		
Symbol	Date	Examiner
B32B 5/022	06/25/2019	LBT
D01D 5/0985	06/25/2019	LBT
D04H 1/425, 1/4291, 1/565, 3/16, 5/06	06/25/2019	LBT
D10B 2401/12, 2509/026	06/25/2019	LBT

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
264	131, 171.1, 518, 555	06/25/2019	LBT

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
CHECKED PARENT AND PROVISIONAL APPLICATIONS	06/25/2019	LBT
INVENTOR NAME SEARCH	06/25/2019	LBT

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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COMPLETE IF KNOWN

Application Number	15/891,726
Confirmation Number	3266
Filing Date	February 8, 2018
First Named Inventor	Steven Lee Barnholtz
Art Unit	Not yet assigned
Examiner Name	Not yet assigned
Docket Number	10859CC

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EXAMINER INITIALS*	Cite No. ¹	Number - Kind Code ² (if known)	Grant/Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
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First Named Inventor	Steven Lee Barnholtz
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First Named Inventor	Steven Lee Barnholtz
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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COMPLETE IF KNOWN

Application Number	15/891,726
Confirmation Number	3266
Filing Date	February 8, 2018
First Named Inventor	Steven Lee Barnholtz
Art Unit	Not yet assigned
Examiner Name	Not yet assigned
Docket Number	10859CC

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EXAMINER			DATE CONSIDERED	

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EXAMINER INITIALS*	Cite No. ¹	Provide relevant information to identify the Non-Patent Literature being submitted (e.g., name of the author (in CAPITAL LETTERS), title of the article, title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published, related application serial number, filing date and brief description of the papers being submitted).	T ²
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EXAMINER /LEO B TENTONI/			DATE CONSIDERED 06/25/2019

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /L.B.T/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 15/891,726
Inventor(s) : Steven Lee Barnholtz, et al.
Filed : February 8, 2018
Art Unit : Not yet assigned
Examiner : Not yet assigned
Docket No. : 10859CC
Confirmation No. : 3266
Customer No. : 27752
Title : Process for Making Fibrous Structures

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 C.F.R. §§ 1.56, 1.97 and 1.98, it is respectfully requested that the document(s) cited in this submission be carefully considered by the Examiner and made of record in this case. As provided in §1.97(g), no representation is made or intended that a thorough art search was made. As provided in 37 C.F.R. §1.97(h), this Information Disclosure Statement does not constitute an admission of any kind, and specifically is not an admission that the document(s) cited in this submission is (are), or is (are) considered to be, material to the patentability of the above-identified patent application, as defined in 37 C.F.R. §1.56(b).

This Information Disclosure Statement is being submitted under 37 C.F.R. §1.97(b)(1) together with the patent application or within three months of the filing date of the patent application, or under 37 C.F.R. §1.97(b)(2) within three months of entry into the national stage in an international application. Therefore, no fee is believed to be due.

Appl. No. 15/891,726
Docket No. 10859CC
Customer No. 27752
Paper dated April 2, 2018

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Additional Items to be Noted by the Examiner

In accordance with 37 C.F.R. §1.98(a)(2), foreign patent documents and non-patent literature are provided.

Respectfully submitted,

THE PROCTER & GAMBLE COMPANY

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Date: April 2, 2018
Customer No. 27752

Appl. No. 15/891,726
 Docket No. 10859CC
 Customer No. 27752
 Paper dated April 2, 2018

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INFORMATION DISCLOSURE STATEMENT

RELATED UNPUBLISHED PENDING U.S. APPLICATION(S)

<u>Examiners Initials</u>	<u>Application Serial Number</u>	<u>Application Filing Date (MM/DD/YYYY)</u>	<u>Inventor(s)</u>	<u>Attorney Docket Number</u>	<u>Copy in IFW?</u>
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EXAMINER /LEO B TENTONI/				DATE CONSIDERED 06/25/2019	



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PUBLICATION NOTICE



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THE PROCTER & GAMBLE COMPANY
Global IP Services
Central Building, C9
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CINCINNATI, OH 45202

Title:Process for Making Fibrous Structures

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NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

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Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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COMPLETE IF KNOWN

Application Number	15/891,726
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First Named Inventor	Steven Lee Barnholtz
Art Unit	Not yet assigned
Examiner Name	Not yet assigned
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U. S. PATENT DOCUMENTS

EXAMINER INITIALS*	Cite No. ¹	Number - Kind Code ² (if known)	Grant/Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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COMPLETE IF KNOWN

Application Number	15/891,726
Confirmation Number	3266
Filing Date	February 8, 2018
First Named Inventor	Steven Lee Barnholtz
Art Unit	Not yet assigned
Examiner Name	Not yet assigned
Docket Number	10859CC

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COMPLETE IF KNOWN

Application Number	15/891,726
Confirmation Number	3266
Filing Date	February 8, 2018
First Named Inventor	Steven Lee Barnholtz
Art Unit	Not yet assigned
Examiner Name	Not yet assigned
Docket Number	10859CC

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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SHEET 4 of 8

COMPLETE IF KNOWN

Application Number	15/891,726
Confirmation Number	3266
Filing Date	February 8, 2018
First Named Inventor	Steven Lee Barnholtz
Art Unit	Not yet assigned
Examiner Name	Not yet assigned
Docket Number	10859CC

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

SHEET 5 of 8

COMPLETE IF KNOWN

Application Number	15/891,726
Confirmation Number	3266
Filing Date	February 8, 2018
First Named Inventor	Steven Lee Barnholtz
Art Unit	Not yet assigned
Examiner Name	Not yet assigned
Docket Number	10859CC

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

SHEET 6 of 8

COMPLETE IF KNOWN

Application Number	15/891,726
Confirmation Number	3266
Filing Date	February 8, 2018
First Named Inventor	Steven Lee Barnholtz
Art Unit	Not yet assigned
Examiner Name	Not yet assigned
Docket Number	10859CC

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

SHEET 7 of 8

COMPLETE IF KNOWN

Application Number	15/891,726
Confirmation Number	3266
Filing Date	February 8, 2018
First Named Inventor	Steven Lee Barnholtz
Art Unit	Not yet assigned
Examiner Name	Not yet assigned
Docket Number	10859CC

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

SHEET 8 of 8

COMPLETE IF KNOWN

Application Number	15/891,726
Confirmation Number	3266
Filing Date	February 8, 2018
First Named Inventor	Steven Lee Barnholtz
Art Unit	Not yet assigned
Examiner Name	Not yet assigned
Docket Number	10859CC

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EXAMINER			DATE CONSIDERED	

NON PATENT LITERATURE DOCUMENTS

EXAMINER INITIALS*	Cite No. ¹	Provide relevant information to identify the Non-Patent Literature being submitted (e.g., name of the author (in CAPITAL LETTERS), title of the article, title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published, related application serial number, filing date and brief description of the papers being submitted).	T ²
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EXAMINER			DATE CONSIDERED

Electronic Acknowledgement Receipt

EFS ID:	32218516
Application Number:	15891726
International Application Number:	
Confirmation Number:	3266
Title of Invention:	Process for Making Fibrous Structures
First Named Inventor/Applicant Name:	Steven Lee Barnholtz
Customer Number:	27752
Filer:	Christopher Brant Cook/Carolyn Bryan
Filer Authorized By:	Christopher Brant Cook
Attorney Docket Number:	10859CC
Receipt Date:	02-APR-2018
Filing Date:	08-FEB-2018
Time Stamp:	12:45:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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Total Files Size (in bytes):			48347847		
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. <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. <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. <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.					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 15/891,726
Inventor(s) : Steven Lee Barnholtz, et al.
Filed : February 8, 2018
Art Unit : Not yet assigned
Examiner : Not yet assigned
Docket No. : 10859CC
Confirmation No. : 3266
Customer No. : 27752
Title : Process for Making Fibrous Structures

INFORMATION DISCLOSURE STATEMENT

Pursuant to 37 C.F.R. §§ 1.56, 1.97 and 1.98, it is respectfully requested that the document(s) cited in this submission be carefully considered by the Examiner and made of record in this case. As provided in §1.97(g), no representation is made or intended that a thorough art search was made. As provided in 37 C.F.R. §1.97(h), this Information Disclosure Statement does not constitute an admission of any kind, and specifically is not an admission that the document(s) cited in this submission is (are), or is (are) considered to be, material to the patentability of the above-identified patent application, as defined in 37 C.F.R. §1.56(b).

This Information Disclosure Statement is being submitted under 37 C.F.R. §1.97(b)(1) together with the patent application or within three months of the filing date of the patent application, or under 37 C.F.R. §1.97(b)(2) within three months of entry into the national stage in an international application. Therefore, no fee is believed to be due.

Appl. No. 15/891,726
Docket No. 10859CC
Customer No. 27752
Paper dated April 2, 2018

2

Additional Items to be Noted by the Examiner

In accordance with 37 C.F.R. §1.98(a)(2), foreign patent documents and non-patent literature are provided.

Respectfully submitted,

THE PROCTER & GAMBLE COMPANY

By /C. Brant Cook/
C. Brant Cook
Registration No. 39,151
(513) 983-1004

Date: April 2, 2018
Customer No. 27752

INFORMATION DISCLOSURE STATEMENT

RELATED UNPUBLISHED PENDING U.S. APPLICATION(S)

<u>Examiners Initials</u>	<u>Application Serial Number</u>	<u>Application Filing Date (MM/DD/YYYY)</u>	<u>Inventor(s)</u>	<u>Attorney Docket Number</u>	<u>Copy in IFW?</u>
	12/170,585	07/10/2008	Barnholtz, et al.	10857	Yes
	12/170,578	07/10/2008	Barnholtz, et al.	10858	Yes
	12/170,575	07/10/2008	Barnholtz, et al.	10859	Yes
	12/170,565	07/10/2008	Suer, et al.	10860	Yes
	12/170,557	07/10/2008	Cabell, et al.	11002	Yes
	12/917,535	11/02/2010	Barnholtz, et al.	11476	Yes
	12/917,547	11/02/2010	Barnholtz, et al.	11477	Yes
	12/917,558	11/02/2010	Barnholtz, et al.	11478	Yes
	12/917,574	11/02/2010	Barnholtz, et al.	11479	Yes
	12/917,585	11/02/2010	Barnholtz, et al.	11480	Yes
	13/076,492	03/31/2011	Jonathan Paul Brennan, et al.	11672M	Yes
EXAMINER			DATE CONSIDERED		

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of
Invention

Process for Making Fibrous Structures (10859CC)

As the below named inventor, I hereby declare that:

This declaration
is directed to:



The attached application, or



United States application or PCT international application number _____
filed on _____.

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

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

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.

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 INVENTOR

Inventor: Steven Lee Barnholtz

Date (Optional): 02/08/2018

Signature: /Steven Lee Barnholtz/

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1 minute 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-0199 and select option 2.

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	Process for Making Fibrous Structures (10859CC)
-------------------------------	--

As the below named inventor, I hereby declare that:

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☐ United States application or PCT International application number _____
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LEGAL NAME OF INVENTOR

Inventor: Paul Dennis Trokhan Date (Optional) : _____

Signature: /Paul Dennis Trokhan/

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1 minute 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-8199 and select option 2.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of
Invention

Process for Making Fibrous Structures (10859CC)

As the below named inventor, I hereby declare that:

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The attached application, or



United States application or PCT International application number _____
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LEGAL NAME OF INVENTOR

Inventor: Michael Donald Suer

Date (Optional): 2/8/2018

Signature: /Michael Donald Suer/

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)****Title of
Invention****Process for Making Fibrous Structures (10859CC)**

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LEGAL NAME OF INVENTORInventor: Douglas Jay BarkeyDate (Optional): 02/09/2018Signature: /Douglas Jay Barkey/

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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LEGAL NAME OF INVENTOR

Inventor: Jonathan Paul Brennan

Date (Optional): February 9, 2018

Signature: /Jonathan Paul Brennan/

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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LEGAL NAME OF INVENTOR

Inventor: Ronald Thomas Gorley

Date (Optional): _____

Signature: /Ronald Thomas Gorley/

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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If you need assistance in completing the form, call 1-800-PTO-8199 and select option 2.

Electronic Patent Application Fee Transmittal				
Application Number:		15891726		
Filing Date:		08-Feb-2018		
Title of Invention:		Process for Making Fibrous Structures		
First Named Inventor/Applicant Name:		Steven Lee Barnholtz		
Filer:		Christopher Brant Cook/Carolyn Bryan		
Attorney Docket Number:		10859CC		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
OTHER PUBLICATION PROCESSING FEE	1808	1	130	130
Total in USD (\$)				130

Electronic Acknowledgement Receipt

EFS ID:	32084668
Application Number:	15891726
International Application Number:	
Confirmation Number:	3266
Title of Invention:	Process for Making Fibrous Structures
First Named Inventor/Applicant Name:	Steven Lee Barnholtz
Customer Number:	27752
Filer:	Christopher Brant Cook/Carolyn Bryan
Filer Authorized By:	Christopher Brant Cook
Attorney Docket Number:	10859CC
Receipt Date:	19-MAR-2018
Filing Date:	08-FEB-2018
Time Stamp:	08:25:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 130
RAM confirmation Number	031918INTEFSW00008614162480
Deposit Account	162480
Authorized User	Mary Bryan

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

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Oath or Declaration filed	10859CCDeclaration.pdf	353501	no	6
			11a5b20676ea01358896af928f4e1c92a5f67181		

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Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30472	no	2
			1d62a40866297794bdb6f0370f5fb57cfa93cc4e		

Warnings:

Information:

Total Files Size (in bytes):	383973
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New Applications Under 35 U.S.C. 111

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.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
15/891,726	02/08/2018	1742	2380	10859CC	25	2

CONFIRMATION NO. 3266

FILING RECEIPT



27752
THE PROCTER & GAMBLE COMPANY
Global IP Services
Central Building, C9
One Procter and Gamble Plaza
CINCINNATI, OH 45202

Date Mailed: 03/07/2018

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Steven Lee Barnholtz, West Chester, OH;
Paul Dennis Trokhan, Hamilton, OH;
Michael Donald Suer, Cincinnati, OH;
Douglas Jay Barkey, Maineville, OH;
Jonathan Paul Brennan, Cincinnati, OH;
Ronald Thomas Gorley, Cincinnati, OH;

Applicant(s)

The Procter & Gamble Company, Cincinnati, OH;

Assignment For Published Patent Application

The Procter & Gamble Company

Power of Attorney: The patent practitioners associated with Customer Number 27752

Domestic Priority data as claimed by applicant

This application is a CON of 14/475,699 09/03/2014
which is a CON of 12/170,575 07/10/2008 PAT 8852474
which claims benefit of 60/959,885 07/17/2007

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 03/06/2018

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/891,726**

Projected Publication Date: 06/14/2018

Non-Publication Request: No

Early Publication Request: No

Title

Process for Making Fibrous Structures

Preliminary Class

264

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 15/891,726				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	300			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	660			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760			
TOTAL CLAIMS (37 CFR 1.16(j))	25 minus 20 =	*				x 100 =	500			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*				x 460 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL		TOTAL	2220			
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x =			x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =			x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE			TOTAL ADD'L FEE	
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x =			x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =			x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
						TOTAL ADD'L FEE			TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.										



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/891,726	02/08/2018	Steven Lee Barnholtz	10859CC

CONFIRMATION NO. 3266

INFORMAL NOTICE



27752
THE PROCTER & GAMBLE COMPANY
Global IP Services
Central Building, C9
One Procter and Gamble Plaza
CINCINNATI, OH 45202

Date Mailed: 03/07/2018

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
Steven Lee Barnholtz
Paul Dennis Trokhan
Michael Donald Suer
Douglas Jay Barkey
Jonathan Paul Brennan
Ronald Thomas Gorley

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/ctuazon/

Document code: WFEE

United States Patent and Trademark Office
Sales Receipt for Accounting Date: 03/06/2018

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		01	FC : 1202	500.00	DA	
		02	FC : 1051	160.00	DA	

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA/82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	Not yet assigned
Filing Date	February 8, 2018
First Named Inventor	Steven Lee Barnholtz
Title	Process for Making Fibrous Structures
Art Unit	Not yet assigned
Examiner Name	Not yet assigned
Attorney Docket Number	10859CC

SIGNATURE of Applicant or Patent Practitioner

Signature	/C. Brant Cook/	Date (Optional)	February 8, 2018
Name	C. Brant Cook	Registration Number	39,151
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)	The Procter & Gamble Company		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.



*Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 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.

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☒ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

27752

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☒ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone			Email		

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

The Procter & Gamble Company

- ☐ Inventor or Joint Inventor (title not required below)
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- ☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- ☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	/Steven W. Miller/	Date (Optional)	
Name	Steven W. Miller		
Title	Vice President and Assistant Secretary, The Procter & Gamble Company		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 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.

POWER OF ATTORNEY BY APPLICANT

No more than ten (10) patent practitioners total may be appointed as set forth below by name and registration number. This page need not be submitted if appointing the Patent Practitioner(s) associated with a Customer Number (see form PTO/AIA/82B):

Name	Registration Number

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 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.
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 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.

Electronic Patent Application Fee Transmittal

Application Number:				
Filing Date:				
Title of Invention:	Process for Making Fibrous Structures			
First Named Inventor/Applicant Name:	Steven Lee Barnholtz			
Filer:	Christopher Brant Cook/Carolyn Bryan			
Attorney Docket Number:	10859CC			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	300	300
UTILITY SEARCH FEE	1111	1	660	660
UTILITY EXAMINATION FEE	1311	1	760	760
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 (\$)				1720

Electronic Acknowledgement Receipt

EFS ID:	31739065
Application Number:	15891726
International Application Number:	
Confirmation Number:	3266
Title of Invention:	Process for Making Fibrous Structures
First Named Inventor/Applicant Name:	Steven Lee Barnholtz
Customer Number:	27752
Filer:	Christopher Brant Cook/Carolyn Bryan
Filer Authorized By:	Christopher Brant Cook
Attorney Docket Number:	10859CC
Receipt Date:	08-FEB-2018
Filing Date:	
Time Stamp:	14:26:52
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 1720
RAM confirmation Number	020918INTEFSW00000647162480
Deposit Account	162480
Authorized User	Mary Bryan

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

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal of New Application	10859CCTransmittalcbc.pdf	297696	no	2
			d65e93578c5b13a43d9fb0fa919283409b8ea4d3		
Warnings:					
Information:					
2	Specification	10859CCApplication.pdf	210521	no	31
			f77827c86bc52f42b77aa73710a9c59785e3113a		
Warnings:					
Information:					
3	Drawings-only black and white line drawings	10859CCDrawwithLabel.pdf	1465743	no	12
			74a18d96d527e3ba84c25c88991b25f5a469d624		
Warnings:					
Information:					
4	Application Data Sheet	10859CCADScbc.pdf	252649	no	10
			e35ff91f47f63cc24939a3133041d8010acd4565		
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
5	Assignee showing of ownership per 37 CFR 3.73	10859Assignment.pdf	434105	no	9
			5fdd443dc74315d1200797923422095833827a98		
Warnings:					
Information:					
6	Power of Attorney	10859CCPOAandTransmittalcbc.pdf	177451	no	4
			1fe0b90b0a13852998f4d8237cc7e62ff46ac306		

Warnings:					
Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	35173	no	2
			b0f9207914336bd19fbdd7fed1261bd2dd62d9e1		
Warnings:					
Information:					
Total Files Size (in bytes):				2873338	
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. <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. <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. <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.					

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.

UTILITY PATENT APPLICATION TRANSMITTAL <i>(Only for new nonprovisional applications under 37 CFR 1.53(b))</i>		Attorney Docket No. 10859CC	
		First Named Inventor Steven Lee Barnholtz	
		Title Process for Making Fibrous Structures	
		Priority Mail Express® Label No. N/A	

APPLICATION ELEMENTS <i>See MPEP chapter 600 concerning utility patent application contents.</i>	Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450
1. ☐ Fee Transmittal Form (PTO/SB/17 or equivalent) 2. ☐ Applicant asserts small entity status. See 37 CFR 1.27 3. ☐ Applicant certifies micro entity status. See 37 CFR 1.29. Applicant must attach form PTO/SB/15A or B or equivalent. 4. ☒ Specification [Total Pages <u>31</u>] Both the claims and abstract must start on a new page. (See MPEP § 608.01(a) for information on the preferred arrangement) 5. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets <u>12</u>] 6. Inventor's Oath or Declaration [Total Pages _____] (including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e)) a. ☐ Newly executed (original or copy) b. ☐ A copy from a prior application (37 CFR 1.63(d)) 7. ☒ Application Data Sheet * See note below. See 37 CFR 1.76 (PTO/AIA/14 or equivalent) 8. CD-ROM or CD-R in duplicate, large table, or Computer Program (Appendix) ☐ Landscape Table on CD 9. Nucleotide and/or Amino Acid Sequence Submission (if applicable, items a. – c. are required) a. ☐ Computer Readable Form (CRF) b. ☐ Specification Sequence Listing on: i. ☐ CD-ROM or CD-R (2 copies); or ii. ☐ Paper c. ☐ Statements verifying identity of above copies	ACCOMPANYING APPLICATION PAPERS 10. ☒ Assignment Papers (cover sheet & document(s)) Name of Assignee <u>The Procter & Gamble Company</u> 11. ☐ 37 CFR 3.73(c) Statement ☒ Power of Attorney (when there is an assignee) 12. ☐ English Translation Document (if applicable) 13. ☐ Information Disclosure Statement (PTO/SB/08 or PTO-1449) ☐ Copies of citations attached 14. ☐ Preliminary Amendment 15. ☐ Return Receipt Postcard (MPEP § 503) (Should be specifically itemized) 16. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed) 17. ☐ Nonpublication Request Under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent. 18. ☐ Other: _____ _____ _____ _____

***Note:** (1) Benefit claims under 37 CFR 1.78 and foreign priority claims under 1.55 **must** be included in an Application Data Sheet (ADS).
 (2) For applications filed under 35 U.S.C. 111, the application must contain an ADS specifying the applicant if the applicant is an assignee, person to whom the inventor is under an obligation to assign, or person who otherwise shows sufficient proprietary interest in the matter. See 37 CFR 1.46(b).

19. CORRESPONDENCE ADDRESS					
☐ The address associated with Customer Number: _____ OR ☐ Correspondence address below					
Name _____					
Address _____					
City _____		State _____		Zip Code _____	
Country _____		Telephone _____		Email _____	

Signature	/C. Brant Cook/	Date	February 8, 2018
Name (Print/Type)	C. Brant Cook	Registration No. (Attorney/Agent)	39,151

This collection of information is required by 37 CFR 1.53(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.**

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.

PROCESS FOR MAKING FIBROUS STRUCTURES

FIELD OF THE INVENTION

5 The present invention relates to processes for making fibrous structures and more particularly to processes for making fibrous structures comprising filaments.

BACKGROUND OF THE INVENTION

Processes for making fibrous structures comprising filaments are known in the art. An
10 example of such a known process is a co-form process.

Known co-form processes utilize a knife-edge die that comprises filament-forming holes. The filaments produced by the filament-forming holes are contacted after exiting by air. The air contacts the filaments at an angle of 30° to less than 90°, not parallel to or substantially parallel to the filament produced from the filament-forming holes.

15 The problem with current processes for making fibrous structures, especially processes that utilize knife-edge dies, is that the fibrous structures comprise filaments having a distribution of average filament diameters that does not optimize the properties, for example absorbency properties (such as absorption capacity and/or rate of absorption) of the fibrous structures.

Accordingly, there is a need for a process for making fibrous structures, especially fibrous
20 structure that comprise filaments, that provide improved properties compared to fibrous structures produced by known processes for making fibrous structures, especially processes that utilize knife-edge dies.

SUMMARY OF THE INVENTION

25 The present invention solves the problem identified above by providing a process for making fibrous structures, especially fibrous structure that comprise filaments, that exhibit improved properties compared to fibrous structure produced by known processes for making fibrous structures, especially processes that utilize knife-edge dies.

In one example of the present invention, a process for making a fibrous structure, the
30 process comprising the steps of:

a. providing a die comprising one or more filament-forming holes, wherein one or more fluid-releasing holes are associated with one filament-forming hole such that a fluid exiting the fluid-releasing hole is parallel or substantially parallel to an exterior surface of a filament exiting the filament-forming hole;

- b. supplying at least a first polymer to the die;
- c. producing a plurality of filaments comprising the first polymer from the die;
- d. combining the filaments with solid additives to form a mixture; and
- e. collecting the mixture on a collection device to produce a fibrous structure;

5 is provided.

In another example of the present invention, a process for making a fibrous structure, the process comprising the steps of:

- a. providing a die comprising one or more filament-forming holes, wherein one or more fluid-releasing holes are associated with one filament-forming hole such that a fluid exiting the fluid-releasing hole is parallel or substantially parallel to an exterior surface of a filament exiting the filament-forming hole;

- b. supplying a polyolefin polymer to the die;
- c. producing a plurality of filaments comprising the polyolefin polymer from the die;
- d. combining the filaments with wood pulp fibers to form a mixture; and
- e. collecting the mixture on a collection device to produce a fibrous structure;

15 is provided.

In yet another example of the present invention, a fibrous structure made by a process according to the present invention is provided.

Accordingly, the present invention provides a process for making fibrous structures, especially fibrous structure that comprise filaments, that exhibit improved properties compared to fibrous structure produced by known processes for making fibrous structures, especially processes that utilize knife-edge dies.

BRIEF DESCRIPTION OF THE DRAWINGS

25 Fig. 1 is a Pore Volume Distribution graph of various fibrous structures, including a fibrous structure according to the present invention, showing the Ending Pore Radius of from 1 μ m to 1000 μ m and the Capacity of Water in Pores;

Fig. 2 is a Pore Volume Distribution graph of various fibrous structures, including a fibrous structure according to the present invention, showing the Ending Pore Radius of from 1 μ m to 300 μ m and the Capacity of Water in Pores;

30 Fig. 3 is a schematic representation of an example of a fibrous structure according to the present invention;

Fig. 4 is a schematic, cross-sectional representation of Fig. 3 taken along line 4-4;

Fig. 5 is a schematic representation of another example of a fibrous structure according to the present invention;

Fig. 6 is a schematic, cross-sectional representation of another example of a fibrous structure according to the present invention;

5 Fig. 7 is a schematic, cross-sectional representation of another example of a fibrous structure according to the present invention;

Fig. 8 is a schematic representation of another example of a fibrous structure in roll form according to the present invention;

Fig. 9 is a schematic representation of another example of a fibrous structure;

10 Fig. 10 is a schematic representation of an example of a process for making a fibrous structure according to the present invention;

Fig. 11 is a schematic representation of an example of a filament-forming hole and fluid-releasing hole from a suitable die useful in making a fibrous structure according to the present invention;

15 Fig. 12 is a scanning electromicrograph of a fibrous structure made by a known die;

Fig. 13 is a scanning electromicrograph of a fibrous structure made by a die according to the present invention;

Fig. 14 is a schematic representation of an example of a solid additive spreader useful in the processes of the present invention;

20 Fig. 15 is a schematic representation of another example of a solid additive spreader useful in the processes of the present invention;

Fig. 16 is a diagram of a support rack utilized in the HFS and VFS Test Methods described herein;

25 Fig. 17 is a diagram of a support rack cover utilized in the HFS and VFS Test Methods described herein.

DETAILED DESCRIPTION OF THE INVENTION

Definitions

30 “Fibrous structure” as used herein means a structure that comprises one or more filaments and/or fibers. In one example, a fibrous structure according to the present invention means an orderly arrangement of filaments and/or fibers within a structure in order to perform a function. Nonlimiting examples of fibrous structures of the present invention include paper, fabrics

(including woven, knitted, and non-woven), and absorbent pads (for example for diapers or feminine hygiene products).

Nonlimiting examples of processes for making fibrous structures include known wet-laid papermaking processes and air-laid papermaking processes. Such processes typically include
5 steps of preparing a fiber composition in the form of a suspension in a medium, either wet, more specifically aqueous medium, or dry, more specifically gaseous, i.e. with air as medium. The aqueous medium used for wet-laid processes is oftentimes referred to as a fiber slurry. The fibrous slurry is then used to deposit a plurality of fibers onto a forming wire or belt such that an embryonic fibrous structure is formed, after which drying and/or bonding the fibers together
10 results in a fibrous structure. Further processing the fibrous structure may be carried out such that a finished fibrous structure is formed. For example, in typical papermaking processes, the finished fibrous structure is the fibrous structure that is wound on the reel at the end of papermaking, and may subsequently be converted into a finished product, e.g. a sanitary tissue product.

15 The fibrous structures of the present invention may be homogeneous or may be layered. If layered, the fibrous structures may comprise at least two and/or at least three and/or at least four and/or at least five layers.

The fibrous structures of the present invention may be co-formed fibrous structures.

“Co-formed fibrous structure” as used herein means that the fibrous structure comprises a
20 mixture of at least two different materials wherein at least one of the materials comprises a filament, such as a polypropylene filament, and at least one other material, different from the first material, comprises a solid additive, such as a fiber and/or a particulate. In one example, a co-formed fibrous structure comprises solid additives, such as fibers, such as wood pulp fibers, and filaments, such as polypropylene filaments.

25 “Solid additive” as used herein means a fiber and/or a particulate.

“Particulate” as used herein means a granular substance or powder.

“Fiber” and/or “Filament” as used herein means an elongate particulate having an apparent length greatly exceeding its apparent width, i.e. a length to diameter ratio of at least about 10. For purposes of the present invention, a “fiber” is an elongate particulate as described
30 above that exhibits a length of less than 5.08 cm (2 in.) and a “filament” is an elongate particulate as described above that exhibits a length of greater than or equal to 5.08 cm (2 in.).

Fibers are typically considered discontinuous in nature. Nonlimiting examples of fibers include wood pulp fibers and synthetic staple fibers such as polyester fibers.

Filaments are typically considered continuous or substantially continuous in nature. Filaments are relatively longer than fibers. Nonlimiting examples of filaments include meltblown and/or spunbond filaments. Nonlimiting examples of materials that can be spun into filaments include natural polymers, such as starch, starch derivatives, cellulose and cellulose derivatives, hemicellulose, hemicellulose derivatives, and synthetic polymers including, but not limited to polyvinyl alcohol filaments and/or polyvinyl alcohol derivative filaments, and thermoplastic polymer filaments, such as polyesters, nylons, polyolefins such as polypropylene filaments, polyethylene filaments, and biodegradable or compostable thermoplastic fibers such as polylactic acid filaments, polyhydroxyalkanoate filaments and polycaprolactone filaments. The filaments may be monocomponent or multicomponent, such as bicomponent filaments.

In one example of the present invention, "fiber" refers to papermaking fibers. Papermaking fibers useful in the present invention include cellulosic fibers commonly known as wood pulp fibers. Applicable wood pulps include chemical pulps, such as Kraft, sulfite, and sulfate pulps, as well as mechanical pulps including, for example, groundwood, thermomechanical pulp and chemically modified thermomechanical pulp. Chemical pulps, however, may be preferred since they impart a superior tactile sense of softness to tissue sheets made therefrom. Pulps derived from both deciduous trees (hereinafter, also referred to as "hardwood") and coniferous trees (hereinafter, also referred to as "softwood") may be utilized. The hardwood and softwood fibers can be blended, or alternatively, can be deposited in layers to provide a stratified web. U.S. Pat. No. 4,300,981 and U.S. Pat. No. 3,994,771 are incorporated herein by reference for the purpose of disclosing layering of hardwood and softwood fibers. Also applicable to the present invention are fibers derived from recycled paper, which may contain any or all of the above categories as well as other non-fibrous materials such as fillers and adhesives used to facilitate the original papermaking.

In addition to the various wood pulp fibers, other cellulosic fibers such as cotton linters, rayon, lyocell and bagasse can be used in this invention. Other sources of cellulose in the form of fibers or capable of being spun into fibers include grasses and grain sources.

"Sanitary tissue product" as used herein means a soft, low density (i.e. < about 0.15 g/cm³) web useful as a wiping implement for post-urinary and post-bowel movement cleaning (toilet tissue), for otorhinolaryngological discharges (facial tissue), and multi-functional absorbent and cleaning uses (absorbent towels). The sanitary tissue product may be convolutedly wound upon itself about a core or without a core to form a sanitary tissue product roll.

In one example, the sanitary tissue product of the present invention comprises a fibrous structure according to the present invention.

The sanitary tissue products of the present invention may exhibit a basis weight between about 10 g/m² to about 120 g/m² and/or from about 15 g/m² to about 110 g/m² and/or from about 20 g/m² to about 100 g/m² and/or from about 30 to 90 g/m². In addition, the sanitary tissue product of the present invention may exhibit a basis weight between about 40 g/m² to about 120 g/m² and/or from about 50 g/m² to about 110 g/m² and/or from about 55 g/m² to about 105 g/m² and/or from about 60 to 100 g/m².

The sanitary tissue products of the present invention may exhibit a total dry tensile strength of greater than about 59 g/cm (150 g/in) and/or from about 78 g/cm (200 g/in) to about 394 g/cm (1000 g/in) and/or from about 98 g/cm (250 g/in) to about 335 g/cm (850 g/in). In addition, the sanitary tissue product of the present invention may exhibit a total dry tensile strength of greater than about 196 g/cm (500 g/in) and/or from about 196 g/cm (500 g/in) to about 394 g/cm (1000 g/in) and/or from about 216 g/cm (550 g/in) to about 335 g/cm (850 g/in) and/or from about 236 g/cm (600 g/in) to about 315 g/cm (800 g/in). In one example, the sanitary tissue product exhibits a total dry tensile strength of less than about 394 g/cm (1000 g/in) and/or less than about 335 g/cm (850 g/in).

In another example, the sanitary tissue products of the present invention may exhibit a total dry tensile strength of greater than about 196 g/cm (500 g/in) and/or greater than about 236 g/cm (600 g/in) and/or greater than about 276 g/cm (700 g/in) and/or greater than about 315 g/cm (800 g/in) and/or greater than about 354 g/cm (900 g/in) and/or greater than about 394 g/cm (1000 g/in) and/or from about 315 g/cm (800 g/in) to about 1968 g/cm (5000 g/in) and/or from about 354 g/cm (900 g/in) to about 1181 g/cm (3000 g/in) and/or from about 354 g/cm (900 g/in) to about 984 g/cm (2500 g/in) and/or from about 394 g/cm (1000 g/in) to about 787 g/cm (2000 g/in).

The sanitary tissue products of the present invention may exhibit an initial total wet tensile strength of less than about 78 g/cm (200 g/in) and/or less than about 59 g/cm (150 g/in) and/or less than about 39 g/cm (100 g/in) and/or less than about 29 g/cm (75 g/in).

The sanitary tissue products of the present invention may exhibit an initial total wet tensile strength of greater than about 118 g/cm (300 g/in) and/or greater than about 157 g/cm (400 g/in) and/or greater than about 196 g/cm (500 g/in) and/or greater than about 236 g/cm (600 g/in) and/or greater than about 276 g/cm (700 g/in) and/or greater than about 315 g/cm (800

g/in) and/or greater than about 354 g/cm (900 g/in) and/or greater than about 394 g/cm (1000 g/in) and/or from about 118 g/cm (300 g/in) to about 1968 g/cm (5000 g/in) and/or from about 157 g/cm (400 g/in) to about 1181 g/cm (3000 g/in) and/or from about 196 g/cm (500 g/in) to about 984 g/cm (2500 g/in) and/or from about 196 g/cm (500 g/in) to about 787 g/cm (2000 g/in) and/or from about 196 g/cm (500 g/in) to about 591 g/cm (1500 g/in).

The sanitary tissue products of the present invention may exhibit a density (measured at 95 g/in²) of less than about 0.60 g/cm³ and/or less than about 0.30 g/cm³ and/or less than about 0.20 g/cm³ and/or less than about 0.10 g/cm³ and/or less than about 0.07 g/cm³ and/or less than about 0.05 g/cm³ and/or from about 0.01 g/cm³ to about 0.20 g/cm³ and/or from about 0.02 g/cm³ to about 0.10 g/cm³.

The sanitary tissue products of the present invention may exhibit a total absorptive capacity of according to the Horizontal Full Sheet (HFS) Test Method described herein of greater than about 10 g/g and/or greater than about 12 g/g and/or greater than about 15 g/g and/or from about 15 g/g to about 50 g/g and/or to about 40 g/g and/or to about 30 g/g.

The sanitary tissue products of the present invention may exhibit a Vertical Full Sheet (VFS) value as determined by the Vertical Full Sheet (VFS) Test Method described herein of greater than about 5 g/g and/or greater than about 7 g/g and/or greater than about 9 g/g and/or from about 9 g/g to about 30 g/g and/or to about 25 g/g and/or to about 20 g/g and/or to about 17 g/g.

The sanitary tissue products of the present invention may be in the form of sanitary tissue product rolls. Such sanitary tissue product rolls may comprise a plurality of connected, but perforated sheets of fibrous structure, that are separably dispensable from adjacent sheets. In one example, one or more ends of the roll of sanitary tissue product may comprise an adhesive and/or dry strength agent to mitigate the loss of fibers, especially wood pulp fibers from the ends of the roll of sanitary tissue product.

The sanitary tissue products of the present invention may comprises additives such as softening agents, temporary wet strength agents, permanent wet strength agents, bulk softening agents, lotions, silicones, wetting agents, latexes, especially surface-pattern-applied latexes, dry strength agents such as carboxymethylcellulose and starch, and other types of additives suitable for inclusion in and/or on sanitary tissue products.

“Weight average molecular weight” as used herein means the weight average molecular weight as determined using gel permeation chromatography according to the protocol found in

Colloids and Surfaces A. Physico Chemical & Engineering Aspects, Vol. 162, 2000, pg. 107-121.

“Basis Weight” as used herein is the weight per unit area of a sample reported in lbs/3000 ft² or g/m².

5 “Machine Direction” or “MD” as used herein means the direction parallel to the flow of the fibrous structure through the fibrous structure making machine and/or sanitary tissue product manufacturing equipment.

“Cross Machine Direction” or “CD” as used herein means the direction parallel to the width of the fibrous structure making machine and/or sanitary tissue product manufacturing equipment and perpendicular to the machine direction.

“Ply” as used herein means an individual, integral fibrous structure.

“Plies” as used herein means two or more individual, integral fibrous structures disposed in a substantially contiguous, face-to-face relationship with one another, forming a multi-ply fibrous structure and/or multi-ply sanitary tissue product. It is also contemplated that an individual, integral fibrous structure can effectively form a multi-ply fibrous structure, for example, by being folded on itself.

“Total Pore Volume” as used herein means the sum of the fluid holding void volume in each pore range from 1μm to 1000μm radii as measured according to the Pore Volume Test Method described herein.

20 “Pore Volume Distribution” as used herein means the distribution of fluid holding void volume as a function of pore radius. The Pore Volume Distribution of a fibrous structure is measured according to the Pore Volume Test Method described herein.

As used herein, the articles “a” and “an” when used herein, for example, "an anionic surfactant" or "a fiber" is understood to mean one or more of the material that is claimed or described.

25 All percentages and ratios are calculated by weight unless otherwise indicated. All percentages and ratios are calculated based on the total composition unless otherwise indicated.

Unless otherwise noted, all component or composition levels are in reference to the active level of that component or composition, and are exclusive of impurities, for example, residual solvents or by-products, which may be present in commercially available sources.

Fibrous Structure

30 It has surprisingly been found that the fibrous structures of the present invention exhibit a pore volume distribution unlike pore volume distributions of other known fibrous structures.

The fibrous structures of the present invention may comprise a plurality of filaments, a plurality of solid additives, such as fibers, and a mixture of filaments and solid additives.

As shown in Figs. 1 and 2, examples of fibrous structures according to the present invention as represented by plots A and B exhibit a pore volume distribution such that greater than about 40% of the total pore volume present in the fibrous structure exists in pores of radii of from about 121 μ m to about 200 μ m and/or greater than about 50% of the total pore volume present in the fibrous structure exists in pores of radii of from about 101 μ m to about 200 μ m. The ranges of 101 μ m to 200 μ m and 121 μ m to 200 μ m are explicitly identified on the graph of Fig. 2. It should be noted that the value for the ending pore radius for the range of 101 μ m to 120 μ m is plotted at the ending pore radius; namely, 120 μ m. A similar result is shown on Fig. 2 for the value for the ending pore radius for the range of 121 μ m to 140 μ m, where the value is plotted at the ending pore radius; namely, 140 μ m. This data is also supported by the values present in Table 1 below.

Such fibrous structures have been found to exhibit consumer-recognizable beneficial absorbent capacity. In one example, the fibrous structures comprise a plurality of solid additives, for example fibers. In another example, the fibrous structures comprise a plurality of filaments. In yet another example, the fibrous structures comprise a mixture of filaments and solid additives, such as fibers.

As shown in Fig. 2, the examples of fibrous structures according to the present invention as represented by plots A and B may exhibit a bi-modal pore volume distribution such that the fibrous structure exhibits a pore volume distribution such that the greater than about 40% of the total pore volume present in the fibrous structure exists in pores of radii of from about 121 μ m to about 200 μ m and greater than about 2% and/or greater than about 5% and/or greater than about 10% of the total pore volume present in the fibrous structure exists in pores of radii of less than about 100 μ m and/or less than about 80 μ m and/or less than about 50 μ m and/or from about 1 μ m to about 100 μ m and/or from about 5 μ m to about 75 μ m and/or 10 μ m to about 50 μ m.

A fibrous structure according to the present invention exhibiting a bi-modal pore volume distribution as described above provides beneficial absorbent capacity and absorbent rate as a result of the larger radii pores and beneficial surface drying as a result of the smaller radii pores.

Figs. 3 and 4 show schematic representations of an example of a fibrous structure in accordance with the present invention. As shown in Figs. 3 and 4, the fibrous structure 10 may be a co-formed fibrous structure. The fibrous structure 10 comprises a plurality of filaments 12, such as polypropylene fibers, and a plurality of solid additives, such as wood pulp fibers 14. The

filaments 12 may be randomly arranged as a result of the process by which they are spun and/or formed into the fibrous structure 10. The wood pulp fibers 14, may be randomly dispersed throughout the fibrous structure 10 in the x-y plane. The wood pulp fibers 14 may be non-randomly dispersed throughout the fibrous structure in the z-direction. In one example (not shown), the wood pulp fibers 14 are present at a higher concentration on one or more of the exterior, x-y plane surfaces than within the fibrous structure along the z-direction.

As shown in Fig. 5, another example of a fibrous structure in accordance with the present invention is a layered fibrous structure 10'. The layered fibrous structure 10' comprises a first layer 16 comprising a plurality of filaments 12, such as polypropylene filaments, and a plurality of solid additives, in this example wood pulp fibers 14. The layered fibrous structure 10' further comprises a second layer 18 comprising a plurality of filaments 20, such as polypropylene filaments. In one example, the first and second layers 16, 18, respectively, are sharply defined zones of concentration of the filaments and/or solid additives. The plurality of filaments 20 may be deposited directly onto a surface of the first layer 16 to form a layered fibrous structure that comprises the first and second layers 16, 18, respectively.

Further, the layered fibrous structure 10' may comprise a third layer 22, as shown in Fig. 5. The third layer 22 may comprise a plurality of filaments 24, which may be the same or different from the filaments 20 in the second and/or first layers 18, 16. As a result of the addition of the third layer 22, the first layer 16 is positioned, for example sandwiched, between the second layer 18 and the third layer 22. The plurality of filaments 24 may be deposited directly onto a surface of the first layer 16, opposite from the second layer, to form the layered fibrous structure 10' that comprises the first, second and third layers 16, 18, 22, respectively.

As shown in Fig. 6, a cross-sectional schematic representation of another example of a fibrous structure in accordance with the present invention comprising a layered fibrous structure 10'' is provided. The layered fibrous structure 10'' comprises a first layer 26, a second layer 28 and optionally a third layer 30. The first layer 26 comprises a plurality of filaments 12, such as polypropylene filaments, and a plurality of solid additives, such as wood pulp fibers 14. The second layer 28 may comprise any suitable filaments, solid additives and/or polymeric films. In one example, the second layer 28 comprises a plurality of filaments 34. In one example, the filaments 34 comprise a polymer selected from the group consisting of: polysaccharides, polysaccharide derivatives, polyvinylalcohol, polyvinylalcohol derivatives and mixtures thereof.

In another example of a fibrous structure in accordance with the present invention, instead of being layers of fibrous structure 10'', the material forming layers 26, 28 and 30, may be in the

form of plies wherein two or more of the plies may be combined to form a fibrous structure. The plies may be bonded together, such as by thermal bonding and/or adhesive bonding, to form a multi-ply fibrous structure.

Another example of a fibrous structure of the present invention in accordance with the present invention is shown in Fig. 7. The fibrous structure 10''' may comprise two or more plies, wherein one ply 36 comprises any suitable fibrous structure in accordance with the present invention, for example fibrous structure 10 as shown and described in Figs. 3 and 4 and another ply 38 comprising any suitable fibrous structure, for example a fibrous structure comprising filaments 40, such as polypropylene filaments. The fibrous structure of ply 38 may be in the form of a net and/or mesh and/or other structure that comprises pores that expose one or more portions of the fibrous structure 10 to an external environment and/or at least to liquids that may come into contact, at least initially, with the fibrous structure of ply 38. In addition to ply 38, the fibrous structure 10''' may further comprise ply 42. Ply 42 may comprise a fibrous structure comprising filaments 44, such as polypropylene filaments, and may be the same or different from the fibrous structure of ply 38.

Two or more of the plies 36, 38 and 42 may be bonded together, such as by thermal bonding and/or adhesive bonding, to form a multi-ply fibrous structure. After a bonding operation, especially a thermal bonding operation, it may be difficult to distinguish the plies of the fibrous structure 10''' and the fibrous structure 10''' may visually and/or physically be similar to a layered fibrous structure in that one would have difficulty separating the once individual plies from each other. In one example, ply 36 may comprise a fibrous structure that exhibits a basis weight of at least about 15 g/m² and/or at least about 20 g/m² and/or at least about 25 g/m² and/or at least about 30 g/m² up to about 120 g/m² and/or 100 g/m² and/or 80 g/m² and/or 60 g/m² and the plies 38 and 42, when present, independently and individually, may comprise fibrous structures that exhibit basis weights of less than about 10 g/m² and/or less than about 7 g/m² and/or less than about 5 g/m² and/or less than about 3 g/m² and/or less than about 2 g/m² and/or to about 0 g/m² and/or 0.5 g/m².

Plies 38 and 42, when present, may help retain the solid additives, in this case the wood pulp fibers 14, on and/or within the fibrous structure of ply 36 thus reducing lint and/or dust (as compared to a single-ply fibrous structure comprising the fibrous structure of ply 36 without the plies 38 and 42) resulting from the wood pulp fibers 14 becoming free from the fibrous structure of ply 36.

The fibrous structures of the present invention may comprise any suitable amount of filaments and any suitable amount of solid additives. For example, the fibrous structures may comprise from about 10% to about 70% and/or from about 20% to about 60% and/or from about 30% to about 50% by dry weight of the fibrous structure of filaments and from about 90% to about 30% and/or from about 80% to about 40% and/or from about 70% to about 50% by dry weight of the fibrous structure of solid additives, such as wood pulp fibers.

The filaments and solid additives of the present invention may be present in fibrous structures according to the present invention at weight ratios of filaments to solid additives of from at least about 1:1 and/or at least about 1:1.5 and/or at least about 1:2 and/or at least about 1:2.5 and/or at least about 1:3 and/or at least about 1:4 and/or at least about 1:5 and/or at least about 1:7 and/or at least about 1:10.

The fibrous structures of the present invention and/or any sanitary tissue products comprising such fibrous structures may be subjected to any post-processing operations such as embossing operations, printing operations, tuft-generating operations, thermal bonding operations, ultrasonic bonding operations, perforating operations, surface treatment operations such as application of lotions, silicones and/or other materials and mixtures thereof.

Any hydrophobic or non-hydrophilic materials within the fibrous structure, such as polypropylene filaments, may be surface treated and/or melt treated with a hydrophilic modifier. Nonlimiting examples of surface treating hydrophilic modifiers include surfactants, such as Triton X-100. Nonlimiting examples of melt treating hydrophilic modifiers that are added to the melt, such as the polypropylene melt, prior to spinning filaments, include hydrophilic modifying melt additives such as VW351 commercially available from Polyvel, Inc. and Irgasurf commercially available from Ciba. The hydrophilic modifier may be associated with the hydrophobic or non-hydrophilic material at any suitable level known in the art. In one example, the hydrophilic modifier is associated with the hydrophobic or non-hydrophilic material at a level of less than about 20% and/or less than about 15% and/or less than about 10% and/or less than about 5% and/or less than about 3% to about 0% by dry weight of the hydrophobic or non-hydrophilic material.

The fibrous structures of the present invention may include optional additives, each, when present, at individual levels of from about 0% and/or from about 0.01% and/or from about 0.1% and/or from about 1% and/or from about 2% to about 95% and/or to about 80% and/or to about 50% and/or to about 30% and/or to about 20% by dry weight of the fibrous structure. Nonlimiting examples of optional additives include permanent wet strength agents, temporary

wet strength agents, dry strength agents such as carboxymethylcellulose and/or starch, softening agents, lint reducing agents, opacity increasing agents, wetting agents, odor absorbing agents, perfumes, temperature indicating agents, color agents, dyes, osmotic materials, microbial growth detection agents, antibacterial agents and mixtures thereof.

5 The fibrous structure of the present invention may itself be a sanitary tissue product. It may be convolutedly wound about a core to form a roll. It may be combined with one or more other fibrous structures as a ply to form a multi-ply sanitary tissue product. In one example, a co-formed fibrous structure of the present invention may be convolutedly wound about a core to form a roll of co-formed sanitary tissue product. The rolls of sanitary tissue products may also be
10 coreless.

 As shown in Fig. 8, a fibrous structure roll 46 comprising a fibrous structure, such as a fibrous structure according to the present invention, comprises end edges 48, 50. At least one of the end edges 48, 50 comprises a bond region 52. The bond region 52 may comprise a plurality of bond subregions (not shown) that are present at a frequency of at least about 10 and/or at least
15 about 50 and/or at least about 100 and/or at least about 200 per inch, such as dots per inch (dpi). In one example, the bond region 52 may cover the entire or substantially the entire surface area of the end edge 48. In one example, the bond region 52 comprises greater than about 20% and/or greater than about 25% and/or greater than about 30% and/or greater than about 50% of the total surface area of the end edge 48. In one example, the bond region 52 is a film that comprises the
20 entire or substantially entire total surface area of the end edge 48. In another example, the bond region 52 is present on a non-lotioned fibrous structure.

 The bond region 52 may comprise a bonding agent selected from chemical agents and/or mechanical agents. Nonlimiting examples of chemical agents include dry strength agents and wet strength agents and mixtures thereof. The mechanical agents may be in the form of a liquid
25 and/or a solid. A liquid mechanical agent may be an oil. A solid mechanical agent may be a wax.

 The bond region 52 may comprise different types of bonding agents and/or bonding agents that are chemically different from the filaments and/or fibers present in the fibrous structure. In one example, the material comprises a bonding agent, such as a dry strength resin
30 such as a polysaccharide and/or a polysaccharide derivative and temporary and permanent wet strength resins. Nonlimiting examples of suitable bonding agents include latex dispersions, polyvinyl alcohol, Parex[®], Kymene[®], carboxymethylcellulose and starch.

As shown in Fig. 9, a fibrous structure 54 in accordance with the present invention may comprise edges 56, 58, 60, 62. One or more of the edges 56, 58, 60, 62 may comprise a bond region 64. The bond region 64 may extend inwardly from the edge 56, for example less than about 1 cm and/or less than about 0.5 cm. Any of the edges may comprise such a bond region.

- 5 The bond region 64 may comprise a plurality of bond subregions (not shown) that are present at a frequency of at least 10 and/or at least 50 and/or at least 100 and/or at least 200 per inch, such as dots per inch (dpi). The bond region 64 may comprise a material chemically different from the filaments and/or fibers present in the fibrous structure. In one example, the material comprises a bonding agent, such as a dry strength resin such as a polysaccharide and/or a polysaccharide derivative. Nonlimiting examples of suitable bonding agents include carboxymethylcellulose and starch
- 10

To further illustrate the fibrous structures of the present invention, Table 1 sets forth the average pore volume distributions of known and/or commercially available fibrous structures and a fibrous structure in accordance with the present invention.

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Table 1

Pore Radius (μm)	Huggies®	Huggies® Wash Cloth	Duramax	Concert EBT.055.1010 TBAL	LBAL-DUNI embossed	Bounty®	Invention Example A	Invention Example B
1	0	0	0	0	0	0	0	0
2.5	19.25	29.6	32.4	33.65	34.4	31.1	19.55	15.85
5	11.65	16.1	17.85	18.1	18.25	17.6	12.4	7.95
10	11.7	12.6	28.5	14.4	14.75	32.8	10.35	6.45
15	7.95	7.05	101.7	8.65	8.5	52.3	6.45	3.2
20	7.15	4.65	62.7	6.45	6.4	36.7	3.8	2.45
30	31.35	6.45	91.55	9.1	9.55	54	7.1	3.65
40	110.4	5.5	82.1	26.3	127.25	47.8	6.4	3.4
50	133.05	6.5	77.35	65.95	71.4	43.6	6.5	4.6
60	200.1	96.55	70.5	74.7	59.95	38.9	7.5	6.55
70	302.45	144.85	61.65	70.25	69.05	36.3	13.85	11.3
80	336.9	132.35	56.05	102.05	95.05	33.9	150.85	63.15
90	250.9	150.8	49.3	174.05	150.1	33	137.5	128
100	160.15	162.8	48.3	293	232.9	32.2	143.35	129.25
120	172.8	394.1	95.6	693.4	464.15	64.7	359.75	306.05
140	85.1	451.7	89.5	162.55	176.45	68.5	578.8	521.95
160	54	505.45	76.6	19.35	49.6	74.8	485.85	613.35
180	37.3	509.7	63.45	10.15	24.3	78.5	257.65	243.3
200	30.15	450.95	50	8.2	18.55	89.2	108.7	69.15
225	28.2	409.15	51.6	8.5	18.95	134.4	56.15	32.55

250	22.85	245.2	44	7.5	16.25	149.8	32.3	20.6
275	22.15	144.1	40.25	2.7	14.9	157.9	22.75	13.75
300	18.4	101.3	35.95	10.05	13.75	125.7	24.6	7.9
350	29.95	153.2	60.7	10.9	25.4	145	41.95	24.45
400	24.25	141.7	59.25	9.65	26.65	52.4	40.55	17.55
500	45.6	271.15	266.45	15.75	116.85	56	51.45	31.05
600	34.3	230.95	291.9	14.5	71.3	23.9	33.45	27.95
800	46.65	261.6	162.4	24.3	34.25	34.9	45.35	32.6
1000	38.75	112.55	29.15	24.9	30.35	24.9	34.6	25.55
Total	2273.45	5158.6	2196.75	1919.05	1999.25	1770.8	2699.5	2373.55
101-200 μm	16.7%	44.8%	17.1%	46.6%	36.7%	21.2%	66.3%	73.9%
121-200 μm	9.1%	37.2%	12.7%	10.4%	13.5%	17.6%	53.0%	61.0%

The fibrous structures of the present invention may exhibit a unique combination of fibrous structure properties that do not exist in known fibrous structures. For example, the fibrous structures may exhibit a VFS of greater than about 11 g/g and/or greater than about 12 g/g and/or greater than about 13 g/g and/or greater than about 14 g/g and/or less than about 50 g/g and/or less than about 40 g/g and/or less than about 30 g/g and/or less than about 20 g/g and/or from about 11 g/g to about 50 g/g and/or from about 11 g/g to about 40 g/g and/or from about 11 g/g to about 30 g/g and/or from about 11 g/g to about 20 g/g.

In addition to the VFS property, the fibrous structures of the present invention may exhibit a Dry CD Tensile Modulus of less than about 1500 g/cm and/or less than about 1400 g/cm and/or less than about 1300 g/cm and/or less than about 1100 g/cm and/or less than about 1000 g/cm and/or less than about 800 g/cm and/or greater than about 50 g/cm and/or greater than about 100 g/cm and/or greater than about 300 g/cm and/or from about 50 g/cm to about 1500 g/cm and/or from about 100 g/cm to about 1400 g/cm and/or from about 100 g/cm to about 1300 g/cm.

In addition to the VFS property and/or the Dry CD Tensile Modulus property, the fibrous structures of the present invention may exhibit a Wet CD TEA of greater than about 35 (g · in)/in² and/or greater than about 50 (g · in)/in² and/or greater than about 75 (g · in)/in² and/or greater than about 90 (g · in)/in² and/or greater than about 150 (g · in)/in² and/or greater than about 175 (g · in)/in² and/or less than about 500 (g · in)/in² and/or less than about 400 (g · in)/in² and/or less than about 350 (g · in)/in² and/or less than about 300 (g · in)/in² and/or from about 35 (g · in)/in² to about 500 (g · in)/in² and/or from about 35 (g · in)/in² to about 400 (g · in)/in².

and/or from about 50 (g · in)/in² to about 350 (g · in)/in² and/or from about 75 (g · in)/in² to about 300 (g · in)/in².

In addition to the VFS property and/or the Dry CD Tensile Modulus property and/or the Wet CD TEA, the fibrous structures of the present invention may exhibit a Wet MD TEA of greater than about 40 (g · in)/in² and/or greater than about 50 (g · in)/in² and/or greater than about 75 (g · in)/in² and/or greater than about 90 (g · in)/in² and/or greater than about 150 (g · in)/in² and/or greater than about 175 (g · in)/in² and/or less than about 500 (g · in)/in² and/or less than about 400 (g · in)/in² and/or less than about 350 (g · in)/in² and/or less than about 300 (g · in)/in² and/or from about 40 (g · in)/in² to about 500 (g · in)/in² and/or from about 35 (g · in)/in² to about 400 (g · in)/in² and/or from about 50 (g · in)/in² to about 350 (g · in)/in² and/or from about 75 (g · in)/in² to about 300 (g · in)/in².

In one example of the fibrous structures of the present invention, the fibrous structure exhibits a VFS of greater than about 11 g/g and one or more of the following: a Dry CD Tensile Modulus of less than about 1500 g/cm and/or a Wet CD TEA of greater than about 35 (g · in)/in² and/or a Wet MD TEA of greater than about 40 (g · in)/in².

The values of these properties associated with a fibrous structure are determined according to the respective test methods described herein.

To further illustrate the fibrous structures of the present invention, Table 2 sets forth certain properties of known and commercially available fibrous structures and a fibrous structure in accordance with the present invention.

Table 2

<u>Property</u>	<u>Duramax®</u>	<u>Viva®</u> (Wetlaid)	<u>Viva®</u> (Airlaid)	<u>Bounty®</u>	<u>Scott®</u>	<u>Sparkle®</u>	<u>Invention</u> <u>Example</u>
Wet MD TEA (g·in)/in ²	377	21.4	34.5	22.4	16.7	14.8	90
Wet CD TEA (g·in)/in ²	340	22.6	31.7	18.1	8.9	8.1	209
Dry CD Tensile Modulus g/cm	728	299	660	1844	1500	5900	400

<u>Property</u>	<u>Duramax®</u>	<u>Viva®</u> (Wetlaid)	<u>Viva®</u> (Airlaid)	<u>Bounty®</u>	<u>Scott®</u>	<u>Sparkle®</u>	<u>Invention</u> <u>Example</u>
VFS g/g	5.7	10.4	10.9	9.9	8	5.6	13

Process For Making A Fibrous Structure

A nonlimiting example of a process for making a fibrous structure according to the present invention is represented in Fig. 10. The process shown in Fig. 10 comprises the step of
5 mixing a plurality of solid additives 14 with a plurality of filaments 12. In one example, the solid additives 14 are wood pulp fibers, such as SSK fibers and/or Eucalyptus fibers, and the filaments 12 are polypropylene filaments. The solid additives 14 may be combined with the filaments 12, such as by being delivered to a stream of filaments 12 from a hammermill 66 via a solid additive spreader 67 to form a mixture of filaments 12 and solid additives 14. The filaments 12 may be
10 created by meltblowing from a meltblow die 68. The mixture of solid additives 14 and filaments 12 are collected on a collection device, such as a belt 70 to form a fibrous structure 72. The collection device may be a patterned and/or molded belt that results in the fibrous structure exhibiting a surface pattern, such as a non-random, repeating pattern. The molded belt may have a three-dimensional pattern on it that gets imparted to the fibrous structure 72 during the process.

15 In one example of the present invention, the fibrous structures are made using a die comprising at least one filament-forming hole, and/or 2 or more and/or 3 or more rows of filament-forming holes from which filaments are spun. At least one row of holes contains 2 or more and/or 3 or more and/or 10 or more filament-forming holes. In addition to the filament-forming holes, the die comprises fluid-releasing holes, such as gas-releasing holes, in one
20 example air-releasing holes, that provide attenuation to the filaments formed from the filament-forming holes. One or more fluid-releasing holes may be associated with a filament-forming hole such that the fluid exiting the fluid-releasing hole is parallel or substantially parallel (rather than angled like a knife-edge die) to an exterior surface of a filament exiting the filament-forming hole. In one example, the fluid exiting the fluid-releasing hole contacts the exterior
25 surface of a filament formed from a filament-forming hole at an angle of less than 30° and/or less than 20° and/or less than 10° and/or less than 5° and/or about 0°. One or more fluid releasing holes may be arranged around a filament-forming hole. In one example, one or more fluid-releasing holes are associated with a single filament-forming hole such that the fluid exiting the one or more fluid releasing holes contacts the exterior surface of a single filament formed from

the single filament-forming hole. In one example, the fluid-releasing hole permits a fluid, such as a gas, for example air, to contact the exterior surface of a filament formed from a filament-forming hole rather than contacting an inner surface of a filament, such as what happens when a hollow filament is formed.

5 In one example, the die comprises a filament-forming hole positioned within a fluid-releasing hole. The fluid-releasing hole 74 may be concentrically or substantially concentrically positioned around a filament-forming hole 76 such as is shown in Fig. 11.

In another example, the die comprises filament-forming holes and fluid-releasing holes arranged to produce a plurality of filaments that exhibit a broader range of filament diameters than known filament-forming hole dies, such as knife-edge dies. For example, as shown in Fig. 10 12, a fibrous structure made by a known knife-edge die produces a fibrous structure comprising filaments having a narrower distribution of average filament diameters than a fibrous structure made by a die according to the present invention, as shown in Fig. 13. As is evidenced by Fig. 13, the fibrous structure made by a die according to the present invention may comprise filaments 15 that exhibit an average filament diameter of less than 1 μ m. Such filaments are not seen in the fibrous structure made by the known knife-edge die as shown in Fig. 12.

After the fibrous structure 72 has been formed on the collection device, the fibrous structure 72 may be subjected to post-processing operations such as embossing, thermal bonding, tuft-generating operations, moisture-imparting operations, and surface treating operations to form 20 a finished fibrous structure. One example of a surface treating operation that the fibrous structure may be subjected to is the surface application of an elastomeric binder, such as ethylene vinyl acetate (EVA), latexes, and other elastomeric binders. Such an elastomeric binder may aid in reducing the lint created from the fibrous structure during use by consumers. The elastomeric binder may be applied to one or more surfaces of the fibrous structure in a pattern, especially a 25 non-random repeating pattern, or in a manner that covers or substantially covers the entire surface(s) of the fibrous structure.

In one example, the fibrous structure 72 and/or the finished fibrous structure may be combined with one or more other fibrous structures. For example, another fibrous structure, such as a filament-containing fibrous structure, such as a polypropylene filament fibrous structure may 30 be associated with a surface of the fibrous structure 72 and/or the finished fibrous structure. The polypropylene filament fibrous structure may be formed by meltblowing polypropylene filaments (filaments that comprise a second polymer that may be the same or different from the polymer of the filaments in the fibrous structure 72) onto a surface of the fibrous structure 72 and/or finished

fibrous structure. In another example, the polypropylene filament fibrous structure may be formed by meltblowing filaments comprising a second polymer that may be the same or different from the polymer of the filaments in the fibrous structure 72 onto a collection device to form the polypropylene filament fibrous structure. The polypropylene filament fibrous structure may then
5 be combined with the fibrous structure 72 or the finished fibrous structure to make a two-ply fibrous structure – three-ply if the fibrous structure 72 or the finished fibrous structure is positioned between two plies of the polypropylene filament fibrous structure like that shown in Fig. 5 for example. The polypropylene filament fibrous structure may be thermally bonded to the fibrous structure 72 or the finished fibrous structure via a thermal bonding operation.

10 In yet another example, the fibrous structure 72 and/or finished fibrous structure may be combined with a filament-containing fibrous structure such that the filament-containing fibrous structure, such as a polysaccharide filament fibrous structure, such as a starch filament fibrous structure, is positioned between two fibrous structures 72 or two finished fibrous structures like that shown in Fig. 6 for example.

15 The process for making fibrous structure 72 may be close coupled (where the fibrous structure is convolutedly wound into a roll prior to proceeding to a converting operation) or directly coupled (where the fibrous structure is not convolutedly wound into a roll prior to proceeding to a converting operation) with a converting operation to emboss, print, deform, surface treat, or other post-forming operation known to those in the art. For purposes of the
20 present invention, direct coupling means that the fibrous structure 72 can proceed directly into a converting operation rather than, for example, being convolutedly wound into a roll and then unwound to proceed through a converting operation.

The process of the present invention may include preparing individual rolls of fibrous structure and/or sanitary tissue product comprising such fibrous structure(s) that are suitable for
25 consumer use. The fibrous structure may be contacted by a bonding agent (such as an adhesive and/or dry strength agent), such that the ends of a roll of sanitary tissue product according to the present invention comprise such adhesive and/or dry strength agent.

The process may further comprise contacting an end edge of a roll of fibrous structure with a material that is chemically different from the filaments and fibers, to create bond regions
30 that bond the fibers present at the end edge and reduce lint production during use. The material may be applied by any suitable process known in the art. Nonlimiting examples of suitable processes for applying the material include non-contact applications, such as spraying, and contact applications, such as gravure roll printing, extruding, surface transferring. In addition,

the application of the material may occur by transfer from contact of a log saw and/or perforating blade containing the material since, for example, the perforating operation, an edge of the fibrous structure that may produce lint upon dispensing a fibrous structure sheet from an adjacent fibrous structure sheet may be created.

5 Nonlimiting Example of Process for Making a Fibrous Structure of the Present Invention:

A 47.5% :47.5%:5% blend of Exxon-Mobil PP3546 polypropylene : Sunoco CP200VM polypropylene : Polyvel S-1416 wetting agent is dry blended, to form a melt blend. The melt blend is heated to 475°F through a melt extruder. A 10" wide Biax 12 row spinnerette with 192 nozzles per cross-direction inch, commercially available from Biax Fiberfilm Corporation, is
10 utilized. 32 nozzles per cross-direction inch of the 192 nozzles have a 0.018" inside diameter while the remaining nozzles are solid, i.e. there is no opening in the nozzle. Approximately 0.17 grams per hole per minute (ghm) of the melt blend is extruded from the open nozzles to form meltblown filaments from the melt blend. Approximately 200 SCFM of compressed air is heated such that the air exhibits a temperature of 395°F at the spinnerette. Approximately 175 grams /
15 minute of Koch 4825 semi-treated SSK pulp is defibrillated through a hammermill to form SSK wood pulp fibers (solid additive). 330 SCFM of air at 85-90°F and 85% relative humidity (RH) is drawn into the hammermill and carries the pulp fibers to a solid additive spreader. The solid additive spreader turns the pulp fibers and distributes the pulp fibers in the cross-direction such that the pulp fibers are injected into the meltblown filaments in a perpendicular fashion through a
20 2" x 10" cross-direction (CD) slot. A forming box surrounds the area where the meltblown filaments and pulp fibers are commingled. This forming box is designed to reduce the amount of air allowed to enter or escape from this commingling area; however, there is a 2" x 12" opening in the bottom of the forming box designed to permit additional cooling air to enter. A forming vacuum pulls air through a forming fabric thus collecting the commingled meltblown filaments
25 and pulp fibers to form a fibrous structure. The forming vacuum is adjusted until an additional 400 SCFM of room air is drawn into the slot in the forming box. The fibrous structure formed by this process comprises about 75% by dry fibrous structure weight of pulp and about 25% by dry fibrous structure weight of meltblown filaments.

As shown in Fig. 14, the solid additive spreader 78 has an inlet 80 and an exit 82. Any
30 suitable material known in the art may be used to make the spreader 78. Nonlimiting examples of suitable materials include non-conductive materials. For example, stainless steel and/or sheet metal may be used to fabricate the spreader 78. A pulp and air mixture 84 created in the hammermill (not shown) enters the spreader 78 through a duct (not shown) connecting the

hammermill and spreader 78 at greater than about 8,000 fpm velocity and/or greater than about 14,000 fpm. The inlet 80 is tilted at an angle α at approximately 5° upstream from perpendicular of the exit 82. The exit 82 of the solid additive spreader 78 has a height H in the range of about 2.54 cm (1 inch) to about 25.40 cm (10 inches). The width W of the exit 82 is from about 1.27 cm (0.5 inch) to about 10.16 cm (4 inches). Typically the width W of the exit 82 is about 5.08 cm (2 inches). The length L of the spreader 78 is from about 60.96 cm (24 inches) to about 243.84 cm (96 inches) and/or from about 91.44 cm (36 inches) to about 182.88 cm (72 inches) and/or from about 121.92 cm (48 inches) to about 152.40 cm (60 inches). A tapering of the height H of the spreader 78 occurs from the inlet end 86 to the exit end 88 to continually accelerate the pulp and air mixture 84. This tapering is from about 10.16 cm (4 inches) in height at the inlet 80 to about 5.08 cm (2 inches) in height at the exit 82. However, the spreader 78 may incorporate other similar taperings. The inlet end 86 of the spreader 78 has a semi-circular arc from the top view with a radius of from about 7.62 cm (3 inches) to about 50.80 cm (20 inches) and/or from about 12.70 cm (5 inches) to about 25.40 cm (10 inches). As shown in Fig. 15, multiple semi-circular arcs can be assembled to produce the desired spreader width. Each semi-circular arc would comprise its own inlet 80 centered in each of these semi-circular arcs.

Optionally, a meltblown layer of the meltblown filaments can be added to one or both sides of the above formed fibrous structure. This addition of the meltblown layer can help reduce the lint created from the fibrous structure during use by consumers and is preferably performed prior to any thermal bonding operation of the fibrous structure. The meltblown filaments for the exterior layers can be the same or different than the meltblown filaments used on the opposite layer or in the center layer(s).

The fibrous structure may be convolutedly wound to form a roll of fibrous structure. The end edges of the roll of fibrous structure may be contacted with a material to create bond regions.

TEST METHODS

Unless otherwise indicated, all tests described herein including those described under the Definitions section and the following test methods are conducted on samples that have been conditioned in a conditioned room at a temperature of $73^\circ\text{F} \pm 4^\circ\text{F}$ (about $23^\circ\text{C} \pm 2.2^\circ\text{C}$) and a relative humidity of $50\% \pm 10\%$ for 2 hours prior to the test. Samples conditioned as described herein are considered dry samples (such as “dry fibrous structures”) for purposes of this invention. Further, all tests are conducted in such conditioned room.

A. Pore Volume Distribution Test Method

Pore Volume Distribution measurements are made on a TRI/Autoporosimeter (TRI/Princeton Inc. of Princeton, NJ). The TRI/Autoporosimeter is an automated computer-controlled instrument for measuring pore volume distributions in porous materials (e.g., the
5 volumes of different size pores within the range from 1 to 1000 μm effective pore radii). Complimentary Automated Instrument Software, Release 2000.1, and Data Treatment Software, Release 2000.1 is used to capture, analyze and output the data. More information on the TRI/Autoporosimeter, its operation and data treatments can be found in The Journal of Colloid and Interface Science 162 (1994), pgs 163-170, incorporated here by reference.

10 As used in this application, determining Pore Volume Distribution involves recording the increment of liquid that enters a porous material as the surrounding air pressure changes. A sample in the test chamber is exposed to precisely controlled changes in air pressure. The size (radius) of the largest pore able to hold liquid is a function of the air pressure. As the air pressure increases (decreases), different size pore groups drain (absorb) liquid. The pore volume of each
15 group is equal to this amount of liquid, as measured by the instrument at the corresponding pressure. The effective radius of a pore is related to the pressure differential by the following relationship.

$$\text{Pressure differential} = [(2) \gamma \cos\Theta] / \text{effective radius}$$

where γ = liquid surface tension, and Θ = contact angle.

20 Typically pores are thought of in terms such as voids, holes or conduits in a porous material. It is important to note that this method uses the above equation to calculate effective pore radii based on the constants and equipment controlled pressures. The above equation assumes uniform cylindrical pores. Usually, the pores in natural and manufactured porous materials are not perfectly cylindrical, nor all uniform. Therefore, the effective radii reported
25 here may not equate exactly to measurements of void dimensions obtained by other methods such as microscopy. However, these measurements do provide an accepted means to characterize relative differences in void structure between materials.

The equipment operates by changing the test chamber air pressure in user-specified increments, either by decreasing pressure (increasing pore size) to absorb liquid, or increasing
30 pressure (decreasing pore size) to drain liquid. The liquid volume absorbed (drained) at each pressure increment is the cumulative volume for the group of all pores between the preceding pressure setting and the current setting.

In this application of the TRI/Autoporosimeter, the liquid is a 0.2 weight % solution of octylphenoxy polyethoxy ethanol (Triton X-100 from Union Carbide Chemical and Plastics Co. of Danbury, CT.) in distilled water. The instrument calculation constants are as follows: ρ (density) = 1 g/cm³; γ (surface tension) = 31 dynes/cm; $\cos\Theta = 1$. A 0.22 μ m Millipore Glass Filter (Millipore Corporation of Bedford, MA; Catalog # GSWP09025) is employed on the test chamber's porous plate. A plexiglass plate weighing about 24 g (supplied with the instrument) is placed on the sample to ensure the sample rests flat on the Millipore Filter. No additional weight is placed on the sample.

The remaining user specified inputs are described below. The sequence of pore sizes (pressures) for this application is as follows (effective pore radius in μ m): 1, 2.5, 5, 10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100, 120, 140, 160, 180, 200, 225, 250, 275, 300, 350, 400, 500, 600, 800, 1000. This sequence starts with the sample dry, saturates it as the pore settings increase (typically referred to with respect to the procedure and instrument as the 1st absorption).

In addition to the test materials, a blank condition (no sample between plexiglass plate and Millipore Filter) is run to account for any surface and/or edge effects within the chamber. Any pore volume measured for this blank run is subtracted from the applicable pore grouping of the test sample. This data treatment can be accomplished manually or with the available TRI/Autoporosimeter Data Treatment Software, Release 2000.1.

Percent (%) Total Pore Volume is a percentage calculated by taking the volume of fluid in the specific pore radii range divided by the Total Pore Volume. The TRI/Autoporosimeter outputs the volume of fluid within a range of pore radii. The first data obtained is for the "2.5 micron" pore radii which includes fluid absorbed between the pore sizes of 1 to 2.5 micron radius. The next data obtained is for "5 micron" pore radii, which includes fluid absorbed between the 2.5micron and 5 micron radii, and so on. Following this logic, to obtain the volume held within the range of 101-200 micron radii, one would sum the volumes obtained in the range titled "120 micron", "140 micron", "160 micron", "180 micron", and finally the "200 micron" pore radii ranges. For example, % Total Pore Volume 101-200 micron pore radii = (volume of fluid between 101-200 micron pore radii) / Total Pore Volume

B. Horizontal Full Sheet (HFS) Test Method

The Horizontal Full Sheet (HFS) test method determines the amount of distilled water absorbed and retained by a fibrous structure of the present invention. This method is performed by first weighing a sample of the fibrous structure to be tested (referred to herein as the "dry weight of the sample"), then thoroughly wetting the sample, draining the wetted sample in a

horizontal position and then reweighing (referred to herein as “wet weight of the sample”). The absorptive capacity of the sample is then computed as the amount of water retained in units of grams of water absorbed by the sample. When evaluating different fibrous structure samples, the same size of fibrous structure is used for all samples tested.

5 The apparatus for determining the HFS capacity of fibrous structures comprises the following:

1) An electronic balance with a sensitivity of at least ± 0.01 grams and a minimum capacity of 1200 grams. The balance should be positioned on a balance table and slab to minimize the vibration effects of floor/benchtop weighing. The balance should also have a
10 special balance pan to be able to handle the size of the sample tested (i.e.; a fibrous structure sample of about 11 in. (27.9 cm) by 11 in. (27.9 cm)). The balance pan can be made out of a variety of materials. Plexiglass is a common material used.

2) A sample support rack (Fig. 16) and sample support rack cover (Fig. 17) is also required. Both the rack and cover are comprised of a lightweight metal frame, strung with 0.012
15 in. (0.305 cm) diameter monofilament so as to form a grid as shown in Fig. 16. The size of the support rack and cover is such that the sample size can be conveniently placed between the two.

The HFS test is performed in an environment maintained at $23 \pm 1^\circ \text{C}$ and $50 \pm 2\%$ relative humidity. A water reservoir or tub is filled with distilled water at $23 \pm 1^\circ \text{C}$ to a depth of 3 inches (7.6 cm).

20 Eight samples of a fibrous structure to be tested are carefully weighed on the balance to the nearest 0.01 grams. The dry weight of each sample is reported to the nearest 0.01 grams. The empty sample support rack is placed on the balance with the special balance pan described above. The balance is then zeroed (tared). One sample is carefully placed on the sample support rack. The support rack cover is placed on top of the support rack. The sample (now sandwiched
25 between the rack and cover) is submerged in the water reservoir. After the sample is submerged for 60 seconds, the sample support rack and cover are gently raised out of the reservoir.

The sample, support rack and cover are allowed to drain horizontally for 120 ± 5 seconds, taking care not to excessively shake or vibrate the sample. While the sample is draining, the rack cover is carefully removed and all excess water is wiped from the support rack. The wet sample
30 and the support rack are weighed on the previously tared balance. The weight is recorded to the nearest 0.01g. This is the wet weight of the sample.

The gram per fibrous structure sample absorptive capacity of the sample is defined as (wet weight of the sample - dry weight of the sample). The horizontal absorbent capacity (HAC)

is defined as: absorbent capacity = (wet weight of the sample - dry weight of the sample) / (dry weight of the sample) and has a unit of gram/gram.

C. Vertical Full Sheet (VFS) Test Method

5 The Vertical Full Sheet (VFS) test method determines the amount of distilled water absorbed and retained by a fibrous structure of the present invention. This method is performed by first weighing a sample of the fibrous structure to be tested (referred to herein as the "dry weight of the sample"), then thoroughly wetting the sample, draining the wetted sample in a vertical position and then reweighing (referred to herein as "wet weight of the sample"). The absorptive capacity of the sample is then computed as the amount of water retained in units of
10 grams of water absorbed by the sample. When evaluating different fibrous structure samples, the same size of fibrous structure is used for all samples tested.

The apparatus for determining the VFS capacity of fibrous structures comprises the following:

1) An electronic balance with a sensitivity of at least ± 0.01 grams and a minimum
15 capacity of 1200 grams. The balance should be positioned on a balance table and slab to minimize the vibration effects of floor/benchtop weighing. The balance should also have a special balance pan to be able to handle the size of the sample tested (i.e.; a fibrous structure sample of about 11 in. (27.9 cm) by 11 in. (27.9 cm)). The balance pan can be made out of a variety of materials. Plexiglass is a common material used.

20 2) A sample support rack (Fig. 16) and sample support rack cover (Fig. 17) is also required. Both the rack and cover are comprised of a lightweight metal frame, strung with 0.012 in. (0.305 cm) diameter monofilament so as to form a grid as shown in Fig. 16. The size of the support rack and cover is such that the sample size can be conveniently placed between the two.

The VFS test is performed in an environment maintained at $23 \pm 1^\circ \text{C}$ and $50 \pm 2\%$ relative
25 humidity. A water reservoir or tub is filled with distilled water at $23 \pm 1^\circ \text{C}$ to a depth of 3 inches (7.6 cm).

Eight 19.05 cm (7.5 inch) x 19.05 cm (7.5 inch) to 27.94 cm (11 inch) x 27.94 cm (11 inch) samples of a fibrous structure to be tested are carefully weighed on the balance to the nearest 0.01 grams. The dry weight of each sample is reported to the nearest 0.01 grams. The
30 empty sample support rack is placed on the balance with the special balance pan described above. The balance is then zeroed (tared). One sample is carefully placed on the sample support rack. The support rack cover is placed on top of the support rack. The sample (now sandwiched

between the rack and cover) is submerged in the water reservoir. After the sample is submerged for 60 seconds, the sample support rack and cover are gently raised out of the reservoir.

The sample, support rack and cover are allowed to drain vertically for 60 ± 5 seconds, taking care not to excessively shake or vibrate the sample. While the sample is draining, the rack cover is carefully removed and all excess water is wiped from the support rack. The wet sample and the support rack are weighed on the previously tared balance. The weight is recorded to the nearest 0.01g. This is the wet weight of the sample.

The procedure is repeated for with another sample of the fibrous structure, however, the sample is positioned on the support rack such that the sample is rotated 90° compared to the position of the first sample on the support rack.

The gram per fibrous structure sample absorptive capacity of the sample is defined as (wet weight of the sample - dry weight of the sample). The calculated VFS is the average of the absorptive capacities of the two samples of the fibrous structure.

D. Wet MD TEA, Wet CD TEA, Dry CD Tensile Modulus (“Tangent Modulus”) Test Methods

The Wet MD TEA, Wet CD TEA and Dry CD Tensile Modulus of a fibrous structure are all determined using a Thwing Albert EJA Tensile Tester. A 2.54 cm (1 inch) wide strip of the fibrous structure to be tested is placed in the grips of the Tensile Tester at a gauge length of 10.16 cm (4 inches). The Crosshead Speed of the Tensile Tester is set at 10.16 cm/min (4 inches/min) and the Break Sensitivity is set at 20 g. Eight (8) samples are run on the Tensile Tester and an average of the respective Wet MD TEA, Wet CD TEA values from the 8 samples is reported as the Wet MD TEA value and the Wet CD TEA. The Dry CD Tensile Modulus is reported as the average of the Dry CD Tensile Modulus from the 8 samples measured at 15 g/cm.

E. Basis Weight Test Method

Basis weight is measured by preparing one or more samples of a certain area (m^2) and weighing the sample(s) of a fibrous structure according to the present invention and/or a paper product comprising such fibrous structure on a top loading balance with a minimum resolution of 0.01 g. The balance is protected from air drafts and other disturbances using a draft shield. Weights are recorded when the readings on the balance become constant. The average weight (g) is calculated and the average area of the samples (m^2). The basis weight (g/m^2) is calculated by dividing the average weight (g) by the average area of the samples (m^2).

The dimensions and values disclosed herein are not to be understood as being strictly limited to the exact numerical values recited. Instead, unless otherwise specified, each such dimension is intended to mean both the recited value and a functionally equivalent range

surrounding that value. For example, a dimension disclosed as “40 mm” is intended to mean “about 40 mm.”

5 All documents cited in the Detailed Description of the Invention are, in relevant part, incorporated herein by reference; the citation of any document is not to be construed as an admission that it is prior art with respect to the present invention. To the extent that any meaning or definition of a term in this document conflicts with any meaning or definition of the same term in a document incorporated by reference, the meaning or definition assigned to that term in this document shall govern.

10 While particular embodiments of the present invention have been illustrated and described, it would be obvious to those skilled in the art that various other changes and modifications can be made without departing from the spirit and scope of the invention. It is therefore intended to cover in the appended claims all such changes and modifications that are within the scope of this invention.

CLAIMS

What is claimed is:

1. A process for making a fibrous structure, the process comprising the steps of:
 - a. providing a die comprising one or more filament-forming holes, wherein one or more fluid-releasing holes are associated with one filament-forming hole such that a fluid exiting the fluid-releasing hole contacts an exterior surface of a filament exiting the filament-forming hole at an angle of less than 10°;
 - b. supplying at least a first polymer to the die;
 - c. producing a plurality of filaments comprising the first polymer from the die;
 - d. supplying a fluid to the die such that the fluid exits the one or more fluid-releasing holes parallel or substantially parallel to the exterior surface of at least one of the filaments;
 - e. combining the filaments with solid additives to form a mixture; and
 - f. collecting the mixture on a collection device to produce a fibrous structure.
2. The process according to Claim 1 wherein the die comprises two or more rows of filament-forming holes.
3. The process according to Claim 2 wherein at least one row of filament-forming holes comprises two or more filament-forming holes.
4. The process according to Claim 1 wherein more than one fluid-releasing hole are associated with a filament-forming hole.
5. The process according to Claim 1 wherein one fluid-releasing hole is concentrically positioned around one filament-forming hole.
6. The process according to Claim 1 wherein the first polymer comprises a synthetic polymer.

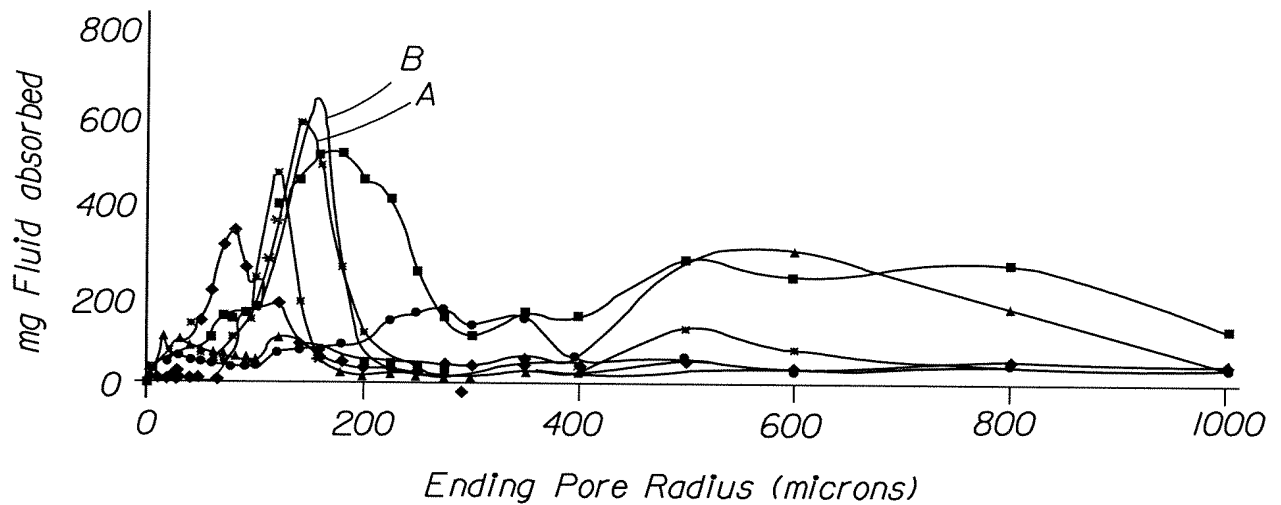
7. The process according to Claim 6 wherein the synthetic polymer is selected from the group consisting of: polyvinyl alcohol, polyvinyl alcohol derivatives, polyesters, nylons, polyolefins, polylactic acids, polyhydroxyalkanoates, polycaprolactones and mixtures thereof.
8. The process according to Claim 7 wherein the synthetic polymer comprises a polyolefin.
9. The process according to Claim 8 wherein the polyolefin comprises polypropylene.
10. The process according to Claim 1 wherein the first polymer comprises a natural polymer.
11. The process according to Claim 10 wherein the natural polymer is selected from the group consisting of: starch, starch derivatives, cellulose, cellulose derivatives, hemicellulose, hemicellulose derivatives and mixtures thereof.
12. The process according to Claim 1 wherein the first polymer comprises a compostable polymer.
13. The process according to Claim 12 wherein the compostable polymer is selected from the group consisting of: polylactic acids, polyhydroxyalkanoates, polycaprolactones and mixtures thereof.
14. The process according to Claim 1 wherein the solid additives comprise fibers.
15. The process according to Claim 14 wherein the fibers comprise wood pulp fibers.
16. The process according to Claim 1 wherein the solid additives are combined with the plurality of filaments by a solid additive spreader.
17. The process according to Claim 1 wherein the process further comprises the step of:
 - g. contacting a surface of the fibrous structure with a plurality of filaments comprising a second polymer.

18. The process according to Claim 17 wherein the plurality of filaments comprising the second polymer are in the form of a second fibrous structure.
19. The process according to Claim 17 wherein the second polymer is the same as the first polymer.
20. The process according to Claim 1 wherein the fluid released by the fluid-releasing holes comprises air.
21. The process according to Claim 1 wherein the fibrous structure exhibits a pore volume distribution such that greater than about 40% of the total pore volume present in the fibrous structure exists in pores of radii of from about 121 μ m to about 200 μ m.
22. The process according to Claim 1 wherein the process further comprises the step of subjecting the fibrous structure to a thermal bonding operation.
23. The process according to Claim 1 wherein the process is directly coupled to a post-processing operation.
24. The process according to Claim 1 wherein the process is closely coupled to a post-processing operation.
25. A process for making a fibrous structure, the process comprising the steps of:
- a. providing a die comprising one or more filament-forming holes, wherein one or more fluid-releasing holes are associated with one filament-forming hole such that a fluid exiting the fluid-releasing hole contacts an exterior surface of a filament exiting the filament-forming hole at an angle of less than 10°;
 - b. supplying a polyolefin polymer to the die;
 - c. producing a plurality of filaments comprising the polyolefin polymer from the die;
 - d. combining the filaments with wood pulp fibers to form a mixture; and
 - e. collecting the mixture on a collection device to produce a fibrous structure.

ABSTRACT

Processes for making fibrous structures and more particularly processes for making fibrous structures comprising filaments are provided.

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♦ Huggies (coform prior art)	▪ Huggies Wash Cloth (coform prior art)
▲ Duramax	— Concert EBT.055.1010 TBAL
× LBAL-DUNI embossed	• Bounty
* Invention Example A	~ Invention Example B

Fig. 1

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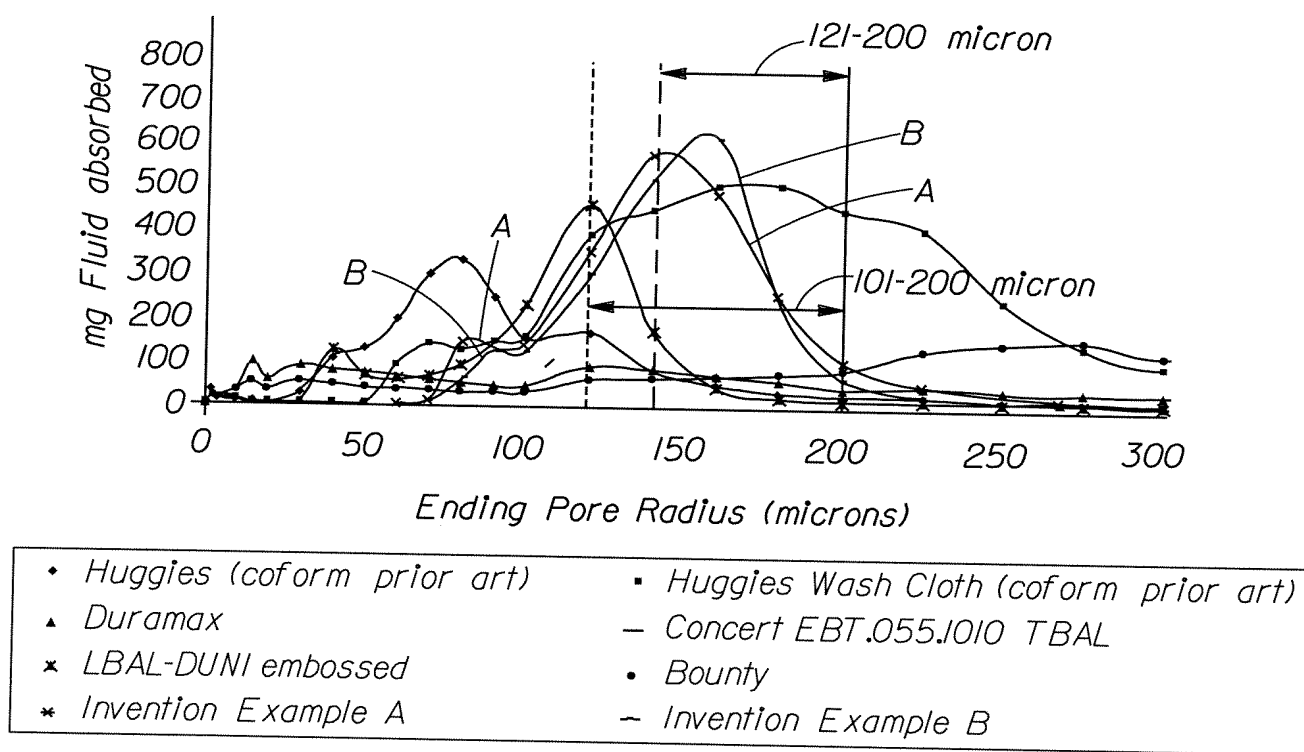


Fig. 2

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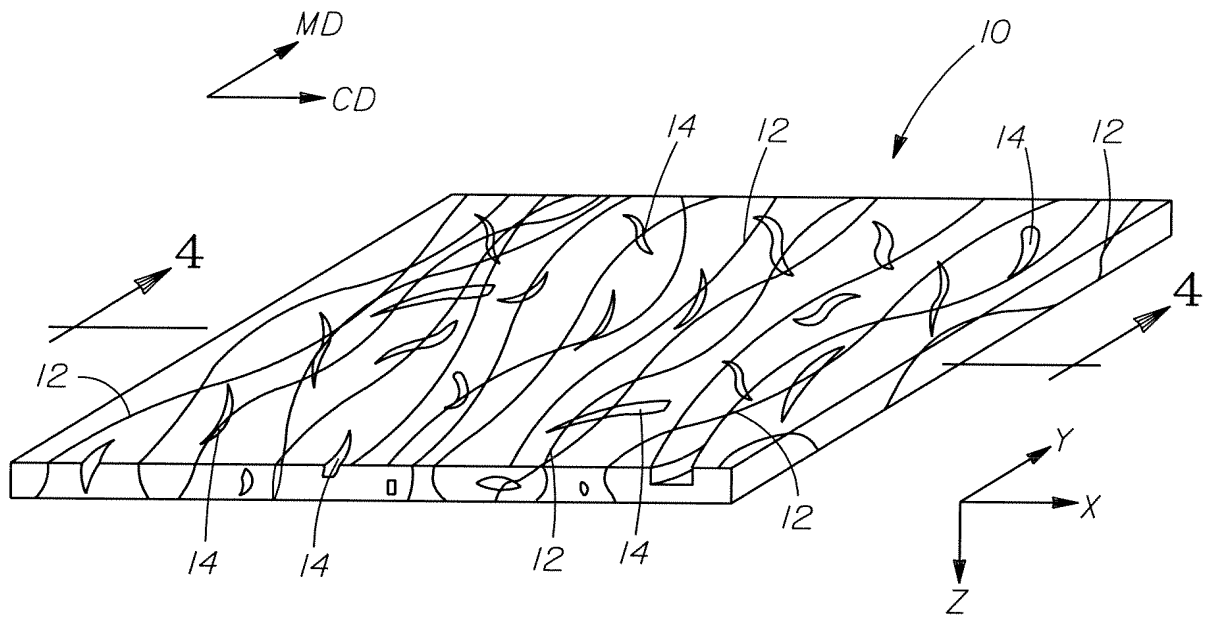


Fig. 3

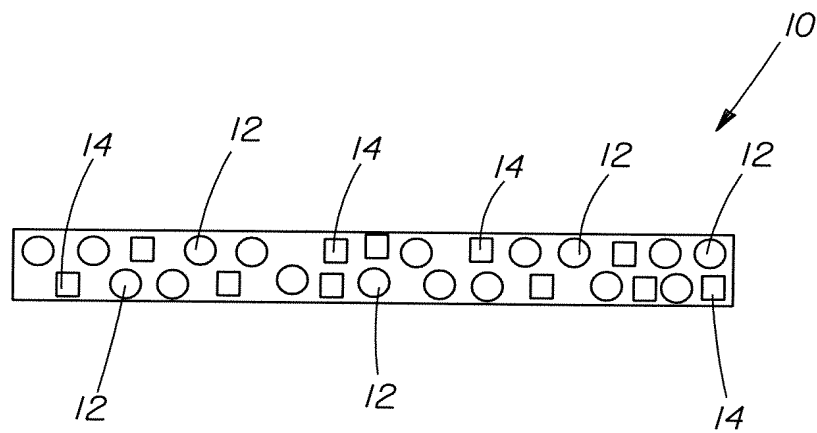


Fig. 4

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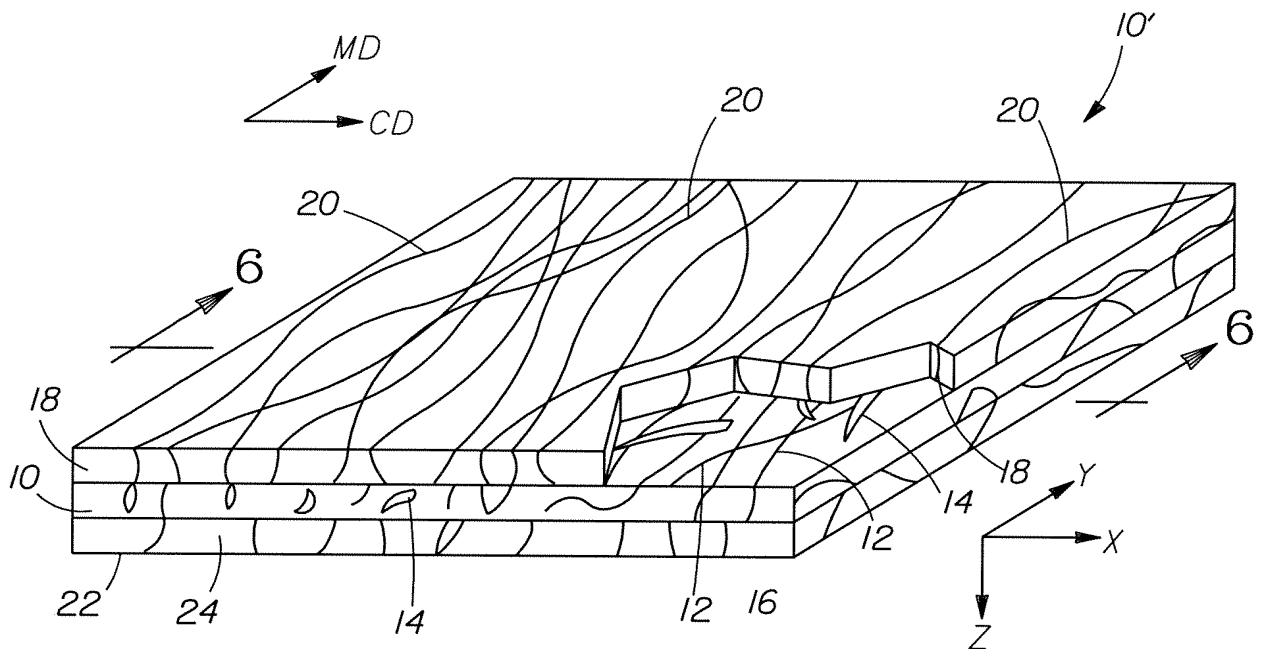


Fig. 5

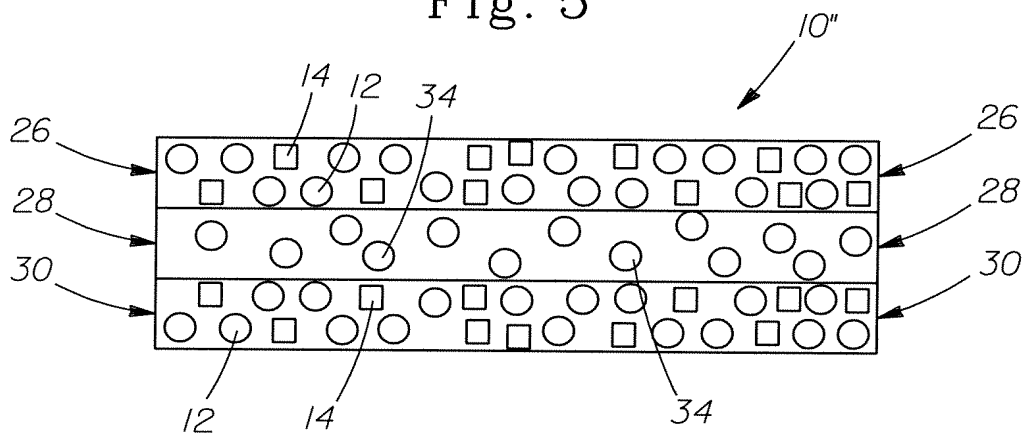


Fig. 6

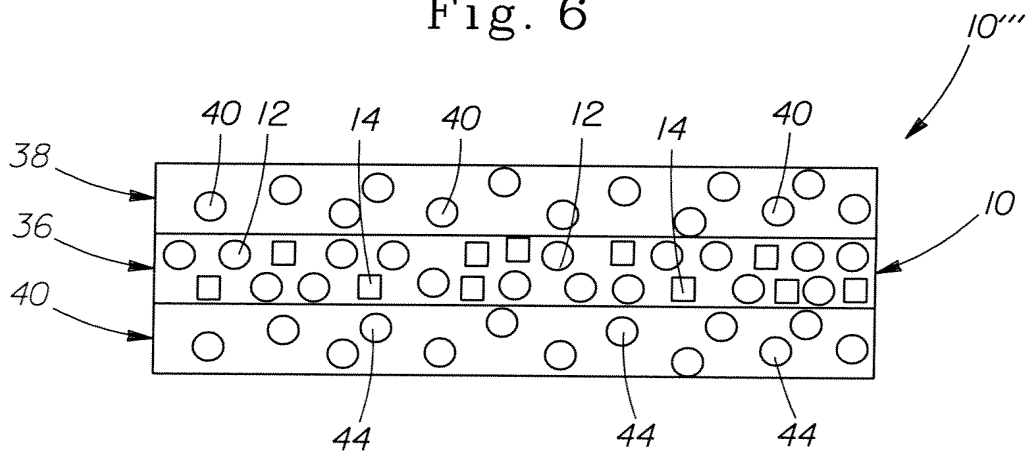


Fig. 7

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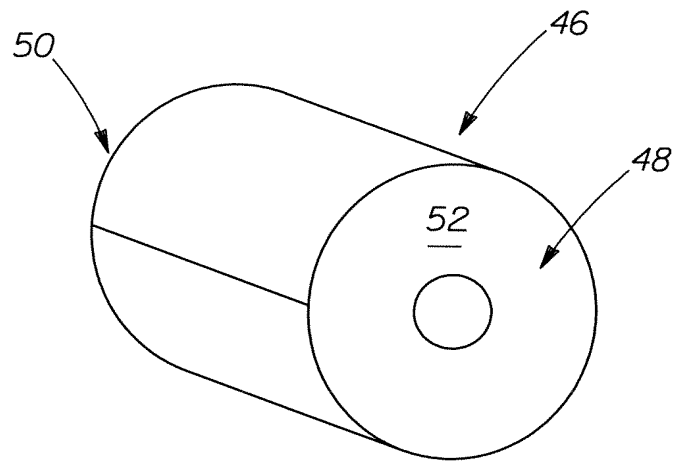


Fig. 8

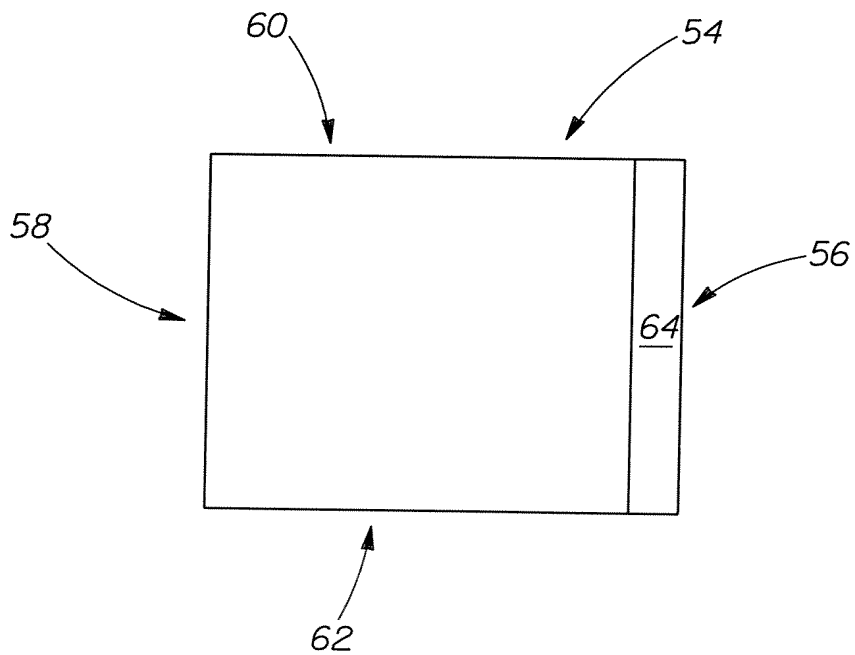


Fig. 9

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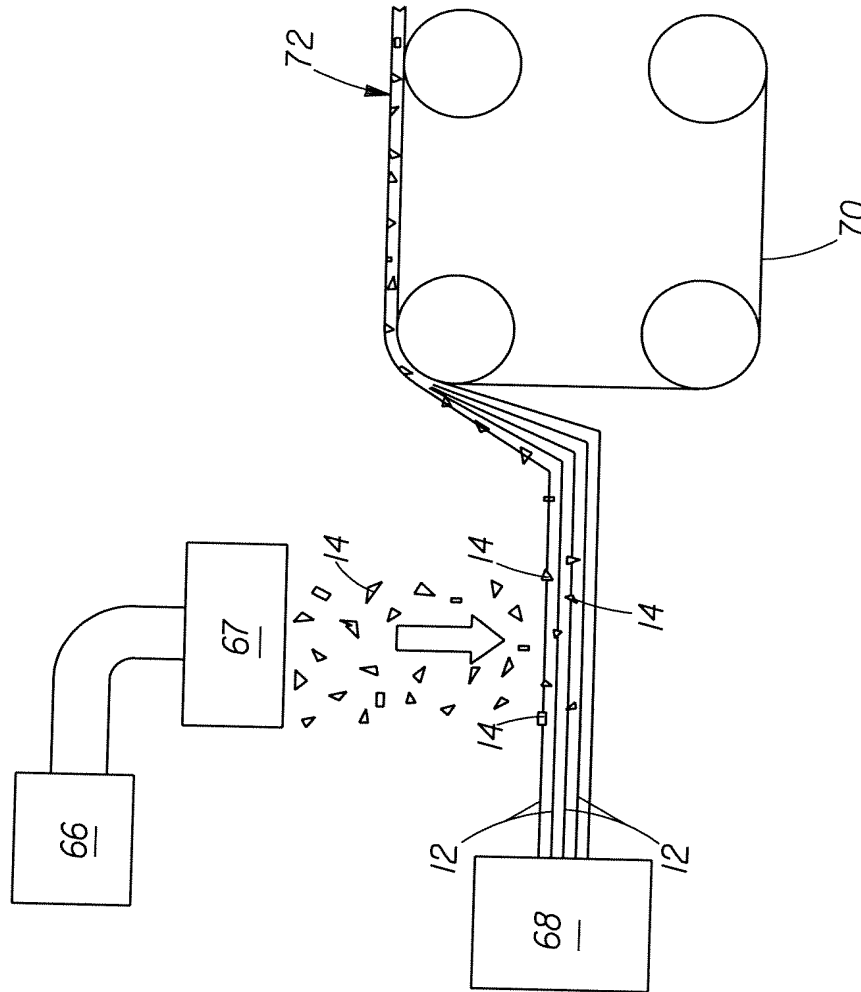


Fig. 10

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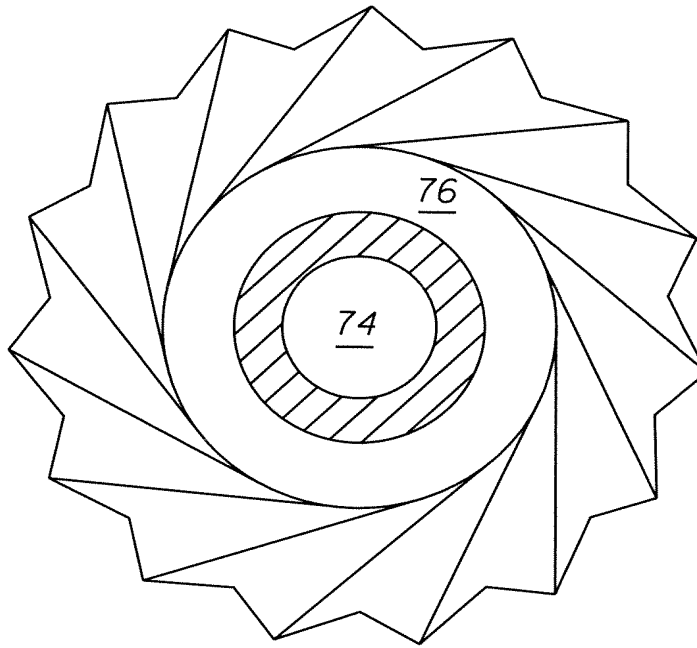


Fig. 11

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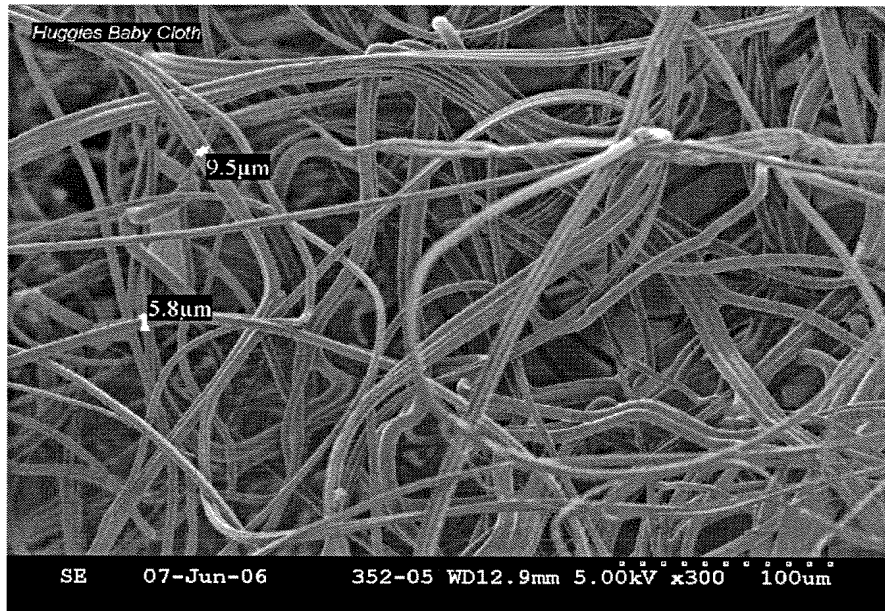


Fig. 12

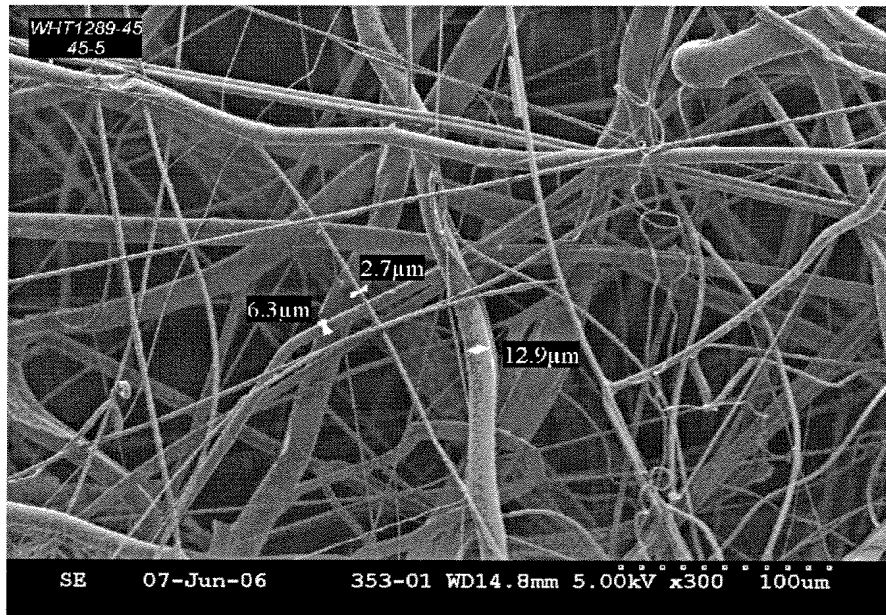


Fig. 13

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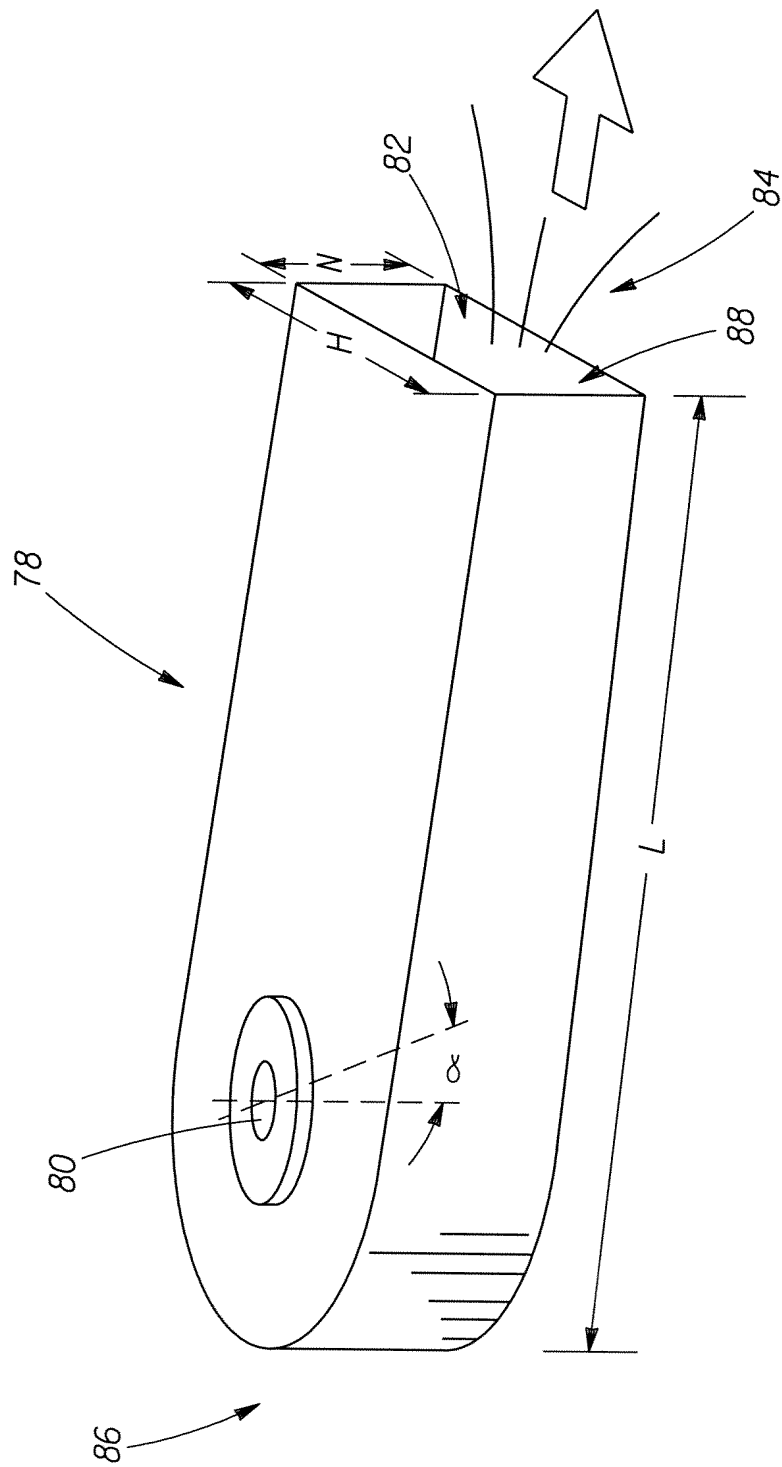
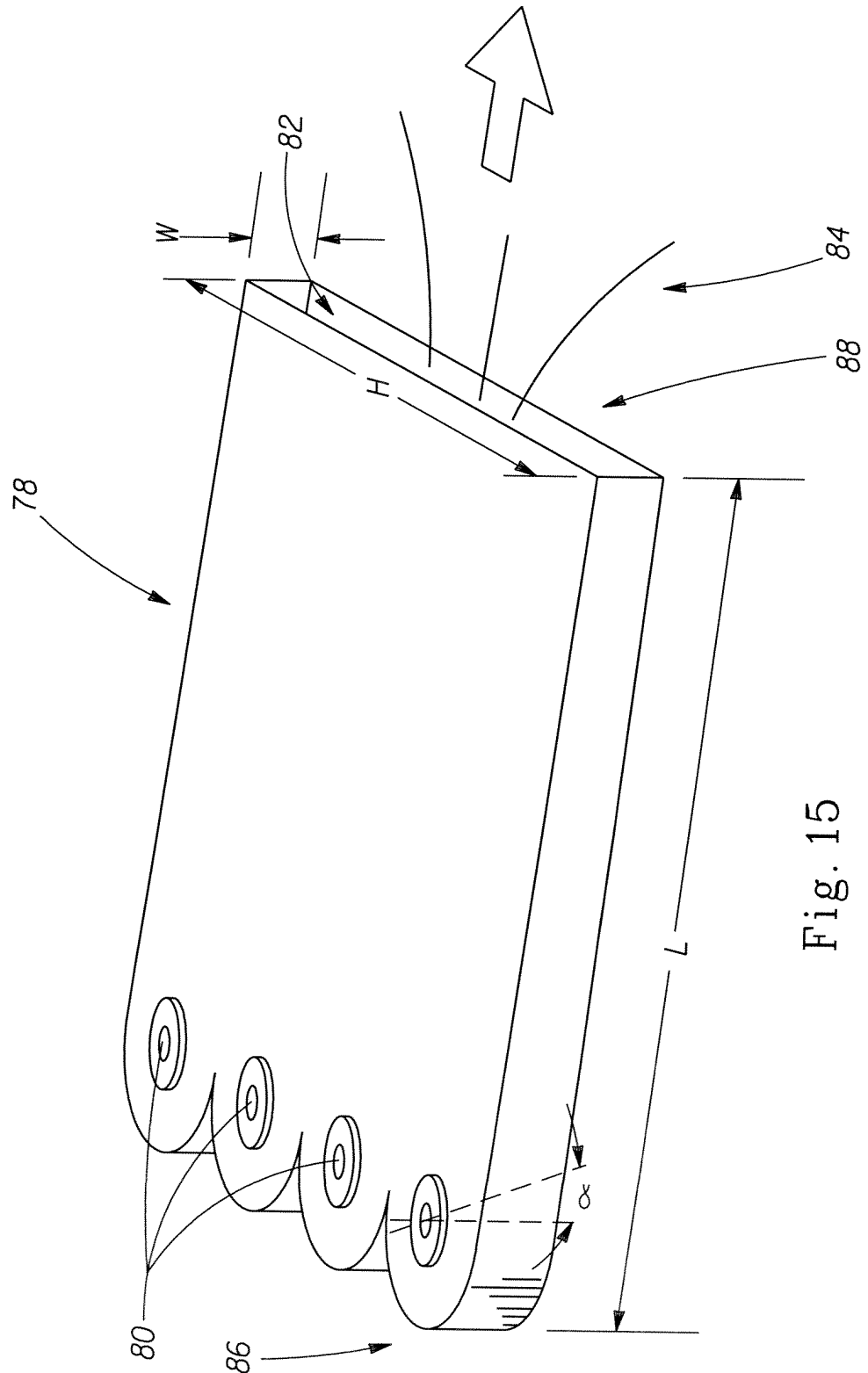


Fig. 14

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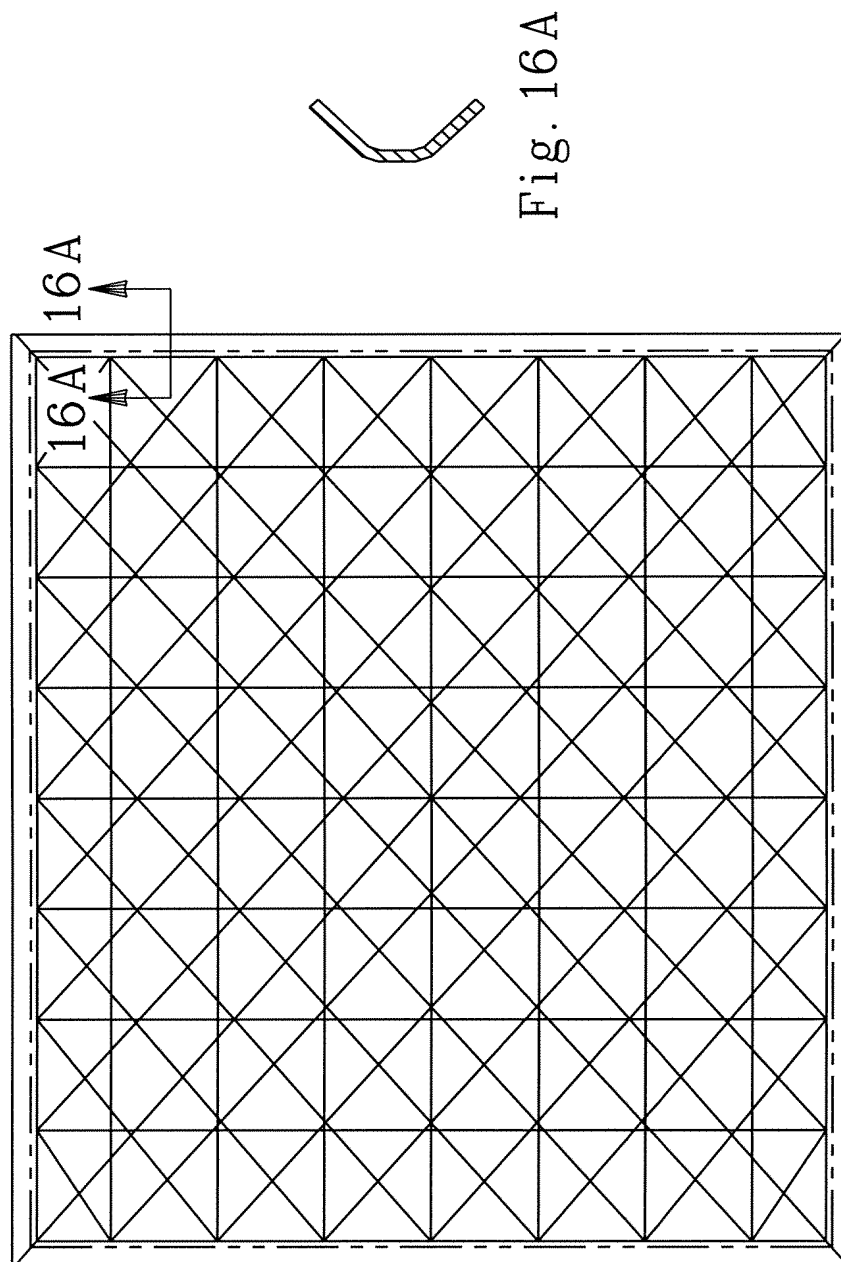


Fig. 16

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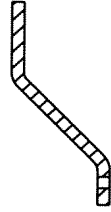


Fig. 17A

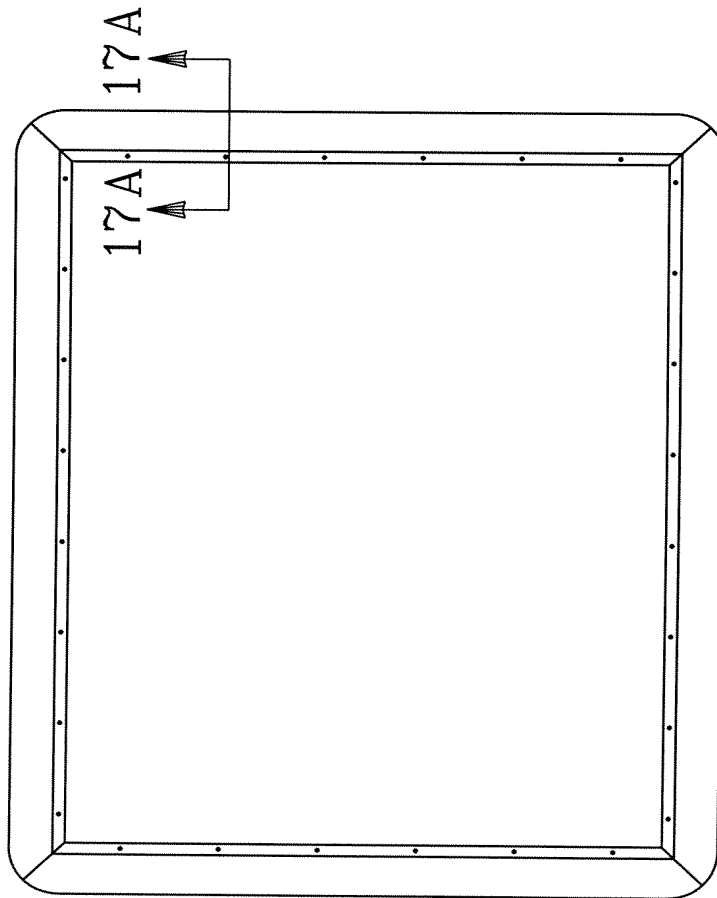


Fig. 17

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	10859CC
		Application Number	
Title of Invention	Process for Making Fibrous Structures		
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. 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.			

Secrecy Order 37 CFR 5.2:

☐ 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.)
--

Inventor Information:

Inventor 1					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Steven	Lee	Barnholtz		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	West Chester	State/Province	OH	Country of Residence	US
Mailing Address of Inventor:					
Address 1		One P&G Plaza			
Address 2					
City	Cincinnati	State/Province	OH		
Postal Code	45202	Country	US		
Inventor 2					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Paul	Dennis	Trokhon		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Hamilton	State/Province	OH	Country of Residence	US
Mailing Address of Inventor:					
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Address 2					
City	Cincinnati	State/Province	OH		
Postal Code	45202	Country	US		
Inventor 3					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Michael	Donald	Suer		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number		10859CC	
		Application Number			
Title of Invention		Process for Making Fibrous Structures			
City	Cincinnati	State/Province	OH	Country of Residence	US
Mailing Address of Inventor:					
Address 1		One P&G Plaza			
Address 2					
City	Cincinnati	State/Province	OH		
Postal Code	45202	Country	US		
Inventor 4					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Douglas	Jay	Barkey		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Maineville	State/Province	OH	Country of Residence	US
Mailing Address of Inventor:					
Address 1		One P&G Plaza			
Address 2					
City	Cincinnati	State/Province	OH		
Postal Code	45202	Country	US		
Inventor 5					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Jonathan	Paul	Brennan		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Cincinnati	State/Province	OH	Country of Residence	US
Mailing Address of Inventor:					
Address 1		One P&G Plaza			
Address 2					
City	Cincinnati	State/Province	OH		
Postal Code	45202	Country	US		
Inventor 6					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Ronald	Thomas	Gorley		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
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		Application Number		
Title of Invention	Process for Making Fibrous Structures			
Mailing Address of Inventor:				
Address 1	One P&G Plaza			
Address 2				
City	Cincinnati	State/Province	OH	
Postal Code	45202	Country	US	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.				
				Add

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Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).			
☐ An Address is being provided for the correspondence information of this application.			
Customer Number	27752		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	Process for Making Fibrous Structures		
Attorney Docket Number	10859CC	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	12	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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	10859CC
		Application Number	
Title of Invention	Process for Making Fibrous Structures		

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:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	27752		

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	Pending		Remove		
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
	Continuation of	14/475699	2014-09-03		
Prior Application Status	Patented		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
14/475699	Continuation of	12/170575	2008-07-10	8852474	2014-10-07
Prior Application Status	Expired		Remove		
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)		
12/170575	Claims benefit of provisional	60/959885	2007-07-17		
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.					

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) 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).

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	10859CC
		Application Number	
Title of Invention	Process for Making Fibrous Structures		

Application Number	Country ¹	Filing Date (YYYY-MM-DD)	Remove Access Code ² (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			

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

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.
--

02/17

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10859CC
	Application Number	
Title of Invention	Process for Making Fibrous Structures	

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.

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	10859CC
		Application Number	
Title of Invention	Process for Making Fibrous Structures		

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			
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.			
Clear			
☒ Assignee		☐ Legal Representative under 35 U.S.C. 117	
☐ 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:			
Name of the Deceased or Legally Incapacitated Inventor:			
If the Applicant is an Organization check here. ☒			
Organization Name	The Procter & Gamble Company		
Mailing Address Information For Applicant:			
Address 1	Attention: Chief Patent Counsel		
Address 2	One Procter & Gamble Plaza		
City	Cincinnati	State/Province	OH
Country	US	Postal Code	45202
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button.			

Assignee Information including Non-Applicant Assignee Information:

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	10859CC
		Application Number	
Title of Invention	Process for Making Fibrous Structures		

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.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information For Assignees including Non-Applicant Assignee:

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Address 2			
City		State/Province	
Country		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

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	/C. Brant Cook/		Date (YYYY-MM-DD)	2018-02-08	
First Name	C. Brant	Last Name	Cook	Registration Number	39151

Additional Signature may be generated within this form by selecting the Add button.

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	10859CC
		Application Number	
Title of Invention	Process for Making Fibrous Structures		

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.

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 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.
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 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.

GLOBAL GENERAL ASSIGNMENT

WHEREAS I/we, the undersigned inventor(s) herewith declare that I am the sole inventor/we are the joint inventors and I/we have made a certain invention as set forth in a patent application (including industrial designs and utility models) entitled **PROCESS FOR MAKING FIBROUS STRUCTURES**, Attorney's Docket No. **10859P** and filed in the **United States** Patent Office as Number 60/959,885, on **July 17, 2007** (the hereinafter named assignee being authorized to insert said Number and filing date when ascertained):

Steven Lee Barnholtz of **5835 Olympia Fields Court, West Chester, OH 45069**;
Paul Dennis Trokhan of **1356 Warvel Road, Hamilton, OH 45013**;
Michael Donald Suer of **5470 Longlake Court, Cincinnati, OH 45247**;
Douglas Jay Barkey of **964 Airymeadows Drive, Maineville, OH 45039**;
Jonathan Paul Brennan of **4459 Hickory Nut Court, Cincinnati, OH 45241**;
Ronald Thomas Gorley of **7835 New Brunswick Drive, Cincinnati, OH 45241**;

I/We made said invention set forth in said patent application while employed by, or otherwise under an obligation to assign said invention to The Procter & Gamble Company or one of its Affiliates (including, Procter & Gamble Asia Pacific Ltd.; Procter & Gamble Australia Pty. Ltd.; Procter & Gamble Technology (Beijing) Co., Ltd.; Procter & Gamble Japan K.K.; Procter & Gamble Hong Kong Ltd.; Procter & Gamble India, Ltd.; Procter & Gamble Indonesia; Procter & Gamble Korea, Inc.; Procter & Gamble Malaysia Sdn. Bhd.; Procter & Gamble Philippines, Inc.; Procter & Gamble Taiwan Ltd; Procter & Gamble Manufacturing (Thailand) Ltd.; Procter & Gamble (Guangzhou) Ltd.; P&G Northeast Asia Pte Ltd; Max Factor K.K.; P&G K.K.; Procter & Gamble Asia Pte. Limited; Procter & Gamble de Mexico; Procter & Gamble de Venezuela, and P&G-Clairol, Inc.) and acknowledge my/our obligation at the time the invention was made to assign said invention to The Procter & Gamble Company or the Affiliate, respectively. Pursuant to said obligation and (in the case of employment by or obligation to the Affiliate) at the request of the Affiliate, I/we assign to The Procter & Gamble Company, its legal representatives, successors and assigns, the entire right, title and interest (including the right to claim priority of the filing date of said patent application under international conventions) in said invention as set forth in said patent application, and in all patents of the United States and of any other country which may be issued for said invention, as fully and completely as the same would have been held by me/us had this assignment not been made. The entire right, title and interest shall vest irrevocably in The Procter & Gamble Company. I/We further agree upon request, without additional compensation but at no expense to me/us, to execute or assent to applications, and to execute all other legal documents as may be necessary or desirable to vest the enjoyment of the rights assigned to The Procter & Gamble Company, its legal representatives, successors and assigns, or as said Company may direct.

I/We request the Commissioner of Patents and Trademarks to issue any Letters Patent of the United States which may be issued for said invention herein assigned and as set forth in U. S. Application Serial Number 12/170,575 (the hereinafter named assignee being authorized to insert said U.S. Serial Number when ascertained) to The Procter & Gamble Company, its legal representatives, successors or assigns, as the sole owner of the entire right, title, and interest in said patent and the invention and the invention covered thereby.

The ASSIGNMENT of said invention is effective as of the earlier of 1) the date of execution shown below or 2) the filing date of the first-filed of said patent application(s).

Steven Lee Barnholtz
Steven Lee Barnholtz

20 July 2007
Date

State of Ohio }
 } SS
County of Hamilton }

On this 20th day of July, 2007, before me personally appeared Steven Lee Barnholtz, to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.



CONSTANCE J. BAKER
Notary Public, State of Ohio
My Commission Expires 02-15-11

Constance J. Baker
Notary Public/Witness

Paul Dennis Trokhan
Paul Dennis Trokhan

20 JUL 2007
Date

State of Ohio }
 } SS
County of Hamilton }

On this 20th day of July, 2007, before me personally appeared Paul Dennis Trokhan, to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.



CONSTANCE J. BAKER
Notary Public, State of Ohio
My Commission Expires 02-15-11

Constance J. Baker
Notary Public/Witness

Michael Donald Suer
Michael Donald Suer

20 Jul 2007
Date

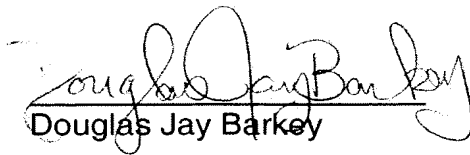
State of Ohio }
 } SS
County of Hamilton }

On this 20th day of July, 2007, before me personally appeared Michael Donald Suer, to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.



CONSTANCE J. BAKER
Notary Public, State of Ohio
My Commission Expires 02-15-11

Constance J. Baker
Notary Public/Witness


Douglas Jay Barkey

23-July-2007
Date

State of Ohio }
 } SS
County of Hamilton }

On this 23rd day of July, 2007, before me personally appeared Douglas Jay Barkey, to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.



CONSTANCE J. BAKER
Notary Public, State of Ohio
My Commission Expires 02-15-11


Notary Public/Witness

Jonathan Paul Brennan

Date

State of Ohio }
 } SS
County of }

On this _____ day of _____, 2007, before me personally appeared Jonathan Paul Brennan, to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.

Notary Public/Witness

Ronald Thomas Gorley

Date

State of Ohio }
 } SS
County of }

On this _____ day of _____, 2007, before me personally appeared Ronald Thomas Gorley, to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.

Notary Public/Witness

G L O B A L G E N E R A L A S S I G N M E N T

WHEREAS I/we, the undersigned inventor(s) herewith declare that I am the sole inventor/we are the joint inventors and I/we have made a certain invention as set forth in a patent application (including industrial designs and utility models) entitled **PROCESS FOR MAKING FIBROUS STRUCTURES**, Attorney's Docket No. **10859P** and filed in the **United States** Patent Office as Number 60/959,885, on **July 17, 2007** (the hereinafter named assignee being authorized to insert said Number and filing date when ascertained):

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Paul Dennis Trokhan of 1356 Warvel Road, Hamilton, OH 45013;
Michael Donald Suer of 5470 Longlake Court, Cincinnati, OH 45247;
Douglas Jay Barkey of 964 Airymeadows Drive, Maineville, OH 45039;
Jonathan Paul Brennan of 4459 Hickory Nut Court, Cincinnati, OH 45241;
Ronald Thomas Gorley of 7835 New Brunswick Drive, Cincinnati, OH 45241;

I/We made said invention set forth in said patent application while employed by, or otherwise under an obligation to assign said invention to The Procter & Gamble Company or one of its Affiliates (including, Procter & Gamble Asia Pacific Ltd.; Procter & Gamble Australia Pty. Ltd.; Procter & Gamble Technology (Beijing) Co., Ltd.; Procter & Gamble Japan K.K.; Procter & Gamble Hong Kong Ltd.; Procter & Gamble India, Ltd.; Procter & Gamble Indonesia; Procter & Gamble Korea, Inc.; Procter & Gamble Malaysia Sdn. Bhd.; Procter & Gamble Philippines, Inc.; Procter & Gamble Taiwan Ltd; Procter & Gamble Manufacturing (Thailand) Ltd.; Procter & Gamble (Guangzhou) Ltd.; P&G Northeast Asia Pte Ltd; Max Factor K.K.; P&G K.K.; Procter & Gamble Asia Pte. Limited; Procter & Gamble de Mexico; Procter & Gamble de Venezuela, and P&G-Clairol, Inc.) and acknowledge my/our obligation at the time the invention was made to assign said invention to The Procter & Gamble Company or the Affiliate, respectively. Pursuant to said obligation and (in the case of employment by or obligation to the Affiliate) at the request of the Affiliate, I/we assign to The Procter & Gamble Company, its legal representatives, successors and assigns, the entire right, title and interest (including the right to claim priority of the filing date of said patent application under international conventions) in said invention as set forth in said patent application, and in all patents of the United States and of any other country which may be issued for said invention, as fully and completely as the same would have been held by me/us had this assignment not been made. The entire right, title and interest shall vest irrevocably in The Procter & Gamble Company. I/We further agree upon request, without additional compensation but at no expense to me/us, to execute or assent to applications, and to execute all other legal documents as may be necessary or desirable to vest the enjoyment of the rights assigned to The Procter & Gamble Company, its legal representatives, successors and assigns, or as said Company may direct.

I/We request the Commissioner of Patents and Trademarks to issue any Letters Patent of the United States which may be issued for said invention herein assigned and as set forth in U. S. Application Serial Number 12/170,575 (the hereinafter named assignee being authorized to insert said U.S. Serial Number when ascertained) to The Procter & Gamble Company, its legal representatives, successors or assigns, as the sole owner of the entire right, title, and interest in said patent and the invention and the invention covered thereby.

The ASSIGNMENT of said invention is effective as of the earlier of 1) the date of execution shown below or 2) the filing date of the first-filed of said patent application(s).

Steven Lee Barnholtz

Date

State of Ohio }
 }
County of Hamilton } SS

On this _____ day of _____, 2007, before me personally appeared Steven Lee Barnholtz, to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.

Notary Public/Witness

Paul Dennis Trokhan

Date

State of Ohio }
 }
County of Hamilton } SS

On this _____ day of _____, 2007, before me personally appeared Paul Dennis Trokhan, to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.

Notary Public/Witness

Michael Donald Suer

Date

State of Ohio }
 }
County of Hamilton } SS

On this _____ day of _____, 2007, before me personally appeared Michael Donald Suer, to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.

Notary Public/Witness

Douglas Jay Barkey

Date

State of Ohio }
 }
County of Hamilton }

On this _____ day of _____, 2007, before me personally appeared Douglas Jay Barkey, to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.

Notary Public/Witness

Jonathan Paul Brennan
Jonathan Paul Brennan

8/20/07
Date

State of Ohio }
 }
County of Butler }

On this 20 day of August, 2007, before me personally appeared Jonathan Paul Brennan, to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.



Donita Konrad
Notary Public, State of Ohio
My Commission Expires
May 9, 2010

Notary Public/Witness

Ronald Thomas Gorley

Date

State of Ohio }
 }
County of }

On this _____ day of _____, 2007, before me personally appeared Ronald Thomas Gorley, to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.

Notary Public/Witness

REVISED: 23 June 2006

G L O B A L G E N E R A L A S S I G N M E N T

WHEREAS I/we, the undersigned inventor(s) herewith declare that I am the sole inventor/we are the joint inventors and I/we have made a certain invention as set forth in a patent application (including industrial designs and utility models) entitled **PROCESS FOR MAKING FIBROUS STRUCTURES**, Attorney's Docket No. **10859P** and filed in the **United States** Patent Office as Number 60/959,885, on **July 17, 2007** (the hereinafter named assignee being authorized to insert said Number and filing date when ascertained):

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Paul Dennis Trokhan of 1356 Warvel Road, Hamilton, OH 45013;
Michael Donald Suer of 5470 Longlake Court, Cincinnati, OH 45247;
Douglas Jay Barkey of 964 Airymeadows Drive, Maineville, OH 45039;
Jonathan Paul Brennan of 4459 Hickory Nut Court, Cincinnati, OH 45241;
Ronald Thomas Gorley of 7835 New Brunswick Drive, Cincinnati, OH 45241;

I/We made said invention set forth in said patent application while employed by, or otherwise under an obligation to assign said invention to The Procter & Gamble Company or one of its Affiliates (including, Procter & Gamble Asia Pacific Ltd.; Procter & Gamble Australia Pty. Ltd.; Procter & Gamble Technology (Beijing) Co., Ltd.; Procter & Gamble Japan K.K.; Procter & Gamble Hong Kong Ltd.; Procter & Gamble India, Ltd.; Procter & Gamble Indonesia; Procter & Gamble Korea, Inc.; Procter & Gamble Malaysia Sdn. Bhd.; Procter & Gamble Philippines, Inc.; Procter & Gamble Taiwan Ltd; Procter & Gamble Manufacturing (Thailand) Ltd.; Procter & Gamble (Guangzhou) Ltd.; P&G Northeast Asia Pte Ltd; Max Factor K.K.; P&G K.K.; Procter & Gamble Asia Pte. Limited; Procter & Gamble de Mexico; Procter & Gamble de Venezuela, and P&G-Clairel, Inc.) and acknowledge my/our obligation at the time the invention was made to assign said invention to The Procter & Gamble Company or the Affiliate, respectively. Pursuant to said obligation and (in the case of employment by or obligation to the Affiliate) at the request of the Affiliate, I/we assign to The Procter & Gamble Company, its legal representatives, successors and assigns, the entire right, title and interest (including the right to claim priority of the filing date of said patent application under international conventions) in said invention as set forth in said patent application, and in all patents of the United States and of any other country which may be issued for said invention, as fully and completely as the same would have been held by me/us had this assignment not been made. The entire right, title and interest shall vest irrevocably in The Procter & Gamble Company. I/We further agree upon request, without additional compensation but at no expense to me/us, to execute or assent to applications, and to execute all other legal documents as may be necessary or desirable to vest the enjoyment of the rights assigned to The Procter & Gamble Company, its legal representatives, successors and assigns, or as said Company may direct.

I/We request the Commissioner of Patents and Trademarks to issue any Letters Patent of the United States which may be issued for said invention herein assigned and as set forth in U. S. Application Serial Number 12/170,525 (the hereinafter named assignee being authorized to insert said U.S. Serial Number when ascertained) to The Procter & Gamble Company, its legal representatives, successors or assigns, as the sole owner of the entire right, title, and interest in said patent and the invention and the invention covered thereby.

The ASSIGNMENT of said invention is effective as of the earlier of 1) the date of execution shown below or 2) the filing date of the first-filed of said patent application(s).

Steven Lee Barnholtz

Date

State of Ohio }
 }
 } SS
County of Hamilton }

On this _____ day of _____, 2007, before me personally appeared Steven Lee Barnholtz , to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.

Notary Public/Witness

Paul Dennis Trokhan

Date

State of Ohio }
 }
 } SS
County of Hamilton }

On this _____ day of _____, 2007, before me personally appeared Paul Dennis Trokhan, to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.

Notary Public/Witness

Michael Donald Suer

Date

State of Ohio }
 }
 } SS
County of Hamilton }

On this _____ day of _____, 2007, before me personally appeared Michael Donald Suer , to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.

Notary Public/Witness

Douglas Jay Barkey

Date

State of Ohio }
 }
County of Hamilton } SS

On this _____ day of _____, 2007, before me personally appeared Douglas Jay Barkey, to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.

Notary Public/Witness

Jonathan Paul Brennan

Date

State of Ohio }
 }
County of } SS

On this _____ day of _____, 2007, before me personally appeared Jonathan Paul Brennan, to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.

Notary Public/Witness

Ronald Thomas Gorley
Ronald Thomas Gorley

20-7-2007
Date

State of Ohio }
 }
County of Warren } SS

On this 20 day of July, 2007, before me personally appeared Ronald Thomas Gorley, to me known to be the person named in and who executed the above instrument, and acknowledged to me that he executed the same for the uses and purposes therein set forth.



LINDA S. JERNIGAN

Notary Public, State of Ohio
My Commission Expires

October 26, 2008

Linda S. Jernigan
Notary Public/Witness

REVISED: 23 June 2006