



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
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P.O. Box 1450  
Alexandria, Virginia 22313-1450  
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| APPLICATION NO.                                                         | ISSUE DATE | PATENT NO. | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-------------------------------------------------------------------------|------------|------------|---------------------|------------------|
| 14/825,350                                                              | 05/29/2018 | 9982388    | VP-19978            | 4663             |
| 24131                                                                   | 7590       | 05/09/2018 |                     |                  |
| LERNER GREENBERG STEMER LLP<br>P O BOX 2480<br>HOLLYWOOD, FL 33022-2480 |            |            |                     |                  |

## 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 211 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):

TORSTEN WICH, APPLETON, WI;  
VOITH PATENT GMBH, HEIDENHEIM, GERMANY;

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](http://SelectUSA.gov).

**PART B - FEE(S) TRANSMITTAL**

Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, Virginia 22313-1450**  
 or Fax (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)

24131 7590 01/25/2018  
**LERNER GREENBERG STEMER LLP**  
**P O BOX 2480**  
**HOLLYWOOD, FLORIDA 33022-2480**

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.

**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 facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

|                    |
|--------------------|
| (Depositor's name) |
| (Signature)        |
| (Date)             |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 14/825,350      | 08/13/2015  | TORSTEN WICH         | VP-19978            | 4663             |

TITLE OF INVENTION: FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB

| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE   |
|-------------|---------------|---------------|---------------------|----------------------|------------------|------------|
| REGULAR     | UNDISCOUNTED  | \$1000        | \$0.00              | \$0.00               | \$1000           | 04/25/2018 |

| EXAMINER       | ART UNIT | CLASS-SUBCLASS |
|----------------|----------|----------------|
| HUG, JOHN ERIC | 1741     | 162-358200     |

|                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                         |                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).<br><input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.<br><input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required. | 2. For printing on the patent front page, list<br>(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,<br>(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 <u>Laurence A. Greenberg</u><br>2 <u>Werner H. Stemer</u><br>3 <u>Ralph E. Locher</u> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|

**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 has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

**Voith Patent GmbH** **Heidenheim, Germany**

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

**4a. The following fee(s) are submitted:**

- ☒ Issue Fee  
☐ Publication Fee (No small entity discount permitted)  
☐ Advance Order - # of Copies \_\_\_\_\_

**4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)**

- ☐ A check is enclosed.  
☒ Payment by credit card. Form PTO-2038 is attached.  
☒ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 12-1099 (enclose an extra copy of this form).

**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 _____                                             | Date <u>April 25, 2018</u>                                        |
| Typed or printed name <b>RALPH E. LOCHER</b><br><b>REG. NO. 41,947</b> | Registration No. <b>RALPH E. LOCHER</b><br><b>REG. NO. 41,947</b> |

| Electronic Patent Application Fee Transmittal      |                 |                                                                                 |               |                             |
|----------------------------------------------------|-----------------|---------------------------------------------------------------------------------|---------------|-----------------------------|
| <b>Application Number:</b>                         |                 | 14825350                                                                        |               |                             |
| <b>Filing Date:</b>                                |                 | 13-Aug-2015                                                                     |               |                             |
| <b>Title of Invention:</b>                         |                 | FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB |               |                             |
| <b>First Named Inventor/Applicant Name:</b>        |                 | TORSTEN WICH                                                                    |               |                             |
| <b>Filer:</b>                                      |                 | Ralph Eric Locher/Michelle Janca                                                |               |                             |
| <b>Attorney Docket Number:</b>                     |                 | VP-19978                                                                        |               |                             |
| Filed as Large Entity                              |                 |                                                                                 |               |                             |
| <b>Filing Fees for Utility under 35 USC 111(a)</b> |                 |                                                                                 |               |                             |
| <b>Description</b>                                 | <b>Fee Code</b> | <b>Quantity</b>                                                                 | <b>Amount</b> | <b>Sub-Total in USD(\$)</b> |
| <b>Basic Filing:</b>                               |                 |                                                                                 |               |                             |
| <b>Pages:</b>                                      |                 |                                                                                 |               |                             |
| <b>Claims:</b>                                     |                 |                                                                                 |               |                             |
| <b>Miscellaneous-Filing:</b>                       |                 |                                                                                 |               |                             |
| <b>Petition:</b>                                   |                 |                                                                                 |               |                             |
| <b>Patent-Appeals-and-Interference:</b>            |                 |                                                                                 |               |                             |
| <b>Post-Allowance-and-Post-Issuance:</b>           |                 |                                                                                 |               |                             |
| UTILITY APPL ISSUE FEE                             | 1501            | 1                                                                               | 1000          | 1000                        |

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

| Electronic Acknowledgement Receipt          |                                                                                 |
|---------------------------------------------|---------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 32435648                                                                        |
| <b>Application Number:</b>                  | 14825350                                                                        |
| <b>International Application Number:</b>    |                                                                                 |
| <b>Confirmation Number:</b>                 | 4663                                                                            |
| <b>Title of Invention:</b>                  | FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB |
| <b>First Named Inventor/Applicant Name:</b> | TORSTEN WICH                                                                    |
| <b>Customer Number:</b>                     | 24131                                                                           |
| <b>Filer:</b>                               | Ralph Eric Locher/Michelle Janca                                                |
| <b>Filer Authorized By:</b>                 | Ralph Eric Locher                                                               |
| <b>Attorney Docket Number:</b>              | VP-19978                                                                        |
| <b>Receipt Date:</b>                        | 25-APR-2018                                                                     |
| <b>Filing Date:</b>                         | 13-AUG-2015                                                                     |
| <b>Time Stamp:</b>                          | 08:29:25                                                                        |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                     |

### Payment information:

|                                                                                                                |                       |
|----------------------------------------------------------------------------------------------------------------|-----------------------|
| Submitted with Payment                                                                                         | yes                   |
| Payment Type                                                                                                   | CARD                  |
| Payment was successfully received in RAM                                                                       | \$1000                |
| RAM confirmation Number                                                                                        | 042518INTEFSW08305800 |
| Deposit Account                                                                                                |                       |
| Authorized User                                                                                                |                       |
| The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: |                       |

| <b>File Listing:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                             |              |                                          |                  |                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--------------|------------------------------------------|------------------|------------------|
| Document Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Document Description        | File Name    | File Size(Bytes)/ Message Digest         | Multi Part /.zip | Pages (if appl.) |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Issue Fee Payment (PTO-85B) | VP19978.pdf  | 87127                                    | no               | 1                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |              | 8aaa108b9d729bfb3bec09acd79db04ac6628d61 |                  |                  |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |              |                                          |                  |                  |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |              |                                          |                  |                  |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Fee Worksheet (SB06)        | fee-info.pdf | 30478                                    | no               | 2                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |              | 9c44f961bfe9e76f83efe4355299abe83be5419b |                  |                  |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |              |                                          |                  |                  |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |              |                                          |                  |                  |
| <b>Total Files Size (in bytes):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |              | 117605                                   |                  |                  |
| <p><b>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.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p> |                             |              |                                          |                  |                  |



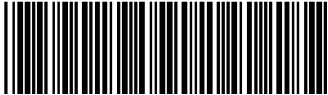
## UNITED STATES PATENT AND TRADEMARK OFFICE

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 Alexandria, Virginia 22313-1450  
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## BIB DATA SHEET

CONFIRMATION NO. 4663

| SERIAL NUMBER                                                                                                                                                                                                                                                        | FILING or 371(c)<br>DATE                                                                                          | CLASS                                                    | GROUP ART UNIT                    | ATTORNEY DOCKET<br>NO.                                                                                                                                                                                                                                                    |                               |                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------|
| 14/825,350                                                                                                                                                                                                                                                           | 08/13/2015                                                                                                        | 162                                                      | 1741                              | VP-19978                                                                                                                                                                                                                                                                  |                               |                                    |
| <b>APPLICANTS</b><br>VOITH PATENT GMBH, HEIDENHEIM, GERMANY;<br><b>INVENTORS</b><br>TORSTEN WICH, APPLETON, WI;<br><b>** CONTINUING DATA *****</b><br><b>** FOREIGN APPLICATIONS *****</b><br><b>** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **</b><br>08/26/2015 |                                                                                                                   |                                                          |                                   |                                                                                                                                                                                                                                                                           |                               |                                    |
| Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>Verified and /ERIC HUG/<br>Acknowledged Examiner's Signature   |                                                                                                                   | <input type="checkbox"/> Met after Allowance<br>Initials | <b>STATE OR<br/>COUNTRY</b><br>WI | <b>SHEETS<br/>DRAWINGS</b><br>2                                                                                                                                                                                                                                           | <b>TOTAL<br/>CLAIMS</b><br>21 | <b>INDEPENDENT<br/>CLAIMS</b><br>1 |
| <b>ADDRESS</b><br>LERNER GREENBERG STEMER LLP<br>P O BOX 2480<br>HOLLYWOOD, FL 33022-2480<br>UNITED STATES                                                                                                                                                           |                                                                                                                   |                                                          |                                   |                                                                                                                                                                                                                                                                           |                               |                                    |
| <b>TITLE</b><br>FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB                                                                                                                                                                      |                                                                                                                   |                                                          |                                   |                                                                                                                                                                                                                                                                           |                               |                                    |
| <b>FILING FEE<br/>RECEIVED</b><br>1680                                                                                                                                                                                                                               | FEES: Authority has been given in Paper<br>No. _____ to charge/credit DEPOSIT ACCOUNT<br>No. _____ for following: |                                                          |                                   | <input type="checkbox"/> All Fees<br><input type="checkbox"/> 1.16 Fees (Filing)<br><input type="checkbox"/> 1.17 Fees (Processing Ext. of time)<br><input type="checkbox"/> 1.18 Fees (Issue)<br><input type="checkbox"/> Other _____<br><input type="checkbox"/> Credit |                               |                                    |

|                                                                                                          |                                              |                                                                 |
|----------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------|
| <b>Search Notes</b><br> | <b>Application/Control No.</b><br>14/825,350 | <b>Applicant(s)/Patent Under Reexamination</b><br>WICH, TORSTEN |
|                                                                                                          | <b>Examiner</b><br>ERIC HUG                  | <b>Art Unit</b><br>1741                                         |

| CPC - Searched*                                                                             |          |          |
|---------------------------------------------------------------------------------------------|----------|----------|
| Symbol                                                                                      | Date     | Examiner |
| D21F 1/0027, 1/0036, 1/0045, 1/0054, 1/10, 1/105, 1/12, 1/14, 1/16, 7/08, 7/083, 7/10, 7/12 | 5/2/2017 | EH       |
| B32B 5/022, 5/024, 5/026, 5/22, 5/26, 7/08                                                  | "        | "        |

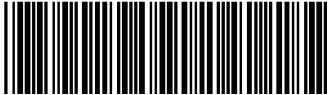
| CPC Combination Sets - Searched* |      |          |
|----------------------------------|------|----------|
| Symbol                           | Date | Examiner |
|                                  |      |          |

| US Classification - Searched* |                                             |          |          |
|-------------------------------|---------------------------------------------|----------|----------|
| Class                         | Subclass                                    | Date     | Examiner |
| 162                           | 348, 358.2, 900, 902-904                    | 5/2/2017 | EH       |
| 139                           | 383A, 383AA                                 | "        | "        |
| 442                           | 239, 240, 241, 246, 247, 268, 269, 270, 271 | "        | "        |

\* 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 |
| EAST- USPAT, US-PGPUB, USOCR, JPO, EPO, FPRS, Derwent | 5/2/2017   | EH       |
| Assignee, inventor, applicant search                  | "          | "        |
| related: 14/825352                                    | "          | "        |
| IPC: D21F 1/10, 7/08; B32B 5/22, 5/26                 | "          | "        |
| update                                                | 10/3/2017  | EH       |
| update                                                | 01/06/2018 | EH       |

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|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------|
| <b><i>Search Notes</i></b><br> | <b>Application/Control No.</b><br>14/825,350 | <b>Applicant(s)/Patent Under Reexamination</b><br>WICH, TORSTEN |
|                                                                                                                 | <b>Examiner</b><br>ERIC HUG                  | <b>Art Unit</b><br>1741                                         |

| Interference Search |                       |            |          |
|---------------------|-----------------------|------------|----------|
| US Class/CPC Symbol | US Subclass/CPC Group | Date       | Examiner |
| D21F                | all above             | 01/06/2018 | EH       |
| B32B                | all above             | 01/06/2018 | EH       |

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## NOTICE OF ALLOWANCE AND FEE(S) DUE

24131 7590 01/25/2018  
LERNER GREENBERG STEMER LLP  
P O BOX 2480  
HOLLYWOOD, FLORIDA 33022-2480

EXAMINER

HUG, JOHN ERIC

ART UNIT

PAPER NUMBER

1741

DATE MAILED: 01/25/2018

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 14/825,350      | 08/13/2015  | TORSTEN WICH         | VP-19978            | 4663             |

TITLE OF INVENTION: FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB

| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE   |
|-------------|---------------|---------------|---------------------|----------------------|------------------|------------|
| REGULAR     | UNDISCOUNTED  | \$1000        | \$0.00              | \$0.00               | \$1000           | 04/25/2018 |

**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: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, Virginia 22313-1450**  
**or Fax (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)

24131 7590 01/25/2018  
**LERNER GREENBERG STEMER LLP**  
**P O BOX 2480**  
**HOLLYWOOD, FLORIDA 33022-2480**

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.

## **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 facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

|                    |
|--------------------|
| (Depositor's name) |
| (Signature)        |
| (Date)             |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 14/825,350      | 08/13/2015  | TORSTEN WICH         | VP-19978            | 4663             |

**TITLE OF INVENTION:** FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB

| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE   |
|-------------|---------------|---------------|---------------------|----------------------|------------------|------------|
| REGULAR     | UNDISCOUNTED  | \$1000        | \$0.00              | \$0.00               | \$1000           | 04/25/2018 |

| EXAMINER       | ART UNIT | CLASS-SUBCLASS |
|----------------|----------|----------------|
| HUG, JOHN ERIC | 1741     | 162-358200     |

|                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                |                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| <b>1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).</b><br><br><input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.<br><br><input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. <b>Use of a Customer Number is required.</b> | <b>2. For printing on the patent front page, list</b><br>(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,<br>(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 _____<br>2 _____<br>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 has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(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. The following fee(s) are submitted:**

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies \_\_\_\_\_

## **4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)**

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

## **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 \_\_\_\_\_ Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_ Registration No. \_\_\_\_\_



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
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www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 14/825,350      | 08/13/2015  | TORSTEN WICH         | VP-19978            | 4663             |

24131 7590 01/25/2018  
LERNER GREENBERG STEMER LLP  
P O BOX 2480  
HOLLYWOOD, FLORIDA 33022-2480

|          |
|----------|
| EXAMINER |
|----------|

HUG, JOHN ERIC

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

1741

DATE MAILED: 01/25/2018

## 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 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, 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.

|                               |                                      |                                      |                          |
|-------------------------------|--------------------------------------|--------------------------------------|--------------------------|
| <b>Notice of Allowability</b> | <b>Application No.</b><br>14/825,350 | <b>Applicant(s)</b><br>WICH, TORSTEN |                          |
|                               | <b>Examiner</b><br>ERIC HUG          | <b>Art Unit</b><br>1741              | <b>AIA Status</b><br>Yes |

**-- 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 the amendment of December 5, 2017 .  
☐ 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 1-6,8-10 and 16-21 . 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](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 areply 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. <input type="checkbox"/> Notice of References Cited (PTO-892)                                                 | 5. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                  |
| 2. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____          | 6. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| 3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material _____ | 7. <input type="checkbox"/> Other _____ .                                            |
| 4. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ .                          |                                                                                      |

|                                               |  |
|-----------------------------------------------|--|
| /Eric Hug/<br>Primary Examiner, Art Unit 1741 |  |
|-----------------------------------------------|--|

### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Claim 10 (currently amended). The fabric according to claim ~~7~~ 1, wherein said woven base material and one, some or all of said sheet plies are formed of a same woven material.

Claim 21 (currently amended). A method for producing a fiber web, providing a web-producing machine with ~~a~~ at least one fabric according to claim 1.

### *Allowable Subject Matter*

Claims 1-6, 8-10, and 16-21 are allowed.

The following is an examiner's statement of reasons for allowance:

In a fabric for a machine for producing a fiber web, the fabric comprising a flat woven base material having a top side, a bottom side, and two terminal ends separated from one another in a machine direction, wherein the flat woven base material is folded in two folded layers with folds separated from one another in the machine direction and defining an inside between the two folded layers and an outside, the two terminal ends are located under the bottom side surface and are adjacent one another or overlapping one another, and seam loops are located at the folds, the prior art does not disclose or suggest one or more sheet plies all of which are disposed

outside the folded layers, and one, some, or all of the sheet plies consist of or comprise a woven material or a non-woven component selected from the group consisting of a polymer film, a foam layer, a knitted structure and a warp-knit structure. Accordingly, the prior art does not disclose or suggest a method for producing a fiber web that includes providing a web-producing machine with at least one such fabric.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC HUG whose telephone number is (571) 272-1192.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Del Sole can be reached on (571) 272-1130. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

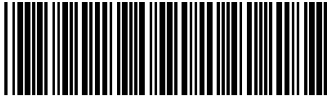
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through 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

Application/Control Number:14/825,350  
Art Unit:1741

Page4

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.

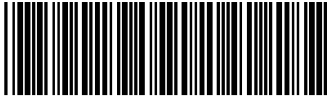
/Eric Hug/  
Primary Examiner, Art Unit 1741

|                                                                                                                  |                                              |                                                                 |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------|
| <b>Issue Classification</b><br> | <b>Application/Control No.</b><br>14/825,350 | <b>Applicant(s)/Patent Under Reexamination</b><br>WICH, TORSTEN |
|                                                                                                                  | <b>Examiner</b><br>ERIC HUG                  | <b>Art Unit</b><br>1741                                         |

| CPC    |   |   |   |      |      |            |
|--------|---|---|---|------|------|------------|
| Symbol |   |   |   |      | Type | Version    |
| D21F   | / | 1 | / | 0036 | F    | 2013-01-01 |
| B32B   | / | 5 | / | 26   | I    | 2013-01-01 |
| D21F   | / | 7 | / | 08   | I    | 2013-01-01 |
| B32B   | / | 5 | / | 024  | I    | 2013-01-01 |
| D21F   | / | 1 | / | 0054 | I    | 2013-01-01 |

| CPC Combination Sets |   |  |   |      |     |         |
|----------------------|---|--|---|------|-----|---------|
| Symbol               |   |  |   | Type | Set | Ranking |
|                      | / |  | / |      |     |         |

|                                               |                 |                              |                   |
|-----------------------------------------------|-----------------|------------------------------|-------------------|
| NONE                                          |                 | <b>Total Claims Allowed:</b> |                   |
| (Assistant Examiner)                          | (Date)          | 15                           |                   |
| /Eric Hug/<br>Primary Examiner, Art Unit 1741 | 06 January 2018 | O.G. Print Claim(s)          | O.G. Print Figure |
| (Primary Examiner)                            | (Date)          | 1                            | 1                 |

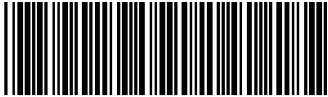
|                                                                                                                  |                                              |                                                                 |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------|
| <b>Issue Classification</b><br> | <b>Application/Control No.</b><br>14/825,350 | <b>Applicant(s)/Patent Under Reexamination</b><br>WICH, TORSTEN |
|                                                                                                                  | <b>Examiner</b><br>ERIC HUG                  | <b>Art Unit</b><br>1741                                         |

|                                     |   |   |   |    |
|-------------------------------------|---|---|---|----|
| <b>INTERNATIONAL CLASSIFICATION</b> |   |   |   |    |
| <b>CLAIMED</b>                      |   |   |   |    |
| D21F                                | / | 7 | / | 08 |
| B32B                                | / | 5 | / | 26 |
| <b>NON-CLAIMED</b>                  |   |   |   |    |
|                                     | / |   | / |    |

|                                   |                 |
|-----------------------------------|-----------------|
| <b>US ORIGINAL CLASSIFICATION</b> |                 |
| <b>CLASS</b>                      | <b>SUBCLASS</b> |
|                                   |                 |

|                            |                                          |  |  |  |  |  |
|----------------------------|------------------------------------------|--|--|--|--|--|
| <b>CROSS REFERENCES(S)</b> |                                          |  |  |  |  |  |
| <b>CLASS</b>               | <b>SUBCLASS (ONE SUBCLASS PER BLOCK)</b> |  |  |  |  |  |
|                            |                                          |  |  |  |  |  |

|                                                                     |                           |                              |                        |
|---------------------------------------------------------------------|---------------------------|------------------------------|------------------------|
| NONE                                                                |                           | <b>Total Claims Allowed:</b> |                        |
| (Assistant Examiner)                                                | (Date)                    | 15                           |                        |
| /Eric Hug/<br>Primary Examiner, Art Unit 1741<br>(Primary Examiner) | 06 January 2018<br>(Date) | O.G. Print Claim(s)<br>1     | O.G. Print Figure<br>1 |

|                                                                                                                  |                                              |                                                                 |
|------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------|
| <b>Issue Classification</b><br> | <b>Application/Control No.</b><br>14/825,350 | <b>Applicant(s)/Patent Under Reexamination</b><br>WICH, TORSTEN |
|                                                                                                                  | <b>Examiner</b><br>ERIC HUG                  | <b>Art Unit</b><br>1741                                         |

|                                                                                                                                                                                   |          |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|-------|----------|
| <input type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input type="checkbox"/> T.D. <input type="checkbox"/> R.1.47 |          |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
| <b>CLAIMS</b>                                                                                                                                                                     |          |       |          |       |          |       |          |       |          |       |          |       |          |       |          |
| Final                                                                                                                                                                             | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original |
| 1                                                                                                                                                                                 | 1        | 9     | 10       | 13    | 19       |       |          |       |          |       |          |       |          |       |          |
| 2                                                                                                                                                                                 | 2        |       | 11       | 14    | 20       |       |          |       |          |       |          |       |          |       |          |
| 3                                                                                                                                                                                 | 3        |       | 12       | 15    | 21       |       |          |       |          |       |          |       |          |       |          |
| 4                                                                                                                                                                                 | 4        |       | 13       |       |          |       |          |       |          |       |          |       |          |       |          |
| 5                                                                                                                                                                                 | 5        |       | 14       |       |          |       |          |       |          |       |          |       |          |       |          |
| 6                                                                                                                                                                                 | 6        |       | 15       |       |          |       |          |       |          |       |          |       |          |       |          |
|                                                                                                                                                                                   | 7        | 10    | 16       |       |          |       |          |       |          |       |          |       |          |       |          |
| 7                                                                                                                                                                                 | 8        | 11    | 17       |       |          |       |          |       |          |       |          |       |          |       |          |
| 8                                                                                                                                                                                 | 9        | 12    | 18       |       |          |       |          |       |          |       |          |       |          |       |          |

|                                                                                  |  |                                    |                          |
|----------------------------------------------------------------------------------|--|------------------------------------|--------------------------|
| NONE<br>(Assistant Examiner) _____ (Date)                                        |  | <b>Total Claims Allowed:</b><br>15 |                          |
| /Eric Hug/<br>Primary Examiner, Art Unit 1741<br>(Primary Examiner) _____ (Date) |  | 06 January 2018<br>(Date)          | O.G. Print Claim(s)<br>1 |
|                                                                                  |  |                                    | O.G. Print Figure<br>1   |

## EAST Search History

### EAST Search History (Prior Art)

| Ref # | Hits | Search Query                                                                                                                                            | DBs                |
|-------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| L1    | 1762 | (fabric or felt or belt or clothing) and (flat with (weav\$4 or woven)) and (sheet\$2 or ply or plies or layer\$2) and fold\$4 and (seam\$4 or join\$4) | US-PGPUB;<br>USPAT |
| L2    | 235  | (fabric or felt or belt or clothing) and (flat with (weav\$4 or woven)) and (sheet\$2 or ply or plies or layer\$2) and fold\$4 and (seam\$4 or join\$4) | USOCR              |
| L3    | 36   | (fabric or felt or belt or clothing) and (flat with (weav\$4 or woven)) and (sheet\$2 or ply or plies or layer\$2) and fold\$4 and (seam\$4 or join\$4) | FPRS               |
| L4    | 1    | (fabric or felt or belt or clothing) and (flat with (weav\$4 or woven)) and (sheet\$2 or ply or plies or layer\$2) and fold\$4 and (seam\$4 or join\$4) | EPO                |
| L5    | 2    | (fabric or felt or belt or clothing) and (flat with (weav\$4 or woven)) and (sheet\$2 or ply or plies or layer\$2) and fold\$4 and (seam\$4 or join\$4) | JPO                |
| L6    | 25   | (fabric or felt or belt or clothing) and (flat with (weav\$4 or woven)) and (sheet\$2 or ply or plies or layer\$2) and fold\$4 and (seam\$4 or join\$4) | DERWENT            |
| L9    | 779  | ((fabric or felt or belt or clothing) and (flat with (weav\$4 or woven)) and (paper or paperma\$8) and fold\$4 and (seam\$4 or join\$4))                | US-PGPUB;<br>USPAT |
| L10   | 65   | ((fabric or felt or belt or clothing) and (flat with (weav\$4 or woven)) and (paper or paperma\$8) and fold\$4 and (seam\$4 or join\$4))                | USOCR              |
| L11   | 24   | ((fabric or felt or belt or clothing) and (flat with (weav\$4 or woven)) and (paper or paperma\$8) and fold\$4 and (seam\$4 or join\$4))                | FPRS               |
| L12   | 2    | ((fabric or felt or belt or clothing) and (flat with (weav\$4 or woven)) and (paper or paperma\$8) and fold\$4 and (seam\$4 or join\$4))                | EPO                |
| L13   | 1    | ((fabric or felt or belt or clothing) and (flat with (weav\$4 or woven)) and (paper or paperma\$8) and fold\$4 and (seam\$4 or join\$4))                | JPO                |
| L14   | 13   | ((fabric or felt or belt or clothing) and (flat with (weav\$4 or woven)) and (paper or paperma\$8) and fold\$4 and (seam\$4 or join\$4))                | DERWENT            |

## EAST Search History

### EAST Search History (Interference)

| Ref # | Hits | Search Query                                                                                                                                                   | DBs                |
|-------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| L7    | 31   | ((fabric or felt or belt or clothing) and (flat with (weav\$4 or woven)) and (sheet\$2 or ply or plies or layer\$2) and fold\$4 and (seam\$4 or join\$4)).clm. | US-PGPUB;<br>USPAT |
| L8    | 12   | ((fabric or felt or belt or clothing) and (flat with (weav\$4 or woven)) and (paper or paperma\$8) and fold\$4 and (seam\$4 or join\$4)).clm.                  | US-PGPUB;<br>USPAT |

VP-19978

BOX A.F.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

|              |   |                                                                                    |                       |
|--------------|---|------------------------------------------------------------------------------------|-----------------------|
| Applic. No.  | : | 14/825,350                                                                         | Confirmation No: 4663 |
| Applicant    | : | Torsten Wich                                                                       |                       |
| Filed        | : | August 13, 2015                                                                    |                       |
| Title        | : | FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB<br>AND METHOD OF PRODUCING A FIBER WEB |                       |
| Art Unit     | : | 1741                                                                               |                       |
| Examiner     | : | John Eric Hug                                                                      |                       |
| Docket No.   | : | VP-19978                                                                           |                       |
| Customer No. | : | 24131                                                                              |                       |

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

OK TO ENTER: /EH/

**A M E N D M E N T**

Responsive to the Office action dated October 11, 2017 kindly amend the above-identified application as follows:

- **Amendments to the Claims** begin on page 2 of this paper.
- **Remarks/Arguments** begin on page 5 of this paper.

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.

|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                               |                                  |       |                                                   |               |                                  |                     |                                       |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------|---------------------------------------------------|---------------|----------------------------------|---------------------|---------------------------------------|--|--|
| <b>PATENT APPLICATION FEE DETERMINATION RECORD</b><br>Substitute for Form PTO-875                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                               |                                  |       | Application or Docket Number<br><b>14/825,350</b> |               | Filing Date<br><b>08/13/2015</b> |                     | <input type="checkbox"/> To be Mailed |  |  |
| ENTITY: <input checked="" type="checkbox"/> LARGE <input type="checkbox"/> SMALL <input type="checkbox"/> MICRO                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                               |                                  |       |                                                   |               |                                  |                     |                                       |  |  |
| <b>APPLICATION AS FILED – PART I</b>                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                               |                                  |       |                                                   |               |                                  |                     |                                       |  |  |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                               | (Column 2)                       |       |                                                   |               |                                  |                     |                                       |  |  |
| FOR                                                                                                                                                                                                                                                                                                                                                                                                                                  | NUMBER FILED                                                                                                                                                                                                                  | NUMBER EXTRA                     |       |                                                   | RATE (\$)     | FEE (\$)                         |                     |                                       |  |  |
| <input checked="" type="checkbox"/> BASIC FEE<br>(37 CFR 1.16(a), (b), or (c))                                                                                                                                                                                                                                                                                                                                                       | N/A                                                                                                                                                                                                                           | N/A                              |       |                                                   | N/A           | <b>280</b>                       |                     |                                       |  |  |
| <input type="checkbox"/> SEARCH FEE<br>(37 CFR 1.16(k), (l), or (m))                                                                                                                                                                                                                                                                                                                                                                 | N/A                                                                                                                                                                                                                           | N/A                              |       |                                                   | N/A           |                                  |                     |                                       |  |  |
| <input type="checkbox"/> EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q))                                                                                                                                                                                                                                                                                                                                                            | N/A                                                                                                                                                                                                                           | N/A                              |       |                                                   | N/A           |                                  |                     |                                       |  |  |
| TOTAL CLAIMS<br>(37 CFR 1.16(i))                                                                                                                                                                                                                                                                                                                                                                                                     | minus 20 =                                                                                                                                                                                                                    | *                                |       |                                                   | X \$ =        |                                  |                     |                                       |  |  |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h))                                                                                                                                                                                                                                                                                                                                                                                               | minus 3 =                                                                                                                                                                                                                     | *                                |       |                                                   | X \$ =        |                                  |                     |                                       |  |  |
| <input type="checkbox"/> APPLICATION SIZE FEE<br>(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). |                                  |       |                                                   |               |                                  |                     |                                       |  |  |
| <input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                               |                                  |       |                                                   |               |                                  |                     |                                       |  |  |
| * If the difference in column 1 is less than zero, enter "0" in column 2.                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                               |                                  |       |                                                   | TOTAL         |                                  | <b>280</b>          |                                       |  |  |
| <b>APPLICATION AS AMENDED – PART II</b>                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                               |                                  |       |                                                   |               |                                  |                     |                                       |  |  |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                               | (Column 2)                       |       | (Column 3)                                        |               |                                  |                     |                                       |  |  |
| <b>AMENDMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>12/05/2017</b>                                                                                                                                                                                                             | CLAIMS REMAINING AFTER AMENDMENT |       | HIGHEST NUMBER PREVIOUSLY PAID FOR                | PRESENT EXTRA | RATE (\$)                        | ADDITIONAL FEE (\$) |                                       |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Total (37 CFR 1.16(i))                                                                                                                                                                                                        | * 15                             | Minus | ** 21                                             | = 0           | X \$80 =                         | 0                   |                                       |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Independent (37 CFR 1.16(h))                                                                                                                                                                                                  | * 1                              | Minus | *** 3                                             | = 0           | X \$420 =                        | 0                   |                                       |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                |                                  |       |                                                   |               |                                  |                     |                                       |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                      |                                  |       |                                                   |               |                                  |                     |                                       |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                               |                                  |       |                                                   |               | TOTAL ADD'L FEE                  |                     | <b>0</b>                              |  |  |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                               | (Column 2)                       |       | (Column 3)                                        |               |                                  |                     |                                       |  |  |
| <b>AMENDMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                               | CLAIMS REMAINING AFTER AMENDMENT |       | HIGHEST NUMBER PREVIOUSLY PAID FOR                | PRESENT EXTRA | RATE (\$)                        | ADDITIONAL FEE (\$) |                                       |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Total (37 CFR 1.16(i))                                                                                                                                                                                                        | *                                | Minus | **                                                | =             | X \$ =                           |                     |                                       |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Independent (37 CFR 1.16(h))                                                                                                                                                                                                  | *                                | Minus | ***                                               | =             | X \$ =                           |                     |                                       |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                |                                  |       |                                                   |               |                                  |                     |                                       |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                      |                                  |       |                                                   |               |                                  |                     |                                       |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                               |                                  |       |                                                   |               | TOTAL ADD'L FEE                  |                     |                                       |  |  |
| <p>* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.</p> <p>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".</p> <p>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".</p> <p>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.</p> |                                                                                                                                                                                                                               |                                  |       |                                                   |               |                                  |                     |                                       |  |  |

LIE  
TER JACKSON WOODRUFF

This collection of information is required by 37 CFR 1.16. 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 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.

VP-19978

BOX A.F.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

|              |   |                                                                                    |                       |
|--------------|---|------------------------------------------------------------------------------------|-----------------------|
| Applic. No.  | : | 14/825,350                                                                         | Confirmation No: 4663 |
| Applicant    | : | Torsten Wich                                                                       |                       |
| Filed        | : | August 13, 2015                                                                    |                       |
| Title        | : | FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB<br>AND METHOD OF PRODUCING A FIBER WEB |                       |
| Art Unit     | : | 1741                                                                               |                       |
| Examiner     | : | John Eric Hug                                                                      |                       |
| Docket No.   | : | VP-19978                                                                           |                       |
| Customer No. | : | 24131                                                                              |                       |

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

**A M E N D M E N T**

Responsive to the Office action dated October 11, 2017 kindly amend the above-identified application as follows:

- **Amendments to the Claims** begin on page 2 of this paper.
- **Remarks/Arguments** begin on page 5 of this paper.

| Electronic Acknowledgement Receipt          |                                                                                 |
|---------------------------------------------|---------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 31126678                                                                        |
| <b>Application Number:</b>                  | 14825350                                                                        |
| <b>International Application Number:</b>    |                                                                                 |
| <b>Confirmation Number:</b>                 | 4663                                                                            |
| <b>Title of Invention:</b>                  | FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB |
| <b>First Named Inventor/Applicant Name:</b> | TORSTEN WICH                                                                    |
| <b>Customer Number:</b>                     | 24131                                                                           |
| <b>Filer:</b>                               | Werner H. Stemer/Christin Zeuschner                                             |
| <b>Filer Authorized By:</b>                 | Werner H. Stemer                                                                |
| <b>Attorney Docket Number:</b>              | VP-19978                                                                        |
| <b>Receipt Date:</b>                        | 05-DEC-2017                                                                     |
| <b>Filing Date:</b>                         | 13-AUG-2015                                                                     |
| <b>Time Stamp:</b>                          | 14:26:56                                                                        |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                     |

### Payment information:

| Submitted with Payment |                      | no               |                                          |                  |                  |
|------------------------|----------------------|------------------|------------------------------------------|------------------|------------------|
| <b>File Listing:</b>   |                      |                  |                                          |                  |                  |
| Document Number        | Document Description | File Name        | File Size(Bytes)/<br>Message Digest      | Multi Part /.zip | Pages (if appl.) |
| 1                      |                      | VP-19978-amf.pdf | 77857                                    | yes              | 5                |
|                        |                      |                  | c2416dd48281cc5b7191db11e7922ac24a8c573a |                  |                  |

| Multipart Description/PDF files in .zip description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |       |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------|-----|
| Document Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |  | Start | End |
| Applicant Arguments/Remarks Made in an Amendment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  | 5     | 5   |
| Claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | 2     | 4   |
| Response After Final Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | 1     | 1   |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |       |     |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |       |     |
| Total Files Size (in bytes):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  | 77857 |     |
| <p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p> |  |       |     |

## **REMARKS/ARGUMENTS**

Reconsideration of the application is requested.

### **Claim Status/Amendment**

Claims 1-6, 8-12 and 16-21 remain in the application. Claim 1 has been amended.

Claims 7 and 11-13 have been previously canceled and claims 14-15 have been canceled herein.

The subject matter of claim 14 has been incorporated into claim 1. In light of the indicated allowability of claim 14, the amended claim 1 is in condition for allowance.

The issuance of a Notice of Allowance for claims 1-6, 8-12 and 16-21 is solicited.

Respectfully submitted,

/Werner H. Stemer/

Werner H. Stemer  
(Reg. No. 34,956)

WHS:cz

December 5, 2017

Lerner Greenberg Stemer LLP  
P.O. Box 2480  
Hollywood, Florida 33022-2480  
Tel.: 954-925-1100  
Fax: 954-925-1101

## **Amendments to the Claims**

### **Listing of Claims:**

Claim 1 (currently amended). A fabric for a machine for producing a fiber web, comprising:

a flat woven base material having a top side and a bottom side, two terminal ends separated from one another in a machine direction;

said flat woven base material being folded in two folded layers with folds being separated from one another in the machine direction and defining an inside between the two folded layers and an outside;

said two terminal ends being located under the bottom side surface and said two terminal ends being adjacent one another or overlapping one another, and wherein seam loops are located at said folds; and

one or more sheet plies, wherein:

~~at least one of the sheet plies is disposed on the outside~~ all of said sheet plies are disposed outside said folded layers; and

one, some or all of the sheet plies consist of or comprise a woven material or a non-woven component selected from the group consisting of a polymer film, a foam layer, a knitted structure and a warp-knit structure.

Claim 2 (original). The fabric according to claim 1, wherein said one or more sheet plies are two or more sheet plies.

Claim 3 (original). The fabric according to claim 1, configured for producing a fiber web selected from the group consisting of a paper web, a cardboard web, a tissue web and a pulp web.

Claim 4 (original). The fabric according to claim 1, wherein said sheet plies have a width substantially equal to a width in cross machine direction as the fabric and/or said sheet plies have a length substantially equal to a length in the machine direction as the fabric.

Claim 5 (original). The fabric according to claim 1, wherein said woven base material is a one-layer weave.

Claim 6 (original). The fabric according to claim 5, wherein said woven base material is a plain weave.

Claim 7 (canceled).

Claim 8 (previously presented). The fabric according to claim 1, wherein said woven material is a one-layer weave.

Claim 9 (original). The fabric according to claim 8, wherein said one-layer weave is a plain weave.

Claim 10 (original). The fabric according to claim 7, wherein said woven base material and one, some or all of said sheet plies are formed of a same woven material.

Claim 11 - 15 (canceled).

Claim 16 (original). The fabric according to claim 1, which comprises one or more stitchings for securing said sheet plies to said woven base material.

Claim 17 (original). The fabric according to claim 1, wherein said two terminal ends are at least temporarily connected to one another.

Claim 18 (original). The fabric according to claim 17, wherein said two terminal ends are connected to one another by a process selected from the group consisting of welded, stitching, and gluing.

Claim 19 (original). The fabric according to claim 1, which further comprises at least one layer of batt fibers.

Claim 20 (original). The fabric according to claim 1, wherein the fabric is configured to be on-machine seamable and comprises only one seam.

Claim 21 (original). A method for producing a fiber web, providing a web-producing machine with a at least one fabric according to claim 1.



# UNITED STATES PATENT AND TRADEMARK OFFICE

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|                                                                                                  |             |                      |                                 |                             |
|--------------------------------------------------------------------------------------------------|-------------|----------------------|---------------------------------|-----------------------------|
| APPLICATION NO.                                                                                  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.             | CONFIRMATION NO.            |
| 14/825,350                                                                                       | 08/13/2015  | TORSTEN WICH         | VP-19978                        | 4663                        |
| 24131 7590 10/11/2017<br>LERNER GREENBERG STEMER LLP<br>P O BOX 2480<br>HOLLYWOOD, FL 33022-2480 |             |                      | EXAMINER<br>HUG, JOHN ERIC      |                             |
|                                                                                                  |             |                      | ART UNIT<br>1741                | PAPER NUMBER                |
|                                                                                                  |             |                      | NOTIFICATION DATE<br>10/11/2017 | DELIVERY MODE<br>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):

boxoa@patentusa.com  
docket@patentusa.com

|                              |                                      |                                      |                                                   |
|------------------------------|--------------------------------------|--------------------------------------|---------------------------------------------------|
| <b>Office Action Summary</b> | <b>Application No.</b><br>14/825,350 | <b>Applicant(s)</b><br>WICH, TORSTEN |                                                   |
|                              | <b>Examiner</b><br>Eric Hug          | <b>Art Unit</b><br>1741              | <b>AIA (First Inventor to File) Status</b><br>Yes |

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

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on August 8, 2017.  
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_\_.

2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.

3) ☐ 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.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims\***

5) ☒ Claim(s) 1-6,8-10 and 14-21 is/are pending in the application.  
5a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

6) ☐ Claim(s) \_\_\_\_\_ is/are allowed.

7) ☒ Claim(s) 1-6,8-10 and 15-21 is/are rejected.

8) ☒ Claim(s) 10 and 14 is/are objected to.

9) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

\* If any claims have been determined allowable, 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](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto:PPHfeedback@uspto.gov).

**Application Papers**

10) ☐ The specification is objected to by the Examiner.

11) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

**Priority under 35 U.S.C. § 119**

12) ☐ 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)).

\*\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)  
Paper No(s)/Mail Date \_\_\_\_\_.

3) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

4) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

The following is in response to the amendment of August 8, 2017.

#### ***Claim Objections***

Claim 10 is objected to because it depends from canceled claim 7. It appears it should depend from claim 1. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.

(a)(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

1. Claims 1-6, 15, 16, and 19-21 are rejected under 35 U.S.C. 102(a)(2) as being anticipated by Lee (US 2016/0069022).

Claim 1: Lee discloses a paper machine fabric in the form of a seamed press felt. The felt (850) of Figure 24 may comprise a flat woven base material (830) having a top side and a bottom side, two terminal ends separated from one another in a machine direction, and folds (832, 834) forming two folded layers. See paragraph [0118]. The folds are separated from one another in the machine direction (at ends 836, 838) and define an inside between the two folded

layers and an outside. The two terminal ends are located under the bottom side surface and are brought together to be adjacent to one another (see Figure 2, paragraph [0050]). Seam loops (856, 858) are located at the folds. A sheet ply in the form of a planar yarn assembly (870) may be disposed on the interior of the base fabric. The yarns assembly includes yarns (886) bonded to an elastic carrier (878) in a single layer. The elastic carrier may in the form of an elastomeric membrane, a permeable film, an elastic nonwoven mesh or web, a woven assembly, or a knitted material. See paragraph [0119]. An additional sheet ply in the form of a batt layer (866) may be placed on the outside of the folded base fabric, see Figure 25 and paragraphs [0125], [0216]. Alternatively, an additional sheet ply in the form of a second yarn array (970) may be attached on the outside of the folded base fabric. See Figures 26 and 27, and see paragraph [0130]. Thus, in the instance where an additional sheet ply is present, the fabric includes two sheet plies, one ply on the outside (either a batt layer or second yarn array) and the other ply (the yarn assembly) which can include a knit material.

Claim 2: The aforementioned inside yarn assembly and outside batt layer or yarn array constitute two sheet plies.

Claim 3: The seamed press felt is configured for the manufacture of paper.

Claim 4: The sheet plies have substantially the same cross machine direction width and machine direction length as the fabric.

Claims 5 and 6: The woven base material in Figure 24 is a single layer, plain weave.

Claim 15: The yarn assembly (870) is disposed inside the woven base material.

Claim 16: In Figure 15, the yarn assembly is stitched to the woven base material (at 360a, 360b). See paragraph [0062].

Claim 19: As described above, at least one layer of batt may be applied to the woven base material.

Claim 20: The fabric is configured to be on-machine seamable by the presence of the seam loops (340a, 340b) as shown in Figure 15.

Claim 21: The fabric is used in a papermaking machine to produce a fiber web.

2. Claims 1-6, 8-10, and 15-21 are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Crook (US 2009/0211722).

Claim 1: Crook discloses a paper machine fabric comprising a flat woven base material (1) having a top side (4) and a bottom side (5), two terminal ends (2, 3) separated from one another in a machine direction, and folds (6, 7) forming two folded layers. The folds are separated from one another in the machine direction and define an inside between the two folded layers and an outside. The two terminal ends are located under the bottom side surface and are brought together to be adjacent to one another. Seam loops (6', 7') are located at the folds. See Figures 1-3, 5, and see paragraphs [0037], [0040], and [0042]-[0044]. A nonwoven sheet ply in the form of a fibrous batt layer (10) may be attached to the outside of the fabric. See Figure 5 and paragraph [0047]. An additional sheet ply in the form of an insert (21) may be placed within the inside of the folded fabric (20). This sheet ply may be a woven fabric or knit material. See Figure 6 and paragraph [0048]. Thus, in the instance where an insert is present, the fabric includes two sheet plies, one ply on the outside (the batt layer) and the other ply (the insert) which can be woven or knit material.

Claim 2: The aforementioned batt layer and insert constitute two sheet plies.

Claim 3: The fabric is configured for the manufacture of paper.

Claim 4: The sheet plies have the same width and length as the fabric.

Claims 5 and 6: Paragraph [0038] discloses that the woven base material is a single layer plain weave.

Claims 8-10: The insert (21) can alternatively be another non-woven flat woven fabric thus having the same features of the base fabric. See paragraph [0048].

Claim 15: The insert (21) is disposed inside the woven base material.

Claim 16: The nonwoven batt layer and the woven base material are secured together by needling. See paragraph [0047]. The nonwoven insert and the woven base material are secured together by sewing. See paragraph [0048].

Claims 17 and 18: The terminal ends (2, 3) are sewn or stitched together with the fabric. See paragraph [0043].

Claim 19: As described above, at least one layer of batt may be applied to the woven base material.

Claim 20: The fabric is configured to be on-machine seamable by the presence of the seam loops which are connected to one another via a pintle (8) as shown in Figure 5.

Claim 21: The fabric is used in a web-producing machine (papermaking machine) to produce a fiber web.

***Allowable Subject Matter***

Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not disclose or suggest the embodiment of the claimed fabric wherein all of the sheet plies are disposed on the outside. In Lee above, one sheet ply is always disposed inside. In Crook above, in the case where only outside sheet plies are present (no insert), none of the sheet plies comprise woven material, a polymer film, a foam layer, a knitted structure, or a warp knitting structure. The sheet plies disposed outside are batt layers.

***Response to Arguments***

Applicant's arguments submitted with the amendment have been considered. Applicant has overcome the rejections set forth previously. However, Crook still reads on the claimed invention as described above.

Applicant is correct in that Crook does not disclose a woven ply on the outside. It is noted that Crook also does not disclose a polymer film, a foam layer, a knitted structure, nor a warp-knit structure on the outside. However, claim 1 only requires a woven ply or any of the non-woven components on the outside if all of the sheet plies are on the outside.

***Conclusion***

Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hug whose telephone number is (571) 272-1192. 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, Joseph Del Sole can be reached on 571 272-1130. 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.

/Eric Hug/  
Primary Examiner, Art Unit 1741

|                                                                                                          |                                            |                                                                 |
|----------------------------------------------------------------------------------------------------------|--------------------------------------------|-----------------------------------------------------------------|
| <b>Search Notes</b><br> | <b>Application/Control No.</b><br>14825350 | <b>Applicant(s)/Patent Under Reexamination</b><br>WICH, TORSTEN |
|                                                                                                          | <b>Examiner</b><br>ERIC HUG                | <b>Art Unit</b><br>1741                                         |

| CPC- SEARCHED                                                                               |          |          |
|---------------------------------------------------------------------------------------------|----------|----------|
| Symbol                                                                                      | Date     | Examiner |
| D21F 1/0027, 1/0036, 1/0045, 1/0054, 1/10, 1/105, 1/12, 1/14, 1/16, 7/08, 7/083, 7/10, 7/12 | 5/2/2017 | EH       |
| B32B 5/022, 5/024, 5/026, 5/22, 5/26, 7/08                                                  | "        | "        |

| CPC COMBINATION SETS - SEARCHED |      |          |
|---------------------------------|------|----------|
| Symbol                          | Date | Examiner |
|                                 |      |          |

| US CLASSIFICATION SEARCHED |                                             |          |          |
|----------------------------|---------------------------------------------|----------|----------|
| Class                      | Subclass                                    | Date     | Examiner |
| 162                        | 348, 358.2, 900, 902-904                    | 5/2/2017 | EH       |
| 139                        | 383A, 383AA                                 | "        | "        |
| 442                        | 239, 240, 241, 246, 247, 268, 269, 270, 271 | "        | "        |

\* 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 |
| EAST- USPAT, US-PGPUB, USOCR, JPO, EPO, FPRS, Derwent | 5/2/2017  | EH       |
| Assignee, inventor, applicant search                  | "         | "        |
| related: 14/825352                                    | "         | "        |
| IPC: D21F 1/10, 7/08; B32B 5/22, 5/26                 | "         | "        |
| update                                                | 10/3/2017 | EH       |

| INTERFERENCE SEARCH     |                         |      |          |
|-------------------------|-------------------------|------|----------|
| US Class/<br>CPC Symbol | US Subclass / CPC Group | Date | Examiner |
|                         |                         |      |          |

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## EAST Search History

### EAST Search History (Prior Art)

| Ref # | Hits | Search Query                                                                                                                       | DBs               |
|-------|------|------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| L5    | 682  | ((paper or cardboard or board or tissue or web) with machine) or paperma\$8) with (fabric or felt or belt or clothing) and knit\$9 | USPAT             |
| L6    | 505  | ((paper or cardboard or board or tissue or web) with machine) or paperma\$8) with (fabric or felt or belt or clothing) and knit\$9 | US-PGPUB          |
| L7    | 338  | ((paper or cardboard or board or tissue or web) with machine) or paperma\$8) with (fabric or felt or belt or clothing) and knit\$9 | USOCR             |
| L8    | 221  | ((paper or cardboard or board or tissue or web) with machine) or paperma\$8) with (fabric or felt or belt or clothing) and knit\$9 | EPO; JPO; DERWENT |
| L9    | 2508 | ((paper or cardboard or board or tissue or web) with (fabric or felt or belt or clothing)) with knit\$9)                           | USPAT             |
| L10   | 2265 | ((paper or cardboard or board or tissue or web) with (fabric or felt or belt or clothing)) with knit\$9)                           | US-PGPUB          |
| L11   | 724  | ((paper or cardboard or board or tissue or web) with (fabric or felt or belt or clothing)) with knit\$9)                           | USOCR             |
| L12   | 1781 | ((paper or cardboard or board or tissue or web) with (fabric or felt or belt or clothing)) with knit\$9)                           | EPO; JPO; DERWENT |

## EAST Search History

### EAST Search History (Prior Art)

| Ref # | Hits | Search Query                                                                              | DBs                |
|-------|------|-------------------------------------------------------------------------------------------|--------------------|
| S12   | 693  | (162/\$.ccls. or D21F\$) and (flat with (weav\$4 or woven))                               | US-PGPUB;<br>USPAT |
| S16   | 229  | (162/\$.ccls. or D21F\$) and (flat with (weav\$4 or woven)) and fold\$4                   | US-PGPUB;<br>USPAT |
| S17   | 7    | (162/\$.ccls. or D21F\$) and (flat with (weav\$4 or woven)) and fold\$4                   | DERWENT            |
| S34   | 1455 | (flat adj woven) and (sheet\$2 or ply or plies or layer\$2)                               | US-PGPUB;<br>USPAT |
| S36   | 151  | (flat adj woven) and (sheet\$2 or ply or plies or layer\$2)                               | USOCR              |
| S37   | 150  | (flat adj woven) and (sheet\$2 or ply or plies or layer\$2)                               | FPRS               |
| S38   | 13   | (flat adj woven) and (sheet\$2 or ply or plies or layer\$2)                               | EPO                |
| S39   | 14   | (flat adj woven) and (sheet\$2 or ply or plies or layer\$2)                               | JPO                |
| S40   | 94   | (flat adj woven) and (sheet\$2 or ply or plies or layer\$2)                               | DERWENT            |
| S43   | 748  | (flat adj woven) and (sheet\$2 or ply or plies or layer\$2) and (film or foam or knit\$4) | US-PGPUB;<br>USPAT |

VP-19978

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

|              |   |                                                                                    |                       |
|--------------|---|------------------------------------------------------------------------------------|-----------------------|
| Applic. No.  | : | 14/825,350                                                                         | Confirmation No: 4663 |
| Applicant    | : | Torsten Wich                                                                       |                       |
| Filed        | : | August 13, 2015                                                                    |                       |
| Title        | : | FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB<br>AND METHOD OF PRODUCING A FIBER WEB |                       |
| Art Unit     | : | 1741                                                                               |                       |
| Examiner     | : | John Eric Hug                                                                      |                       |
| Docket No.   | : | VP-19978                                                                           |                       |
| Customer No. | : | 24131                                                                              |                       |

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

**A M E N D M E N T**

Responsive to the Office action dated May 12, 2017 kindly amend the above-identified application as follows:

- **Amendments to the Claims** begin on page 2 of this paper.
- **Remarks/Arguments** begin on page 6 of this paper.

## Electronic Acknowledgement Receipt

|                                             |                                                                                 |
|---------------------------------------------|---------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 30013809                                                                        |
| <b>Application Number:</b>                  | 14825350                                                                        |
| <b>International Application Number:</b>    |                                                                                 |
| <b>Confirmation Number:</b>                 | 4663                                                                            |
| <b>Title of Invention:</b>                  | FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB |
| <b>First Named Inventor/Applicant Name:</b> | TORSTEN WICH                                                                    |
| <b>Customer Number:</b>                     | 24131                                                                           |
| <b>Filer:</b>                               | Werner H. Stemer/Melissa Windgassen                                             |
| <b>Filer Authorized By:</b>                 | Werner H. Stemer                                                                |
| <b>Attorney Docket Number:</b>              | VP-19978                                                                        |
| <b>Receipt Date:</b>                        | 08-AUG-2017                                                                     |
| <b>Filing Date:</b>                         | 13-AUG-2015                                                                     |
| <b>Time Stamp:</b>                          | 14:31:57                                                                        |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                     |

### Payment information:

| Submitted with Payment |                      | no               |                                          |                  |                  |
|------------------------|----------------------|------------------|------------------------------------------|------------------|------------------|
| File Listing:          |                      |                  |                                          |                  |                  |
| Document Number        | Document Description | File Name        | File Size(Bytes)/<br>Message Digest      | Multi Part /.zip | Pages (if appl.) |
| 1                      |                      | VP-19978-am1.pdf | 87767                                    | yes              | 9                |
|                        |                      |                  | 41a012f1a8195674e403fd920df3675a7122837c |                  |                  |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Multipart Description/PDF files in .zip description   |       |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------|-----|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Document Description                                  | Start | End |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Applicant Arguments/Remarks Made in an Amendment      | 6     | 9   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Claims                                                | 2     | 5   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Amendment/Req. Reconsideration-After Non-Final Reject | 1     | 1   |
| <b>Warnings:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                       |       |     |
| <b>Information:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                       |       |     |
| <b>Total Files Size (in bytes):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                       | 87767 |     |
| <p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b><br/> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b><br/> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b><br/> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p> |                                                       |       |     |

## **REMARKS/ARGUMENTS**

Reconsideration of the application is requested.

### **Claim Status/Amendment**

Claims 1-6, 8-12 and 14-21 are now in the application. Claims 1, 8 and 15 have been amended. Claims 7 and 13 have been canceled.

More specifically, the subject matter of claim 15 (at least one ply on the outside), of claim 7 (woven material) and of claim 12 (specific non-woven material) has been incorporated into claim 1.

Claim 13 has been canceled because its limitation would collide with the amended claim 1.

### **Prior Art Rejections**

- Claims 1-4, 11, 13, 15, 16 and 19-21 have been rejected as being anticipated by McGill (DE 10 2004 044 568) under 35 U.S.C. § 102.
- Claims 1-6, 11, 14 and 16-21 have been rejected as being anticipated by Sudre (WO 89/12717) under 35 U.S.C. § 102.
- Claims 1-21 have been rejected as being anticipated by Crook (US 2009/0211722) under 35 U.S.C. § 102.

In light of the amendment to claim 1, it appears that the rejection over Crook remains as the only operative rejection. The other two rejections are now moot.

### **McGill**

McGill discloses an inlay. The prior art reference does not provide for a sheet ply disposed on the outside.

McGill does not anticipate the claimed invention.

### **Sudre**

Sudre does not disclose any of the specified materials of the Markush group (polymer film, foam layer, knitted structure, warp knit structure). Instead, Sudre only discloses a non-woven batt.

The specified materials differ in the essential concept that batt layers are attached to a woven base structure by needle punching. The non-woven ply materials of the Markush group do not share that property.

Similarly to a woven sheet-ply, special care must be taken in order to secure these sheet plies to the woven base. One possible option is to add one or more layers of batt material to the fabric. See, para. [0037] and claim 19. In that special case, the needle punching will not only attach the batt, but it will also attach the sheet-ply to the woven base. A second option is to stitch the sheet plies to the woven base. See, para. [0035] and claim 16.

In sum, Sudre does not disclose any of the non-woven plies of claim 1 (i.e., of the Markush group). Instead, Sudre only discloses a batt as plies.

Sudre does not anticipate the claimed invention.

### **Crook**

Crook discloses a woven insert. To wit:

In an alternative embodiment illustrated in FIG. 6, woven fabric 20 can be wrapped around an insert 21 to improve characteristics of the belt . . . . By way of example, insert 21 can be a polyurethane composite nonwoven membrane, e.g., a SPECTRA membrane manufactured by Voith Fabrics, sandwiched between the plies of woven stock fabric 1. In a further alternative, insert 21 could also be another non-folded flat woven fabric, knit material, etc.

Crook, p. 2, para. [0048].

The reference does not disclose a woven ply on the outside. Only batt layers are considered for placement on the outside of the belt.

Crook does not anticipate the claimed invention.

In summary, none of the prior art references, whether taken alone or in any combination, either show or suggest the features of claim 1, as amended. Claim 1 is, therefore, patentable over the art and since all of the dependent claims are ultimately dependent on claim 1, they are patentable as well.

In view of the foregoing, the allowance of claims 1-6, 8-12 and 14-21 is solicited.

VP-19978 - Application No. 14/825,350  
Response to Office action May 12, 2017  
Response submitted August 8, 2017

If an extension of time for this paper is required, petition for extension is herewith made.

Respectfully submitted,

/Werner H. Stemer/

Werner H. Stemer  
(Reg. No. 34,956)

WHS:mw

August 8, 2017

Lerner Greenberg Stemer LLP  
P.O. Box 2480  
Hollywood, Florida 33022-2480  
Tel.: 954-925-1100  
Fax: 954-925-1101

### **Amendments to the Claims**

#### **Listing of Claims:**

Claim 1 (currently amended). A fabric for a machine for producing a fiber web, comprising:

a flat woven base material having a top side and a bottom side, two terminal ends separated from one another in a machine direction;

said flat woven base material being folded in two folded layers with folds being separated from one another in the machine direction and defining an inside between the two folded layers and an outside;

said two terminal ends being located under the bottom side surface and said two terminal ends being adjacent one another or overlapping one another, and wherein seam loops are located at said folds; and

one or more sheet plies, wherein:

at least one of the sheet plies is disposed on the outside; and

one, some or all of the sheet plies consist of or comprise a woven material or a non-woven component selected from the group consisting of a polymer film, a foam layer, a knitted structure and a warp-knit structure.

Claim 2 (original). The fabric according to claim 1, wherein said one or more sheet plies are two or more sheet plies.

Claim 3 (original). The fabric according to claim 1, configured for producing a fiber web selected from the group consisting of a paper web, a cardboard web, a tissue web and a pulp web.

Claim 4 (original). The fabric according to claim 1, wherein said sheet plies have a width substantially equal to a width in cross machine direction as the fabric and/or said sheet plies have a length substantially equal to a length in the machine direction as the fabric.

Claim 5 (original). The fabric according to claim 1, wherein said woven base material is a one-layer weave.

Claim 6 (original). The fabric according to claim 5, wherein said woven base material is a plain weave.

Claim 7 (canceled).

Claim 8 (currently amended). The fabric according to ~~claim 7~~ claim 1, wherein said woven material is a one-layer weave.

Claim 9 (original). The fabric according to claim 8, wherein said one-layer weave is a plain weave.

Claim 10 (original). The fabric according to claim 7, wherein said woven base material and one, some or all of said sheet plies are formed of a same woven material.

Claim 11 - 13 (canceled).

Claim 14 (original). The fabric according to claim 1, wherein all of said sheet plies are disposed outside said folded layers.

Claim 15 (currently amended). The fabric according to claim 1, wherein ~~at least one of the sheet plies is disposed on the outside and~~ at least one of said sheet-like plies is disposed inside.

Claim 16 (original). The fabric according to claim 1, which comprises one or more stitchings for securing said sheet plies to said woven base material.

Claim 17 (original). The fabric according to claim 1, wherein said two terminal ends are at least temporarily connected to one another.

Claim 18 (original). The fabric according to claim 17, wherein said two terminal ends are connected to one another by a process selected from the group consisting of welded, stitching, and gluing.

Claim 19 (original). The fabric according to claim 1, which further comprises at least one layer of batt fibers.

Claim 20 (original). The fabric according to claim 1, wherein the fabric is configured to be on-machine seamable and comprises only one seam.

Claim 21 (original). A method for producing a fiber web, providing a web-producing machine with a at least one fabric according to claim 1.

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|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                               |                                  |       |                                                   |               |                                  |  |                                       |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------|---------------------------------------------------|---------------|----------------------------------|--|---------------------------------------|--|
| <b>PATENT APPLICATION FEE DETERMINATION RECORD</b><br>Substitute for Form PTO-875                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                               |                                  |       | Application or Docket Number<br><b>14/825,350</b> |               | Filing Date<br><b>08/13/2015</b> |  | <input type="checkbox"/> To be Mailed |  |
| ENTITY: <input checked="" type="checkbox"/> LARGE <input type="checkbox"/> SMALL <input type="checkbox"/> MICRO                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                               |                                  |       |                                                   |               |                                  |  |                                       |  |
| <b>APPLICATION AS FILED – PART I</b>                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                               |                                  |       |                                                   |               |                                  |  |                                       |  |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                               | (Column 2)                       |       |                                                   |               |                                  |  |                                       |  |
| FOR                                                                                                                                                                                                                                                                                                                                                                                                                                  | NUMBER FILED                                                                                                                                                                                                                  | NUMBER EXTRA                     |       |                                                   | RATE (\$)     | FEE (\$)                         |  |                                       |  |
| <input type="checkbox"/> BASIC FEE<br>(37 CFR 1.16(a), (b), or (c))                                                                                                                                                                                                                                                                                                                                                                  | N/A                                                                                                                                                                                                                           | N/A                              |       |                                                   | N/A           |                                  |  |                                       |  |
| <input type="checkbox"/> SEARCH FEE<br>(37 CFR 1.16(k), (l), or (m))                                                                                                                                                                                                                                                                                                                                                                 | N/A                                                                                                                                                                                                                           | N/A                              |       |                                                   | N/A           |                                  |  |                                       |  |
| <input type="checkbox"/> EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q))                                                                                                                                                                                                                                                                                                                                                            | N/A                                                                                                                                                                                                                           | N/A                              |       |                                                   | N/A           |                                  |  |                                       |  |
| TOTAL CLAIMS<br>(37 CFR 1.16(i))                                                                                                                                                                                                                                                                                                                                                                                                     | minus 20 =                                                                                                                                                                                                                    | *                                |       |                                                   | X \$          | =                                |  |                                       |  |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h))                                                                                                                                                                                                                                                                                                                                                                                               | minus 3 =                                                                                                                                                                                                                     | *                                |       |                                                   | X \$          | =                                |  |                                       |  |
| <input type="checkbox"/> APPLICATION SIZE FEE<br>(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). |                                  |       |                                                   |               |                                  |  |                                       |  |
| <input type="checkbox"/> MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                               |                                  |       |                                                   |               |                                  |  |                                       |  |
| * If the difference in column 1 is less than zero, enter "0" in column 2.                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                               |                                  |       |                                                   | TOTAL         |                                  |  |                                       |  |
| <b>APPLICATION AS AMENDED – PART II</b>                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                               |                                  |       |                                                   |               |                                  |  |                                       |  |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                               | (Column 2)                       |       | (Column 3)                                        |               |                                  |  |                                       |  |
| <b>AMENDMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>08/08/2017</b>                                                                                                                                                                                                             | CLAIMS REMAINING AFTER AMENDMENT |       | HIGHEST NUMBER PREVIOUSLY PAID FOR                | PRESENT EXTRA | RATE (\$)                        |  | ADDITIONAL FEE (\$)                   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Total (37 CFR 1.16(i))                                                                                                                                                                                                        | * 17                             | Minus | ** 21                                             | = 0           | X \$80 =                         |  | 0                                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Independent (37 CFR 1.16(h))                                                                                                                                                                                                  | * 1                              | Minus | *** 3                                             | = 0           | X \$420 =                        |  | 0                                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                |                                  |       |                                                   |               |                                  |  |                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                      |                                  |       |                                                   |               |                                  |  |                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                               |                                  |       |                                                   |               | TOTAL ADD'L FEE                  |  | <b>0</b>                              |  |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                               | (Column 2)                       |       | (Column 3)                                        |               |                                  |  |                                       |  |
| <b>AMENDMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                               | CLAIMS REMAINING AFTER AMENDMENT |       | HIGHEST NUMBER PREVIOUSLY PAID FOR                | PRESENT EXTRA | RATE (\$)                        |  | ADDITIONAL FEE (\$)                   |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Total (37 CFR 1.16(i))                                                                                                                                                                                                        | *                                | Minus | **                                                | =             | X \$                             |  | =                                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | Independent (37 CFR 1.16(h))                                                                                                                                                                                                  | *                                | Minus | ***                                               | =             | X \$                             |  | =                                     |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                |                                  |       |                                                   |               |                                  |  |                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                      |                                  |       |                                                   |               |                                  |  |                                       |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                               |                                  |       |                                                   |               | TOTAL ADD'L FEE                  |  |                                       |  |
| <p>* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.</p> <p>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".</p> <p>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".</p> <p>The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.</p> |                                                                                                                                                                                                                               |                                  |       |                                                   |               |                                  |  |                                       |  |
| LIE<br>LASHAWN MORGAN                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                               |                                  |       |                                                   |               |                                  |  |                                       |  |

This collection of information is required by 37 CFR 1.16. 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 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.**

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|                 |             |                      |                     |                  |
|-----------------|-------------|----------------------|---------------------|------------------|
| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 14/825,350      | 08/13/2015  | TORSTEN WICH         | VP-19978            | 4663             |

|                             |      |            |
|-----------------------------|------|------------|
| 24131                       | 7590 | 05/12/2017 |
| LERNER GREENBERG STEMER LLP |      |            |
| P O BOX 2480                |      |            |
| HOLLYWOOD, FL 33022-2480    |      |            |

|                |
|----------------|
| EXAMINER       |
| HUG, JOHN ERIC |

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
| 1741     |              |

|                   |               |
|-------------------|---------------|
| NOTIFICATION DATE | DELIVERY MODE |
| 05/12/2017        | 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):

boxoa@patentusa.com  
docket@patentusa.com

|                              |                                      |                                      |                                                   |
|------------------------------|--------------------------------------|--------------------------------------|---------------------------------------------------|
| <b>Office Action Summary</b> | <b>Application No.</b><br>14/825,350 | <b>Applicant(s)</b><br>WICH, TORSTEN |                                                   |
|                              | <b>Examiner</b><br>Eric Hug          | <b>Art Unit</b><br>1741              | <b>AIA (First Inventor to File) Status</b><br>Yes |

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

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on August 13, 2015.  
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ 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.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims\*

- 5) ☒ Claim(s) 1-21 is/are pending in the application.  
5a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 1-21 is/are rejected.
- 8) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

\* If any claims have been determined allowable, 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](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto:PPHfeedback@uspto.gov).

### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☒ The drawing(s) filed on August 13, 2015 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

### Priority under 35 U.S.C. § 119

- 12) ☐ 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)).

\*\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                                                                          |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                              | 3) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)<br>Paper No(s)/Mail Date ____. | 4) <input type="checkbox"/> Other: ____.                                                |

### **DETAILED ACTION**

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.

(a)(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

1. Claims 1-4, 11, 13, 15, 16, and 19-21 are rejected under 35 U.S.C. 102(a)(1) as being anticipated by McGill (DE 10 2004 044 568). An English language machine translation of the DE document is provided.

Claims 1-3: McGill discloses a paper machine fabric for producing a paper web. The fabric comprises a flat woven base material (1) and a perforated nonwoven mesh material (2). The terminal ends (3, 4) of the woven base are folded (at 6, 7; in the direction of 8, 9) around the mesh (2) to form folds with seam loops aligned in the machine direction. After folding, the terminal ends are located under the bottom side surface of the woven base. In the instance the base fabric with mesh is to be used as a press felt, nonwoven sheets (not shown) are then applied to the outside surfaces of the base fabric. See particularly Figure 1 and the disclosure thereof on

pages 4 and 5 in the translation. The non-woven mesh material and nonwoven sheets are equivalently the claimed sheet plies.

Claim 4: The base fabric (1) originally has a machine direction length twice that of the mesh structure (2), and after folding the base fabric and mesh have approximately the same machine direction length.

Claim 11: All of the sheet plies are nonwoven. This includes the nonwoven mesh and any nonwoven layers attached to make a press felt.

Claim 13: The base fabric and mesh may be used as a forming fabric, press felt, or drying fabric. If the base fabric with mesh is not used a press felt, then the mesh is the only nonwoven layer. In this instance, all of the nonwoven layers are disposed inside between the folded layers.

Claim 15: If the base fabric with mesh is used a press felt, then the nonwoven mesh is disposed inside the folded layers and any nonwoven sheets are disposed outside the folded layers.

Claim 16: The first paragraph of page 3 discloses that the sheet plies and the woven base material are secured together by needling.

Claim 19: The nonwoven sheets which are attached to base fabric to produce a press felt are equivalently layers of batt fibers.

Claim 20: The fabric is configured to be on-machine seamable by the presence of the seam loops (6) which are connected to one another via a close wire (10).

Claim 21: The fabric is used in a web-producing machine (papermaking machine) to produce a fiber web.

2. Claims 1-6, 11, 14, and 16-21 are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Sudre (WO 89/12717).

Claims 1-3, 11, 14, and 19: Sudre discloses a papermaker's fabric comprising a flat woven base material (11) having a top side and a bottom side, two terminal ends (12, 13) separated from one another in a machine direction, and fold regions (15, 16) forming two folded layers. The folds are separated from one another in the machine direction and define an inside between the two folded layers and an outside. The two terminal ends are located under the bottom side surface and are brought together to be adjacent to one another. Seam loops (17, 18) are located at the folds. See Figures 1 and 2, and see page 3, lines 12-21. Nonwoven sheet plies (25) in the form of textile batt are attached to each outside face of the fabric. See Figure 5, see page 3, lines 9-11, and see page 5, lines 8-18.

Claim 4: The nonwoven sheet plies are deemed to have the same width and length as the fabric.

Claims 5 and 6: Figure 1 shows the woven base material is a one-layer plain weave.

Claim 16: The nonwoven sheet plies and the woven base material are secured together by needling. See page 5, lines 8-18.

Claims 17 and 18: The terminal ends (12, 13) are sewn or stitched together (at 22, 24) with the fabric. See Figure 2, and see pages 4, lines 7.

Claim 20: The fabric is configured to be on-machine seamable by the presence of the seam loops which are connected to one another via a pintle wire (19) as shown in Figure 3.

Claim 21: The fabric is used in a web-producing machine (papermaking machine) to produce a fiber web.

3. Claims 1-21 are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Crook (US 2009/0211722).

Claims 1-3 and 19: Crook discloses a papermaking machine fabric comprising a flat woven base material (1) having a top side (4) and a bottom side (5), two terminal ends (2, 1) separated from one another in a machine direction, and folds (6, 7) forming two folded layers. The folds are separated from one another in the machine direction and define an inside between the two folded layers and an outside. The two terminal ends are located under the bottom side surface and are brought together to be adjacent to one another or to abut one another. Seam loops (6', 7') are located at the folds. See Figures 1-3, and see paragraphs [0037], [0040], and [0042] to [0044]. A nonwoven sheet ply in the form of a fibrous batt layer (10) may be attached to the outside of the fabric. See Figure 5 and paragraph [0047]. A nonwoven sheet ply in the form of an insert (21) may be placed within the inside of the folded fabric (20). See Figure 6 and paragraph [0048]. A nonwoven parallel array of MD yarns may be laminated on the bottom side of the fabric. See paragraph [0050].

Claim 4: The nonwoven sheet plies have the same width and length as the fabric.

Claims 5 and 6: Paragraph [0038] discloses that the woven base material is a single layer plain weave.

Claims 7-10: The insert (21) can alternatively be another non-woven flat woven fabric, thus having the features of the base fabric. See paragraph [0048].

Claims 11 and 12: The nonwoven insert (21) can be a polymer (polyurethane) film (membrane) or knit material. See paragraph [0048].

Claims 13-15: The nonwoven batt layer, if present, would be disposed outside the folded layers. The nonwoven insert, if present, would be disposed inside the folded layers. A combination of the batt layer and insert, or a combination of the MD array and insert, if present, would provide at least one nonwoven outside the folded layers and one nonwoven inside the folded layers.

Claim 16: The nonwoven batt layer and the woven base material are secured together by needling. See paragraph [0047]. The nonwoven insert and the woven base material are secured together by sewing. See paragraph [0048].

Claims 17 and 18: The terminal ends (2, 3) are sewn or stitched together with the fabric. See paragraph [0043].

Claim 20: The fabric is configured to be on-machine seamable by the presence of the seam loops which are connected to one another via a pintle (8) as shown in Figure 5.

Claim 21: The fabric is used in a web-producing machine (papermaking machine) to produce a fiber web.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Lee (US 2016/0069022)

Hawes (US 7,892,402)

Legge (US 4,781,967)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hug whose telephone number is (571) 272-1192. 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, Joseph Del Sole can be reached on 571 272-1130. 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.

/Eric Hug/  
Primary Examiner, Art Unit 1741

|                                   |                                       |                                                             |             |
|-----------------------------------|---------------------------------------|-------------------------------------------------------------|-------------|
| <b>Notice of References Cited</b> | Application/Control No.<br>14/825,350 | Applicant(s)/Patent Under<br>Reexamination<br>WICH, TORSTEN |             |
|                                   | Examiner<br>Eric Hug                  | Art Unit<br>1741                                            | Page 1 of 1 |

**U.S. PATENT DOCUMENTS**

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>MM-YYYY | Name             | CPC Classification | US Classification |
|---|---|--------------------------------------------------|-----------------|------------------|--------------------|-------------------|
| * | A | US-2016/0069022 A1                               | 03-2016         | Lee; Henry       | D21F7/10           | 162/202           |
| * | B | US-2009/0211722 A1                               | 08-2009         | CROOK; Robert    | D21F1/0036         | 162/358.4         |
| * | C | US-7,892,402 B2                                  | 02-2011         | Hawes; John M.   | D21F1/0036         | 162/348           |
| * | D | US-4,781,967 A                                   | 11-1988         | Legge; Robert W. | B32B5/12           | 162/900           |
|   | E | US-                                              |                 |                  |                    |                   |
|   | F | US-                                              |                 |                  |                    |                   |
|   | G | US-                                              |                 |                  |                    |                   |
|   | H | US-                                              |                 |                  |                    |                   |
|   | I | US-                                              |                 |                  |                    |                   |
|   | J | US-                                              |                 |                  |                    |                   |
|   | K | US-                                              |                 |                  |                    |                   |
|   | L | US-                                              |                 |                  |                    |                   |
|   | M | US-                                              |                 |                  |                    |                   |

**FOREIGN PATENT DOCUMENTS**

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>MM-YYYY | Country | Name   | CPC Classification |
|---|---|--------------------------------------------------|-----------------|---------|--------|--------------------|
|   | N | WO 89/12717                                      | 12-1989         | WIPO    | Sudre  | --                 |
|   | O | DE 10 2004 044 568                               | 03-2006         | Germany | McGill | --                 |
|   | P |                                                  |                 |         |        |                    |
|   | Q |                                                  |                 |         |        |                    |
|   | R |                                                  |                 |         |        |                    |
|   | S |                                                  |                 |         |        |                    |
|   | T |                                                  |                 |         |        |                    |

**NON-PATENT DOCUMENTS**

| * |   | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)     |
|---|---|-----------------------------------------------------------------------------------------------|
|   | U | DE 10 2004 044 568, March 2006, English language machine translation, European Patent Office. |
|   | V |                                                                                               |
|   | W |                                                                                               |
|   | X |                                                                                               |

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



(19)  
Bundesrepublik Deutschland  
Deutsches Patent- und Markenamt

(10) **DE 10 2004 044 568 A1** 2006.03.30

(12)

## Offenlegungsschrift

(21) Aktenzeichen: **10 2004 044 568.0**

(22) Anmeldetag: **15.09.2004**

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(51) Int Cl.<sup>8</sup>: **D21F 7/08** (2006.01)

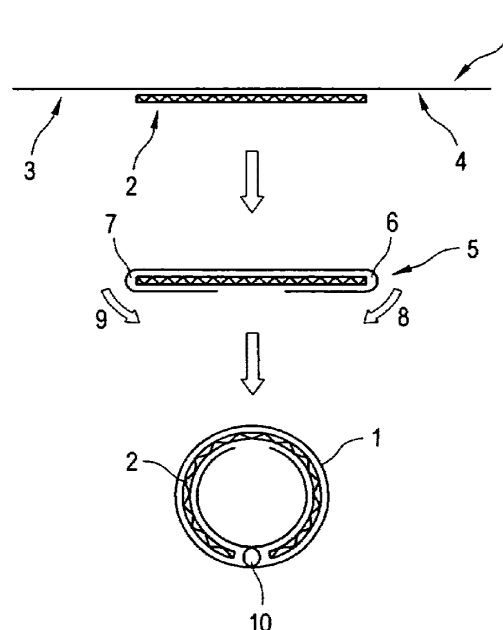
(71) Anmelder:  
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**Die folgenden Angaben sind den vom Anmelder eingereichten Unterlagen entnommen**

(54) Bezeichnung: **Pressstoffe**

(57) Zusammenfassung: Papiermaschinenbespannung, umfassend ein Gewebe und ein perforiertes Maschenmaterial, wobei das Gewebe um die Enden des perforierten nicht gewebten Maschenmaterials gefaltet ist, um Faltenbereiche zu bilden, wobei in Maschinenrichtung gerichtete Schlaufen bereitgestellt sind an den Faltenbereichen.



## Beschreibung

**[0001]** Die vorliegende Erfindung betrifft Bspannungsstoffe, die in der Ausrüstung zur Bahnbildung, wie z.B. Papierherstellung, verwendet werden. Die Erfindung wird besonders, aber nicht ausschließlich, für Pressfilze angewendet.

## Stand der Technik

**[0002]** Papier wird herkömmlicherweise hergestellt, indem Papierstoff, der üblicherweise aus einer Suspension aus Zellulosefasern besteht, auf einem Formiersieb oder zwischen zwei Formiersieben in einer Formierpartie transportiert wird, wobei das werdende Blatt dann durch eine Pressenpartie und schließlich durch eine Trockenpartie einer Vorrichtung zur Papierherstellung geführt wird. Im Fall von herkömmlichen Tissue-Papiermaschinen wird die Papierbahn vom Pressfilz auf einen Yankeezyylinder übertragen und dann gekreppt.

**[0003]** Papiermaschinenbespannung wird im Wesentlichen eingesetzt, um die Papierbahn durch diese verschiedenen Stationen der Vorrichtung zur Papierherstellung zu tragen. In der Formierpartie wird der Faserstoff auf ein sich bewegendes Formsieb nass abgelegt und Wasser wird durch Saugkästen und -folien angeregt, davon abzufließen. Die Papierbahn wird dann zu einem Pressfilz übertragen, der sie durch die Pressenpartie transportiert, wo sie üblicherweise durch eine Serie von Pressspalten läuft, die durch rotierende zylindrische Presswalzen gebildet werden. Wasser wird aus der Papierbahn und in das Pressfilz gedrückt, während die Bahn und die Bspannung gemeinsam durch den Spalt treten. Im Endstadium wird die Papierbahn entweder zu einem Yankee-Trockenzyylinder, im Fall der Herstellung von Tissuepapier, oder zu einer Gruppe von Trocknerzyklindern übertragen, auf denen, unterstützt durch die Klemmwirkung des Trockensieb, der Großteil des verbleibenden Wassers verdampft wird.

**[0004]** Pressfilze umfassen im Allgemeinen Vlieslagen von Fasermaterial, die mit einer gewebten Grundstruktur vernadelt sind. Das Grundgewebe kann vernäht sein, ist aber im Allgemeinen endlos gewebt.

**[0005]** Pressfilze sind während des Betriebes der Papiermaschine einer ausgedehnten Abnutzung unterworfen. Diese Abnutzung erfolgt großteils durch den Druck, der auf die Filze ausgeübt wird, wenn sie durch die Spaltwalzen laufen.

**[0006]** GB 2,238,272 betrifft einen Pressfilz mit Naht, bei dem das Grundgewebe mehrlagig mit Falten an deren Ende bereitgestellt ist. Garne in Maschinenquerrichtung werden an den Faltenbereichen entfernt, um Schlaufen in Maschinenrichtung daran zu

hinterlassen. Die Bspannung wird dann zusammengefasst, um diese zwei Sätze von Schlaufen fingerartig ineinander zu legen, und ein Schließdraht wird durch die Schlaufen geführt, um eine endlose Bspannung bereitzustellen.

**[0007]** US-Patentschrift 6,000,441 beschreibt eine Bspannung mit gewebtem Endlosaufbau, der zwei Lagen Schüsse und zwei Lagen Ketten aufweist. Nahtschlaufen sind an jedem Ende des Grundgewebes durch das Fehlen von Kettgarnen in diesen Bereichen gebildet. Jeder kettfreie Bereich hat einen Bereich von im Wesentlichen ungekräuselten Schussgarnen, die Nahtschlaufen bilden. Die zwei Sätze von Nahtschlaufen können fingerartig ineinander gelegt und durch einen Schließdraht zusammengehalten werden.

**[0008]** US-Patentschrift 6,283,165 offenbart eine Papiermaschinenbespannung, in dem eine Anordnung von Längsfäden, die an einer Vlieslage befestigt sind, um einen Einsatz gewickelt ist, der eine Serie von Quersfäden umfasst. Die außenseitigen Quersfäden werden entfernt, um Koppelaugen zu bilden, die fingerartig ineinander gelegt und mit einem Draht zusammengehalten werden können.

## Aufgabenstellung

**[0009]** Keiner der zuvor erwähnten Bspannungen befasst sich mit dem Problem der Pressfilzabnutzung.

**[0010]** Gemäß einem ersten Aspekt der vorliegenden Erfindung wird eine Papiermaschinenbespannung bereitgestellt, die ein Gewebe und ein perforiertes Maschenmaterial umfasst, wobei das Gewebe um die Enden des perforierten Maschenmaterials gefaltet ist, um Faltbereiche zu bilden, in denen in Maschinenrichtung gerichtete Schlaufen an den Faltbereichen bereitgestellt sind.

**[0011]** Gemäß einem zweiten Aspekt der vorliegenden Erfindung wird ein Verfahren zur Herstellung von Papiermaschinenbespannungen bereitgestellt, umfassend den Schritt des Faltens des Gewebes um die Enden eines perforierten Maschenmaterials, um Faltbereiche mit in Maschinenrichtung gerichtete Schlaufen daran zu bilden.

**[0012]** Das Gewebe und das perforierte Maschenmaterial werden idealerweise durch Vernadeln aneinander befestigt. Vliesmaterial wird ebenfalls idealerweise am Gewebe befestigt, vorzugsweise durch Vernadeln. Das Vliesmaterial dient nicht nur als Speicher für Wasser, das aus der Papierbahn entfernt worden ist, sondern verbessert auch die strukturelle Festigkeit des Pressfilzes. Die Gegenwart des gewebten Materials stellt eine gute Faserbindung bereit, was zu verringerten Ausfaserungsproblemen

führt.

**[0013]** Wenn das Gewebe flach gewebt ist, kann es nötig sein, Querrichtungs-Schussgarne von gegenüberliegenden Enden des Materials zu entfernen, wodurch Nahtschlaufen gebildet werden. Allerdings kann das Grundgewebe so gewebt werden, dass die Schussgarne an den Endbereichen auf einem Minimum gehalten werden oder ganz fehlen. In diesem Fall können Nahtschlaufen während des Webens in das Material eingebaut werden.

**[0014]** Wenn das gewebte Material endlos gewebt ist, hängt die Notwendigkeit, Kettgarne zu entfernen, um Nahtschlaufen bereitzustellen, vom verwendeten Webverfahren ab. Wenn das Verfahren, das in US-Patentschrift 6,000,441 beschrieben ist, verwendet wird, werden Nahtschlaufen als Teil des Webvorganges gebildet. Wenn allerdings das Grundgewebe durch eine standardmäßige "Endlos-Web-Technik" gewebt wird, wie z.B. Techniken, die Fachleuten gut bekannt sind, ist es nötig, Querrichtungs-Kettgarne zu entfernen, um Nahtschlaufen bereitzustellen.

**[0015]** Außerdem ist bekannt, endlos gewebte Textilschläuche in Duplexform herzustellen. Das heißt zwei Lagen von verbundenen Textilschläuchen, wobei es einen äußeren Schlauch und einen inneren Schlauch gibt. Ein solcher Duplexschlauch wird mit einer Nahtschlaufe gewebt. Es wird davon ausgegangen, dass ein solcher Duplex-Endlosgewebes Schlauch hergestellt werden kann, wobei der innere und der äußere Schlauch nicht miteinander verbunden sind, wodurch ein doppelagiger Schlauch aus einem einzelnen Gewebe gebildet werden kann. Daher könnten der innere und der äußere Schlauch nach dem Weben getrennt werden, so dass ein größerer einlagiger Endlosgewebes Schlauch hergestellt wird. In diesem Fall würden Nahtschlaufen während des Webens in das Grundgewebe eingebaut.

**[0016]** Diese Maschinenrichtungsschlaufen können fingerartig ineinander gelegt und durch einen Schließdraht zusammengefügt werden. Wahlweise können Teile einer Nahtstruktur an jeder der Schlaufen befestigt werden und diese Teile können aneinander befestigt werden, um eine Naht zu bilden. Im Allgemeinen würde hier ebenfalls ein Schließdraht verwendet werden.

**[0017]** Das perforierte Maschenmaterial stellt eine erhöhte Widerstandsfähigkeit gegen Verdichtung und eine erhöhte Elastizität bereit. Das perforierte Maschenmaterial ist idealerweise elastomerer Natur. Bevorzugte Materialien umfassen jedes der folgenden entweder alleine oder in Kombination: Das perforierte Maschenmaterial wird idealerweise gemäß GB 2,235,705B und GB 2,202,873B hergestellt.

**[0018]** Wenn das Gewebe Material flach gewebt ist,

ist das perforierte Maschenmaterial vorzugsweise in der Mitte des gewebten Materials angeordnet, derart, dass Abschnitte des Gewebes sich über die Enden in Längsrichtung des perforierten Maschenmaterials hinaus erstrecken. Diese hervorstehenden Abschnitte werden, falls vorhanden, mit der Einlage um die Unterseite des perforierten Maschenmaterials gefaltet, damit die Enden in unmittelbare Nähe zueinander kommen, aber nicht unbedingt aneinander stoßen. Diese freien Enden können durch Vernadeln befestigt werden.

**[0019]** Wenn das Gewebe endlos gewebt ist, wird das perforierte Maschenmaterial im Wesentlichen zentral in dem Loch angeordnet, das durch den endlosen Schlauch des Gewebes definiert ist. Das Maschenmaterial könnte dann durch Vernadeln befestigt werden.

#### Ausführungsbeispiel

**[0020]** Damit die vorliegende Erfindung leichter zu verstehen ist, werden beispielhaft spezielle Ausführungsformen mit Bezugnahme auf die begleitenden Zeichnungen beschrieben:

**[0021]** Fig. 1 zeigt ein Verfahren zur Herstellung eines Stoffes gemäß der Erfindung;

**[0022]** Fig. 2 zeigt ein zweites Verfahren zur Herstellung eines Stoffes gemäß der Erfindung;

**[0023]** Fig. 3 zeigt ein drittes Verfahren zur Herstellung eines Stoffes gemäß der Erfindung und

**[0024]** Fig. 4 zeigt ein viertes Verfahren zur Herstellung eines Stoffes gemäß der Erfindung.

**[0025]** Unter Bezugnahme auf Fig. 1 werden ein flaches Grundgewebe **1** und eine nicht gewobene perforierte Maschenstruktur **2** getrennt hergestellt. Das flache Grundgewebe **1** weist eine Leinwandbindung auf, kann aber jedes andere Webmuster aufweisen, das auf dem Fachgebiet bekannt ist, und die perforierte Maschenstruktur **2** wird als Membran gemäß GB 2,202,873 und/oder GB 2,235,705 hergestellt. Das flache Grundgewebe **1** ist im wesentlichen zweimal so lang wie die nicht gewobene Membranstruktur **2**, derart, dass, wenn die Membranstruktur **2** zentral auf dem Grundgewebe **1** angeordnet wird, vorstehende Abschnitte **3**, **4** von Grundgewebe sichtbar sind. Die vorstehenden Abschnitte **3**, **4** werden um die Unterseite der Membranstruktur gefaltet, damit die Enden der vorstehenden Abschnitte **3**, **4** einander fast berühren, wodurch eine Lage um die Membran gebildet wird. Damit die Membranstruktur und das Grundgewebe verfestigt werden, werden die beiden dann miteinander vernadelt (nicht gezeigt), wodurch eine Zwischenanordnung **5** gebildet wird. Vlieslagen (nicht gezeigt) werden in diesem Stadium durch Ver-

nadeln an der Stelle befestigt. Im nächsten Herstellungsschritt werden die Querrichtungs-Schussgarne am Ende von diametral gegenüberliegenden Bereichen des Grundgewebes der Zwischenanordnung entfernt, um Nahtschlaufen **6, 7** bereitzustellen. Die Bereiche der Zwischenstruktur, die die Nahtschlaufen besitzen, werden in die Richtung gefaltet, die durch die Pfeile **8, 9** gezeigt ist, wodurch die Nahtschlaufen zum fingerartigen Ineinanderlegen zusammengebracht werden. Damit die Nahtschlaufen in Position befestigt werden können, ist jeder Bereich von Schlaufen mit den anderen unter Verwendung eines Schließdrahtes **10** verbunden.

**[0026]** Unter Bezugnahme auf **Fig. 2** werden eine endlos gewebte Grundstruktur **11** und eine nicht gewebte Membranstruktur **2** getrennt hergestellt. Die Membranstruktur wird gemäß GB 2,202,873 und/oder GB 2,235,705 hergestellt. Die Membranstruktur **2** wird in den Hohlraum **12** der Grundstruktur eingefügt. Damit die Membranstruktur und die Grundstruktur verfestigt werden, werden die beiden mit Vlieslagen (nicht gezeigt) zusammengeadelt, wodurch eine Zwischenanordnung gebildet wird. Im nächsten Herstellungsstadium werden die Querrichtungs-Kettgarne am Ende von diametral gegenüberliegenden Bereichen der Grundstruktur der Zwischenanordnung entfernt, um Nahtschlaufen **6, 7** bereitzustellen. Die Bereiche der Zwischenstruktur, die die Nahtschlaufen besitzen, werden in die Richtung gefaltet, die durch Pfeile **8, 9** angedeutet ist, wodurch die Nahtschlaufen zum fingerartigen Ineinanderlegen und Verbinden durch einen Schließdraht **10** zusammengebracht werden. Der Pressfalz mit Naht ist dann fertig.

**[0027]** Unter Bezugnahme auf **Fig. 3** werden eine endlos gewebte Grundstruktur **13** und eine nicht gewebte Membranstruktur **2** getrennt hergestellt. Die Grundstruktur **13** wird gemäß US-Patentschrift 6,000,441 hergestellt, wobei Nahtschlaufen **6, 7** während des Webens in die Grundstruktur eingebaut werden. Die Membranstruktur wird gemäß GB 2,202,873 und/oder GB 2,235,705 hergestellt. Die Membranstruktur **2** wird in den Hohlraum **14** der Grundstruktur **13** eingefügt. Damit die Membranstruktur und die Grundstruktur verfestigt werden, werden die beiden dann mit den Vlieslagen (nicht gezeigt) zusammengeadelt, wodurch eine Zwischenanordnung **15** zum fingerartigen Ineinanderlegen und Verbinden durch einen Schließdraht **10** gebildet wird.

**[0028]** Unter Bezugnahme auf **Fig. 4** werden eine endlos gewebte zweilagige Grundstruktur **16** und eine nicht gewebte Membranstruktur **2** getrennt hergestellt. In diesem Fall sind die zwei Lagen der zweilagigen Grundstruktur nicht miteinander verbunden, so dass die zweilagige Struktur offen aufgelegt werden kann, wodurch eine größere endlos gewebte einlagige Grundstruktur **17** gebildet wird. Die Membran-

struktur wird gemäß GB 2,202,873 und/oder GB 2,235,705 hergestellt. Die Membranstruktur **2** wird in den Hohlraum **18** der Grundstruktur **17** eingefügt. Damit die Membranstruktur **2** und die Grundstruktur **17** verfestigt werden, werden die beiden dann mit dem Vliesmaterial (nicht gezeigt) zusammengeadelt, wodurch eine Zwischenanordnung **19** gebildet wird. Die Bereiche der Zwischenstruktur, die die Nahtschlaufen besitzen, werden in die Richtung gefaltet, die durch die Pfeile **8, 9** angedeutet ist, wodurch die Nahtschlaufen zusammengebracht werden. Damit die Nahtschlaufen in ihrer Position befestigt werden, wird jeder Bereich mit Schlaufen durch einen Schließdraht **10** untereinander verbunden.

**[0029]** Es wird angemerkt, dass alle der oben beschriebenen Ausführungsformen mit einer Vlieseinlage versehen sind. Die Einlage ist an der äußeren Oberfläche des Pressfilzes bereitgestellt und ist in Kontakt mit der Papierbahn während der Papierherstellung. Wo sie enthalten ist, wird eine Einlage direkt vor dem Vernadeln zur Zwischenanordnung hinzugefügt und wird auf der gegenüberliegenden Seite der Grundstruktur an der Membran angeordnet, d.h. die gewebte Grundstruktur ist zwischen der Membran und der Einlage in der vernadelten Zwischenanordnung eingeschlossen.

**[0030]** Es versteht sich natürlich von selbst, dass die oben beschriebenen Ausführungsformen nur der Veranschaulichung dienen. Viele Modifikationen und Variationen sind möglich.

### Patentansprüche

1. Papiermaschinenbespannung umfassend ein Gewebe Stoff und ein perforiertes Maschenmaterial, **dadurch gekennzeichnet**, dass das Gewebe um die Enden des perforierten nicht gewebten Maschenmaterials gefaltet ist, um Faltbereiche zu bilden, in denen in Maschinenrichtung gerichtete Schlaufen an den Faltbereichen bereitgestellt sind.
2. Papiermaschinenbespannung nach Anspruch 1, dadurch gekennzeichnet, dass das Gewebe und das perforierte Maschenmaterial durch Vernadeln oder durch andere Laminiertechniken, wie z.B. Kleben, aneinander befestigt sind.
3. Papiermaschinenbespannung nach Anspruch 1 oder 2, dadurch gekennzeichnet, dass die Papiermaschinenbespannung eine Vlieseinlage umfasst, die an das Gewebe genadelt ist.
4. Papiermaschinenbespannung nach Anspruch 1 oder 2 oder 3, dadurch gekennzeichnet, dass nach dem Falten die Enden des Gewebes in unmittelbare Nähe zueinander kommen.
5. Papiermaschinenbespannung nach einem der

Ansprüche 1 bis 4, dadurch gekennzeichnet, dass die Papiermaschinenbespannung ein Pressfilz oder ein Formiersieb oder ein Trockensieb oder ein Transferband oder ein Glättband ist.

6. Verfahren zur Herstellung von Papiermaschinenbespannung, umfassend den Schritt des Faltens des Gewebes um die Enden eines perforierten Maschenmaterials, um Faltbereiche mit in Maschinenrichtung gerichteten Schlaufen daran zu bilden.

7. Verfahren nach Anspruch 6, dadurch gekennzeichnet, dass, wenn das Gewebe flach gewebt ist, Querrichtungs-Schussgarne von den gefalteten gegenüberliegenden Enden des Gewebes entfernt werden, wodurch Nahtschlaufen gebildet werden.

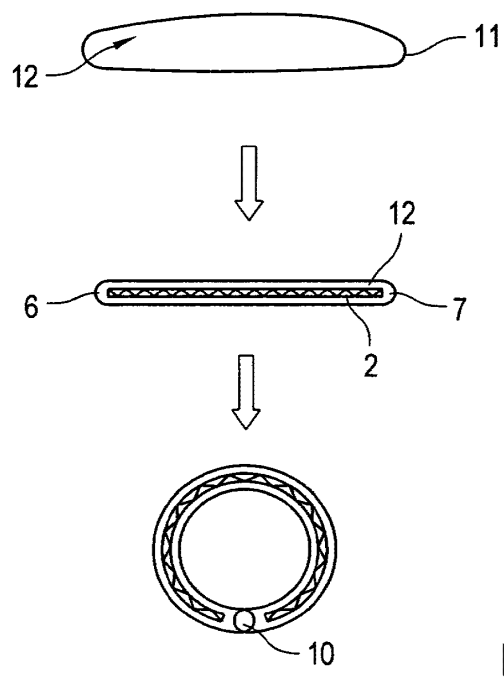
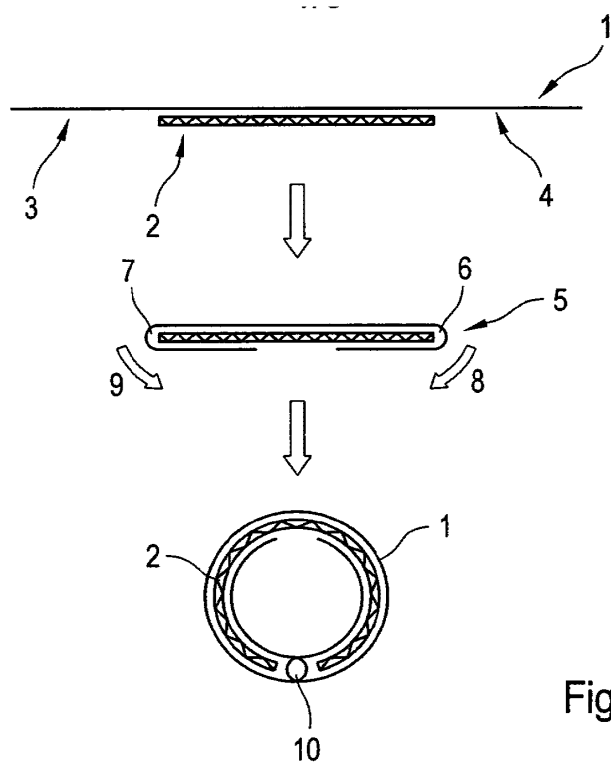
8. Verfahren nach Anspruch 6, dadurch gekennzeichnet, dass das flache Gewebe derart gewebt ist, dass die Querrichtungs-Schussgarne an den geplanten Faltbereichen auf einem Minimum gehalten werden oder ganz fehlen.

9. Verfahren nach Anspruch 6, dadurch gekennzeichnet, dass, wenn das Gewebe endlos gewebt ist, die Nahtschlaufen als Teil des Webvorganges gebildet werden.

10. Verfahren nach Anspruch 6, dadurch gekennzeichnet, dass, wenn das Gewebe endlos gewebt ist, die Nahtschlaufen durch Entfernen von Querrichtungs-Kettgarnen gebildet werden.

Es folgen 3 Blatt Zeichnungen

Anhängende Zeichnungen



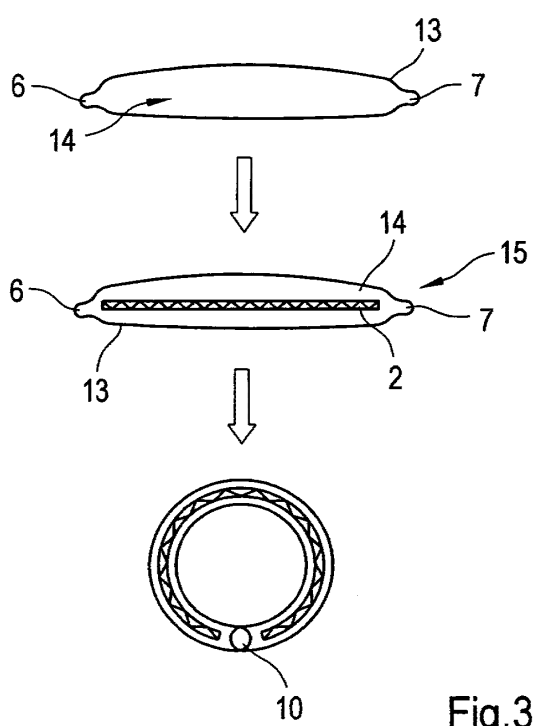


Fig.3

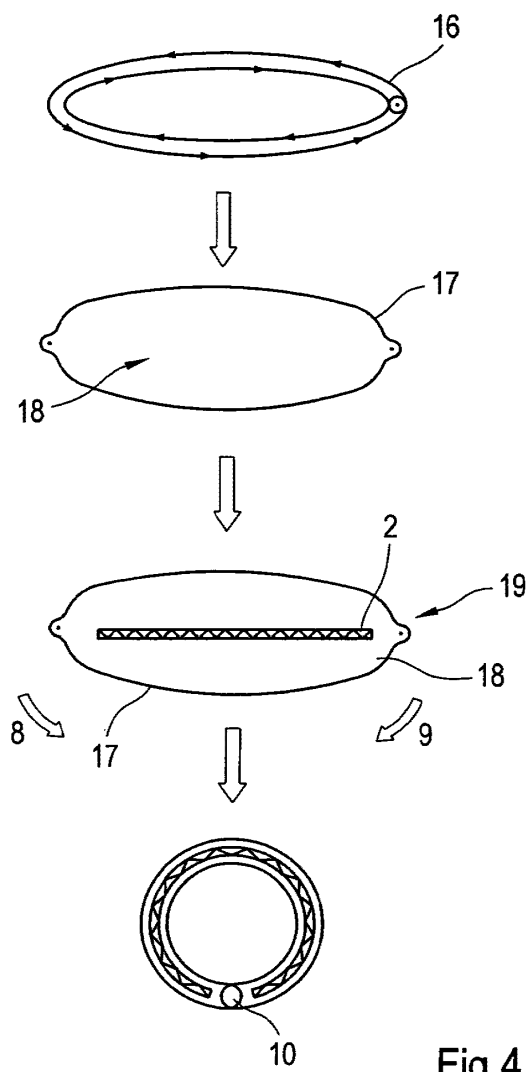


Fig.4

**DERWENT-** 2006-254990

**ACC-NO:**

**DERWENT-** 200627

**WEEK:**

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**TITLE:** Paper machine covering for use e.g. as press felt, comprises woven base fabric folded round the ends of a perforated mesh material to form folds with loops aligned in the machine direction

**INVENTOR:** MCGILL J

**PATENT-ASSIGNEE:** VOITH FABRICS PATENT GMBH[VOIJ]

**PRIORITY-DATA:** 2004DE-10044568 (September 15, 2004)

**PATENT-FAMILY:**

| <b>PUB-NO</b>      | <b>PUB-DATE</b> | <b>LANGUAGE</b> |
|--------------------|-----------------|-----------------|
| DE 102004044568 A1 | March 30, 2006  | DE              |

**APPLICATION-DATA:**

| <b>PUB-NO</b>    | <b>APPL-DESCRIPTOR</b> | <b>APPL-NO</b>  | <b>APPL-DATE</b>   |
|------------------|------------------------|-----------------|--------------------|
| DE102004044568A1 | N/A                    | 2004DE-10044568 | September 15, 2004 |

**INT-CL-CURRENT:**

| <b>TYPE</b> | <b>IPC DATE</b>   |
|-------------|-------------------|
| CIPP        | D21F7/08 20060101 |

**ABSTRACTED-PUB-NO:** DE 102004044568 A1

**BASIC-ABSTRACT:**

NOVELTY - A paper machine covering comprising a woven fabric material (A) and a perforated mesh material (B), in which the fabric (A) is folded round the ends of the mesh (B) to form folds with loops aligned in the machine direction.

DESCRIPTION - An INDEPENDENT CLAIM is also included for a method for the production of paper machine covering involving the folding step as described above.

USE - For carrying the paper sheet through the various

stations in paper production, and especially for use as press felt.

ADVANTAGE - Deals with the problem of press felt wear.

DESCRIPTION OF DRAWING(S) - Method for the production of paper machine covering.

woven base fabric (1)

perforated mesh (2)

projecting ends of base fabric (3, 4)

intermediate arrangement (5)

seam loops formed by removing crosswise weft threads from the opposite ends of the base fabric and folding over (6, 7)

direction of folding (8, 9)

seam-closing wire. (10)

**EQUIVALENT-ABSTRACTS:**

TEXTILES AND PAPER

Preferred Material: Components (A) and (B) are fixed together by needle bonding or other laminating techniques such as adhesive bonding; preferred covers also have a non-woven insert needle-bonded to the fabric (A), and may be in the form of a press felt, forming sieve, drying sieve, transfer belt or smoothing belt. After folding, the ends of (A) are in direct proximity. Preferred Method: If (A) is woven flat, crosswise weft threads are removed from the opposite folded ends to form seam loops; or the flat fabric (A) may be woven in such a way that the crosswise weft threads at the intended folds are kept to a minimum or entirely absent. If (A) is a continuous woven fabric, the seam loops are formed as part of the weaving process, or by removing crosswise warp threads.

**CHOSEN-** Dwg.1/4  
**DRAWING:**

**TITLE-** PAPER MACHINE COVER PRESS FELT COMPRISE WOVEN BASE  
**TERMS:** FABRIC FOLD ROUND END PERFORATION MESH MATERIAL FORM  
LOOP ALIGN DIRECTION

**DERWENT-CLASS:** F09

**CPI-CODES:** F02-A03A; F04-E05A; F05-A04C;

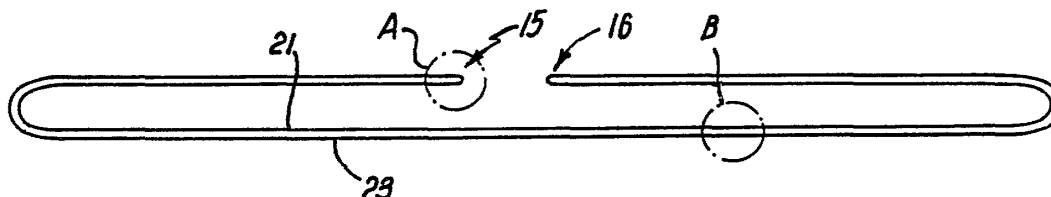
**SECONDARY-ACC-NO:**

**CPI Secondary Accession Numbers:** 2006-083453



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

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>(51) International Patent Classification <sup>4</sup> :</b><br><br><b>D21F 1/00</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>A1</b> | <b>(11) International Publication Number:</b> <b>WO 89/12717</b><br><br><b>(43) International Publication Date:</b> 28 December 1989 (28.12.89)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>(21) International Application Number:</b> PCT/GB89/00681<br><b>(22) International Filing Date:</b> 16 June 1989 (16.06.89)<br><br><b>(30) Priority data:</b><br>8814436.5                      17 June 1988 (17.06.88)                      GB<br><br><b>(71) Applicant (for all designated States except US):</b> SCAPA GROUP PLC [GB/GB]; Oakfield House, 52 Preston New Road, Blackburn, Lancashire BB2 6AH (GB).<br><br><b>(72) Inventor; and</b><br><b>(75) Inventor/Applicant (for US only):</b> SUDRE, Paul, Louis [FR/FR]; "La Fenêtre", Sain Sornin, F-16220 Montbron (FR).<br><br><b>(74) Agents:</b> FUNGE, Harry et al.; M'Caw & Co., 41-51 Royal Exchange, Cross Street, Manchester M2 7BD (GB). |           | <b>(81) Designated States:</b> AT, AT (European patent), AU, BB, BE (European patent), BF (OAPI patent), BG, BJ (OAPI patent), BR, CF (OAPI patent), CG (OAPI patent), CH, CH (European patent), CM (OAPI patent), DE, DE (European patent), DK, FI, FR (European patent), GA (OAPI patent), GB, GB (European patent), HU, IT (European patent), JP, KP, KR, LK, LU, LU (European patent), MC, MG, ML (OAPI patent), MR (OAPI patent), MW, NL, NL (European patent), NO, RO, SD, SE, SE (European patent), SN (OAPI patent), SU, TD (OAPI patent), TG (OAPI patent), US.<br><br><b>Published</b><br><i>With international search report.<br/>         Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> |

**(54) Title:** PAPERMAKER'S FABRICS**(57) Abstract**

A method for the manufacture of a papermaker's fabric is proposed which involves the provision of a multiply fabric having fold regions (15, 16) at its respective ends and the removal of cross-machine direction yarns (14) in such fold regions thereby to create seam-forming loops (17, 18). The loops (17, 18) may be interdigitated directly to receive a pintle wire into engagement therewith and thus form a seam, or may receive a spiral for seam-forming purposes. The method is of application to flat-woven or endless woven structures, and is of use in the manufacture not only of papermaker's fabrics *per se* but also in the manufacture of base materials for use therein.

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PAPERMAKER'S FABRICS

The invention concerns papermaker's fabrics and has more particular reference to a method for the manufacture of a seamed endless structure for use as papermachine  
5 clothing or as a base material therein.

There are two basic methods whereby papermakers' fabrics are produced, either the fabric is woven "flat", and the free ends joined, or the fabric is woven "endless".

10 In the case of the "flat-woven" fabric the warp yarns in the weaving loom extend in the machine direction of the eventual papermaker's fabric, and the fabric is made endless by, for example, weaving weft-free warp yarns at the respective fabric ends back into the fabric  
15 to form warp loops thereat which extend in the machine direction and by introducing a pintle wire into the tunnel formed by the interdigitated loops of the respective fabric ends thereby to join such ends.

In the "endless-woven" fabric the warp yarns in the  
20 loom are the cross-machine direction yarns of the papermaker's fabric.

According to the invention there is proposed a method for the manufacture of a papermaker's fabric or of a base material for use therein, the method comprising  
25 the steps of providing a fabric of plural, superimposed layer configuration throughout substantially the full

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longitudinal extent thereof and having fold regions at the respective opposite ends thereof, and removing cross-machine direction yarns from said fold regions to leave machine-direction loops thereat.

5       According to a preferred feature, the superimposed fabric layers are two in number.

According to a further preferred feature, the superimposed fabric layers are defined by a laid-flat fabric of endless-woven configuration.

10       According to a still further preferred feature, a textile batt is needled to at least one side of the endless base material.

The loops of the respective fold regions may be brought into mutual interdigitated relationship directly  
15 to receive a pintle wire in the tunnel formed thereby, thus to form a seam or may be engaged with a spiral coil itself intended to form the seam or a part thereof.

The invention also includes a papermaker's fabric or base fabric therefor made in accordance with the method  
20 as aforesaid.

The invention will now be described further, by way of example only, with reference to the accompanying diagrammatic drawings illustrating two embodiments thereof, and in which:-

25       Figs. 1 to 3 respectively show successive stages in the production of an endless base material for use in a

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papermaker's fabric and comprising a flat-woven single layer structure;

Fig. 4 is a view corresponding to Fig. 3 and shows an endless-woven base structure having machine direction loops provided therein in accordance with the invention;

Figs. 4A and 4B are enlarged sections taken longitudinally of the structure shown in Fig. 4 at locations A and B, respectively; and

Fig. 5 shows the seam region of base fabrics of the kind shown in Figs. 1 to 3 and Fig. 4, a textile batt having been applied to each face thereof.

Referring now to the drawings, and particularly to Figs. 1 to 3 thereof, a base material for use in the manufacture of a papermaker's wet felt comprises a flat-woven fabric 11 of open weave construction having a length approximately equal to twice the length of the intended end product, that is to say of the papermachine clothing. The free ends 12, 13 are folded over to define a two-ply structure having fold regions 15, 16, the free ends being brought into substantial abutment as shown in Fig. 2.

Weft yarns 14 are removed from the fold regions 15, 16 either before or after folding, to give loops 17, 18 extending outwardly therefrom, the two-ply structure being brought into endless form by the interdigitation of such loops and the introduction of a pintle wire 19 into

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the tunnel 20 formed thereby as is shown in Fig. 3.

The free ends 12, 13 of the initial flat-woven fabric 11 are sewn to the adjacent fabric ply 21, as at 22 in Fig. 2, whilst the two fabric plies 21, 23 are  
5 stitched together in fold regions 15, 16 in closely spaced disposition relative to the loops 17, 18, as is shown at 24.

In a second embodiment, see now Figs. 4, 4A and 4B, in which like reference numerals to those of Figs. 1 to 3  
10 are used for the same or similar parts, an endless-woven fabric is laid flat, and the fold regions 15, 16 between the resultant overlying plies thereof are brought together as shown in Fig. 4. Cross-machine direction yarns, that is to say warp yarns in the loom, are removed  
15 from the fold regions to give outwardly extending loops 17, 18 as before, the plies being sewn together in closely spaced disposition relative to the loops, as at 24. On interdigitation of loops 17, 18 and the insertion of a pintle wire, the structure is brought back into  
20 endless form.

In the event that the machine direction yarns are to form loops at the respective fabric ends for interdigitation and receipt of a pintle wire, such machine direction yarns will ordinarily comprise  
25 monofilament yarns. However, if spiral coils are to be applied to the weft free zones and the spirals at the

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respective fabric ends, rather than machine direction yarn loops, are interdigitated to receive a pintle wire, then such machine direction yarns may, for example, comprise cabled yarns or multifilament yarns.

5       The cross-machine direction yarns may take the form of, for example, monofilament, cabled monofilament or multifilament yarns.

          In producing a wet felt, see now Fig. 5, a textile batt 25 is needled to each face of the endless structure, be it a structure in accordance with the principles of Figs. 1 to 3 or of Figs. 4, 4A and 4B, the needled batt being slit in register with the seam at the paper side, as at 26, and cleared in relation to the seam at the machine side, as at 27, to provide access thereto. The needling operation brings the batt at each face into coherent and homogeneous form through the base structure, and serves also to secure the individual plies of such base structure together.

          Whilst the invention is concerned primarily with the production of a base structure for combination with a textile batt in the manufacture of a wet end fabric, it is to be understood that the invention is also of relevance to the production of a two-ply papermaker's fabric comprising a flat-woven or an endless-woven structure brought into endless form in accordance with the method herein disclosed. In the case of a flat-woven

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structure, the free ends may be secured together, and, if required, to the adjacent ply at the inner face of the eventual papermaker's fabric, by removing cross-machine direction yarns at such ends, interdigitating the fringed-out machine direction yarns and securing those yarns together by means of a thermosensitive adhesive film or tape interposed between the fringed-out ends and the adjacent ply and activated in appropriate manner. Alternatively, the ends may be secured to the fabric ply by employing a powder bonding technique or by sewing.

As will readily be appreciated, in the case of a flat-woven structure requisite lengths of base fabric woven in any desired weave pattern may be cut from a stock supply thereof, and a papermaker's fabric meeting the particular requirements of its intended end use as regards performance characteristics can be produced from that base fabric in a simple and ready manner.

In the embodiment herein illustrated the overlying fabric plies are said to be sewn together adjacent the loops and in the region of the abutting fabric ends. It is to be understood that such plies may also be sewn together at any other position or positions intermediate the loops.

The invention is not restricted to the specific structures herein set forth, since alternatives will readily present themselves to one skilled in the art.

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Thus, not only is the invention of relevance to different  
weave structures, but in the case of flat woven  
structures the ends thereof, for example ends 12, 13 in  
Fig. 2, may be joined together as by a spiral beam or in  
5 any other manner.

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Claims

1. A method for the manufacture of a papermaker's fabric or of a base material for use therein, comprising the steps of providing a fabric of plural, superimposed  
5 layer configuration throughout substantially the full longitudinal extent thereof and having fold regions at the respective opposite ends thereof, and removing cross-machine direction yarns from said fold regions to leave machine-direction loops thereat.
- 10 2. The method as claimed in claim 1, including the further step of securing the superimposed layers together, at least at positions adjacent the loops.
3. The method as claimed in claim 1 or 2, wherein the superimposed layers are two in number.
- 15 4. The method as claimed in claim 3, which includes the steps of flattening an endless woven fabric and removing cross-machine direction yarns from the fold regions thereof to form loops thereat.
5. The method as claimed in claim 3, which includes the  
20 steps of bringing a flat-woven structure into plural layer configuration to define fold regions at the respective opposite ends thereof and removing cross-machine direction yarns from said fold regions to form loops thereat.
- 25 6. The method as claimed in any one of the preceding claims, including the further step of securing a

-9-

respective spiral coil to the loops at the fabric ends.

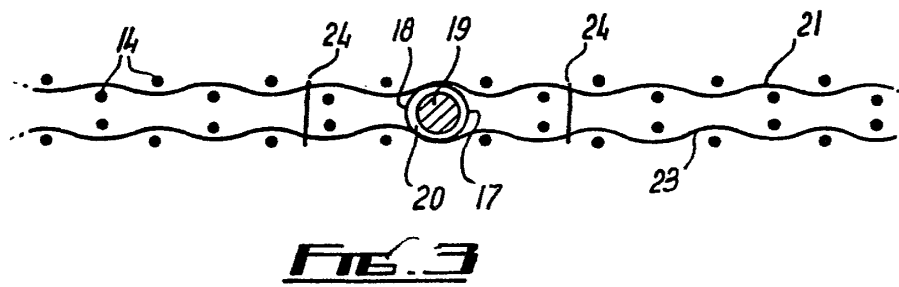
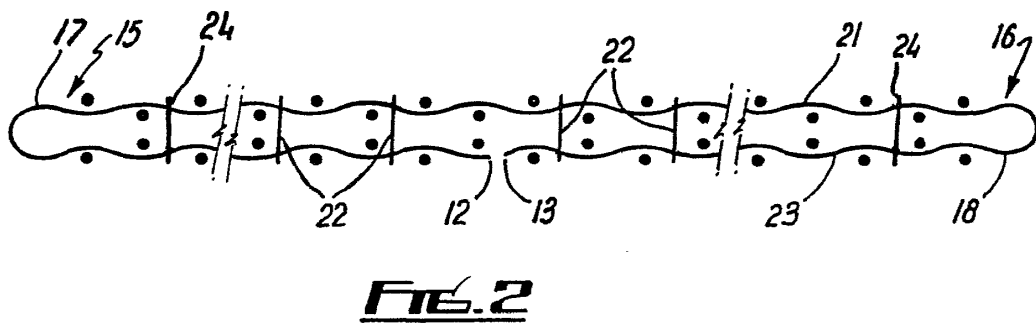
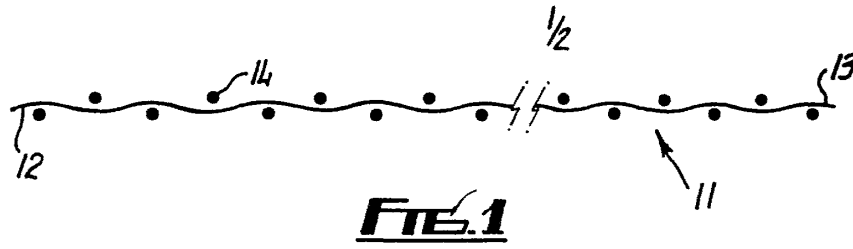
7. The method as claimed in any one of the preceding claims, including the further step of needling a textile batt to one face at least of the plural layer structure.

5 8. A papermaker's fabric produced in accordance with the method claimed in any one of the preceding claims.

9. A base material for use in a papermaker's fabric produced in accordance with the method claimed in any one of claims 1 to 6.

10 10. The method for the manufacture of a papermaker's fabric or a base material for use therein, substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

11. A papermaker's fabric or a base material for use  
15 therein, substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.



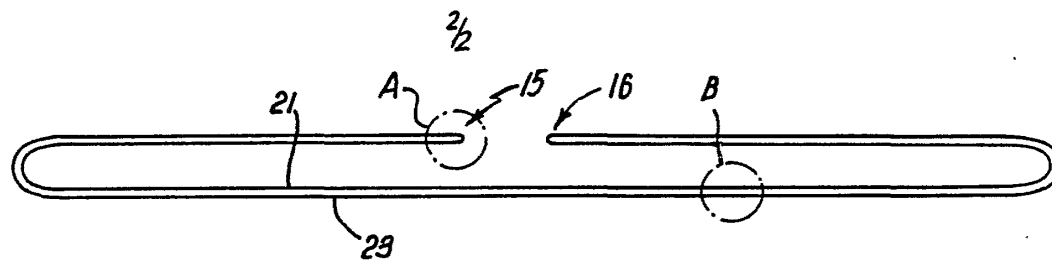


**FIG. 4**

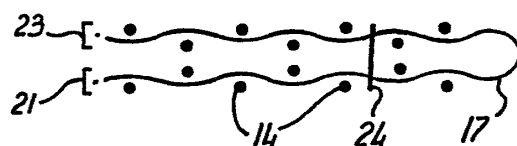


**FIG. 4A**



**FIG. 4B**

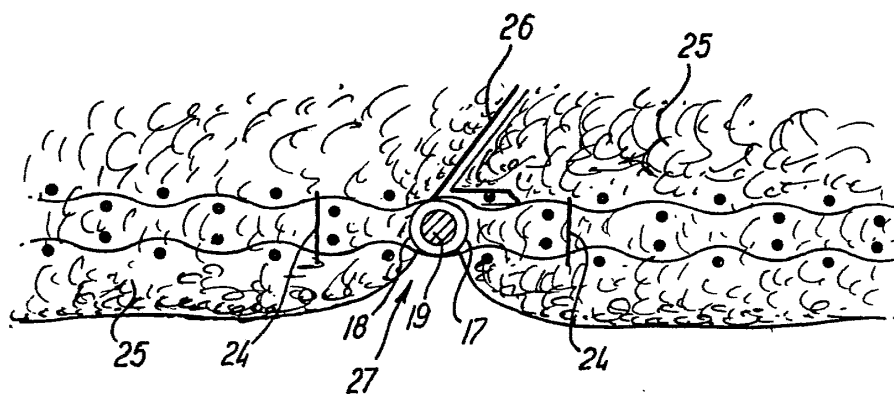
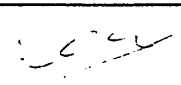


**FIG. 5**

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 89/00681

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| According to International Patent Classification (IPC) or to both National Classification and IPC<br>Int.Cl. 4                      D21F1/00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                |                                     |
| II. FIELDS SEARCHED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                |                                     |
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| Classification System                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Classification Symbols                                                                                         |                                     |
| Int.Cl. 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | D21F                                                                                                           |                                     |
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| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | EP,A,261488 (HEIMBACH) 30 March 1988<br>see the whole document<br>---                                          | 1, 3,<br>5-7                        |
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| 19 OCTOBER 1989                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 13 NOV 1989                                                                                                    |                                     |
| International Searching Authority                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Signature of Authorized Officer                                                                                |                                     |
| EUROPEAN PATENT OFFICE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | DE RIJCK F.               |                                     |

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|                                           |                     | JP-A- 63092796             | 23-04-88            |
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|                                                                                                     | Filing Date            |              | 2015-08-13 |  |
|                                                                                                     | First Named Inventor   | TORSTEN WICH |            |  |
|                                                                                                     | Art Unit               | N/A          |            |  |
|                                                                                                     | Examiner Name          | N/A          |            |  |
|                                                                                                     | Attorney Docket Number | VP-19978     |            |  |

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| /EH/                                                                                                       | 1       | 8353252                              | B1                          | 2013-01-15             | KLASCHKA, et al.                                | CORRESPONDS TO WO2013083468A1                                          |                                                                        |                                     |
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| /EH/                                                                                                       | 1       | 2013083468                           | WO                          | A1                     | 2013-06-13                                      | RYAN MATTHEW, et al.                                                   | CORRESPONDS TO US8353252B1                                             | <input checked="" type="checkbox"/> |
| /EH/                                                                                                       | 2       | 2009106182                           | WO                          | A1                     | 2009-09-03                                      | CROOK ROBERT, et al.                                                   | CORRESPONDS TO US8043477B2                                             | <input checked="" type="checkbox"/> |

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|                                                                                                     |                          |  | Filing Date            | 2015-08-13           |  |
|                                                                                                     |                          |  | First Named Inventor   | TORSTEN WICH         |  |
|                                                                                                     |                          |  | Art Unit               | N/A                  |  |
|                                                                                                     |                          |  | Examiner Name          | N/A                  |  |
|                                                                                                     |                          |  | Attorney Docket Number | VP-19978             |  |

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|                                                                                                     |                          |  |                        |                      |
|-----------------------------------------------------------------------------------------------------|--------------------------|--|------------------------|----------------------|
| <b>INFORMATION DISCLOSURE<br/>STATEMENT BY APPLICANT</b><br>( Not for submission under 37 CFR 1.99) | Receipt date: 08/13/2015 |  | Application Number     | 14825350 - GAU: 1741 |
|                                                                                                     |                          |  | Filing Date            | 2015-08-13           |
|                                                                                                     |                          |  | First Named Inventor   | TORSTEN WICH         |
|                                                                                                     |                          |  | Art Unit               | N/A                  |
|                                                                                                     |                          |  | Examiner Name          | N/A                  |
|                                                                                                     |                          |  | Attorney Docket Number | VP-19978             |

### CERTIFICATION STATEMENT

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

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

**OR**

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

☐ See attached certification statement.

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

☒ A certification statement is not submitted herewith.

### SIGNATURE

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

|            |                    |                     |            |
|------------|--------------------|---------------------|------------|
| Signature  | /WERNER H. STEMER/ | Date (YYYY-MM-DD)   | 2015-08-13 |
| Name/Print | WERNER H. STEMER   | Registration Number | 34956      |

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

## Privacy Act Statement

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

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

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.

|                                                                                                              |                                                |                                                                     |
|--------------------------------------------------------------------------------------------------------------|------------------------------------------------|---------------------------------------------------------------------|
| <b>Search Notes</b><br><br> | <b>Application/Control No.</b><br><br>14825350 | <b>Applicant(s)/Patent Under Reexamination</b><br><br>WICH, TORSTEN |
|                                                                                                              | <b>Examiner</b><br><br>ERIC HUG                | <b>Art Unit</b><br><br>1741                                         |

| CPC- SEARCHED                                                                               |          |          |
|---------------------------------------------------------------------------------------------|----------|----------|
| Symbol                                                                                      | Date     | Examiner |
| D21F 1/0027, 1/0036, 1/0045, 1/0054, 1/10, 1/105, 1/12, 1/14, 1/16, 7/08, 7/083, 7/10, 7/12 | 5/2/2017 | EH       |
| B32B 5/022, 5/024, 5/026, 5/22, 5/26, 7/08                                                  | "        | "        |

| CPC COMBINATION SETS - SEARCHED |      |          |
|---------------------------------|------|----------|
| Symbol                          | Date | Examiner |
|                                 |      |          |

| US CLASSIFICATION SEARCHED |                                             |          |          |
|----------------------------|---------------------------------------------|----------|----------|
| Class                      | Subclass                                    | Date     | Examiner |
| 162                        | 348, 358.2, 900, 902-904                    | 5/2/2017 | EH       |
| 139                        | 383A, 383AA                                 | "        | "        |
| 442                        | 239, 240, 241, 246, 247, 268, 269, 270, 271 | "        | "        |

| SEARCH NOTES                                          |          |          |
|-------------------------------------------------------|----------|----------|
| Search Notes                                          | Date     | Examiner |
| EAST- USPAT, US-PGPUB, USOCR, JPO, EPO, FPRS, Derwent | 5/2/2017 | EH       |
| Assignee, inventor, applicant search                  | "        | "        |
| related: 14/825352                                    | "        | "        |
| IPC: D21F 1/10, 7/08; B32B 5/22, 5/26                 | "        | "        |

| INTERFERENCE SEARCH     |                         |      |          |
|-------------------------|-------------------------|------|----------|
| US Class/<br>CPC Symbol | US Subclass / CPC Group | Date | Examiner |
|                         |                         |      |          |

|  |  |
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|  |  |
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| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|--------------------|-----------------------|-----------------------|------------------------|
| 14/825,350         | 08/13/2015            | TORSTEN WICH          | VP-19978               |

**CONFIRMATION NO. 4663**

24131  
LERNER GREENBERG STEMER LLP  
P O BOX 2480  
HOLLYWOOD, FL 33022-2480

## PUBLICATION NOTICE



\*OC000000089281573\*

**Title:**FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB

**Publication No.**US-2017-0044716-A1

**Publication Date:**02/16/2017

## 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](http://www.uspto.gov). The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at [www.uspto.gov](http://www.uspto.gov) using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <http://pair.uspto.gov/>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

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



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| APPLICATION<br>NUMBER | FILING or<br>371(c) DATE | GRP ART<br>UNIT | FIL FEE REC'D | ATTY.DOCKET.NO | TOT CLAIMS | IND CLAIMS |
|-----------------------|--------------------------|-----------------|---------------|----------------|------------|------------|
| 14/825,350            | 08/13/2015               | 1786            | 1680          | VP-19978       | 21         | 1          |

CONFIRMATION NO. 4663

24131

LERNER GREENBERG STEMER LLP  
P O BOX 2480  
HOLLYWOOD, FL 33022-2480

## FILING RECEIPT



0000000077108511

Date Mailed: 08/27/2015

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)

TORSTEN WICH, APPLETON, WI;

### Applicant(s)

VOITH PATENT GMBH, HEIDENHEIM, GERMANY;

**Power of Attorney:** The patent practitioners associated with Customer Number 24131

### Domestic Applications for which benefit is claimed - None.

*A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.*

**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 - A proper **Authorization to Permit Access to Application by Participating Offices** (PTO/SB/39 or its equivalent) has been received by the USPTO.

**If Required, Foreign Filing License Granted:** 08/26/2015

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/825,350**

**Projected Publication Date:** 02/16/2017

**Non-Publication Request:** No

**Early Publication Request:** No

**Title**

FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB

**Preliminary Class**

442

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

**PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES**

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.

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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>.

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**Title 37, Code of Federal Regulations, 5.11 & 5.15**

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| <b>PATENT APPLICATION FEE DETERMINATION RECORD</b><br>Substitute for Form PTO-875                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                               |                                    |               |                    |                    | Application or Docket Number<br>14/825,350 |          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------|--------------------|--------------------|--------------------------------------------|----------|
| <b>APPLICATION AS FILED - PART I</b>                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                               |                                    |               |                    |                    |                                            |          |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                               | (Column 2)                         |               | SMALL ENTITY       |                    | OTHER THAN SMALL ENTITY                    |          |
| FOR                                                                                                                                                                                                                                                                                                                                                                                                        | NUMBER FILED                                                                                                                                                                                                                  | NUMBER EXTRA                       | RATE(\$)      | FEE(\$)            |                    | RATE(\$)                                   | FEE(\$)  |
| BASIC FEE<br>(37 CFR 1.16(a), (b), or (c))                                                                                                                                                                                                                                                                                                                                                                 | N/A                                                                                                                                                                                                                           | N/A                                | N/A           |                    |                    | N/A                                        | 280      |
| SEARCH FEE<br>(37 CFR 1.16(k), (i), or (m))                                                                                                                                                                                                                                                                                                                                                                | N/A                                                                                                                                                                                                                           | N/A                                | N/A           |                    |                    | N/A                                        | 600      |
| EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q))                                                                                                                                                                                                                                                                                                                                                           | N/A                                                                                                                                                                                                                           | N/A                                | N/A           |                    |                    | N/A                                        | 720      |
| TOTAL CLAIMS<br>(37 CFR 1.16(i))                                                                                                                                                                                                                                                                                                                                                                           | 21                                                                                                                                                                                                                            | minus 20 =<br>*                    | 1             |                    |                    | x 80 =                                     | 80       |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h))                                                                                                                                                                                                                                                                                                                                                                     | 1                                                                                                                                                                                                                             | minus 3 =<br>*                     |               |                    |                    | x 420 =                                    | 0.00     |
| APPLICATION SIZE FEE<br>(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     |
|                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                               |                                    |               | TOTAL              |                    | TOTAL                                      | 1680     |
| * If the difference in column 1 is less than zero, enter "0" in column 2.                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                               |                                    |               |                    |                    |                                            |          |
| <b>APPLICATION AS AMENDED - PART II</b>                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                               |                                    |               |                    |                    |                                            |          |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                               | (Column 2)                         |               | (Column 3)         |                    | SMALL ENTITY                               |          |
| AMENDMENT A                                                                                                                                                                                                                                                                                                                                                                                                | CLAIMS REMAINING AFTER AMENDMENT                                                                                                                                                                                              | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE(\$)           | ADDITIONAL FEE(\$) |                                            | RATE(\$) |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Total<br>(37 CFR 1.16(i))                                                                                                                                                                                                     | *                                  | Minus         | **                 | =                  |                                            | x        |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Independent<br>(37 CFR 1.16(h))                                                                                                                                                                                               | *                                  | Minus         | ***                | =                  |                                            | x        |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                                         |                                    |               |                    |                    |                                            |          |
|                                                                                                                                                                                                                                                                                                                                                                                                            | FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                                               |                                    |               |                    |                    |                                            |          |
|                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                               |                                    |               | TOTAL<br>ADD'L FEE |                    | TOTAL<br>ADD'L FEE                         |          |
| (Column 1)                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                               | (Column 2)                         |               | (Column 3)         |                    | SMALL ENTITY                               |          |
| AMENDMENT B                                                                                                                                                                                                                                                                                                                                                                                                | CLAIMS REMAINING AFTER AMENDMENT                                                                                                                                                                                              | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | RATE(\$)           | ADDITIONAL FEE(\$) |                                            | RATE(\$) |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Total<br>(37 CFR 1.16(i))                                                                                                                                                                                                     | *                                  | Minus         | **                 | =                  |                                            | x        |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Independent<br>(37 CFR 1.16(h))                                                                                                                                                                                               | *                                  | Minus         | ***                | =                  |                                            | x        |
|                                                                                                                                                                                                                                                                                                                                                                                                            | Application Size Fee (37 CFR 1.16(s))                                                                                                                                                                                         |                                    |               |                    |                    |                                            |          |
|                                                                                                                                                                                                                                                                                                                                                                                                            | FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))                                                                                                                                                               |                                    |               |                    |                    |                                            |          |
|                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                               |                                    |               | TOTAL<br>ADD'L FEE |                    | TOTAL<br>ADD'L FEE                         |          |
| * If the entry in column 1 is less than the entry in column 2, write "0" in column 3.<br>** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".<br>*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".<br>The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1. |                                                                                                                                                                                                                               |                                    |               |                    |                    |                                            |          |

Doc Code: PA..  
Document Description: Power of Attorney

PTO/AIA/82B (07-13)  
Approved for use through 11/30/2014. OMB 0651-0051  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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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.)

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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.)

24131

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OR

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| Country                 |       |     |  |  |
| Telephone               | Email |     |  |  |

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

VOITH PATENT GMBH

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|                                                                                                     | Filing Date            |              | 2015-08-13 |  |
|                                                                                                     | First Named Inventor   | TORSTEN WICH |            |  |
|                                                                                                     | Art Unit               | N/A          |            |  |
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|                                                                                                     | Attorney Docket Number | VP-19978     |            |

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- (72) **Inventors; and**
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- (74) **Common Representative:** **VOITH PATENT GMBH**; Sankt Poeltener Str. 43, 89522 Heidenheim (DE).
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(54) **Title:** BELT AND METHOD OF MAKING A BELT FOR A PAPER MAKING MACHINE

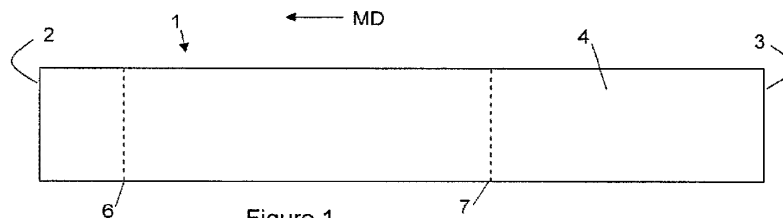


Figure 1

(57) **Abstract:** Belt and method of making a belt for a paper making machine. The belt includes a flat woven material having a top side surface (4) and a bottom side surface (5) and two terminal ends (2, 3) separated in a machine direction (MD). Folds (6, 7) formed in the flat woven material are separated in the machine direction (MD), so that the two terminal ends (2, 3) are located under the bottom side surface (5). Seam loops (6', 7') are located at the folds (6, 7), and the two terminal ends (2, 3) one of are arranged adjacent each other and overlap each other in a region offset from a center between the folds (6, 7). The instant abstract is neither intended to define the invention disclosed in this specification nor intended to limit the scope of the invention in any way.

WO 2009/106182 A1

**BELT AND METHOD OF MAKING A BELT FOR A PAPER MAKING MACHINE****5 BACKGROUND OF THE INVENTION****1. Field of the Invention**

The invention is directed to forming a seam able belt for a paper making machine and, in particular, a seam able belt base for a paper making machine.

**2. Discussion of Background Information**

- 10 It is known from International Publication No. WO 89/12717 that a seam capable base for a press fabric can be created by "folding" a tube of woven fabric and removing cross-direction (CD) yarns at the folds on each end. In this way, machine direction (MD) yarns at these ends or folds can then function as the seam loops. The ends or seam loops of the base can be aligned and connected  
15 with a pintle to form an endless base for the belt. The base can be needled and finished in any conventional matter in order to form a normal press seam fabric.

- In other methods, it is known that the above-noted tube of fabric can be constructed with a spiraled "multiaxial" method. However, to use endless woven or spiraled tubes in the above-noted manner, the tubes have to be produced to  
20 length based on the order. Further, as these tubes are generally only about 1 – 1.5 m wide, a number of these folded tubes must be combined with MD joins in order to achieve a width of 10 – 12 m, which is generally utilized in paper making machines. The ends of these tubes can be joined together by forming MD yarn loops by removing CD yarns.

Further, as an array of parallel yarns "reinforced" with needled batt, resins, or other nonwovens can be utilized in forming the described tube for the base, a strong single layer top ply fabric can be provided over the joined area, or needled batt, added resin, thermoplastic "welding", etc. to keep the join in the two fabric ends intact for processing. Still further, a knit fabric can be used where the loops are provided as a spiral link.

In a further alternative, it is known to position a membrane "insert" within the tube, e.g., prior to folding.

### SUMMARY OF THE INVENTION

The present invention is directed to a method of forming a belt for a paper making machine. The belt includes a base structure composed of a woven material or fabric in which the MD ends of the base structure are formed by folding over portions of the MD ends of the fabric. The folded over portions of the MD ends of the fabric can be attached to the bottom side of the base. Seam loops can be formed in the MD ends of the base structure, e.g., by forming a separation between the CD threads, and preferably without removing CD threads. The woven fabric can be an endless woven or flat woven fabric, and can be of single layer construction.

In an exemplary embodiment of the invention, the portions of the MD ends of the fabric can be folded over so the MD ends of the fabric can be arranged to in close proximity to, and preferably abutting, each other, or can be arranged to overlap or be intermeshed with each other. The MD ends of the fabric can be arranged to either abut or overlap each other in close proximity to, e.g., within 4', preferably between 1" – 36", and more preferably between 12" and 36" of one of the fold ends of the base structure. Further, the folded portions of the MD fabric can be attached to the bottom side of the base structure by, e.g., sewing an MD seam in a region of the MD end of the fabric and/or sewing an MD seam joining both MD ends to the bottom side of the base structure.

According to another aspect of the invention, the base structure can include an enveloped insert composed of, e.g., a formed polyurethane composite nonwoven membrane, such as a SPECTRA membrane manufactured by Voith Fabrics, or another non-flat woven fabric, preferably including an elastomer, or knit material.

- 5 The insert may be smaller than a full width of the base structure as long as the insert provides desired stiffening and/or fiber bonding, e.g., in the form of a low melt fabric or scrim.

The present invention is directed to a belt for a paper making machine that includes a flat woven material having a top side surface and a bottom side  
10 surface and two terminal ends separated in a machine direction. Folds formed in the flat woven material are separated in the machine direction, so that the two terminal ends are located under the bottom side surface. Seam loops are located at the folds. The two terminal ends one of are arranged adjacent each other and overlap each other in a region offset from a center between the folds.

- 15 According to a feature of the invention, portions of the flat woven material from the two terminal ends to the folds can be adhered to the bottom side surface.

According to another feature of the invention, the two terminal ends may be sewn to the bottom side surface.

- Further, the two terminal ends offset from the center can be located within 4' of  
20 one of the folds. Moreover, the two terminal ends offset from the center may be located between 1" to 36" from the one of the folds.

In accordance with still another feature of the present invention, a density of cross-direction fibers in a region of the seam loops is greater than a density of cross-direction fibers toward a center between the folds.

- 25 According to a further feature, an insert can be located between the folds, the bottom side surface and the two terminal ends arranged adjacent each other. Further, the insert can include polyurethane, and can be a nonwoven membrane.

The insert can also include another flat woven fabric, and the insert, the two terminal ends, and the bottom side surface may be sewn together.

In accordance with still another feature of the instant invention, a pintle can be insertable through the seam loops, thereby forming a belt seam.

- 5 According to another feature, a batt layer can be needled onto at least one of the top side surface and a surface comprising the terminal ends.

The invention is directed to a method for forming a belt for a paper making machine from a flat woven fabric having a top side surface and a bottom side surface and two terminal ends separated in a machine direction. The method  
10 includes forming folds in the flat woven fabric so the two terminal ends are positioned under the bottom side surface and one of adjacent each other and overlapping each other, attaching the two terminal ends and the bottom side surface together in a region offset from a center between the folds, and separating adjacent cross direction threads in the folds to form seam loops.

- 15 In accordance with a feature of the instant invention, the attaching may include sewing the terminal ends and the bottom side surface together.

According to another feature of the invention, the separating of the adjacent cross direction threads in the folds can create a greater density of cross-direction fibers in a region of the seam loops than in a region of the center between the  
20 folds.

In accordance with still another feature of the present invention, the two terminal ends and the bottom side surface can be attached within 4' of one of the folds. Further, the two terminal ends and the bottom side surface are attached at a located between 1" to 36" from the one of the folds.

Moreover, the method can further include inserting an insert between the folds, the bottom side surface and the two terminal ends arranged adjacent each other. The insert may include a polyurethane nonwoven membrane.

5 The method may also include sewing together the insert, the two terminal ends, and the bottom side surface.

According to still another feature of the invention, the method can also include inserting a pintle through the seam loops, thereby forming a belt seam.

10 In accordance with still another feature of the invention, the method can include needling a batt layer onto at least one of the top side surface and a surface comprising the terminal ends.

According to another feature, the method can include further include fringing the two terminal ends. The fringed terminal ends can be arranged to overlap, and the overlapped fringed terminal ends to the bottom side surface may be attached by at least one stitch.

15

In accordance with still yet another feature of the present invention, the method can include coupling a two layer fabric belt to one of the top side surface and a surface including the terminal ends.

20 Other exemplary embodiments and advantages of the present invention may be ascertained by reviewing the present disclosure and the accompanying drawing.

#### **BRIEF DESCRIPTION OF THE DRAWINGS**

25 The present invention is further described in the detailed description which follows, in reference to the noted plurality of drawings by way of non-limiting examples of exemplary embodiments of the present invention, in which like reference numerals represent similar parts throughout the several views of the drawings, and wherein:

Figures 1 and 2 illustrate a top and side view of a woven fabric to form a belt according to the invention;

Figure 3 illustrates an embodiment of the invention in which the belt is not seamed;

5 Figure 4 illustrates an embodiment of the invention in which the terminal ends of the woven fabric are fringed;

Figure 5 illustrates an embodiment of the invention in which the belt is seamed; and

Figure 6 illustrates an alternative embodiment utilizing an insert.

## 10 DETAILED DESCRIPTION OF THE PRESENT INVENTION

The particulars shown herein are by way of example and for purposes of illustrative discussion of the embodiments of the present invention only and are presented in the cause of providing what is believed to be the most useful and readily understood description of the principles and conceptual aspects of the present invention. In this regard, no attempt is made to show structural details of the present invention in more detail than is necessary for the fundamental understanding of the present invention, the description taken with the drawings making apparent to those skilled in the art how the several forms of the present invention may be embodied in practice.

20 According to embodiments, Figures 1 and 2 illustrate a top and side view, respectively, of a woven material 1, e.g., a flat woven material or fabric having opposing terminal ends 2 and 3 separated in a machine direction (MD), which can be used to form a base structure for a belt of a paper making machine. Woven material 1 has an MD length that is approximately twice the length or  
25 circumference of the desired finished belt and includes a top surface 4 and a bottom surface 5. The woven material 1 can be a stock pre-made fabric, and

- may preferably be a flat produced stock material. Such a pre-made fabric can be cut to a desired or ordered size to form a belt of desired length or circumference. By way of example, modern weaving machines, which are essentially fully automated or robots, can continuously weave the flat stock fabric without an operator, without breaks or down time, etc. Moreover, while the woven material 1 in the exemplary embodiment is identified as a single layer woven structure, the invention is not limited to such a structure. That is, double or triple layer woven fabrics can also be employed to enhance void volume and compaction resistance without departing from the spirit and scope of the invention.
- 5
- 10 By way of non-limiting example, woven fabric 1 can be produced on wide weaving loom, e.g., a twelve (12) meter wide weaving loom for robotic flat stock fabric weaving. While twelve meters is wide enough for existing paper machines, it may be advantageous to select smaller loom sizes to minimize or avoid waste for belts having a smaller CD dimension. Moreover, the fabric can be formed with, e.g., eighteen (18) ends per inch of 0.50mm nylon 6 MD yarns and eighteen (18) ends per inch of the same yarns in the CD direction using a single layer plain weave. The fabric may be cut to length from a stock piece when orders are received. Further, it may be beneficial to perform the cutting with a hot knife so as to fuse the cut ends.
- 15
- 20 Further, woven fabric 1 can be selected with MD and CD interwoven textile yarn systems because these fabrics are more stable in the CD and/or MD directions, thereby allowing predictability in running size, and in stretching, widening or shrinking while running. Further, it may also be advantageous to utilize a full width stock fabric so that no MD joins are needed. In this way, the belt can then be easily assembled into a finished fabric in any conventional manner, which can include, e.g., washing the felt, applying a thermal treatment bonding to the felt, etc.
- 25

An end portion of woven fabric 1, i.e., from a fold line 6 to terminal end 2, can be folded over onto itself, and another end portion of woven fabric 1, i.e., from fold

line 7 to terminal end 3, can be folded over onto itself, as shown in Figure 3. In this manner, an endless belt, or a belt base for an endless belt, having a length generally corresponding to a distance between fold lines 6 and 7 can be formed from the finished folded fabric by joining fold lines 6 and 7 with a seam. To form  
5 a seam, the cross-direction (CD) threads at fold lines 6 and 7 can be separated from each other to expose MD threads to form seam loop ends 6' and 7', as shown in Figure 3. Preferably, the CD threads are not removed, but instead a tool, e.g., a comb or other suitable device, can be inserted between adjacent CD threads at the folds and the adjacent CD threads can then be mechanically  
10 separated. As a result, the CD threads adjacent the separation become crowded together as the MD threads are revealed. By way of non-limiting example, the CD yarns can be reformed, without removal, in order to crowd the CD ends close together, so that approximately 25% or more ends per inch are arranged adjacent the seam loops formed in the MD yarns as compared to the body.

15 Moreover, the invention can create substantially increased CD yarn density adjacent to the seam loops by "slipping" the yarns back into the body weave, with proper use to mechanical force, temperature, added stitching yarns, etc. In this way, fiber bonding at the seam can be improved, and loops sizes can be more consistent. Moreover, the time consuming and damage prone operation of  
20 removing CD yarns can be minimized or preferably eliminated, depending on the type of construction used.

Further still, once the MD thread loops are formed, a stitch can be sewn in the CD direction along or near the base of loops 6' and 7'. Further, the stitch can be formed between the MD yarns to prevent CD migration and keeps the MD  
25 threads aligned.

As shown in Figure 3, when folded, terminal ends 2 and 3 can be arranged in close proximity or adjacent each other, and can be arranged to abut each other. Terminal ends 2 and 3 may be attached to the bottom side surface 5 of a portion (the body) of woven fabric 1 between dashed lines 6 and 7, e.g., by sewing or

stitching each end (schematically illustrated with Xs). The threads or yarns sewn into the ends reinforces the join to provide positive support of the join on the paper machine. Additionally or alternatively, terminal ends 2 and 3 can be sewn across the join (not shown). In embodiments, the ends can be sewn with a fine diameter thread that is tough and durable. However, the threads do not cause significant change to caliper or porosity uniformity of this area of the sewn ends as compared to the base structure body or the seam loop areas.

Adjacent, and preferably abutted, terminal ends 2 and 3 are arranged, not in the center of the base structure between folds 6 and 7 of woven fabric 1, but instead are offset from the center and located, e.g., in close proximity, e.g., within 4', preferably between 1" – 36", and more preferably 12" – 36", to one of seam loop end 6' or 7'. By positioning the abutted ends in close proximity to one of the seam loop ends 6' or 7', each end and/or the join can be sewn in the cross-direction using, e.g., industrial sewing machines of "conventional" throat depth.

In an advantageous alternative embodiment, terminal ends 2 and 3 can be fringed by removing CD threads, e.g., about 0.25" of CD threads from the terminal ends 2 and 3. As shown in Figure 4, which illustrates an alternative manner of joining the terminal ends and the bottom side surface 5 of the folded fabric, instead of abutting terminal ends 2 and 3, as depicted in Figure 3, after folding the terminal (and fringed) ends 2' and 3' over, the fringed terminal ends 2' and 3' can be overlapped, and stitched down (schematically illustrated with Xs). In a further alternative, the fringed terminal ends 2' and 3' can be intermeshed and stitched after the terminal (and fringed) ends 2' and 3' are folded over. It is understood that the fringing would generally extend in a CD direction of the terminal end, and the illustration in Figure 4 is intended merely for ease of explanation and understanding of this embodiment of the invention. Thus, neither this embodiment nor the illustration should be deemed as limiting the invention to any specific embodiment or arrangement.

After the base structure of Figure 3 or Figure 4 is formed, the seamable ends of the base structure can be joined together to form an endless belt, as illustrated in Figure 5. In this regard, MD loops 6' and 7' can be arranged to overlap each other to form an opening to receive a pintle 8 which holds MD loops 6' and 7' in place, and thereby forms the seam 9. For best seam quality and consistency, CD yarn or filament can be arranged adjacent seam loops 6' and 7' to run the full width of the fabric without interruption. Further, this CD yarn or filament may be the same as the woven warp yarn, but woven at a higher packing density in terms of yarns per inch than in the body. It is also understood that the CD yarn or filament may be of a different yarn type, may be inserted in a different manner, e.g., passing between the top and bottom plies of the fabric, passing through just in one ply, or passing through both plies. The invention further contemplates, but is not limited to, a CD yarn or filament composed of a multifilament, ribbon shaped yarn, and/or low melt yarn, etc. to enhance fiber bonding in the area of seam 9 in the finished fabric. However, it is understood that it may be advantageous for the CD yarn or filament to be continuous, and to increase the density of the fabric at the seam end adjacent to the loops as compared to the body of the woven fabric.

Moreover, the belt or base structure of the invention can be seamed and placed on a needling device, which is generally known in the art. A batt layer 10 can be needled onto the seamed base structure to cover seam 9 so as to prevent disadvantageous marking of the web due to a variance in the caliper at seam 9. Fibers in batt layer 10 can be needled or punched through at least one and preferably the two plies of the folded woven fabric 1 forming the belt or base structure, thereby providing further stability. Of course, it is likewise understood that batt layer 10 can be needled onto the belt or base structure prior to forming seam 9. In such an event, it may be advantageous to provide a suitable and additional amount of batt fiber 10 arranged to extend or hang over at least one of the seam loop ends so that this additional amount of batt fiber will cover over seam 9 after the seaming of the belt.

In an alternative embodiment illustrated in Figure 6, woven fabric 20 can be wrapped around an insert 21 to improve characteristics of the belt, such as compaction resistance, caliper retention, vibration damping, steady state water handling, etc. After positioning insert 21 between the plies of folded woven fabric 20, the plies can be adhered to insert 21, e.g., by sewing the plies (and insert) together at the join, at which the terminal ends, in accordance with the invention can be adjacent, abutting, overlapping, or intermeshed with each other. By way of example, insert 21 can be a polyurethane composite nonwoven membrane, e.g., a SPECTRA membrane manufactured by Voith Fabrics, sandwiched between the plies of woven stock fabric 1. In a further alternative, insert 21 could also be another non-folded flat woven fabric, knit material, etc. Such an insert 21 can help the join area resist opening or peel back in use due to its added tensile strength/modulus and bending stiffness. Moreover, this insert 21 can help to hold the needed batt to improve the join and the seam flap durability.

Insert 21 is generally not relied upon for dimensional stability, since such stability can be obtained from the base structure, but rather to improve fabric performance in the press nip for water handling, preferably with an elastomeric content fabric maintaining a separation between the two woven plies, and to provide reinforcement for the CD join formed by terminal fabric ends 22 and 23. To reinforce the CD join of terminal ends 22 and 23, or for other performance reasons, insert 21 need not extend to the full or entire width of woven fabric 20. Instead, it can be just near the seam edge or seam ends to provide stiffening and fiber bonding, in the form of a low melt fabric or scrim, etc.

In another alternative embodiment, a non-woven parallel array of MD yarns can be laminated onto the bottom side of the flat woven seam base, e.g., using meltable yarns that fuse into the needed batt. This embodiment may be advantageous in that these added yarns may protect the joined ends of the flat base from abrasive wear and reduce the risk of the join failing on the paper machine. Moreover, while other fabric laminates may also be used without departing from the spirit and scope of the invention, wound yarns may provide

beneficial results. Further, these yarns can be combined with the above-discussed insert to achieve an extremely compaction resistant multi-layered structure that is easy to pin with a single seam, and very efficient to produce.

5 In a further embodiment of the invention, the folded fabric belt or belt base formed in accordance with the features of the present invention can be coupled to, e.g., laminated with, another belt, such as a single ply fabric belt or belt base, a double ply fabric belt or belt base, or a folded fabric belt or belt base formed, e.g., in accordance with the invention. In this manner, a 1+2 or a 2+2 double  
10 seam fabric belt can be advantageously formed. Of course, this description is for the purpose of ease of explanation and understanding of the invention and is not intended to limit the invention to any particular embodiment or arrangement. Thus, it is understood that the belt or belt base of the invention can be joined with or to other belts or belt bases without departing from the spirit and scope of the  
15 invention.

The above-discussed embodiments of the invention have been provided to explanation and to facilitate the understanding of the invention. However, it is understood that the invention is neither limited to a single layer structure, nor to homogenous yarn selection in the MD or the CD. A further advantage of flat  
20 weaving can be that side by side MD yarn systems coming from two warp beams can be utilized, whereby one system is cabled filaments to hold batt and provide density, and one system is solid monofilaments to provide strong seam loops. Still further, to assist in sheet transfer, it is contemplated to use a different density of MD cabled yarns near the edge of the fabric as compared to the center. Also,  
25 CD yarns can be selected to specific performance enhancements, e.g., having yarns for width stability, but also could combine with elastomeric yarns, low melt bonding yarns, etc., without departing from the spirit and scope of the invention.

It is noted that the foregoing examples have been provided merely for the purpose of explanation and are in no way to be construed as limiting of the  
30 present invention. While the present invention has been described with

reference to an exemplary embodiment, it is understood that the words which have been used herein are words of description and illustration, rather than words of limitation. Changes may be made, within the purview of the appended claims, as presently stated and as amended, without departing from the scope and spirit of the present invention in its aspects. Although the present invention has been described herein with reference to particular means, materials and embodiments, the present invention is not intended to be limited to the particulars disclosed herein; rather, the present invention extends to all functionally equivalent structures, methods and uses, such as are within the scope of the appended claims.

## 5 CLAIMS

1. A belt for a paper making machine, comprising:  
a flat woven material having a top side surface and a bottom side surface  
and two terminal ends separated in a machine direction,  
10 folds formed in the flat woven material being separated in the machine  
direction,  
whereby the two terminal ends are located under the bottom side surface;  
seam loops located at the folds,  
wherein the two terminal ends one of are arranged adjacent each other  
15 and overlap each other in a region offset from a center between the folds.
2. The belt in accordance with claim 1, wherein portions of the flat woven  
material from the two terminal ends to the folds are adhered to the bottom  
side surface.  
20
3. The belt in accordance with claim 1, wherein the two terminal ends are  
sewn to the bottom side surface.
4. The belt in accordance with claim 1, wherein the two terminal ends offset  
25 from the center are located within 4' of one of the folds.
5. The belt in accordance with claim 4, wherein the two terminal ends offset  
from the center are located between 1" to 36" from the one of the folds.

6. The belt in accordance with claim 1, wherein a density of cross-direction fibers in a region of the seam loops is greater than a density of cross-direction fibers toward a center between the folds.
- 5 7. The belt in accordance with claim 1, further comprising an insert located between the folds, the bottom side surface and the two terminal ends arranged adjacent each other.
- 10 8. The belt in accordance with claim 7, wherein the insert comprises polyurethane.
9. The belt in accordance with claim 8, wherein the insert comprises a nonwoven membrane.
- 15 10. The belt in accordance with claim 7, wherein the insert comprises another flat woven fabric.
11. The belt in accordance with claim 7, wherein the insert, the two terminal ends, and the bottom side surface are sewn together.
- 20 12. The belt in accordance with claim 1, further comprising a pintle insertable through the seam loops, thereby forming a belt seam.
13. The belt in accordance with claim 1, further comprising a batt layer  
25 needed onto at least one of the top side surface and a surface comprising the terminal ends.
14. A method for forming a belt for a paper making machine from a flat woven fabric having a top side surface and a bottom side surface and two  
30 terminal ends separated in a machine direction, comprising:

forming folds in the flat woven fabric so the two terminal ends are positioned under the bottom side surface and one of adjacent each other and overlapping each other;

5 attaching the two terminal ends and the bottom side surface together in a region offset from a center between the folds; and  
separating adjacent cross direction threads in the folds to form seam loops.

15 15. The method in accordance with claim 14, wherein the attaching comprises sewing the terminal ends and the bottom side surface together.

10 16. The method in accordance with claim 14, wherein the separating of the adjacent cross direction threads in the folds creates a greater density of cross-direction fibers in a region of the seam loops than in a region of the center between the folds.

15 17. The method in accordance with claim 14, wherein the two terminal ends and the bottom side surface are attached within 4' of one of the folds.

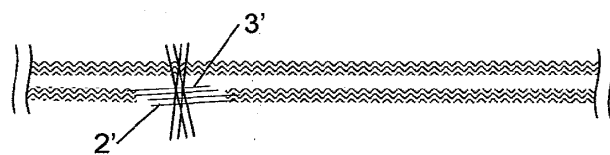
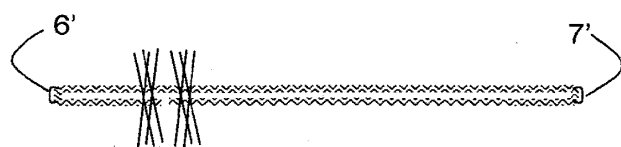
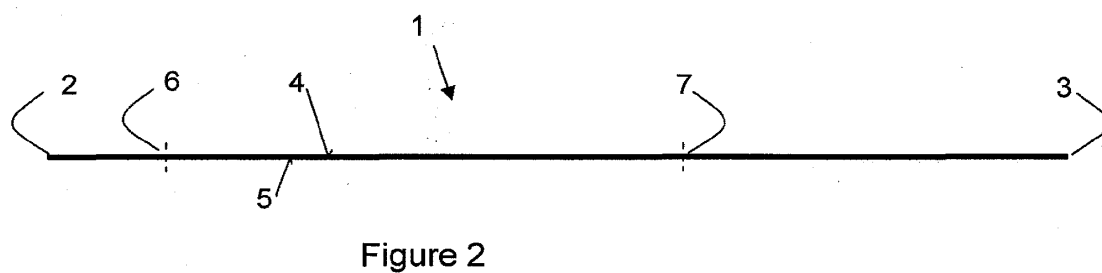
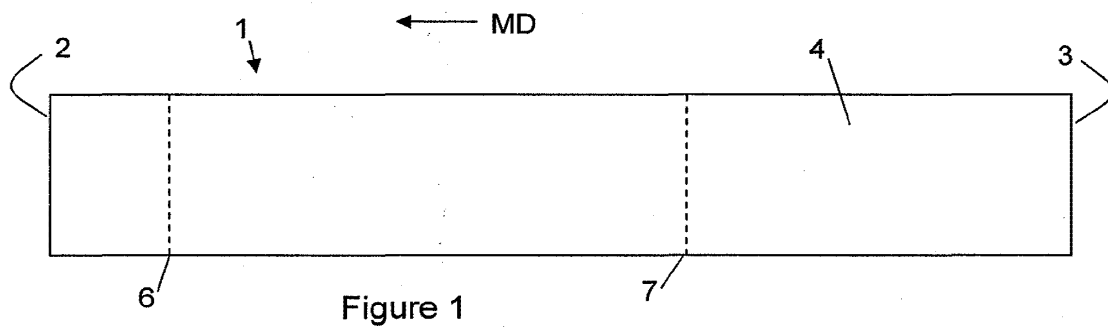
20 18. The method in accordance with claim 17, wherein the two terminal ends and the bottom side surface are attached at a located between 1" to 36" from the one of the folds.

25 19. The method in accordance with claim 14, further comprising inserting an insert between the folds, the bottom side surface and the two terminal ends arranged adjacent each other.

20. The method in accordance with claim 19, wherein the insert comprises polyurethane nonwoven membrane.

30 21. The method in accordance with claim 14, further comprising sewing together the insert, the two terminal ends, and the bottom side surface.

22. The method in accordance with claim 14, further comprising inserting a  
pintle through the seam loops, thereby forming a belt seam.
23. The method in accordance with claim 14, further comprising needling a  
5 batt layer onto at least one of the top side surface and a surface  
comprising the terminal ends.
24. The method in accordance with claim 14, further comprising fringing the  
two terminal ends, wherein the fringed terminal ends are arranged to  
10 overlap, and the overlapped fringed terminal ends to the bottom side  
surface are attached by at least one stitch.
25. The method in accordance with claim 14, further comprising coupling a  
two layer fabric belt to one of the top side surface and a surface  
15 comprising the terminal ends.



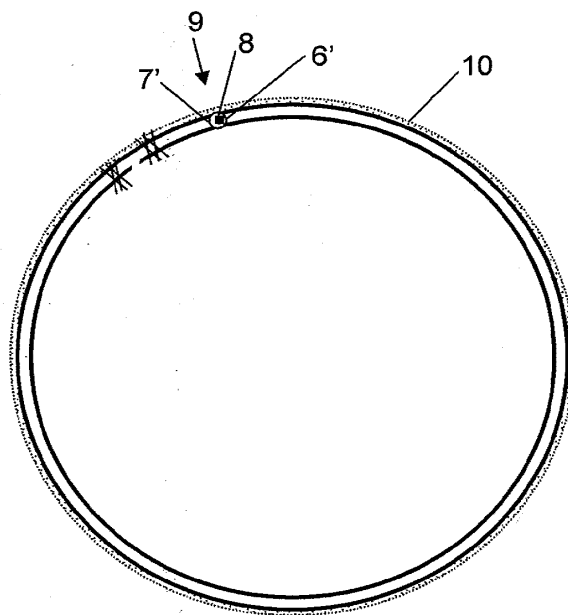


Figure 5

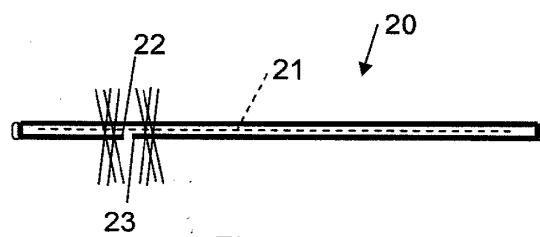


Figure 6

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/EP2008/067616

## A. CLASSIFICATION OF SUBJECT MATTER

INV. D21F1/00 D21F7/08 D21F7/10

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

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
D21F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                                                                                   | Relevant to claim No. |
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| Y         | page 3, line 12 - page 4, line 7; figures 1-3                                                                                                                        | 7, 9                  |
| X         | US 5 110 672 A (ZEHLE WILHELM [AT] ET AL)<br>5 May 1992 (1992-05-05)<br>column 6, line 7 - line 29; figures 7A-7C                                                    | 1, 2, 12, 13          |
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☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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| Patent document<br>cited in search report |   | Publication<br>date | Patent family<br>member(s)                                                                                                                                                                                                                                                           | Publication<br>date                                                                                                                                                                                                                        |
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199 Chen Feng, Kunshan, Jiangsu 215300 (CN).

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(54) Title: PROCESS FOR PREPARING A SEAM AREA IN A PAPER MACHINE CLOTHING BASE FABRIC

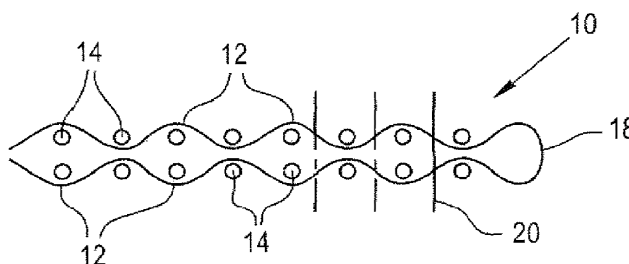


Fig. 2

(57) Abstract: A process for preparing a seam area for a PMC base fabric includes the steps of: providing a PMC base fabric including a plurality of warp yarns extending in a machine direction (MD) and a plurality of interwoven weft yarns extending in a cross machine direction (CD); removing a plurality of adjacent weft yarns from the PMC base fabric to define a window of warp yarns not interwoven with weft yarns, the plurality of warp yarns being interwoven with a plurality of weft yarns on either side of the window; folding over the PMC base fabric at the window such that each warp yarn substantially aligns with itself in the MD, and one or more weft yarns on one side of the window substantially align with a respective weft yarn on an opposite side of the window; and bonding together a portion of the PMC base fabric adjacent the window.

WO 2013/083468 A1

**PROCESS FOR PREPARING A SEM AREA IN A PAPER MACHINE CLOTHING BASE  
FABRIC**

**BACKGROUND OF THE INVENTION**

**1. Field of the Invention**

[0001] The present invention relates to paper machine clothing, and more particularly, to a process for preparing a seam area for the clothing in an endless manner.

**2. Description of the Related Art**

[0002] A paper machine clothing (PMC) base fabric is typically manufactured with a specific set of design and quality specifications for a particular paper machine's performance requirements. These specifications include surface characteristics, open area, void volume, permeability and smoothness, among others.

[0003] It is known to manufacture a woven press fabric having a flat woven base fabric with a plurality of warp yarns forming seam loops along the ends of the fabric extending in a cross machine direction, transverse to the machine direction. The ends are then placed in end-to-end disposition in order to interdigitate the loops and a pintle wire is then inserted in the interdigitated loops to lock the ends together to bring the fabric into an endless form. For installation in a paper machine of the like, the two ends are separated such that the fabric can be pulled in its direction of movement into the machine, after which the two belt longitudinal ends can then be joined together again. The region of the seam in this case has a larger void area than the rest of the fabric, resulting in a differential dewatering in this area which may lead to marking of the fibrous web. In addition, the formation of seam loops on the base fabric results in increased production time and expense.

[0004] PCT Intl. App. No. PCT/GB89/00681, which is assigned to the assignee of the present invention, discloses a seam for a PMC base fabric in which a number of weft yarns are removed from the fabric at a fold location. The fabric is folded over at the fold location, sewed adjacent the fold location, interdigitated with loops from an adjacent fabric end, and a pintle wire is inserted through the interdigitated loops. There is no attempt to align the weft

or warp yarns of the folded fabric adjacent the fold location. This configuration provides an effective seam, but the randomly aligned yarns on either side of the window can provide some variability of the seam properties.

[0005] What is needed in the art is an improved process for preparing a seam area for a PMC base fabric.

### **SUMMARY OF THE INVENTION**

[0006] The present invention provides a seam for a PMC base fabric in which a number of weft yarns are removed from the fabric at a selected seam location, the fabric is folded over where the weft yarns are removed, the warp and weft yarns on either side of the window are aligned with each other, and the fabric is bonded adjacent the window.

[0007] The present invention in one form is directed to a process for preparing a seam area for a PMC base fabric including the steps of: providing a PMC base fabric including a plurality of warp yarns extending in a machine direction (MD) and a plurality of interwoven weft yarns extending in a cross machine direction (CD); removing a plurality of adjacent weft yarns from the PMC base fabric to define a window of warp yarns not interwoven with weft yarns, the plurality of warp yarns being interwoven with a plurality of weft yarns on either side of the window; folding over the PMC base fabric at the window such that each warp yarn substantially aligns with itself in the MD, and one or more weft yarns on one side of the window substantially align with a respective weft yarn on an opposite side of the window; and bonding together a portion of the PMC base fabric adjacent the window.

[0008] An advantage of the present invention is that the seam has improved physical attributes including consistent loop size, loop alignment, loop spacing and loop stiffness.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

[0009] The above-mentioned and other features and advantages of this invention, and the

manner of attaining them, will become more apparent and the invention will be better understood by reference to the following description of embodiments of the invention taken in conjunction with the accompanying drawings, wherein:

[0010] Fig. 1 is a top view of a portion of a PMC base fabric including an embodiment of a seam of the present invention, with a predetermined number of the weft yarns removed to define a window of a folded area;

[0011] Fig. 2 is a side view of the PMC base fabric of Fig. 1 after being folded at the window;

[0012] Fig. 3 is a photograph of a top view of a portion of the PMC base fabric shown in Figs. 1 and 2, with the warp and weft yarns on opposite sides of the window being substantially aligned with each other; and

[0013] Fig. 4 is a side view of another embodiment of a PMC base fabric of the present invention with the weft yarns being offset relative to each other after being folded at the window.

[0014] Corresponding reference characters indicate corresponding parts throughout the several views. The exemplifications set out herein illustrate embodiments of the invention and such exemplifications are not to be construed as limiting the scope of the invention in any manner.

### **DETAILED DESCRIPTION OF THE INVENTION**

[0015] Referring now to the drawings, and more particularly to Figs. 1-3, there is shown a portion of an embodiment of a PMC base fabric 10 including a plurality of woven monofilament yarns, namely warp yarns 12 extending in the running or machine direction (MD), and weft yarns 14 extending in the cross-machine direction (CD). The specific configuration of fabric 10 may vary, depending upon the application. For example, the specific weave pattern of fabric 10 may vary from one application to another. Warp yarns 12

and/or weft yarns 14 may be comprised of any man-made material, such as nylon, polyester, or other types of poly-yarns.

[0016] Referring now more specifically to Fig. 1, during a process for preparing a seam area of PMC base fabric 10, a plurality of adjacent weft yarns 14 are removed from PMC base fabric 10 to define a window 16 of warp yarns 12 not interwoven with weft yarns 14. In the illustrated embodiment, window 16 is defined by 4 weft yarns 14 which are removed from PMC base fabric 10; but could be a different number of removed weft yarns, such as 1 to 8 weft yarns. On either side of window 16, a plurality of warp yarns 12 are interwoven with a plurality of weft yarns 14. The portion of the non-woven warp yarns 12 within window 16 are used to define the loops 18 at the seam of PMC base fabric 10.

[0017] PMC base fabric 10 is folded at window 16 such that each warp yarn 12 substantially aligns with itself in the MD, and at least one weft yarn 14 on one side of window 16 substantially aligns with a respective weft yarn 14 on an opposite side of window 16. For example, the weft yarns immediately adjacent to and on opposite sides of window 16 align with each other, the weft yarns which are 2 away from window 16 align with each other, etc. (as shown by the curved arrows above window 16).

[0018] When in a folded state, the portion of PMC base fabric 10 defined by window 16 form loops 18 which align with each other in the CD direction. These loops 18 are interdigitated with like loops at an adjacent end of PMC base fabric 10, and a pintle wire (not shown) is inserted through the loops to define the seam.

[0019] Prior to insertion of the pintle wire, the portion of PMC base fabric 10 adjacent window 16 is bonded together. The bonding may be carried out using sewing, ultrasonic welding, heat sealing and/or gluing. In the illustrated embodiment, the bonding is by sewing with one or more rows of stitches extending parallel to weft yarns 14 in the CD direction. For example, a single stitch 20 (Fig. 2, shown with a solid line) may be placed between the first and second weft yarns on opposite sides of window 16. Alternate stitch locations are

shown by the dashed lines in Fig. 2. Moreover, stitches may be placed at all 3 of the locations indicated in Fig. 2, or additional stitch locations (not shown).

**[0020]** The sewing may be carried out using a lock stitch, chain stitch, bag stitch, back stitch, cable stitch, cover stitch, overcast stitch, and/or over seam stitch. The sewing may be applied as a straight stitch, zig-zag stitch, double needle stitch, or multi-needle stitch. The stitch(es) may be positioned anywhere between 0 to 20 weft yarns away from window 16 (with zero (0) being on a window side of a first weft yarn). The yarn used for the stitches may be a cabled yarn, multifilament yarn, monofilament yarn, knitted yarn, spun fiber yarn, texturized yarn, thermal bonded yarn, low twisted yarn, plied yarn, twisted yarn, soluble yarn, thread or melting yarn. Other common types of yarn used for stitches are also possible. The sewing is carried out with a stitch length of between approximately 15 stitches/cm to 1 stitch/cm. The sewing yarn may be comprised of nylon, polyester, spectra®, cellulose and/or an aramide (such as Kevlar™). The sewing yarn preferably has a dtex rating of between approximately 2 dtex to 400 dtex.

**[0021]** Referring now to Fig. 4, there is shown another embodiment of the process for preparing a seam area of the present invention in which the weft yarns are offset relative to each other on opposite sides of window 16. That is, the weft yarns which align on opposite sides of window 16 are a different integer number away from window 16. In the illustrated embodiment, the first weft yarn at the bottom of the 2 ply structure aligns with the second weft yarn at the top of the 2 ply structure. A stitch 20 (shown in solid line) is placed between the second and third weft yarns on the top ply, and the first and second weft yarns on the bottom ply. Alternate stitch locations are shown by the dashed lines in Fig. 4.

**[0022]** While this invention has been described with respect to at least one embodiment, the present invention can be further modified within the spirit and scope of this disclosure. This application is therefore intended to cover any variations, uses, or adaptations of the invention using its general principles. Further, this application is intended to cover such departures

from the present disclosure as come within known or customary practice in the art to which this invention pertains and which fall within the limits of the appended claims.

**WHAT IS CLAIMED IS:**

1. A process for preparing a seam area for a paper machine clothing (PMC) base fabric, the process comprising the steps of:

providing a PMC base fabric including a plurality of warp yarns extending in a machine direction (MD) and a plurality of interwoven weft yarns extending in a cross machine direction (CD);

removing a plurality of adjacent said weft yarns from said PMC base fabric to define a window of warp yarns not interwoven with said weft yarns, said plurality of warp yarns being interwoven with a plurality of weft yarns on opposite sides of said window;

folding over said PMC base fabric at said window such that each said warp yarn substantially aligns with itself in the MD, and at least one said weft yarn on one side of said window substantially aligns with a respective said weft yarn on an opposite side of said window; and

bonding together a portion of the PMC base fabric adjacent said window.

2. The process for preparing a seam area for a PMC base fabric according to claim 1, wherein each said weft yarn on one side of said window substantially aligns with a respective said weft yarn on an opposite side of said window.

3. The process for preparing a seam area for a PMC base fabric according to claim 1, wherein said bonding step includes at least one of sewing, ultrasonic welding, heat sealing, gluing, stitching, laser welding and melt bonding.

4. The process for preparing a seam area for a PMC base fabric according to claim 1, wherein said bonding step includes sewing, and said sewing includes at least one of a lock

stitch, chain stitch, bag stitch, back stitch, cable stitch, cover stitch, overcast stitch, and over scam stitch.

5. The process for preparing a seam area for a PMC base fabric according to claim 4, wherein said sewing is applied as one of a straight stitch, zig-zag stitch, double needle stitch, and multi-needle stitch.

6. The process for preparing a seam area for a PMC base fabric according to claim 4, wherein said sewing includes at least one stitch extending parallel to said weft yarns.

7. The process for preparing a seam area for a PMC base fabric according to claim 6, wherein said sewing includes at least one stitch positioned anywhere between a window side of a first said weft yarn up to twenty said weft yarns away from said window.

8. The process for preparing a seam area for a PMC base fabric according to claim 7, wherein said sewing includes one or more rows of stitching.

9. The process for preparing a seam area for a PMC base fabric according to claim 4, wherein said weft yarns are offset relative to each other such that said weft yarns which align on opposite sides of said window are a different integer number away from said window.

10. The process for preparing a seam area for a PMC base fabric according to claim 4, wherein said sewing is carried out with one of a cabled yarn, multifilament yarn, monofilament yarn, knitted yarn, spun fiber yarn, texturized yarn, thermal bonded yarn, low twisted yarn, plied yarn, twisted yarn, soluble yarn, thread and melting yarn.

11. The process for preparing a seam area for a PMC base fabric according to claim 4, wherein said sewing is carried out with a stitch length of between approximately 15 stitches/cm to 1 stitch/cm.

12. The process for preparing a seam area for a PMC base fabric according to claim 4, wherein said sewing is carried out with a yarn comprised of at least one of a nylon, polyester, spectra®, cellulose, and an aramide.

13. The process for preparing a seam area for a PMC base fabric according to claim 4, wherein said sewing is carried out with a yarn having a dtex rating of between approximately 2 dtex to 400 dtex.

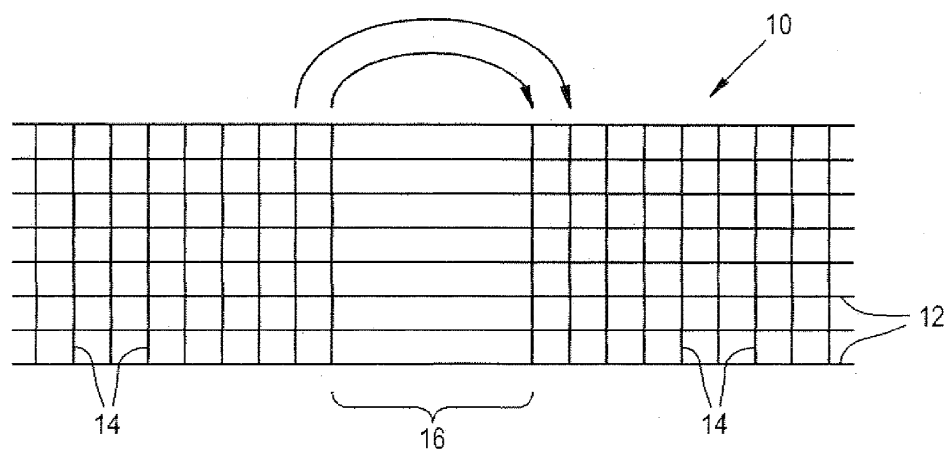


Fig. 1

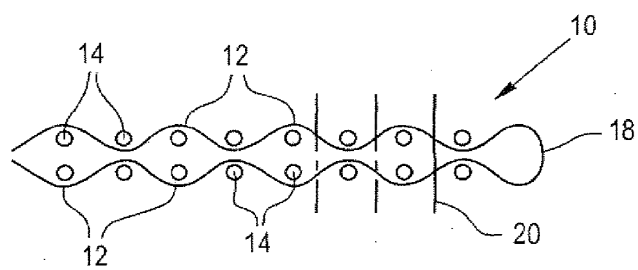


Fig. 2

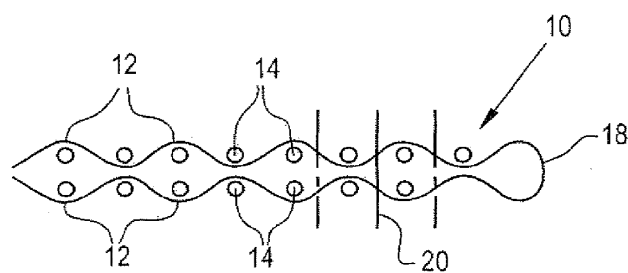


Fig. 4

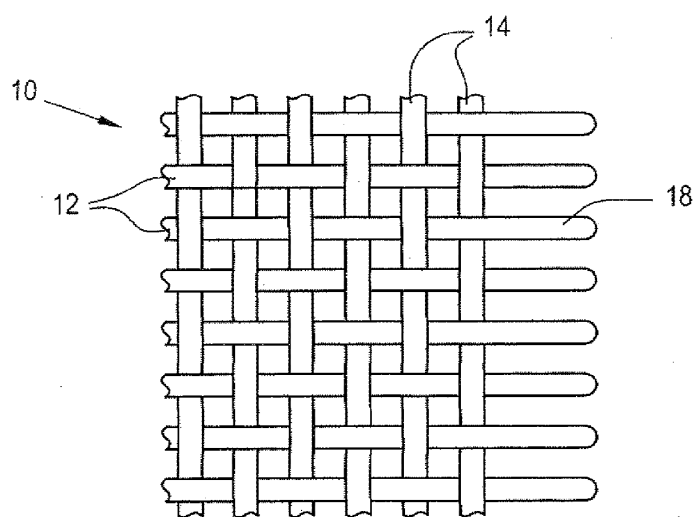


Fig. 3

# INTERNATIONAL SEARCH REPORT

International application No  
PCT/EP2012/073931

| <b>A. CLASSIFICATION OF SUBJECT MATTER</b><br>INV. D21F1/00 D21F7/10<br>ADD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                        |                                                    |
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| According to International Patent Classification (IPC) or to both national classification and IPC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                        |                                                    |
| <b>B. FIELDS SEARCHED</b><br>Minimum documentation searched (classification system followed by classification symbols)<br>D21F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                        |                                                    |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                        |                                                    |
| Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)<br>EPO-Internal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                        |                                                    |
| <b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                        |                                                    |
| Category*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Citation of document, with indication, where appropriate, of the relevant passages                                                                     | Relevant to claim No.                              |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | WO 89/12717 A1 (SCAPA GROUP PLC [GB])<br>28 December 1989 (1989-12-28)<br>cited in the application<br>page 3, line 13 - page 4, line 7; figures<br>1-3 | 1-3                                                |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | -----<br>US 2009/090425 A1 (HAWES JOHN M [US] ET<br>AL) 9 April 2009 (2009-04-09)<br>paragraphs [0030] - [0034], [0044] -<br>[0051]; figures<br>-----  | 1,2                                                |
| <input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                        |                                                    |
| * Special categories of cited documents :<br>"A" document defining the general state of the art which is not considered to be of particular relevance<br>"E" earlier application or patent but published on or after the international filing date<br>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)<br>"O" document referring to an oral disclosure, use, exhibition or other means<br>"P" document published prior to the international filing date but later than the priority date claimed<br>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention<br>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone<br>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art<br>"&" document member of the same patent family |                                                                                                                                                        |                                                    |
| Date of the actual completion of the international search                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                        | Date of mailing of the international search report |
| 13 December 2012                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                        | 20/12/2012                                         |
| Name and mailing address of the ISA/<br>European Patent Office, P.B. 5818 Patentlaan 2<br>NL - 2280 HV Rijswijk<br>Tel. (+31-70) 340-2040,<br>Fax: (+31-70) 340-3016                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                        | Authorized officer<br>Maisonnier, Claire           |

Form PCT/ISA/210 (second sheet) (April 2005)

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Information on patent family members

International application No

PCT/EP2012/073931

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## FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB

### BACKGROUND OF THE INVENTION

Field of the Invention:

**[0001]** The present invention relates to a fabric for a machine to produce a fiber web, especially a paper-, board-, tissue- or pulp web. The fabric includes a flat woven base material having a top side and a bottom side, two terminal ends separated in a machine direction, folds formed in the flat woven base material being separated in the machine direction by the folding defining an inside between the two folded layers and an outside. The two terminal ends are located under the bottom side surface, wherein the two terminal ends are either adjacent to each other or overlap each other, seam loops located at the folds. The invention also relates to a method of producing a fiber web.

**[0002]** In modern paper machines, the paper web is transported on different kinds of paper machine clothing's like wires or felts through the process. In the press section of a paper machine, press felts are widely used, that comprise one or more fibrous batt layers and a base structure made from woven material.

**[0003]** From a user's perspective, in many applications, the void volume through the lifetime of the fabric is a critical requirement for good performance. Of special interest are seamable press felts, since they are easier to handle. Many of these applications, that require a substantial void volume for good performance -for

example in board and packaging paper machines- are also sensitive to seam marks and therefore also require a seam with uniform dewatering and good structural integrity for full life performance. A base fabric design is required which provides both necessary void volume and seam design to ensure a uniform pressure profile and dewatering through life.

**[0004]** From an economic perspective, the fabric should be quick and easy to produce. Therefore, it is known, for example from commonly assigned U.S. Patent No. US 8,043,477 B2 and its counterpart WO 2009/106182 to use a simple, flat woven material and to fold it in order to produce a two ply base structure with seam loops for a seamable fabric. The use of a flat woven material is advantageous, since it can easily be produced on a comparably simple and cheap loom and the production time is much faster compared to an endlessly woven structure. The task of preparing a seam for such fabrics is also discussed in the literature. See, for instance, commonly assigned U.S. Patent No. US 8,353,252 B1 and its counterpart WO 2013/083468.

**[0005]** Unfortunately, in some important applications, the two ply designs as described in US 8,043,477 B2 and WO 2009/106182 or in US 8,353,252 B1 and 2013/083468 do not provide enough void volume to guarantee sufficient dewatering properties.

#### SUMMARY OF THE INVENTION

**[0006]** It is accordingly an object of the invention to provide a fabric for a web producing machine which overcomes the above-mentioned and other disadvantages of the heretofore-known devices and methods of this general type

and of the present invention and which provides for a fabric for a machine to produce a fiber web, especially a paper-, board-, tissue- or pulp web, where the base structure can be easy and economically produced while providing sufficient void volume for demanding applications and an economical way to produce a fiber web.

**[0007]** With the foregoing and other objects in view there is provided, in accordance with the invention, a fabric for a machine for producing a fiber web, the fabric comprising:

a flat woven base material having a top side and a bottom side, two terminal ends separated from one another in a machine direction;

said flat woven base material being folded in two folded layers with folds being separated from one another in the machine direction and defining an inside between the two folded layers and an outside;

said two terminal ends being located under the bottom side surface and said two terminal ends being adjacent one another or overlapping one another, and wherein seam loops are located at said folds; and

one or more sheet plies.

**[0008]** In other words, the fabric for a machine for producing a fiber web, especially a paper-, board-, tissue- or pulp web, comprises a flat woven base material. The base material has a top side and a bottom side, two terminal ends separated in a machine direction and folds formed in the flat woven base material being separated in the machine direction.

**[0009]** This folding defines an inside between the two folded layers and an outside.

**[0010]** The two terminal ends are located after the folding under the bottom side surface.

**[0011]** These two terminal ends can either be positioned adjacent to each other or overlap each other. Seam loops for the fabric are located at the two folds.

**[0012]** When installed in a production machine, the fabric can be seamed at these seam loops in order to generate an endless fabric.

**[0013]** According to this invention, the fabric further comprises at least one or more sheet-like plies.

**[0014]** These sheet-like plies can provide additional void volume to the fabric. In many applications, the fabric may have two sheet-like plies. If more void volume is needed, there may be implementations of the present invention including, three, four, five or more sheet-like plies.

**[0015]** One of the advantages of the inventive fabric is the fact, that by adding additional sheet-like plies to enlarge the void volume of the fabric, the base weave does not have to provide so much void volume. Therefore, an inexpensive, flat woven base can be used, instead of e.g. multilayer weaves.

**[0016]** In a preferred embodiment of the invention, the fabric may comprise two or more sheet-like plies.

**[0017]** Here, each of the additional sheet-like plies does only have to provide a part of the void volume, since two or more sheet-like plies are provided in the fabric. Therefore, also the material and structure of the sheet-like may be chosen for economic reasons rather than its ability to provide all the desired additional void volume.

**[0018]** The fabric according to the invention can be used as a press fabric, especially as a press felt. But other uses, for example as a forming fabric are also possible.

**[0019]** In a preferred embodiment of the invention, the sheet-like plies according to the invention have essentially the same width as the fabric. That means, that the sheet-like plies have the same width in cross machine direction as the fabric or at least not less than 90% and not more than 110% of the width in cross machine direction of the fabric.

**[0020]** In another preferred embodiment of the invention, the sheet-like plies according to the invention have essentially the same length as the fabric after the described folding process. That means that the sheet-like plies have the same length in machine direction as the fabric or not less than 90% and not more than 110% of the length in machine direction of the fabric.

**[0021]** In a very preferred embodiment of the invention, the woven base material is a one-layer weave, especially a plain weave. These materials can be fast and economically produced on modern looms.

**[0022]** In a preferred embodiment of the invention, one, some or all of the sheet-like plies consist of or comprise a woven material, preferably a one-layer weave, especially a plain weave.

**[0023]** It may be favorable, if the woven base material and one, some or all of the sheet-like plies are from the same woven material:

**[0024]** Using the same woven material for the woven base material and the sheet-like plies is favorable from an economical point of view, since only one type of woven material must be ordered, resulting in generally better prices from the when ordering larger quantities. Furthermore, also the production process is facilitated, since all the woven material can be taken from one large mother reel.

**[0025]** Another positive side effect is that in the case of a defect in the woven base, at least a portion of the material can be used as sheet-like ply, thereby reducing the waste.

**[0026]** In another favorable embodiment of the invention, one, some or all of the sheet-like plies consist of or comprise a nonwoven component. Such a nonwoven component may be a polymer film, a foam layer, a knitted structure or a warp-knit

structure or at least comprise such a structure. These nonwoven components can also be easily produced or purchased and may be used to adapt the properties of the fabric to the actual needs.

**[0027]** It may also give positive effect to combine at least one woven sheet ply and at least one sheet ply with a nonwoven component.

**[0028]** The sheet-like plies may be positioned in the inside between the two folded layers or on the outside. Depending on the application of the fabric, it may be favorable to position all of the sheet-like plies in the inside or all of the sheet-like plies on the outside. Alternatively, at least one of the sheet-like plies may be positioned on the outside and at least one of the sheet-like plies may be positioned in the inside.

**[0029]** If at least one of the sheet-like plies is positioned on the outside, it may be favorable to position it in such a way, that it covers the two terminal ends. This positioning may lead to a better runability of the fabric.

**[0030]** If at least one of the sheet-like plies is positioned on the outside, it may also be favorable to position it in such a way, that it covers one or both of the seam loops or at least parts of them. In another preferred embodiment of the present invention, the seam loops are not covered at all by the sheet-like plies.

**[0031]** The fabric according to the present invention may further comprise one or more stitching. These stitchings may serve to secure the sheet plies to the flat

woven base material. There may also be stitching used to secure the seam loops formed by the folded flat woven base material.

**[0032]** In another embodiment, the two terminal ends are at least temporarily connected to each other, especially welded to each other. This connection may or may not be destroyed during the further processing of the fabric, e.g. by needle punching or during the operation of the fabric.

**[0033]** In another favorable embodiment, the fabric may comprise at least one layer of batt fiber. In many applications it may even be favorable if the fabric comprises two, three or more layers of batt fibers, where the different layers of batt fibers may have different properties, e.g. different fineness of the batt fibers.

**[0034]** In another favorable embodiment, the fabric may be on machine seamable and comprises only one seam.

**[0035]** Another aspect of the present invention is a method to produce a fiber web, especially a paper-, board-, tissue- or pulp web, with a (papermaking) machine to produce the fiber web that uses at least one fabric as described.

**[0036]** Other features which are considered as characteristic for the invention are set forth in the appended claims.

**[0037]** Although the invention is illustrated and described herein as embodied in a fabric for a machine to produce a fiber web and a method to produce a fiber web,

it is nevertheless not intended to be limited to the details shown, since various modifications and structural changes may be made therein without departing from the spirit of the invention and within the scope and range of equivalents of the claims.

**[0038]** The construction and method of operation of the invention, however, together with additional objects and advantages thereof will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings.

#### BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

**[0039]** Fig. 1 is a diagrammatic side view showing a fabric according to the invention;

**[0040]** Fig. 2 is a similar view of an alternative embodiment thereof;

**[0041]** Fig. 3 is a similar view of an alternative embodiment thereof; and

**[0042]** Fig. 4 is a similar view of an alternative embodiment thereof.

#### **[0043]** DETAILED DESCRIPTION OF THE INVENTION

**[0044]** Referring now to the figures of the drawing in detail and first, particularly, to Fig. 1 thereof, there is shown a fabric 1 which comprises a flat woven base material 2 that is folded. Seam loops 3 are created at the folds. The two terminal ends of the flat woven base material 2 are joined together by a weldseam 4. This weldseam 4 may be permanent, holding the terminal ends together during the

lifetime of the fabric 1. In another preferred embodiment, the weldseam 4 may be temporary, and it may be destroyed in a further processing step like needle punching, or may be destroyed during the operation of the fabric.

**[0045]** The embodiment in Fig. 1 comprises two sheet-like plies or sheet plies 10a, 10b. Both sheet plies 10a, 10b are positioned on the outside. One sheet-like ply 10a is positioned directly on top of the two terminal ends and the weldseam 4, while the other sheet-like ply 10b is positioned on the opposite side. According to the invention, it is also possible to position two sheet-like plies 10a, 10b on top of the weldseam 4, or to position two of the sheet-like plies 10a, 10b on the opposite side. The fabric 1 further comprises some stitchings 5, 5a. Some stitchings 5a are used to secure the seam loops 3. The other stitchings 5 are used to secure the sheet-like plies 10a, 10b to the flat-woven base material 2. The number of the stitchings 5, 5a may vary depending on the length of the sheet-like plies. There may be less or more stitchings 5, 5a than shown in Fig. 1. The sheet-like plies 10a, 10b shown in Fig. 1 are made from the same flat-woven material as the flat woven base material 2. This has economic advantages. Depending on the application, it may be preferable to use other materials for the sheet-like plies 10a, 10b. Even nonwoven material can be beneficial.

**[0046]** As seen in Fig. 1, the sheet-like plies 10a, 10b do not cover the seam loops 3. In a different embodiment it may be beneficial, however, if at least one sheet-like ply 10a, 10b or even both sheet-like plies 10a, 10b cover the seam loops 3 or at least part of the seam loops 3.

**[0047]** The embodiment shown in Fig. 2 differs from the embodiment in Fig. 1, that the two sheet-like plies 10a, 10b are both positioned in the inside of the flat woven base, while the embodiment in Fig. 3 shows a fabric 1, where one sheet-like ply 10a is positioned on the outside, while one sheet-like ply 10b is positioned in the inside. The sheet-like ply 10a on the outside covers the terminal ends and the weldseam 4 of the flat-woven base fabric 2. While this is favorable in many applications, there are also embodiments of the present invention, where a sheet-like ply is positioned on the other side.

**[0048]** Figure 4 shows an embodiment of the present invention that comprises three sheet-like plies 10a, 10b, and 10c. While all possible positioning of the sheet-like plies 10a, 10b, and 10c are covered by the present invention, Fig. 4 shows as an example an embodiment of a fabric 1, where two sheet-like plies 10a, 10b are positioned on the outside, while one sheet-like ply 10c is positioned in the inside. While it is possible, that all sheet-like plies 10a, 10b, 10c are made from the same material, even from the same woven material as the flat-woven base material 2, Fig. 4 shows an embodiment, where the sheet-like ply 10c in the inside is made from a different material. In a favorable embodiment, this sheet-like ply 10c may e.g. comprise a polymer film, a foam layer, a knitted structure or a warp-knit structure.

## CLAIMS

1. A fabric for a machine for producing a fiber web, comprising:
  - a flat woven base material having a top side and a bottom side, two terminal ends separated from one another in a machine direction;
  - said flat woven base material being folded in two folded layers with folds being separated from one another in the machine direction and defining an inside between the two folded layers and an outside;
  - said two terminal ends being located under the bottom side surface and said two terminal ends being adjacent one another or overlapping one another, and wherein seam loops are located at said folds; and
  - one or more sheet plies.
2. The fabric according to claim 1, wherein said one or more sheet plies are two or more sheet plies.
3. The fabric according to claim 1, configured for producing a fiber web selected from the group consisting of a paper web, a cardboard web, a tissue web and a pulp web.
4. The fabric according to claim 1, wherein said sheet plies have a width substantially equal to a width in cross machine direction as the fabric and/or said sheet plies have a length substantially equal to a length in the machine direction as the fabric.

5. The fabric according to claim 1, wherein said woven base material is a one-layer weave.
6. The fabric according to claim 5, wherein said woven base material is a plain weave.
7. The fabric according to claim 1, wherein one, some or all of the sheet plies consist of or comprise a woven material.
8. The fabric according to claim 7, wherein said woven material is a one-layer weave.
9. The fabric according to claim 8, wherein said one-layer weave is a plain weave.
10. The fabric according to claim 7, wherein said woven base material and one, some or all of said sheet plies are formed of a same woven material.
11. The fabric according to claim 1, wherein one, some or all of the sheet plies consist of or comprise a nonwoven component.
12. The fabric according to claim 11, wherein said nonwoven component is selected from the group consisting of a polymer film, a foam layer, a knitted structure and a warp-knit structure.

13. The fabric according to claim 1, wherein all of said sheet plies are disposed inside between said folded layers.

14. The fabric according to claim 1, wherein all of said sheet plies are disposed outside said folded layers.

15. The fabric according to claim 1, wherein at least one of the sheet plies is disposed on the outside and at least one of said sheet-like plies is disposed inside.

16. The fabric according to claim 1, which comprises one or more stitchings for securing said sheet plies to said woven base material.

17. The fabric according to claim 1, wherein said two terminal ends are at least temporarily connected to one another.

18. The fabric according to claim 17, wherein said two terminal ends are connected to one another by a process selected from the group consisting of welded, stitching, and gluing.

19. The fabric according to claim 1, which further comprises at least one layer of batt fibers.

20. The fabric according to claim 1, wherein the fabric is configured to be on-machine seamable and comprises only one seam.

21. A method for producing a fiber web, providing a web-producing machine with a at least one fabric according to claim 1.

## ABSTRACT OF THE DISCLOSURE

A fabric for a machine to produce a fiber web, especially a paper-, board-, tissue- or pulp web, is formed of a flat woven base material having a top side and a bottom side, two terminal ends separated in a machine direction, folds formed in the flat woven base material being separated in the machine direction by the folding defining an inside between the two folded layers and an outside. The two terminal ends are located under the bottom side surface, wherein the two terminal ends one of are adjacent to each other or overlap each other, seam loops located at the folds characterized in that the fabric further has one, two or more sheet-like plies. Also a method to produce a fiber web, especially a paper-, board-, tissue- or pulp web is carried out with a machine that is provided with at least one such novel fabric.

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Figure 1

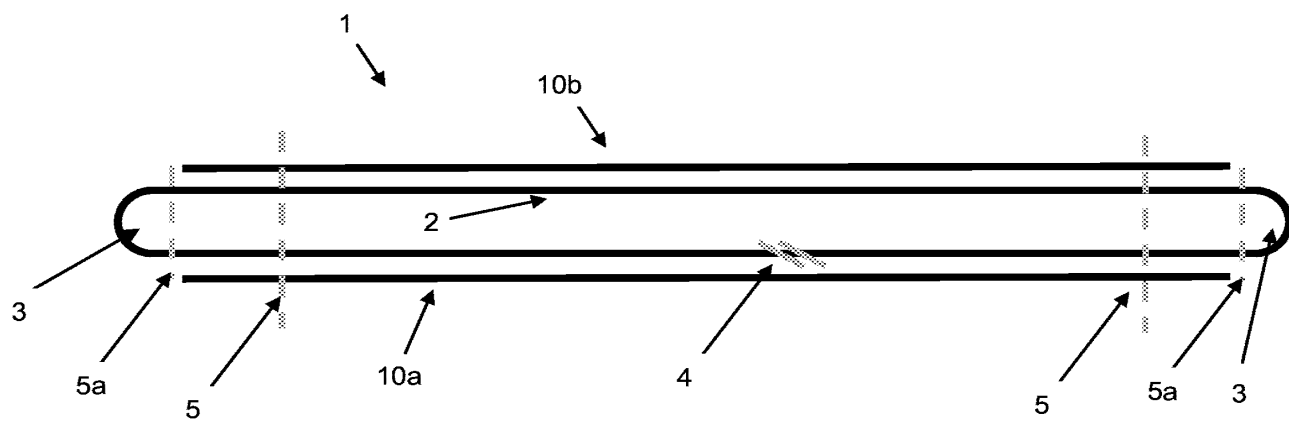


Figure 2

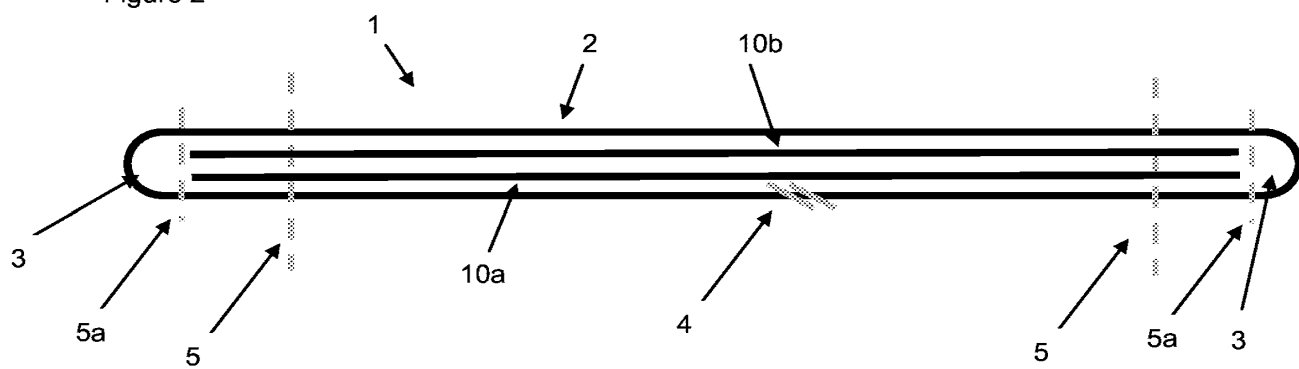


Figure 3

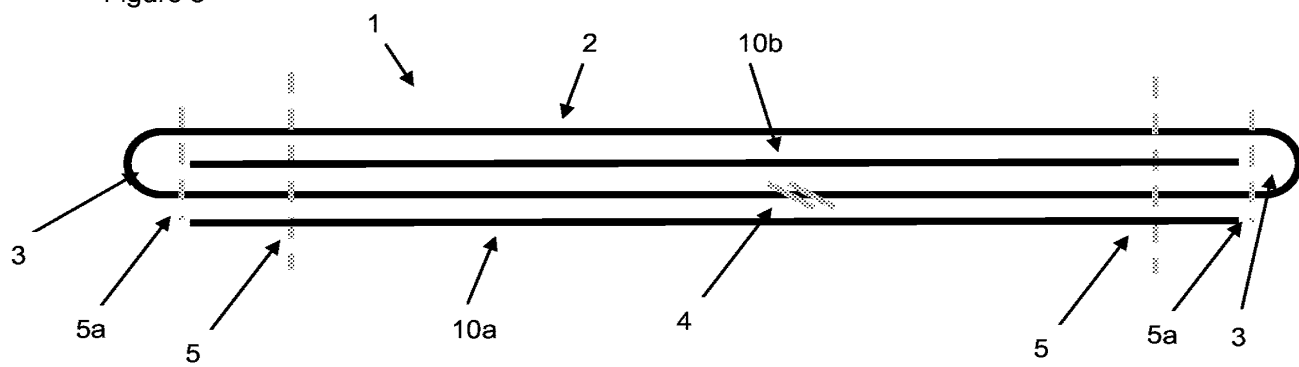
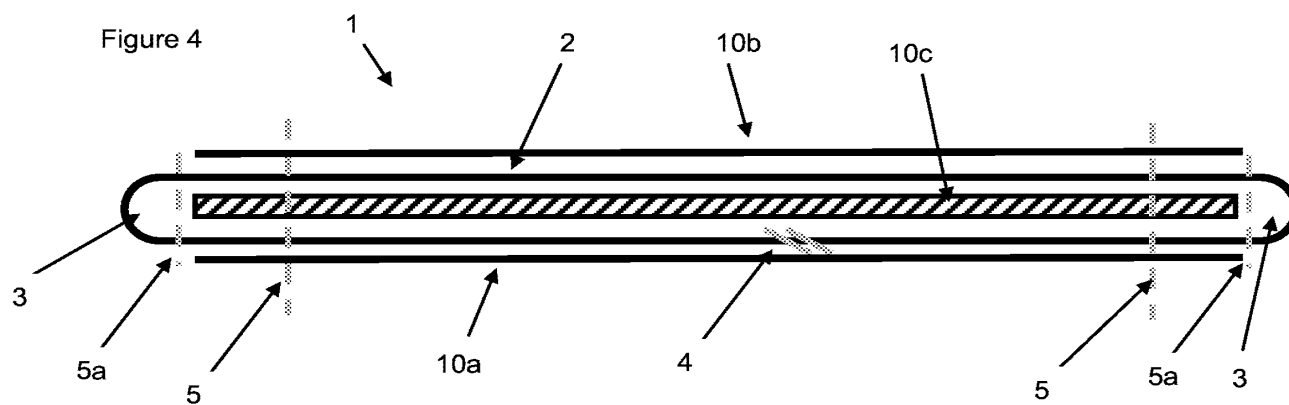


Figure 4



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| <b>Application Data Sheet 37 CFR 1.76</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                 | Attorney Docket Number | VP-19978 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                 | Application Number     |          |
| Title of Invention                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB |                        |          |
| <p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p> |                                                                                 |                        |          |

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☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

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| Title of the Invention                  | FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB |                                           |                          |
| Attorney Docket Number                  | VP-19978                                                                        | Small Entity Status Claimed               | <input type="checkbox"/> |
| Application Type                        | Nonprovisional                                                                  |                                           |                          |
| Subject Matter                          | Utility                                                                         |                                           |                          |
| Total Number of Drawing Sheets (if any) | 2                                                                               | Suggested Figure for Publication (if any) |                          |
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|                                           |                                                                                 | Application Number     |          |
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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).

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

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| Title of Invention                        | FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB |                        |          |

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| <p>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.</p> <p><input type="checkbox"/> 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.</p> |
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|                                           |                                                                                 | Application Number     |          |
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|                                           |                                                                                 | Application Number     |          |
| Title of Invention                        | FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB |                        |          |

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

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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:                           |          | FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB |        |                      |
| First Named Inventor/Applicant Name:          |          | TORSTEN WICH                                                                    |        |                      |
| Filer:                                        |          | Werner H. Stemer/ILONA CHISOLM                                                  |        |                      |
| Attorney Docket Number:                       |          | VP-19978                                                                        |        |                      |
| Filed as Large Entity                         |          |                                                                                 |        |                      |
| Filing Fees for Utility under 35 USC 111(a)   |          |                                                                                 |        |                      |
| Description                                   | Fee Code | Quantity                                                                        | Amount | Sub-Total in USD(\$) |
| <b>Basic Filing:</b>                          |          |                                                                                 |        |                      |
| Utility application filing                    | 1011     | 1                                                                               | 280    | 280                  |
| Utility Search Fee                            | 1111     | 1                                                                               | 600    | 600                  |
| Utility Examination Fee                       | 1311     | 1                                                                               | 720    | 720                  |
| <b>Pages:</b>                                 |          |                                                                                 |        |                      |
| <b>Claims:</b>                                |          |                                                                                 |        |                      |
| Claims in Excess of 20                        | 1202     | 1                                                                               | 80     | 80                   |
| <b>Miscellaneous-Filing:</b>                  |          |                                                                                 |        |                      |
| <b>Petition:</b>                              |          |                                                                                 |        |                      |

| Description                              | Fee Code | Quantity | Amount | Sub-Total in USD(\$) |
|------------------------------------------|----------|----------|--------|----------------------|
| <b>Patent-Appeals-and-Interference:</b>  |          |          |        |                      |
| <b>Post-Allowance-and-Post-Issuance:</b> |          |          |        |                      |
| <b>Extension-of-Time:</b>                |          |          |        |                      |
| <b>Miscellaneous:</b>                    |          |          |        |                      |
| <b>Total in USD (\$)</b>                 |          |          |        | <b>1680</b>          |

| Electronic Acknowledgement Receipt          |                                                                                 |
|---------------------------------------------|---------------------------------------------------------------------------------|
| <b>EFS ID:</b>                              | 23196511                                                                        |
| <b>Application Number:</b>                  | 14825350                                                                        |
| <b>International Application Number:</b>    |                                                                                 |
| <b>Confirmation Number:</b>                 | 4663                                                                            |
| <b>Title of Invention:</b>                  | FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB |
| <b>First Named Inventor/Applicant Name:</b> | TORSTEN WICH                                                                    |
| <b>Customer Number:</b>                     | 24131                                                                           |
| <b>Filer:</b>                               | Werner H. Stemer/Michelle Janca                                                 |
| <b>Filer Authorized By:</b>                 | Werner H. Stemer                                                                |
| <b>Attorney Docket Number:</b>              | VP-19978                                                                        |
| <b>Receipt Date:</b>                        | 13-AUG-2015                                                                     |
| <b>Filing Date:</b>                         |                                                                                 |
| <b>Time Stamp:</b>                          | 12:43:33                                                                        |
| <b>Application Type:</b>                    | Utility under 35 USC 111(a)                                                     |

### Payment information:

|                                                                                                                                                                                                                                                                                                                                                                                          |                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Submitted with Payment                                                                                                                                                                                                                                                                                                                                                                   | yes                   |
| Payment Type                                                                                                                                                                                                                                                                                                                                                                             | Credit Card           |
| Payment was successfully received in RAM                                                                                                                                                                                                                                                                                                                                                 | \$1680                |
| RAM confirmation Number                                                                                                                                                                                                                                                                                                                                                                  | 11712                 |
| Deposit Account                                                                                                                                                                                                                                                                                                                                                                          | 121099                |
| Authorized User                                                                                                                                                                                                                                                                                                                                                                          | GREENBERG, LAURENCE A |
| <p>The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)</p> <p>Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)</p> |                       |

|                 |                                                     |                                    |                                          |                  |                  |
|-----------------|-----------------------------------------------------|------------------------------------|------------------------------------------|------------------|------------------|
|                 |                                                     |                                    |                                          |                  |                  |
| File Listing:   |                                                     |                                    |                                          |                  |                  |
| Document Number | Document Description                                | File Name                          | File Size(Bytes)/ Message Digest         | Multi Part /.zip | Pages (if appl.) |
| 1               | Authorization for Extension of Time all replies     | VP-19978-Charge-Authorization-.pdf | 20458                                    | no               | 1                |
|                 |                                                     |                                    | 701bab7ae46cfe4da2922cf0b23b9e33598144df |                  |                  |
| Warnings:       |                                                     |                                    |                                          |                  |                  |
| Information:    |                                                     |                                    |                                          |                  |                  |
| 2               | Oath or Declaration filed                           | VP-19978-SignedDeclaration-.pdf    | 203984                                   | no               | 1                |
|                 |                                                     |                                    | 5c756e68fb74e87f20e3bedbc22948dd589f169a |                  |                  |
| Warnings:       |                                                     |                                    |                                          |                  |                  |
| Information:    |                                                     |                                    |                                          |                  |                  |
| 3               |                                                     | VP-19978-TransmittalPOA-.pdf       | 315938                                   | yes              | 2                |
|                 |                                                     |                                    | 1c64f029d15b61e6d8a6a648cf50d06b1bc43f5  |                  |                  |
|                 | Multipart Description/PDF files in .zip description |                                    |                                          |                  |                  |
|                 | Document Description                                |                                    | Start                                    | End              |                  |
|                 | Transmittal Letter                                  |                                    | 1                                        | 1                |                  |
|                 | Power of Attorney                                   |                                    | 2                                        | 2                |                  |
| Warnings:       |                                                     |                                    |                                          |                  |                  |
| Information:    |                                                     |                                    |                                          |                  |                  |
| 4               | Information Disclosure Statement (IDS) Form (SB08)  | VP-19978-IDS-.pdf                  | 612422                                   | no               | 4                |
|                 |                                                     |                                    | 5692c9c3d156ae10dc5742164c9d79718a24c901 |                  |                  |
| Warnings:       |                                                     |                                    |                                          |                  |                  |
| Information:    |                                                     |                                    |                                          |                  |                  |
| 5               | Foreign Reference                                   | WO2009106182A1.pdf                 | 2152816                                  | no               | 22               |
|                 |                                                     |                                    | f65dccf28926de7d2c9b6e4578a0b3c59b44b927 |                  |                  |
| Warnings:       |                                                     |                                    |                                          |                  |                  |
| Information:    |                                                     |                                    |                                          |                  |                  |
| 6               | Foreign Reference                                   | WO2013083468A1.pdf                 | 1260207                                  | no               | 14               |
|                 |                                                     |                                    | 67c00743e3d1896a46f4402f552f4a89be9ed347 |                  |                  |
| Warnings:       |                                                     |                                    |                                          |                  |                  |
| Information:    |                                                     |                                    |                                          |                  |                  |

|                              |                                                     |                       |                                          |     |    |
|------------------------------|-----------------------------------------------------|-----------------------|------------------------------------------|-----|----|
| 7                            |                                                     | VP-19978F-.pdf        | 136207                                   | yes | 16 |
|                              |                                                     |                       | 839e56427d0fd56a5a533ac2e6c08d627433745f |     |    |
|                              | Multipart Description/PDF files in .zip description |                       |                                          |     |    |
|                              | Document Description                                |                       | Start                                    | End |    |
|                              | Specification                                       |                       | 1                                        | 11  |    |
|                              | Claims                                              |                       | 12                                       | 15  |    |
|                              | Abstract                                            |                       | 16                                       | 16  |    |
| Warnings:                    |                                                     |                       |                                          |     |    |
| Information:                 |                                                     |                       |                                          |     |    |
| 8                            | Drawings-only black and white line drawings         | VP-19978-Figs-.pdf    | 13800                                    | no  | 2  |
|                              |                                                     |                       | 923cbc558b33290692bbac5e54fc3cb7c578a9a2 |     |    |
| Warnings:                    |                                                     |                       |                                          |     |    |
| Information:                 |                                                     |                       |                                          |     |    |
| 9                            | Application Data Sheet                              | VP-19978-ADS-111-.pdf | 1561050                                  | no  | 7  |
|                              |                                                     |                       | db01483f09dbdb4e2350ea4fcae09937b4bb56ec |     |    |
| Warnings:                    |                                                     |                       |                                          |     |    |
| Information:                 |                                                     |                       |                                          |     |    |
| 10                           | Fee Worksheet (SB06)                                | fee-info.pdf          | 37014                                    | no  | 2  |
|                              |                                                     |                       | 9a1c02af61ace077e8f8185b291d84d65a2368be |     |    |
| Warnings:                    |                                                     |                       |                                          |     |    |
| Information:                 |                                                     |                       |                                          |     |    |
| Total Files Size (in bytes): |                                                     |                       | 6313896                                  |     |    |

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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**

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.

VP-19978

**CHARGE AUTHORIZATION**

Should any extension of time be required for any reason during the pendency of this application, petition for extension is herewith made.

The Patent Office is hereby authorized to charge any extension fees, or any other fees due under 37 CFR §§ 1.16 and 1.17 or deficiencies in required fees to deposit account 12-1099 of Lerner Greenberg Sterner LLP during the pendency of this application.

/Werner H. Sterner/  
Werner H. Sterner  
Reg. No. 34,956

Docket No.: VP-19978

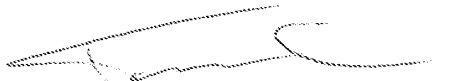
### DECLARATION

As the below named inventor, I hereby declare that:

- \* this declaration is directed to the attached application entitled  
**FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND  
METHOD FOR PRODUCING A FIBER WEB**
- \* I believe that I am the original inventor or an original joint inventor of a claimed invention in this application;
- \* the application was made or authorized to be made by me.

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

LEGAL NAME OF INVENTOR: TORSTEN WICH

  
\_\_\_\_\_  
Signature

2015-08-12  
\_\_\_\_\_  
Date

Doc Code: PA..

Document Description: Power of Attorney

PTO/AIA/82A (07-12)

Approved for use through 11/30/2014. OMB 0651-0035

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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## 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 or equivalent) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5. If the Power of Attorney by Applicant form is not accompanied by this transmittal form or an equivalent, the Power of Attorney will not be recognized in the application.

|                        |                                                                                 |
|------------------------|---------------------------------------------------------------------------------|
| Application Number     | tbd                                                                             |
| Filing Date            | tbd                                                                             |
| First Named Inventor   | TORSTEN WICH                                                                    |
| Title                  | FABRIC FOR A MACHINE TO PRODUCE A FIBER WEB AND METHOD OF PRODUCING A FIBER WEB |
| Art Unit               | tbd                                                                             |
| Examiner Name          | tbd                                                                             |
| Attorney Docket Number | VP-19978                                                                        |

### SIGNATURE of Applicant or Patent Practitioner

|                     |                    |           |                 |
|---------------------|--------------------|-----------|-----------------|
| Signature           | /WERNER H. STEMER/ | Date      | August 13, 2015 |
| Name                | WERNER H. STEMER   | Telephone | (954) 925-1100  |
| Registration Number | 34,956             |           |                 |

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



\*Total of 1 forms are submitted.

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

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## **SCORE Placeholder Sheet for IFW Content**

Application Number: 14825350

Document Date: 08/13/2015

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- Drawings – Other than Black and White Line Drawings

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