



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

(10) **Patent No.:** **US 9,408,942 B2**
(45) **Date of Patent:** **Aug. 9, 2016**

(54) **FLEXIBLE, STRONGLY ABSORBING MATERIAL**

A61F 13/53; A61F 13/15764; A61F 13/15707;
A61F 13/15747; A61F 2013/15878; A61F
2013/15821; A61F 2013/530481; A61F
2013/530131

(75) Inventors: **Henning Röttger**, Kaltenkirchen (DE);
Stefanie Lutter, Wittstock (DE); **Ralf
Ehmke**, Meyenburg (DE)

USPC 604/378, 367, 368, 370, 372, 374, 375,
604/377, 385.101; 162/12, 157.2, 158;
156/265, 62.2, 305

(73) Assignee: **GLATFELTER FALKENHAGEN
GMBH**, Pritzwalk (DE)

See application file for complete search history.

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 467 days.

(56) **References Cited**

U.S. PATENT DOCUMENTS

(21) Appl. No.: **13/575,725**

5,378,528 A 1/1995 Makoui
5,607,414 A * 3/1997 Richards et al. 604/378

(22) PCT Filed: **Jan. 28, 2011**

(Continued)

(86) PCT No.: **PCT/EP2011/000391**

FOREIGN PATENT DOCUMENTS

§ 371 (c)(1),
(2), (4) Date: **Jul. 27, 2012**

DE 199 18 343 10/2000
DE 102 32 078 3/2004

(Continued)

(87) PCT Pub. No.: **WO2011/092025**

Primary Examiner — Jacqueline Stephens

PCT Pub. Date: **Aug. 4, 2011**

(74) *Attorney, Agent, or Firm* — Blank Rome LLP

(65) **Prior Publication Data**

US 2012/0302983 A1 Nov. 29, 2012

(57) **ABSTRACT**

(30) **Foreign Application Priority Data**

Jan. 28, 2010 (DE) 10 2010 006 228

The invention relates to an absorbent structure having a sequence of layers, comprising at least one first and one second outer layer and at least one liquid storage layer arranged therebetween, wherein the layers are arranged on top of each other and form a layer structure, wherein at least the liquid storage layer comprises a cellulose material, preferably cellulose fibers, and a super-absorbent polymer SAP, preferably SAP particles and/or SAP fibers, wherein the liquid storage layer comprises at least less, preferably no, binder than liquid-storing layers of the absorbent structure adjacent to the liquid storage layer. The absorbent structure has particularly high flexibility in the wet and the dry state. It can preferably be used in disposable items. The invention further relates to a method for producing the absorbent structure and to a device for producing same.

(51) **Int. Cl.**

A61F 13/15 (2006.01)
A61L 15/60 (2006.01)

(Continued)

(52) **U.S. Cl.**

CPC **A61L 15/60** (2013.01); **A61F 13/15658**
(2013.01); **A61F 13/534** (2013.01);
(Continued)

(58) **Field of Classification Search**

CPC . A61F 13/539; A61F 13/537; A61F 13/5116;

19 Claims, 9 Drawing Sheets

