

Title (en)
PAPER SHEET AND METHOD FOR MANUFACTURING PAPER SHEET

Title (de)
PAPIERBOGEN UND VERFAHREN ZUR HERSTELLUNG EINES PAPIERBOGENS

Title (fr)
FEUILLE DE PAPIER ET PROCÉDÉ DE FABRICATION D'UNE FEUILLE DE PAPIER

Publication
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Application
EP 17881628 A 20171011

Priority
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Abstract (en)
[origin: EP3556937A1] A paper sheet includes: cellulose ester staple fibers; pulp fibers; and a binder. A plurality of creped portions are formed on a surface of the paper sheet, such that the creped portions are arranged in a flow direction of the cellulose ester staple fibers and the pulp fibers and extend in an orthogonal direction orthogonal to the flow direction.

IPC 8 full level
D21H 13/06 (2006.01); **A24D 3/10** (2006.01)

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Citation (opposition)
Opponent : Zwicker Schnappauf & Partner Patentanwälte PartG mbB
• US 2015164134 A1 20150618 - TANIGUCHI HIROKI [JP], et al
• US 5927287 A 19990727 - MATSUMURA HIROYUKI [JP], et al
• EP 0745336 A2 19961204 - DAICEL CHEM [JP]
• US 5711322 A 19980127 - TSUGAYA HITOSHI [JP], et al
• EP 2610051 A2 20130703 - GEORGIA PACIFIC CONSUMER PROD [US]
• EP 0464470 B1 19960918 - GESSNER & CO GMBH [DE]
• US 3014832 A 19611226 - DONNELLY HAROLD F
• US 5865950 A 19990202 - VINSON KENNETH DOUGLAS [US], et al
• US 2004144510 A1 20040729 - MAULER DIRK [DE]
• KIFFE PAUL J: "A Comparison of Fiber Orientation on Fourdrinier and Verti-Forma Paper Machines Using the Instron Tensile Tester ", WESTERN MICHIGAN UNIVERSITY, 1 January 1970 (1970-01-01), pages 1 - 33, XP055873291, Retrieved from the Internet <URL:https://scholarworks.wmich.edu/cgi/viewcontent.cgi?article=1204&context=engineer-senior-theses> [retrieved on 20211215]

Cited by
US2020063365A1; US2020063371A1; US11519132B2; US11396726B2; US11421385B2; US11390991B2; US11313081B2; US11401659B2; US11492755B2; US11414791B2; US11492757B2; US11401660B2; US11466408B2; US11525215B2; US11639579B2; US11306433B2; US11408128B2; US11421387B2; US11390996B2; US11230811B2; US11441267B2; US11332888B2; US11530516B2; US11286619B2; US11414818B2; US11299854B2; US11339537B2; US11332885B2; US11420784B2; US11479919B2; US11492756B2; US11512433B2

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