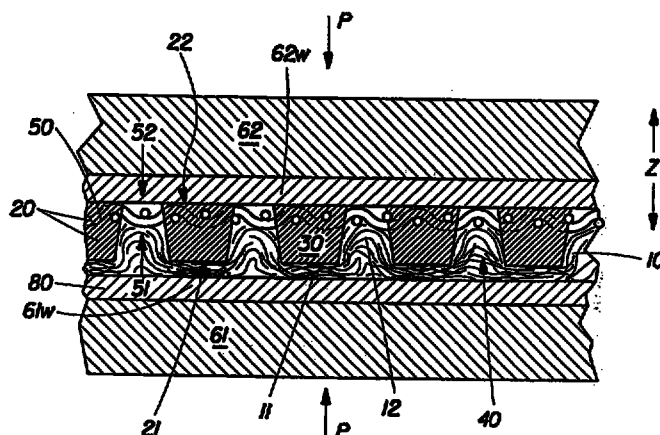




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(21) International Application Number: PCT/US98/11013 (22) International Filing Date: 29 May 1998 (29.05.98) (30) Priority Data: 08/870,535 6 June 1997 (06.06.97) US (71) Applicant: THE PROCTER & GAMBLE COMPANY [US/US]; One Procter & Gamble Plaza, Cincinnati, OH 45202 (US). (72) Inventors: TROKHAN, Paul, Dennis; 1356 Warval Road, Hamilton, OH 45013 (US). RICHARDS, Mark, Ryan; 2912 Elmo Place, Middletown, OH 45042 (US). STELLJES, Michael, Gomer, Jr.; 8354 Ashley Hall Court, West Chester, OH 45069 (US). (74) Agents: REED, T., David et al.; The Procter & Gamble Company, 5299 Spring Grove Avenue, Cincinnati, OH 45217 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i>

(54) Title: DIFFERENTIAL DENSITY CELLULOSIC STRUCTURE AND PROCESS FOR MAKING SAME



(57) Abstract

A differential density single lamina web of cellulosic fibers is disclosed. The web comprises at least two pluralities of micro-regions disposed in a non-random and repeating pattern: a first plurality of high density regions and a second plurality of low density regions. The high density regions comprise cellulosic fibers comprising fluid latent indigenous polymers (FLIP), such as hemicelluloses and lignin. The fibers of the high-density regions are FLIP-bonded, i.e., bonded together by a process of softening, flowing and immobilization of the FLIP between the cellulosic fibers of the high density regions. The process for making the web comprises the steps of providing a plurality of papermaking fibers comprising FLIP; providing a macroscopically monoplanar papermaking belt (20) having a web-facing surface (21) and deflection conduits (40); depositing the plurality of the cellulosic fibers on the papermaking belt (20) to form a web; heating the web to a temperature sufficient to cause the FLIP contained in a first portion associated with the web-facing surface of the belt to soften; impressing the web-side surface of the belt into the web (21); immobilizing the flowable FLIP and creating FLIP-bonds between the fibers comprising the first portion of the web.