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61/900,923 6 November 2013 (06.11.2013) US(71) Applicant: **3M INNOVATIVE PROPERTIES COMPANY** [US/US]; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US).(72) Inventors: **TARNOWSKI, Catherine, P.**; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). **JOHNSON, David, A.**; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). **BAR-TON, Roger, W.**; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). **JOHNSON, Larry, L.**; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). **O'HARE, Jonathan, J.**; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). **RATTRAY, Tyler, J.**; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). **LENTZ, Daniel, M.**; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). **TOKIE, Jeffrey, H.**; 3M Center, Post Office Box 33427, SaintPaul, Minnesota 55133-3427 (US). **FREY, Matthew, H.**; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). **PEKUROVSKY, Mikhail, L.**; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US).(74) Agents: **BAKER, James, A.** et al.; 3M Center Office of Intellectual Property Counsel, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US).(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

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(54) Title: MICROCONTACT PRINTING STAMPS WITH FUNCTIONAL FEATURES

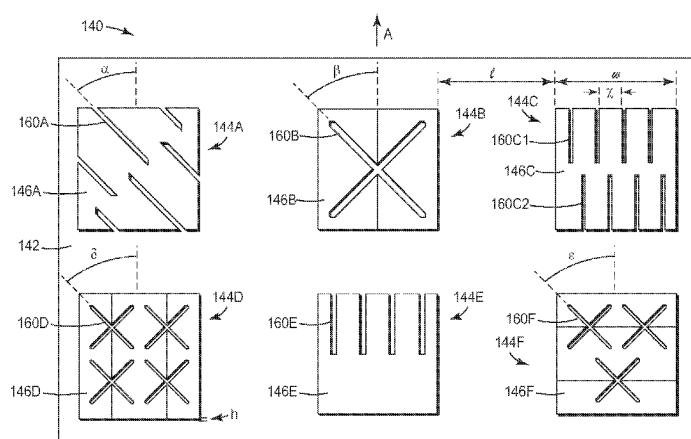


FIG. 4A

(57) Abstract: A method includes providing an elastomeric stamp including a stamping surface with a first pattern element having a fill factor of 20 to 99 percent and including a continuous region and at least one discontinuous region, the discontinuous region including at least one of: (1) one or more elongated concavities, and (2) one or more interior voids. A second pattern element of the stamping surface has a fill factor of 0.25 to 10 percent, and includes traces with a width from 0.1 micrometers to 50 micrometers. The stamping surface is inked with an ink composition including a functionalizing molecule with a functional group selected to bind to a surface of the ink-receptive material. The inked stamping surface is contacted with an ink-receptive material selected from a sheet or a web for a contact time sufficient to bind the functional group with the surface of the ink-receptive material to form a self-assembled monolayer (SAM) of the functionalizing material.

**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

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