



- (51) International Patent Classification:
G01N 21/84 (2006.01) *G01J 3/50* (2006.01)
- (21) International Application Number:
PCT/US2013/060632
- (22) International Filing Date:
19 September 2013 (19.09.2013)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
61/702,959 19 September 2012 (19.09.2012) US
13/832,088 15 March 2013 (15.03.2013) US
- (71) Applicant: PPG INDUSTRIES OHIO, INC. [US/US];
3800 West 143rd Street, Cleveland, Ohio 44111 (US).
- (72) Inventors: BEYMORE, Paul Michael; 341 Portland
Drive, Vermilion, Ohio 44089 (US). PEREKSTA, James;
22656 Locust Lane, Rocky River, Ohio 44116 (US).

- (74) Agents: TREBILCOCK, Christine W. et al.; PPG Industries, Inc., One PPG Place, 39th Floor, Pittsburgh, Pennsylvania 15272 (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, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, 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, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,

[Continued on next page]

- (54) Title: MULTI-ANGULAR COLOR, OPACITY, PIGMENT CHARACTERIZATION AND TEXTURE ANALYSIS OF A PAINTED SURFACE VIA VISUAL AND/OR INSTRUMENTAL TECHNIQUES

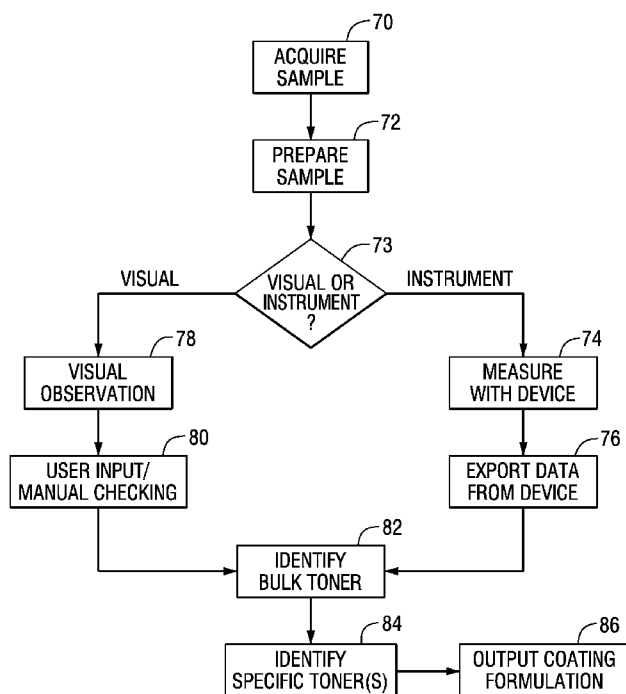


FIG. 7

- (57) Abstract: A computer implemented method. The method includes performing (73) at least one of a visual evaluation and an instrument measurement of a target coating on a target sample to generate colorimetric information, and identifying (82), using a processor, a bulk toner that is present in the target coating by determining a color and a color intensity at different viewing angles relative to the target sample. The method also includes identifying (84), using the processor, at least one specific toner that is present in the target coating by detecting a presence and an orientation of colored and/or non-colored pigmentation effects that are present in the target coating, and outputting (86), using the processor, a formulation of the target coating that includes at least the at least one specific toner.



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).

— *as to the applicant's entitlement to claim the priority of
the earlier application (Rule 4.17(iii))*

Published:

— *with international search report (Art. 21(3))*

Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted
a patent (Rule 4.17(ii))*