

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
08 August 2019 (08.08.2019)



(10) International Publication Number
WO 2019/152933 A1

- (51) **International Patent Classification:**
C03C 17/36 (2006.01)
- (21) **International Application Number:**
PCT/US2019/016524
- (22) **International Filing Date:**
04 February 2019 (04.02.2019)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
62/626,332 05 February 2018 (05.02.2018) US
16/265,878 01 February 2019 (01.02.2019) US
- (71) **Applicant: VITRO FLAT GLASS LLC** [US/US]; 400
Guys Run Road, Cheswick, Pennsylvania 15024 (US).
- (72) **Inventors: FISHER, Patrick;** 8595 Harvest Manor Drive,
Pittsburgh, Pennsylvania 15237-4158 (US). **MEDWICK,**
Paul, A.; 10114 Deer View Point, Wexford, Pennsylvania
15090 (US). **MCCAMY, James, W.;** 6061 Sinan Drive,
Export, Pennsylvania 15632 (US).
- (74) **Agent: FORTNEY, Lester, N.;** The Webb Law Firm, One
Gateway Center, 420 Ft. Duquesne Blvd., Suite 1200, Pitts-
burgh, Pennsylvania 15222 (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, DJ, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP,
KR, KW, 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).

Published:
— with international search report (Art. 21(3))

(54) **Title:** SOLAR CONTROL COATINGS WITH QUADRUPLE METALLIC LAYERS

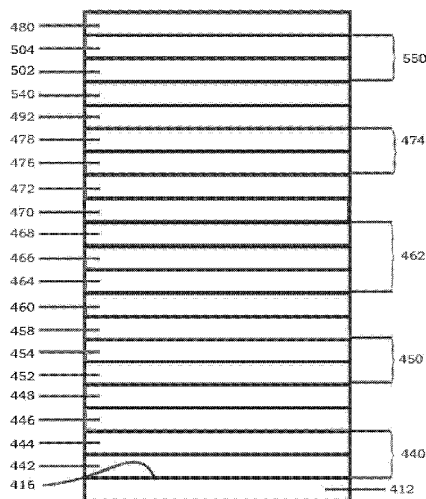


FIG. 6

(57) **Abstract:** A coated article includes a substrate, a first dielectric layer, a first metallic layer, a second dielectric layer, a second metallic layer, a third dielectric layer, a third metallic layer, a fourth dielectric layer, a fourth metallic layer and a fifth dielectric layer. At least one of the metallic layers is a discontinuous metallic layer having discontinuous metallic regions. An optional primer is positioned over any one of the metallic layers. Optionally a protective layer is provided as the outer most layer over the fifth dielectric layer.