

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
28 September 2023 (28.09.2023)



(10) International Publication Number
WO 2023/183282 A1

(51) International Patent Classification:

C04B 18/20 (2006.01) *C04B 18/02* (2006.01)
C04B 7/00 (2006.01) *C04B 20/10* (2006.01)
C04B 16/04 (2006.01) *E04C 5/07* (2006.01)
C04B 16/12 (2006.01)

(21) International Application Number:

PCT/US2023/015739

(22) International Filing Date:

21 March 2023 (21.03.2023)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/322,193 21 March 2022 (21.03.2022) US
63/478,873 06 January 2023 (06.01.2023) US

(71) Applicant: **MAA'VA INC.** [US/US]; 5730 West Centinela Ave, Unit 405, Los Angeles, CA 90045 (US).

(72) Inventors: **MEHRANNEZHAD, Marieh**; C/o Maa'va Inc., 5730 West Centinela Ave, Unit 405, Los Angeles, CA 90045 (US). **BLESZYNSKI, Monika**; C/o Maa'va Inc., 5730 West Centinela Ave, Unit 405, Los Angeles, CA 90045 (US). **SMITH, Torrey**; C/o Maa'va Inc., 5730 West Centinela Ave, Unit 405, Los Angeles, CA 90045 (US). **BRAND, Russell**; C/o Maa'va Inc., 5730 West Centinela Ave, Unit 405, Los Angeles, CA 90045 (US).

(74) Agent: **MORATH, Daniel, J.** et al.; Patent Law Works LLP, 4516 South, 700 East, Suite 290, Salt Lake City, UT 84107 (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,

(54) Title: SHAPED AGGREGATE REINFORCEMENTS FOR CONCRETE

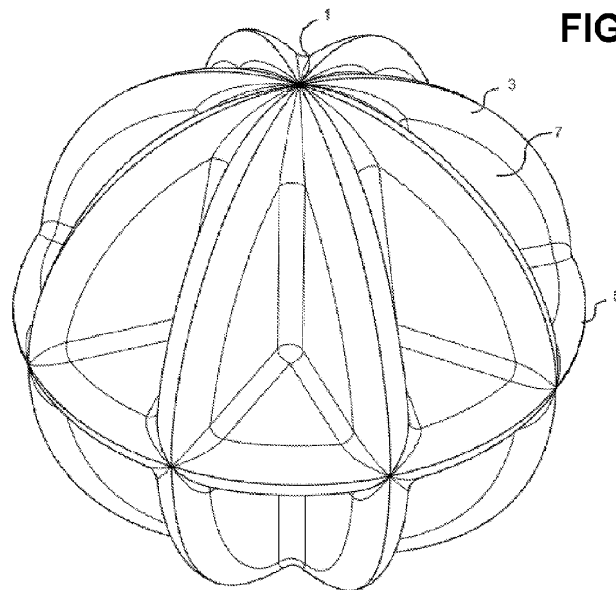


FIG. 1

(57) **Abstract:** The present disclosure relates generally to shaped aggregate particles and reinforcement for concrete. Specifically, but without limitation, the disclosure relates to plastic shaped aggregate particles. The plastic shaped aggregate particles may be made of/ from recycled plastic. Such shaped aggregate particles may contain recycled and non-recycled glass fibers and particles, silica, or similar materials and/or combinations. The morphologies of the shaped aggregate particles include, but are not limited to, spherical particles, spiral structures, elongated ellipsoids, fibers, connected structures, spherical burst patterns, or similar structures such as tetrahedrons, rectangular prisms, and pyramids. The shaped aggregate particles may be made of recycled plastic waste and used with and without discontinuous glass fibers and/or similar materials such as chopped glass fibers and glass particles, for use in concrete applications as a filler and support.

[Continued on next page]



WO 2023/183282 A1

CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG,
KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY,
MA, MD, MG, MK, MN, MU, 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, ST, SV, SY, TH,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS,
ZA, ZM, ZW.

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, 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, ME, 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))