



- (51) International Patent Classification:
H04L 29/06 (2006.01)
- (21) International Application Number:
PCT/US2018/013861
- (22) International Filing Date:
16 January 2018 (16.01.2018)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
62/607,453 19 December 2017 (19.12.2017) US
15/866,266 09 January 2018 (09.01.2018) US
15/866,280 09 January 2018 (09.01.2018) US
15/866,290 09 January 2018 (09.01.2018) US
- (71) Applicant: **TBCASOFT, INC.** [US/US]; 440 N. Wolfe Road, Sunnyvale, California 94085 (US).
- (72) Inventors: **WU, William**; c/o TBCASoft, Inc., 440 N. Wolfe Road, Sunnyvale, California 94085 (US). **LI, Chih-ahsin**; c/o TBCASoft, Inc., 440 N. Wolfe Road, Sunnyvale, California 94085 (US). **WU, Ling**; c/o TBCASoft, Inc., 440 N. Wolfe Road, Sunnyvale, California 94085 (US).
- (74) Agent: **OKAMOTO, James K** et al.; Okamoto & Benedicto LLP, P. O. Box 641330, San Jose, California 95164-1330 (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,

(54) Title: METHODS AND APPARATUS FOR CROSS-LEDGER TRANSFERS BETWEEN DISTRIBUTED LEDGERS AND SYSTEMS USING CROSS-LEDGER TRANSFERS

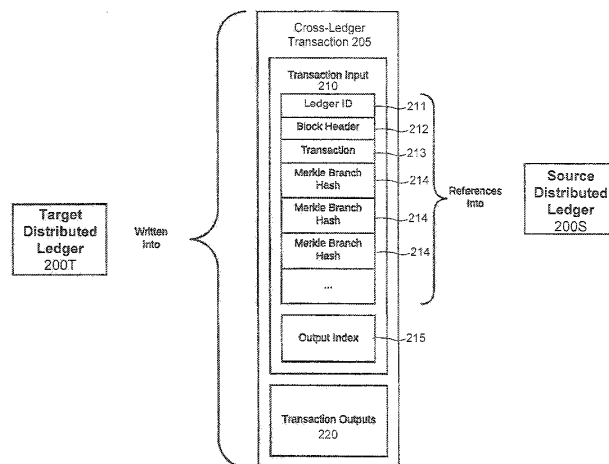


FIG. 2

(57) Abstract: The presently-disclosed solution provides cross-ledger transfers between distributed ledgers to achieve highly-scalable transaction throughput. Disclosed are methods and instruction code for writing a cross-ledger transfer (400) in a way that effectively transfers value from a source distributed ledger (200S) to a target distributed ledger (200T) while preventing double spending of the value. This results in the transformation of the ledgers in that the total value in the source ledger is decreased by the transferred value while the total value in the target ledger is increased by the same amount. Also disclosed are system architectures (500 and 700) that utilize cross-ledger transfers between multiple distributed ledgers to achieve highly-scalable transaction throughput. Also disclosed are computer apparatus (510 and 610) configured to implement cross-ledger transfers between distributed ledgers. Other embodiments and

[Continued on next page]

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))