



(51) International Patent Classification:

H04L 9/32 (2006.01) H04L 9/08 (2006.01)
H04L 9/00 (2006.01) G06Q 20/38 (2012.01)

(21) International Application Number:

PCT/US2024/042546

(22) International Filing Date:

15 August 2024 (15.08.2024)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

202341055317 17 August 2023 (17.08.2023) IN

(71) Applicant: **VISA INTERNATIONAL SERVICE ASSOCIATION** [US/US]; P.O. Box 8999, San Francisco, California 94128 (US).

(72) Inventors: **OZBAY, Mert**; P.O. Box 8999, San Francisco, California 94128 (US). **GU, Wanyun**; P.O. Box 8999, San Francisco, California 94128 (US). **BEDAWALA, Mustafa**; P.O. Box 8999, San Francisco, California 94128 (US). **MINAEI BIDGOLI, Mohammad Mohsen**; P.O. Box 8999, San Francisco, California 94128 (US). **ZAMANI, Mahdi**; P.O. Box 8999, San Francisco, California 94128 (US). **RINDAL, Peter**; P.O. Box 8999, San Francisco, California 94128 (US). **LOPEZ, Eduardo**; P.O. Box 8999, San Francisco, California 94128 (US).

(74) Agent: **JEWIK, Patrick et al.**; 1100 Peachtree Street, NE Suite 2800, Atlanta, Georgia 30309 (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, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,

(54) Title: OFF-CHAIN INTERACTION AND ON-CHAIN PROCESSING USING EXCHANGE

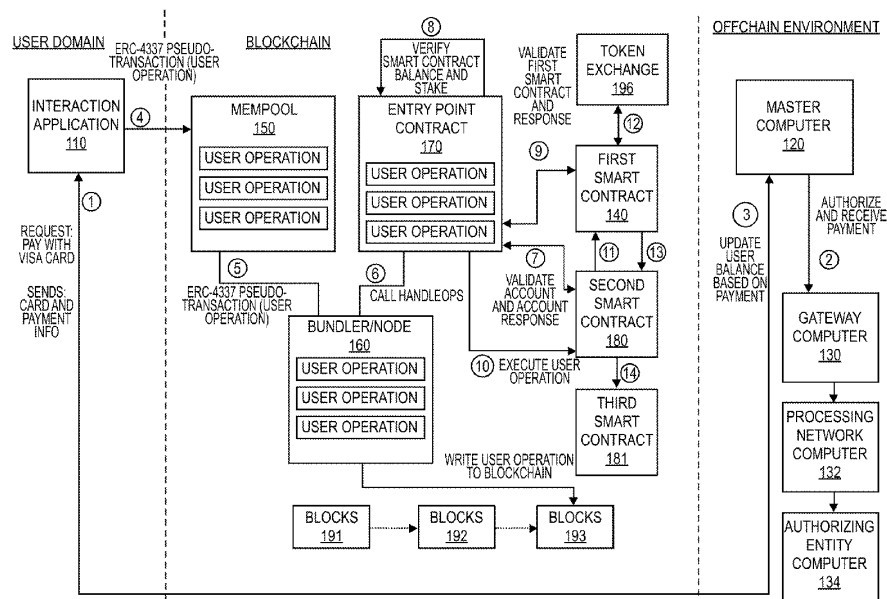


FIG. 2

(57) Abstract: A method is disclosed. The method includes receiving, by a node managing a blockchain, a blockchain transaction request comprising transaction parameters including a master computer digital signature. The method includes verifying, by an entry point smart contract with a second smart contract, at least some of the transaction parameters, and providing to the first smart contract, a signature validation request with the master computer digital signature. The method also includes receiving, by the entry point smart contract from the first smart contract, a signature validation response from the first smart contract. The method includes communicating, by the entry point smart contract with the second smart contract to execute the blockchain transaction request, and calling, by the second smart contract, the first smart contract to request tokens to complete the blockchain transaction. The first smart contract acquires and provides the tokens to an account associated with the second smart contract.

[Continued on next page]

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))*
 - *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*
-