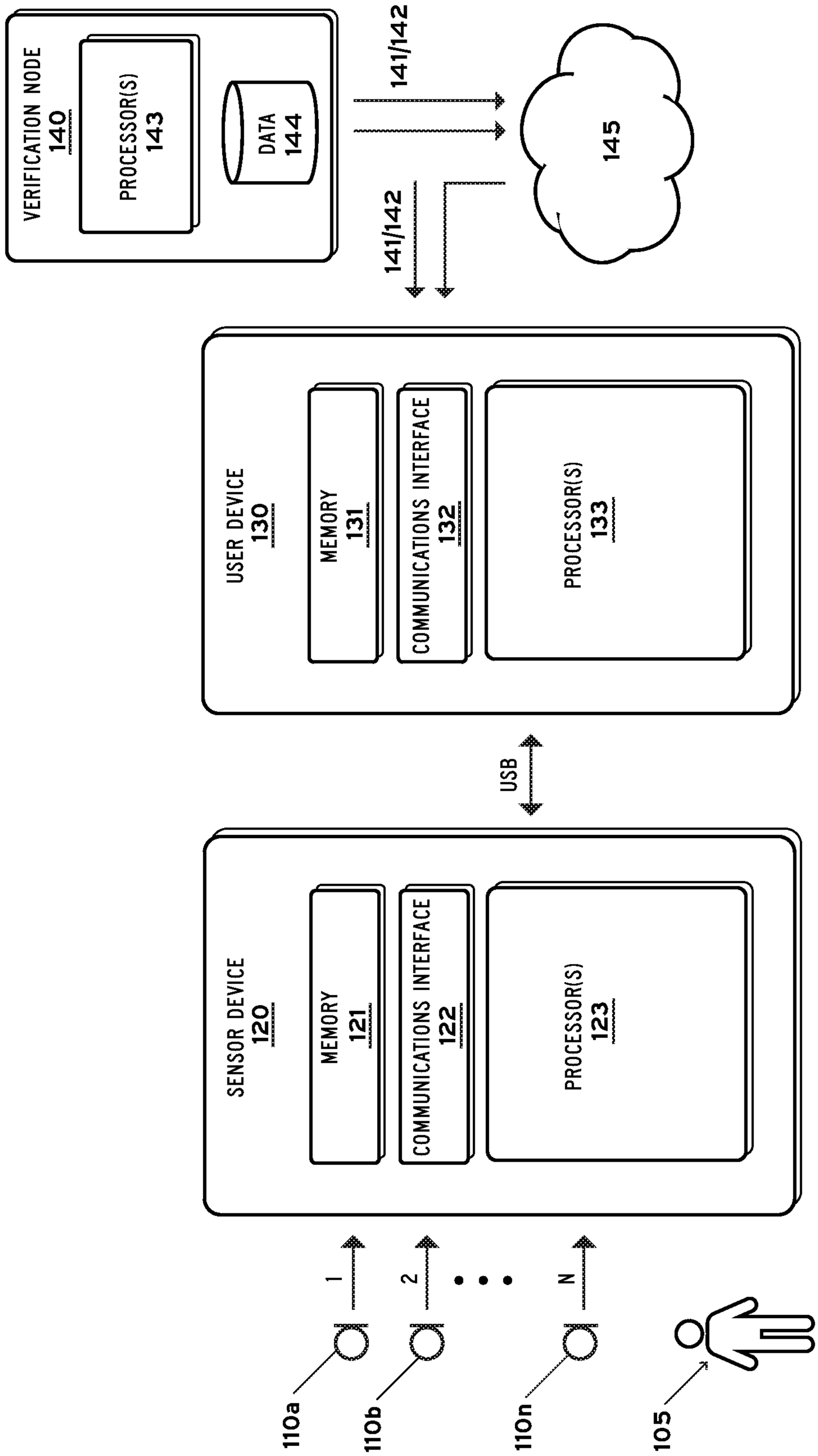

VERIFICATION NODE
140
PROCESSOR(S)
143
DATA
144
141/142
141/142
145
USER DEVICE
130
MEMORY
131
COMMUNICATIONS INTERFACE
132
PROCESSOR(S)
133
USB
SENSOR DEVICE
120
MEMORY
121
COMMUNICATIONS INTERFACE
122
PROCESSOR(S)
123
1
2
N
110a
110b
110n
105

FIG. 1A 100

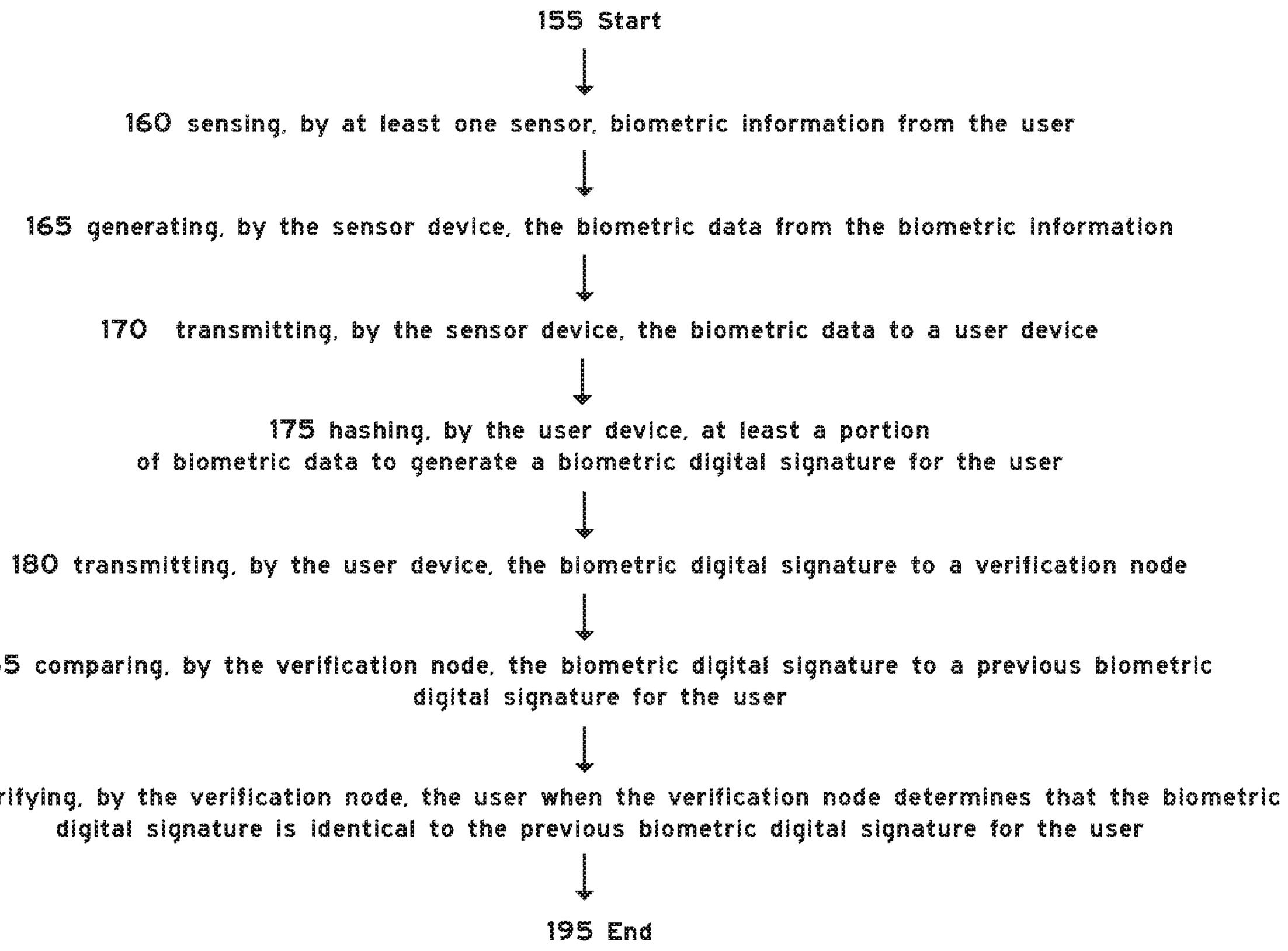

155 Start
160 sensing, by at least one sensor, biometric information from the user
165 generating, by the sensor device, the biometric data from the biometric information
170 transmitting, by the sensor device, the biometric data to a user device
175 hashing, by the user device, at least a portion of biometric data to generate a biometric digital signature for the user
180 transmitting, by the user device, the biometric digital signature to a verification node
185 comparing, by the verification node, the biometric digital signature to a previous biometric digital signature for the user
190 verifying, by the verification node, the user when the verification node determines that the biometric digital signature is identical to the previous biometric digital signature for the user
195 End

FIG. 1B 150

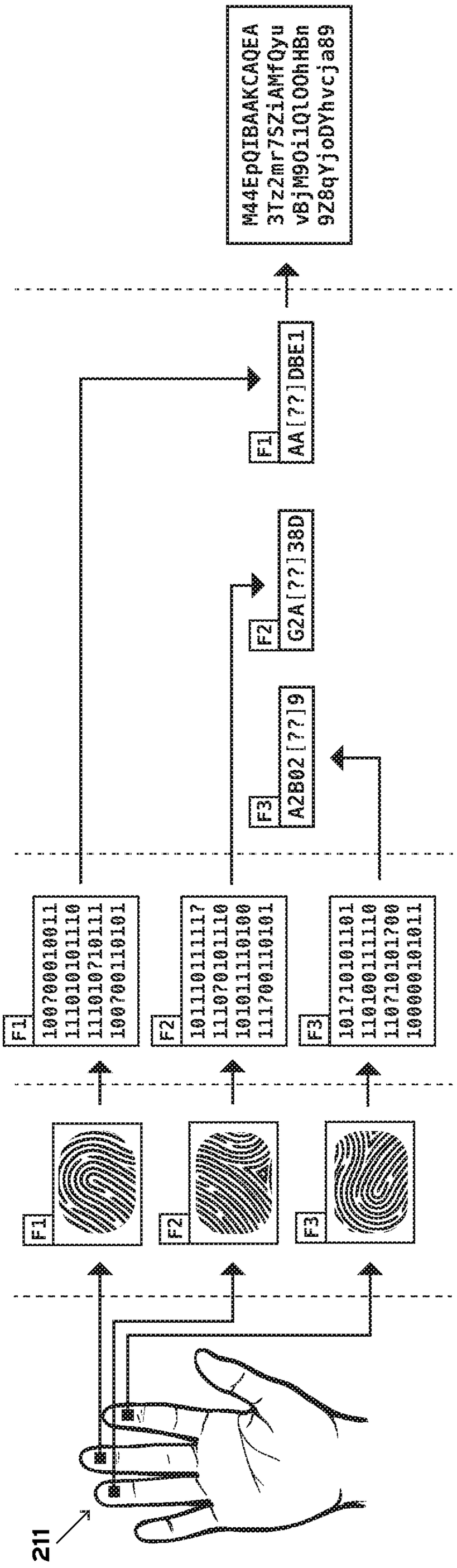

FINGERPRINT SAMPLE
210
211
3 X FINGERPRINT
220
3 X BINARY DATA
230
HEX DATA
240
ECDSA HASHED DIGITAL SIGNATURE
250
F1
F2
F3
100700010011 11101010111110 11101070111 10070011010 1
F1
F2
F3
101110111117 11107010111110 10101111010100 11170011010 1
F1
F3
101710101101 11010011111110 11071010170 1000001010 11
F1
AA[??]DBE1
F2
G2A[??]38D
F3
A2B02[??]9
M44EpQIBAAKCAQEA 3Tz2mr7SZiAMfQyu vBjM9Oi1Ql0OhHBn 9Z8qYjoDYhvcja89

FIG. 2 200

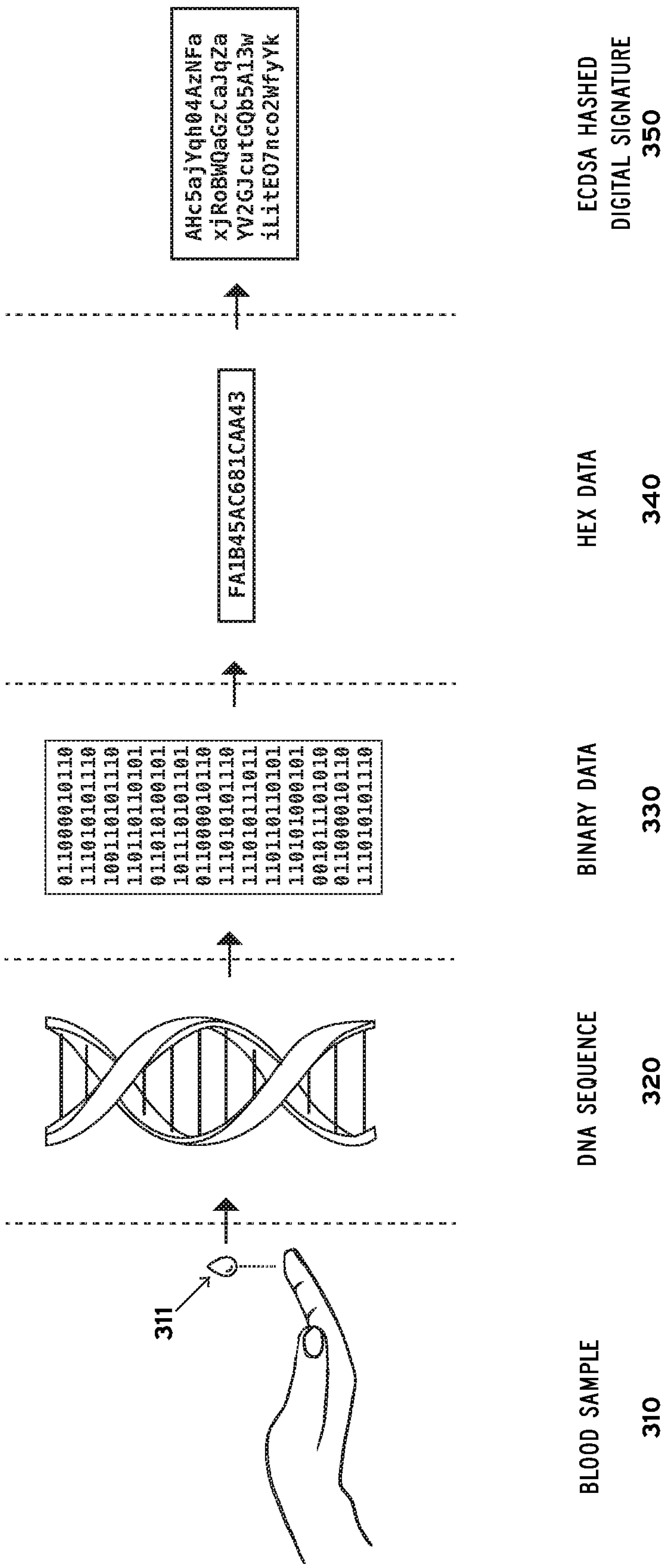

311
BLOOD SAMPLE
310
DNA SEQUENCE
320
011000010110
111010101110
100110101110
110110110101
011010100101
101110101101
011000010110
111010101110
111010111011
110110110101
110101000101
001011101010
011000010110
111010101110
BINARY DATA
330
FA1B45AC681CAA43
HEX DATA
340
AHc5ajYqh04AzNFa
xjRoBWQaGzCaJqZa
YV2GJcutGQb5A13w
iLitEO7nco2WfyYk
ECDSA HASHED
DIGITAL SIGNATURE
350

FIG. 3 300

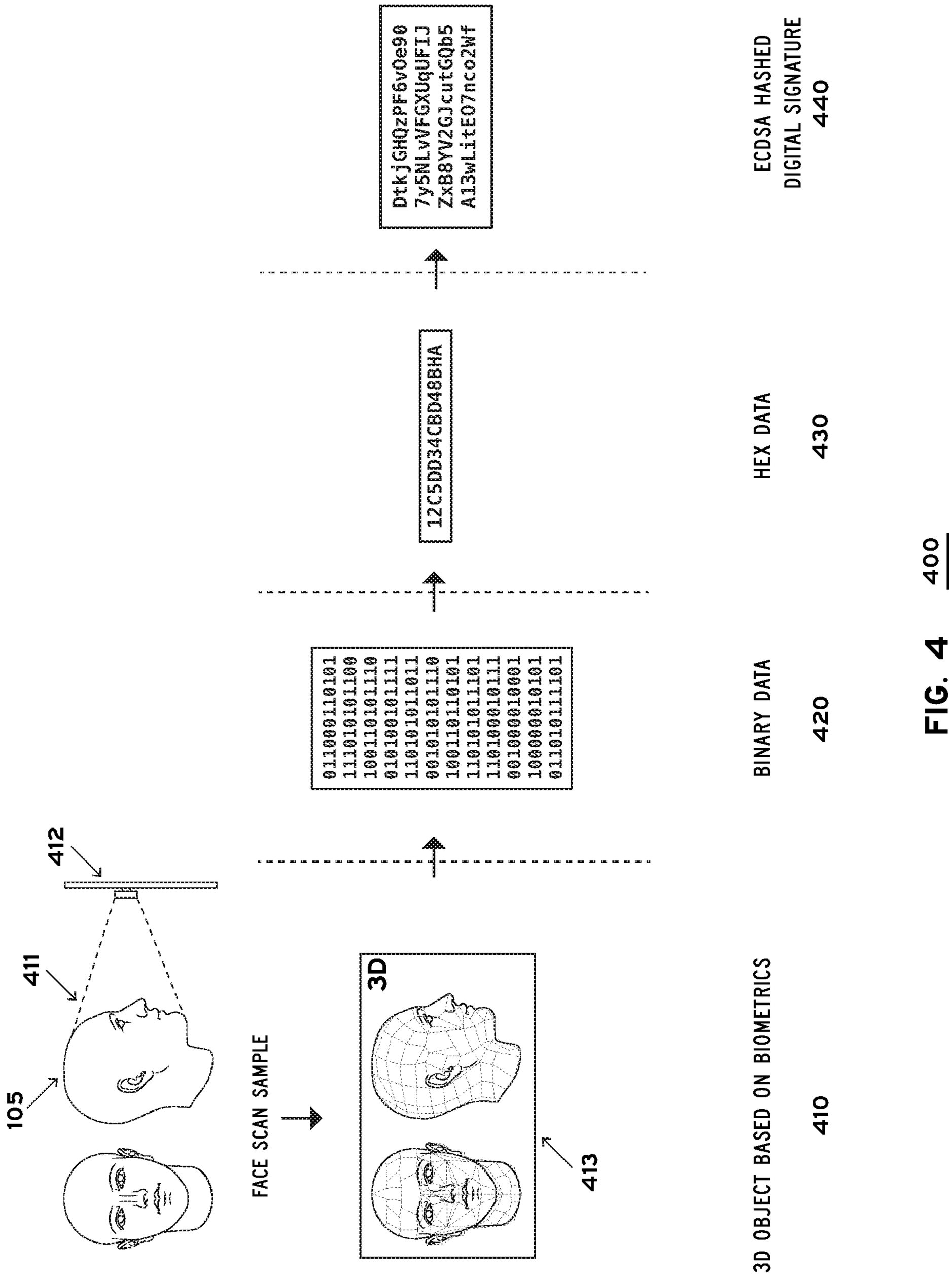

400
410
3D OBJECT BASED ON BIOMETRICS
412
411
105
FACE SCAN SAMPLE
3D
413
420
BINARY DATA
01100011010101
11101010110011
10011010111110
01010010111111
11010110111011
00101010111110
10011011101101
11010110111101
11010001010111
00100000101001
10000001010101
01101011111101
430
HEX DATA
12C5DD34CBD48BHA
440
ECDSA HASHED
DIGITAL SIGNATURE
DtkjGHQzPF6v0e90
7y5NLvVFGXUqUFIJ
Zx88YV2GJcutGQb5
A13wLitEO7nco2Wf

FIG. 4

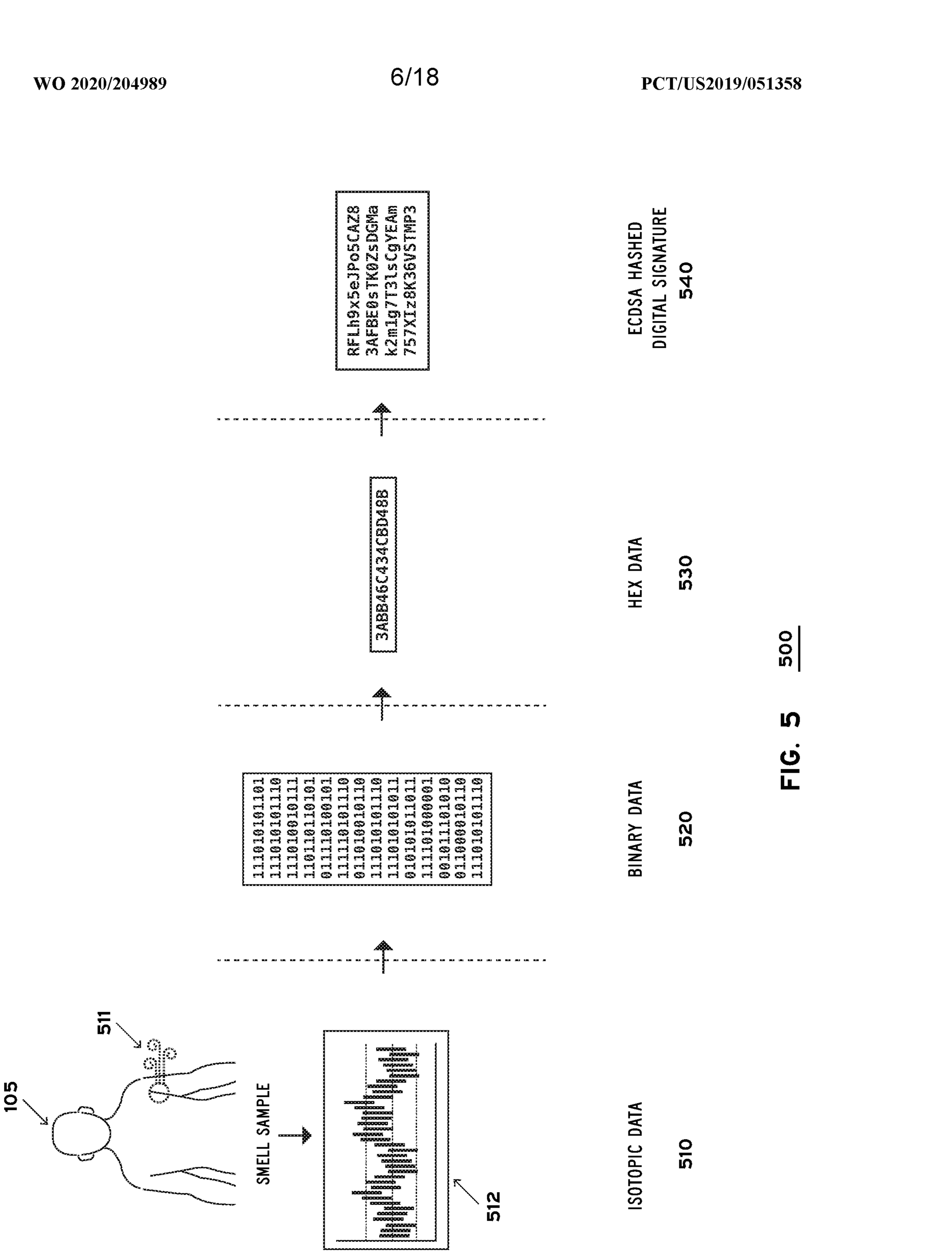

105
511
SMELL SAMPLE
512
ISOTOPIC DATA
510
BINARY DATA
520
HEX DATA
530
ECDSA HASHED
DIGITAL SIGNATURE
540
500
11101101011101
11101101011110
11101001011111
11011011101101
01111010001011
11111010111110
01101001011110
11101101011110
11101010110111
01010110111011
11110100000001
00101111010010
01100001011110
11101101011110
3ABB46C434CBD48B
RFLh9x5eJPo5CAZ8
3AFBE0sTK0ZsDGMa
k2m1g7T3lsCgYEAm
757XIz8K36VSTMP3

FIG. 5

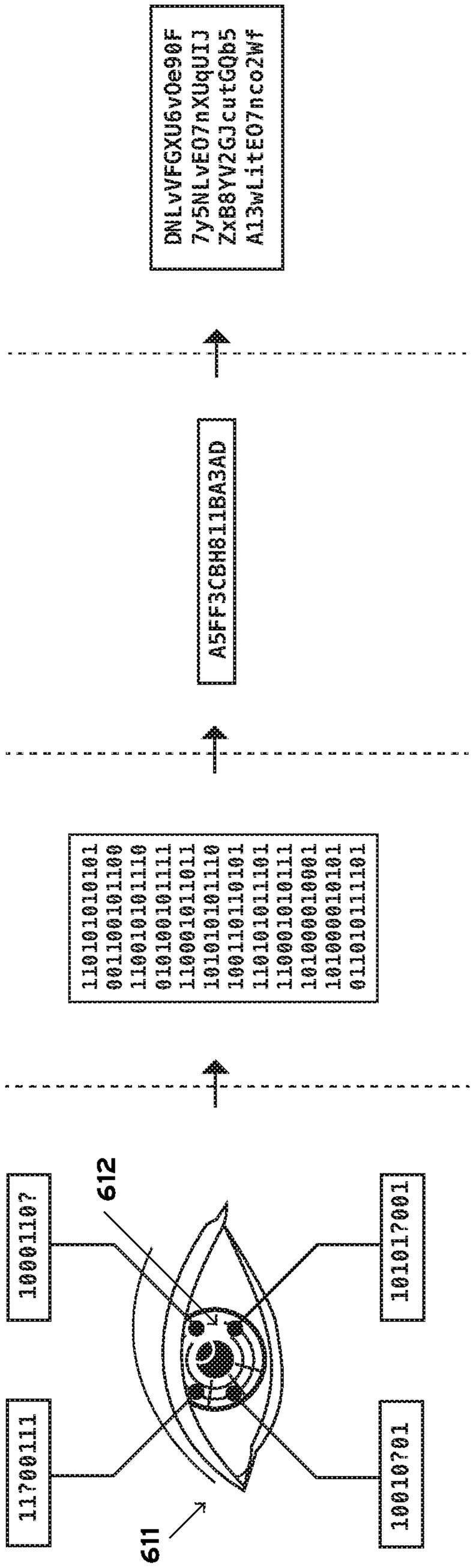

ECDSA HASHED
DIGITAL SIGNATURE
640
DNLvVFGXU6vOe90F
7y5NLvEO7nXUqUIJ
ZxB8YV2GJcutGQb5
A13wLitEO7nco2Wf
HEX DATA
630
A5FF3CBH811BA3AD
BINARY DATA
620
1101010101011
0011001011100
1100101011110
0101001011111
1100010111011
1010101011110
1001101110101
1101010111101
1100010101111
1010000100011
1010000101011
0110101111101
IRIS SCAN
610
10001107
11700111
10101?001
10010?01
612
611

FIG. 6 600

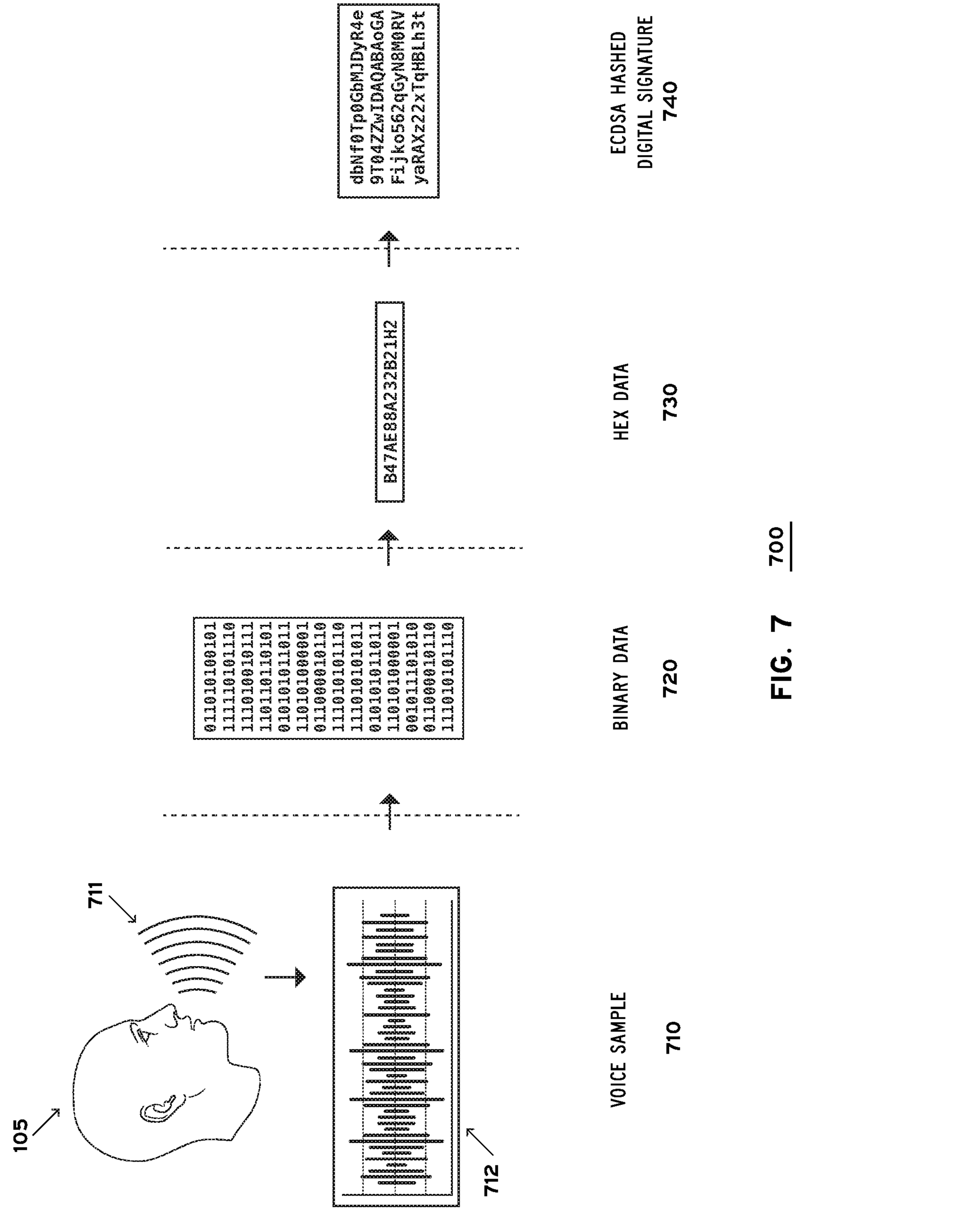

VOICE SAMPLE
710
711
105
712
BINARY DATA
720
HEX DATA
730
ECDSA HASHED
DIGITAL SIGNATURE
740
700
01101010010101
11111101011110
11101001010111
11011101101101
01010101110111
11010100000001
01100001010110
11101011011110
11101010101011
01010101101011
11010100000001
00101111010110
01100001011110
11101011011110
B47AE88A232B21H2
dbNf0Tp0GbMJDyR4e
9T04ZZwIDAQABAoGA
Fijko562qGyN8M0RV
yaRAXz22xTqHBLh3t

FIG. 7

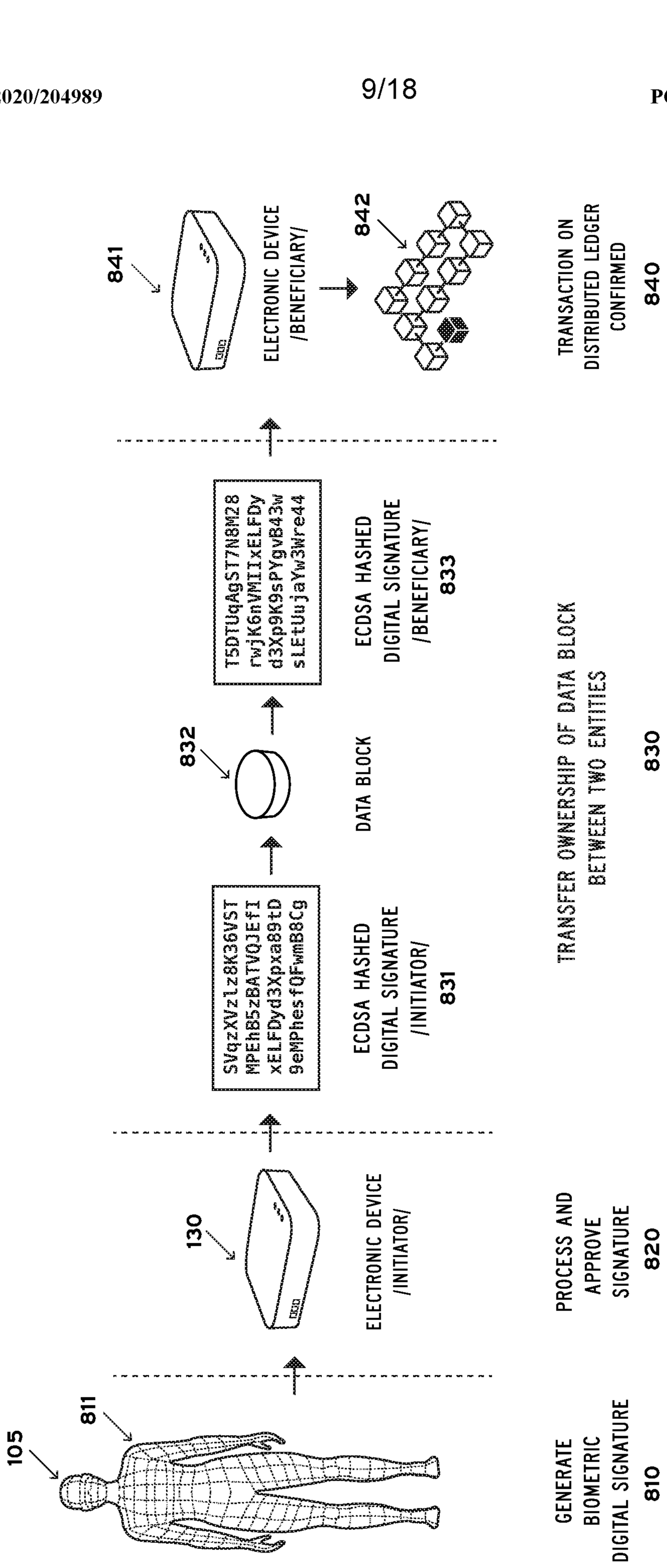
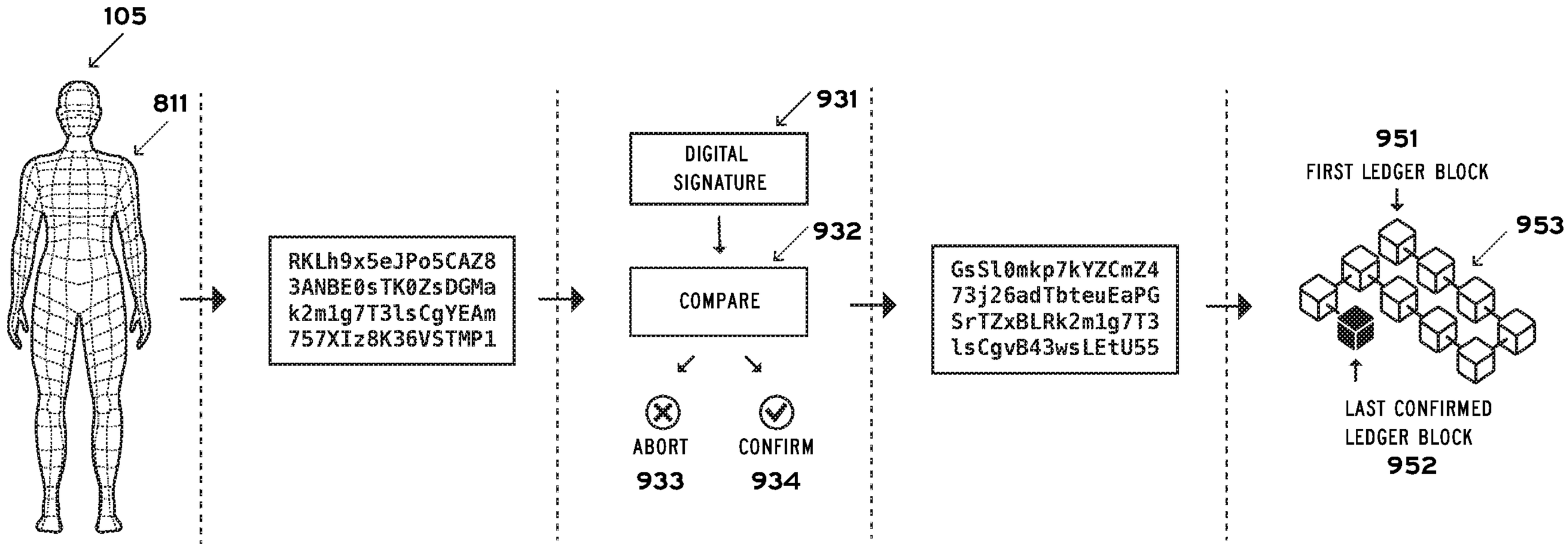

800
GENERATE BIOMETRIC DIGITAL SIGNATURE 810
105
811
PROCESS AND APPROVE SIGNATURE 820
ELECTRONIC DEVICE /INITIATOR/
130
SVqzXVzlz8K36VST MPEhB5zBATVQJEfI xELFDyd3Xpxa89tD 9eMPhesfQFwmB8Cg
ECDSA HASHED DIGITAL SIGNATURE /INITIATOR/ 831
TRANSFER OF OWNERSHIP OF DATA BLOCK BETWEEN TWO ENTITIES 830
DATA BLOCK 832
T5DTUqAgST7N8M28 rwjK6nVMIIxELFDy d3Xp9K9sPYgvB43w sLEtUujaYw3wre44
ECDSA HASHED DIGITAL SIGNATURE /BENEFICIARY/ 833
ELECTRONIC DEVICE /BENEFICIARY/
841
842
TRANSACTION ON DISTRIBUTED LEDGER CONFIRMED 840

FIG. 8



BIOMETRIC DIGITAL SOURCE
910

ECDSA HASHED DIGITAL SIGNATURE /INITIATOR/
920

VERIFICATION PROCESS
930

ECDSA HASHED DIGITAL SIGNATURE /BENEFICIARY/
940

DISTRIBUTED LEDGER UPDATED
950

FIG. 9 900

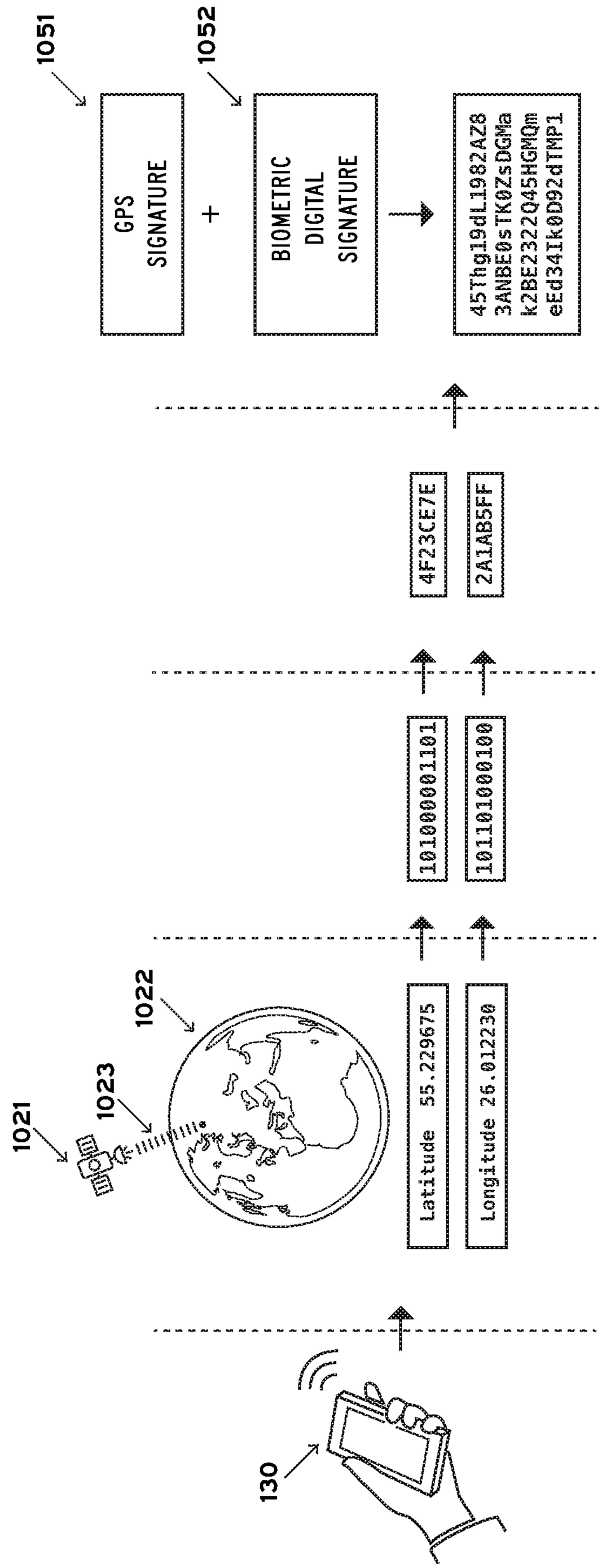

1051
GPS SIGNATURE
+
1052
BIOMETRIC DIGITAL SIGNATURE
45Thg19dL1982AZ8
3ANBE0sTK0ZsDGMa
k2BE2322Q45HGMQm
eEd34Ik0D92dTMP1
GPS SECURE ECDSA HASHED DIGITAL SIGNATURE
1050
4F23CE7E
2A1AB5FF
GPS BASED HEX DATA
1040
1010000011101
10110100001000
GPS DATA ENCODING /BINARY DATA/
1030
1021
1023
1022
Latitude 55.229675
Longitude 26.012230
GPS SIGNAL DETECTION
1020
130
LOCATION BASED KEY GENERATION
1010

FIG. 10 1000

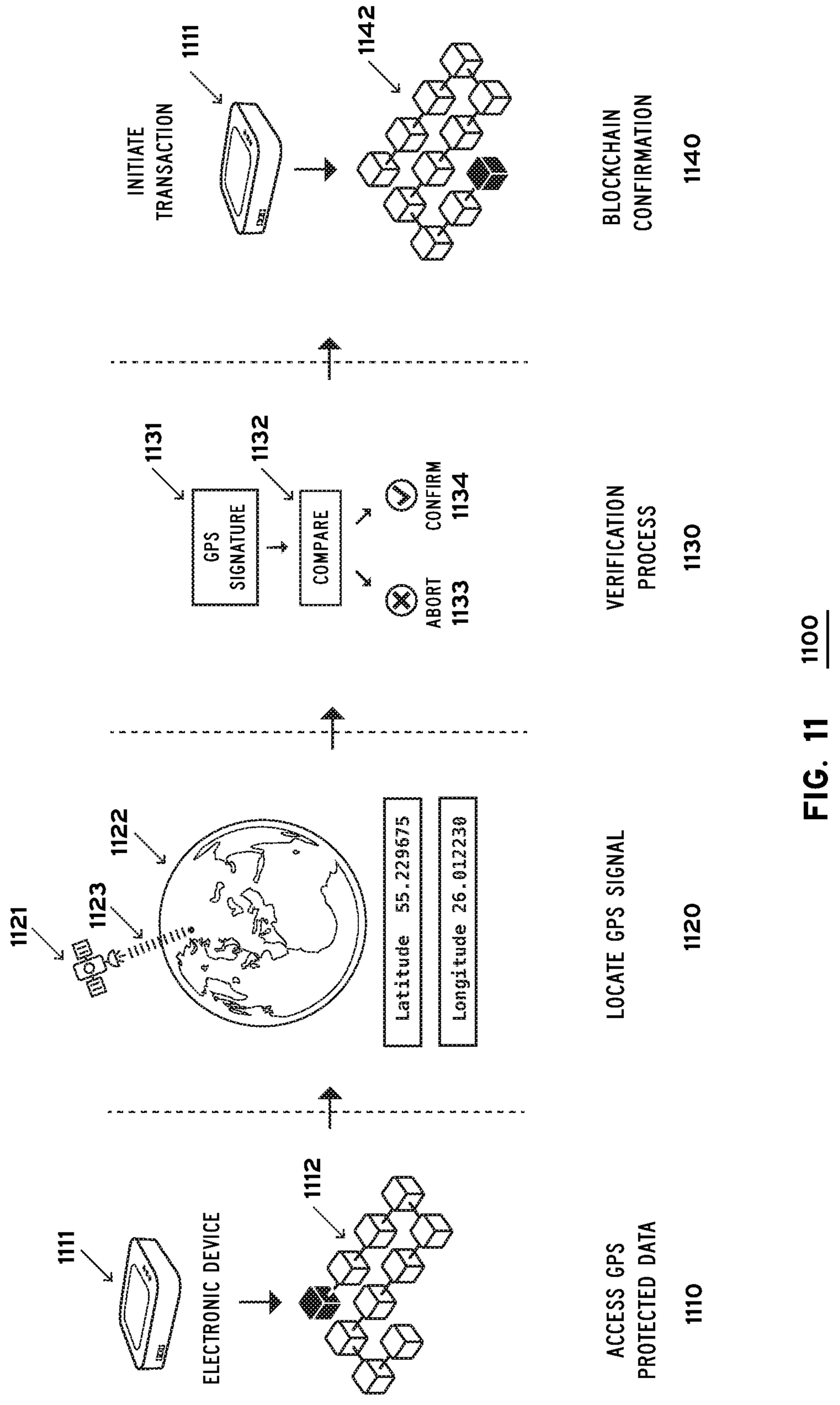

1100
ACCESS GPS PROTECTED DATA
1110
ELECTRONIC DEVICE
1111
1112
LOCATE GPS SIGNAL
1120
Latitude 55.229675
Longitude 26.012230
1121
1122
1123
VERIFICATION PROCESS
1130
GPS SIGNATURE
1131
COMPARE
1132
ABORT
1133
CONFIRM
1134
BLOCKCHAIN CONFIRMATION
1140
INITIATE TRANSACTION
1111
1142

FIG. 11

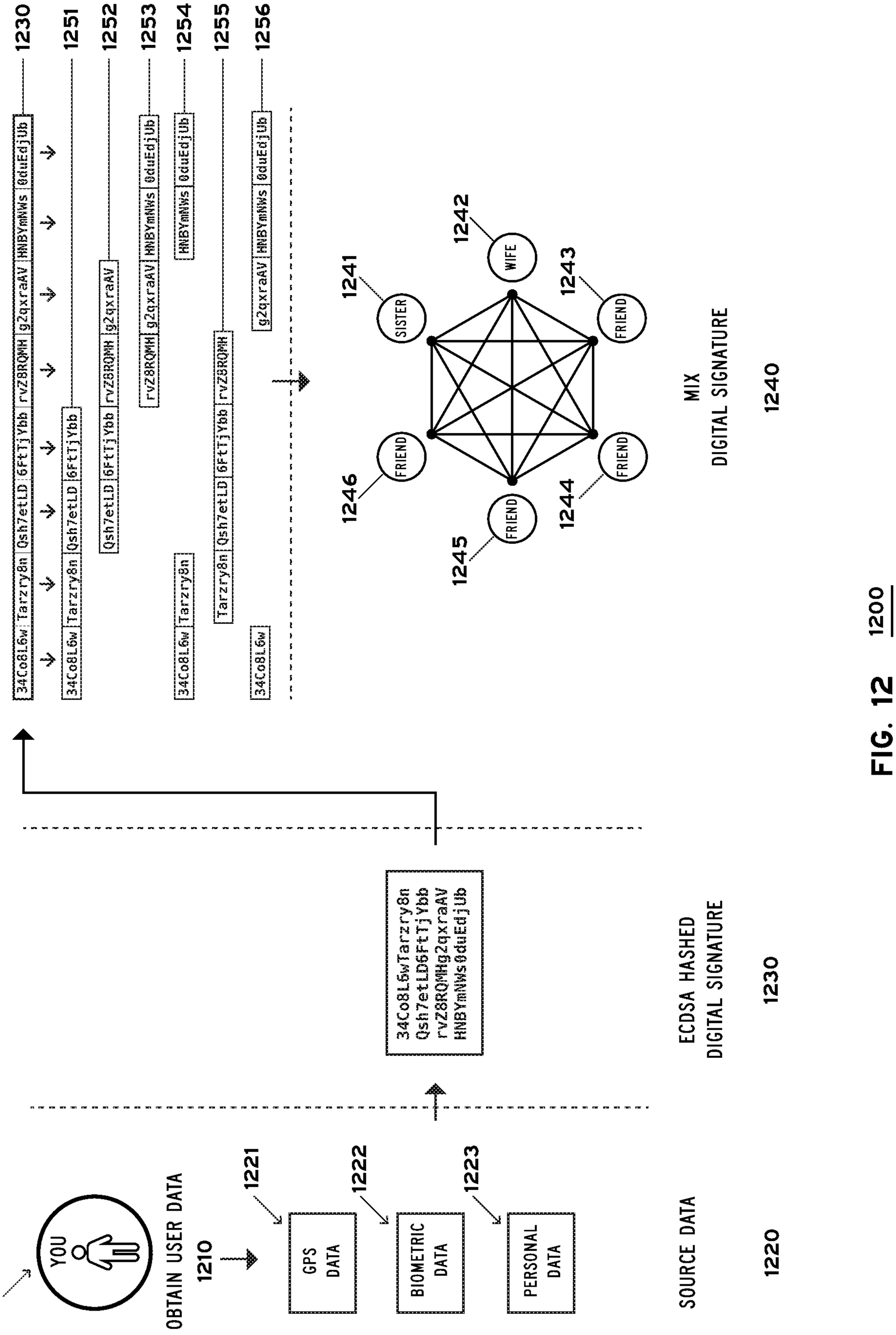

1230
1251
1252
1253
1254
1255
1256
34Co8L6w Tarzry8n Qsh7etLD 6FtTjYbb rvZ8RQMH g2qxraAV HNBYmnNws 0duEdjUb
34Co8L6w Tarzry8n Qsh7etLD 6FtTjYbb
Qsh7etLD 6FtTjYbb rvZ8RQMH g2qxraAV
rvZ8RQMH g2qxraAV HNBYmnNws 0duEdjUb
34Co8L6w Tarzry8n
HNBYmnNws 0duEdjUb
Tarzry8n Qsh7etLD 6FtTjYbb rvZ8RQMH
34Co8L6w
g2qxraAV HNBYmnNws 0duEdjUb
1241
SISTER
1242
WIFE
1243
FRIEND
1246
FRIEND
1245
FRIEND
1244
FRIEND
MIX
DIGITAL SIGNATURE
1240
1200
34Co8L6wTarzry8n
Qsh7etLD6FtTjYbb
rvZ8RQMHg2qxraAV
HNBYmnNws0duEdjUb
ECDSA HASHED
DIGITAL SIGNATURE
1230
105
YOU
OBTAIN USER DATA
1210
1221
GPS DATA
1222
BIOMETRIC DATA
1223
PERSONAL DATA
SOURCE DATA
1220

FIG. 12

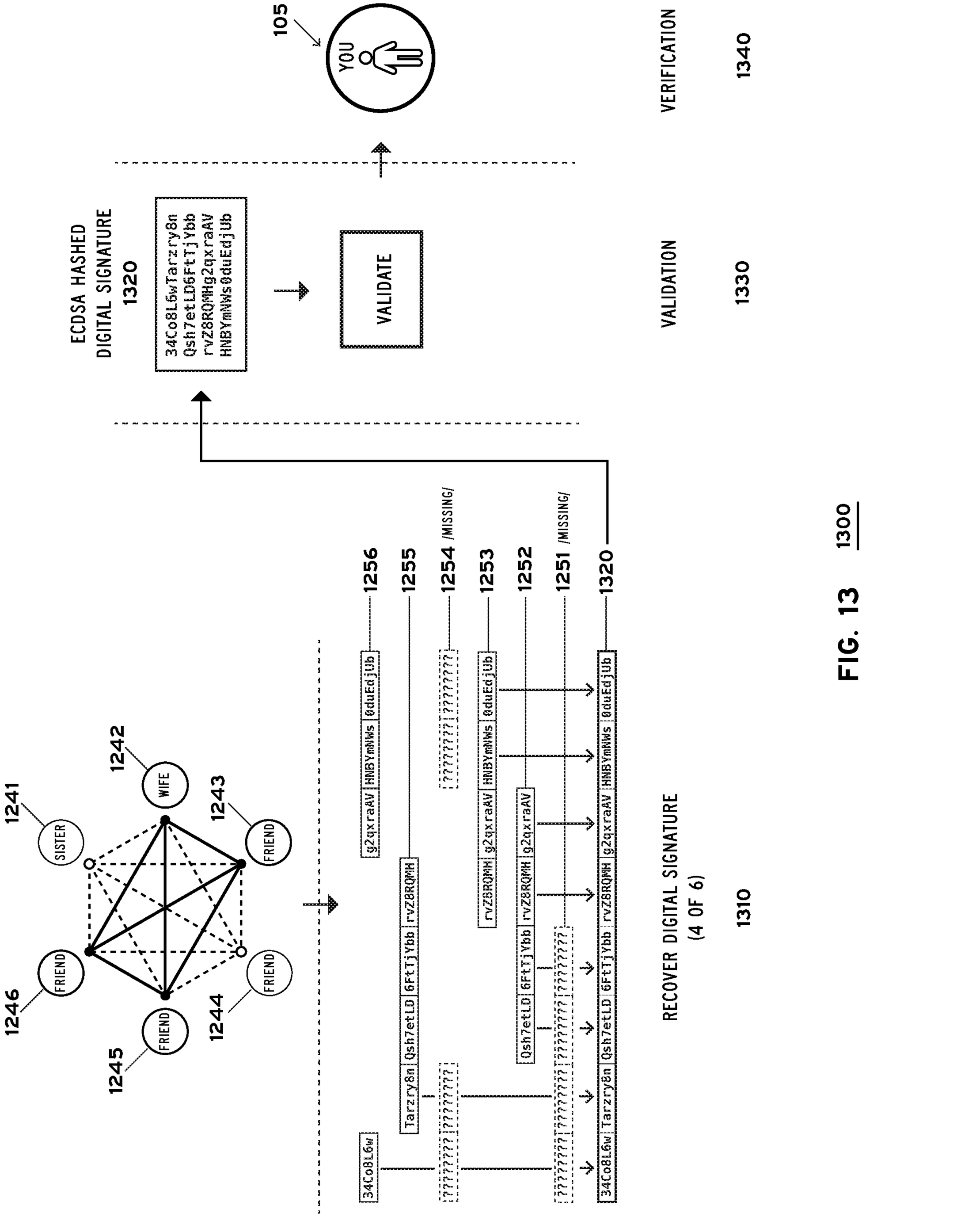

105
YOU
VERIFICATION
1340
ECDSA HASHED
DIGITAL SIGNATURE
1320
34Co8L6wTarzry8n
Qsh7etLD6FtTjYbb
rvZ8RQMHg2qxraAV
HNBYmNWs0duEdjUb
VALIDATE
VALIDATION
1330
1300
1256
1255
1254 /MISSING/
1253
1252
1251 /MISSING/
1320
1241
SISTER
1242
WIFE
1243
FRIEND
1244
FRIEND
1245
FRIEND
1246
FRIEND
g2qxraAV HNBYmNWs 0duEdjUb
rvZ8RQMH Qsh7etLD 6FtTjYbb rvZ8RQMH
rvZ8RQMH g2qxraAV HNBYmNWs 0duEdjUb
Qsh7etLD 6FtTjYbb rvZ8RQMH g2qxraAV
34Co8L6w Tarzry8n
RECOVER DIGITAL SIGNATURE
(4 OF 6)
1310

FIG. 13

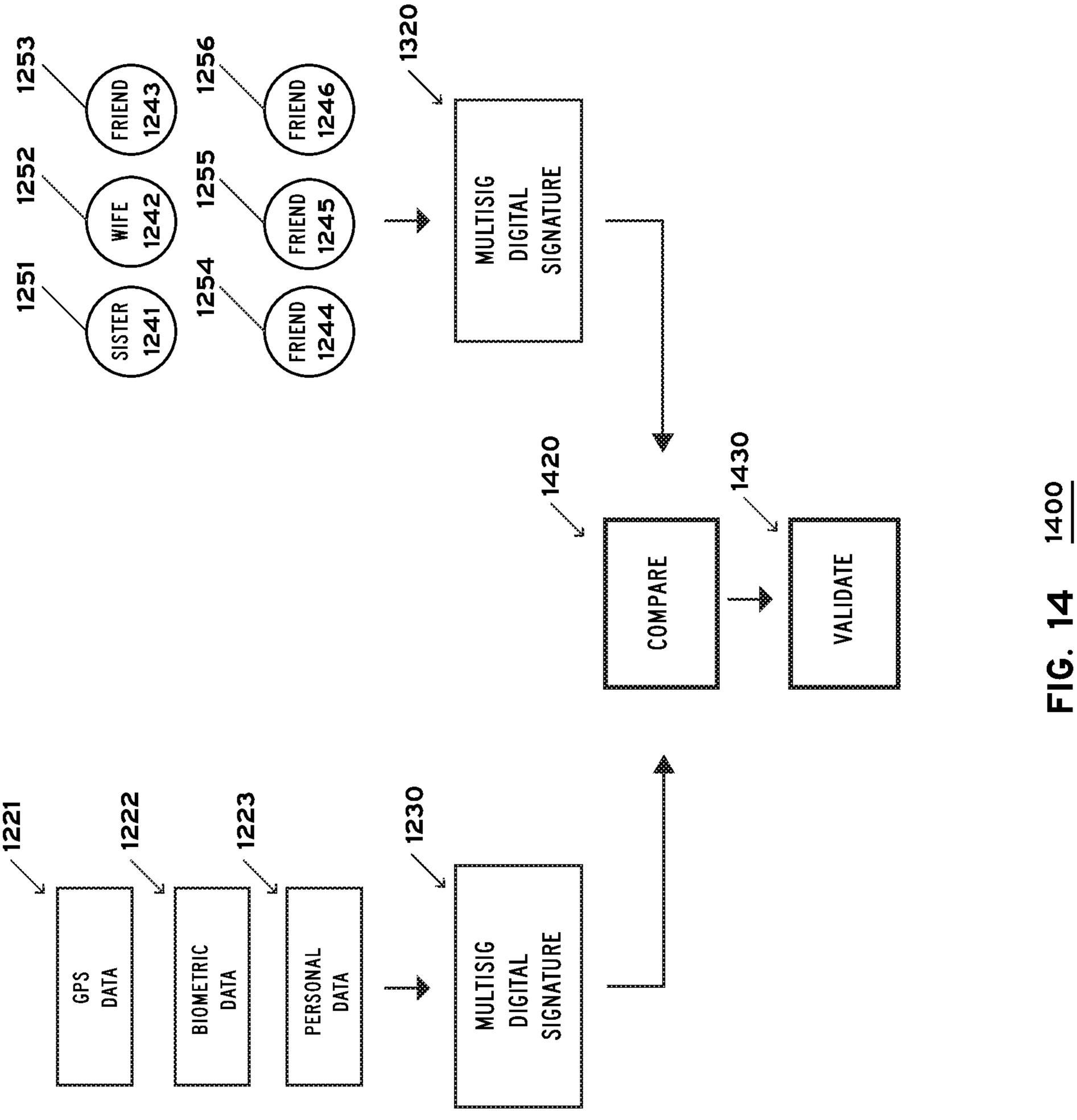
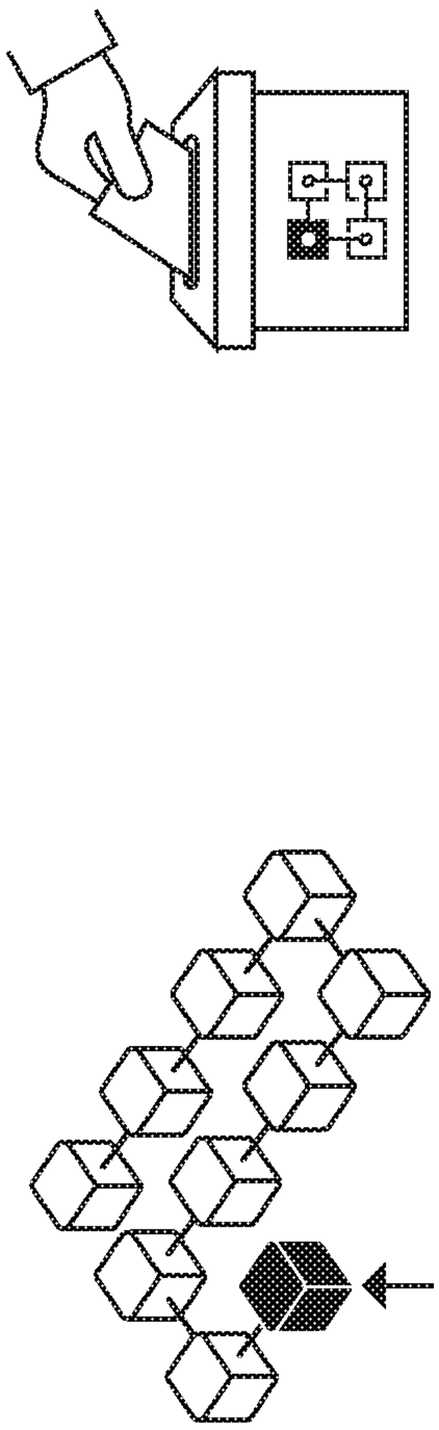
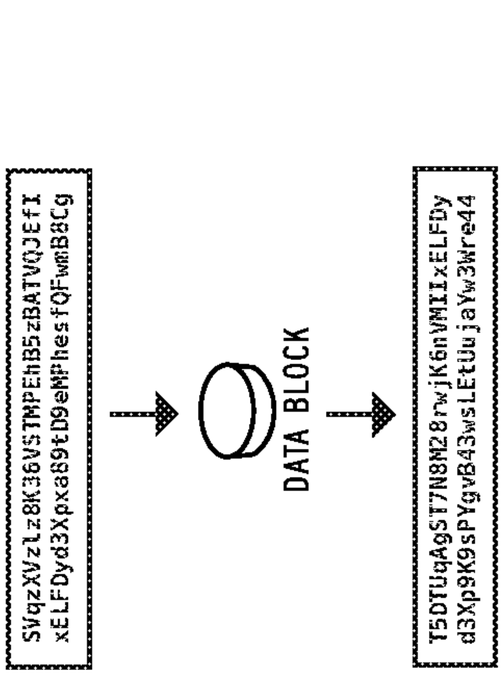

1251
SISTER 1241
1252
WIFE 1242
1253
FRIEND 1243
1254
FRIEND 1244
1255
FRIEND 1245
1256
FRIEND 1246
1220
MULTISIG DIGITAL SIGNATURE
1221
GPS DATA
1222
BIOMETRIC DATA
1223
PERSONAL DATA
1230
MULTISIG DIGITAL SIGNATURE
1420
COMPARE
1430
VALIDATE
1400

FIG. 14

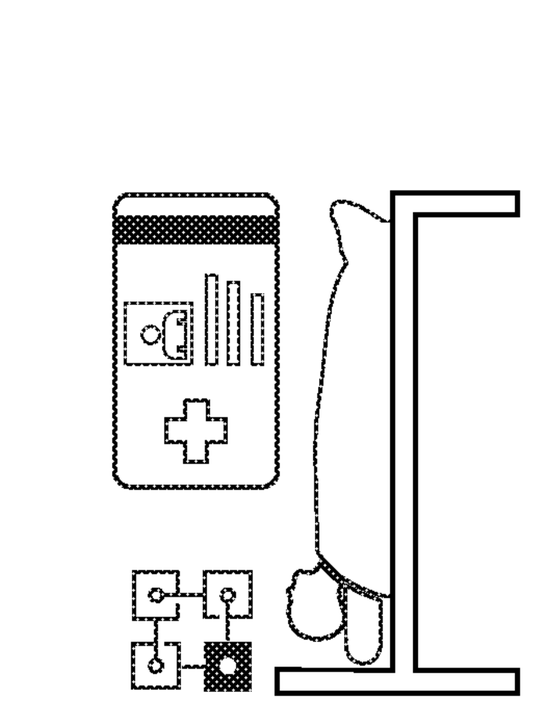


DATA BLOCK TRANSFER USING DIGITAL SIGNATURES
1510

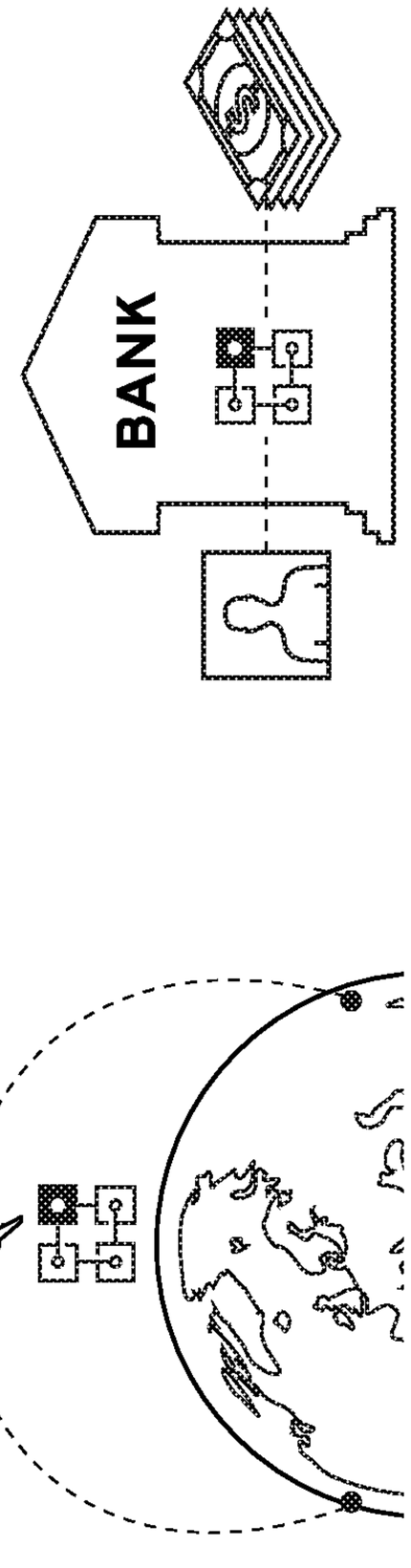


BLOCKCHAIN DIGITAL SIGNATURE IDENTIFICATION PROCESSES
1520

VOTER IDENTIFICATION DURING VOTING PROCESS
1530



VISA TRAVEL IDENTIFICATION PROCESS
1550



OWNERSHIP IDENTIFICATION IN BANK TRANSACTIONS
1560

MEDICAL RECORDS IDENTIFICATION PROCESS
1540

FIG. 15 1500

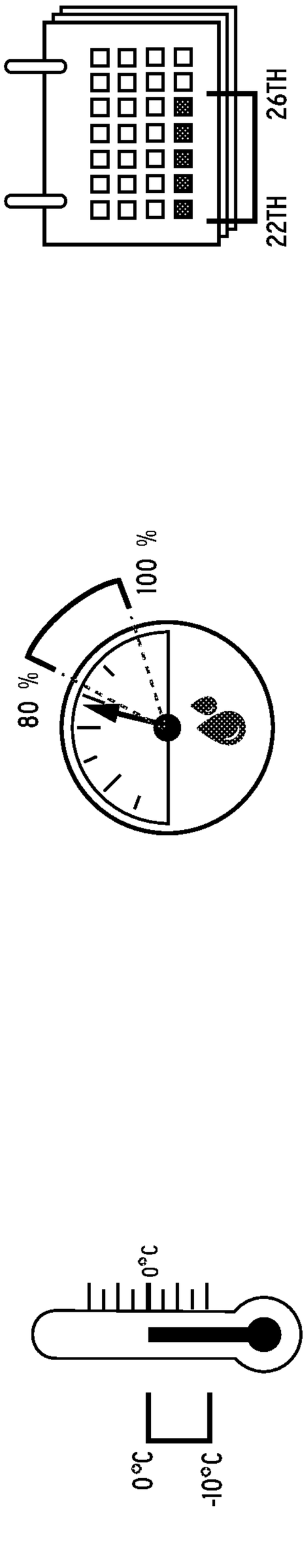

22TH
26TH
CALENDAR DATE RANGE
1630
80 %
100 %
HUMIDITY RANGE
1620
0°C
-10°C
TEMPERATURE RANGE
1610
N
E
S
W
300°NW
260°SW
CARDINAL DIRECTION RANGE
1660
200 MASL
100 MASL
ELEVATION RANGE
1650
10PM
8PM
TIME RANGE
1640

FIG. 16 1600

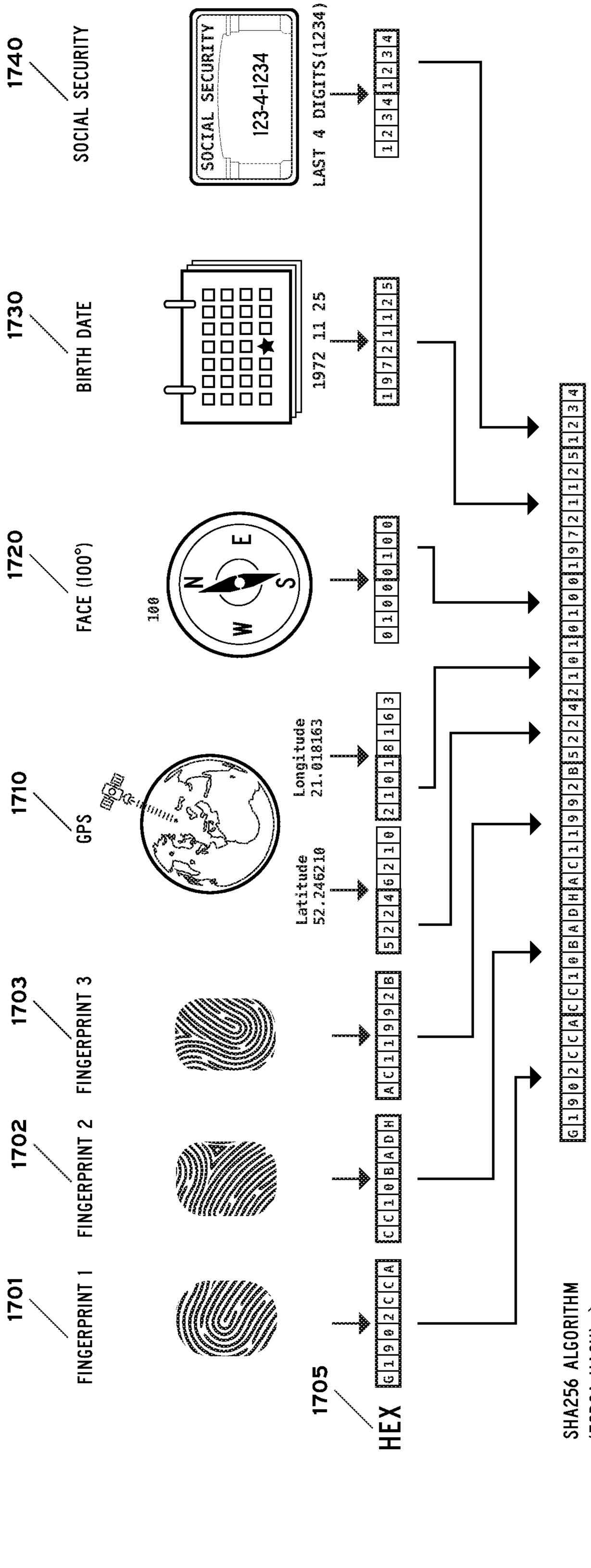

1740
SOCIAL SECURITY
SOCIAL SECURITY
123-4-1234
LAST 4 DIGITS (1234)
1 2 3 4 1 2 3 4
1730
BIRTH DATE
1972 11 25
1 9 7 2 1 2 5
1720
FACE (100°)
100
N
E
S
W
0 1 0 0 0 1 0 0
1710
GPS
Latitude
52.246210
Longitude
21.018163
5 2 2 4 6 2 1 0
2 1 0 1 8 1 6 3
1703
FINGERPRINT 3
A C 1 1 9 9 2 B
1702
FINGERPRINT 2
C C 1 0 B A D H
1701
FINGERPRINT 1
G 1 9 0 2 C C A
1705
HEX
G 1 9 0 2 C C A C C 1 0 B A D H A C 1 1 9 9 2 B 5 2 2 4 2 1 0 1 8 1 6 3
SHA256 ALGORITHM
(ECDSA HASH)
1750
G 1 9 0 2 C C A C C 1 0 B A D H A C 1 1 9 9 2 B 5 2 2 4 2 1 0 1 8 1 6 3 2 1 0 1 0 0 1 9 7 2 1 1 2 5 1 2 3 4
OUTPUT PRIVATE KEY
64 CHARACTERS
1760
DC10F6FC823E48CC3CB3912A8480C91E2DB97B3EBFD7D17C6229D05C560D75A2
1700

FIG. 17