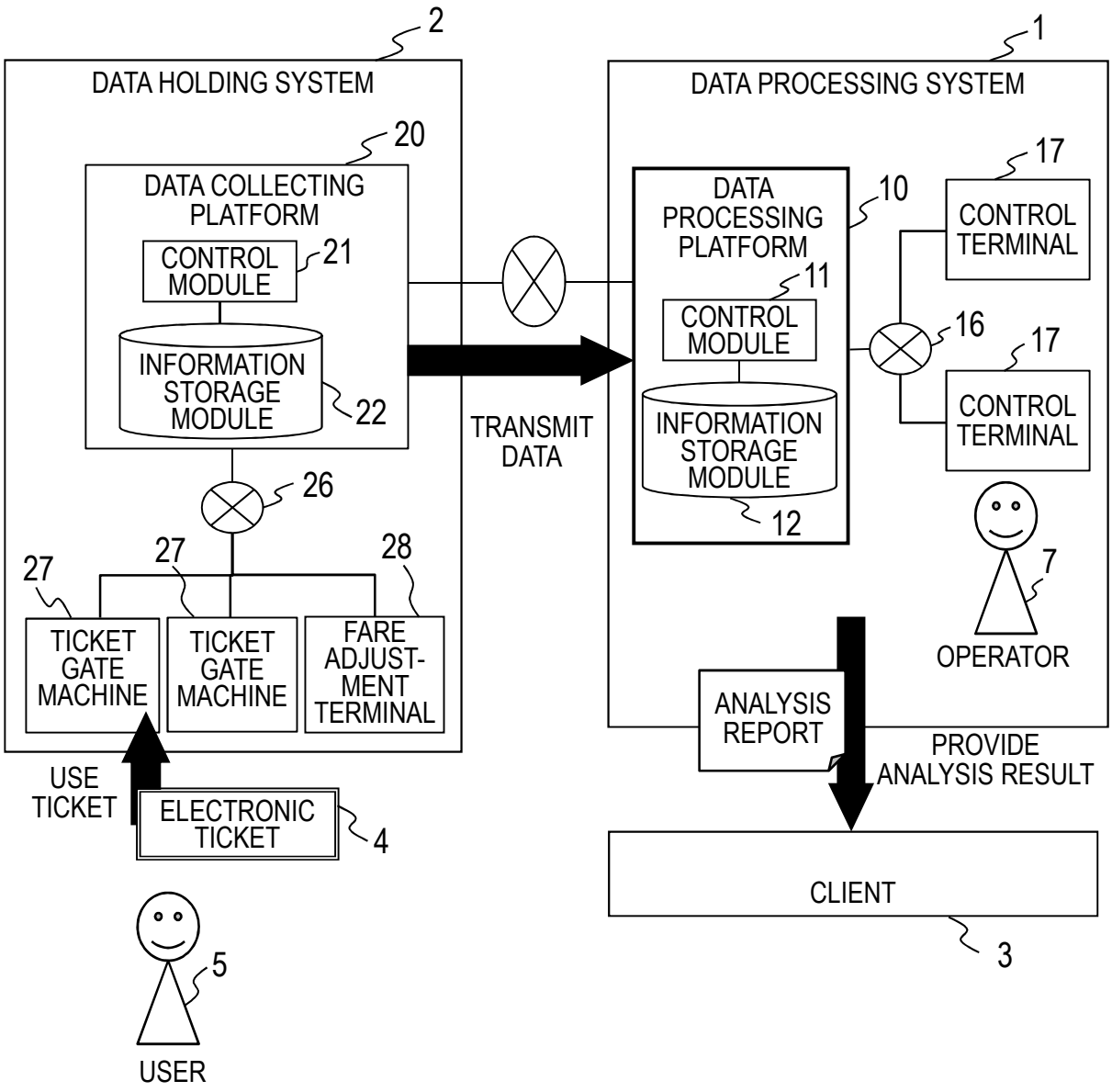
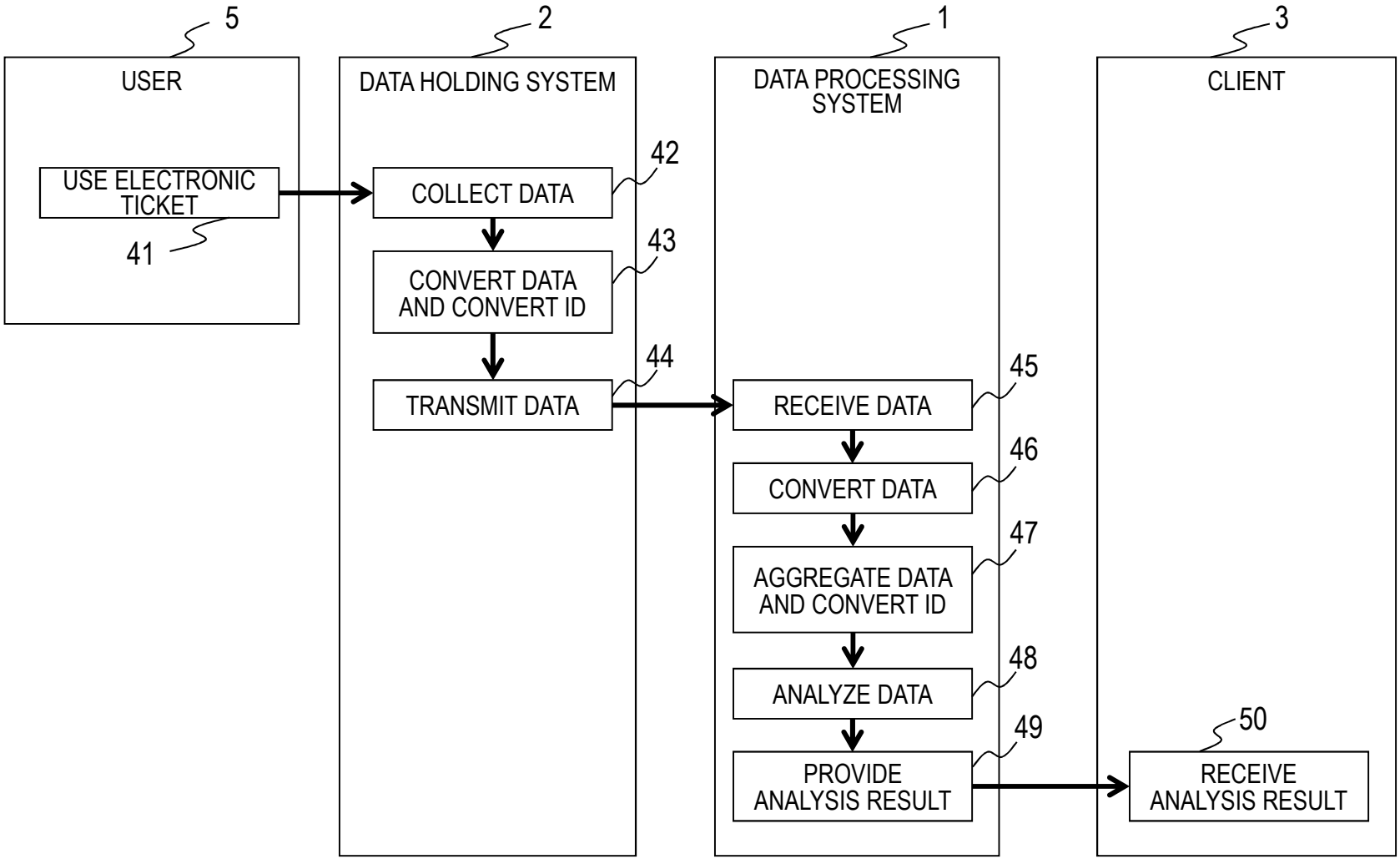
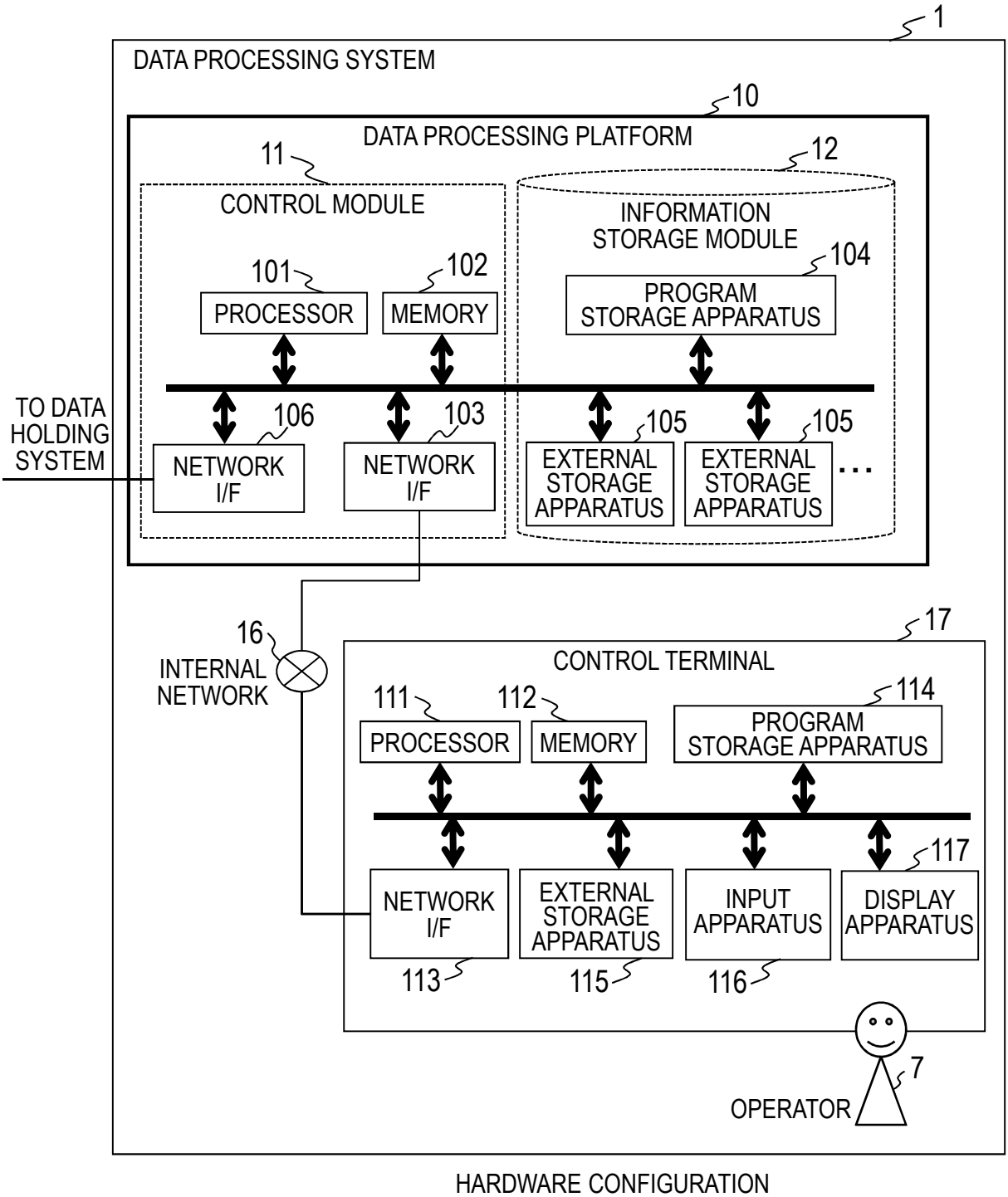

2
DATA HOLDING SYSTEM
20
DATA COLLECTING PLATFORM
CONTROL MODULE
21
INFORMATION STORAGE MODULE
22
26
27
27
28
TICKET GATE MACHINE
TICKET GATE MACHINE
FARE ADJUST-MENT TERMINAL
USE TICKET
ELECTRONIC TICKET
4
5
USER
TRANSMIT DATA
1
DATA PROCESSING SYSTEM
DATA PROCESSING PLATFORM
10
11
CONTROL MODULE
INFORMATION STORAGE MODULE
12
16
17
CONTROL TERMINAL
17
CONTROL TERMINAL
7
OPERATOR
ANALYSIS REPORT
PROVIDE ANALYSIS RESULT
CLIENT
3

Fig. 1



OVERALL SERVICE PROCESSING FLOW

Fig. 2



HARDWARE CONFIGURATION

Fig. 3

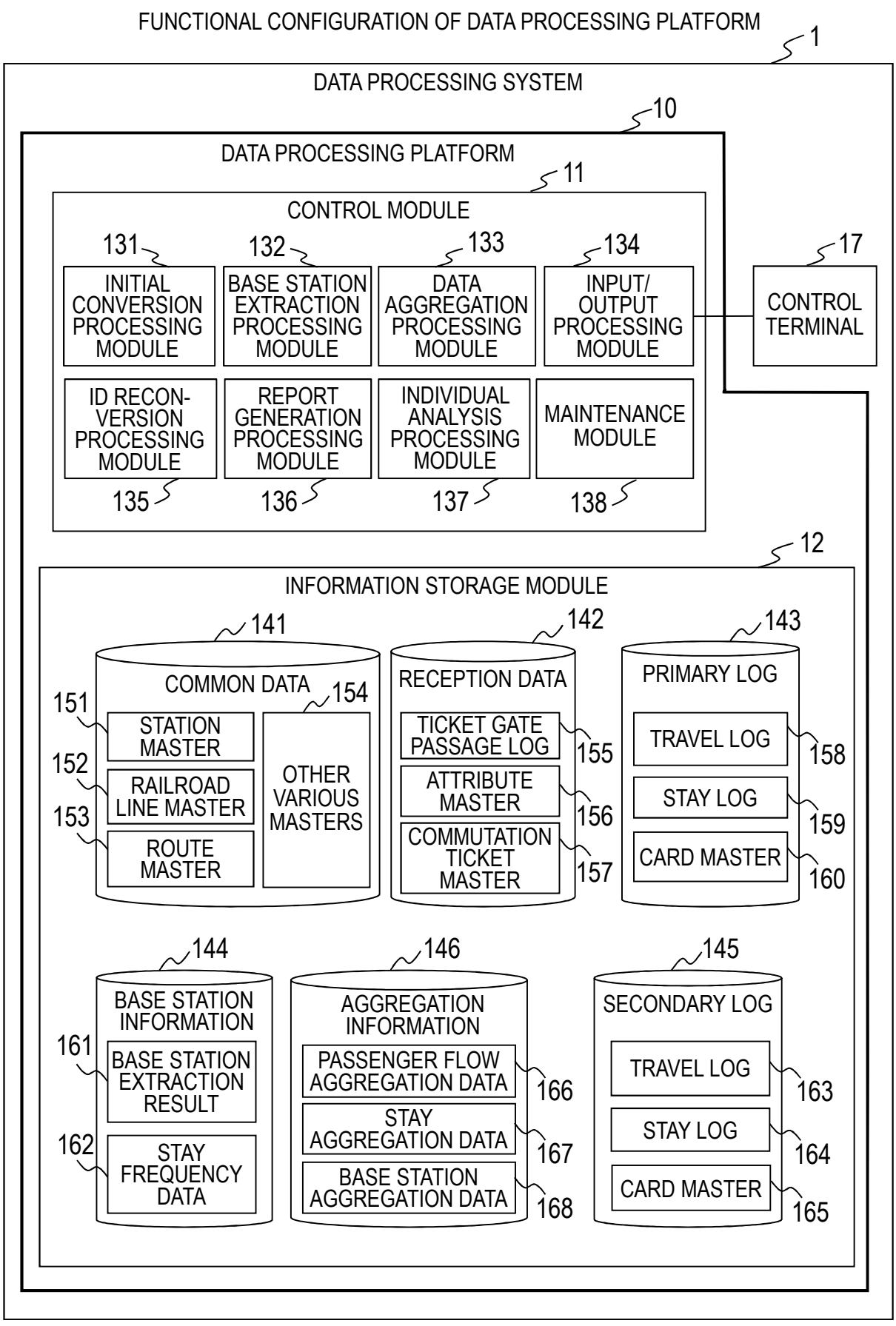

FUNCTIONAL CONFIGURATION OF DATA PROCESSING PLATFORM
1
DATA PROCESSING SYSTEM
10
DATA PROCESSING PLATFORM
11
CONTROL MODULE
131
INITIAL CONVERSION PROCESSING MODULE
132
BASE STATION EXTRACTION PROCESSING MODULE
133
DATA AGGREGATION PROCESSING MODULE
134
INPUT/ OUTPUT PROCESSING MODULE
17
CONTROL TERMINAL
ID RECON- VERSION PROCESSING MODULE
135
REPORT GENERATION PROCESSING MODULE
136
INDIVIDUAL ANALYSIS PROCESSING MODULE
137
MAINTENANCE MODULE
138
12
INFORMATION STORAGE MODULE
141
COMMON DATA
151
STATION MASTER
152
RAILROAD LINE MASTER
153
ROUTE MASTER
154
OTHER VARIOUS MASTERS
142
RECEPTION DATA
TICKET GATE PASSAGE LOG
155
ATTRIBUTE MASTER
156
COMMUTATION TICKET MASTER
157
143
PRIMARY LOG
TRAVEL LOG
158
STAY LOG
159
CARD MASTER
160
144
BASE STATION INFORMATION
161
BASE STATION EXTRACTION RESULT
162
STAY FREQUENCY DATA
146
AGGREGATION INFORMATION
PASSENGER FLOW AGGREGATION DATA
166
STAY AGGREGATION DATA
167
BASE STATION AGGREGATION DATA
168
145
SECONDARY LOG
TRAVEL LOG
163
STAY LOG
164
CARD MASTER
165

Fig. 4

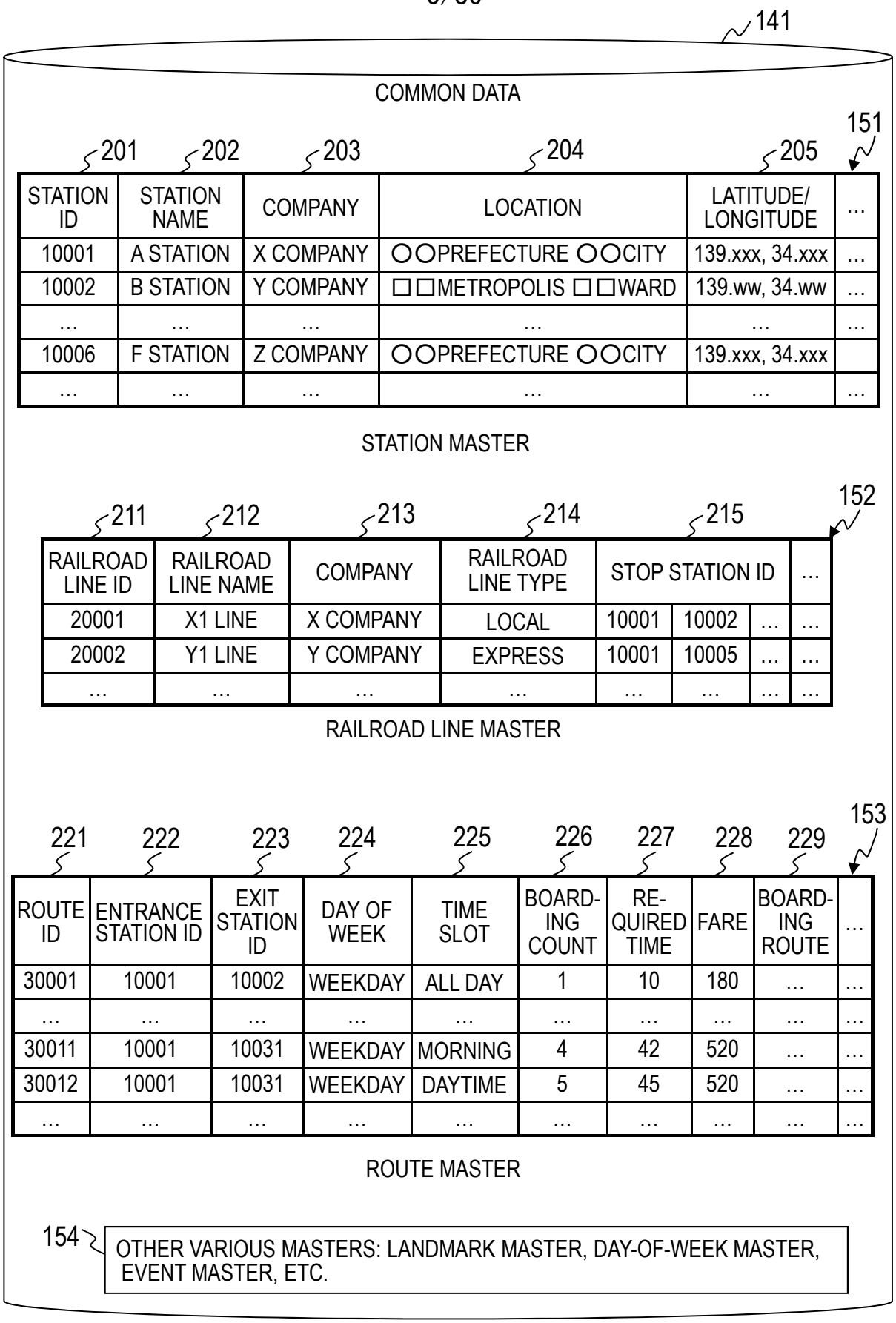

141
COMMON DATA
151
201
202
203
204
205
STATION ID
STATION NAME
COMPANY
LOCATION
LATITUDE/ LONGITUDE
…
10001
A STATION
X COMPANY
○○PREFECTURE ○○CITY
139.xxx, 34.xxx
10002
B STATION
Y COMPANY
□□METROPOLIS □□WARD
139.ww, 34.ww
10006
F STATION
Z COMPANY
○○PREFECTURE ○○CITY
139.xxx, 34.xxx
STATION MASTER
152
211
212
213
214
215
RAILROAD LINE ID
RAILROAD LINE NAME
COMPANY
RAILROAD LINE TYPE
STOP STATION ID
20001
X1 LINE
X COMPANY
LOCAL
10001
10002
20002
Y1 LINE
Y COMPANY
EXPRESS
10001
10005
RAILROAD LINE MASTER
153
221
222
223
224
225
226
227
228
229
ROUTE ID
ENTRANCE STATION ID
EXIT STATION ID
DAY OF WEEK
TIME SLOT
BOARD-ING COUNT
RE-QUIRED TIME
FARE
BOARD-ING ROUTE
30001
10001
10002
WEEKDAY
ALL DAY
1
10
180
30011
10001
10031
WEEKDAY
MORNING
4
42
520
30012
10001
10031
WEEKDAY
DAYTIME
5
45
520
ROUTE MASTER
154
OTHER VARIOUS MASTERS: LANDMARK MASTER, DAY-OF-WEEK MASTER, EVENT MASTER, ETC.

Fig. 5

142

RECEPTION DATA

155

TICKET GATE PASSAGE LOG

231 LOG ID	232 CARD ID	233 PROCESSING DATE/TIME	234 STATION ID	235 PROCESSING TYPE	236 FARE ADJUSTMENT AMOUNT	…
50001	40001	2012/04/01 12:30:00	10001	ENTRANCE	0	…
50002	40001	2012/04/01 13:25:10	10031	EXIT	520	…
50003	40001	2012/04/01 13:31:05	10036	ENTRANCE	0	…
50004	40001	2012/04/01 13:45:00	10042	EXIT	120	…
50005	40001	2012/04/01 17:10:00	10042	ENTRANCE	0	
50006	40001	2012/04/01 17:40:00	10021	EXIT	600	
50007	40002	2012/04/01 13:05:00	10002	ENTRANCE	0	…
50008	40002	2012/04/01 13:53:00	10031	EXIT	800	…
50009	40002	2012/04/01 14:02:15	10036	ENTRANCE	0	
…	…	…	…	…	…	…

156

ATTRIBUTE MASTER

241 CARD ID	242 GENDER	243 AGE	…
40001	MALE	41 YEARS OLD	…
40002	UNKNOWN	UNKNOWN	…
…	…	…	…

157

COMMUTATION TICKET MASTER

244 CARD ID	245 COMMUTATION STATIONS	246 TYPE OF TICKET (COMMUTER OR STUDENT)	247 PERIOD	248 START/END INFORMATION	…
40001	X STATION-Y STATION	COMMUTER	6 MONTHS	2012/03/01-2012/08/31	…
…	…	…		…	…

Fig. 6

143

PRIMARY LOG

158

251 LOG ID	252 CARD ID	253 DEPAR-TURE DATE/ TIME	254 ARRIVAL DATE/ TIME	255 DEPAR-TURE STATION ID	256 ARRIVAL STATION ID	257 CON-CATE-NATION COUNT	258 TRAVEL ROUTE	259 ROUTE DETAILS	700 FARE	…
60101	40001	2012/04/01 12:30:00	2012/04/01 13:45:00	10001	10042	2	A STATION-B STATION: D STATION-ESTATION	30002: 30005	640	…
60102	40001	2012/04/01 17:10:00	2012/04/01 17:40:00	10042	10021	1	E STATION-D STATION	30007	120	…
…	…	…	…	…	…	…	…	…	…	…

TRAVEL LOG

159

261 LOG ID	262 CARD ID	263 EXIT DATE/TIME	264 ENTRANCE DATE/TIME	265 EXIT STATION ID	266 ENTRANCE STATION ID	267 STAY TYPE	268 STAY TIME	…
70001	40001	NULL	2012/04/01 12:30:00	NULL	10001	FIRST OF DAY	—	…
70002	40001	2012/04/01 13:25:00	2012/04/01 13:31:00	10031	10036	TRANSIT	6 MINUTES	…
70003	40001	2012/04/01 13:45:00	2012/04/01 17:10:00	10042	10042	VISIT	205 MINUTES	…
…	…	…	…	…	…	…	…	…

STAY LOG

160

271 YEAR/ MONTH	272 CARD ID	273 GENDER	274 AGE	275 COMMUTATION TICKET FLAG	276 COMMUTATION STATIONS	277 TYPE OF TICKET	…
2012/04	40001	MALE	41 YEARS OLD	YES	X STATION-Y STATION	COMMUTER	…
2012/04	40002	UNKNOWN	UNKNOWN	NO	—	—	…
…	…	…	…	…	…	…	…

CARD MASTER

Fig. 7

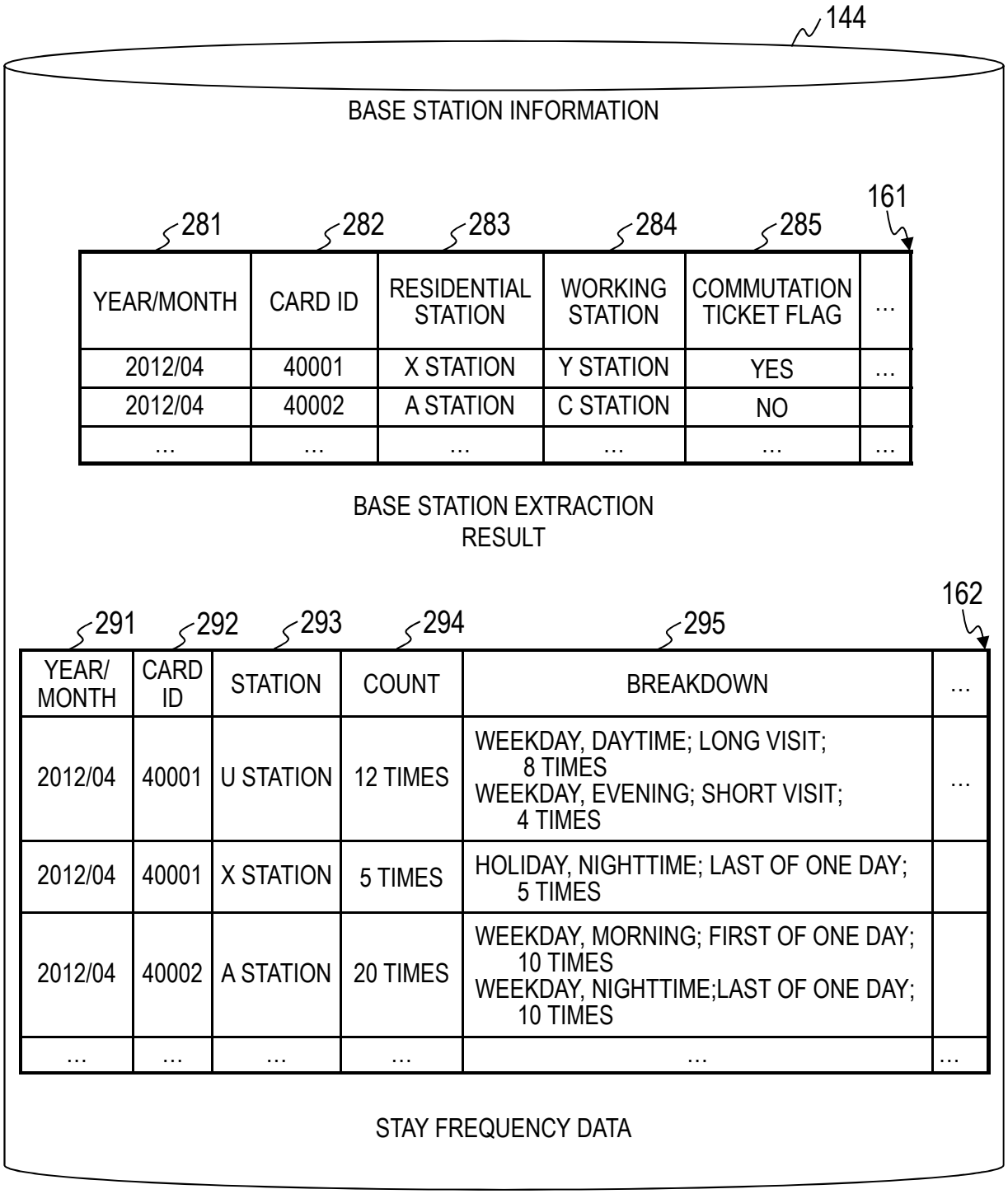

144
BASE STATION INFORMATION
161
281
282
283
284
285
YEAR/MONTH
CARD ID
RESIDENTIAL STATION
WORKING STATION
COMMUTATION TICKET FLAG
…
2012/04
40001
X STATION
Y STATION
YES
…
2012/04
40002
A STATION
C STATION
NO
…
…
…
…
…
…
…
BASE STATION EXTRACTION RESULT
162
291
292
293
294
295
YEAR/ MONTH
CARD ID
STATION
COUNT
BREAKDOWN
…
2012/04
40001
U STATION
12 TIMES
WEEKDAY, DAYTIME; LONG VISIT; 8 TIMES
WEEKDAY, EVENING; SHORT VISIT; 4 TIMES
…
2012/04
40001
X STATION
5 TIMES
HOLIDAY, NIGHTTIME; LAST OF ONE DAY; 5 TIMES
2012/04
40002
A STATION
20 TIMES
WEEKDAY, MORNING; FIRST OF ONE DAY; 10 TIMES
WEEKDAY, NIGHTTIME;LAST OF ONE DAY; 10 TIMES
…
…
…
…
…
…
STAY FREQUENCY DATA

Fig. 8

146

AGGREGATION INFORMATION

166

301 DEPARTURE STATION	302 ARRIVAL STATION	303 DATE	304 WEEKDAY/ WEEKEND	305 TIME SLOT	306 TRAVEL ROUTE	307 CASE COUNT	308 REQUIRED TIME BREAKDOWN	309 GENDER/ AGE-GROUP ATTRIBUTE BREAKDOWN	…
A STATION	E STATION	2012/04/02	WEEKDAY	BETWEEN 9:00 AND 10:00	A STATION-B STATION: D STATION-E STATION	70	…	…	…
F STATION	E STATION	2012/04/02	WEEKDAY	BETWEEN 9:00 AND 10:00	F STATION-E STATION:	50	…	…	…
G STATION	J STATION	2012/04/02	WEEKDAY	BETWEEN 9:00 AND 10:00	G STATION-H STATION: I STATION-J STATION	60	…	…	…
…	…	…	…	…	…	…	…	…	…

PASSENGER FLOW AGGREGATION DATA

167

311 STAY STATION	312 DATE	313 WEEKDAY/ WEEKEND	314 TIME SLOT	315 CASE COUNT	316 STAY TYPE BREAKDOWN	317 STAY TIME BREAKDOWN	318 GENDER/ AGE-GROUP ATTRIBUTE BREAKDOWN	…
A STATION	2012/04/02	WEEKDAY	BETWEEN 10:00 AND 11:00	200 CASES	…	…	…	…
B STATION	2012/04/02	WEEKDAY	BETWEEN 10:00 AND 11:00	150 CASES	…	…	…	…
C STATION	2012/04/02	WEEKDAY	BETWEEN 10:00 AND 11:00	120 CASES	…	…	…	…
…	…	…	…	…	…	…	…	…

STAY AGGREGATION DATA

168

321 RESIDENTIAL STATION	322 WORKING STATION	323 YEAR/ MONTH	324 GENDER/ AGE-GROUP ATTRIBUTE	325 CASE COUNT	326 BREAKDOWN BY COMMUTATION TICKET FLAG, COMMUTER OR STUDENT	…
A STATION	B STATION	2012/04	MALE IN 20S OR YOUNGER	100 CASES	…	…
A STATION	B STATION	2012/04	MALE IN 30S	120 CASES	…	…
…	…	…	…	…	…	…
B STATION	A STATION	2012/04	MALE IN 20S OR YOUNGER	30 CASES	…	…
…	…	…	…	…	…	…

BASE STATION AGGREGATION DATA

Fig. 9

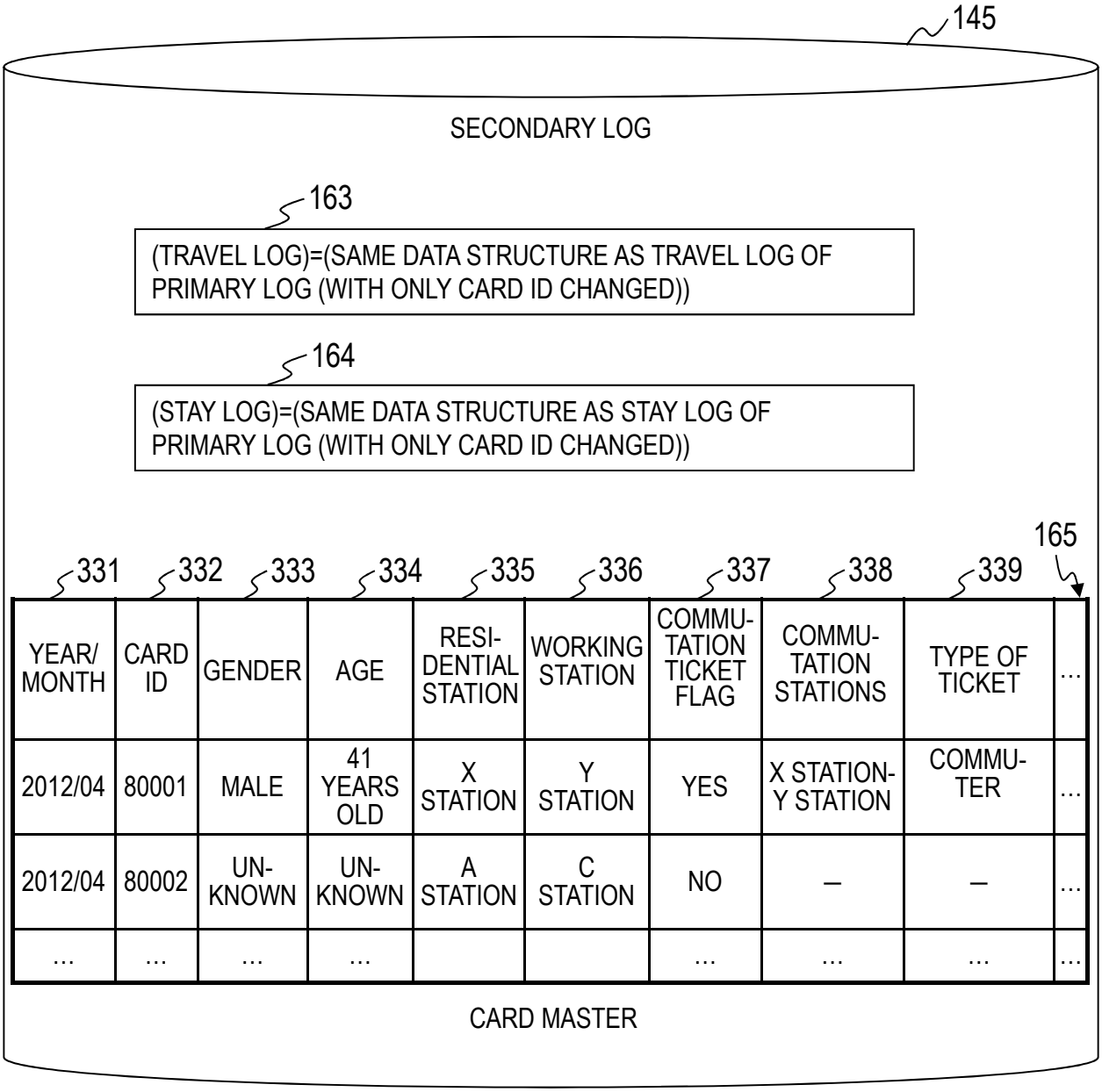

145
SECONDARY LOG
163
(TRAVEL LOG)=(SAME DATA STRUCTURE AS TRAVEL LOG OF PRIMARY LOG (WITH ONLY CARD ID CHANGED))
164
(STAY LOG)=(SAME DATA STRUCTURE AS STAY LOG OF PRIMARY LOG (WITH ONLY CARD ID CHANGED))
165
331 332 333 334 335 336 337 338 339
YEAR/ MONTH | CARD ID | GENDER | AGE | RESI-DENTIAL STATION | WORKING STATION | COMMU-TATION TICKET FLAG | COMMU-TATION STATIONS | TYPE OF TICKET | …
2012/04 | 80001 | MALE | 41 YEARS OLD | X STATION | Y STATION | YES | X STATION-Y STATION | COMMU-TER | …
2012/04 | 80002 | UN-KNOWN | UN-KNOWN | A STATION | C STATION | NO | — | — | …
… | … | … | … | | | … | … | … | …
CARD MASTER

Fig. 10

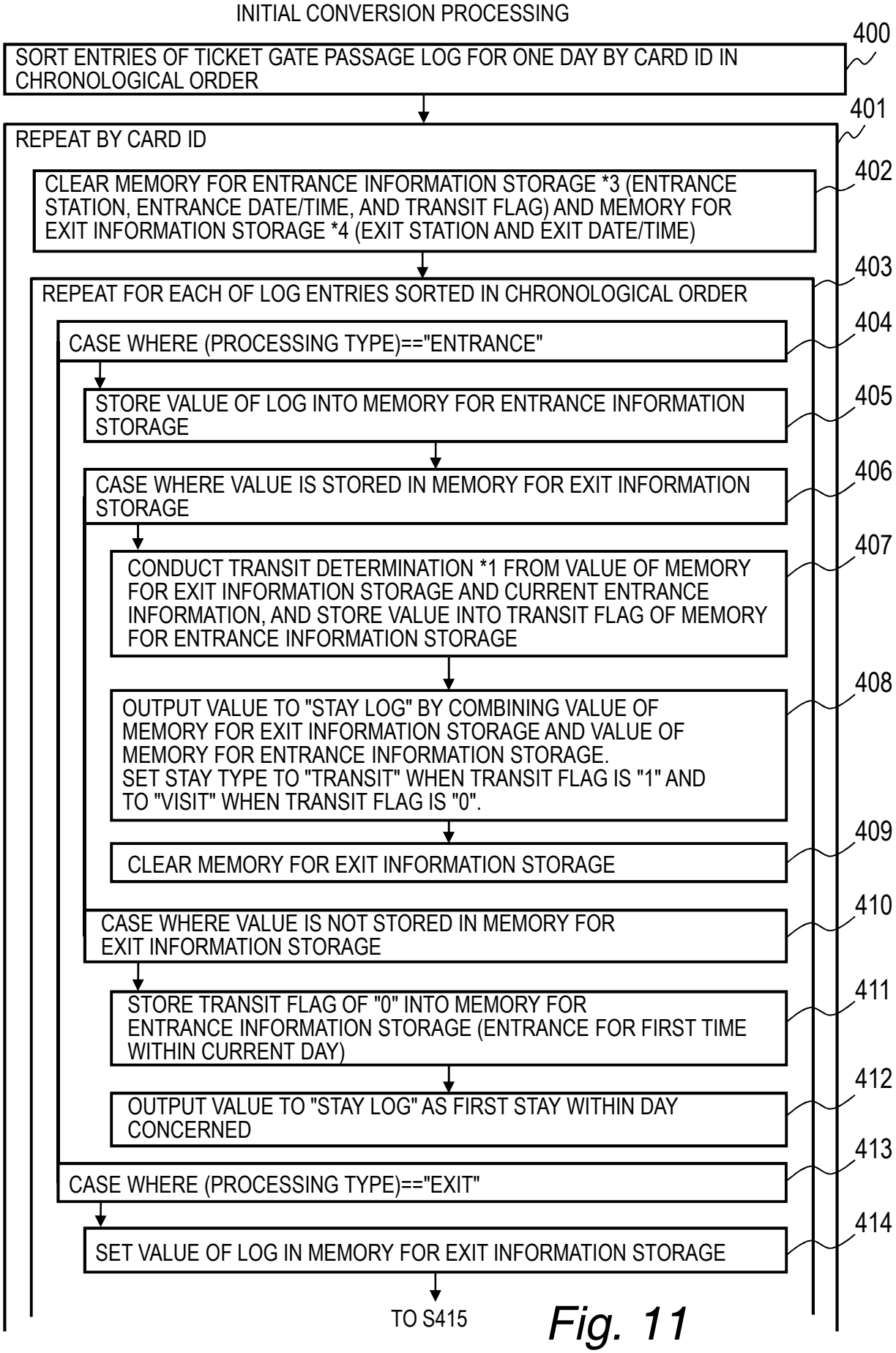

INITIAL CONVERSION PROCESSING
400
SORT ENTRIES OF TICKET GATE PASSAGE LOG FOR ONE DAY BY CARD ID IN CHRONOLOGICAL ORDER
401
REPEAT BY CARD ID
402
CLEAR MEMORY FOR ENTRANCE INFORMATION STORAGE *3 (ENTRANCE STATION, ENTRANCE DATE/TIME, AND TRANSIT FLAG) AND MEMORY FOR EXIT INFORMATION STORAGE *4 (EXIT STATION AND EXIT DATE/TIME)
403
REPEAT FOR EACH OF LOG ENTRIES SORTED IN CHRONOLOGICAL ORDER
404
CASE WHERE (PROCESSING TYPE)=="ENTRANCE"
405
STORE VALUE OF LOG INTO MEMORY FOR ENTRANCE INFORMATION STORAGE
406
CASE WHERE VALUE IS STORED IN MEMORY FOR EXIT INFORMATION STORAGE
407
CONDUCT TRANSIT DETERMINATION *1 FROM VALUE OF MEMORY FOR EXIT INFORMATION STORAGE AND CURRENT ENTRANCE INFORMATION, AND STORE VALUE INTO TRANSIT FLAG OF MEMORY FOR ENTRANCE INFORMATION STORAGE
408
OUTPUT VALUE TO "STAY LOG" BY COMBINING VALUE OF MEMORY FOR EXIT INFORMATION STORAGE AND VALUE OF MEMORY FOR ENTRANCE INFORMATION STORAGE.
SET STAY TYPE TO "TRANSIT" WHEN TRANSIT FLAG IS "1" AND TO "VISIT" WHEN TRANSIT FLAG IS "0".
409
CLEAR MEMORY FOR EXIT INFORMATION STORAGE
410
CASE WHERE VALUE IS NOT STORED IN MEMORY FOR EXIT INFORMATION STORAGE
411
STORE TRANSIT FLAG OF "0" INTO MEMORY FOR ENTRANCE INFORMATION STORAGE (ENTRANCE FOR FIRST TIME WITHIN CURRENT DAY)
412
OUTPUT VALUE TO "STAY LOG" AS FIRST STAY WITHIN DAY CONCERNED
413
CASE WHERE (PROCESSING TYPE)=="EXIT"
414
SET VALUE OF LOG IN MEMORY FOR EXIT INFORMATION STORAGE
TO S415

Fig. 11

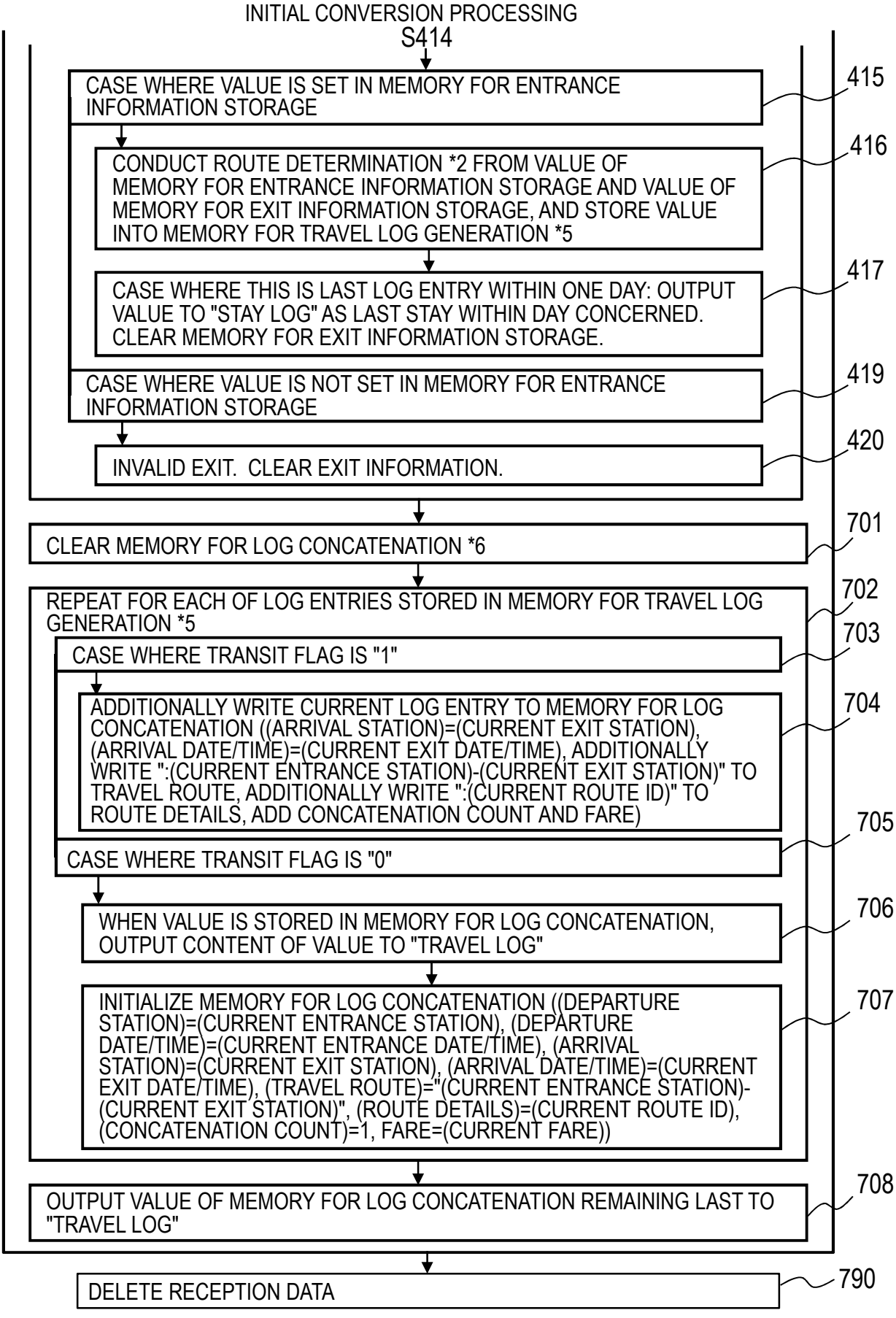

INITIAL CONVERSION PROCESSING
S414
CASE WHERE VALUE IS SET IN MEMORY FOR ENTRANCE INFORMATION STORAGE
415
CONDUCT ROUTE DETERMINATION *2 FROM VALUE OF MEMORY FOR ENTRANCE INFORMATION STORAGE AND VALUE OF MEMORY FOR EXIT INFORMATION STORAGE, AND STORE VALUE INTO MEMORY FOR TRAVEL LOG GENERATION *5
416
CASE WHERE THIS IS LAST LOG ENTRY WITHIN ONE DAY: OUTPUT VALUE TO "STAY LOG" AS LAST STAY WITHIN DAY CONCERNED. CLEAR MEMORY FOR EXIT INFORMATION STORAGE.
417
CASE WHERE VALUE IS NOT SET IN MEMORY FOR ENTRANCE INFORMATION STORAGE
419
INVALID EXIT. CLEAR EXIT INFORMATION.
420
CLEAR MEMORY FOR LOG CONCATENATION *6
701
REPEAT FOR EACH OF LOG ENTRIES STORED IN MEMORY FOR TRAVEL LOG GENERATION *5
702
CASE WHERE TRANSIT FLAG IS "1"
703
ADDITIONALLY WRITE CURRENT LOG ENTRY TO MEMORY FOR LOG CONCATENATION ((ARRIVAL STATION)=(CURRENT EXIT STATION), (ARRIVAL DATE/TIME)=(CURRENT EXIT DATE/TIME), ADDITIONALLY WRITE ":(CURRENT ENTRANCE STATION)-(CURRENT EXIT STATION)" TO TRAVEL ROUTE, ADDITIONALLY WRITE ":(CURRENT ROUTE ID)" TO ROUTE DETAILS, ADD CONCATENATION COUNT AND FARE)
704
CASE WHERE TRANSIT FLAG IS "0"
705
WHEN VALUE IS STORED IN MEMORY FOR LOG CONCATENATION, OUTPUT CONTENT OF VALUE TO "TRAVEL LOG"
706
INITIALIZE MEMORY FOR LOG CONCATENATION ((DEPARTURE STATION)=(CURRENT ENTRANCE STATION), (DEPARTURE DATE/TIME)=(CURRENT ENTRANCE DATE/TIME), (ARRIVAL STATION)=(CURRENT EXIT STATION), (ARRIVAL DATE/TIME)=(CURRENT EXIT DATE/TIME), (TRAVEL ROUTE)="(CURRENT ENTRANCE STATION)-(CURRENT EXIT STATION)", (ROUTE DETAILS)=(CURRENT ROUTE ID), (CONCATENATION COUNT)=1, FARE=(CURRENT FARE))
707
OUTPUT VALUE OF MEMORY FOR LOG CONCATENATION REMAINING LAST TO "TRAVEL LOG"
708
DELETE RECEPTION DATA
790

Fig. 12

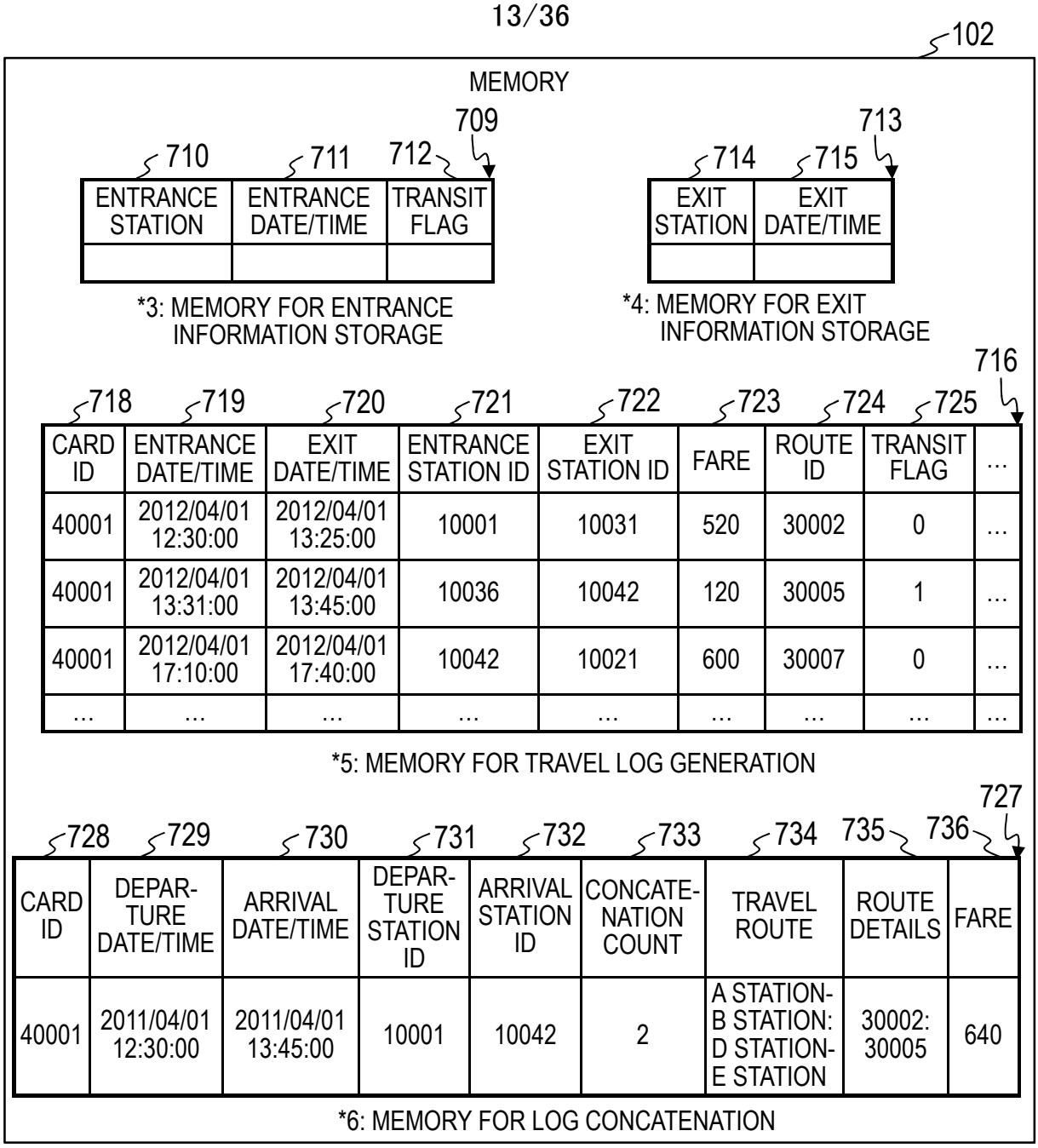


Fig. 13A

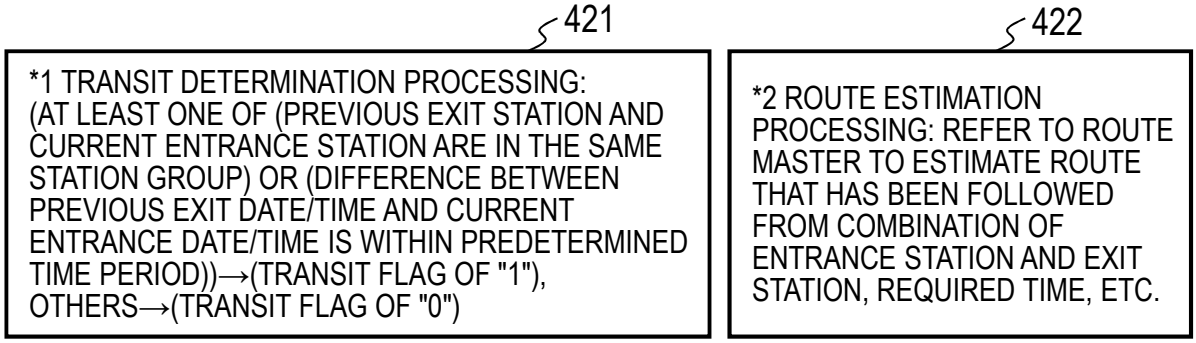


Fig. 13B

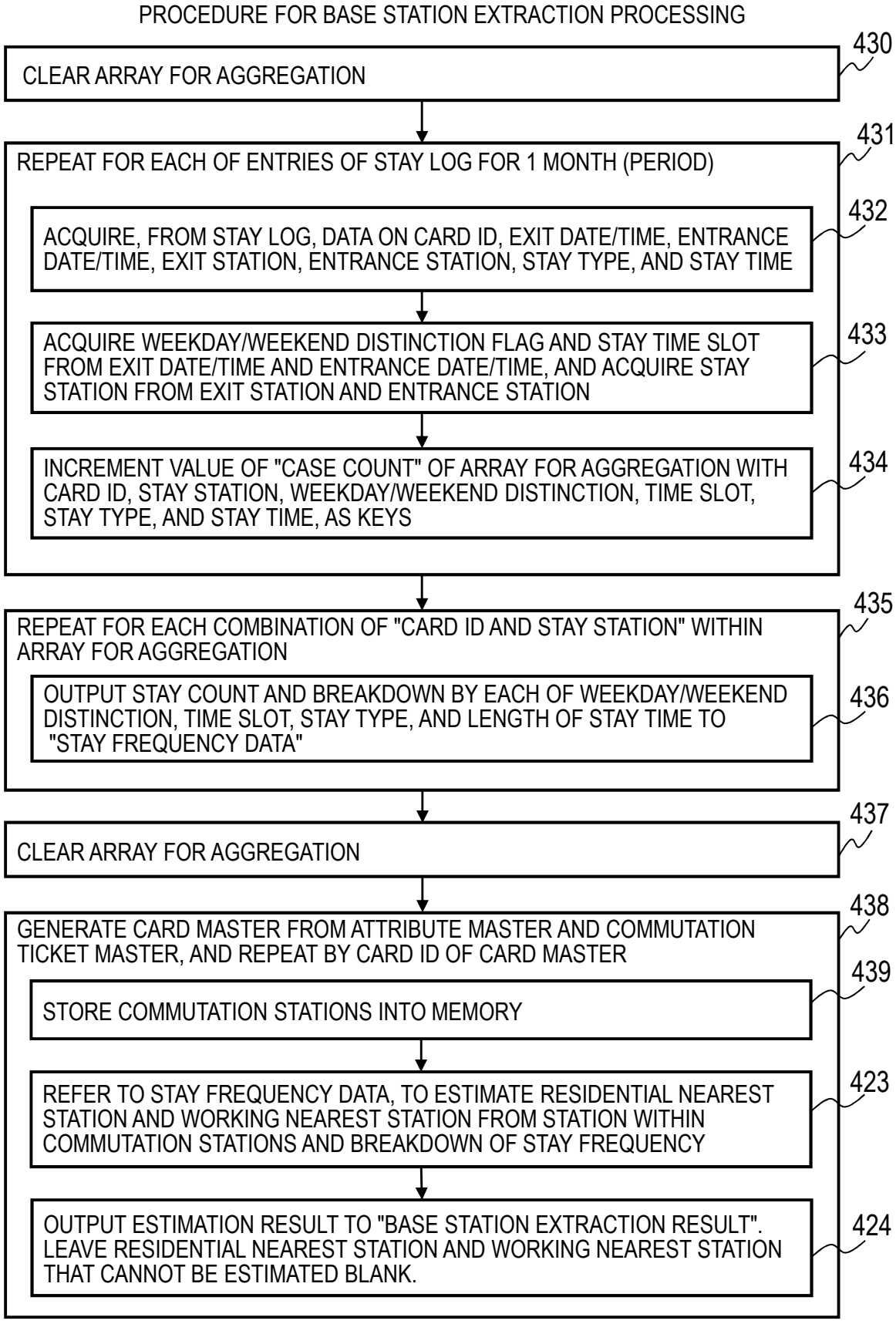

PROCEDURE FOR BASE STATION EXTRACTION PROCESSING
CLEAR ARRAY FOR AGGREGATION
430
REPEAT FOR EACH OF ENTRIES OF STAY LOG FOR 1 MONTH (PERIOD)
431
ACQUIRE, FROM STAY LOG, DATA ON CARD ID, EXIT DATE/TIME, ENTRANCE DATE/TIME, EXIT STATION, ENTRANCE STATION, STAY TYPE, AND STAY TIME
432
ACQUIRE WEEKDAY/WEEKEND DISTINCTION FLAG AND STAY TIME SLOT FROM EXIT DATE/TIME AND ENTRANCE DATE/TIME, AND ACQUIRE STAY STATION FROM EXIT STATION AND ENTRANCE STATION
433
INCREMENT VALUE OF "CASE COUNT" OF ARRAY FOR AGGREGATION WITH CARD ID, STAY STATION, WEEKDAY/WEEKEND DISTINCTION, TIME SLOT, STAY TYPE, AND STAY TIME, AS KEYS
434
REPEAT FOR EACH COMBINATION OF "CARD ID AND STAY STATION" WITHIN ARRAY FOR AGGREGATION
435
OUTPUT STAY COUNT AND BREAKDOWN BY EACH OF WEEKDAY/WEEKEND DISTINCTION, TIME SLOT, STAY TYPE, AND LENGTH OF STAY TIME TO "STAY FREQUENCY DATA"
436
CLEAR ARRAY FOR AGGREGATION
437
GENERATE CARD MASTER FROM ATTRIBUTE MASTER AND COMMUTATION TICKET MASTER, AND REPEAT BY CARD ID OF CARD MASTER
438
STORE COMMUTATION STATIONS INTO MEMORY
439
REFER TO STAY FREQUENCY DATA, TO ESTIMATE RESIDENTIAL NEAREST STATION AND WORKING NEAREST STATION FROM STATION WITHIN COMMUTATION STATIONS AND BREAKDOWN OF STAY FREQUENCY
423
OUTPUT ESTIMATION RESULT TO "BASE STATION EXTRACTION RESULT". LEAVE RESIDENTIAL NEAREST STATION AND WORKING NEAREST STATION THAT CANNOT BE ESTIMATED BLANK.
424

Fig. 14

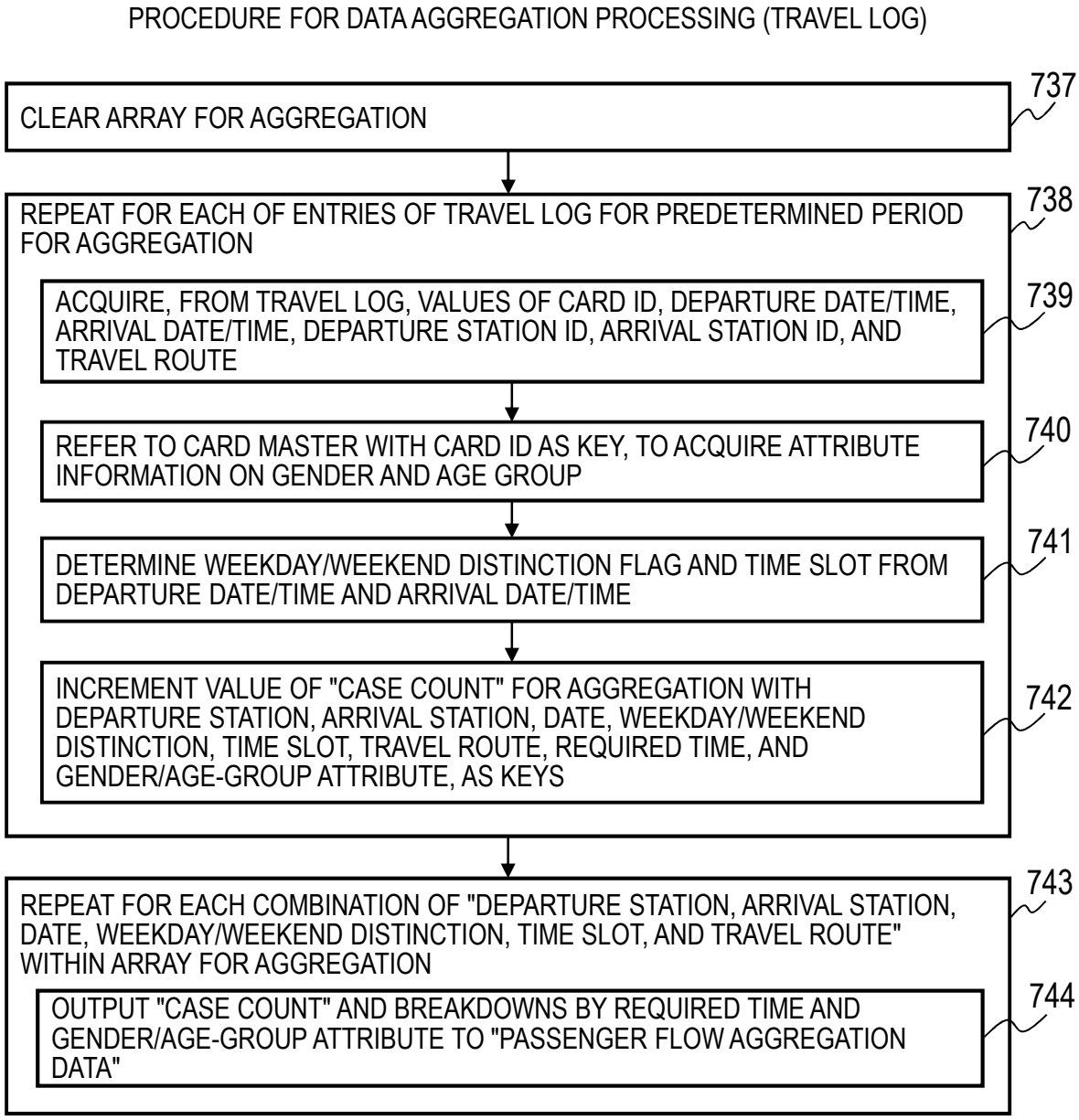

PROCEDURE FOR DATA AGGREGATION PROCESSING (TRAVEL LOG)
CLEAR ARRAY FOR AGGREGATION
737
REPEAT FOR EACH OF ENTRIES OF TRAVEL LOG FOR PREDETERMINED PERIOD FOR AGGREGATION
738
ACQUIRE, FROM TRAVEL LOG, VALUES OF CARD ID, DEPARTURE DATE/TIME, ARRIVAL DATE/TIME, DEPARTURE STATION ID, ARRIVAL STATION ID, AND TRAVEL ROUTE
739
REFER TO CARD MASTER WITH CARD ID AS KEY, TO ACQUIRE ATTRIBUTE INFORMATION ON GENDER AND AGE GROUP
740
DETERMINE WEEKDAY/WEEKEND DISTINCTION FLAG AND TIME SLOT FROM DEPARTURE DATE/TIME AND ARRIVAL DATE/TIME
741
INCREMENT VALUE OF "CASE COUNT" FOR AGGREGATION WITH DEPARTURE STATION, ARRIVAL STATION, DATE, WEEKDAY/WEEKEND DISTINCTION, TIME SLOT, TRAVEL ROUTE, REQUIRED TIME, AND GENDER/AGE-GROUP ATTRIBUTE, AS KEYS
742
REPEAT FOR EACH COMBINATION OF "DEPARTURE STATION, ARRIVAL STATION, DATE, WEEKDAY/WEEKEND DISTINCTION, TIME SLOT, AND TRAVEL ROUTE" WITHIN ARRAY FOR AGGREGATION
743
OUTPUT "CASE COUNT" AND BREAKDOWNS BY REQUIRED TIME AND GENDER/AGE-GROUP ATTRIBUTE TO "PASSENGER FLOW AGGREGATION DATA"
744

Fig. 15

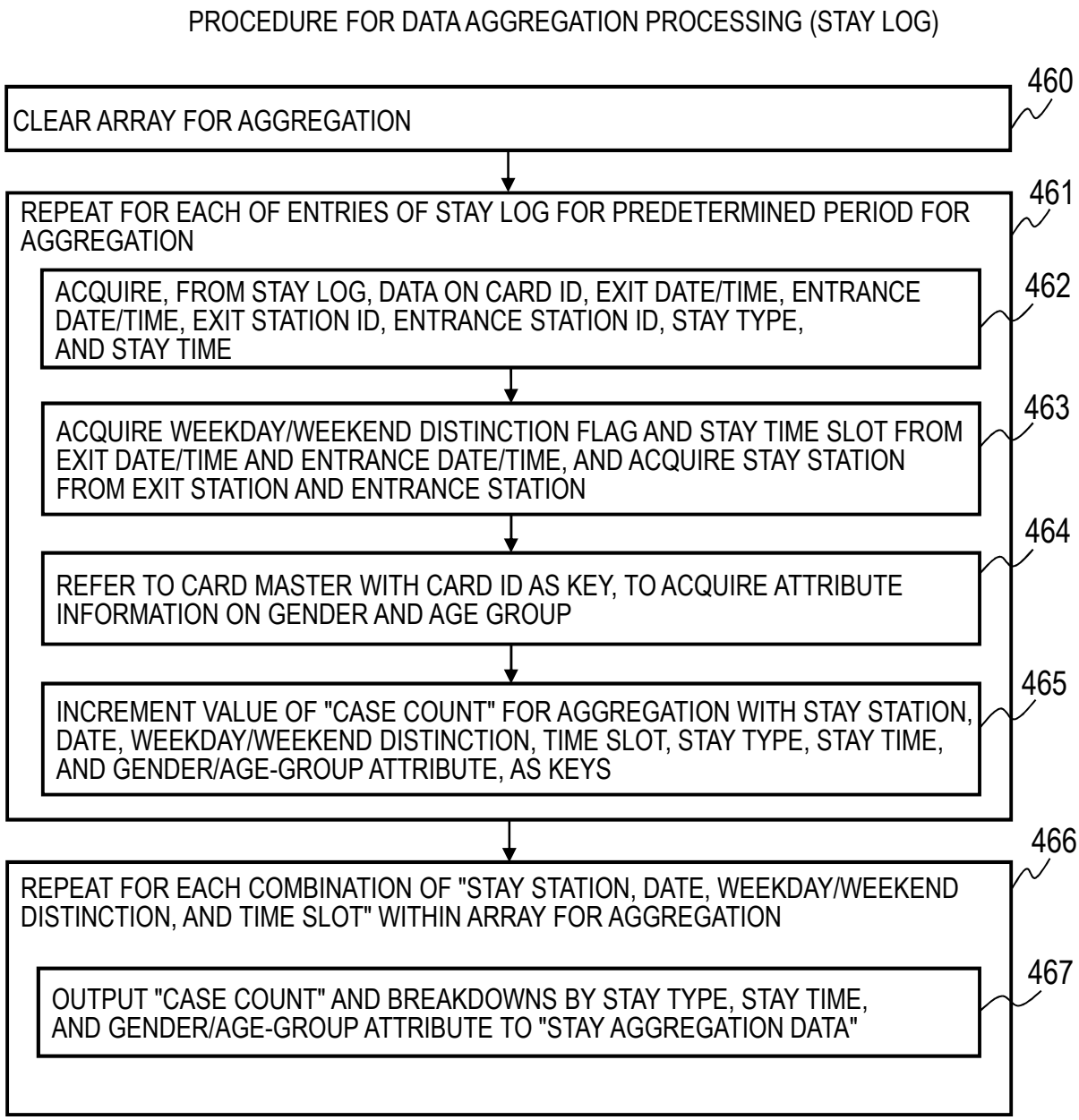

PROCEDURE FOR DATA AGGREGATION PROCESSING (STAY LOG)
460
CLEAR ARRAY FOR AGGREGATION
461
REPEAT FOR EACH OF ENTRIES OF STAY LOG FOR PREDETERMINED PERIOD FOR AGGREGATION
462
ACQUIRE, FROM STAY LOG, DATA ON CARD ID, EXIT DATE/TIME, ENTRANCE DATE/TIME, EXIT STATION ID, ENTRANCE STATION ID, STAY TYPE, AND STAY TIME
463
ACQUIRE WEEKDAY/WEEKEND DISTINCTION FLAG AND STAY TIME SLOT FROM EXIT DATE/TIME AND ENTRANCE DATE/TIME, AND ACQUIRE STAY STATION FROM EXIT STATION AND ENTRANCE STATION
464
REFER TO CARD MASTER WITH CARD ID AS KEY, TO ACQUIRE ATTRIBUTE INFORMATION ON GENDER AND AGE GROUP
465
INCREMENT VALUE OF "CASE COUNT" FOR AGGREGATION WITH STAY STATION, DATE, WEEKDAY/WEEKEND DISTINCTION, TIME SLOT, STAY TYPE, STAY TIME, AND GENDER/AGE-GROUP ATTRIBUTE, AS KEYS
466
REPEAT FOR EACH COMBINATION OF "STAY STATION, DATE, WEEKDAY/WEEKEND DISTINCTION, AND TIME SLOT" WITHIN ARRAY FOR AGGREGATION
467
OUTPUT "CASE COUNT" AND BREAKDOWNS BY STAY TYPE, STAY TIME, AND GENDER/AGE-GROUP ATTRIBUTE TO "STAY AGGREGATION DATA"

Fig. 16

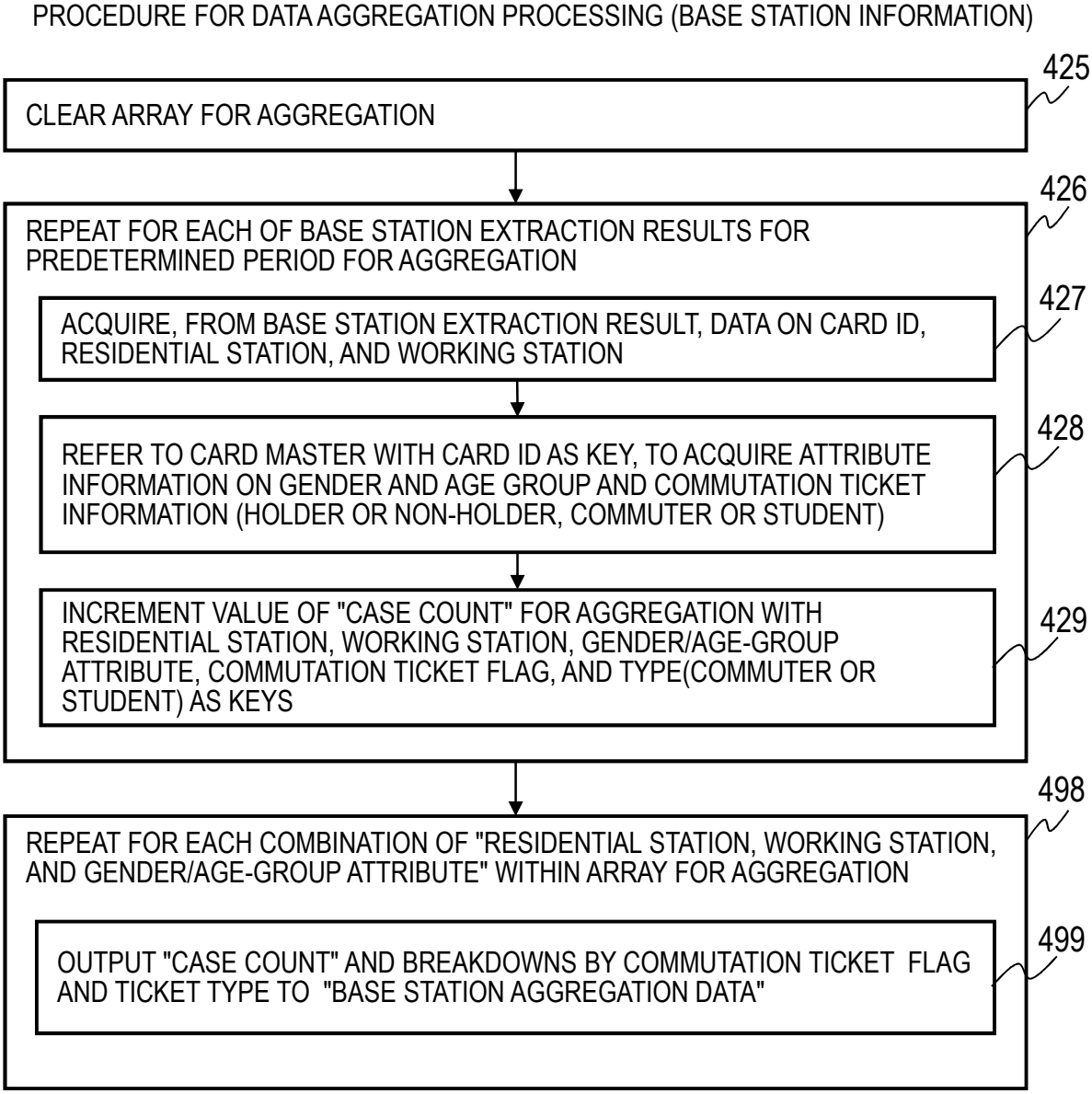

PROCEDURE FOR DATA AGGREGATION PROCESSING (BASE STATION INFORMATION)
425
CLEAR ARRAY FOR AGGREGATION
426
REPEAT FOR EACH OF BASE STATION EXTRACTION RESULTS FOR PREDETERMINED PERIOD FOR AGGREGATION
427
ACQUIRE, FROM BASE STATION EXTRACTION RESULT, DATA ON CARD ID, RESIDENTIAL STATION, AND WORKING STATION
428
REFER TO CARD MASTER WITH CARD ID AS KEY, TO ACQUIRE ATTRIBUTE INFORMATION ON GENDER AND AGE GROUP AND COMMUTATION TICKET INFORMATION (HOLDER OR NON-HOLDER, COMMUTER OR STUDENT)
429
INCREMENT VALUE OF "CASE COUNT" FOR AGGREGATION WITH RESIDENTIAL STATION, WORKING STATION, GENDER/AGE-GROUP ATTRIBUTE, COMMUTATION TICKET FLAG, AND TYPE(COMMUTER OR STUDENT) AS KEYS
498
REPEAT FOR EACH COMBINATION OF "RESIDENTIAL STATION, WORKING STATION, AND GENDER/AGE-GROUP ATTRIBUTE" WITHIN ARRAY FOR AGGREGATION
499
OUTPUT "CASE COUNT" AND BREAKDOWNS BY COMMUTATION TICKET FLAG AND TICKET TYPE TO "BASE STATION AGGREGATION DATA"

Fig. 17

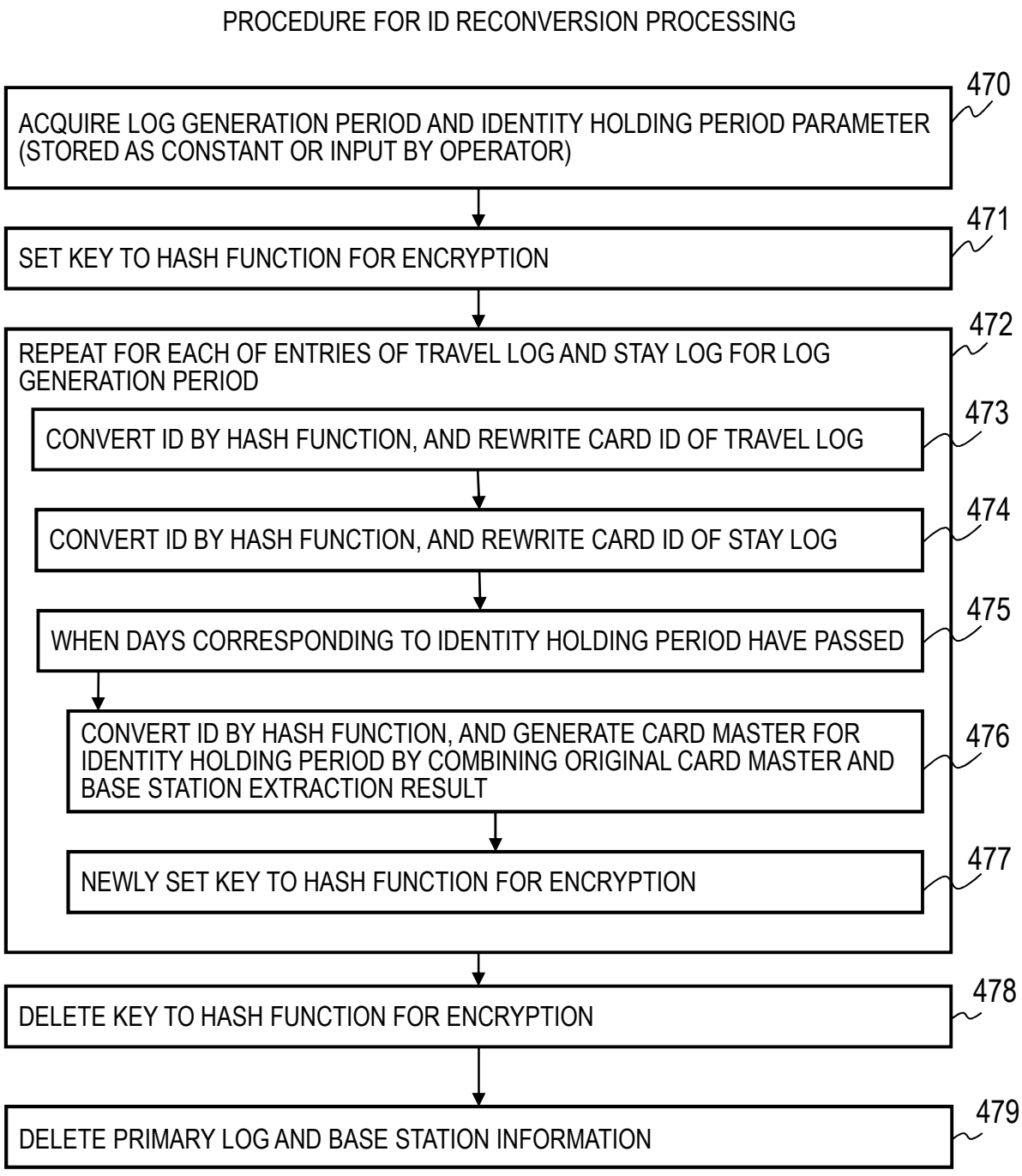

PROCEDURE FOR ID RECONVERSION PROCESSING
ACQUIRE LOG GENERATION PERIOD AND IDENTITY HOLDING PERIOD PARAMETER (STORED AS CONSTANT OR INPUT BY OPERATOR)
470
SET KEY TO HASH FUNCTION FOR ENCRYPTION
471
REPEAT FOR EACH OF ENTRIES OF TRAVEL LOG AND STAY LOG FOR LOG GENERATION PERIOD
472
CONVERT ID BY HASH FUNCTION, AND REWRITE CARD ID OF TRAVEL LOG
473
CONVERT ID BY HASH FUNCTION, AND REWRITE CARD ID OF STAY LOG
474
WHEN DAYS CORRESPONDING TO IDENTITY HOLDING PERIOD HAVE PASSED
475
CONVERT ID BY HASH FUNCTION, AND GENERATE CARD MASTER FOR IDENTITY HOLDING PERIOD BY COMBINING ORIGINAL CARD MASTER AND BASE STATION EXTRACTION RESULT
476
NEWLY SET KEY TO HASH FUNCTION FOR ENCRYPTION
477
DELETE KEY TO HASH FUNCTION FOR ENCRYPTION
478
DELETE PRIMARY LOG AND BASE STATION INFORMATION
479

Fig. 18

PROCEDURE FOR CALCULATION FOR ID IDENTITY HOLDING PERIOD

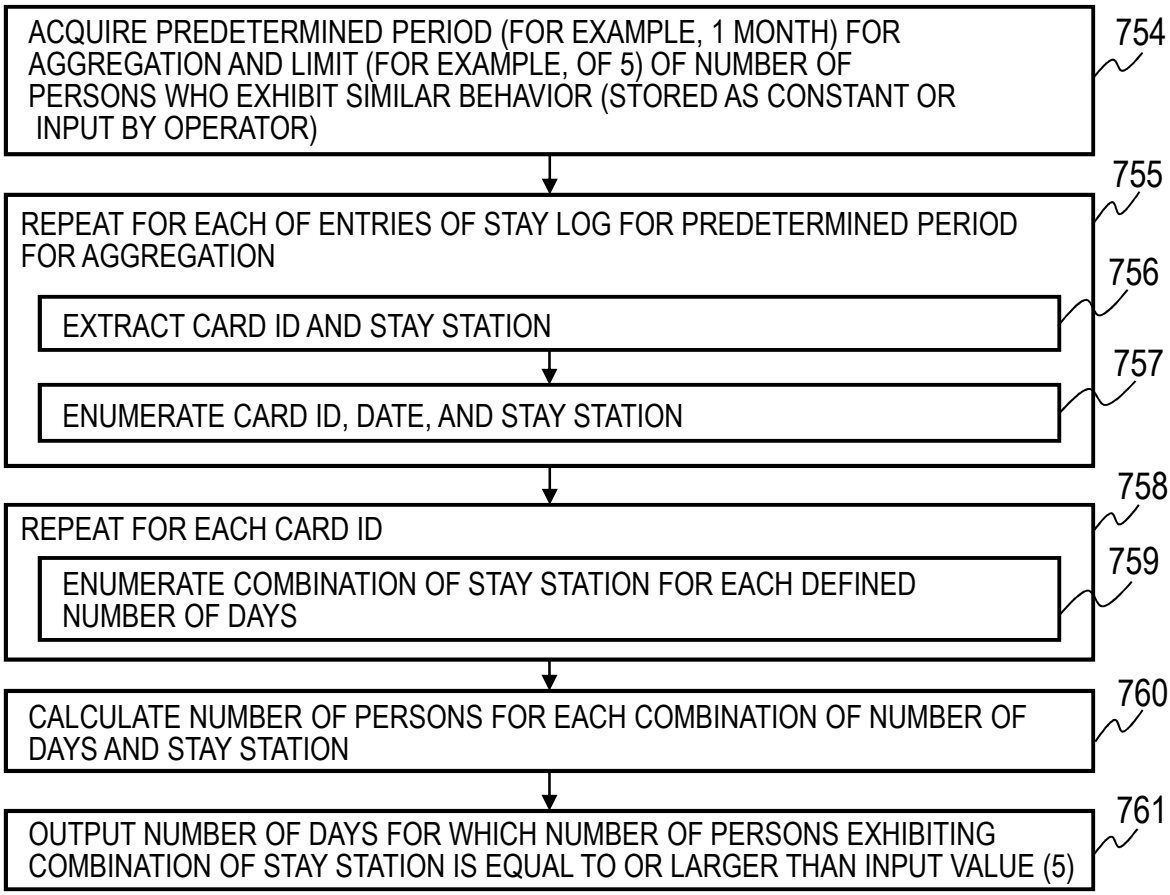


Fig. 19A

750

751 NUMBER OF DAYS	752 STAY STATION COMBINATION	753 NUMBER OF PERSONS
1 DAY	A STATION	50000 PERSONS
1 DAY	B STATION	40000 PERSONS
…	…	…
1 DAY	A STATION, B STATION	5000 PERSONS
…	…	…
3 DAYS	A STATION, B STATION, C STATION	1000 PERSONS
…	…	…
15 DAYS	A STATION, B STATION, C STATION, …, G STATION	5 PERSONS
…	…	…
30 DAYS	A STATION, B STATION, C STATION, …, Z STATION	1 PERSON
…		…

TEMPORARY MEMORY FOR AGGREGATION

Fig. 19B

PROCEDURE FOR REPORT GENERATION PROCESSING (EXAMPLE OF STATION REPORT)

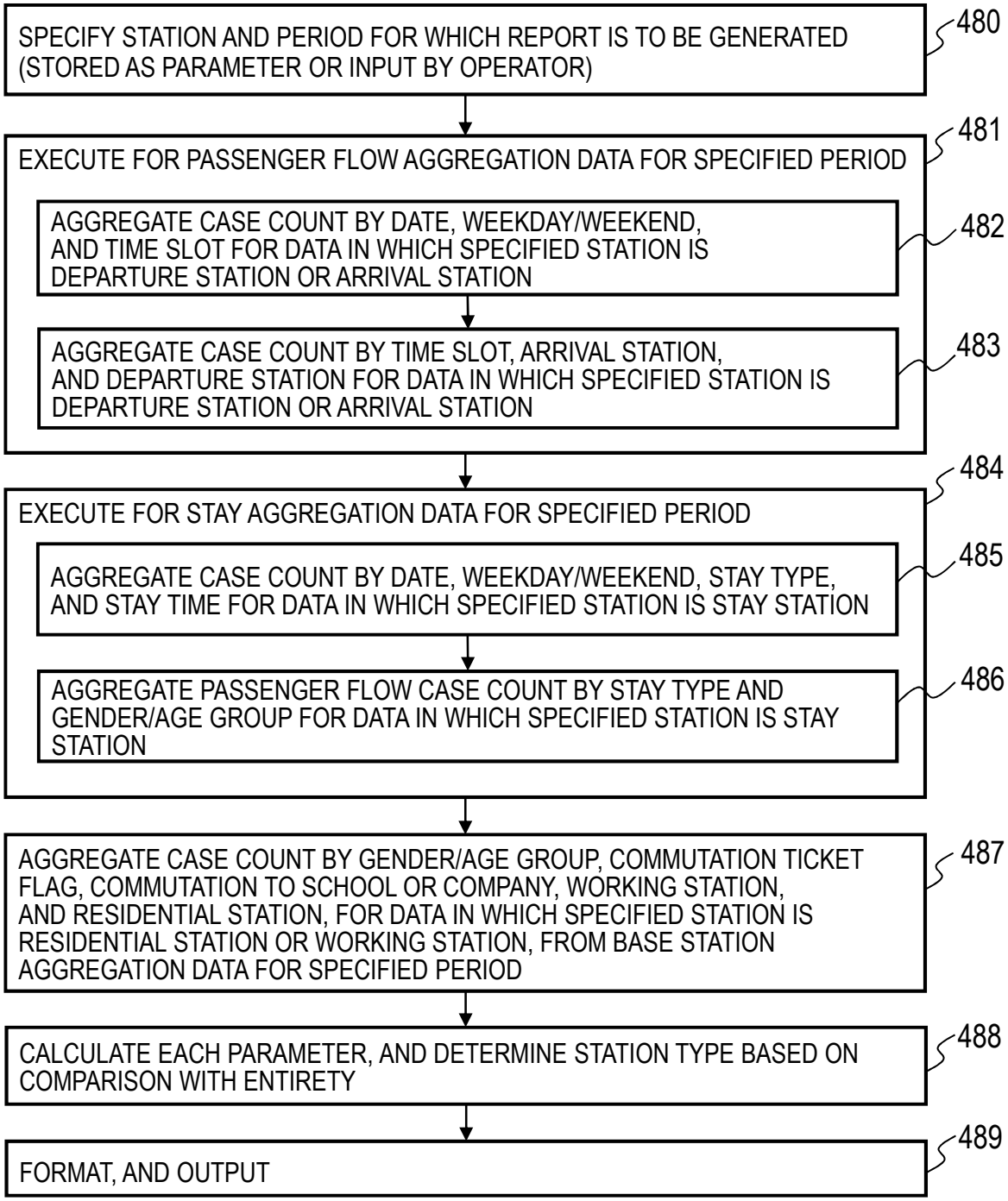


Fig. 20

OUTPUT EXAMPLE OF STATION REPORT

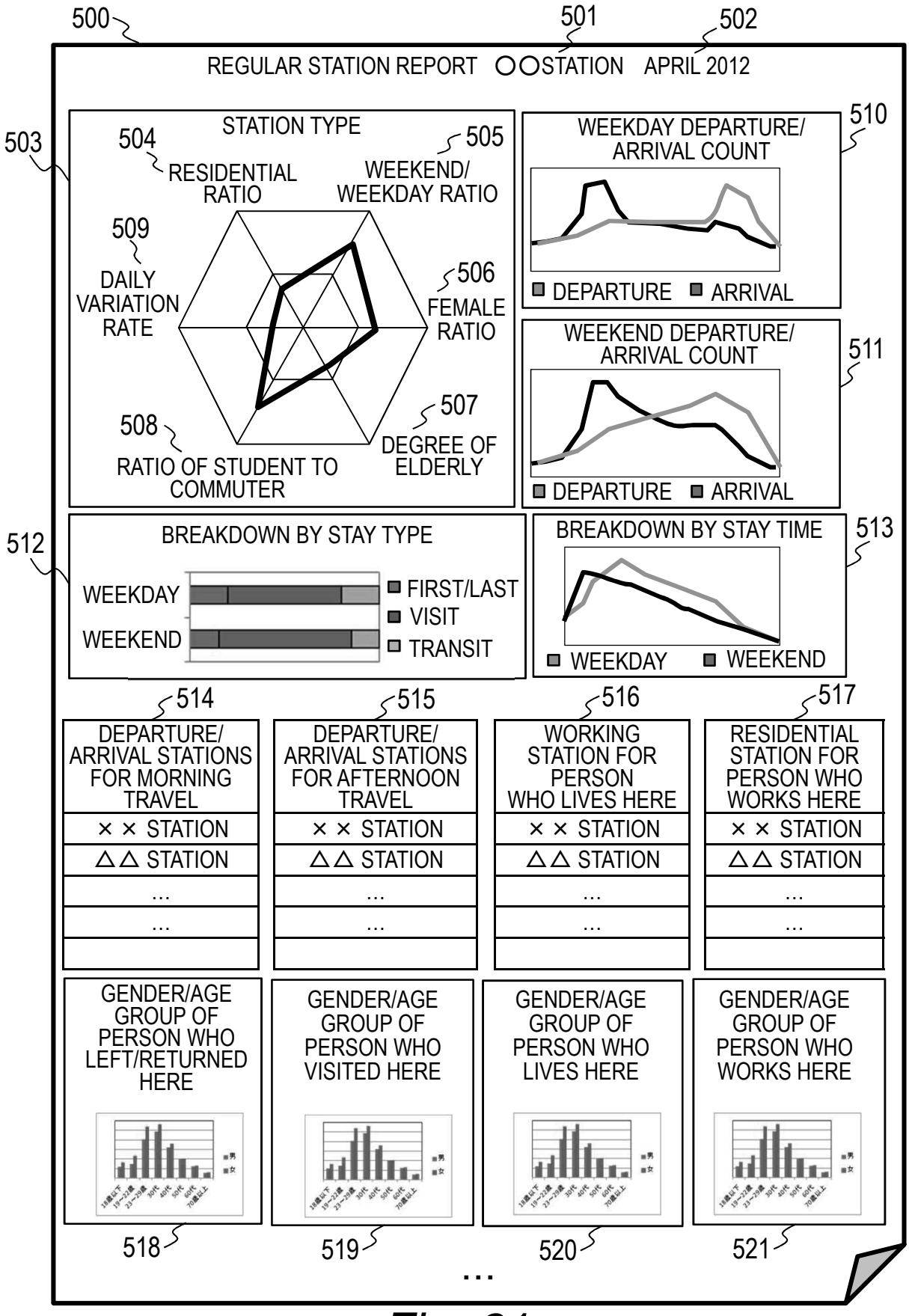


Fig. 21

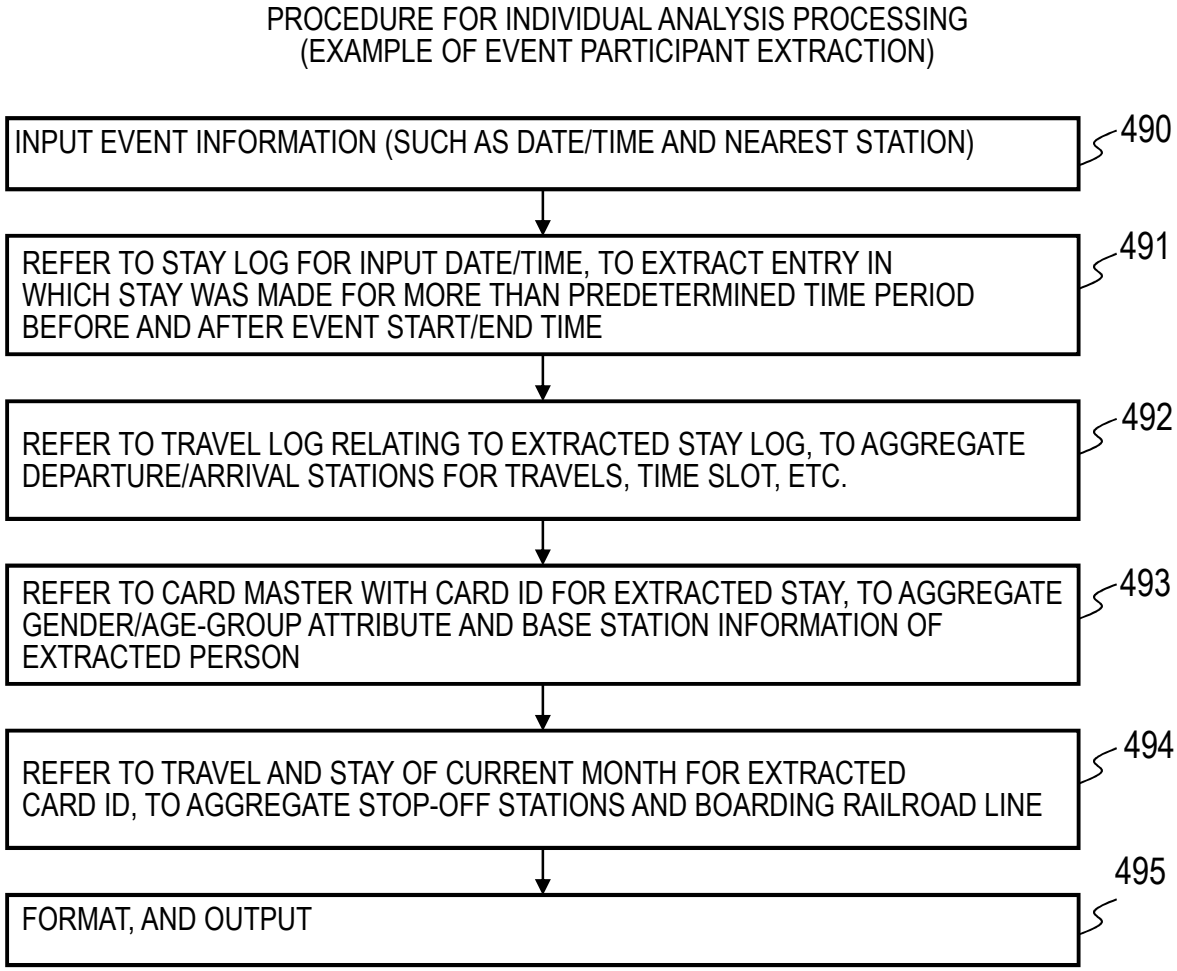

PROCEDURE FOR INDIVIDUAL ANALYSIS PROCESSING
(EXAMPLE OF EVENT PARTICIPANT EXTRACTION)
INPUT EVENT INFORMATION (SUCH AS DATE/TIME AND NEAREST STATION)
490
REFER TO STAY LOG FOR INPUT DATE/TIME, TO EXTRACT ENTRY IN WHICH STAY WAS MADE FOR MORE THAN PREDETERMINED TIME PERIOD BEFORE AND AFTER EVENT START/END TIME
491
REFER TO TRAVEL LOG RELATING TO EXTRACTED STAY LOG, TO AGGREGATE DEPARTURE/ARRIVAL STATIONS FOR TRAVELS, TIME SLOT, ETC.
492
REFER TO CARD MASTER WITH CARD ID FOR EXTRACTED STAY, TO AGGREGATE GENDER/AGE-GROUP ATTRIBUTE AND BASE STATION INFORMATION OF EXTRACTED PERSON
493
REFER TO TRAVEL AND STAY OF CURRENT MONTH FOR EXTRACTED CARD ID, TO AGGREGATE STOP-OFF STATIONS AND BOARDING RAILROAD LINE
494
FORMAT, AND OUTPUT
495

Fig. 22

530 OUTPUT EXAMPLE OF EVENT PARTICIPANT INDIVIDUAL ANALYSIS REPORT

INDIVIDUAL ANALYSIS REPORT

ANALYSIS REGARDING PARTICIPANT IN ○○ EVENT IN APRIL 2012
DATE/TIME WHEN EVENT WAS HELD: 13:00-16:00 SUNDAY, APRIL 1ST;
14:00-17:00 SATURDAY, APRIL 7TH;
13:00-16:00 SUNDAY, APRIL 8TH
PLACE WHERE EVENT WAS HELD: □□ HALL (NEAREST STATION:
×× LINE △△ STATION, ○○ LINE▽▽ STATION)

531

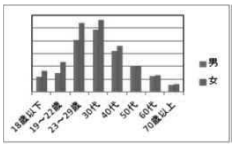
PARTICIPANT EXTRACTION RESULT
SUNDAY, APRIL 1ST 12,100 PERSONS
(ACTUAL NUMBER OF SPECTATORS 50000 PERSONS EXTRACTION RATIO 24%)
SATURDAY, APRIL 7TH 8,300 PERSONS
(ACTUAL NUMBER OF SPECTATORS 33000 PERSONS EXTRACTION RATIO 25%)
SUNDAY, APRIL 8TH 11,500 PERSONS
(ACTUAL NUMBER OF SPECTATORS 50000 PERSONS EXTRACTION RATIO 23%)
NUMBER OF PERSONS WHO PARTICIPATED MORE THAN ONCE 1,200 PERSONS

532

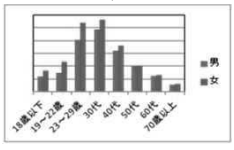
GENDER/AGE-GROUP ATTRIBUTE

533

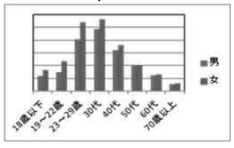
SUNDAY, APRIL 1ST



SATURDAY, APRIL 7TH



SUNDAY, APRIL 8TH



534 DEPARTURE STATION BEFORE EVENT

535 ARRIVAL STATION AFTER EVENT

536 RESIDENTIAL STATION OF PARTICIPANT

537 WORKING STATION OF PARTICIPANT

538 STOP-OFF POINT ON WEEKDAY OF CURRENT MONTH

539 STOP-OFF POINT ON WEEKEND OF CURRENT MONTH

×× STATION	×× STATION	×× STATION	×× STATION	×× STATION	×× STATION
△△STATION	△△STATION	△△STATION	△△STATION	△△STATION	△△STATION
…	…	…	…	…	…
…	…	…	…	…	…

540

BOARDING RAILROAD LINE ON CURRENT DAY	
×× LINE	65 %
○○ LINE	40 %
…	…
…	…

541

BOARDING RAILROAD LINE IN CURRENT MONTH	
×× LINE	55 %
▽▽ LINE	50 %
…	…
…	…

…

Fig. 23

(PROCESSING-SPECIFIC) RELATIONSHIP BETWEEN EACH PROCESSING AND DATA MANAGEMENT

PROCESSING MODULE	EXECUTION SYSTEM	DATA BEFORE CONVERSION	DATA AFTER CONVERSION
ORIGINAL DATA CONVERSION PROCESSING	DATA HOLDING SYSTEM 2	ORIGINAL LOG	RECEPTION DATA 142
INITIAL CONVERSION PROCESSING MODULE 131 (GENERATION OF TRAVEL LOG AND STAY LOG)	DATA PROCESSING SYSTEM 1	RECEPTION DATA 142	PRIMARY LOG 143
BASE STATION EXTRACTION PROCESSING MODULE 132	DATA PROCESSING SYSTEM 1	PRIMARY LOG 143	BASE STATION INFORMATION 144
DATA AGGREGATION PROCESSING MODULE 133	DATA PROCESSING SYSTEM 1	PRIMARY LOG 143 ・BASE STATION INFORMATION 144	AGGREGATION INFORMATION 146
ID RECONVERSION PROCESSING MODULE 135	DATA PROCESSING SYSTEM 1	PRIMARY LOG 143 ・BASE STATION INFORMATION 144	SECONDARY LOG 145
REPORT GENERATION PROCESSING MODULE 136	DATA PROCESSING SYSTEM 1	AGGREGATION INFORMATION 146	STATION REPORT 500
INDIVIDUAL ANALYSIS PROCESSING MODULE 137	DATA PROCESSING SYSTEM 1	AGGREGATION INFORMATION 146 ・SECONDARY LOG 145	INDIVIDUAL ANALYSIS REPORT 530

770
771
772
773
774
775
776

Fig. 24

(DATA-TYPE-SPECIFIC) RELATIONSHIP BETWEEN EACH PROCESSING AND DATA MANAGEMENT

DATA	HANDLING RANGE	HOLDING PERIOD	CARD ID
ORIGINAL DATA (NO DESCRIPTION)	DATA HOLDING SYSTEM 2	—	ORIGINAL CARD ID
RECEPTION DATA 142 (PERSONAL INFORMATION HAS BEEN ELIMINATED)	DATA PROCESSING SYSTEM 1	TO BE ERASED AFTER PROCESSING CONDUCTED BY INITIAL CONVERSION PROCESSING MODULE 131	ID a SUBJECTED TO CONVERSION
PRIMARY LOG 143 (TRAVEL LOG AND STAY LOG)	DATA PROCESSING SYSTEM 1	TO BE ERASED AFTER PROCESSING CONDUCTED BY BASE STATION EXTRACTION PROCESSING MODULE 132, DATA AGGREGATION PROCESSING MODULE 133, AND ID RECONVERSION PROCESSING MODULE 135	ID a SUBJECTED TO CONVERSION
BASE STATION INFORMATION 144	DATA PROCESSING SYSTEM 1	TO BE ERASED AFTER PROCESSING CONDUCTED BY DATA AGGREGATION PROCESSING MODULE 133 AND ID RECONVERSION PROCESSING MODULE 135	ID a SUBJECTED TO CONVERSION
SECONDARY LOG 145 (LOG SUBJECTED TO ID RECONVERSION)	DATA PROCESSING SYSTEM 1	MEDIUM-TERM (FOR INDIVIDUAL ANALYSIS REPORT)	ID b SUBJECTED TO CONVERSION (SHORT IDENTITY HOLDING PERIOD)
AGGREGATION INFORMATION 146	DATA PROCESSING SYSTEM 1, CLIENT 3	LONG-TERM (FOR STATION REPORT)	NULL

780
781
782
783
784
785

Fig. 25

EXAMPLE OF SCREEN ON CONTROL TERMINAL
(ID CONVERSION PROCESSING/CONDITION SETTING)

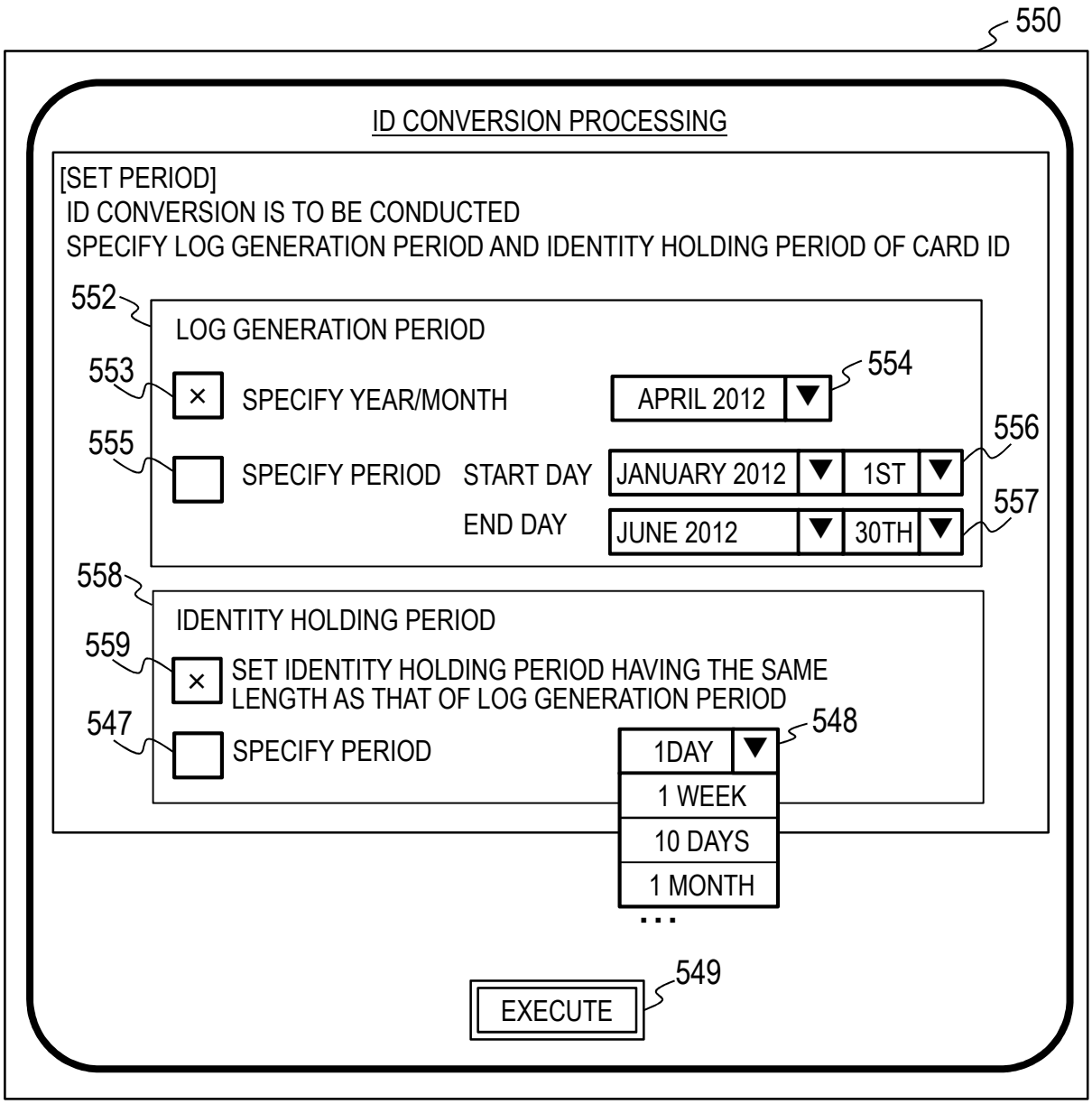


Fig. 26

EXAMPLE OF SCREEN ON CONTROL TERMINAL
(REGULAR STATION REPORT GENERATION/CONDITION SETTING)

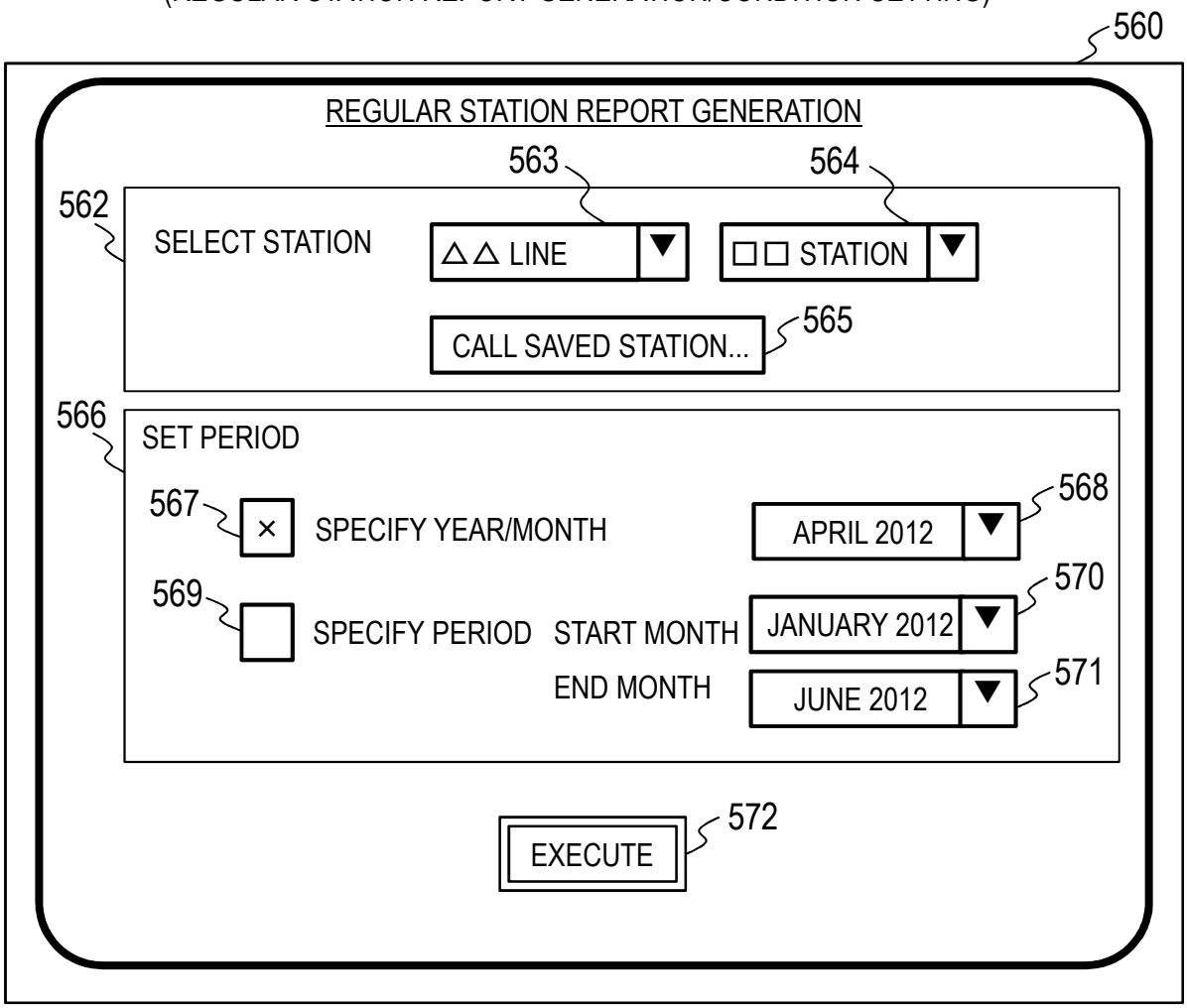


Fig. 27

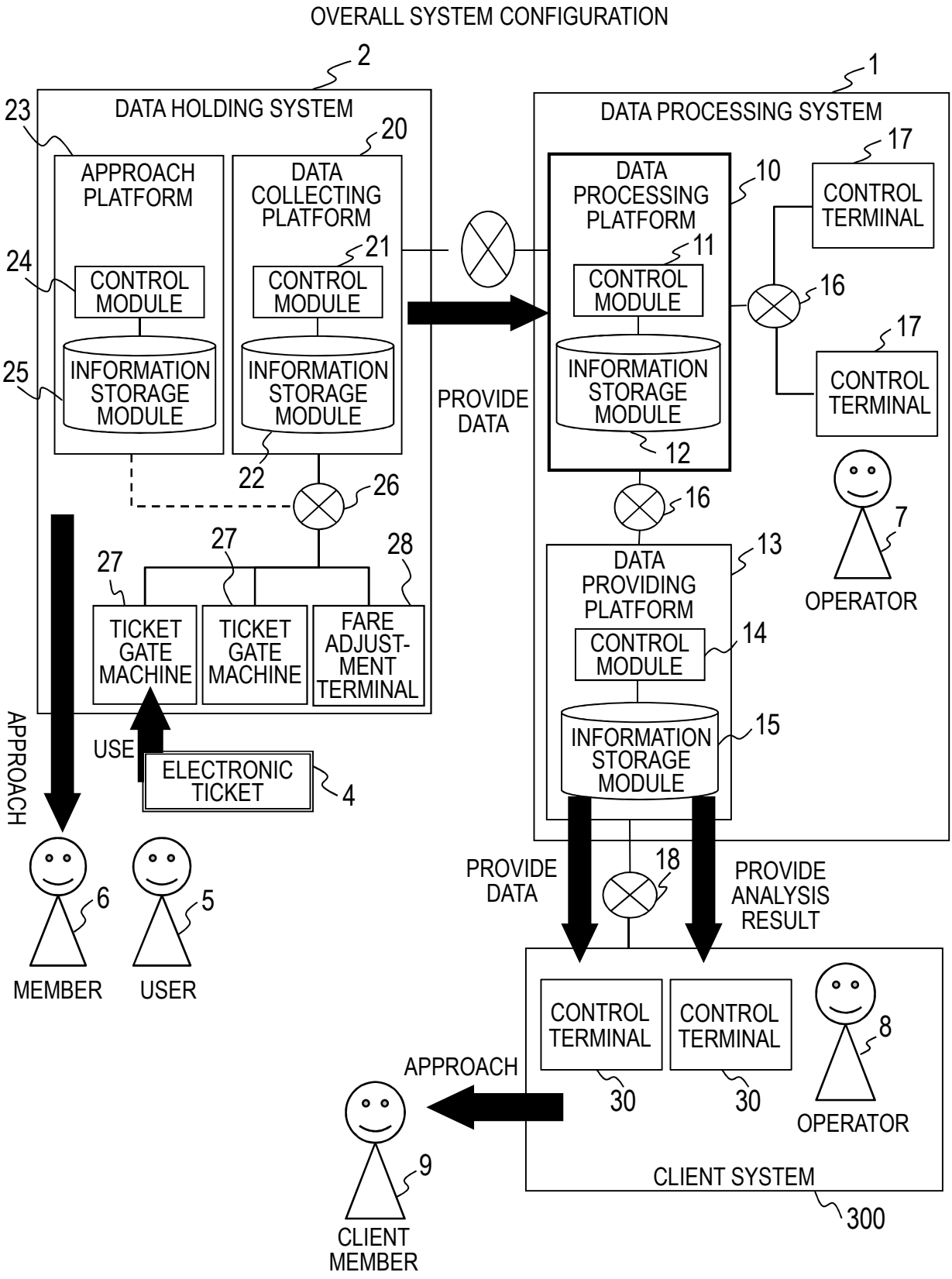

OVERALL SYSTEM CONFIGURATION
2
DATA HOLDING SYSTEM
23
APPROACH PLATFORM
20
DATA COLLECTING PLATFORM
24
CONTROL MODULE
21
CONTROL MODULE
25
INFORMATION STORAGE MODULE
INFORMATION STORAGE MODULE
22
26
27
27
28
TICKET GATE MACHINE
TICKET GATE MACHINE
FARE ADJUST-MENT TERMINAL
APPROACH
USE
ELECTRONIC TICKET
4
6
5
MEMBER
USER
PROVIDE DATA
1
DATA PROCESSING SYSTEM
DATA PROCESSING PLATFORM
10
11
CONTROL MODULE
INFORMATION STORAGE MODULE
12
17
CONTROL TERMINAL
16
17
CONTROL TERMINAL
7
OPERATOR
16
DATA PROVIDING PLATFORM
13
CONTROL MODULE
14
INFORMATION STORAGE MODULE
15
PROVIDE DATA
18
PROVIDE ANALYSIS RESULT
CONTROL TERMINAL
CONTROL TERMINAL
30
30
8
OPERATOR
APPROACH
9
CLIENT MEMBER
CLIENT SYSTEM
300

Fig. 28

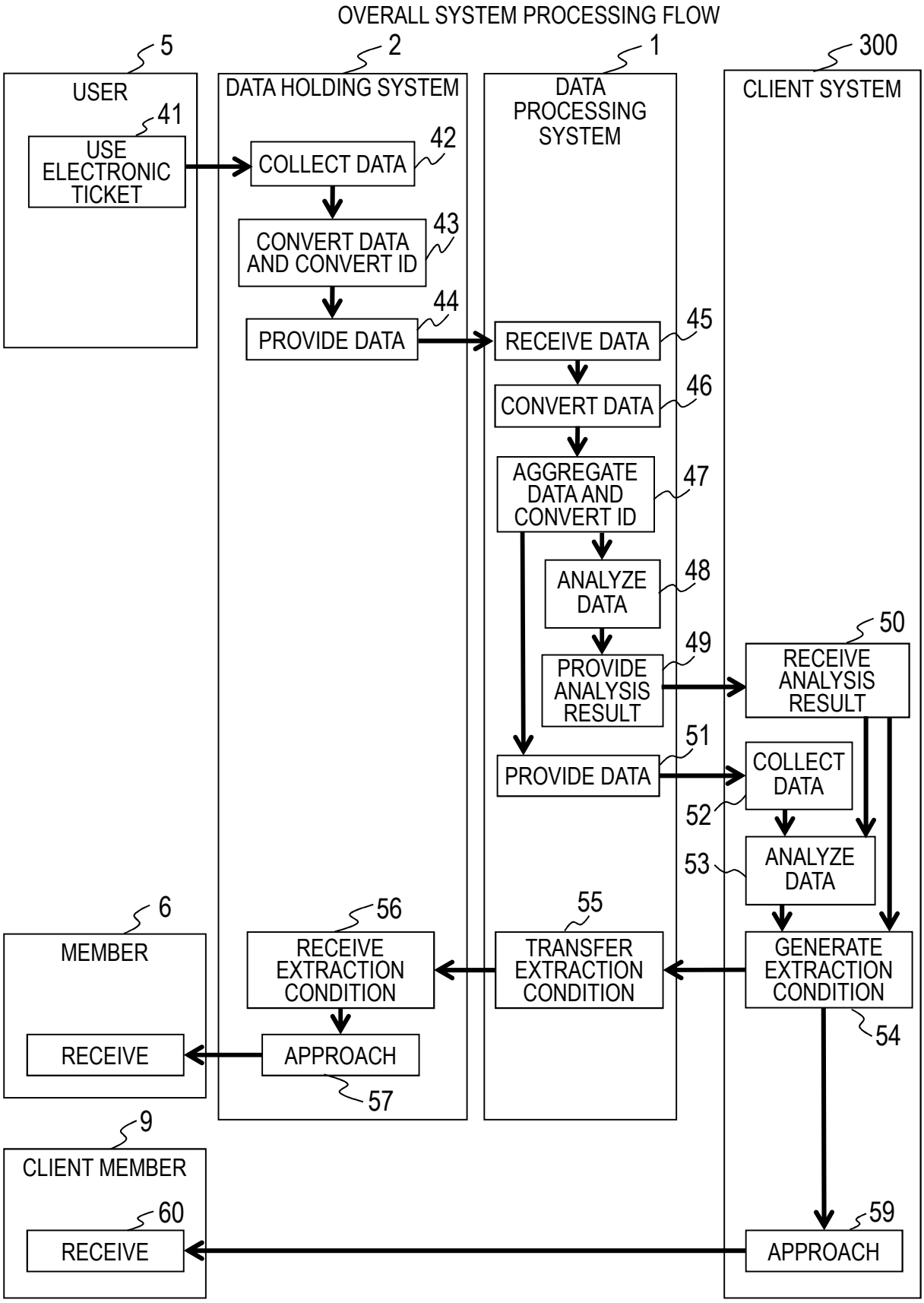

OVERALL SYSTEM PROCESSING FLOW
5
USER
41
USE ELECTRONIC TICKET
2
DATA HOLDING SYSTEM
42
COLLECT DATA
43
CONVERT DATA AND CONVERT ID
44
PROVIDE DATA
1
DATA PROCESSING SYSTEM
45
RECEIVE DATA
46
CONVERT DATA
47
AGGREGATE DATA AND CONVERT ID
48
ANALYZE DATA
49
PROVIDE ANALYSIS RESULT
51
PROVIDE DATA
55
TRANSFER EXTRACTION CONDITION
300
CLIENT SYSTEM
50
RECEIVE ANALYSIS RESULT
52
COLLECT DATA
53
ANALYZE DATA
54
GENERATE EXTRACTION CONDITION
56
RECEIVE EXTRACTION CONDITION
57
APPROACH
6
MEMBER
RECEIVE
9
CLIENT MEMBER
60
RECEIVE
59
APPROACH

Fig. 29

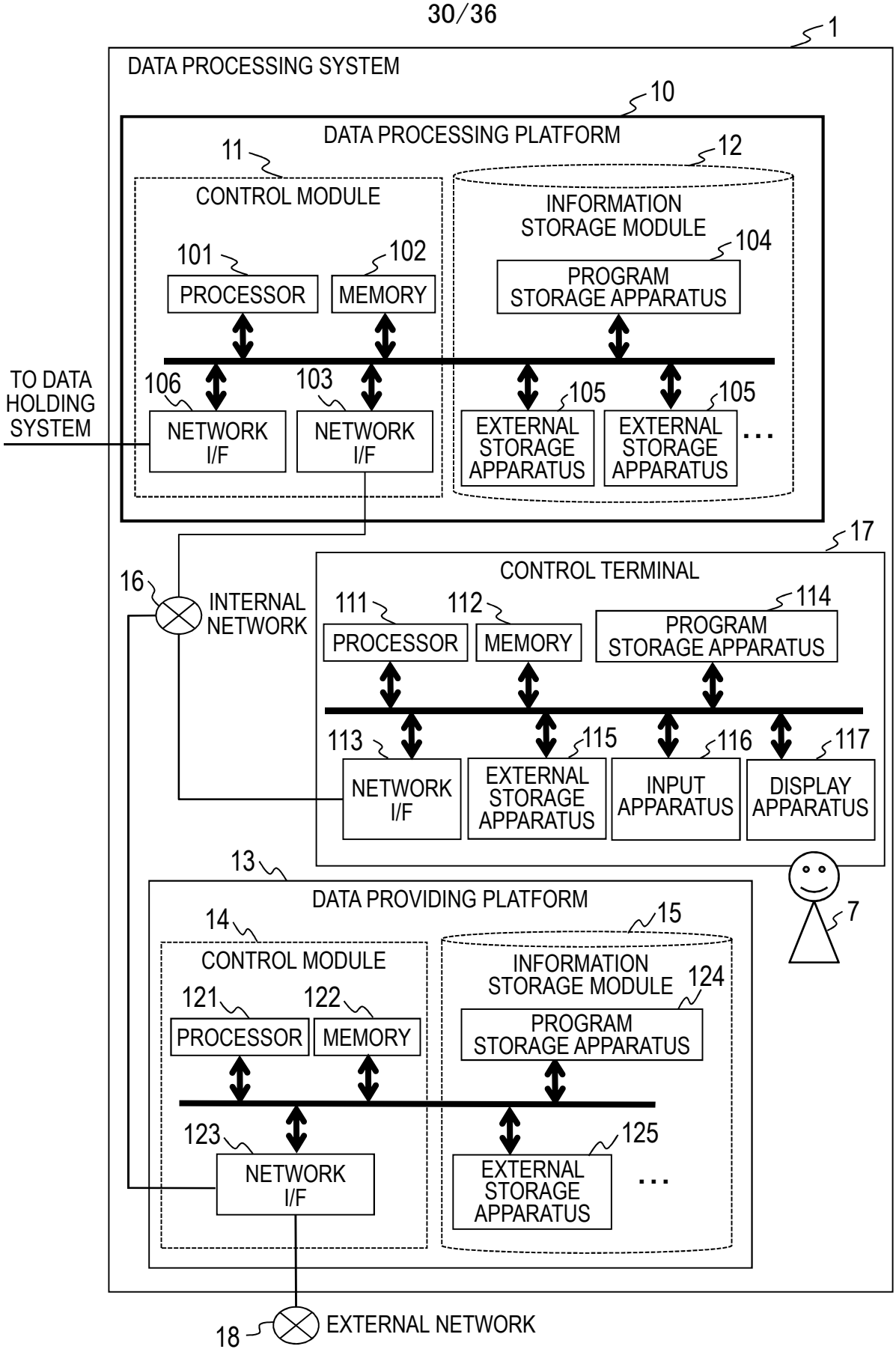

1
DATA PROCESSING SYSTEM
10
DATA PROCESSING PLATFORM
11
CONTROL MODULE
12
INFORMATION STORAGE MODULE
101
PROCESSOR
102
MEMORY
104
PROGRAM STORAGE APPARATUS
TO DATA HOLDING SYSTEM
106
NETWORK I/F
103
NETWORK I/F
105
EXTERNAL STORAGE APPARATUS
105
EXTERNAL STORAGE APPARATUS
17
CONTROL TERMINAL
16
INTERNAL NETWORK
111
PROCESSOR
112
MEMORY
114
PROGRAM STORAGE APPARATUS
113
NETWORK I/F
115
EXTERNAL STORAGE APPARATUS
116
INPUT APPARATUS
117
DISPLAY APPARATUS
7
13
DATA PROVIDING PLATFORM
14
CONTROL MODULE
15
INFORMATION STORAGE MODULE
121
PROCESSOR
122
MEMORY
124
PROGRAM STORAGE APPARATUS
123
NETWORK I/F
125
EXTERNAL STORAGE APPARATUS
18
EXTERNAL NETWORK

Fig. 30

FUNCTIONAL CONFIGURATION OF DATA PROCESSING PLATFORM

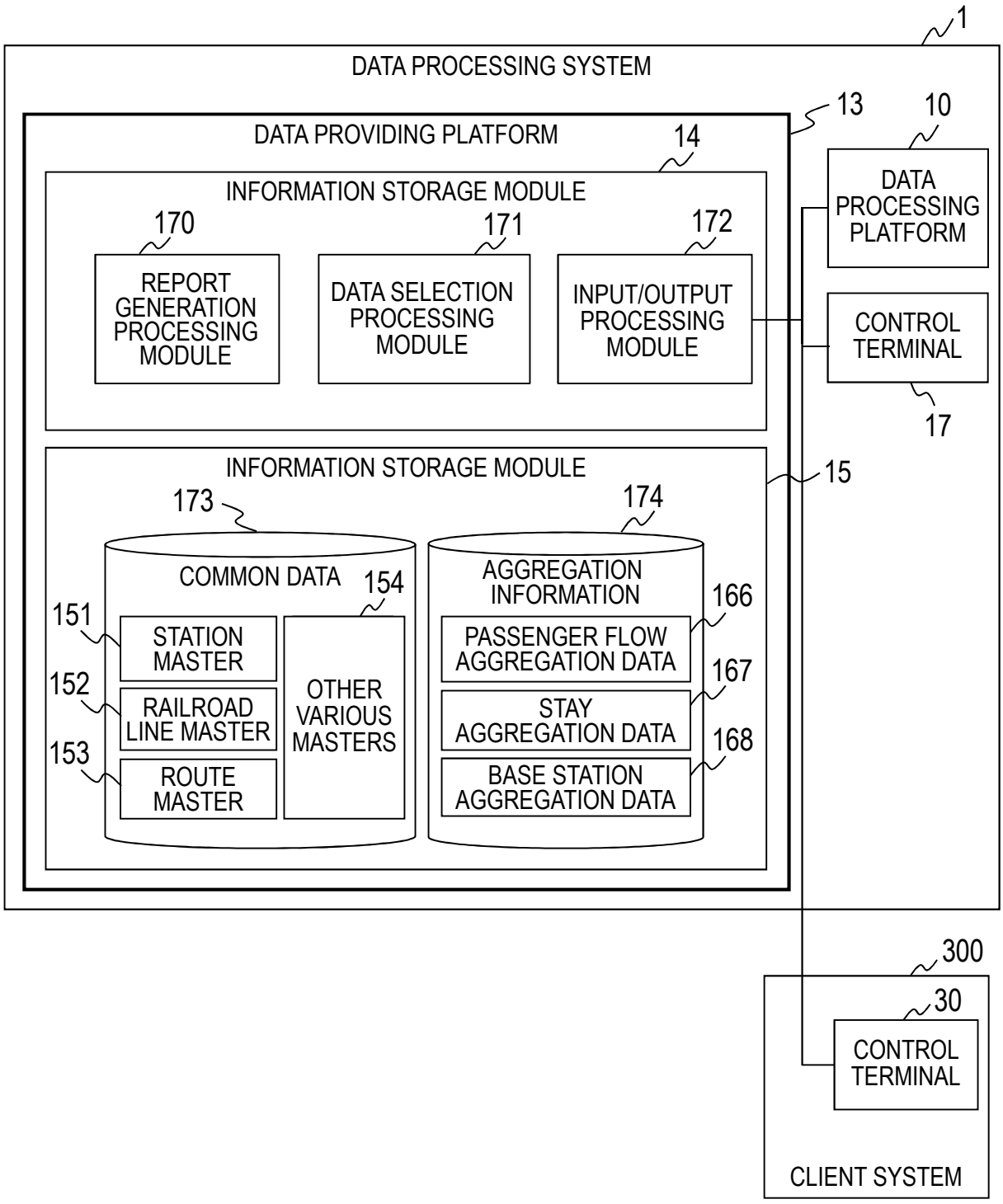


Fig. 31

EXAMPLE OF SCREEN ON CONTROL TERMINAL
(DATA PROVIDING SERVICE MENU)

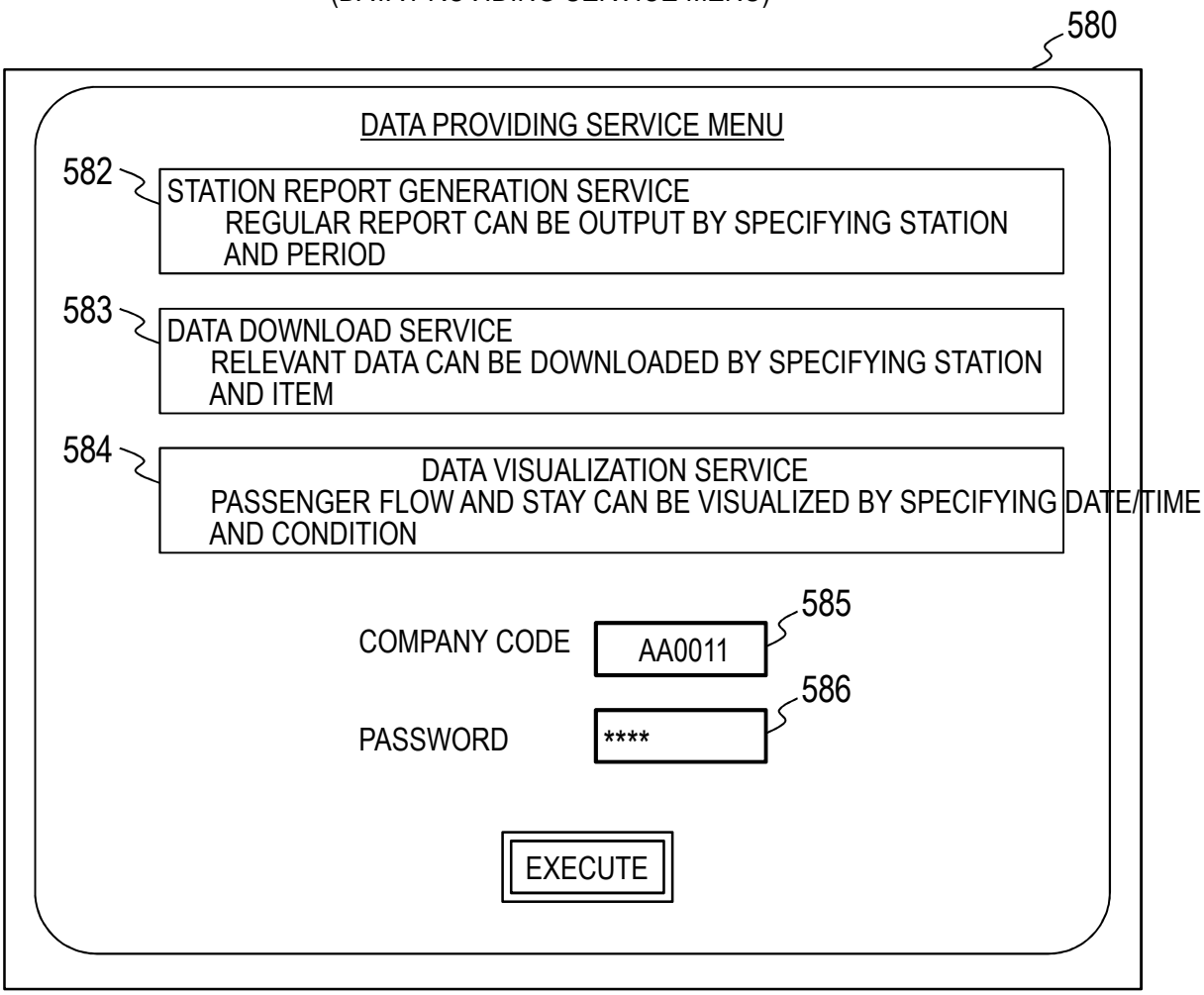


Fig. 32

EXAMPLE OF SCREEN ON CONTROL TERMINAL
(DATA VISUALIZATION SERVICE)

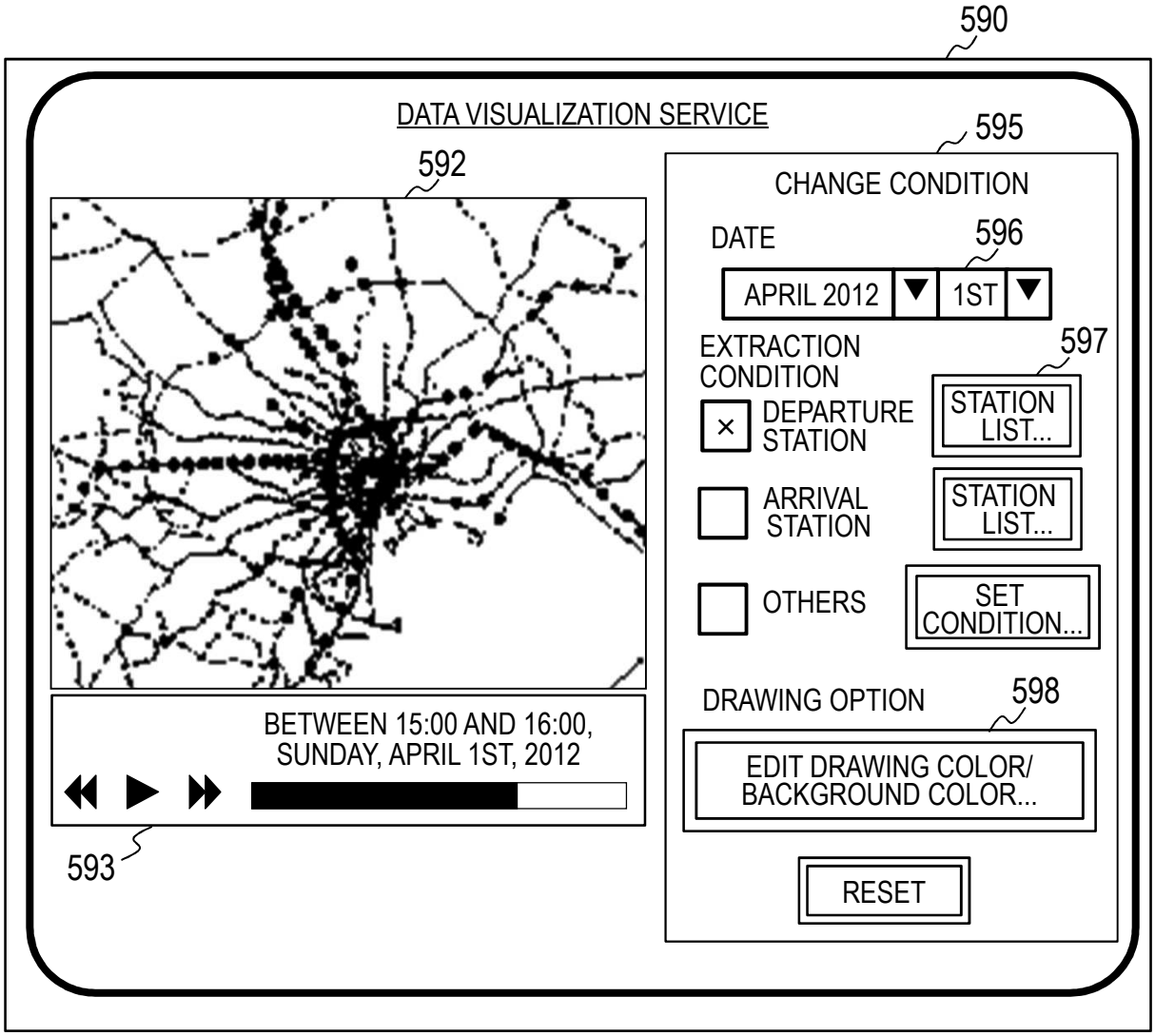


Fig. 33

EXAMPLE OF SCREEN ON CONTROL TERMINAL (APPROACH SETTING)

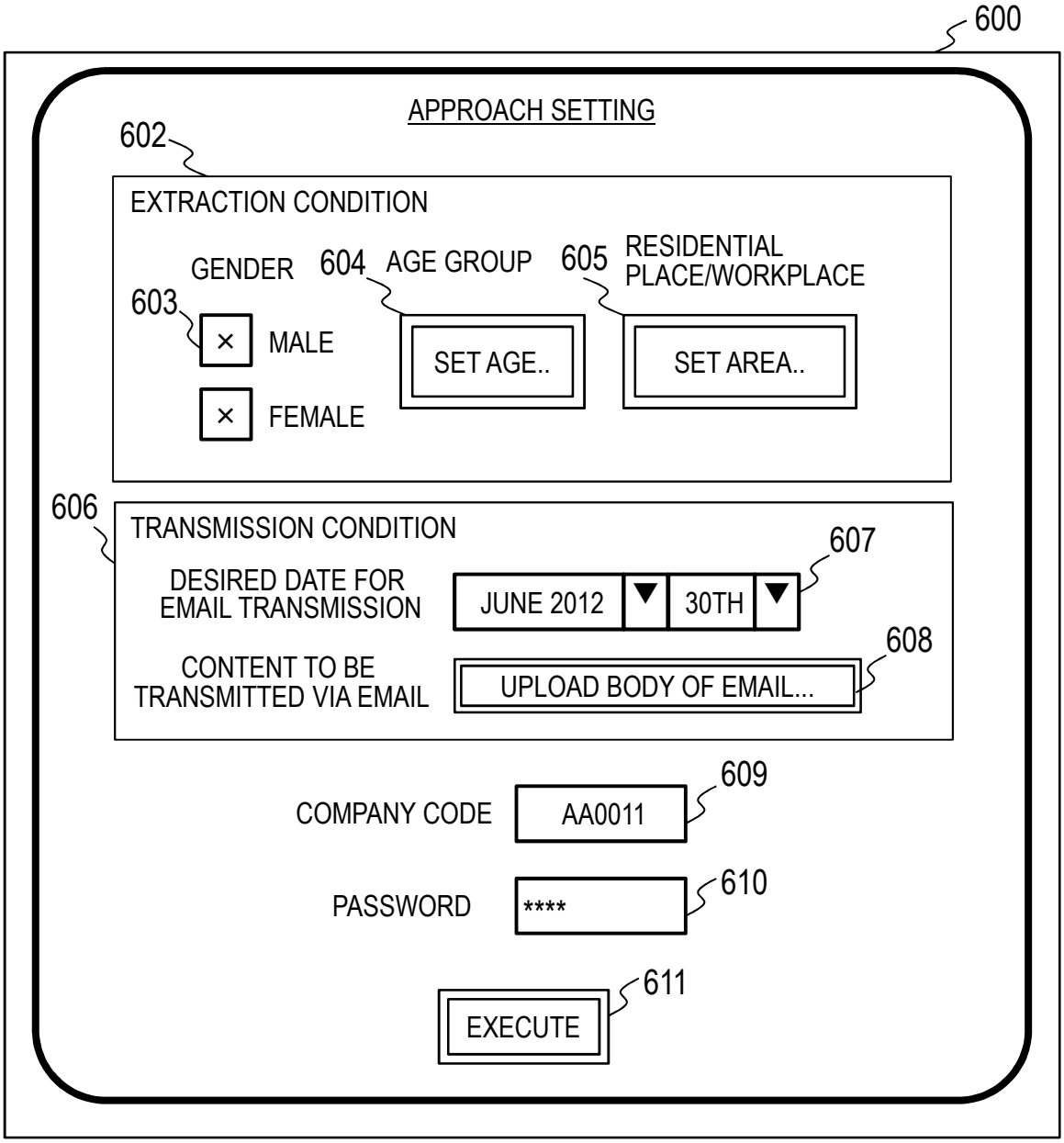


Fig. 34

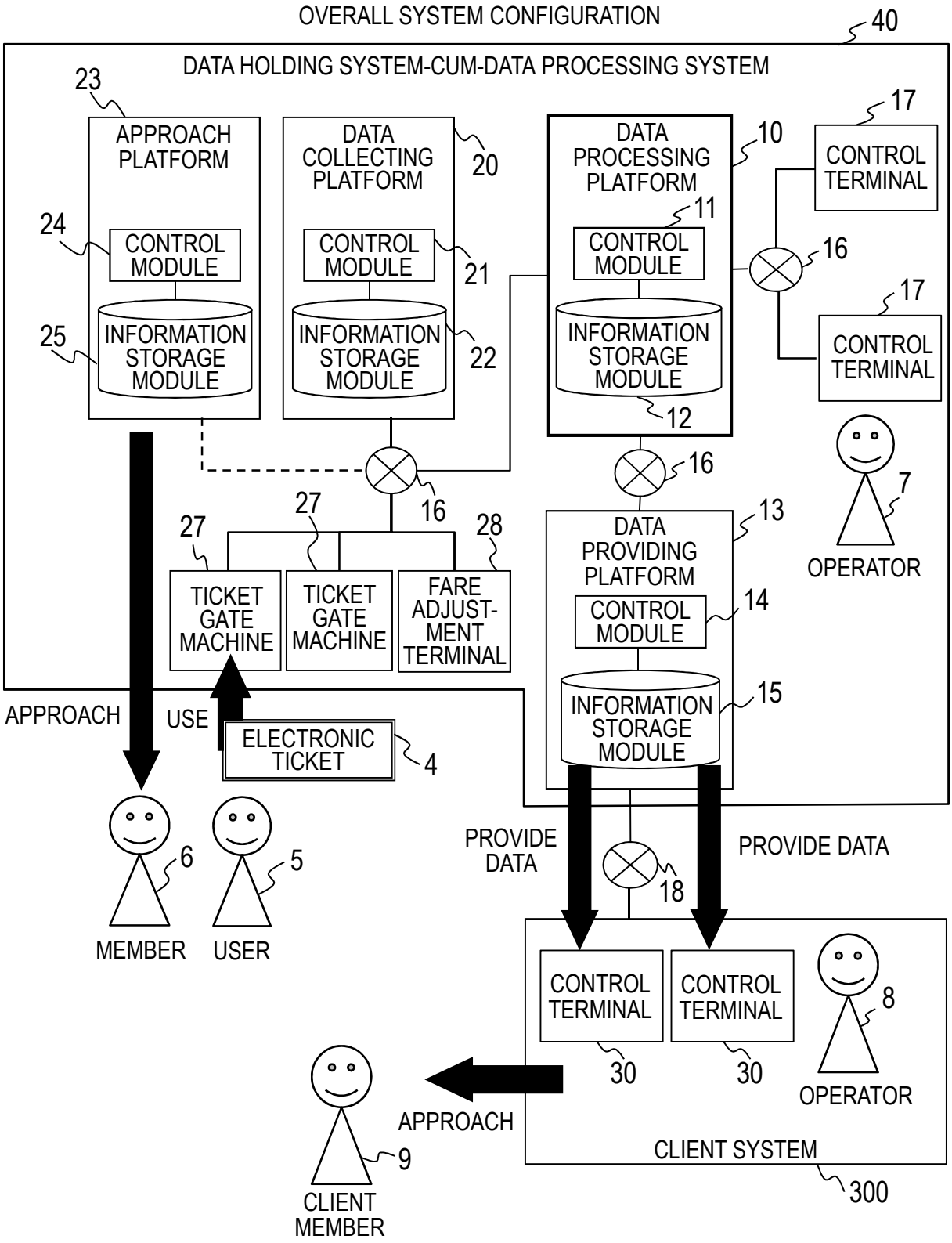

OVERALL SYSTEM CONFIGURATION
40
DATA HOLDING SYSTEM-CUM-DATA PROCESSING SYSTEM
23
APPROACH PLATFORM
24
CONTROL MODULE
25
INFORMATION STORAGE MODULE
DATA COLLECTING PLATFORM
20
CONTROL MODULE
21
INFORMATION STORAGE MODULE
22
DATA PROCESSING PLATFORM
10
11
CONTROL MODULE
INFORMATION STORAGE MODULE
12
17
CONTROL TERMINAL
16
17
CONTROL TERMINAL
OPERATOR
7
16
16
27
27
28
TICKET GATE MACHINE
TICKET GATE MACHINE
FARE ADJUST-MENT TERMINAL
DATA PROVIDING PLATFORM
13
CONTROL MODULE
14
INFORMATION STORAGE MODULE
15
APPROACH
USE
ELECTRONIC TICKET
4
MEMBER
6
USER
5
PROVIDE DATA
PROVIDE DATA
18
CONTROL TERMINAL
CONTROL TERMINAL
30
30
OPERATOR
8
APPROACH
CLIENT MEMBER
9
CLIENT SYSTEM
300

Fig. 35

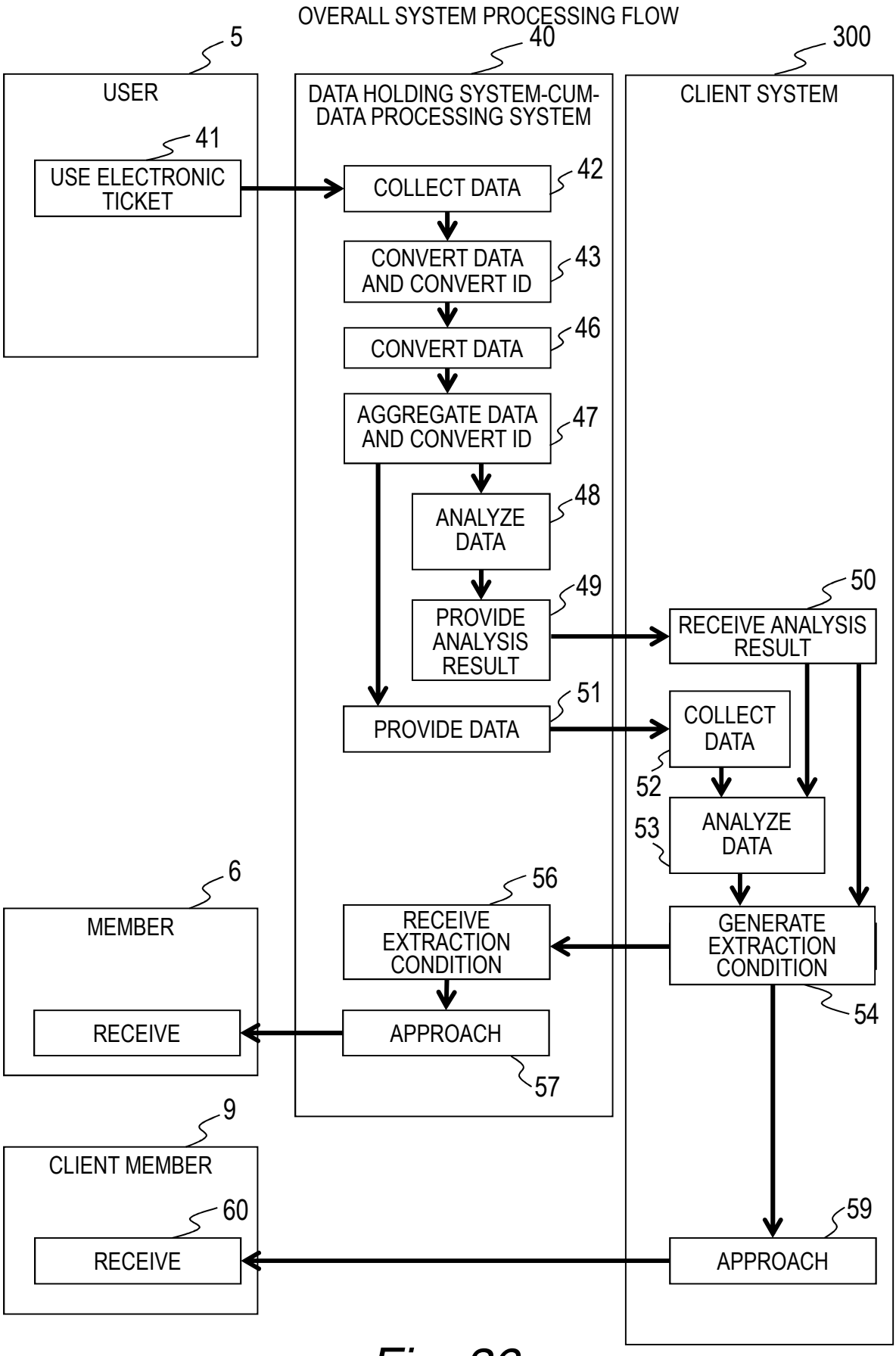

OVERALL SYSTEM PROCESSING FLOW
5
USER
41
USE ELECTRONIC TICKET
40
DATA HOLDING SYSTEM-CUM-DATA PROCESSING SYSTEM
42
COLLECT DATA
43
CONVERT DATA AND CONVERT ID
46
CONVERT DATA
47
AGGREGATE DATA AND CONVERT ID
48
ANALYZE DATA
49
PROVIDE ANALYSIS RESULT
51
PROVIDE DATA
56
RECEIVE EXTRACTION CONDITION
APPROACH
57
300
CLIENT SYSTEM
50
RECEIVE ANALYSIS RESULT
COLLECT DATA
52
53
ANALYZE DATA
GENERATE EXTRACTION CONDITION
54
59
APPROACH
6
MEMBER
RECEIVE
9
CLIENT MEMBER
60
RECEIVE

Fig. 36