163163

G00002

FIG. 1

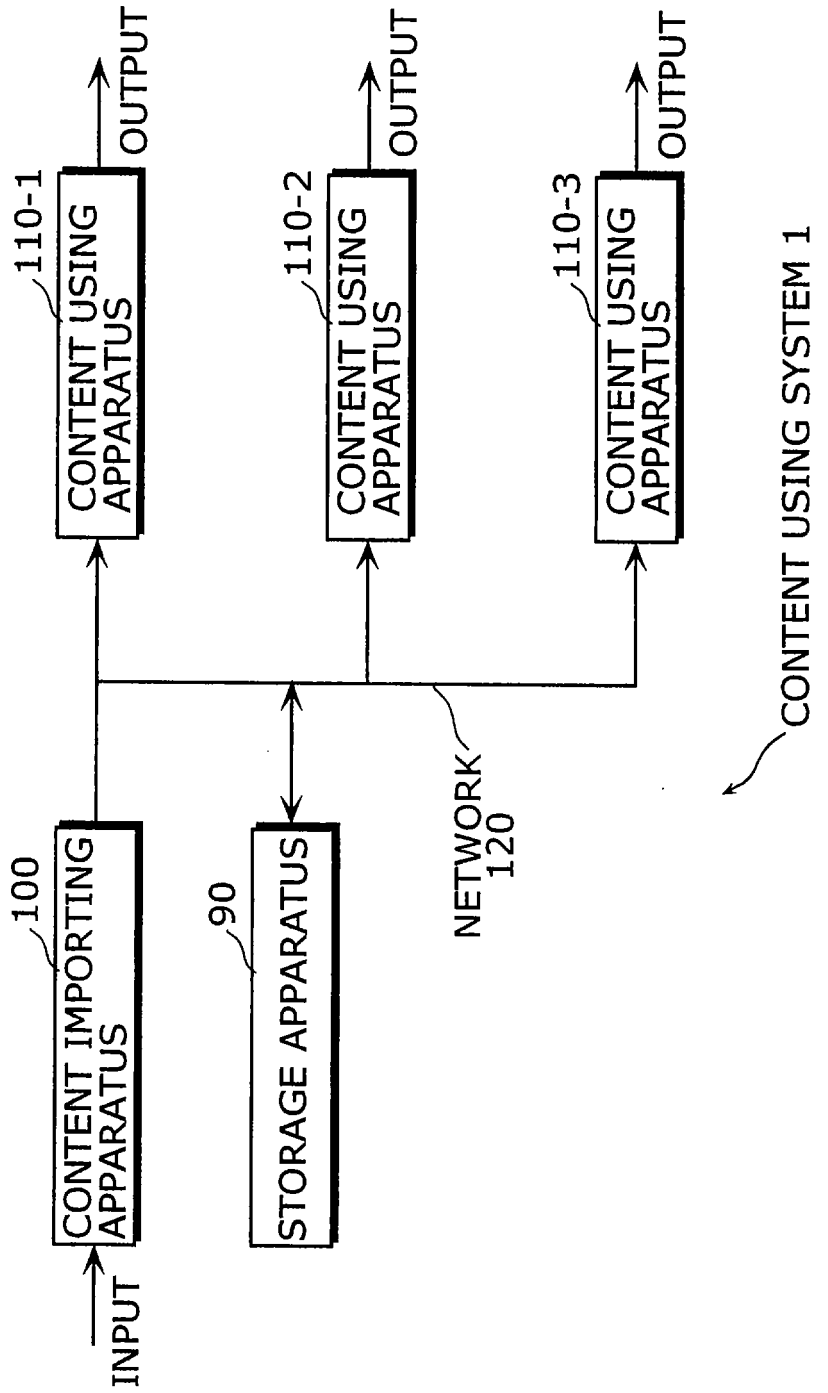


FIG. 2

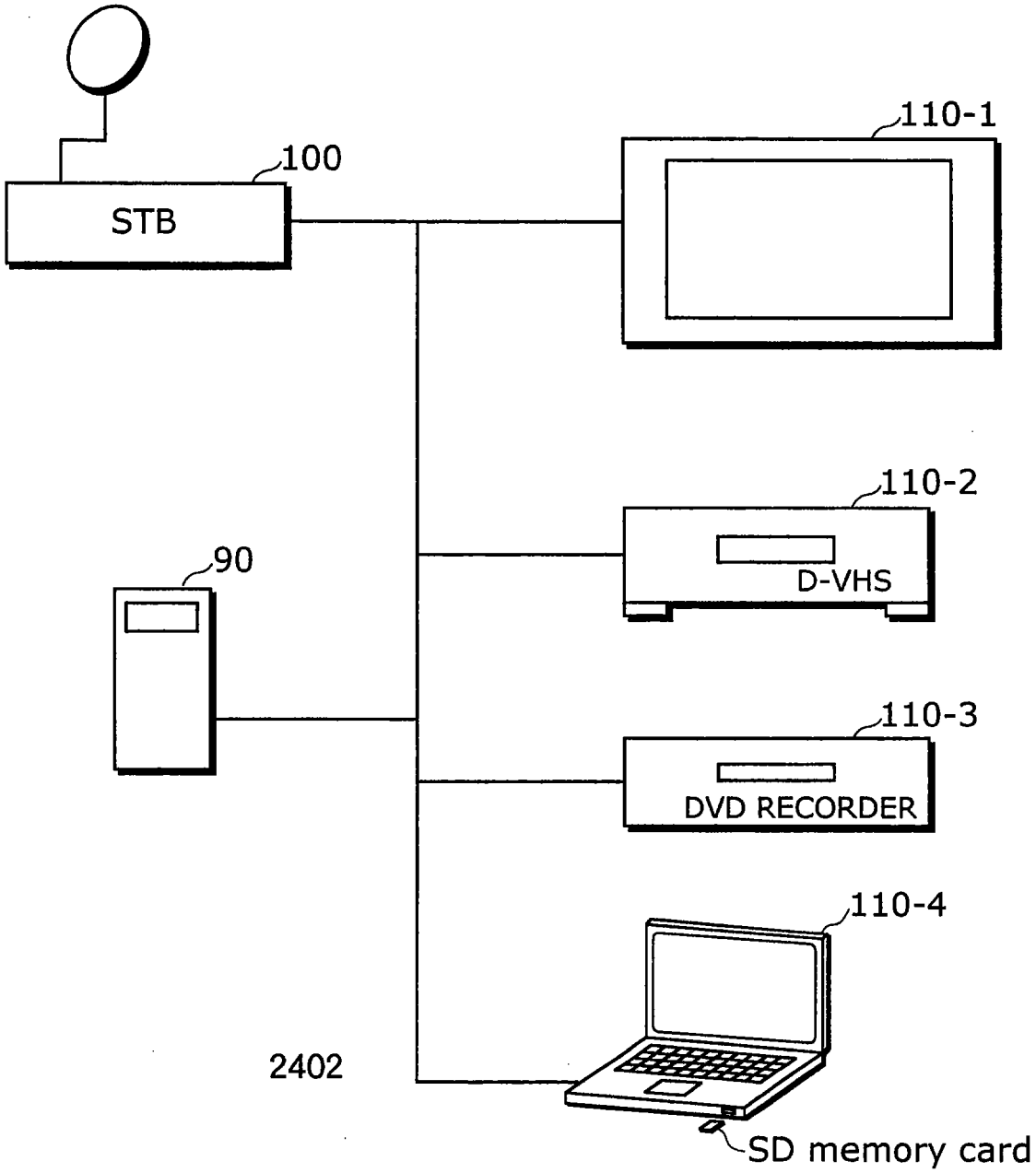

110-1
100
STB
110-2
90
D-VHS
110-3
DVD RECORDER
110-4
2402
SD memory card

FIG. 3

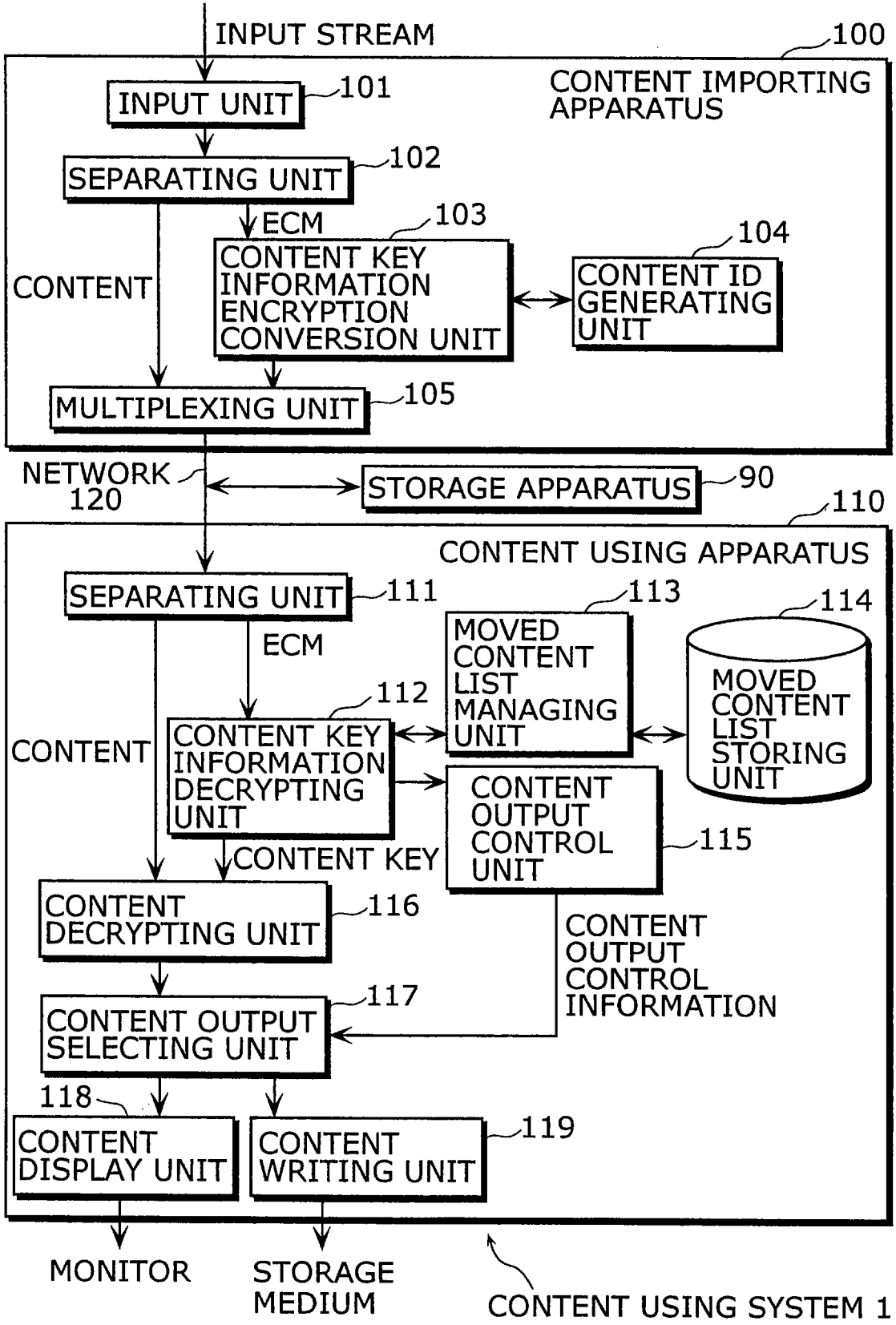

INPUT STREAM
100
CONTENT IMPORTING APPARATUS
INPUT UNIT
101
SEPARATING UNIT
102
ECM
103
CONTENT KEY INFORMATION ENCRYPTION CONVERSION UNIT
104
CONTENT ID GENERATING UNIT
CONTENT
MULTIPLEXING UNIT
105
NETWORK 120
STORAGE APPARATUS
90
110
CONTENT USING APPARATUS
SEPARATING UNIT
111
ECM
113
MOVED CONTENT LIST MANAGING UNIT
114
MOVED CONTENT LIST STORING UNIT
112
CONTENT KEY INFORMATION DECRYPTING UNIT
CONTENT
CONTENT OUTPUT CONTROL UNIT
115
CONTENT KEY
CONTENT DECRYPTING UNIT
116
CONTENT OUTPUT CONTROL INFORMATION
CONTENT OUTPUT SELECTING UNIT
117
118
CONTENT DISPLAY UNIT
CONTENT WRITING UNIT
119
MONITOR
STORAGE MEDIUM
CONTENT USING SYSTEM 1

FIG. 4

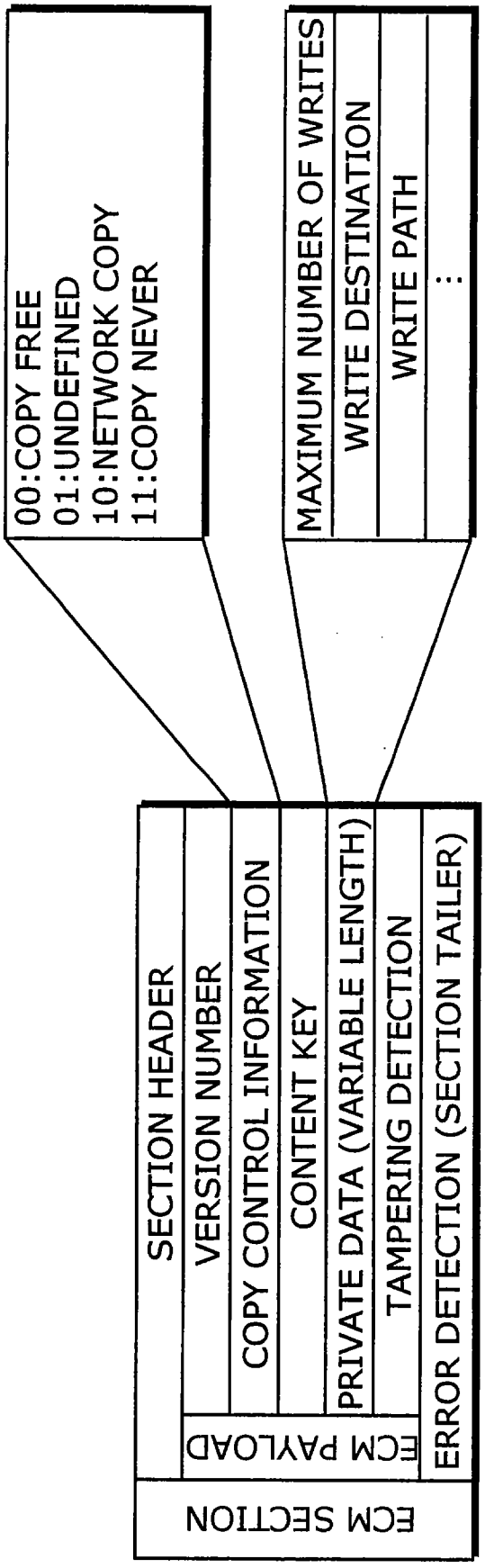

ECM SECTION
SECTION HEADER
ECM PAYLOAD
VERSION NUMBER
COPY CONTROL INFORMATION
CONTENT KEY
PRIVATE DATA (VARIABLE LENGTH)
TAMPERING DETECTION
ERROR DETECTION (SECTION TAILER)
00:COPY FREE
01:UNDEFINED
10:NETWORK COPY
11:COPY NEVER
MAXIMUM NUMBER OF WRITES
WRITE DESTINATION
WRITE PATH
:

FIG. 5

CONTENT ID	NUMBER OF WRITES	WRITE DESTINATION	WRITE PATH
CONTENT-ID-11111	1	-	-
CONTENT-ID-22222	2	DVD-RAM	-
CONTENT-ID-88888	1	-	Digital(SD)
CONTENT-ID-55555	1	-	Analog
CONTENT-ID-77777	3	SD CARD	-

FIG. 6

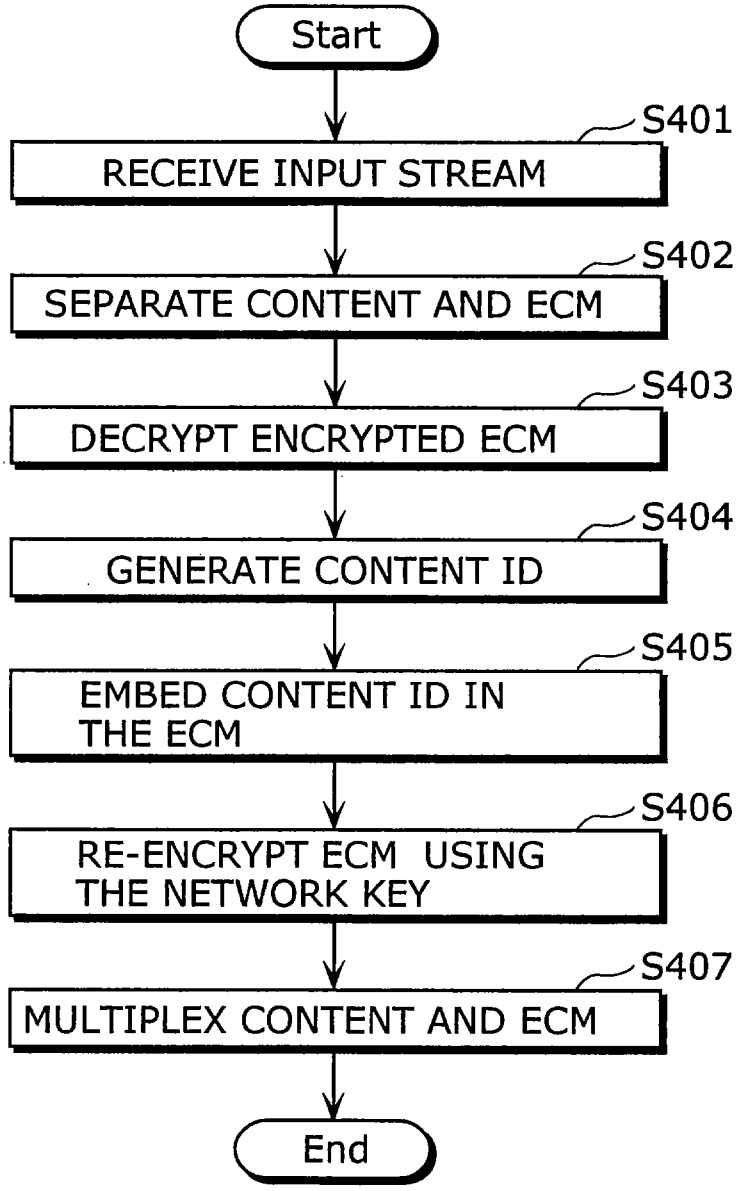

Start
S401
RECEIVE INPUT STREAM
S402
SEPARATE CONTENT AND ECM
S403
DECRYPT ENCRYPTED ECM
S404
GENERATE CONTENT ID
S405
EMBED CONTENT ID IN THE ECM
S406
RE-ENCRYPT ECM USING THE NETWORK KEY
S407
MULTIPLEX CONTENT AND ECM
End

FIG. 7

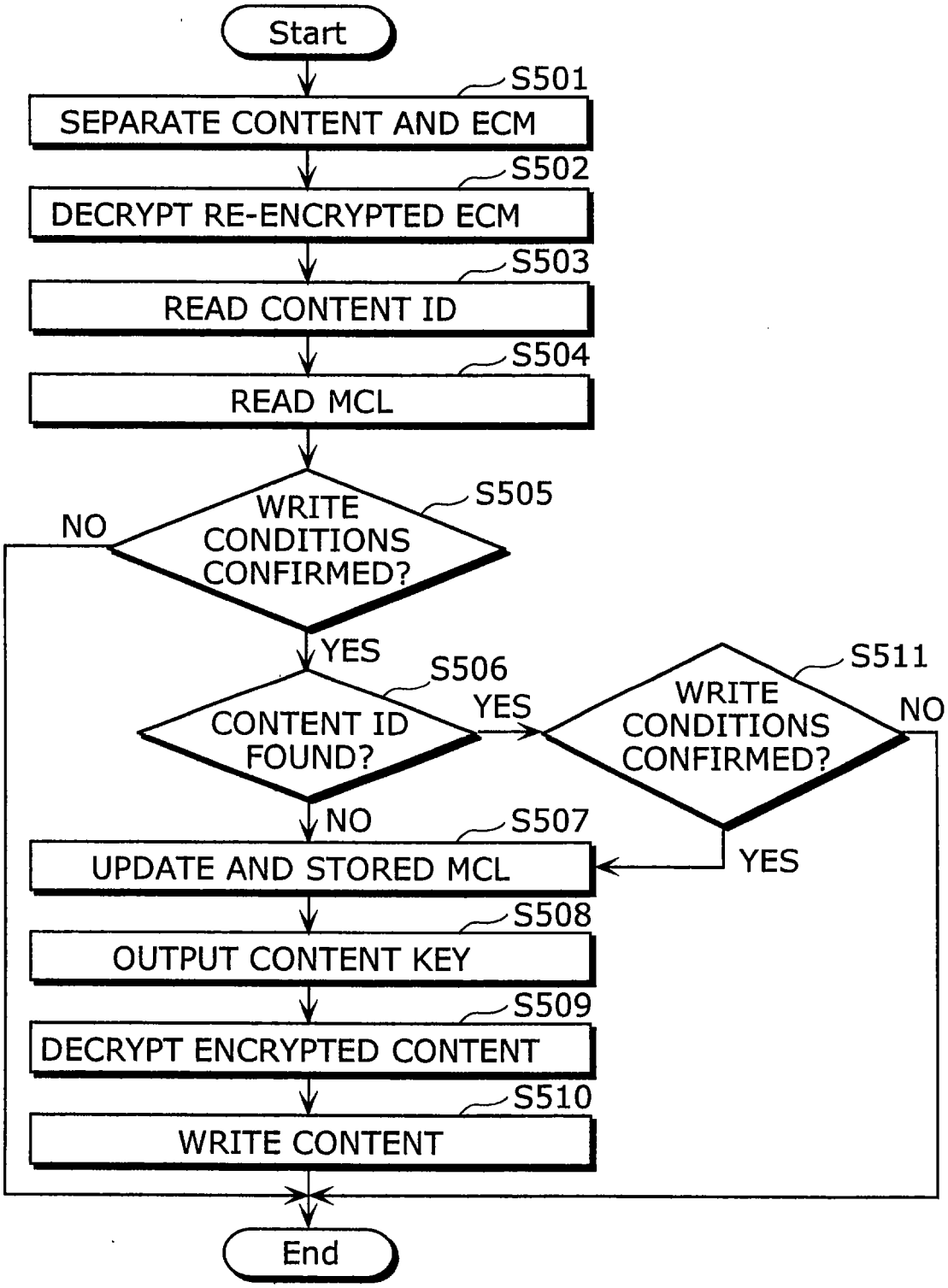

Start
S501
SEPARATE CONTENT AND ECM
S502
DECRYPT RE-ENCRYPTED ECM
S503
READ CONTENT ID
S504
READ MCL
S505
WRITE CONDITIONS CONFIRMED?
NO
YES
S506
CONTENT ID FOUND?
YES
S511
WRITE CONDITIONS CONFIRMED?
NO
YES
NO
S507
UPDATE AND STORED MCL
S508
OUTPUT CONTENT KEY
S509
DECRYPT ENCRYPTED CONTENT
S510
WRITE CONTENT
End

FIG. 8

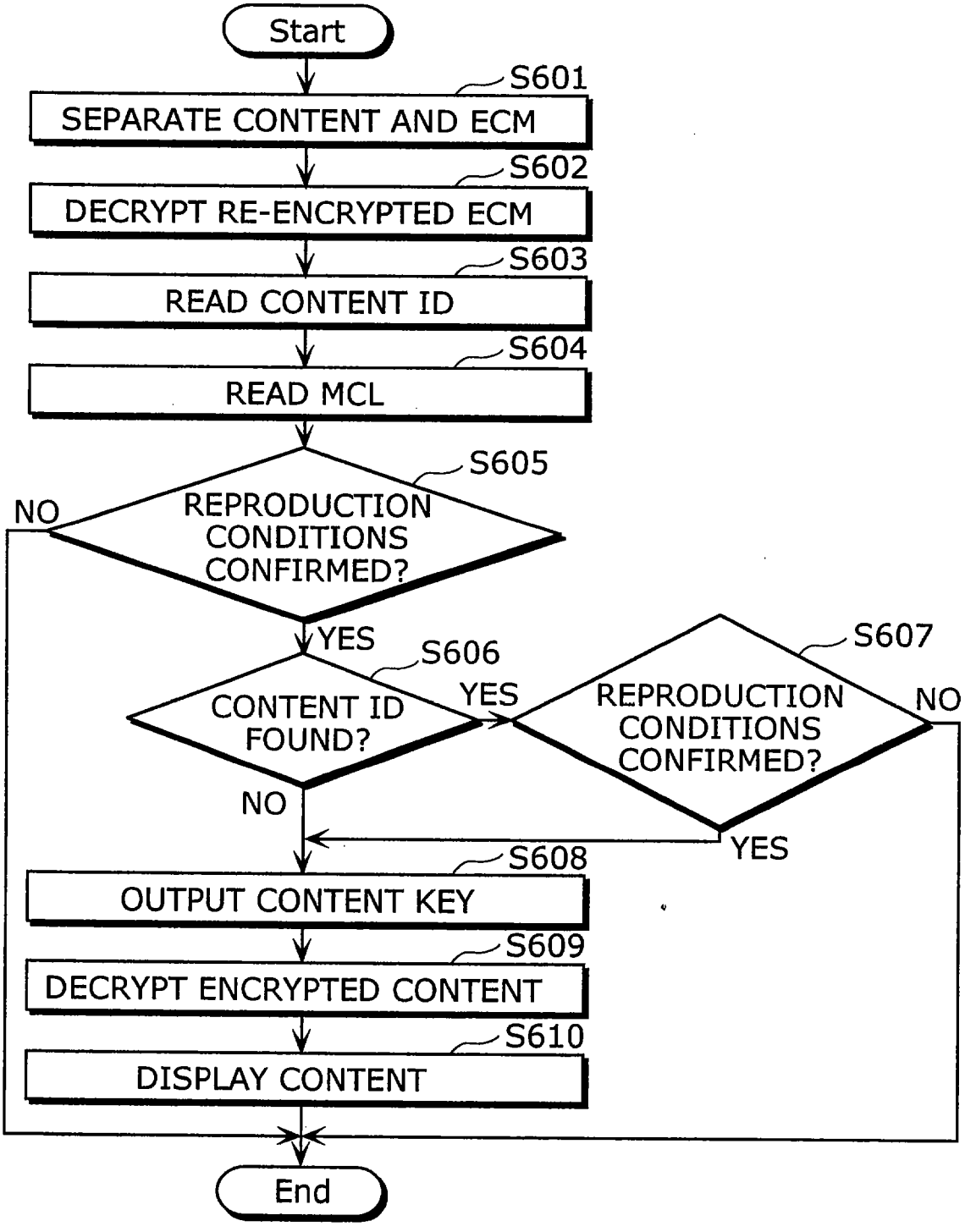

Start
S601
SEPARATE CONTENT AND ECM
S602
DECRYPT RE-ENCRYPTED ECM
S603
READ CONTENT ID
S604
READ MCL
S605
REPRODUCTION CONDITIONS CONFIRMED?
NO
YES
S606
CONTENT ID FOUND?
YES
NO
S607
REPRODUCTION CONDITIONS CONFIRMED?
NO
YES
S608
OUTPUT CONTENT KEY
S609
DECRYPT ENCRYPTED CONTENT
S610
DISPLAY CONTENT
End

FIG. 9

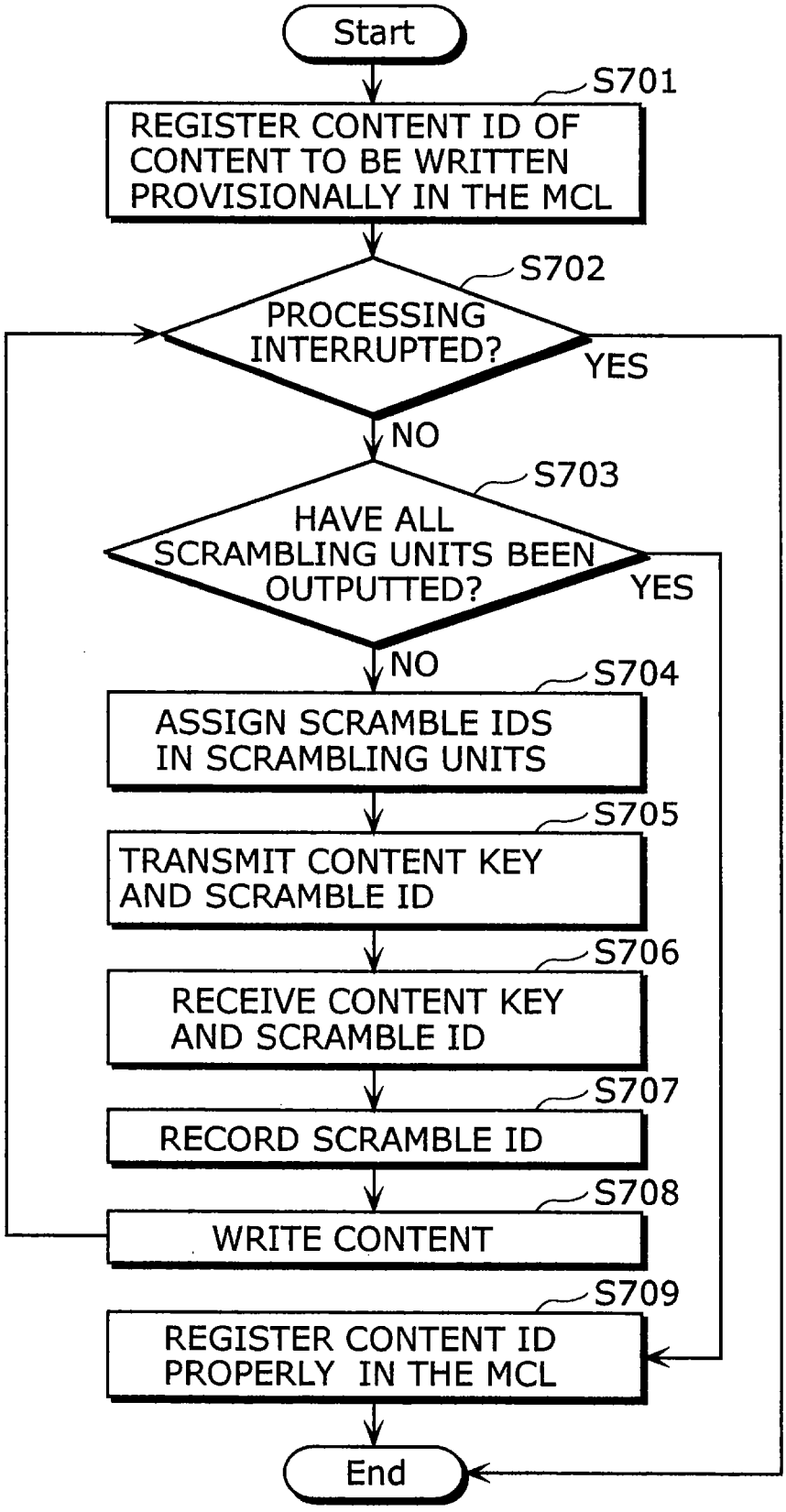

Start
S701
REGISTER CONTENT ID OF CONTENT TO BE WRITTEN PROVISIONALLY IN THE MCL
S702
PROCESSING INTERRUPTED?
YES
NO
S703
HAVE ALL SCRAMBLING UNITS BEEN OUTPUTTED?
YES
NO
S704
ASSIGN SCRAMBLE IDS IN SCRAMBLING UNITS
S705
TRANSMIT CONTENT KEY AND SCRAMBLE ID
S706
RECEIVE CONTENT KEY AND SCRAMBLE ID
S707
RECORD SCRAMBLE ID
S708
WRITE CONTENT
S709
REGISTER CONTENT ID PROPERLY IN THE MCL
End

FIG. 10

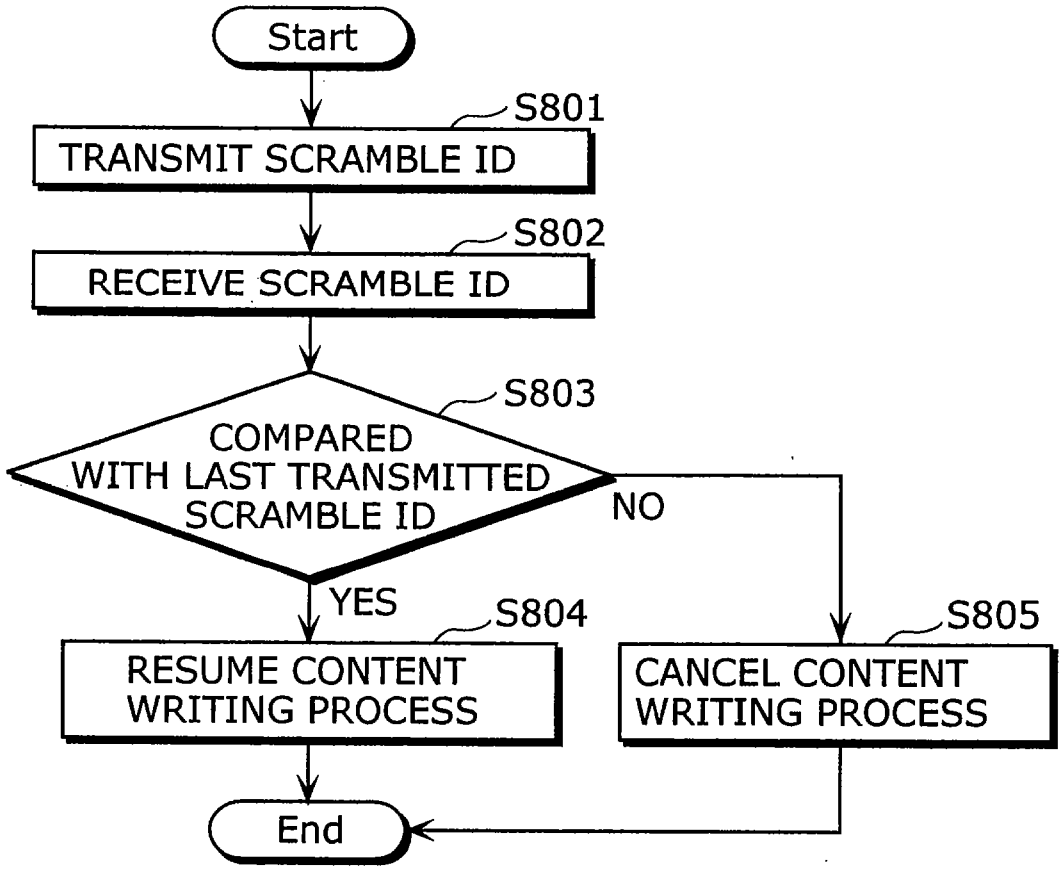

Start
S801
TRANSMIT SCRAMBLE ID
S802
RECEIVE SCRAMBLE ID
S803
COMPARED WITH LAST TRANSMITTED SCRAMBLE ID
NO
YES
S804
RESUME CONTENT WRITING PROCESS
S805
CANCEL CONTENT WRITING PROCESS
End

FIG. 11

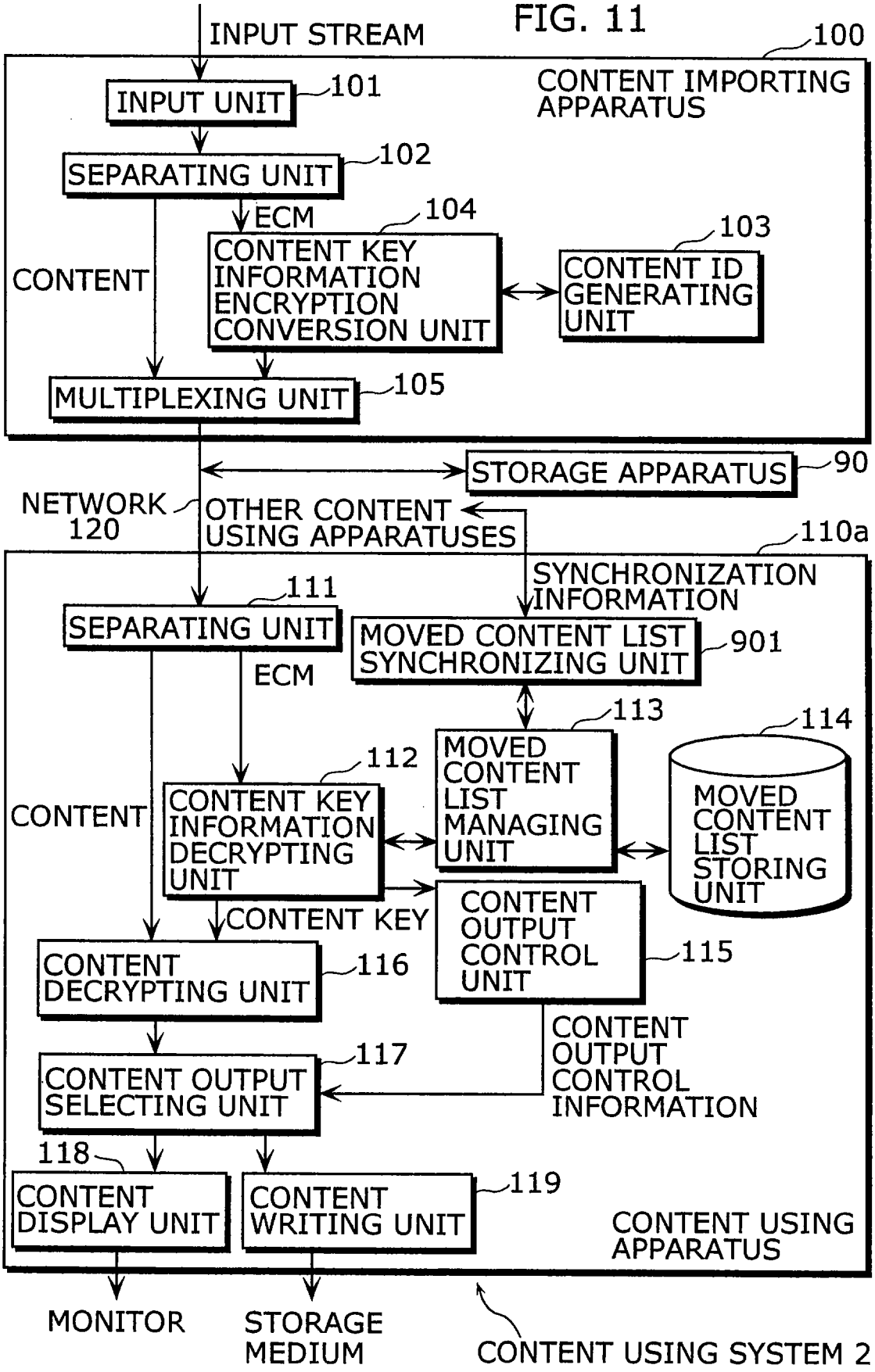

INPUT STREAM
100
CONTENT IMPORTING APPARATUS
INPUT UNIT
101
SEPARATING UNIT
102
ECM
104
CONTENT KEY INFORMATION ENCRYPTION CONVERSION UNIT
103
CONTENT ID GENERATING UNIT
CONTENT
MULTIPLEXING UNIT
105
STORAGE APPARATUS
90
NETWORK 120
OTHER CONTENT USING APPARATUSES
110a
SYNCHRONIZATION INFORMATION
111
SEPARATING UNIT
MOVED CONTENT LIST SYNCHRONIZING UNIT
901
ECM
113
114
MOVED CONTENT LIST MANAGING UNIT
MOVED CONTENT LIST STORING UNIT
112
CONTENT KEY INFORMATION DECRYPTING UNIT
CONTENT
CONTENT KEY
CONTENT OUTPUT CONTROL UNIT
115
CONTENT DECRYPTING UNIT
116
CONTENT OUTPUT CONTROL INFORMATION
117
CONTENT OUTPUT SELECTING UNIT
118
CONTENT DISPLAY UNIT
CONTENT WRITING UNIT
119
CONTENT USING APPARATUS
MONITOR
STORAGE MEDIUM
CONTENT USING SYSTEM 2

FIG. 12

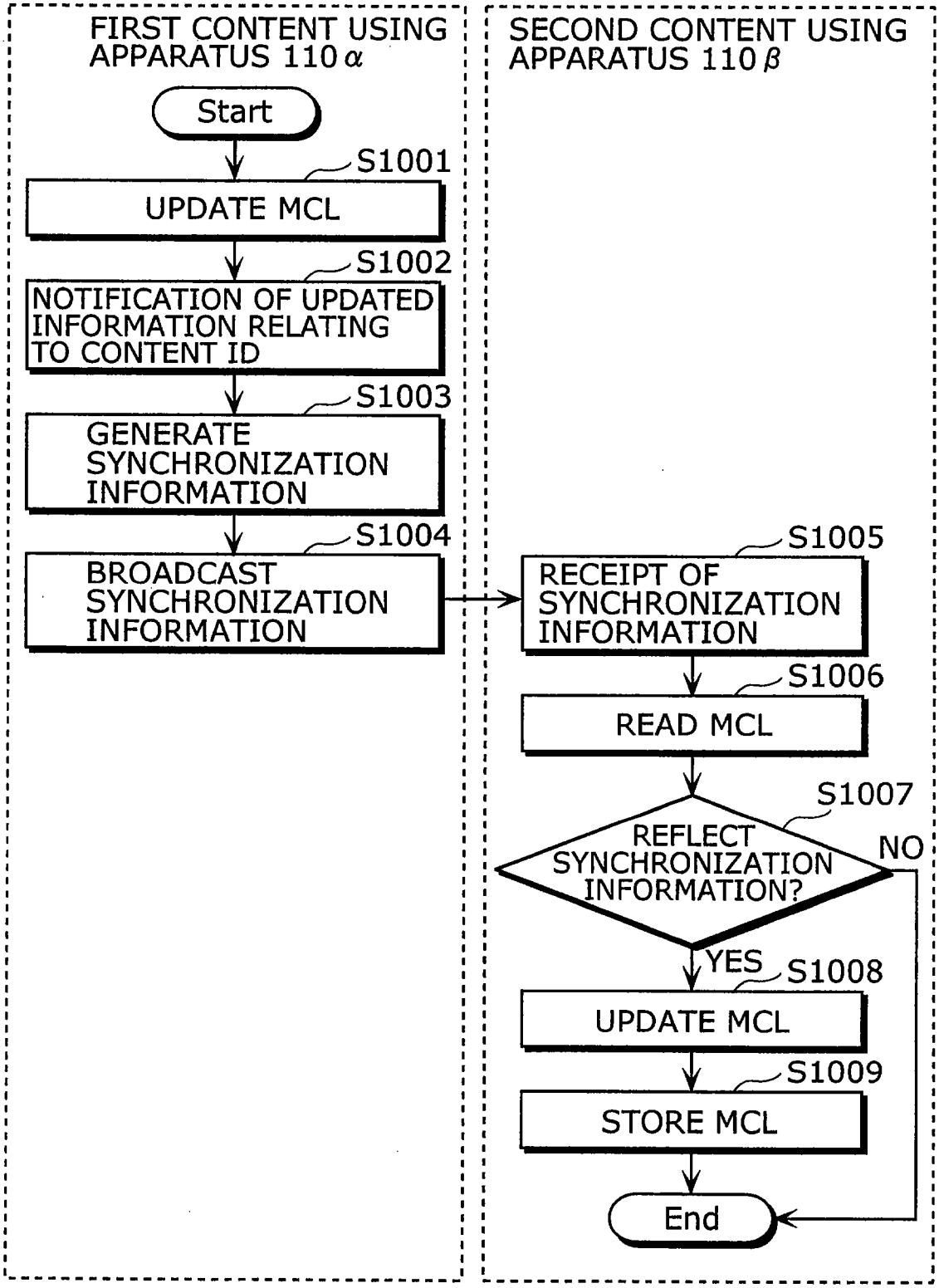

FIRST CONTENT USING APPARATUS 110α
SECOND CONTENT USING APPARATUS 110β
Start
S1001
UPDATE MCL
S1002
NOTIFICATION OF UPDATED INFORMATION RELATING TO CONTENT ID
S1003
GENERATE SYNCHRONIZATION INFORMATION
S1004
BROADCAST SYNCHRONIZATION INFORMATION
S1005
RECEIPT OF SYNCHRONIZATION INFORMATION
S1006
READ MCL
S1007
REFLECT SYNCHRONIZATION INFORMATION?
NO
YES
S1008
UPDATE MCL
S1009
STORE MCL
End

FIG. 13

CONTENT ID	NUMBER OF WRITES/ MAXIMUM NUMBER OF WRITES	WRITE DESTINATION	WRITE PATH
CONTENT-ID-11111	1/3	–	–
CONTENT-ID-22222	2/2	DVD-RAM	–
CONTENT-ID-88888	1/3	–	Digital(SD)
CONTENT-ID-55555	1/1	–	Analog
CONTENT-ID-12345	1/3	–	–

FIG. 14

CONTENT ID	NUMBER OF WRITES/ MAXIMUM NUMBER OF WRITES	WRITE DESTINATION	WRITE PATH
CONTENT-ID-11111	1/3	–	–
CONTENT-ID-22222	2/2	DVD-RAM	–
CONTENT-ID-88888	1/3	–	Digital(SD)
CONTENT-ID-55555	1/1	–	Analog

FIG. 15

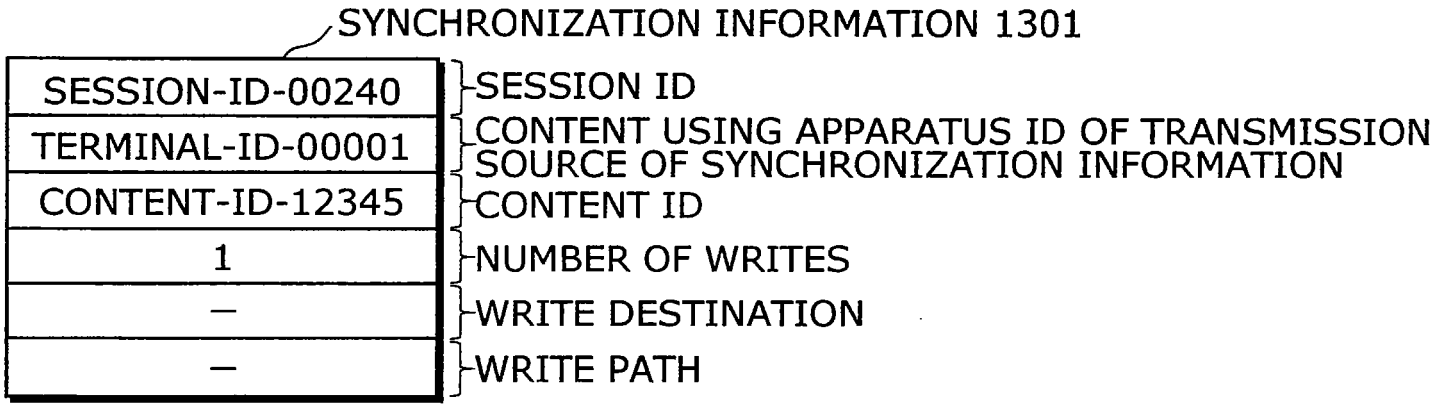

SYNCHRONIZATION INFORMATION 1301
SESSION-ID-00240
TERMINAL-ID-00001
CONTENT-ID-12345
1
—
—
SESSION ID
CONTENT USING APPARATUS ID OF TRANSMISSION SOURCE OF SYNCHRONIZATION INFORMATION
CONTENT ID
NUMBER OF WRITES
WRITE DESTINATION
WRITE PATH

FIG. 16

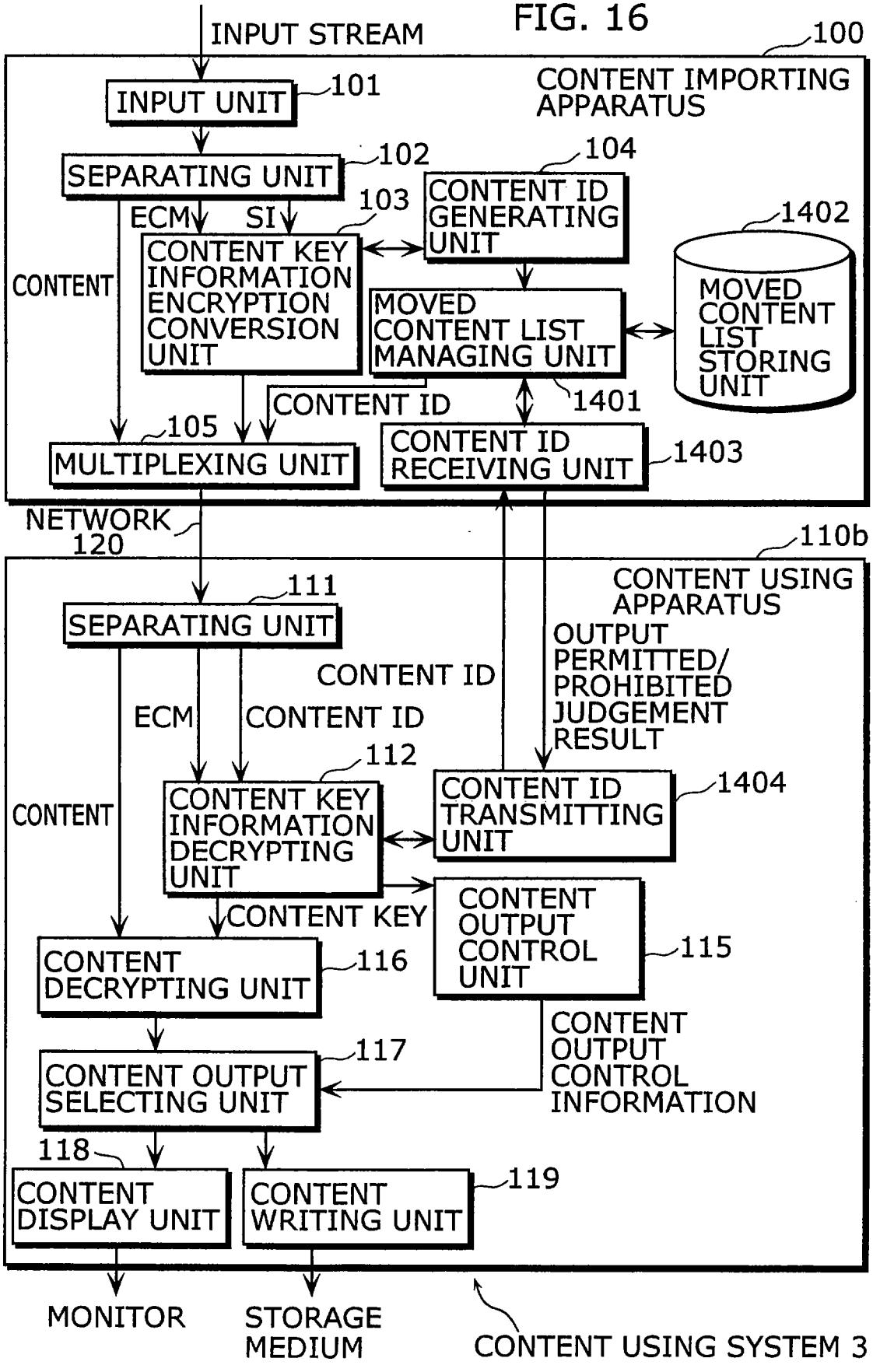

INPUT STREAM
100
CONTENT IMPORTING APPARATUS
INPUT UNIT
101
SEPARATING UNIT
102
104
CONTENT ID GENERATING UNIT
ECM
SI
103
1402
CONTENT KEY INFORMATION ENCRYPTION CONVERSION UNIT
CONTENT
MOVED CONTENT LIST MANAGING UNIT
MOVED CONTENT LIST STORING UNIT
CONTENT ID
1401
105
MULTIPLEXING UNIT
CONTENT ID RECEIVING UNIT
1403
NETWORK 120
110b
CONTENT USING APPARATUS
111
SEPARATING UNIT
OUTPUT PERMITTED/ PROHIBITED JUDGEMENT RESULT
CONTENT ID
ECM
CONTENT ID
112
CONTENT
CONTENT KEY INFORMATION DECRYPTING UNIT
CONTENT ID TRANSMITTING UNIT
1404
CONTENT KEY
CONTENT OUTPUT CONTROL UNIT
115
CONTENT DECRYPTING UNIT
116
CONTENT OUTPUT CONTROL INFORMATION
117
CONTENT OUTPUT SELECTING UNIT
118
CONTENT DISPLAY UNIT
CONTENT WRITING UNIT
119
MONITOR
STORAGE MEDIUM
CONTENT USING SYSTEM 3

FIG. 17

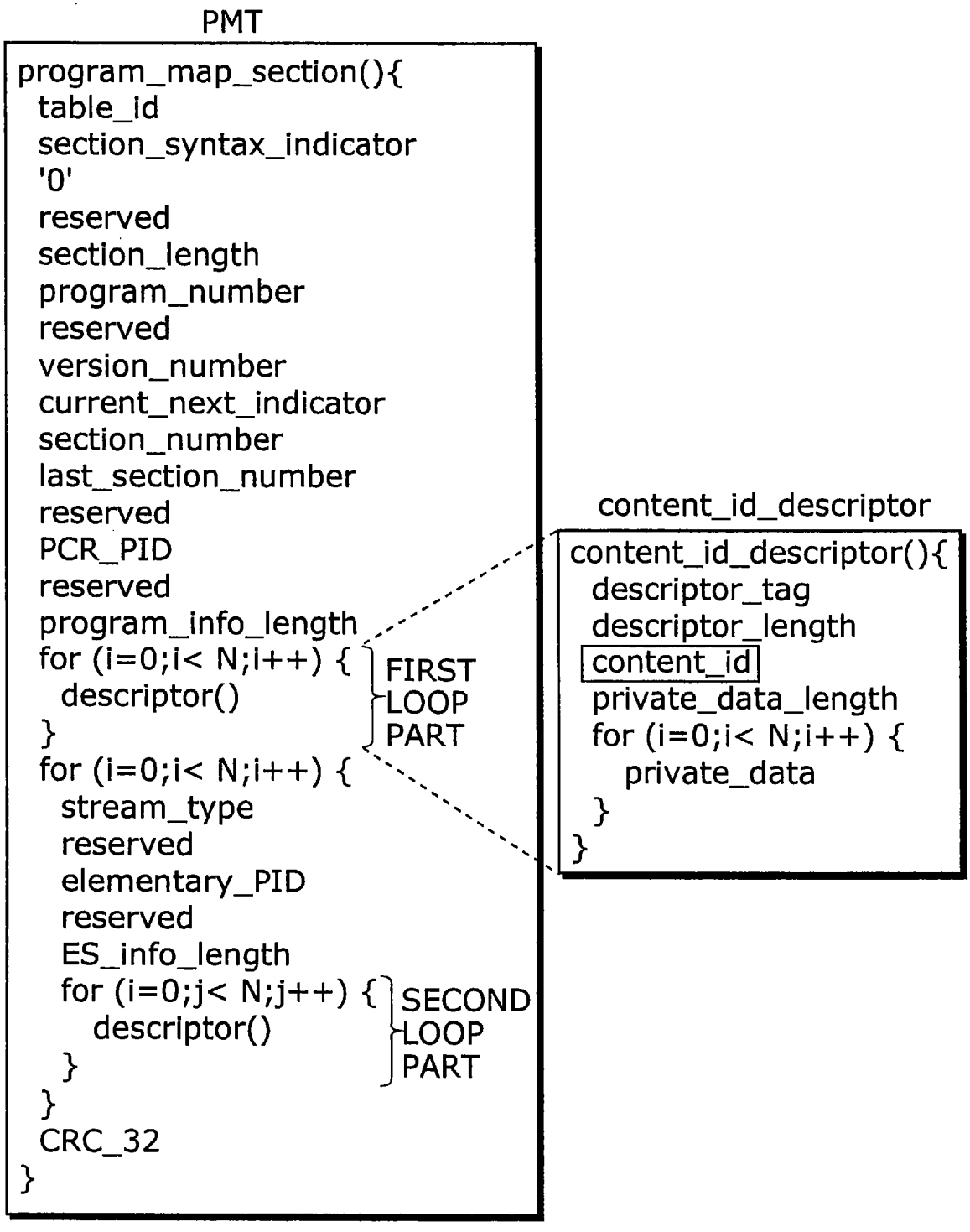

PMT
program_map_section(){
table_id
section_syntax_indicator
'0'
reserved
section_length
program_number
reserved
version_number
current_next_indicator
section_number
last_section_number
reserved
PCR_PID
reserved
program_info_length
for (i=0;i< N;i++) {
descriptor()
}
FIRST LOOP PART
for (i=0;i< N;i++) {
stream_type
reserved
elementary_PID
reserved
ES_info_length
for (i=0;j< N;j++) {
descriptor()
}
SECOND LOOP PART
}
CRC_32
}
content_id_descriptor
content_id_descriptor(){
descriptor_tag
descriptor_length
content_id
private_data_length
for (i=0;i< N;i++) {
private_data
}
}

FIG. 18

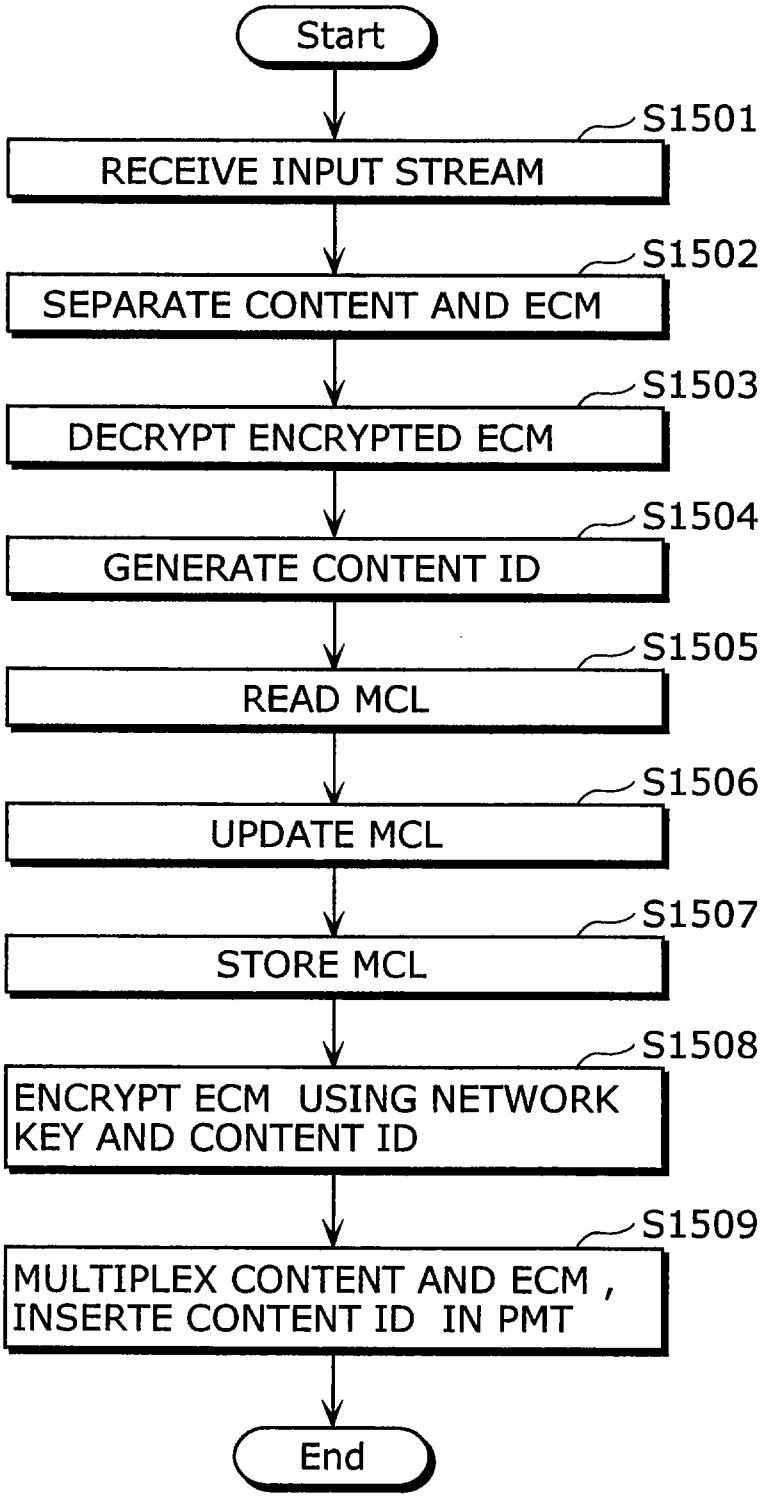

Start
S1501
RECEIVE INPUT STREAM
S1502
SEPARATE CONTENT AND ECM
S1503
DECRYPT ENCRYPTED ECM
S1504
GENERATE CONTENT ID
S1505
READ MCL
S1506
UPDATE MCL
S1507
STORE MCL
S1508
ENCRYPT ECM USING NETWORK KEY AND CONTENT ID
S1509
MULTIPLEX CONTENT AND ECM , INSERTE CONTENT ID IN PMT
End

FIG. 19

CONTENT ID	NUMBER OF WRITES	MAXIMUM NUMBER/ UNIT TIME	PENALTY PERIOD	PREVIOUS WRITE TIME
CONTENT-ID-11111	1	2/Day	1hour	22:22:22
CONTENT-ID-22222	2	3/Hour	30min	12:05:12
CONTENT-ID-88888	0	3/Day	1hour	11:11:11
CONTENT-ID-55555	1	3/Day	1hour	1:02:03
CONTENT-ID-77777	0	1/Day	-	-

FIG. 20

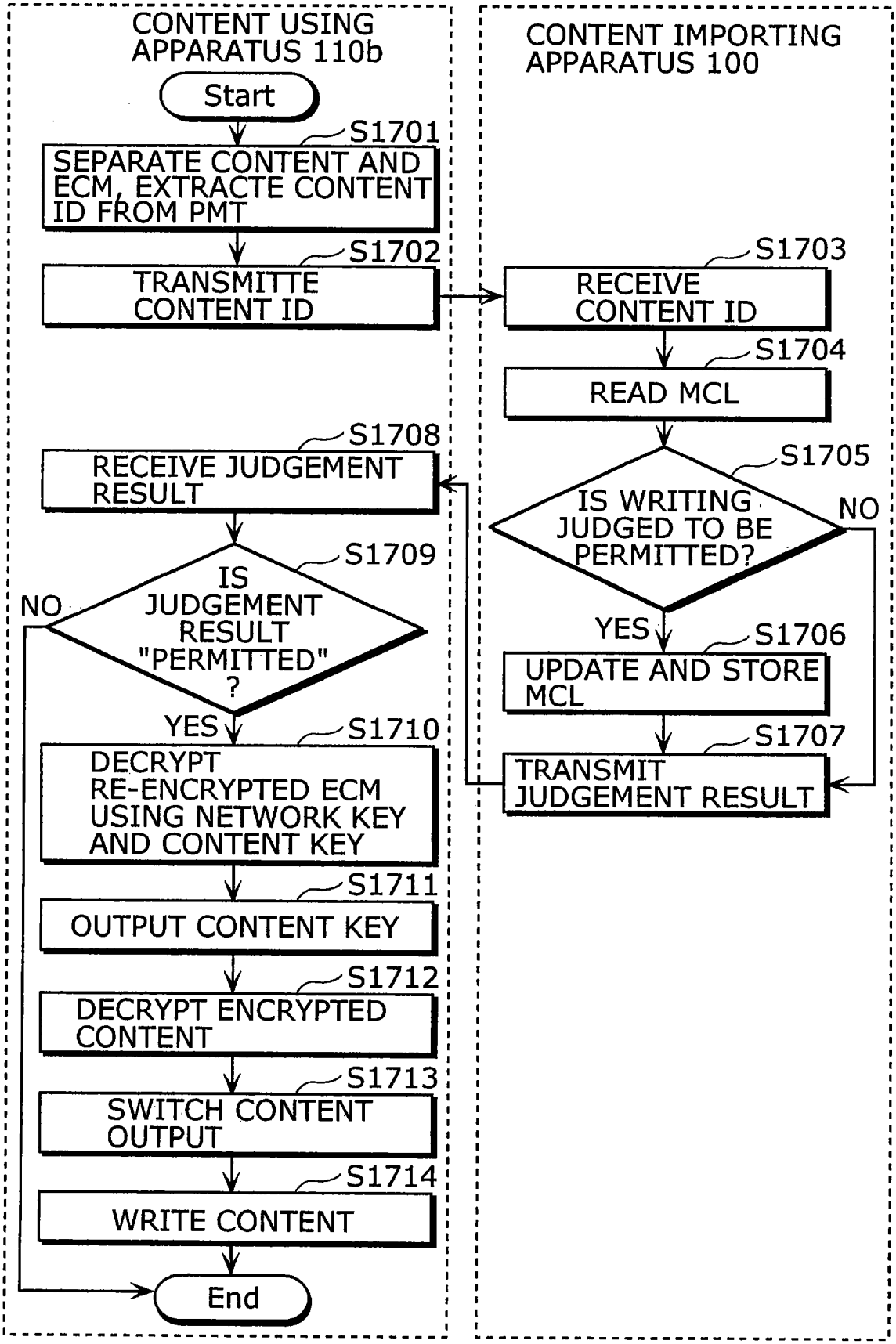

CONTENT USING APPARATUS 110b
CONTENT IMPORTING APPARATUS 100
Start
S1701
SEPARATE CONTENT AND ECM, EXTRACTE CONTENT ID FROM PMT
S1702
TRANSMITTE CONTENT ID
S1703
RECEIVE CONTENT ID
S1704
READ MCL
S1705
IS WRITING JUDGED TO BE PERMITTED?
NO
YES
S1706
UPDATE AND STORE MCL
S1707
TRANSMIT JUDGEMENT RESULT
S1708
RECEIVE JUDGEMENT RESULT
S1709
IS JUDGEMENT RESULT "PERMITTED" ?
NO
YES
S1710
DECRYPT RE-ENCRYPTED ECM USING NETWORK KEY AND CONTENT KEY
S1711
OUTPUT CONTENT KEY
S1712
DECRYPT ENCRYPTED CONTENT
S1713
SWITCH CONTENT OUTPUT
S1714
WRITE CONTENT
End

FIG. 21

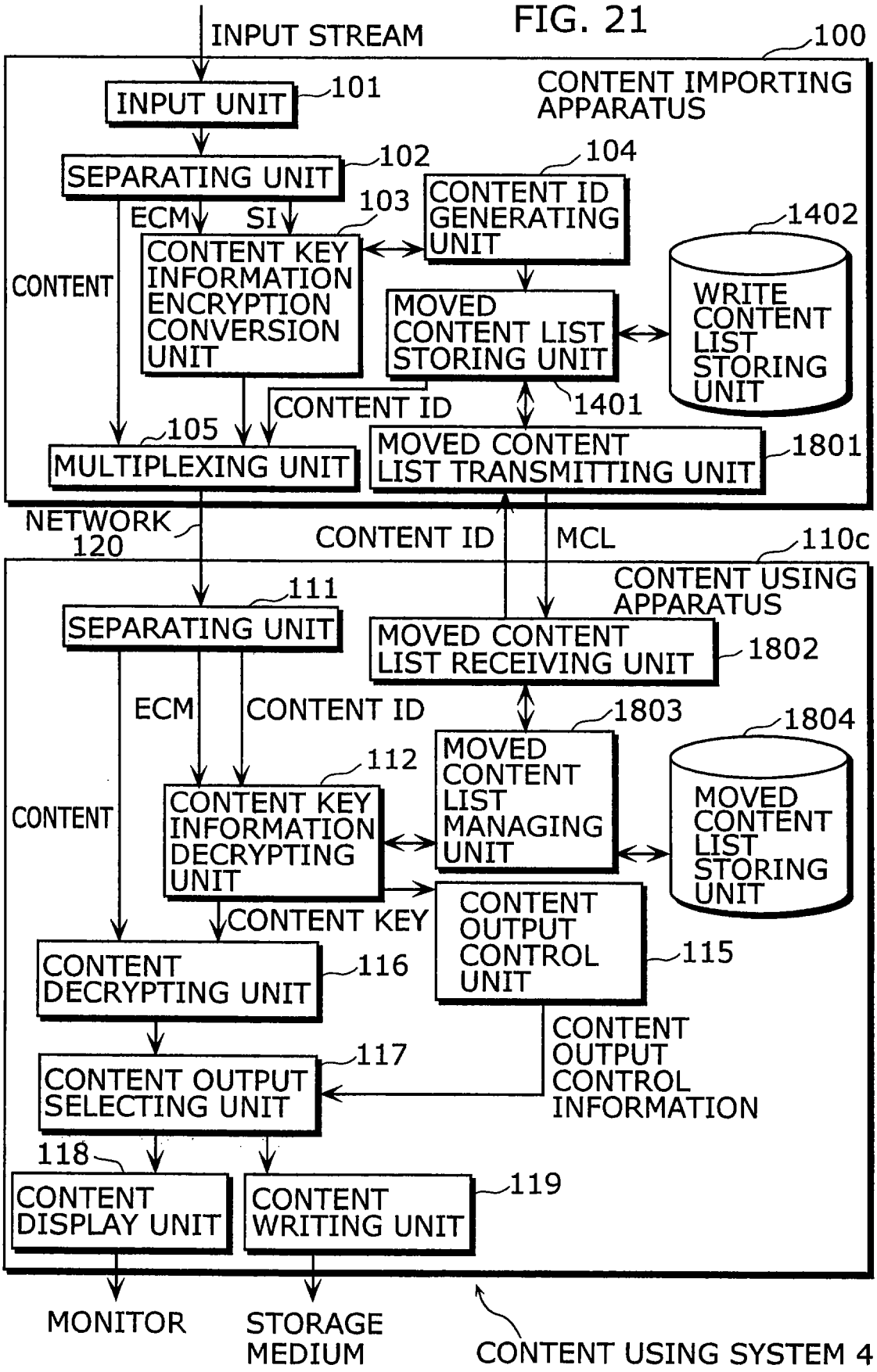

INPUT STREAM
100
CONTENT IMPORTING APPARATUS
INPUT UNIT
101
SEPARATING UNIT
102
ECM
SI
103
CONTENT KEY INFORMATION ENCRYPTION CONVERSION UNIT
CONTENT
104
CONTENT ID GENERATING UNIT
1402
WRITE CONTENT LIST STORING UNIT
MOVED CONTENT LIST STORING UNIT
1401
CONTENT ID
105
MULTIPLEXING UNIT
MOVED CONTENT LIST TRANSMITTING UNIT
1801
NETWORK 120
CONTENT ID
MCL
110c
CONTENT USING APPARATUS
111
SEPARATING UNIT
MOVED CONTENT LIST RECEIVING UNIT
1802
ECM
CONTENT ID
1803
1804
MOVED CONTENT LIST MANAGING UNIT
MOVED CONTENT LIST STORING UNIT
112
CONTENT KEY INFORMATION DECRYPTING UNIT
CONTENT
CONTENT KEY
CONTENT OUTPUT CONTROL UNIT
115
CONTENT DECRYPTING UNIT
116
CONTENT OUTPUT CONTROL INFORMATION
CONTENT OUTPUT SELECTING UNIT
117
118
CONTENT DISPLAY UNIT
CONTENT WRITING UNIT
119
MONITOR
STORAGE MEDIUM
CONTENT USING SYSTEM 4

FIG. 22

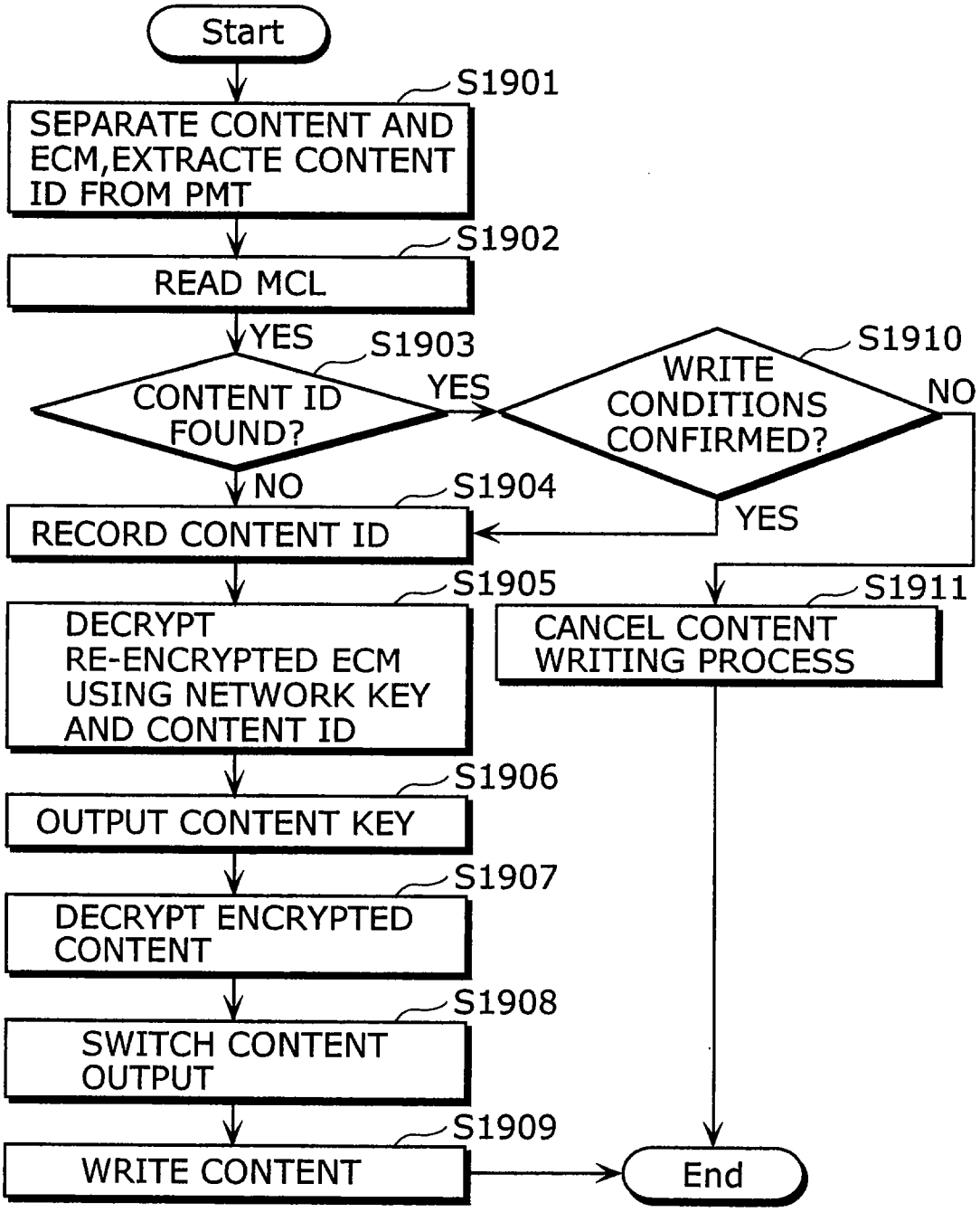

Start
S1901
SEPARATE CONTENT AND ECM,EXTRACTE CONTENT ID FROM PMT
S1902
READ MCL
YES
S1903
CONTENT ID FOUND?
YES
S1910
WRITE CONDITIONS CONFIRMED?
NO
NO
S1904
RECORD CONTENT ID
YES
S1905
DECRYPT RE-ENCRYPTED ECM USING NETWORK KEY AND CONTENT ID
S1911
CANCEL CONTENT WRITING PROCESS
S1906
OUTPUT CONTENT KEY
S1907
DECRYPT ENCRYPTED CONTENT
S1908
SWITCH CONTENT OUTPUT
S1909
WRITE CONTENT
End

FIG. 23

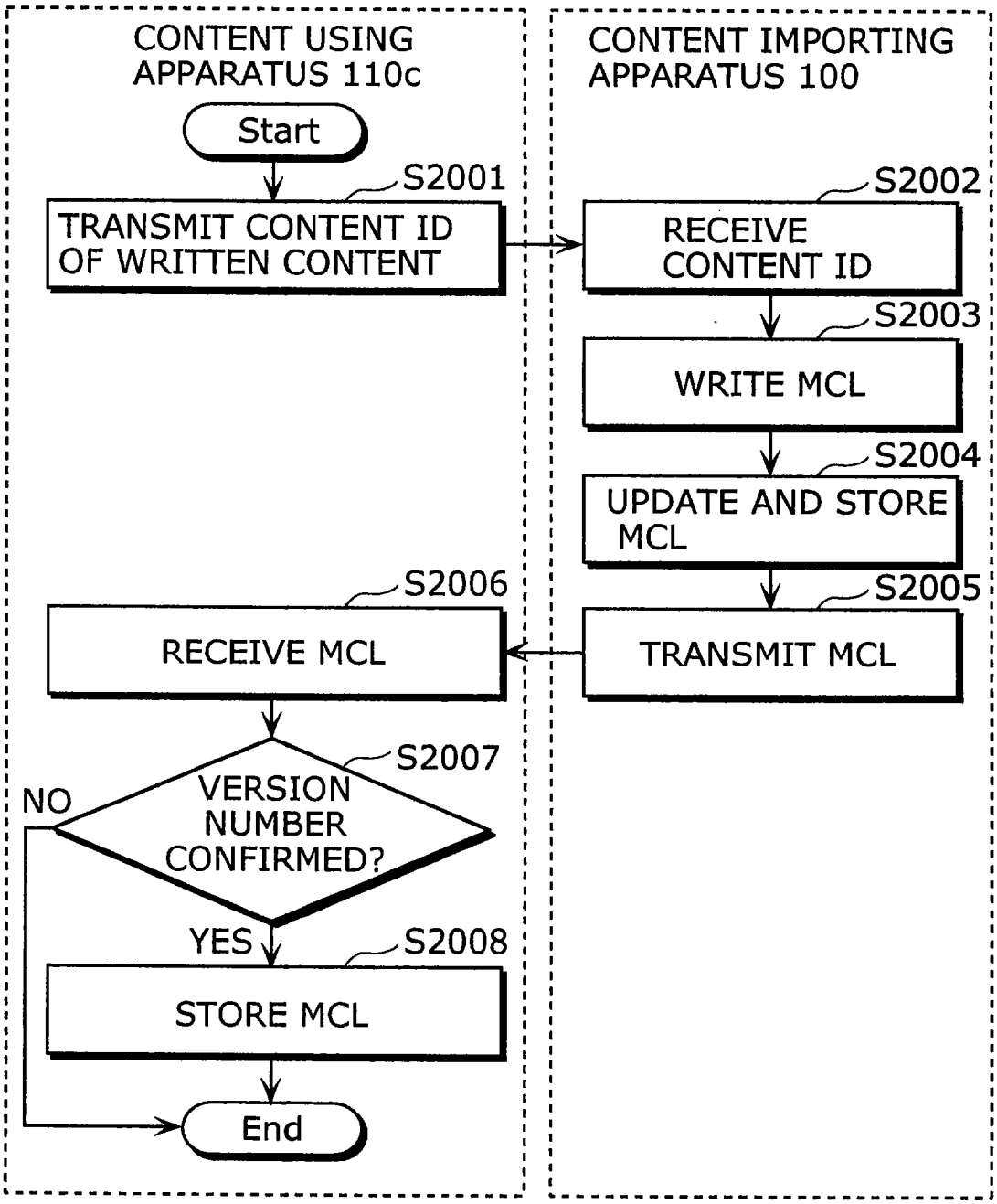

CONTENT USING APPARATUS 110c
CONTENT IMPORTING APPARATUS 100
Start
S2001
TRANSMIT CONTENT ID OF WRITTEN CONTENT
S2002
RECEIVE CONTENT ID
S2003
WRITE MCL
S2004
UPDATE AND STORE MCL
S2005
TRANSMIT MCL
S2006
RECEIVE MCL
S2007
VERSION NUMBER CONFIRMED?
NO
YES
S2008
STORE MCL
End

FIG. 24

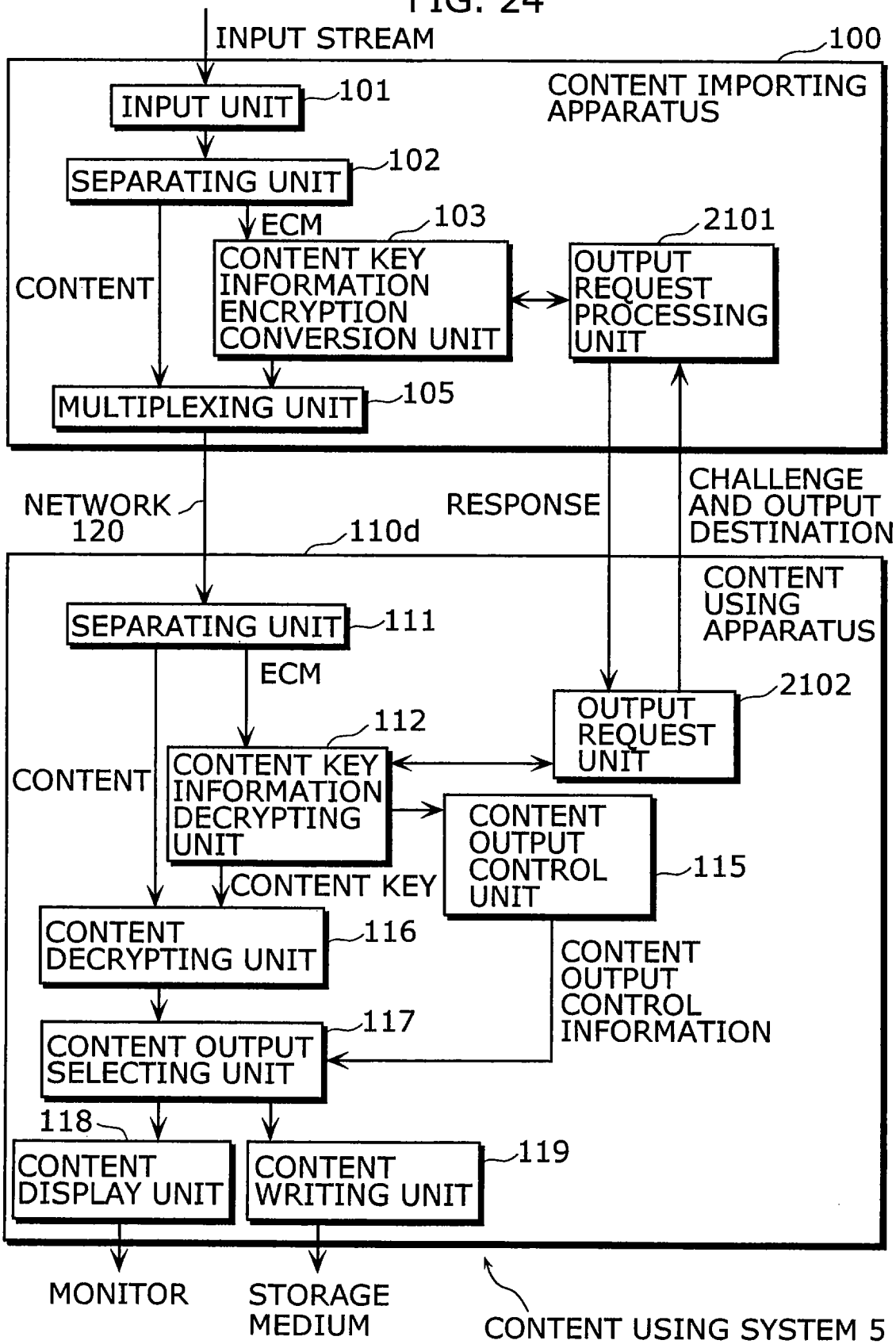

INPUT STREAM
100
INPUT UNIT
101
CONTENT IMPORTING APPARATUS
SEPARATING UNIT
102
ECM
103
2101
CONTENT
CONTENT KEY INFORMATION ENCRYPTION CONVERSION UNIT
OUTPUT REQUEST PROCESSING UNIT
MULTIPLEXING UNIT
105
NETWORK 120
RESPONSE
CHALLENGE AND OUTPUT DESTINATION
110d
CONTENT USING APPARATUS
SEPARATING UNIT
111
ECM
2102
OUTPUT REQUEST UNIT
112
CONTENT
CONTENT KEY INFORMATION DECRYPTING UNIT
CONTENT OUTPUT CONTROL UNIT
115
CONTENT KEY
CONTENT DECRYPTING UNIT
116
CONTENT OUTPUT CONTROL INFORMATION
CONTENT OUTPUT SELECTING UNIT
117
118
CONTENT DISPLAY UNIT
CONTENT WRITING UNIT
119
MONITOR
STORAGE MEDIUM
CONTENT USING SYSTEM 5

FIG. 25

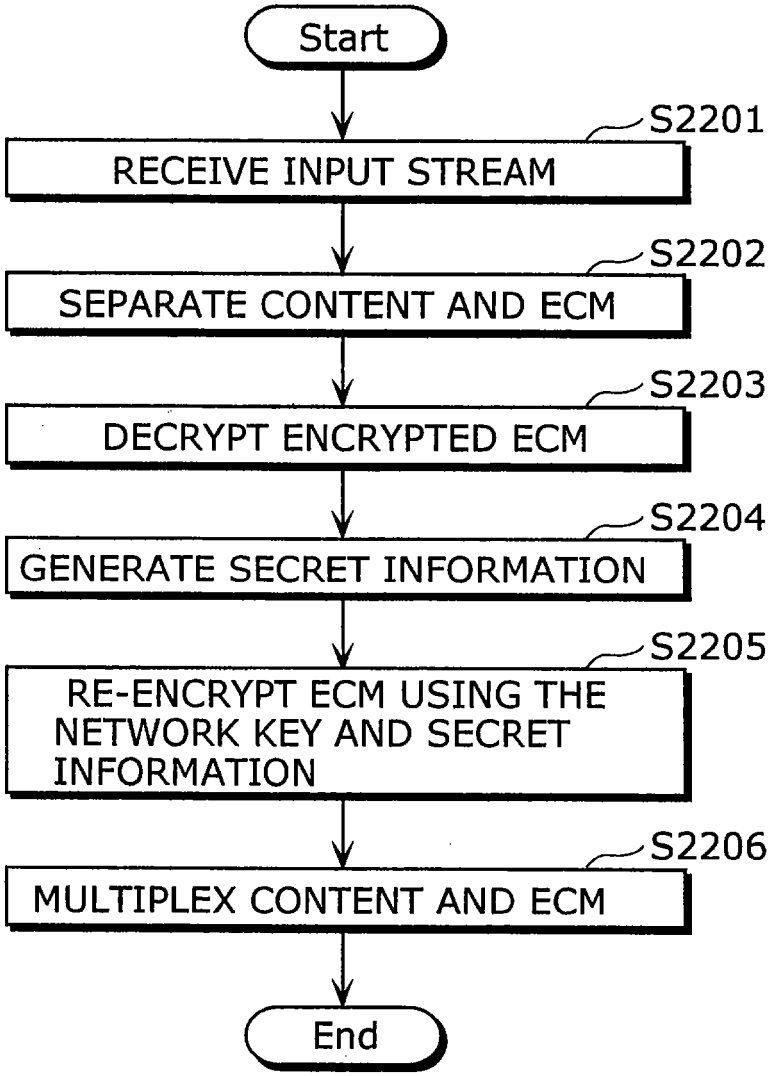

Start
S2201
RECEIVE INPUT STREAM
S2202
SEPARATE CONTENT AND ECM
S2203
DECRYPT ENCRYPTED ECM
S2204
GENERATE SECRET INFORMATION
S2205
RE-ENCRYPT ECM USING THE NETWORK KEY AND SECRET INFORMATION
S2206
MULTIPLEX CONTENT AND ECM
End

FIG. 26

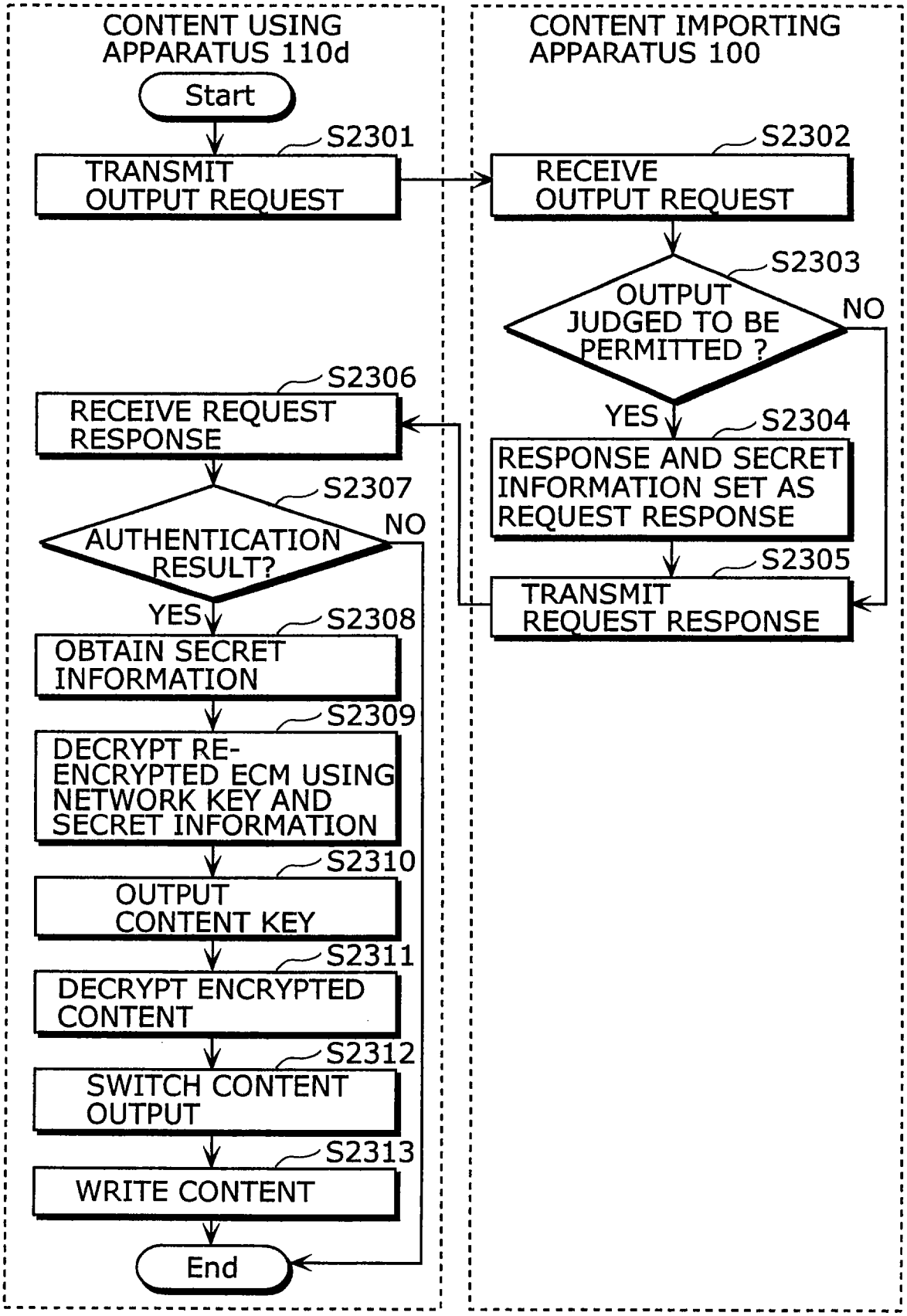

CONTENT USING APPARATUS 110d
CONTENT IMPORTING APPARATUS 100
Start
S2301
TRANSMIT OUTPUT REQUEST
S2302
RECEIVE OUTPUT REQUEST
S2303
OUTPUT JUDGED TO BE PERMITTED ?
NO
YES
S2304
RESPONSE AND SECRET INFORMATION SET AS REQUEST RESPONSE
S2305
TRANSMIT REQUEST RESPONSE
S2306
RECEIVE REQUEST RESPONSE
S2307
AUTHENTICATION RESULT?
NO
YES
S2308
OBTAIN SECRET INFORMATION
S2309
DECRYPT RE-ENCRYPTED ECM USING NETWORK KEY AND SECRET INFORMATION
S2310
OUTPUT CONTENT KEY
S2311
DECRYPT ENCRYPTED CONTENT
S2312
SWITCH CONTENT OUTPUT
S2313
WRITE CONTENT
End

FIG. 27

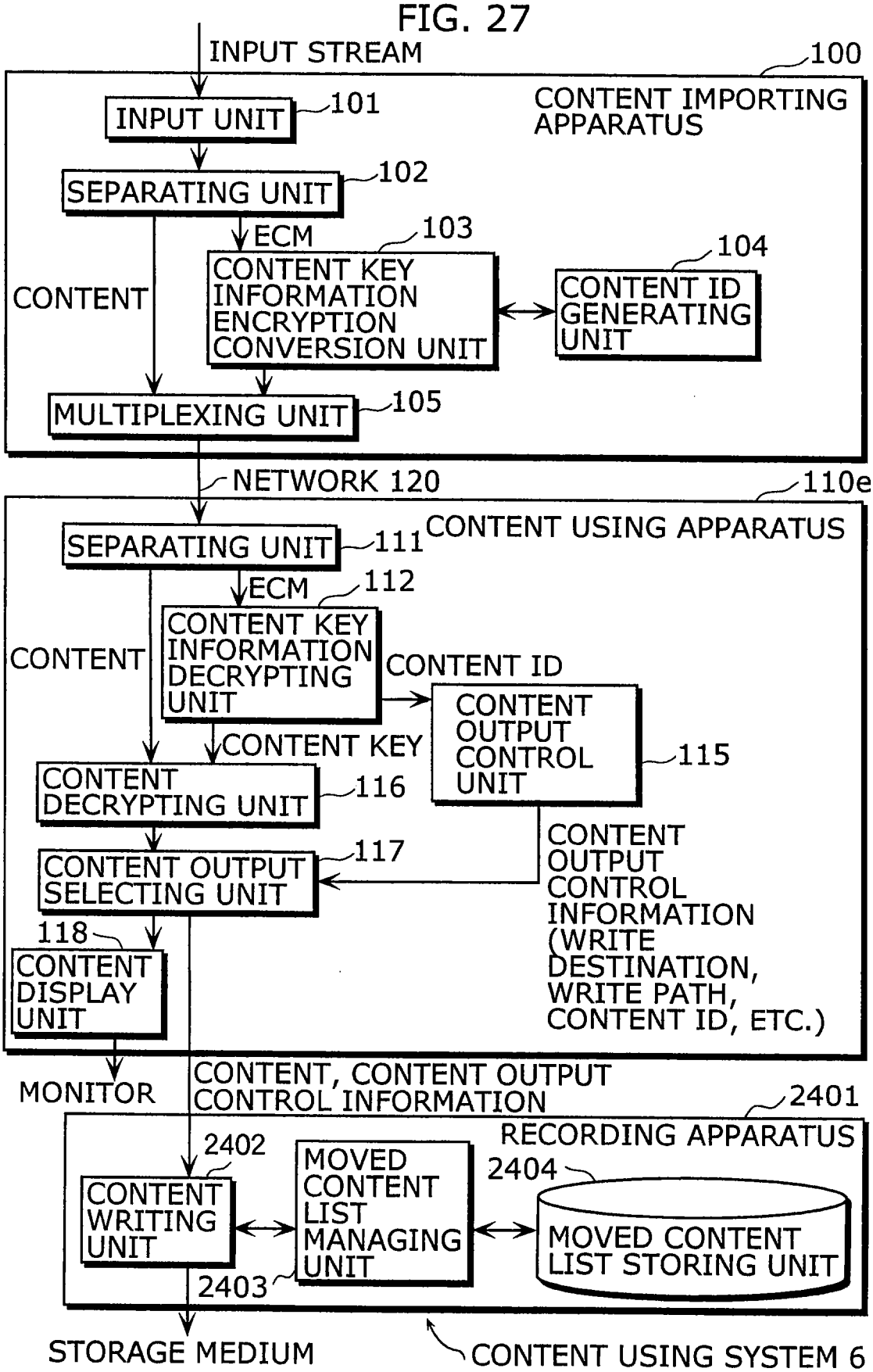
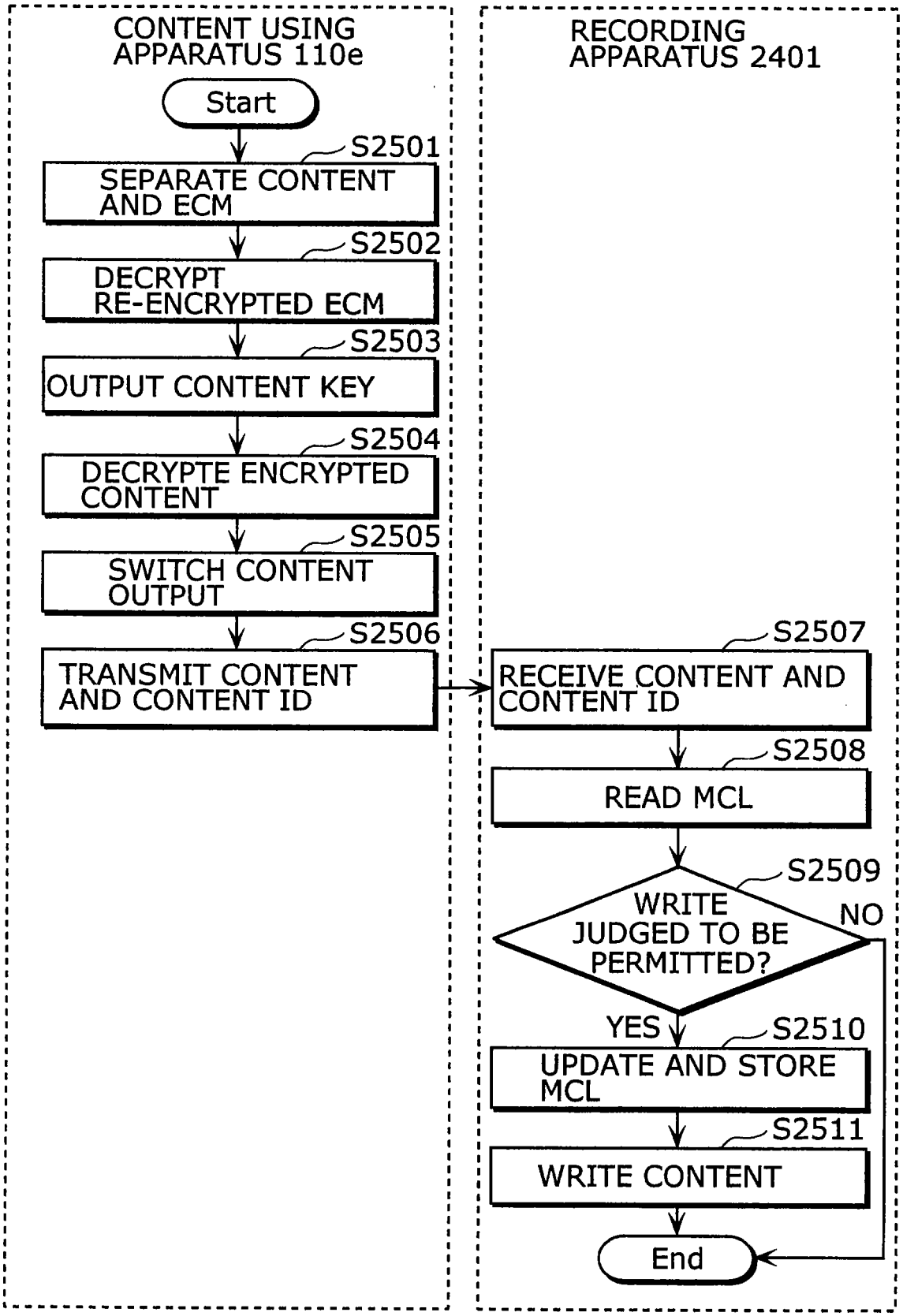

INPUT STREAM
100
CONTENT IMPORTING APPARATUS
INPUT UNIT
101
SEPARATING UNIT
102
ECM
103
CONTENT KEY INFORMATION ENCRYPTION CONVERSION UNIT
104
CONTENT ID GENERATING UNIT
CONTENT
MULTIPLEXING UNIT
105
NETWORK 120
110e
CONTENT USING APPARATUS
SEPARATING UNIT
111
ECM
112
CONTENT KEY INFORMATION DECRYPTING UNIT
CONTENT
CONTENT ID
CONTENT OUTPUT CONTROL UNIT
115
CONTENT KEY
CONTENT DECRYPTING UNIT
116
CONTENT OUTPUT SELECTING UNIT
117
CONTENT OUTPUT CONTROL INFORMATION (WRITE DESTINATION, WRITE PATH, CONTENT ID, ETC.)
118
CONTENT DISPLAY UNIT
MONITOR
CONTENT, CONTENT OUTPUT CONTROL INFORMATION
2401
RECORDING APPARATUS
2402
CONTENT WRITING UNIT
MOVED CONTENT LIST MANAGING UNIT
2404
MOVED CONTENT LIST STORING UNIT
2403
STORAGE MEDIUM
CONTENT USING SYSTEM 6

FIG. 28


CONTENT USING APPARATUS 110e
RECORDING APPARATUS 2401
Start
S2501
SEPARATE CONTENT AND ECM
S2502
DECRYPT RE-ENCRYPTED ECM
S2503
OUTPUT CONTENT KEY
S2504
DECRYPTE ENCRYPTED CONTENT
S2505
SWITCH CONTENT OUTPUT
S2506
TRANSMIT CONTENT AND CONTENT ID
S2507
RECEIVE CONTENT AND CONTENT ID
S2508
READ MCL
S2509
WRITE JUDGED TO BE PERMITTED?
NO
YES
S2510
UPDATE AND STORE MCL
S2511
WRITE CONTENT
End