FIG. 1

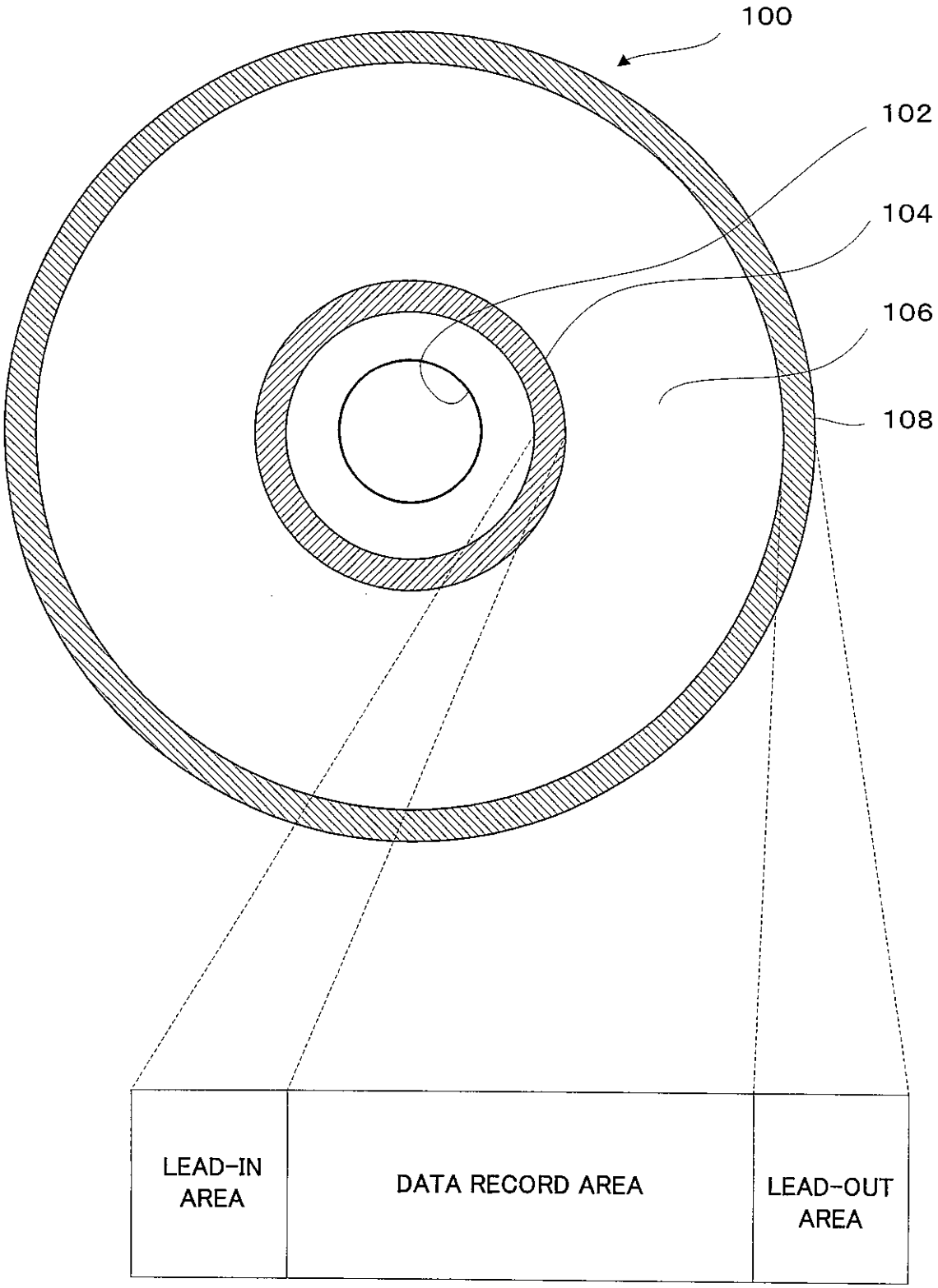

100
102
104
106
108
LEAD-IN AREA
DATA RECORD AREA
LEAD-OUT AREA

FIG. 2(a)

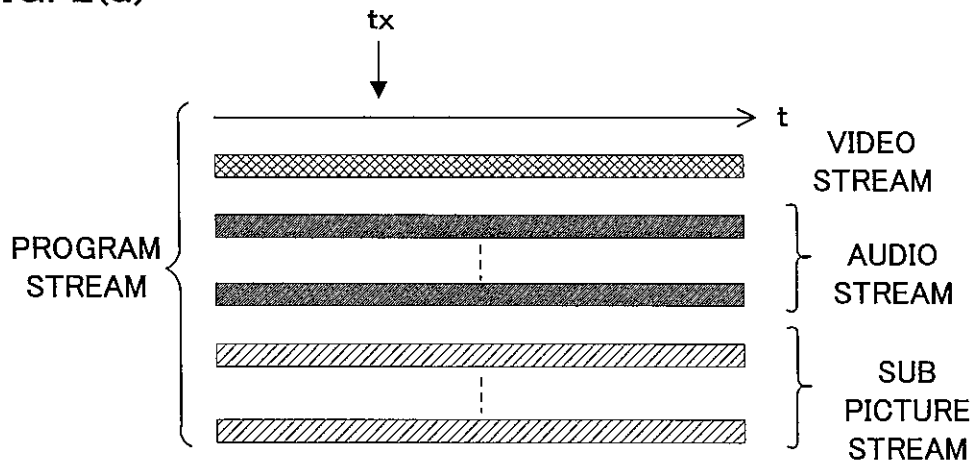

tx
t
VIDEO STREAM
AUDIO STREAM
SUB PICTURE STREAM
PROGRAM STREAM

FIG. 2(b)

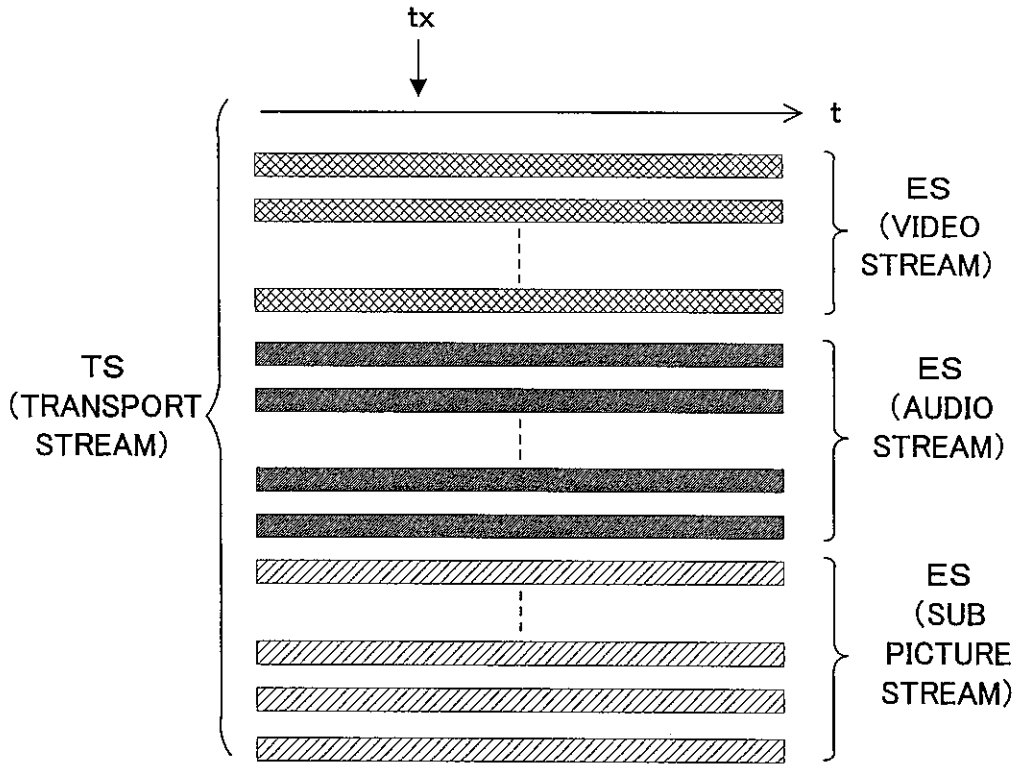

tx
t
ES (VIDEO STREAM)
ES (AUDIO STREAM)
ES (SUB PICTURE STREAM)
TS (TRANSPORT STREAM)

FIG. 3

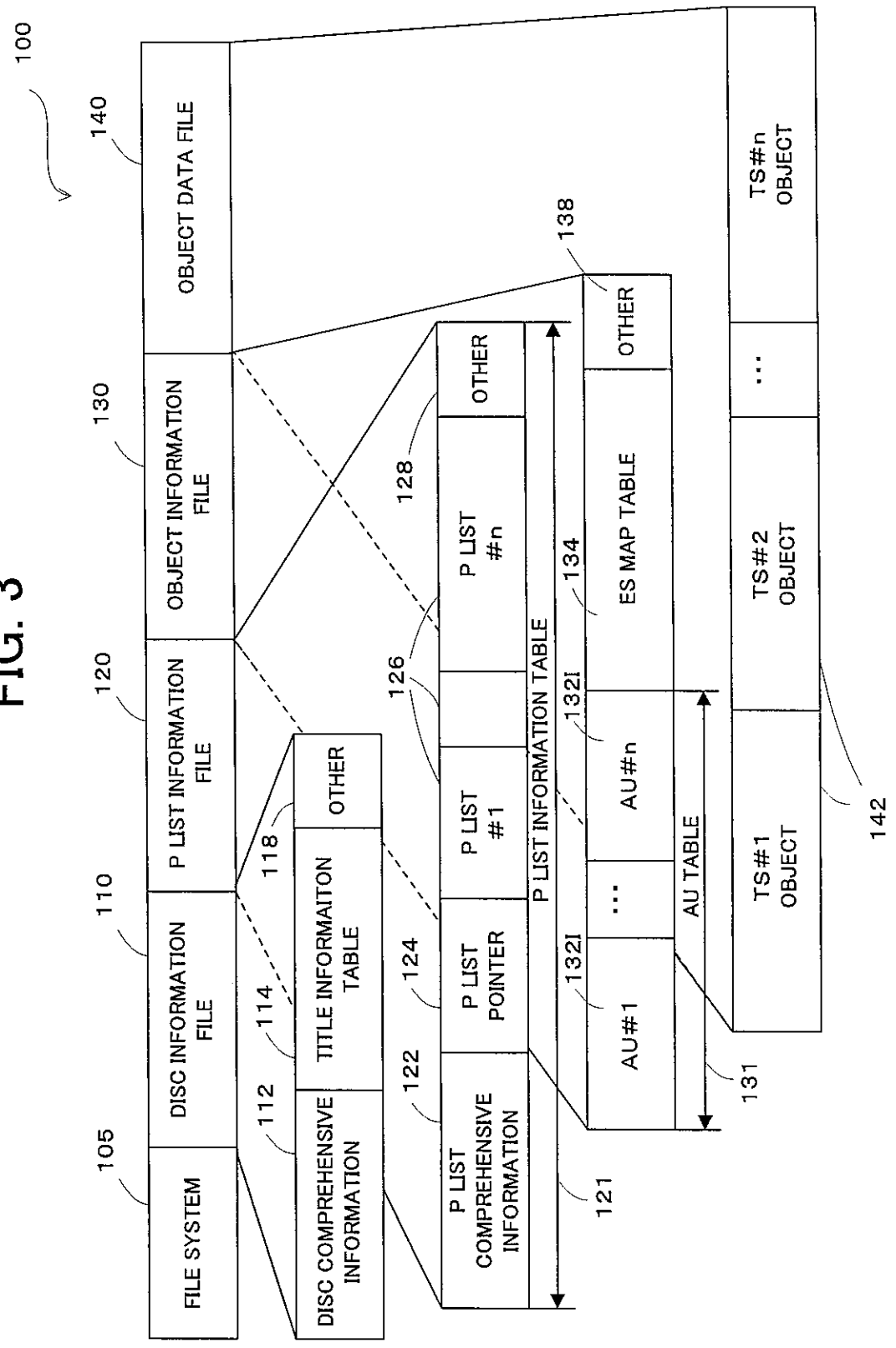

100
105
FILE SYSTEM
110
DISC INFORMATION FILE
120
P LIST INFORMATION FILE
130
OBJECT INFORMATION FILE
140
OBJECT DATA FILE
112
DISC COMPREHENSIVE INFORMATION
114
TITLE INFORMAITON TABLE
118
OTHER
122
P LIST COMPREHENSIVE INFORMATION
124
P LIST POINTER
126
P LIST #1
128
P LIST #n
OTHER
121
P LIST INFORMATION TABLE
132I
AU#1
...
AU#n
AU TABLE
131
134
ES MAP TABLE
138
OTHER
TS#1 OBJECT
TS#2 OBJECT
...
TS#n OBJECT
142

FIG. 4

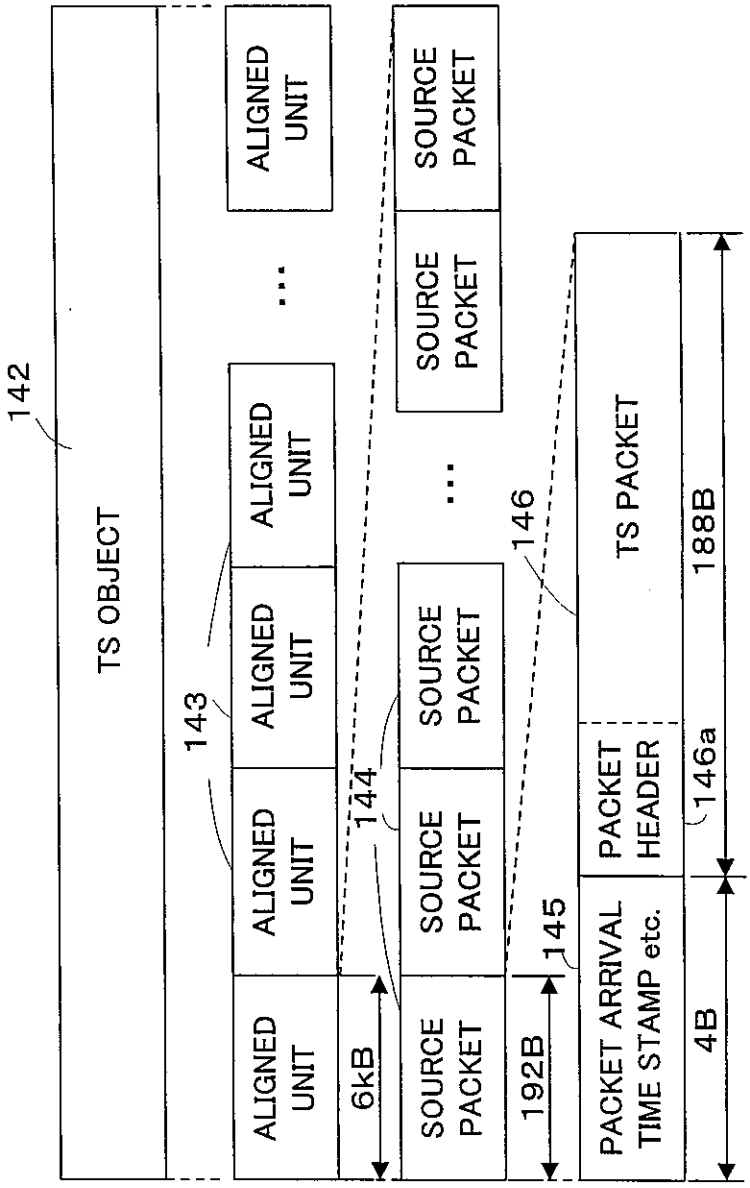

142
TS OBJECT
143
ALIGNED UNIT
ALIGNED UNIT
ALIGNED UNIT
...
144
SOURCE PACKET
SOURCE PACKET
SOURCE PACKET
...
146
TS PACKET
PACKET HEADER
146a
PACKET ARRIVAL TIME STAMP etc.
4B
188B
6kB
192B
145

FIG. 5

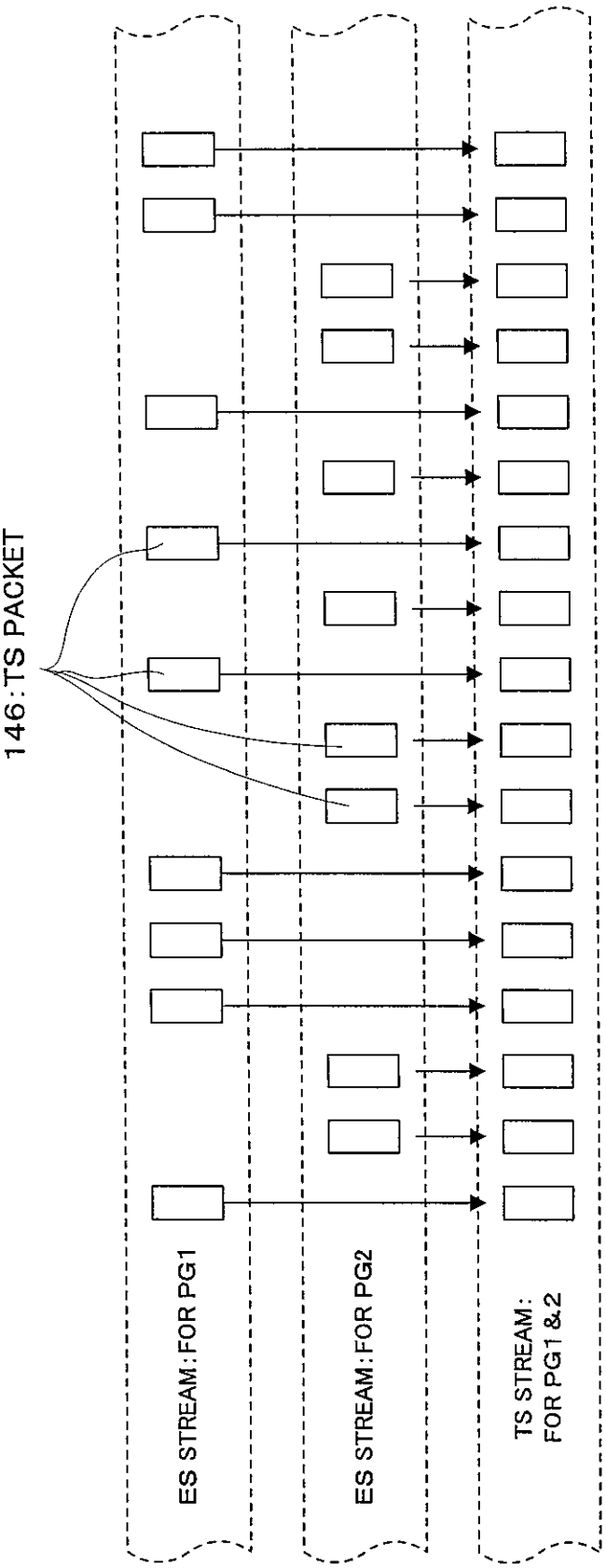

146:TS PACKET
ES STREAM:FOR PG1
ES STREAM:FOR PG2
TS STREAM:
FOR PG1 &2

FIG. 6

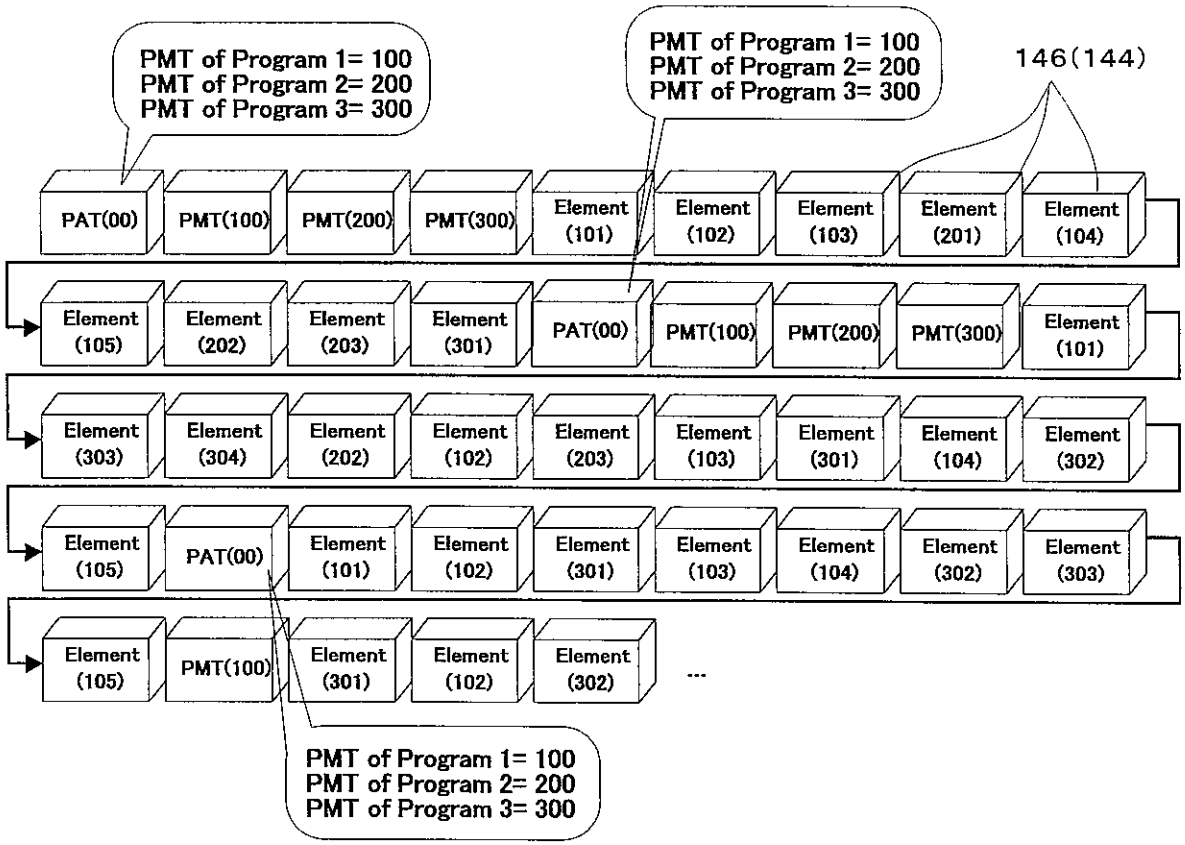

PMT of Program 1= 100
PMT of Program 2= 200
PMT of Program 3= 300
PMT of Program 1= 100
PMT of Program 2= 200
PMT of Program 3= 300
146(144)
PAT(00)
PMT(100)
PMT(200)
PMT(300)
Element (101)
Element (102)
Element (103)
Element (201)
Element (104)
Element (105)
Element (202)
Element (203)
Element (301)
PAT(00)
PMT(100)
PMT(200)
PMT(300)
Element (101)
Element (303)
Element (304)
Element (202)
Element (102)
Element (203)
Element (103)
Element (301)
Element (104)
Element (302)
Element (105)
PAT(00)
Element (101)
Element (102)
Element (301)
Element (103)
Element (104)
Element (302)
Element (303)
Element (105)
PMT(100)
Element (301)
Element (102)
Element (302)
...
PMT of Program 1= 100
PMT of Program 2= 200
PMT of Program 3= 300

FIG. 7

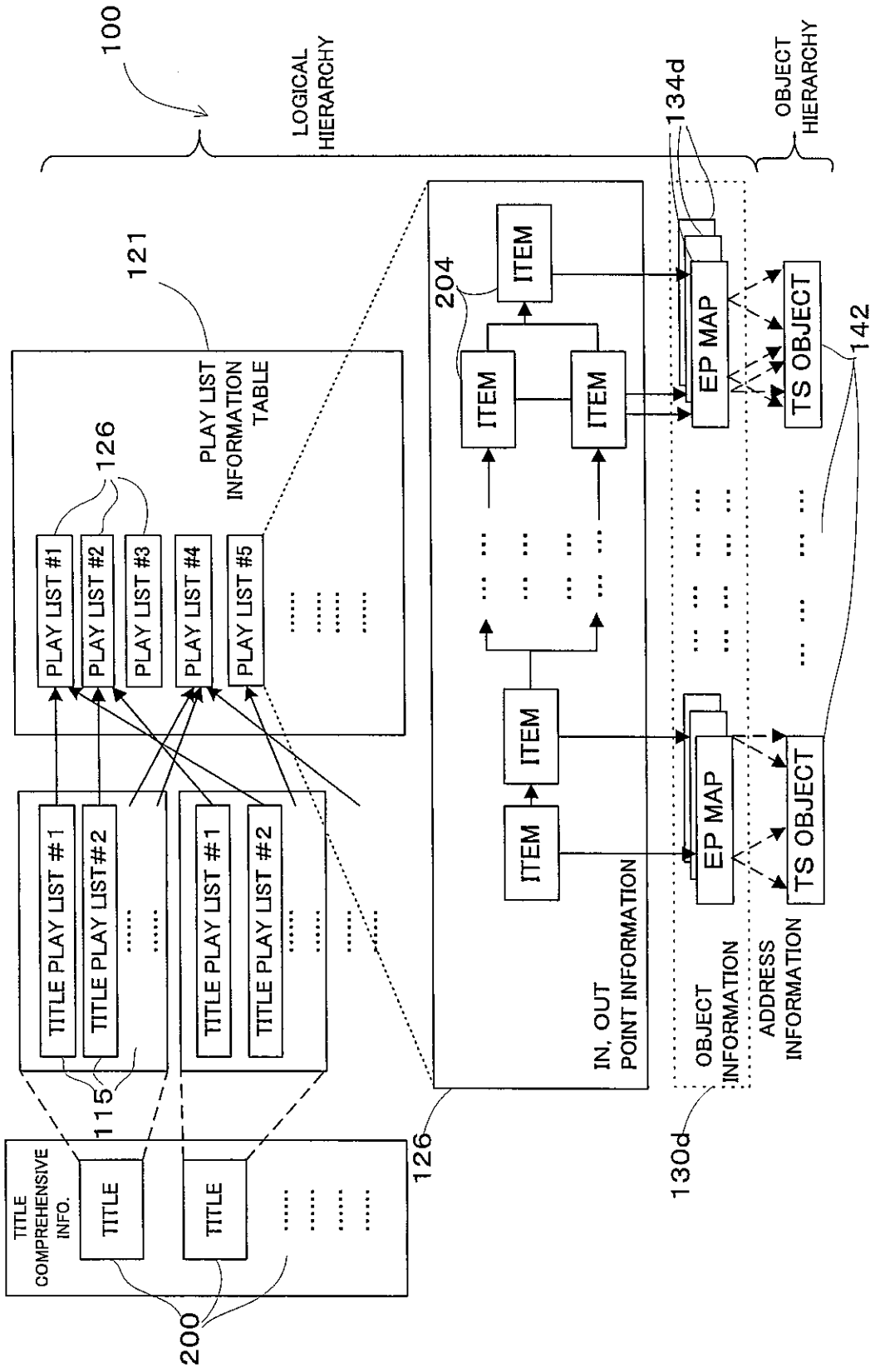

100
LOGICAL HIERARCHY
OBJECT HIERARCHY
121
PLAY LIST INFORMATION TABLE
126
PLAY LIST #1
PLAY LIST #2
PLAY LIST #3
PLAY LIST #4
PLAY LIST #5
TITLE PLAY LIST #1
TITLE PLAY LIST #2
TITLE PLAY LIST #1
TITLE PLAY LIST #2
115
TITLE COMPREHENSIVE INFO.
TITLE
TITLE
200
126
204
ITEM
ITEM
ITEM
ITEM
IN, OUT POINT INFORMATION
134d
EP MAP
EP MAP
TS OBJECT
TS OBJECT
142
OBJECT INFORMATION
ADDRESS INFORMATION
130d

FIG. 8(a)

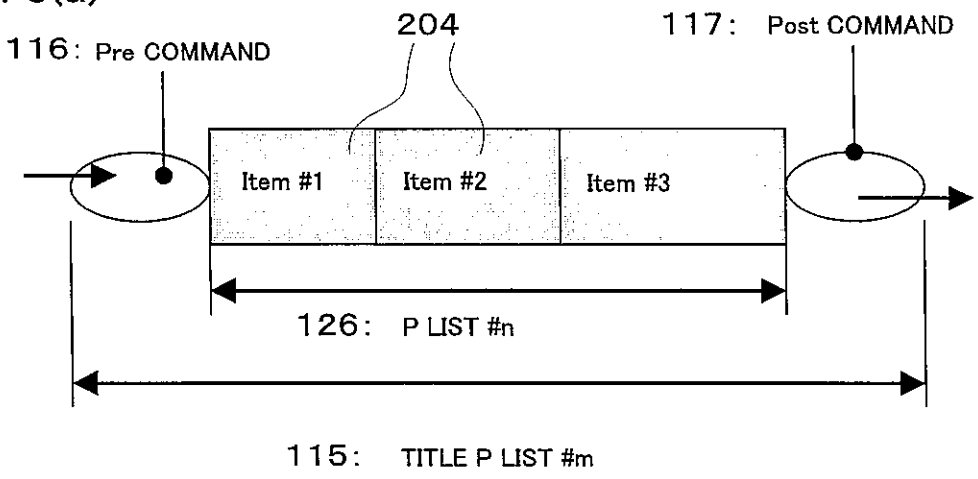


FIG. 8(b)

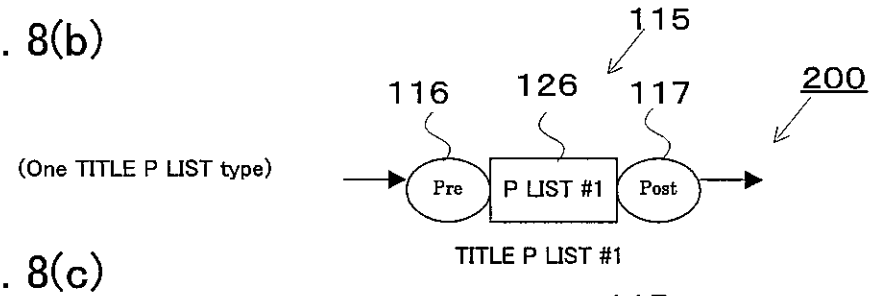


FIG. 8(c)

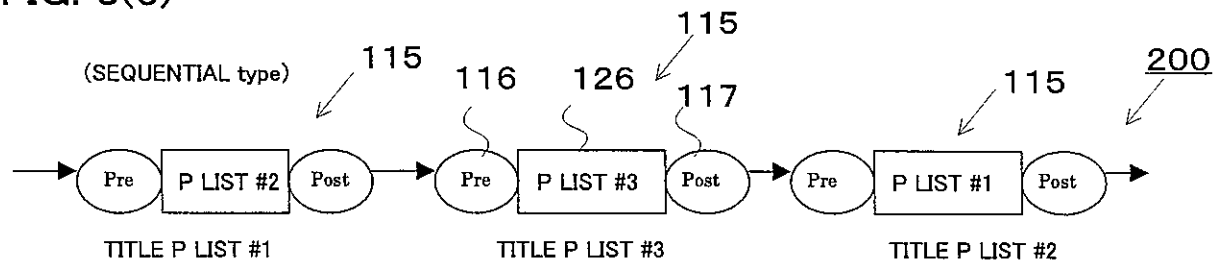


FIG. 8(d)

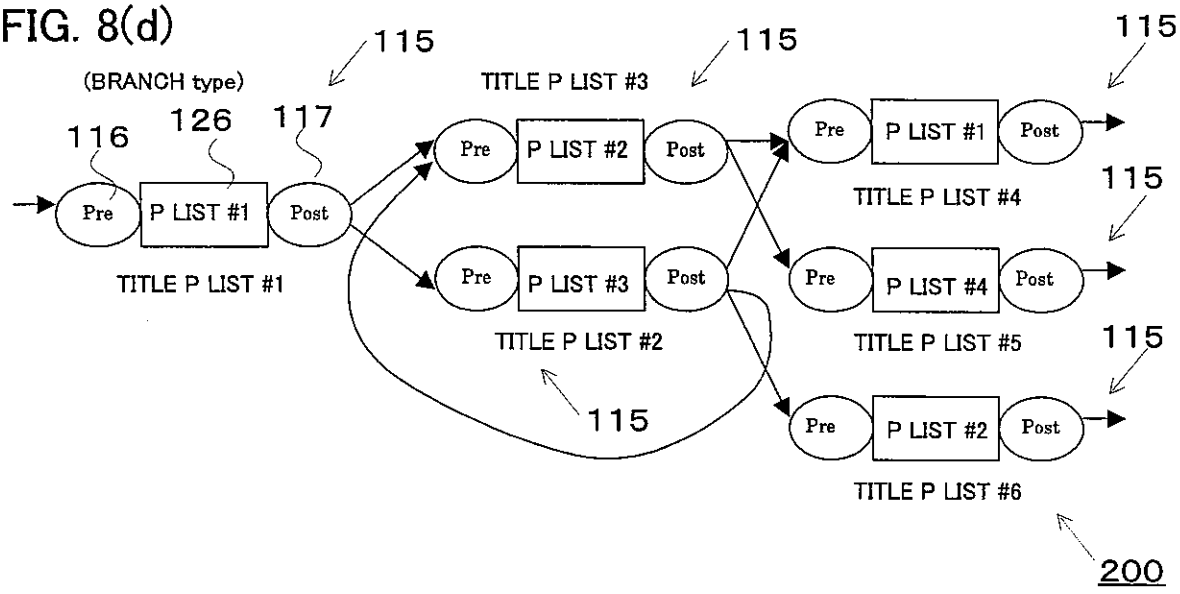


FIG. 9

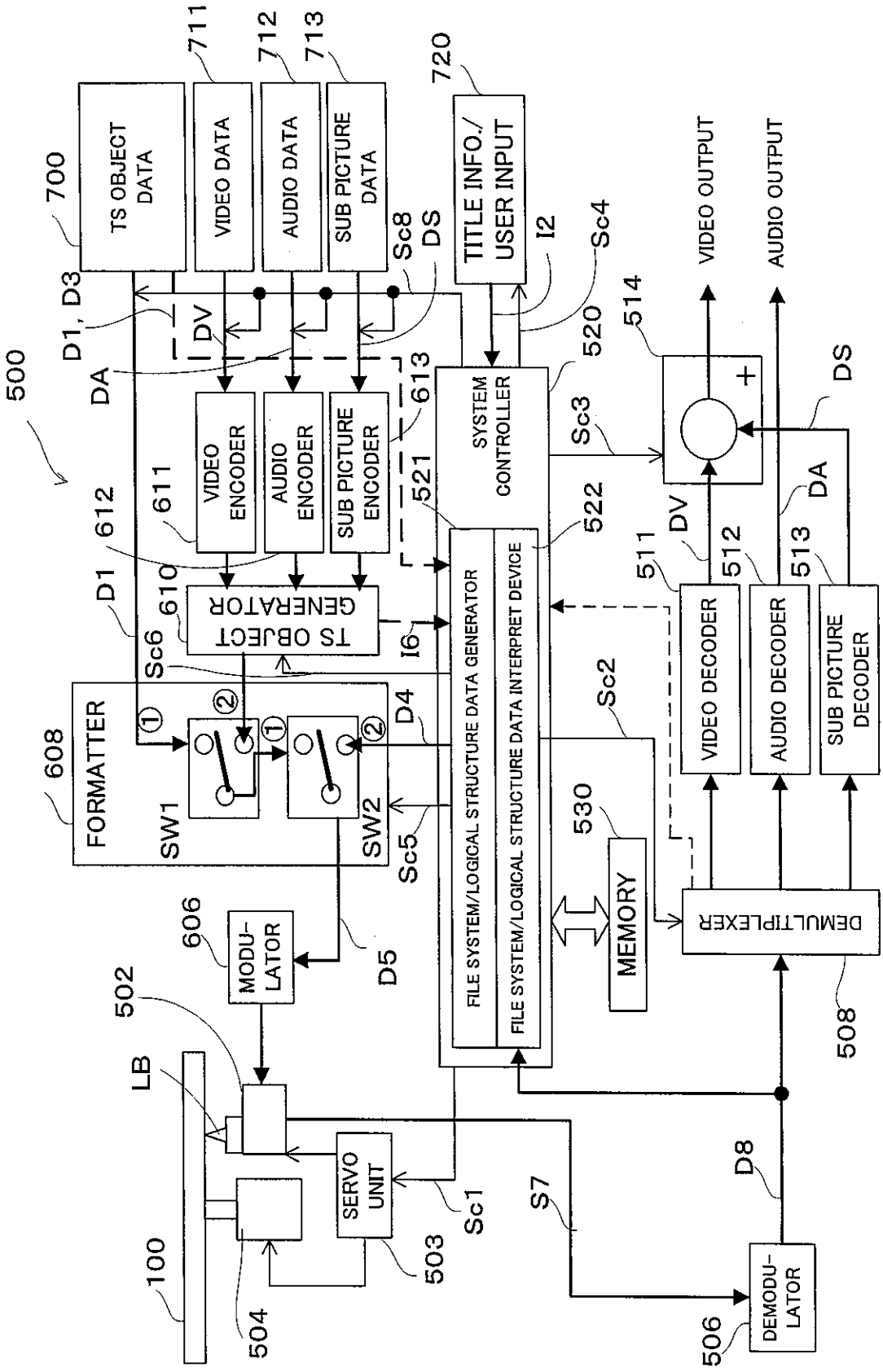

500
700
TS OBJECT DATA
711
VIDEO DATA
712
AUDIO DATA
713
SUB PICTURE DATA
720
TITLE INFO./ USER INPUT
D1, D3
DV
DA
Sc8
DS
I2
Sc4
VIDEO OUTPUT
AUDIO OUTPUT
514
520
SYSTEM CONTROLLER
Sc3
613
611
VIDEO ENCODER
AUDIO ENCODER
SUB PICTURE ENCODER
521
522
612
D1
610
TS OBJECT GENERATOR
I6
Sc6
608
FORMATTER
SW1
SW2
D4
Sc5
FILE SYSTEM/LOGICAL STRUCTURE DATA GENERATOR
FILE SYSTEM/LOGICAL STRUCTURE DATA INTERPRET DEVICE
Sc2
530
MEMORY
511
512
513
VIDEO DECODER
AUDIO DECODER
SUB PICTURE DECODER
DEMULTIPLEXER
508
606
MODU-LATOR
D5
502
LB
100
504
SERVO UNIT
503
Sc1
S7
D8
DEMODU-LATOR
506

FIG. 10

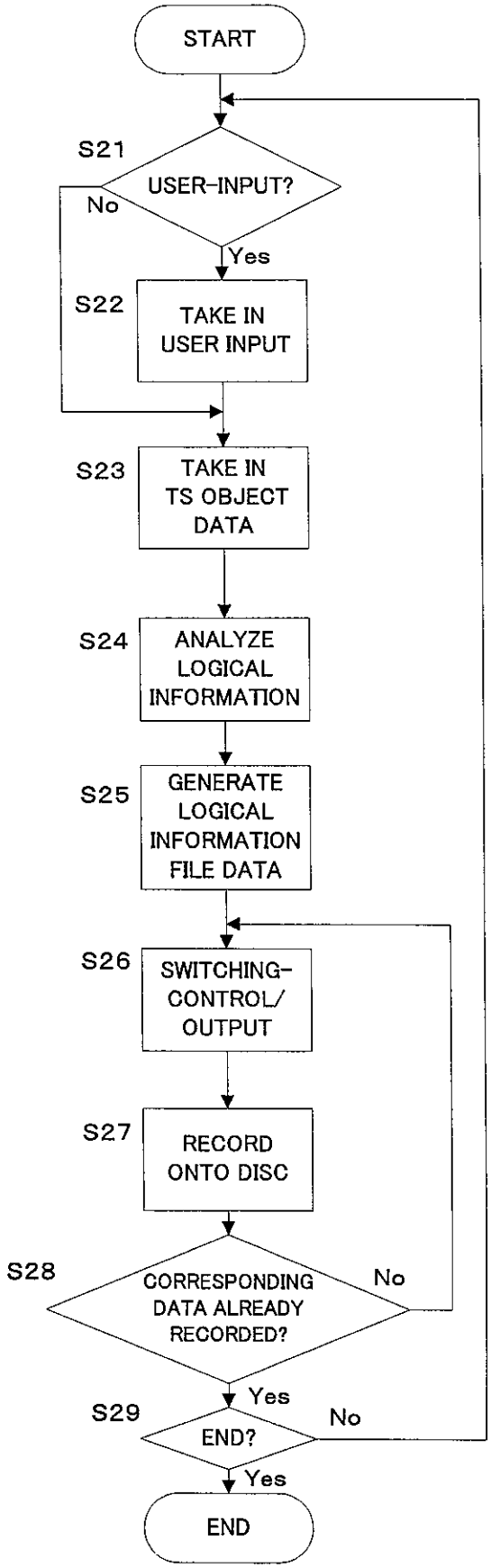

START
S21
USER-INPUT?
No
Yes
S22
TAKE IN USER INPUT
S23
TAKE IN TS OBJECT DATA
S24
ANALYZE LOGICAL INFORMATION
S25
GENERATE LOGICAL INFORMATION FILE DATA
S26
SWITCHING-CONTROL/ OUTPUT
S27
RECORD ONTO DISC
S28
CORRESPONDING DATA ALREADY RECORDED?
No
Yes
S29
END?
No
Yes
END

FIG. 11

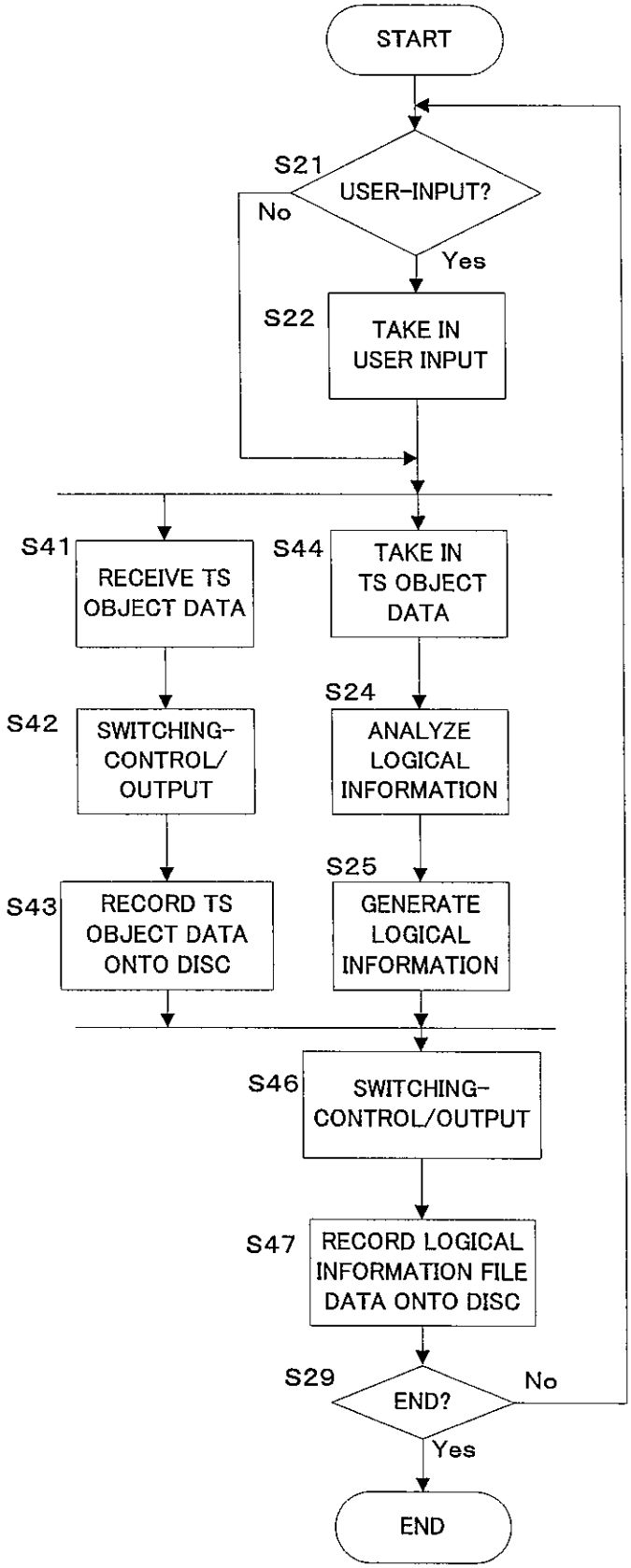

START
S21
USER-INPUT?
No
Yes
S22
TAKE IN USER INPUT
S41
RECEIVE TS OBJECT DATA
S44
TAKE IN TS OBJECT DATA
S42
SWITCHING-CONTROL/ OUTPUT
S24
ANALYZE LOGICAL INFORMATION
S43
RECORD TS OBJECT DATA ONTO DISC
S25
GENERATE LOGICAL INFORMATION
S46
SWITCHING-CONTROL/OUTPUT
S47
RECORD LOGICAL INFORMATION FILE DATA ONTO DISC
S29
END?
No
Yes
END

FIG. 12

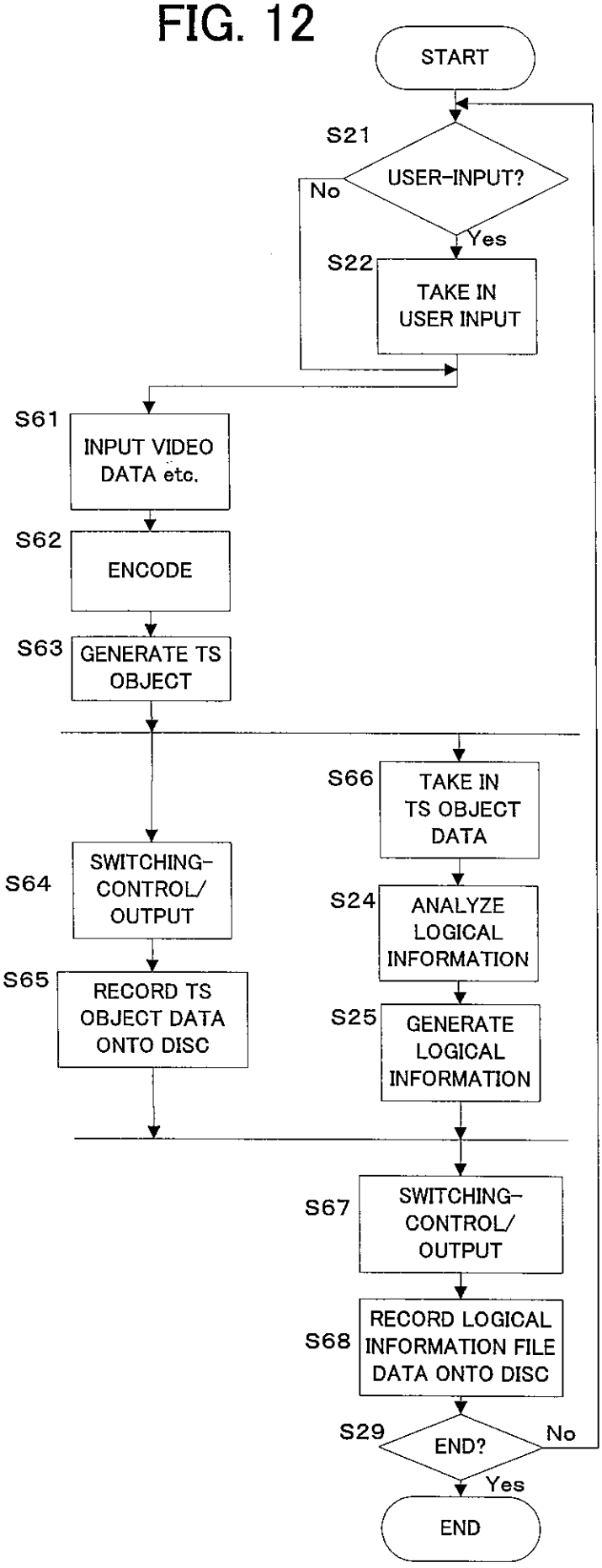

START
S21
USER-INPUT?
No
Yes
S22
TAKE IN USER INPUT
S61
INPUT VIDEO DATA etc.
S62
ENCODE
S63
GENERATE TS OBJECT
S66
TAKE IN TS OBJECT DATA
S64
SWITCHING-CONTROL/ OUTPUT
S24
ANALYZE LOGICAL INFORMATION
S65
RECORD TS OBJECT DATA ONTO DISC
S25
GENERATE LOGICAL INFORMATION
S67
SWITCHING-CONTROL/ OUTPUT
S68
RECORD LOGICAL INFORMATION FILE DATA ONTO DISC
S29
END?
No
Yes
END

FIG. 13

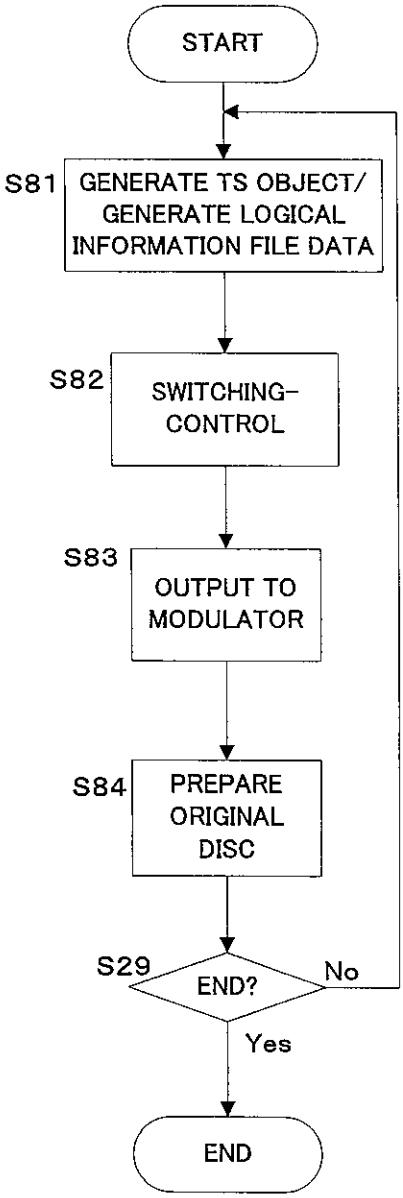

START
S81
GENERATE TS OBJECT/ GENERATE LOGICAL INFORMATION FILE DATA
S82
SWITCHING-CONTROL
S83
OUTPUT TO MODULATOR
S84
PREPARE ORIGINAL DISC
S29
END?
No
Yes
END

FIG. 14

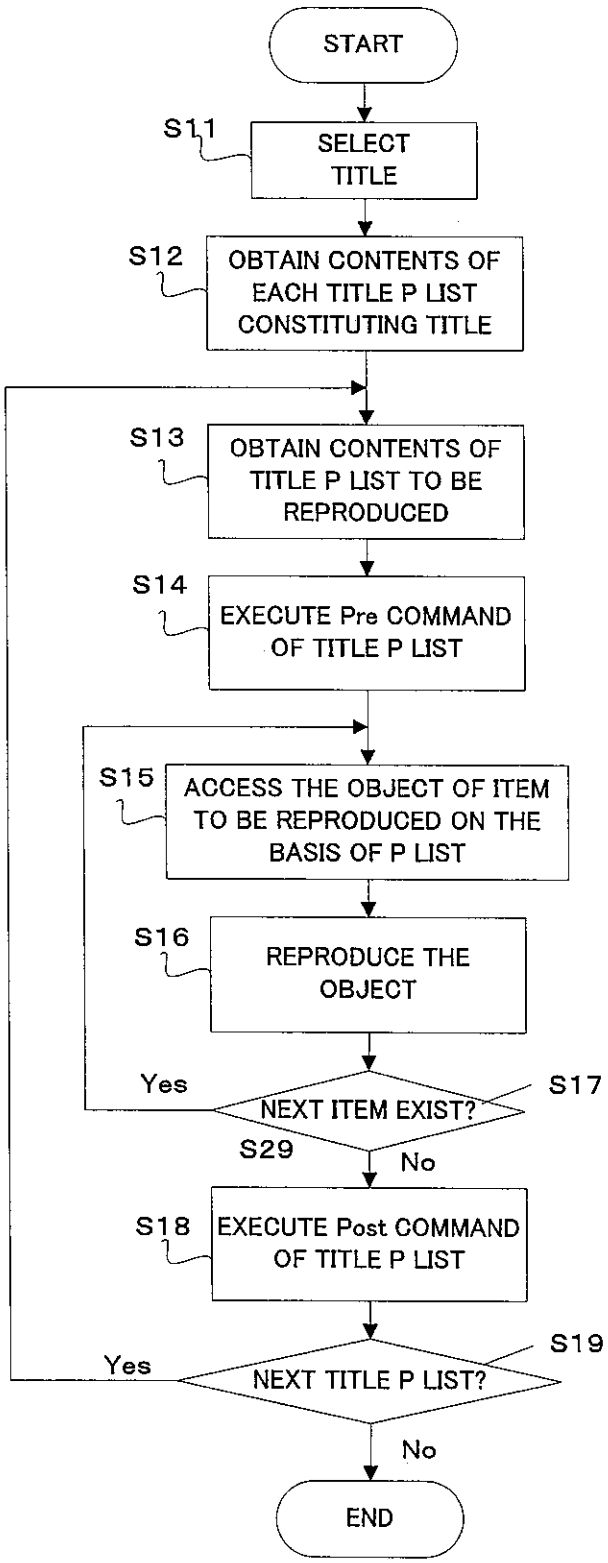

START
S11
SELECT TITLE
S12
OBTAIN CONTENTS OF EACH TITLE P LIST CONSTITUTING TITLE
S13
OBTAIN CONTENTS OF TITLE P LIST TO BE REPRODUCED
S14
EXECUTE Pre COMMAND OF TITLE P LIST
S15
ACCESS THE OBJECT OF ITEM TO BE REPRODUCED ON THE BASIS OF P LIST
S16
REPRODUCE THE OBJECT
Yes
NEXT ITEM EXIST?
S17
S29
No
S18
EXECUTE Post COMMAND OF TITLE P LIST
S19
Yes
NEXT TITLE P LIST?
No
END

FIG. 15

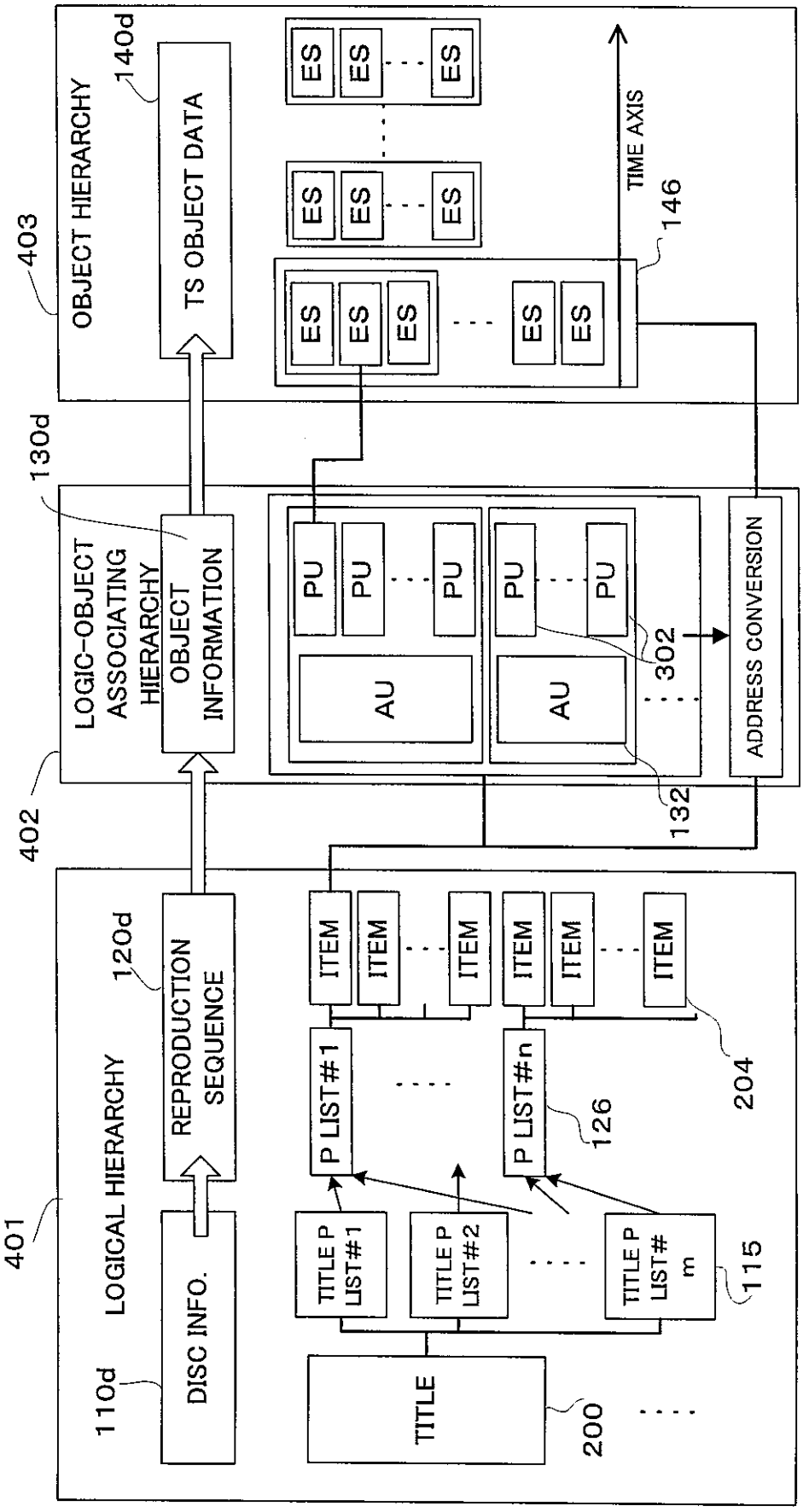

401
LOGICAL HIERARCHY
110d
DISC INFO.
120d
REPRODUCTION SEQUENCE
TITLE
200
TITLE P LIST#1
TITLE P LIST#2
TITLE P LIST# m
115
P LIST#1
P LIST#n
126
ITEM
204
402
LOGIC-OBJECT ASSOCIATING HIERARCHY
130d
OBJECT INFORMATION
PU
AU
302
132
ADDRESS CONVERSION
403
OBJECT HIERARCHY
140d
TS OBJECT DATA
ES
TIME AXIS
146

FIG. 16

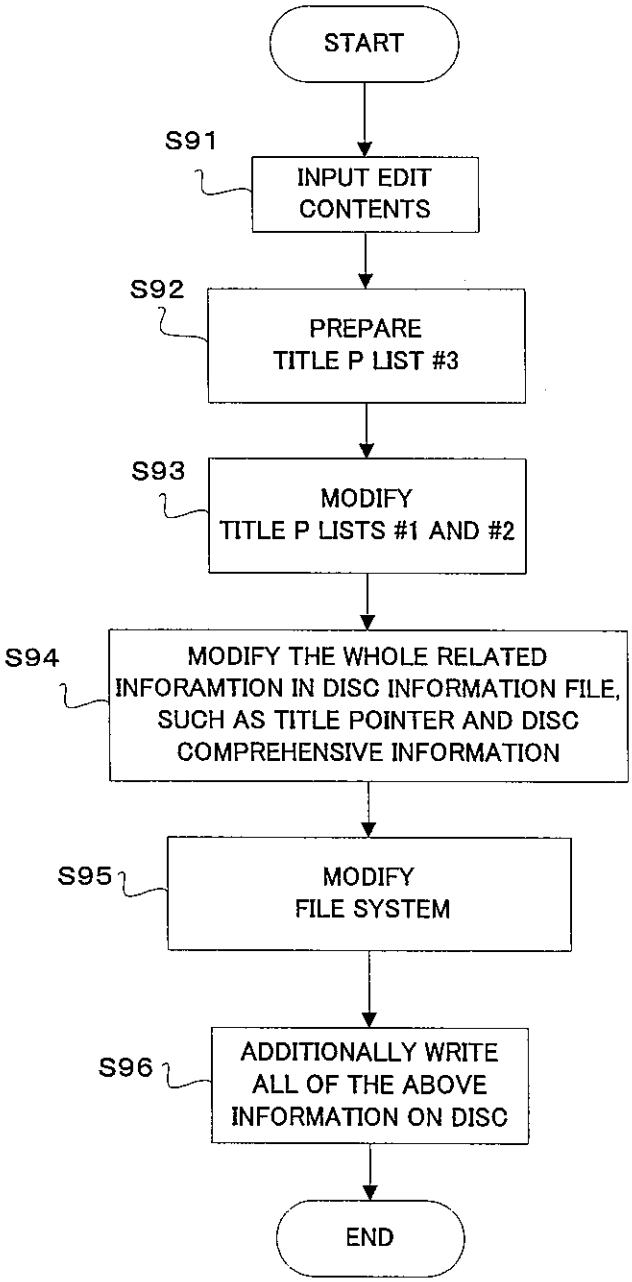
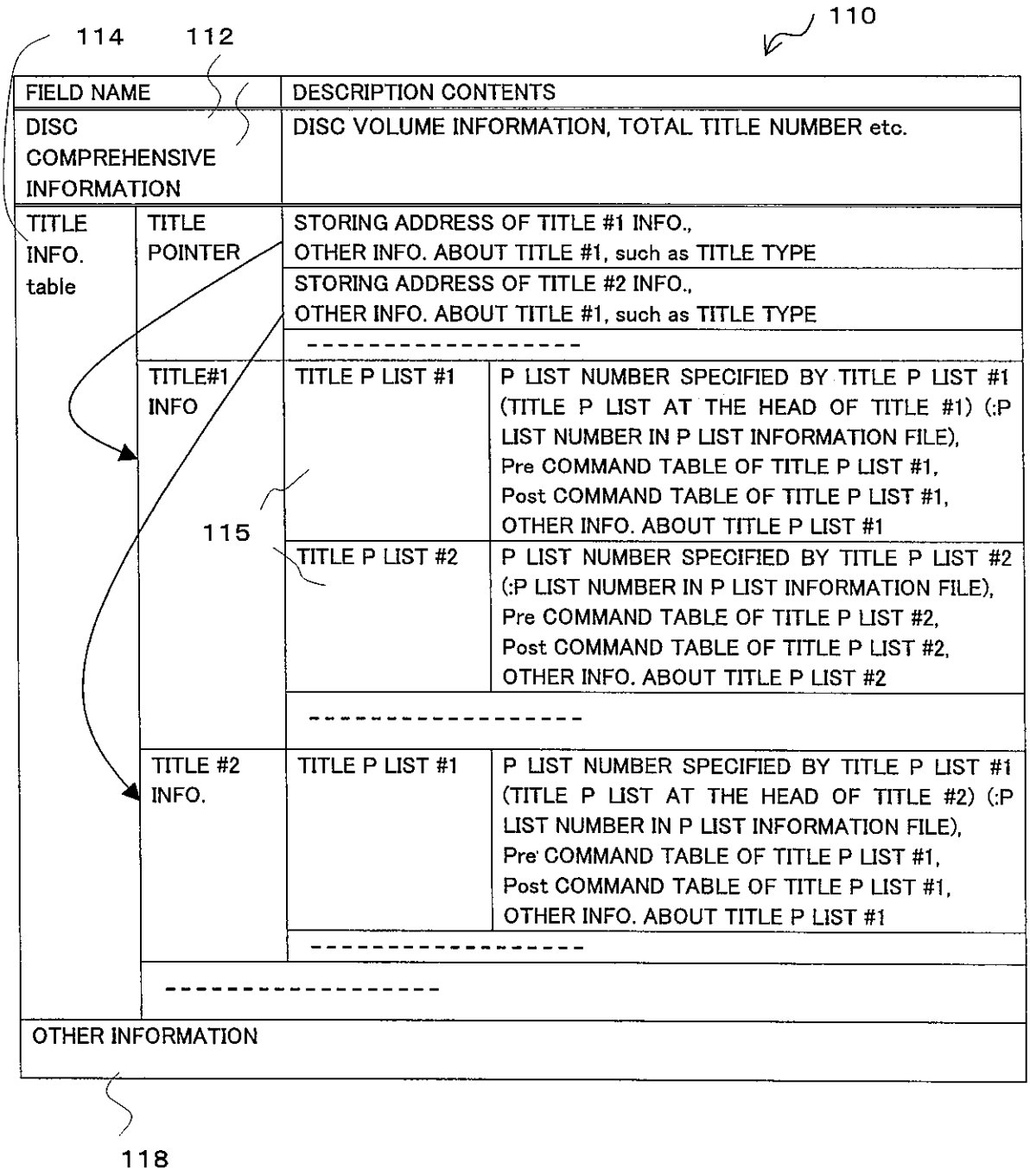

START
S91
INPUT EDIT CONTENTS
S92
PREPARE TITLE P LIST #3
S93
MODIFY TITLE P LISTS #1 AND #2
S94
MODIFY THE WHOLE RELATED INFORAMTION IN DISC INFORMATION FILE, SUCH AS TITLE POINTER AND DISC COMPREHENSIVE INFORMATION
S95
MODIFY FILE SYSTEM
S96
ADDITIONALLY WRITE ALL OF THE ABOVE INFORMATION ON DISC
END

FIG. 17



FIELD NAME		DESCRIPTION CONTENTS	
DISC COMPREHENSIVE INFORMATION		DISC VOLUME INFORMATION, TOTAL TITLE NUMBER etc.	
TITLE INFO. table	TITLE POINTER	STORING ADDRESS OF TITLE #1 INFO., OTHER INFO. ABOUT TITLE #1, such as TITLE TYPE	
		STORING ADDRESS OF TITLE #2 INFO., OTHER INFO. ABOUT TITLE #1, such as TITLE TYPE	

	TITLE#1 INFO	TITLE P LIST #1	P LIST NUMBER SPECIFIED BY TITLE P LIST #1 (TITLE P LIST AT THE HEAD OF TITLE #1) (:P LIST NUMBER IN P LIST INFORMATION FILE), Pre COMMAND TABLE OF TITLE P LIST #1, Post COMMAND TABLE OF TITLE P LIST #1, OTHER INFO. ABOUT TITLE P LIST #1
		TITLE P LIST #2	P LIST NUMBER SPECIFIED BY TITLE P LIST #2 (:P LIST NUMBER IN P LIST INFORMATION FILE), Pre COMMAND TABLE OF TITLE P LIST #2, Post COMMAND TABLE OF TITLE P LIST #2, OTHER INFO. ABOUT TITLE P LIST #2

	TITLE #2 INFO.	TITLE P LIST #1	P LIST NUMBER SPECIFIED BY TITLE P LIST #1 (TITLE P LIST AT THE HEAD OF TITLE #2) (:P LIST NUMBER IN P LIST INFORMATION FILE), Pre COMMAND TABLE OF TITLE P LIST #1, Post COMMAND TABLE OF TITLE P LIST #1, OTHER INFO. ABOUT TITLE P LIST #1

OTHER INFORMATION			

FIG. 18

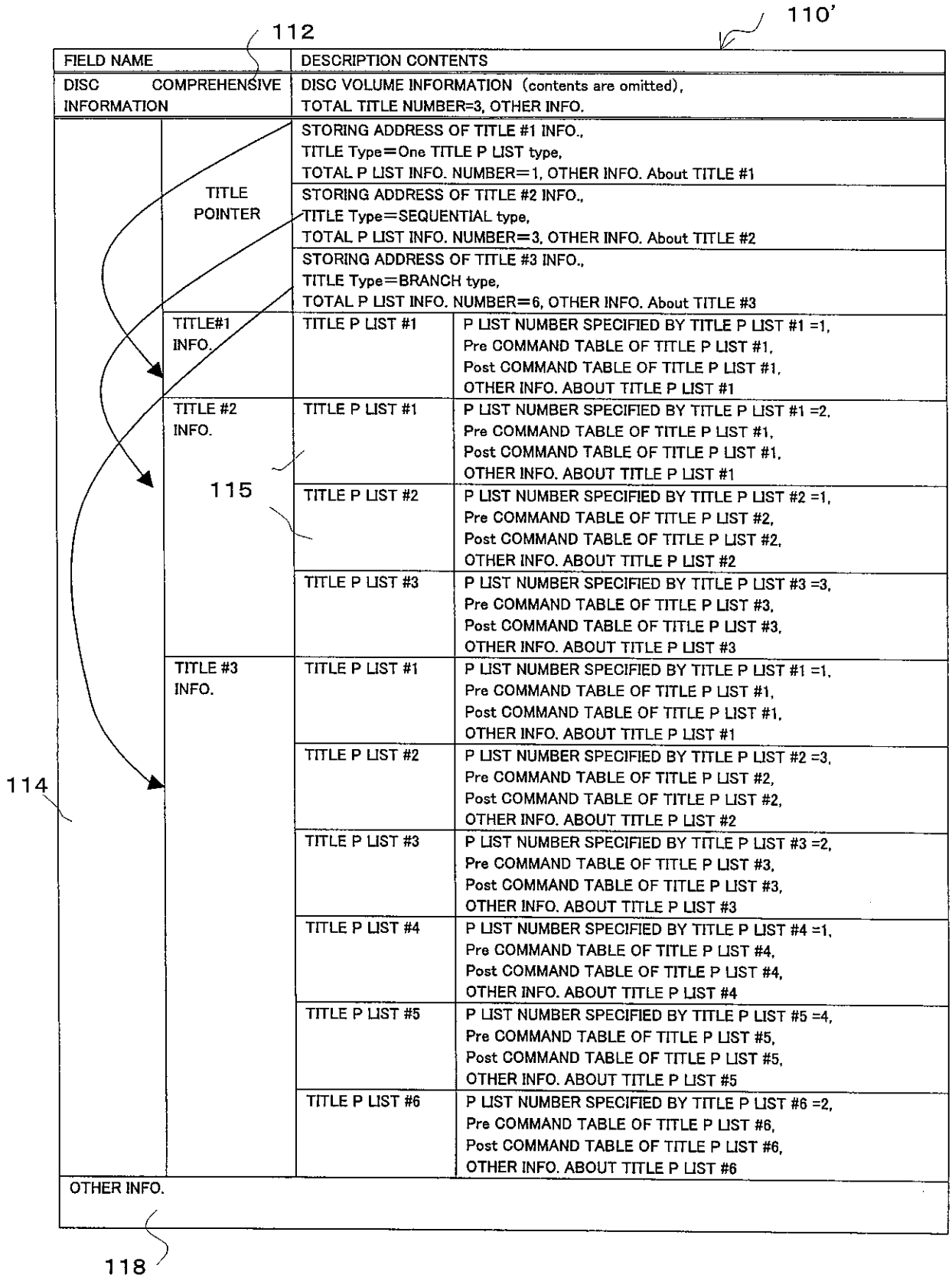

110'
112
FIELD NAME
DESCRIPTION CONTENTS
DISC COMPREHENSIVE INFORMATION
DISC VOLUME INFORMATION (contents are omitted),
TOTAL TITLE NUMBER=3, OTHER INFO.
TITLE POINTER
STORING ADDRESS OF TITLE #1 INFO.,
TITLE Type=One TITLE P LIST type,
TOTAL P LIST INFO. NUMBER=1, OTHER INFO. About TITLE #1
STORING ADDRESS OF TITLE #2 INFO.,
TITLE Type=SEQUENTIAL type,
TOTAL P LIST INFO. NUMBER=3, OTHER INFO. About TITLE #2
STORING ADDRESS OF TITLE #3 INFO.,
TITLE Type=BRANCH type,
TOTAL P LIST INFO. NUMBER=6, OTHER INFO. About TITLE #3
TITLE#1 INFO.
TITLE P LIST #1
P LIST NUMBER SPECIFIED BY TITLE P LIST #1 =1,
Pre COMMAND TABLE OF TITLE P LIST #1,
Post COMMAND TABLE OF TITLE P LIST #1,
OTHER INFO. ABOUT TITLE P LIST #1
TITLE #2 INFO.
TITLE P LIST #1
P LIST NUMBER SPECIFIED BY TITLE P LIST #1 =2,
Pre COMMAND TABLE OF TITLE P LIST #1,
Post COMMAND TABLE OF TITLE P LIST #1,
OTHER INFO. ABOUT TITLE P LIST #1
115
TITLE P LIST #2
P LIST NUMBER SPECIFIED BY TITLE P LIST #2 =1,
Pre COMMAND TABLE OF TITLE P LIST #2,
Post COMMAND TABLE OF TITLE P LIST #2,
OTHER INFO. ABOUT TITLE P LIST #2
TITLE P LIST #3
P LIST NUMBER SPECIFIED BY TITLE P LIST #3 =3,
Pre COMMAND TABLE OF TITLE P LIST #3,
Post COMMAND TABLE OF TITLE P LIST #3,
OTHER INFO. ABOUT TITLE P LIST #3
TITLE #3 INFO.
TITLE P LIST #1
P LIST NUMBER SPECIFIED BY TITLE P LIST #1 =1,
Pre COMMAND TABLE OF TITLE P LIST #1,
Post COMMAND TABLE OF TITLE P LIST #1,
OTHER INFO. ABOUT TITLE P LIST #1
114
TITLE P LIST #2
P LIST NUMBER SPECIFIED BY TITLE P LIST #2 =3,
Pre COMMAND TABLE OF TITLE P LIST #2,
Post COMMAND TABLE OF TITLE P LIST #2,
OTHER INFO. ABOUT TITLE P LIST #2
TITLE P LIST #3
P LIST NUMBER SPECIFIED BY TITLE P LIST #3 =2,
Pre COMMAND TABLE OF TITLE P LIST #3,
Post COMMAND TABLE OF TITLE P LIST #3,
OTHER INFO. ABOUT TITLE P LIST #3
TITLE P LIST #4
P LIST NUMBER SPECIFIED BY TITLE P LIST #4 =1,
Pre COMMAND TABLE OF TITLE P LIST #4,
Post COMMAND TABLE OF TITLE P LIST #4,
OTHER INFO. ABOUT TITLE P LIST #4
TITLE P LIST #5
P LIST NUMBER SPECIFIED BY TITLE P LIST #5 =4,
Pre COMMAND TABLE OF TITLE P LIST #5,
Post COMMAND TABLE OF TITLE P LIST #5,
OTHER INFO. ABOUT TITLE P LIST #5
TITLE P LIST #6
P LIST NUMBER SPECIFIED BY TITLE P LIST #6 =2,
Pre COMMAND TABLE OF TITLE P LIST #6,
Post COMMAND TABLE OF TITLE P LIST #6,
OTHER INFO. ABOUT TITLE P LIST #6
OTHER INFO.
118

FIG. 19

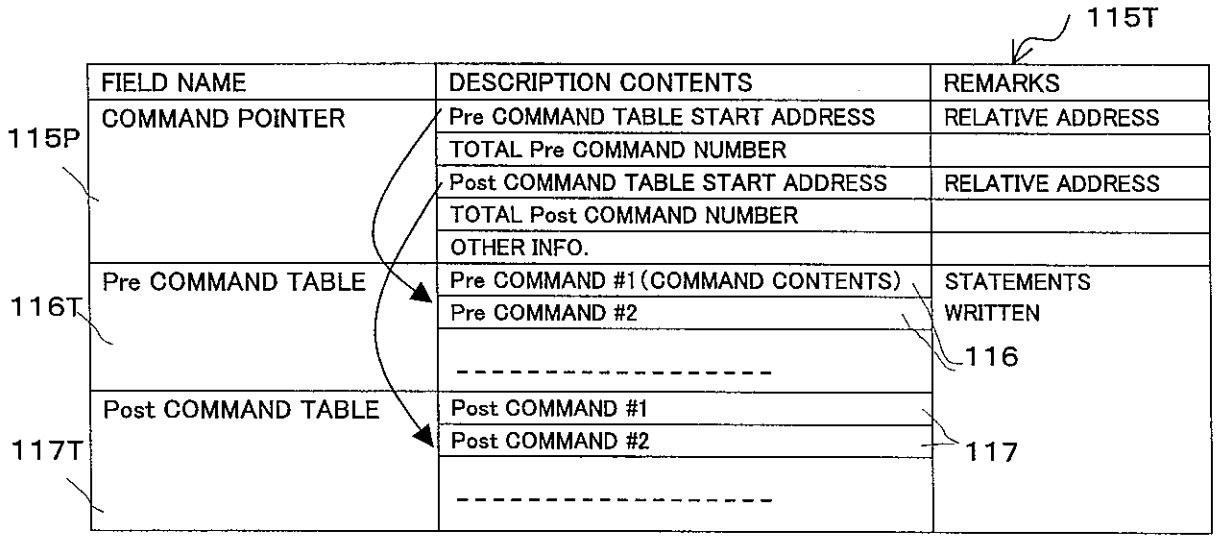

115T
FIELD NAME
DESCRIPTION CONTENTS
REMARKS
115P
COMMAND POINTER
Pre COMMAND TABLE START ADDRESS
RELATIVE ADDRESS
TOTAL Pre COMMAND NUMBER
Post COMMAND TABLE START ADDRESS
RELATIVE ADDRESS
TOTAL Post COMMAND NUMBER
OTHER INFO.
116T
Pre COMMAND TABLE
Pre COMMAND #1 (COMMAND CONTENTS)
STATEMENTS WRITTEN
Pre COMMAND #2
116
117T
Post COMMAND TABLE
Post COMMAND #1
Post COMMAND #2
117

FIG. 20

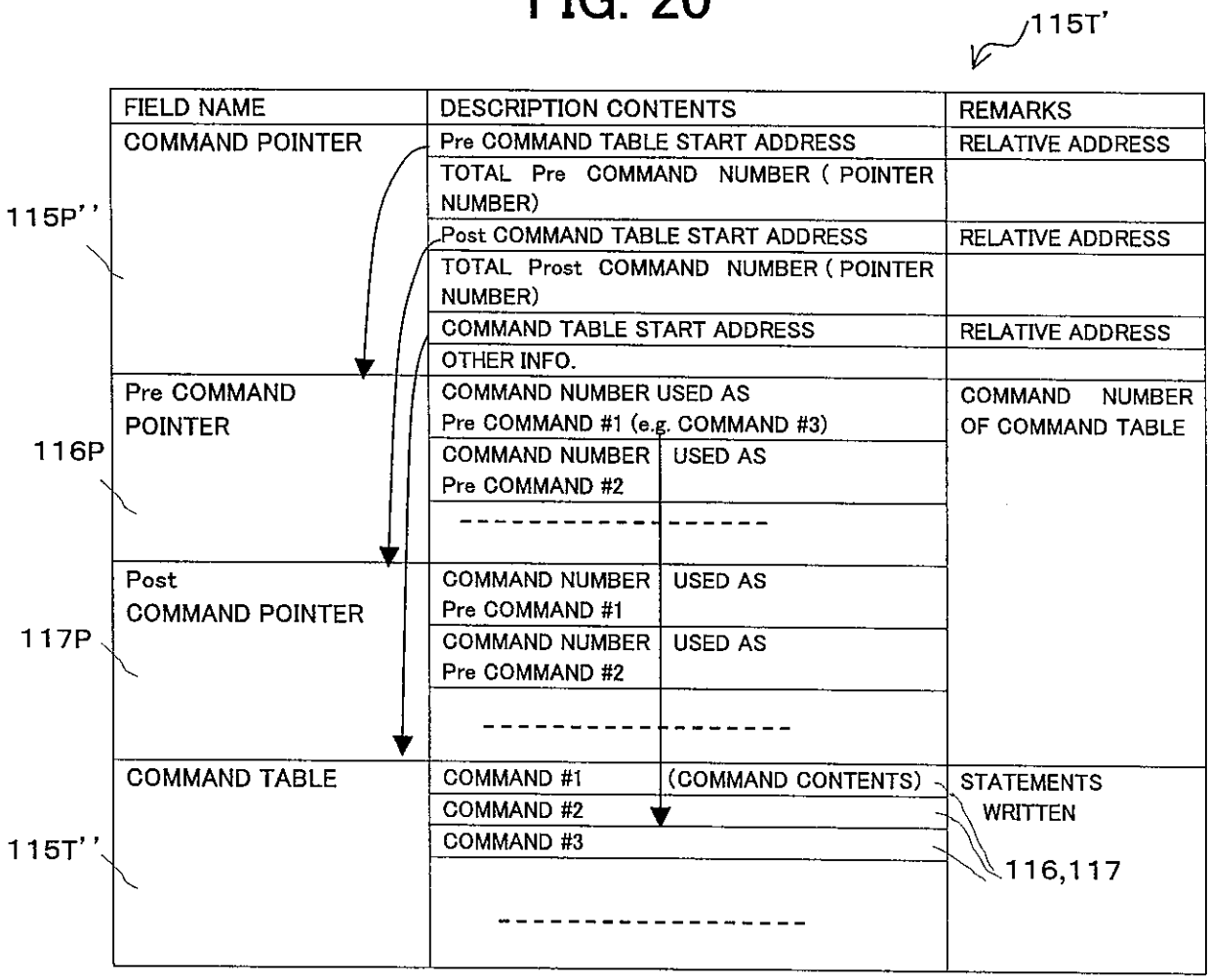
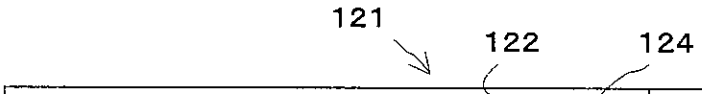

115T'
FIELD NAME
DESCRIPTION CONTENTS
REMARKS
COMMAND POINTER
Pre COMMAND TABLE START ADDRESS
RELATIVE ADDRESS
TOTAL Pre COMMAND NUMBER (POINTER NUMBER)
115P''
Post COMMAND TABLE START ADDRESS
RELATIVE ADDRESS
TOTAL Prost COMMAND NUMBER (POINTER NUMBER)
COMMAND TABLE START ADDRESS
RELATIVE ADDRESS
OTHER INFO.
Pre COMMAND POINTER
COMMAND NUMBER USED AS Pre COMMAND #1 (e.g. COMMAND #3)
COMMAND NUMBER Pre COMMAND #2
USED AS
COMMAND NUMBER OF COMMAND TABLE
116P
Post COMMAND POINTER
COMMAND NUMBER Pre COMMAND #1
USED AS
117P
COMMAND NUMBER Pre COMMAND #2
USED AS
COMMAND TABLE
COMMAND #1
(COMMAND CONTENTS)
STATEMENTS WRITTEN
COMMAND #2
COMMAND #3
115T''
116,117

FIG. 21



FIELD NAME			DESCRIPTION CONTENTS
P LIST COMPREHENSIVE INFORMATION			P LIST SIZE, TOTAL P LIST NUMBER=4, OTHER INFO.
P LIST POINTER TABLE	P LIST #1 POINTER		P LIST #1 INFO. STORING ADDRESS
	P LIST #2 POINTER		P LIST #2 INFO. STORING ADDRESS
	P LIST #3 POINTER		P LIST #3 INFO. STORING ADDRESS
	P LIST #4 POINTER		P LIST #4 INFO. STORING ADDRESS
P LIST #1 INFO. TABLE	P LIST #1 COMPREHENSIVE INFORMATION		TOTAL CONSTITUTIONAL Item NUMBER=3, OTHER INFO.
	P LIST #1 Item INFO. TABLE	Item #1 INFO.	THE AU NUMBER IN AU TABLE IN OBJECT INFO. FILE etc.
		Item #2 INFO.	THE AU NUMBER IN AU TABLE IN OBJECT INFO. FILE etc.
		Item #3 INFO.	THE AU NUMBER IN AU TABLE IN OBJECT INFO. FILE etc.
	OTHER INFO.		
P LIST #2 INFO. TABLE	P LIST #2 COMPREHENSIVE INFORMATION		TOTAL CONSTITUTIONAL Item NUMBER=1, OTHER INFO.
	P LIST #2 Item INFO. TABLE	Item #1 INFO.	THE AU NUMBER IN AU TABLE IN OBJECT INFO. FILE etc.
	OTHER INFO.		
P LIST #3 INFO. TABLE	P LIST #3 COMPREHENSIVE INFORMATION		TOTAL CONSTITUTIONAL Item NUMBER=2, OTHER INFO.
	P LIST #3 Item INFO. TABLE	Item #1 INFO.	THE AU NUMBER IN AU TABLE IN OBJECT INFO. FILE etc.
		Item #2 INFO.	THE AU NUMBER IN AU TABLE IN OBJECT INFO. FILE etc.
	OTHER INFO.		
P LIST #4 INFO. TABLE	P LIST #4 COMPREHENSIVE INFORMATION		TOTAL CONSTITUTIONAL Item NUMBER=1, OTHER INFO.
	P LIST #4 Item INFO. TABLE	ITEM #1 INFO.	THE AU NUMBER IN AU TABLE IN OBJECT INFO. FILE etc.
	OTHER INFO.		

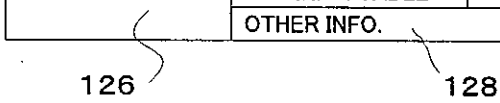


FIG. 22

OBJECT INFORMATION TABLE 131

FIELD NAME				CONTENTS
AU TABLE COMPREHENSIVE INFO.				NUMBER OF AUs, POINTER TO EACH AU, etc.
AU Table	AU #1	PU #1	ES_Table Index #1	INDEX NO. OF ES_map table =1
			ES_Table Index #2	3
	132I	PU #2	ES_Table Index #1	4
			ES_Table Index #2	5
	AU #2	PU #1	ES_Table Index #1	9
			ES_Table Index #2	10
		PU #2	ES_Table Index #1	12
			ES_Table Index #2	13
	AU #3	PU #1	ES_Table Index #1	14
	302I		ES_Table Index #2	15
			ES_Table Index #3	16
			ES_Table Index #4	17
			ES_Table Index #5	18
OTHER INFORMATION				

ES_Map Table 134

FIELD NAME		CONTENTS
ES_Map Table	ES_map table COMPREHENSIVE INFORMATION	INDEX NO., etc.
	Index #1	ES_PID VALUE =101
		ADDRESS INFORMATION
	Index #2	ES_PID =102
		ADDRESS INFORMATION
	Index #3	ES_PID =103
		ADDRESS INFORMATION
	Index #4	ES_PID =201
		ADDRESS INFORMATION
	Index #5	ES_PID =202
		ADDRESS INFORMATION
	Index #6	ES_PID =301
		ADDRESS INFORMATION
	Index #7	ES_PID =302
		ADDRESS INFORMATION
	Index #8	ES_PID =303
		ADDRESS INFORMATION
	Index #9	ES_PID =201
		ADDRESS INFORMATION
	Index #10	ES_PID =202
		ADDRESS INFORMATION
	Index #11	ES_PID =203
		ADDRESS INFORMATION
	Index #12	ES_PID =101
		ADDRESS INFORMATION
	Index #13	ES_PID =102
		ADDRESS INFORMATION
	Index #14	ES_PID =101
		ADDRESS INFORMATION
	Index #15	ES_PID =102
		ADDRESS INFORMATION
	Index #16	ES_PID =103
		ADDRESS INFORMATION
	Index #17	ES_PID =104
		ADDRESS INFORMATION
	Index #18	ES_PID =105
		ADDRESS INFORMATION
	OTHER INFORMATION	