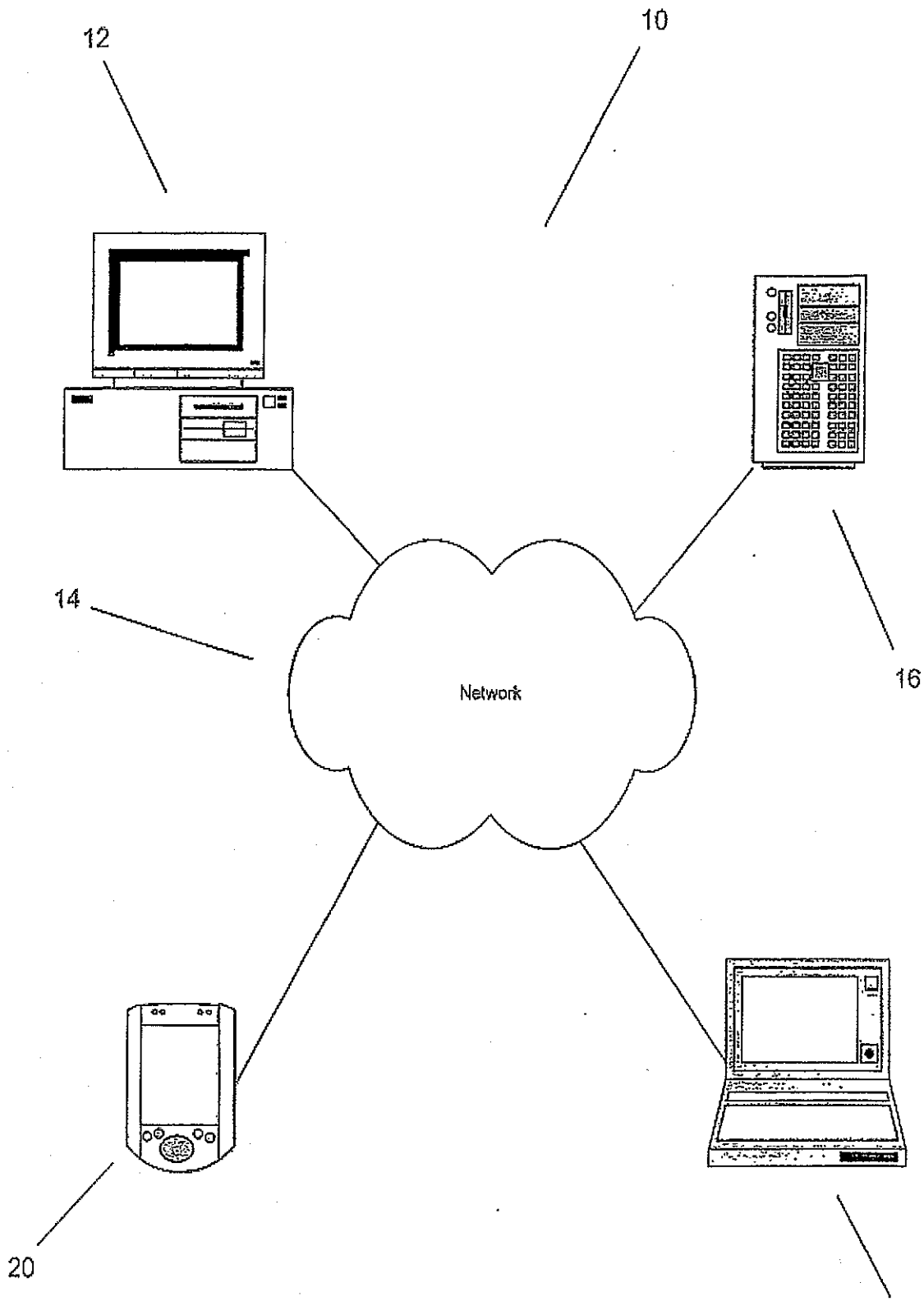


FIG. 1.

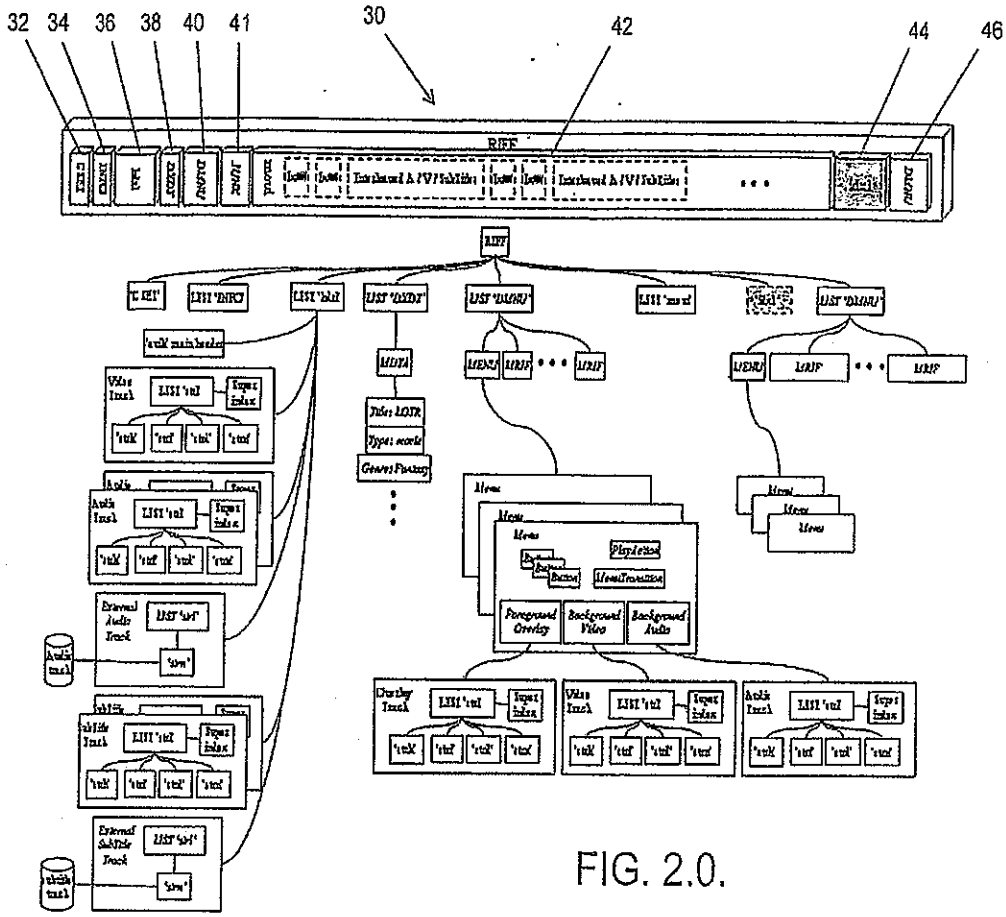


FIG. 2.0.

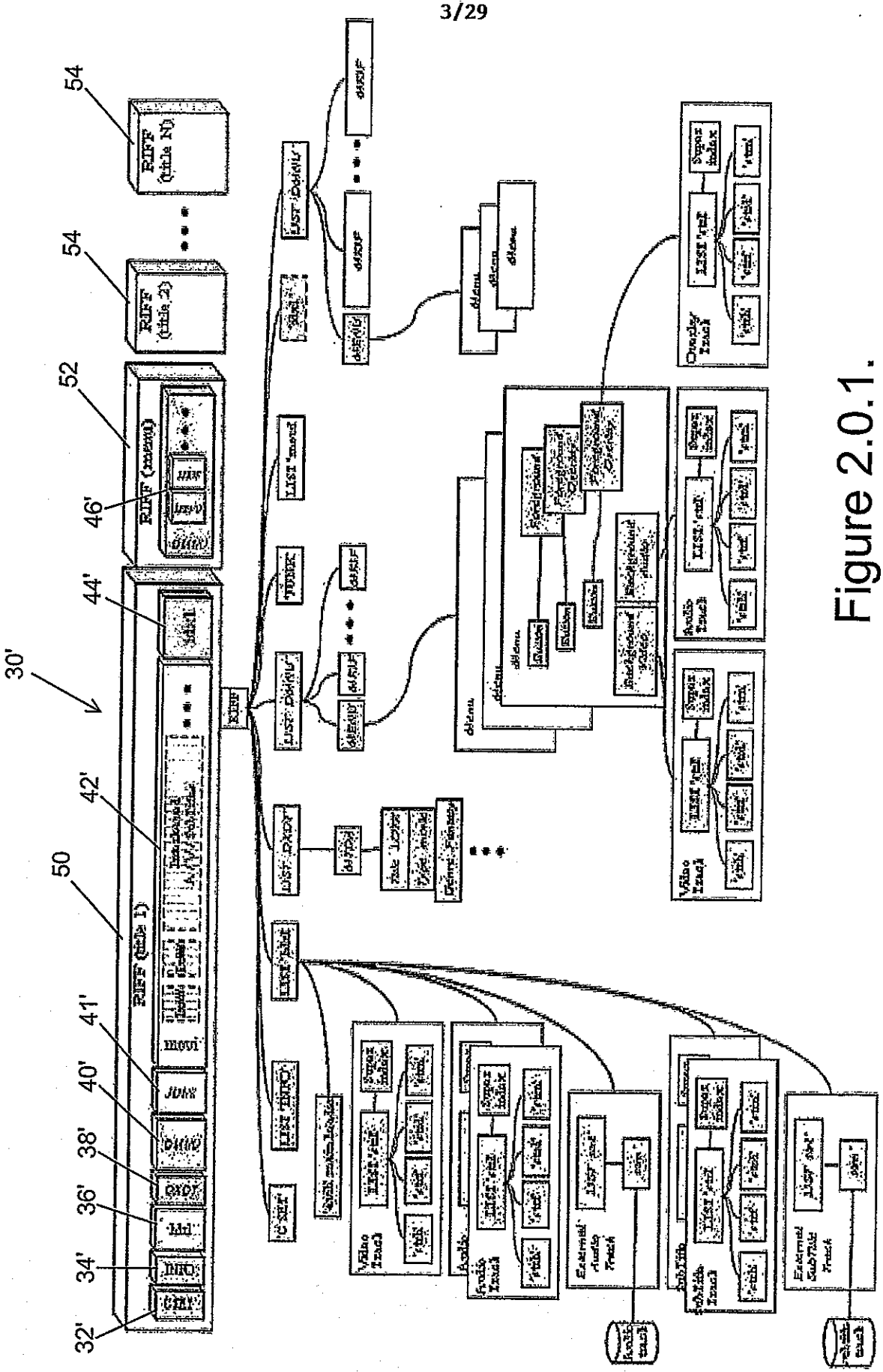


Figure 2.0.1.

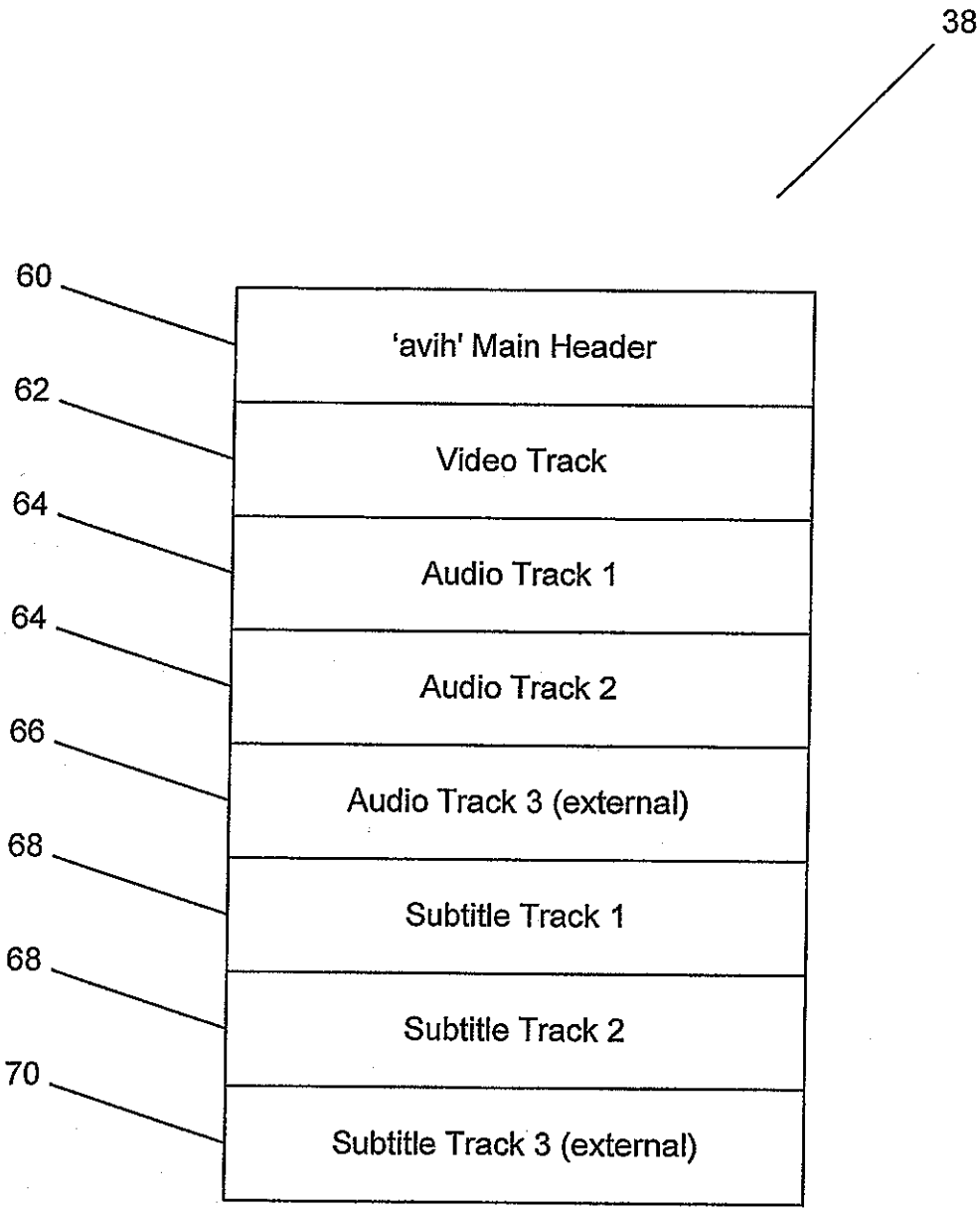

38
60
'avih' Main Header
62
Video Track
64
Audio Track 1
64
Audio Track 2
66
Audio Track 3 (external)
68
Subtitle Track 1
68
Subtitle Track 2
70
Subtitle Track 3 (external)

Fig. 2.1.

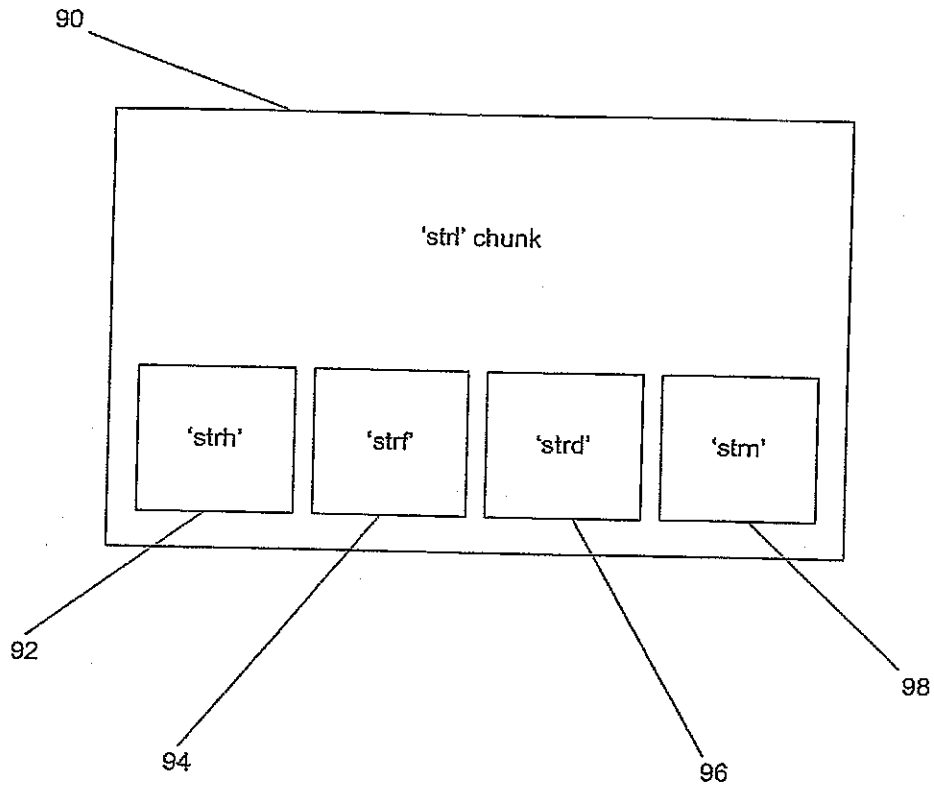


FIG. 2.2.

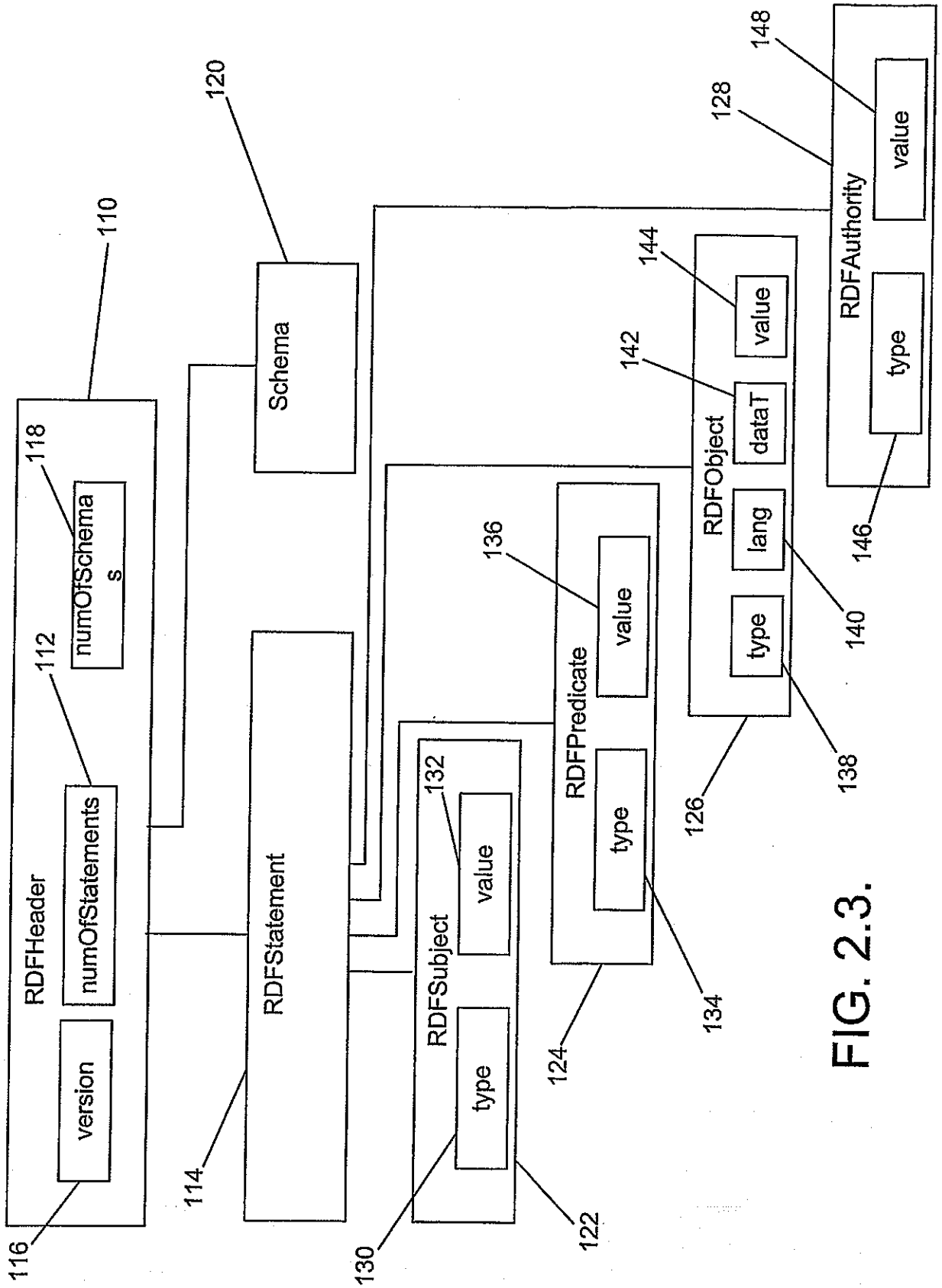
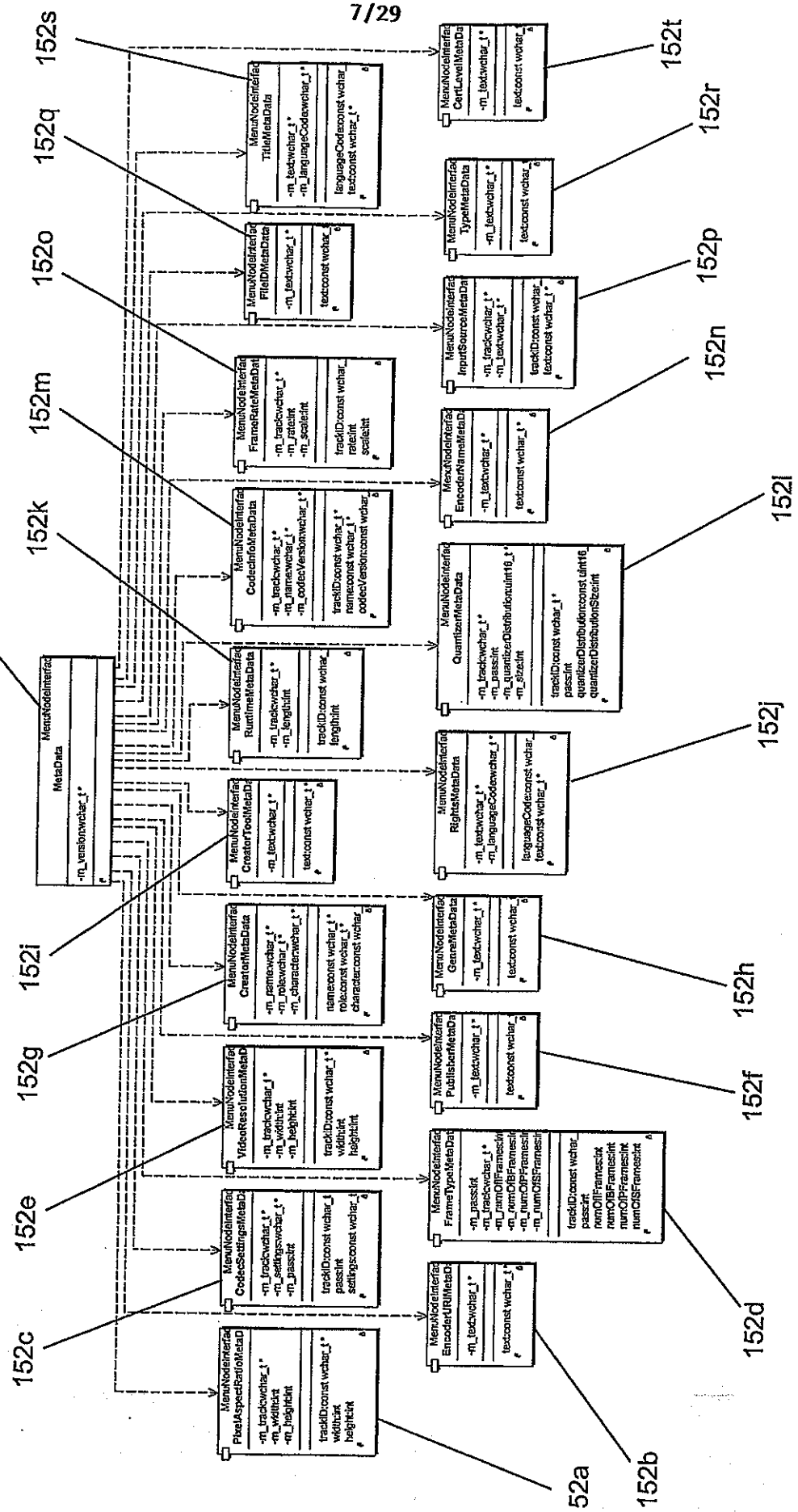

RDFHeader
version
numOfStatements
numOfSchemas
Schema
RDFStatement
RDFSubject
type
value
RDFPredicate
type
value
RDFObject
type
lang
dataT
value
RDFAuthority
type
value
110
112
114
116
118
120
122
124
126
128
130
132
134
136
138
140
142
144
146
148

FIG. 2.3.

FIG. 2.3.1.


150
MetaData
-m_versionwchar_t *
MenuNodeInterfac
CreatorMetaData
-m_namewchar_t *
-m_rolewchar_t *
-m_characterwchar_t *
nameconst wchar_t *
roleconst wchar_t *
characterconst wchar_
MenuNodeInterfac
CreatorToolMetaDa
-m_textwchar_t *
textconst wchar_t *
MenuNodeInterfac
RuntimeMetaData
-m_trackwchar_t *
-m_lengthint
trackIDconst wchar_
lengthint
MenuNodeInterfac
CodecInfoMetaData
-m_trackwchar_t *
-m_namewchar_t *
-m_codecVersionwchar_t *
trackIDconst wchar_t *
nameconst wchar_t *
codecVersionconst wchar_
MenuNodeInterfac
FrameRateMetaDat
-m_trackwchar_t *
-m_rateint
-m_scaleint
trackIDconst wchar_
rateint
scaleint
MenuNodeInterfac
FileIDMetaData
-m_textwchar_t *
textconst wchar_
MenuNodeInterfac
TitleMetaData
-m_textwchar_t *
-m_languageCodewchar_t *
languageCodeconst wchar_
textconst wchar_t *
MenuNodeInterfac
CertLevelMetaDa
-m_textwchar_t *
textconst wchar_
MenuNodeInterfac
TypeMetaData
-m_textwchar_t *
textconst wchar_
MenuNodeInterfac
InputSourceMetaDat
-m_trackwchar_t *
-m_textwchar_t *
trackIDconst wchar_
textconst wchar_t *
MenuNodeInterfac
EncoderNameMetaD
-m_textwchar_t *
textconst wchar_t *
MenuNodeInterfac
QuantizerMetaData
-m_trackwchar_t *
-m_passint
-m_quantizerDistributionuint16_t *
-m_sizeint
trackIDconst wchar_t *
passint
quantizerDistributionconst uint16_
quantizerDistributionSizeint
MenuNodeInterfac
RightsMetaData
-m_textwchar_t *
-m_languageCodewchar_t *
languageCodeconst wchar_
textconst wchar_t *
MenuNodeInterfac
GenreMetaData
-m_textwchar_t *
textconst wchar_
MenuNodeInterfac
PublisherMetaDa
-m_textwchar_t *
textconst wchar_
MenuNodeInterfac
FrameTypeMetaDat
-m_passint
-m_trackwchar_t *
-m_numOfIFramesint
-m_numOfBFramesint
-m_numOfPFramesint
-m_numOfSIFramesint
trackIDconst wchar_
passint
numOfIFramesint
numOfBFramesint
numOfPFramesint
numOfSIFramesint
MenuNodeInterfac
EncoderURIMetaDa
-m_textwchar_t *
textconst wchar_t *
MenuNodeInterfac
VideoResolutionMetaD
-m_trackwchar_t *
-m_widthint
-m_heightint
trackIDconst wchar_t *
widthint
heightint
MenuNodeInterfac
CodecSettingsMetaD
-m_trackwchar_t *
-m_settingswchar_t *
-m_passint
trackIDconst wchar_t
passint
settingsconst wchar_t
MenuNodeInterfac
PixelAspectRatioMetaD
-m_trackwchar_t *
-m_widthint
-m_heightint
trackIDconst wchar_t *
widthint
heightint
152a
152b
152c
152d
152e
152f
152g
152h
152i
152j
152k
152l
152m
152n
152o
152p
152q
152r
152s
152t

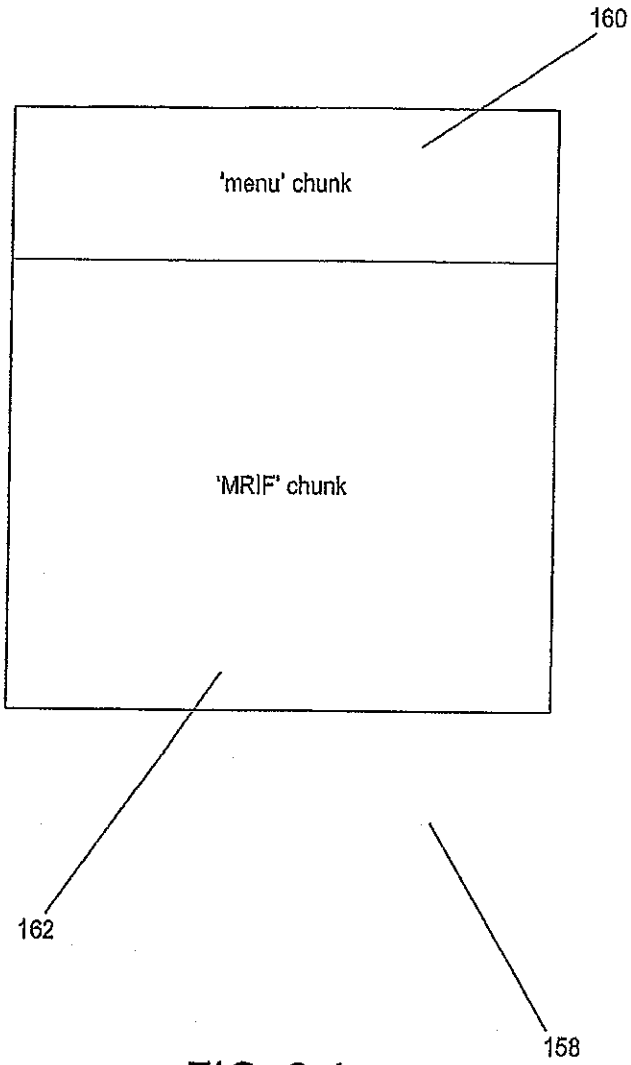


FIG. 2.4.

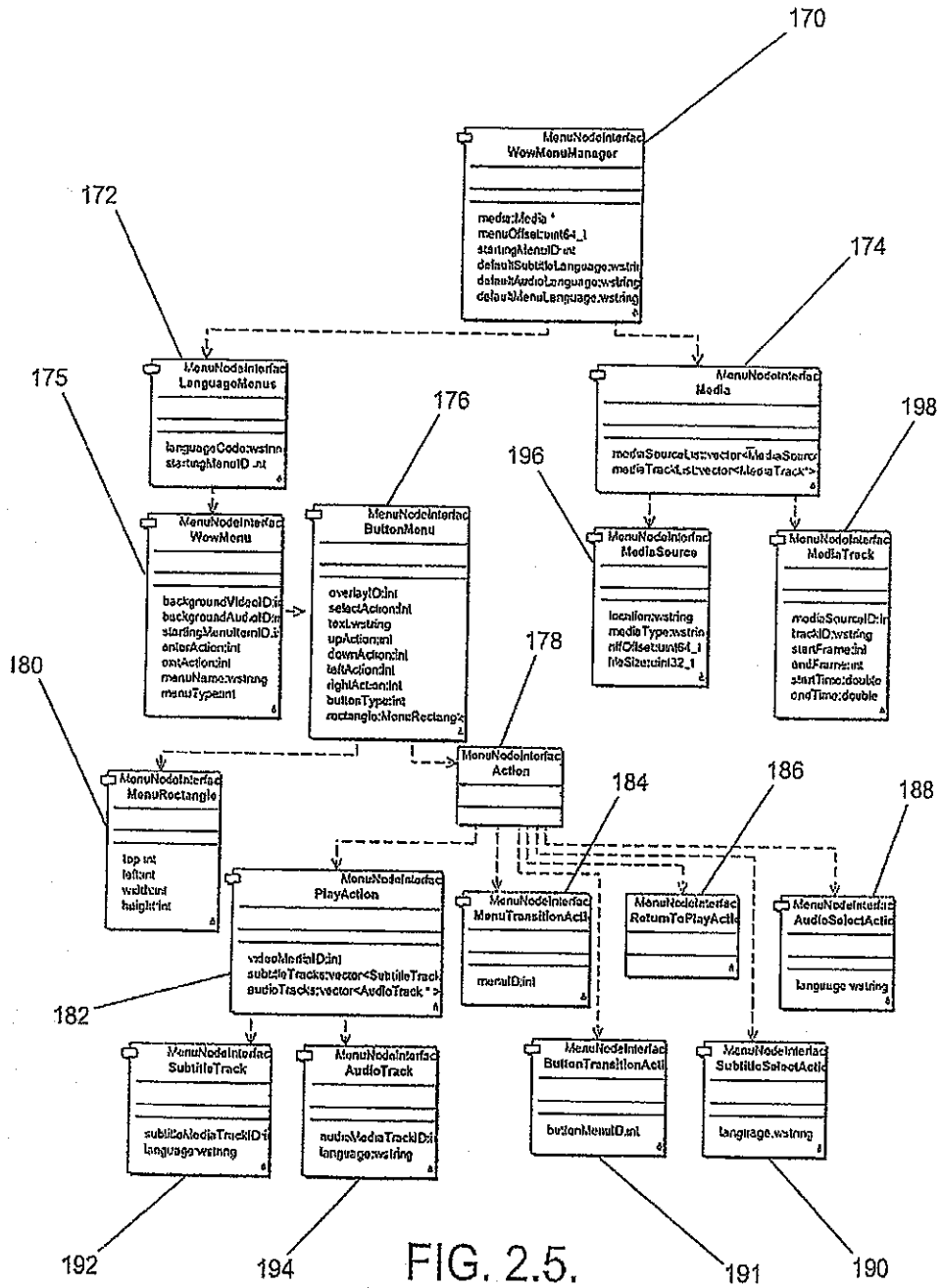

170
172
174
175
176
178
180
182
184
186
188
190
191
192
194
196
198
MenuNodeInterfac
WowMenuManager
LanguageMenus
Media
WowMenu
ButtonMenu
MediaSource
MediaTrack
Action
MenuRectangle
PlayAction
MenuTransitionActi
ReturnToPlayActic
AudioSelectActic
SubtitleTrack
AudioTrack
ButtonTransitionActi
SubtitleSelectActic

FIG. 2.5.

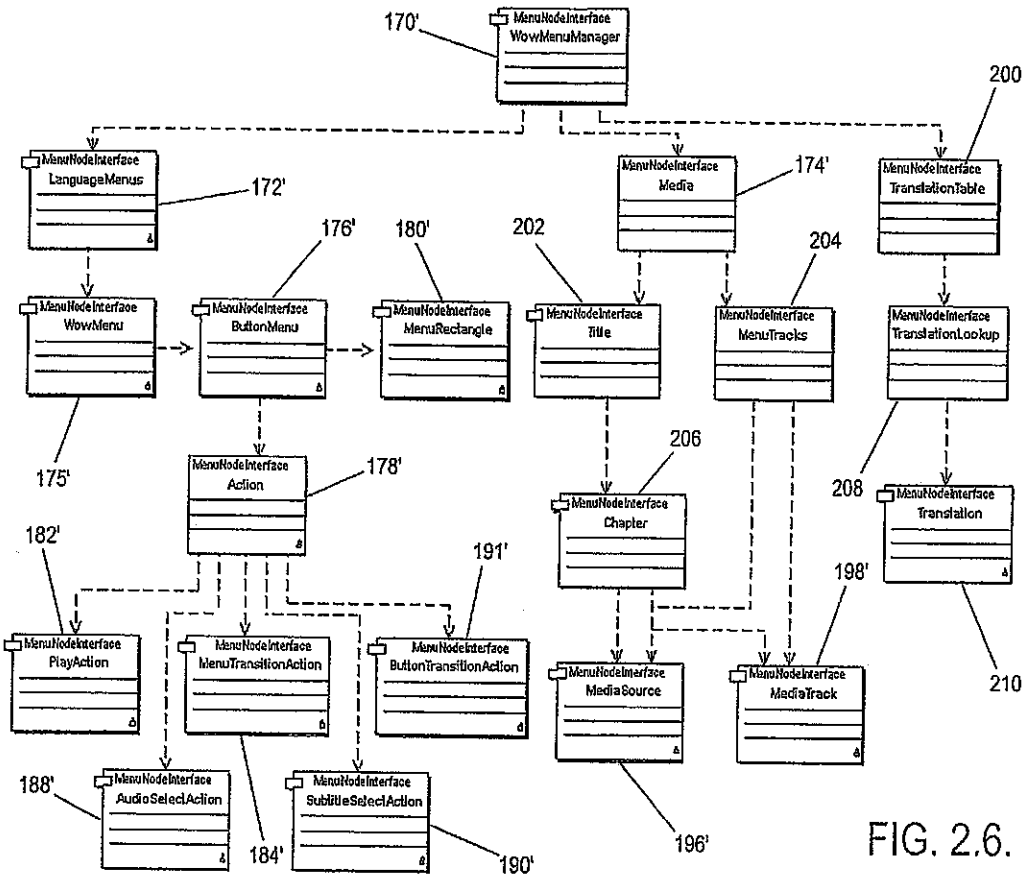

170'
MenuNodeInterface
WowMenuManager
200
MenuNodeInterface
LanguageMenus
172'
MenuNodeInterface
Media
174'
MenuNodeInterface
TranslationTable
176'
180'
202
204
MenuNodeInterface
WowMenu
MenuNodeInterface
ButtonMenu
MenuNodeInterface
MenuRectangle
MenuNodeInterface
Title
MenuNodeInterface
MenuTracks
MenuNodeInterface
TranslationLookup
175'
MenuNodeInterface
Action
178'
206
208
MenuNodeInterface
Chapter
MenuNodeInterface
Translation
182'
191'
198'
MenuNodeInterface
PlayAction
MenuNodeInterface
MenuTransitionAction
MenuNodeInterface
ButtonTransitionAction
MenuNodeInterface
MediaSource
MenuNodeInterface
MediaTrack
210
188'
MenuNodeInterface
AudioSelectAction
MenuNodeInterface
SubtitleSelectAction
184'
190'
196'

FIG. 2.6.

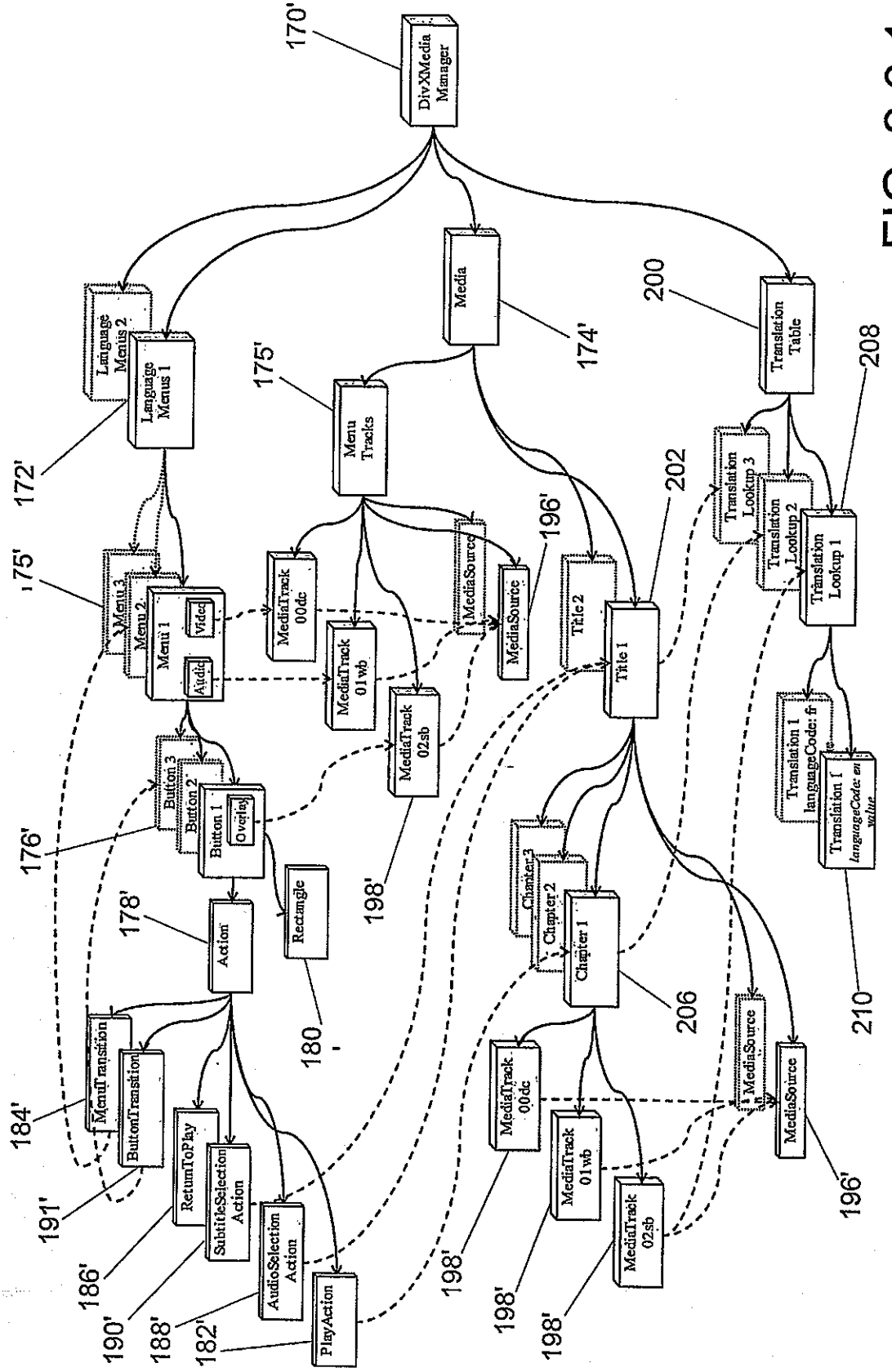

170'
DivXMedia Manager
Language Menus 2
Language Menus 1
172'
Media
174'
175'
Menu Tracks
200
Translation Table
208
175'
Menu 3
Menu 2
Menu 1
Video
Audio
MediaTrack 00dc
MediaTrack 01wb
MediaTrack 02sb
MediaSource
MediaSource
196'
Title 2
Title 1
202
Translation Lookup 3
Translation Lookup 2
Translation Lookup 1
Translation 1
languageCode: fr
Translation 1
languageCode: en
value
176'
Button 3
Button 2
Button 1
Overlay
Rectangle
178'
Action
180
198'
Chapter 3
Chapter 2
Chapter 1
206
210
184'
MenuTransition
ButtonTransition
191'
ReturnToPlay
SubtitleSelection Action
AudioSelection Action
PlayAction
186'
190'
188'
182'
MediaTrack 00dc
MediaTrack 01wb
MediaTrack 02sb
MediaSource
MediaSource
196'
198'
198'
198'

FIG. 2.6.1.

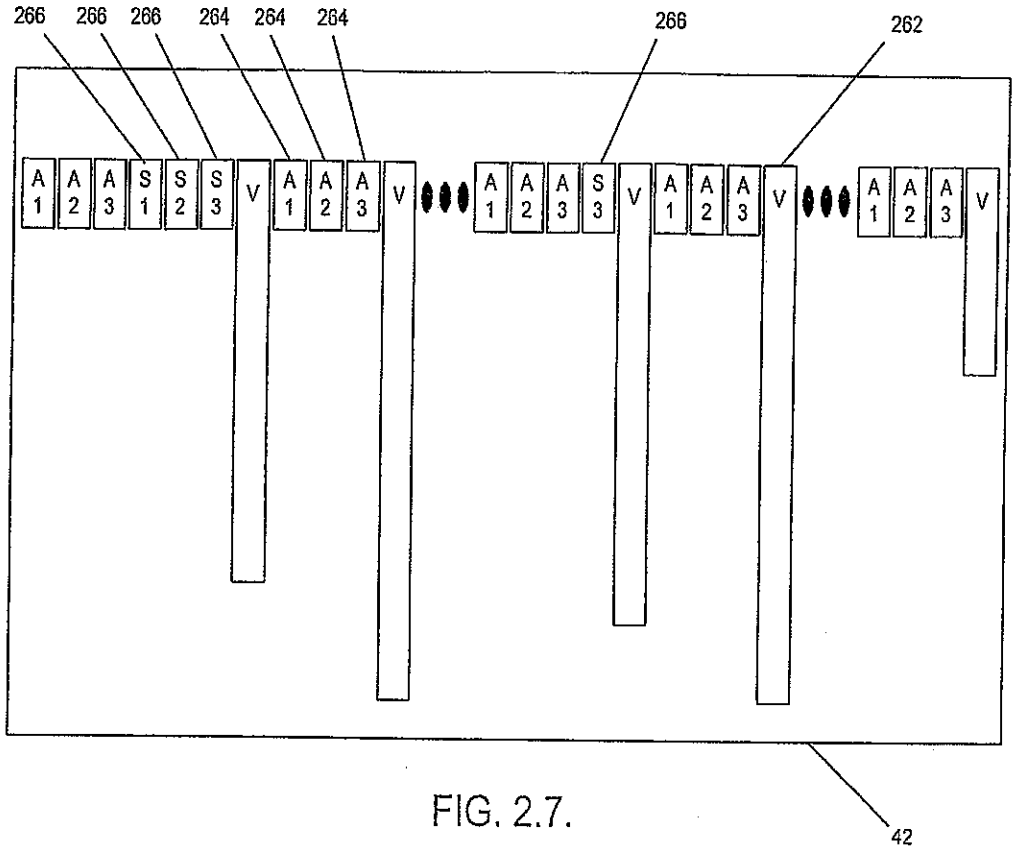

266
266
266
264
264
264
266
262
A 1
A 2
A 3
S 1
S 2
S 3
V
A 1
A 2
A 3
V
A 1
A 2
A 3
S 3
V
A 1
A 2
A 3
V
A 1
A 2
A 3
V
42

FIG. 2.7.

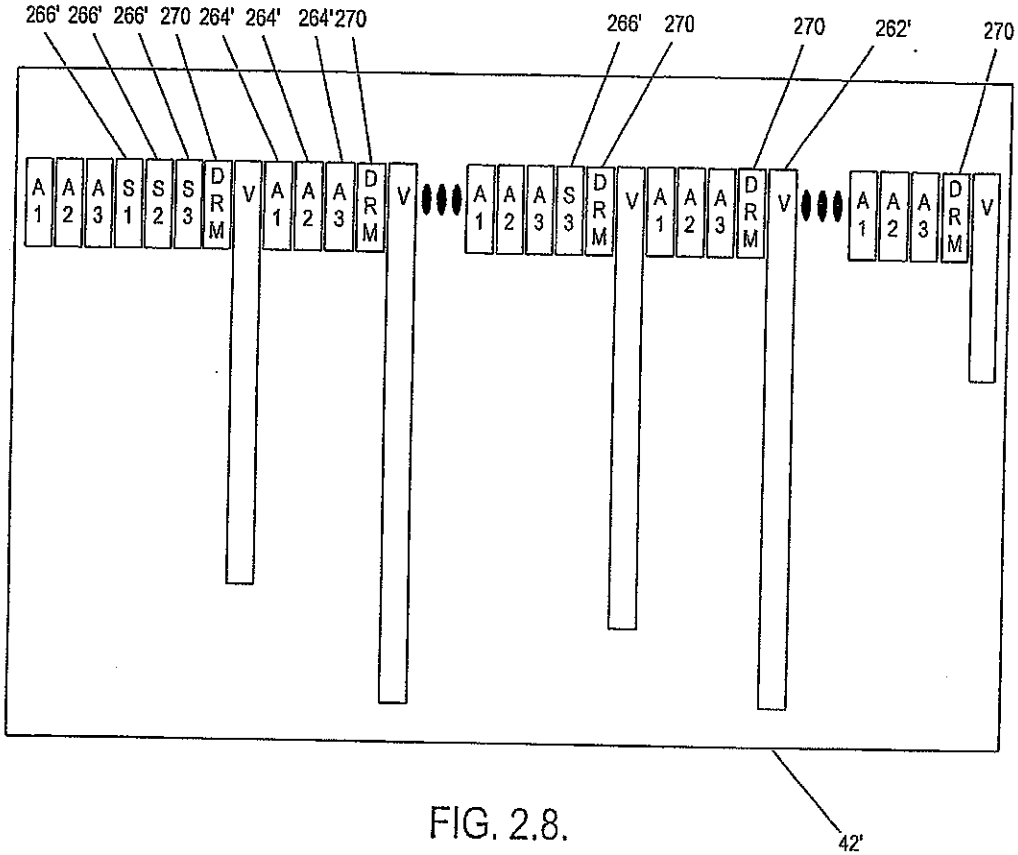

266' 266' 266' 270 264' 264' 264' 270
266' 270
270
262'
270
A1 A2 A3 S1 S2 S3 DRM V A1 A2 A3 DRM V
A1 A2 A3 S3 DRM V A1 A2 A3 DRM V
A1 A2 A3 DRM V
42'

FIG. 2.8.

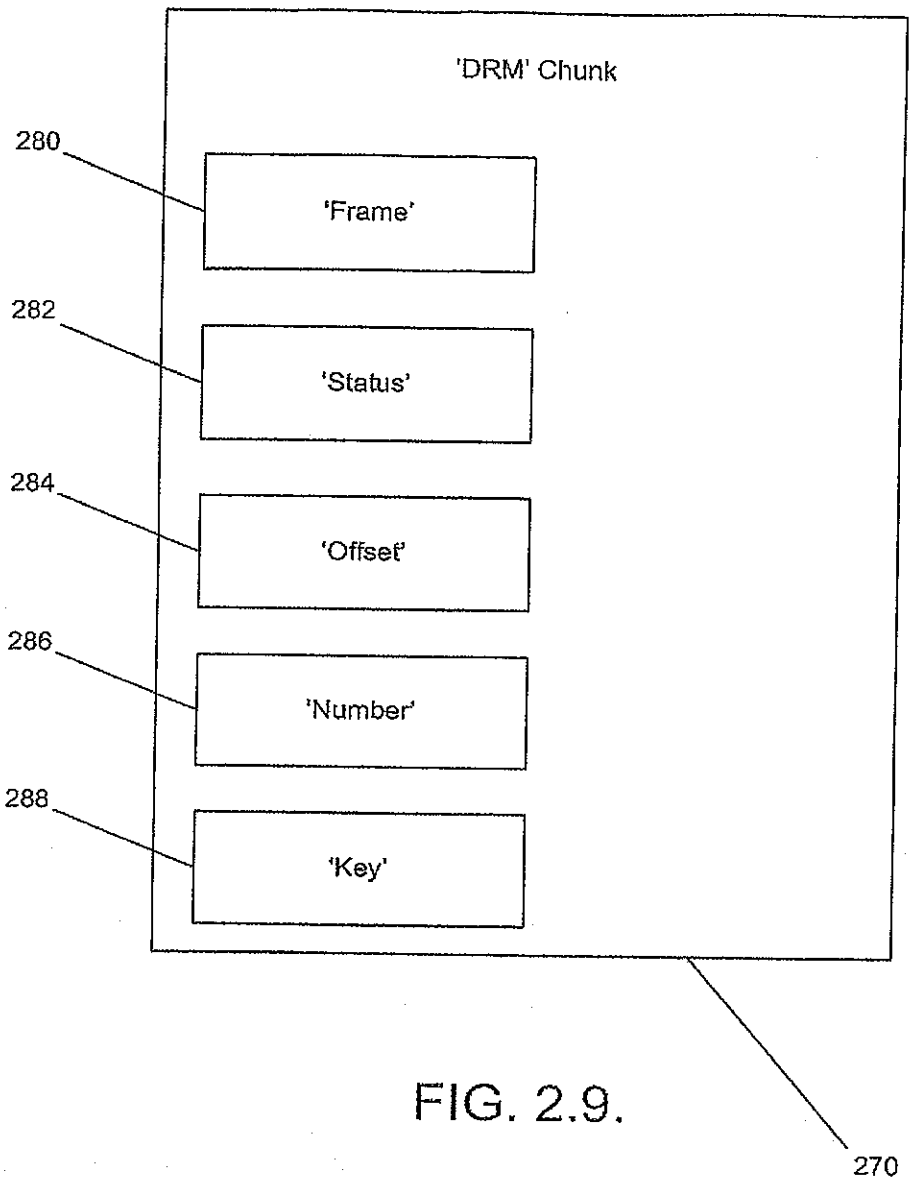
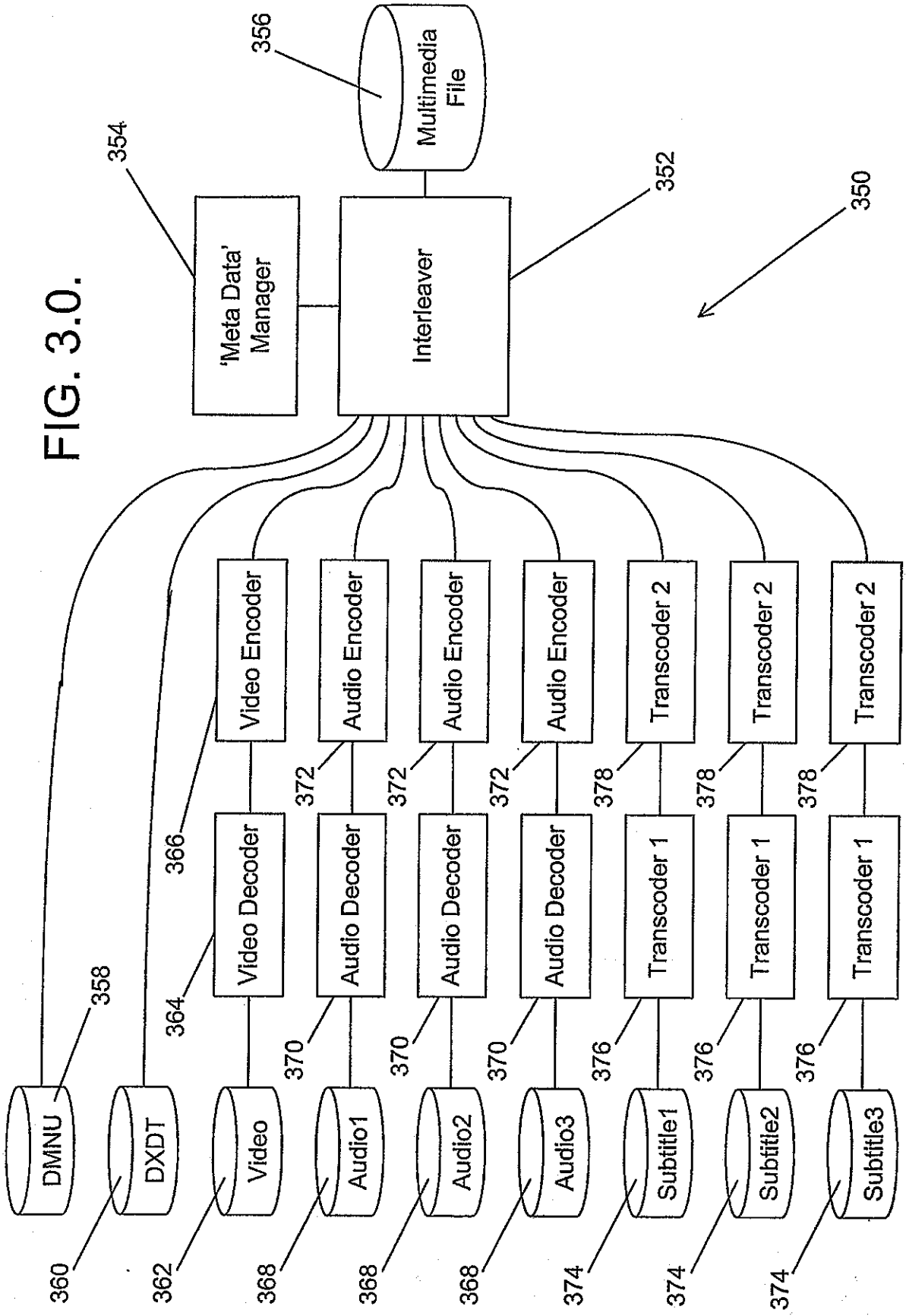

'DRM' Chunk
280
'Frame'
282
'Status'
284
'Offset'
286
'Number'
288
'Key'
270

FIG. 2.9.

FIG. 3.0.


Multimedia File
356
'Meta Data' Manager
354
Interleaver
352
350
Video Encoder
Audio Encoder
Audio Encoder
Audio Encoder
Transcoder 2
Transcoder 2
Transcoder 2
366
372
372
372
378
378
378
Video Decoder
Audio Decoder
Audio Decoder
Audio Decoder
Transcoder 1
Transcoder 1
Transcoder 1
364
370
370
370
376
376
376
DMNU
DXDT
Video
Audio1
Audio2
Audio3
Subtitle1
Subtitle2
Subtitle3
358
360
362
368
368
368
374
374
374

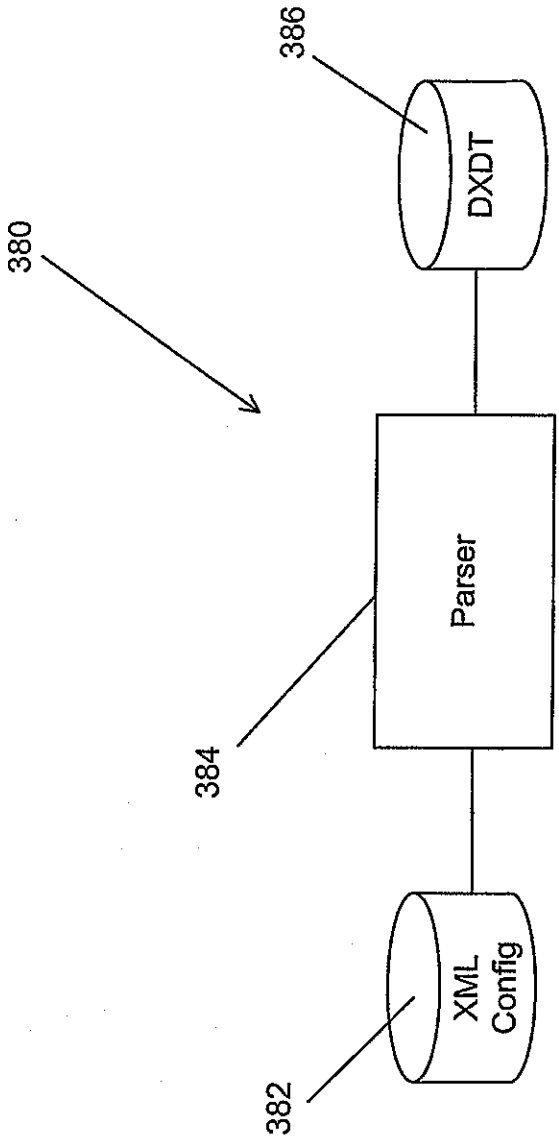


FIG. 3.1.

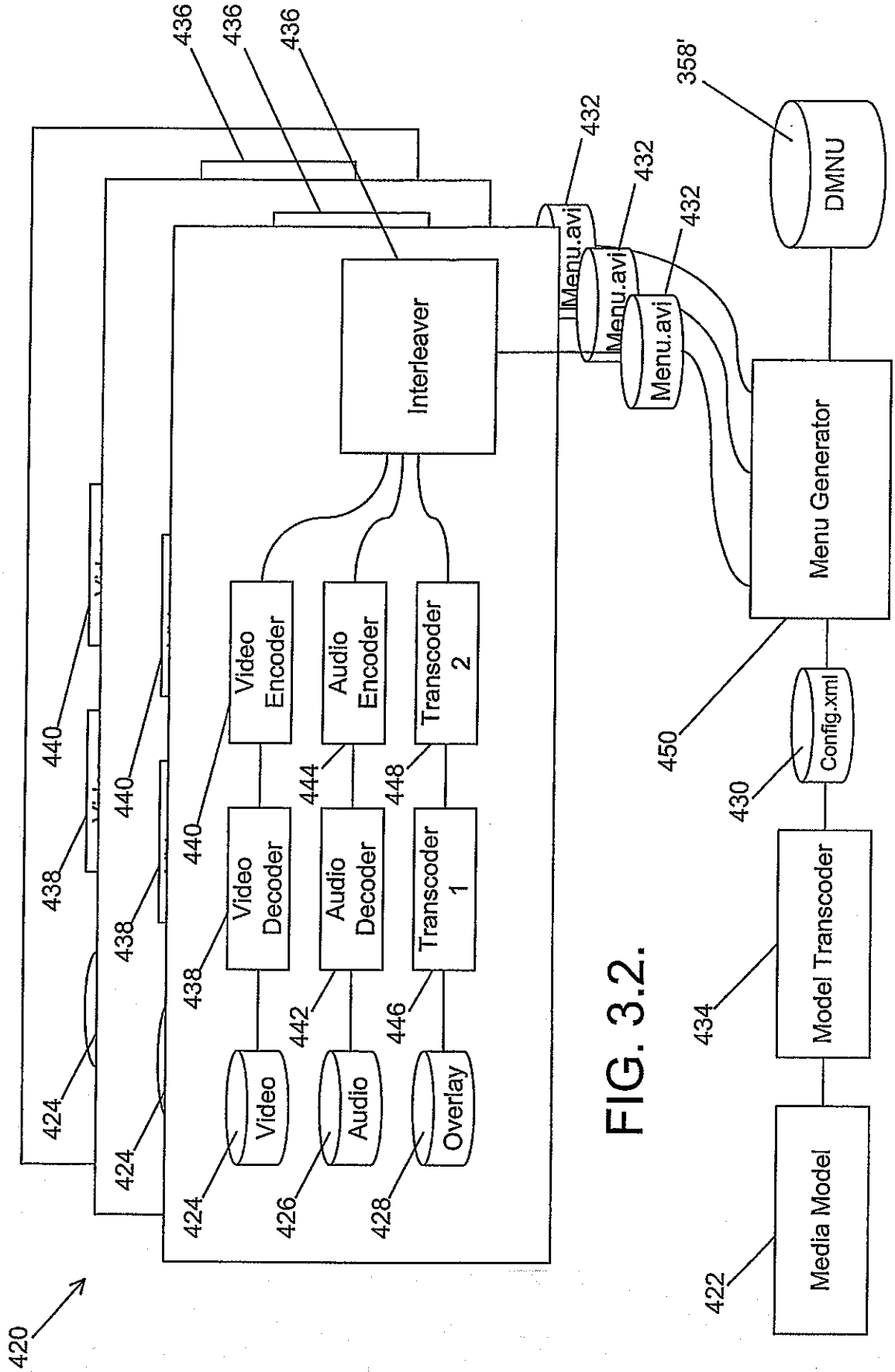

420
422
Media Model
434
Model Transcoder
430
Config.xml
450
Menu Generator
358'
DMNU
432
Menu.avi
Menu.avi
Menu.avi
Interleaver
436
436
436
440
440
440
Video Encoder
Audio Encoder
Transcoder 2
444
448
438
438
438
Video Decoder
Audio Decoder
Transcoder 1
442
446
424
424
424
Video
Audio
Overlay
426
428

FIG. 3.2.

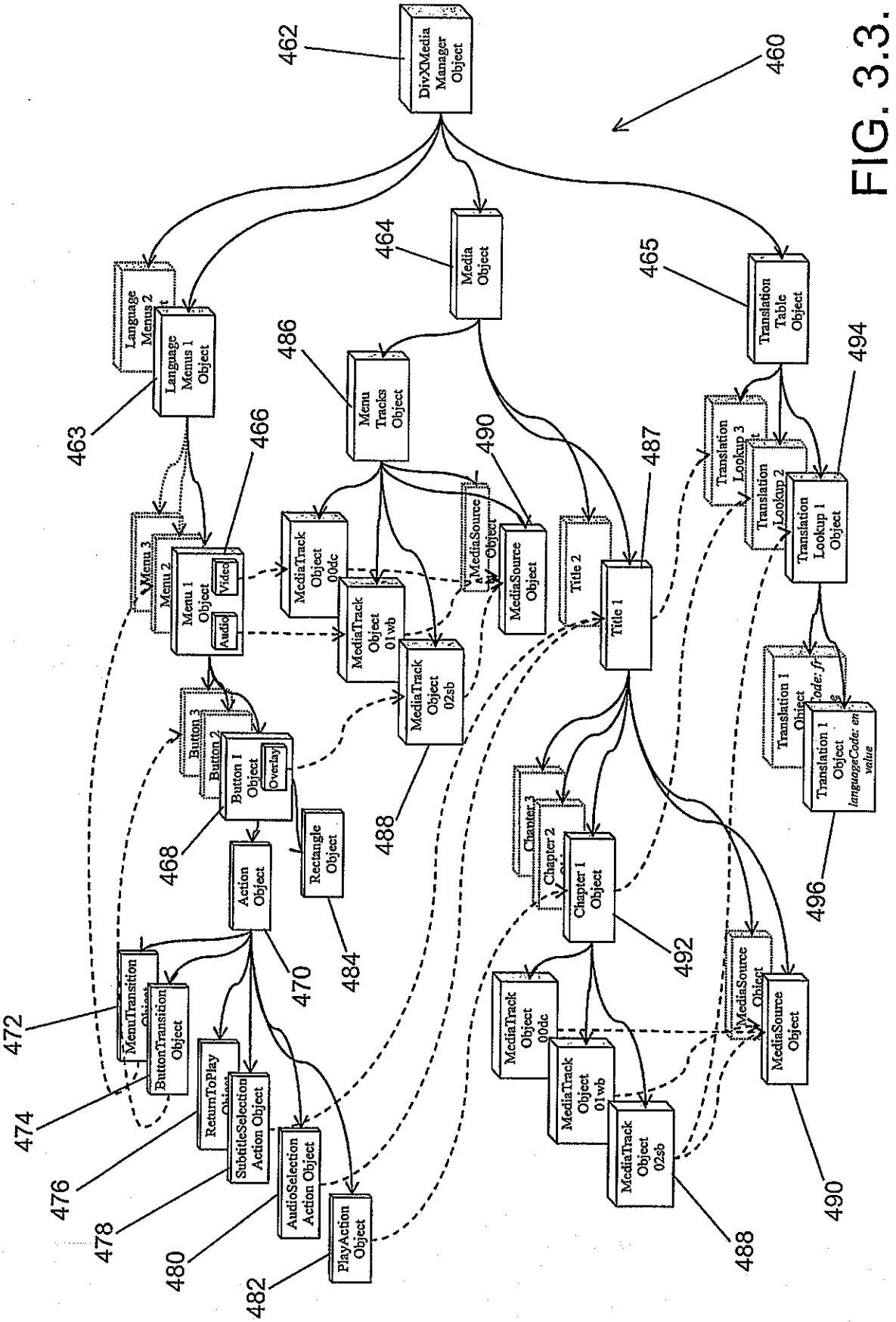

DivXMedia Manager Object
462
460
Media Object
464
Translation Table Object
465
Language Menus 2 Object
Language Menus 1 Object
463
Menu Tracks Object
486
494
Translation Lookup 3 Object
Translation Lookup 2 Object
Translation Lookup 1 Object
Menu 3 Object
Menu 2 Object
Menu 1 Object
Video
Audio
466
MediaTrack Object 00dc
MediaTrack Object 01wb
MediaTrack Object 02sb
MediaSource Object
490
Title 2
Title 1
487
Button 3 Object
Button 2 Object
Button 1 Object
Overlay
468
Action Object
Rectangle Object
484
488
Translation 1 Object
code: fr
Translation 1 Object
languageCode: en
value
496
Chapter 3
Chapter 2
Chapter 1 Object
492
MenuTransition Object
ButtonTransition Object
ReturnToPlay Object
SubtitleSelection Action Object
AudioSelection Action Object
PlayAction Object
470
472
474
476
478
480
482
MediaTrack Object 00dc
MediaTrack Object 01wb
MediaTrack Object 02sb
MediaSource Object
490
488

FIG. 3.3.

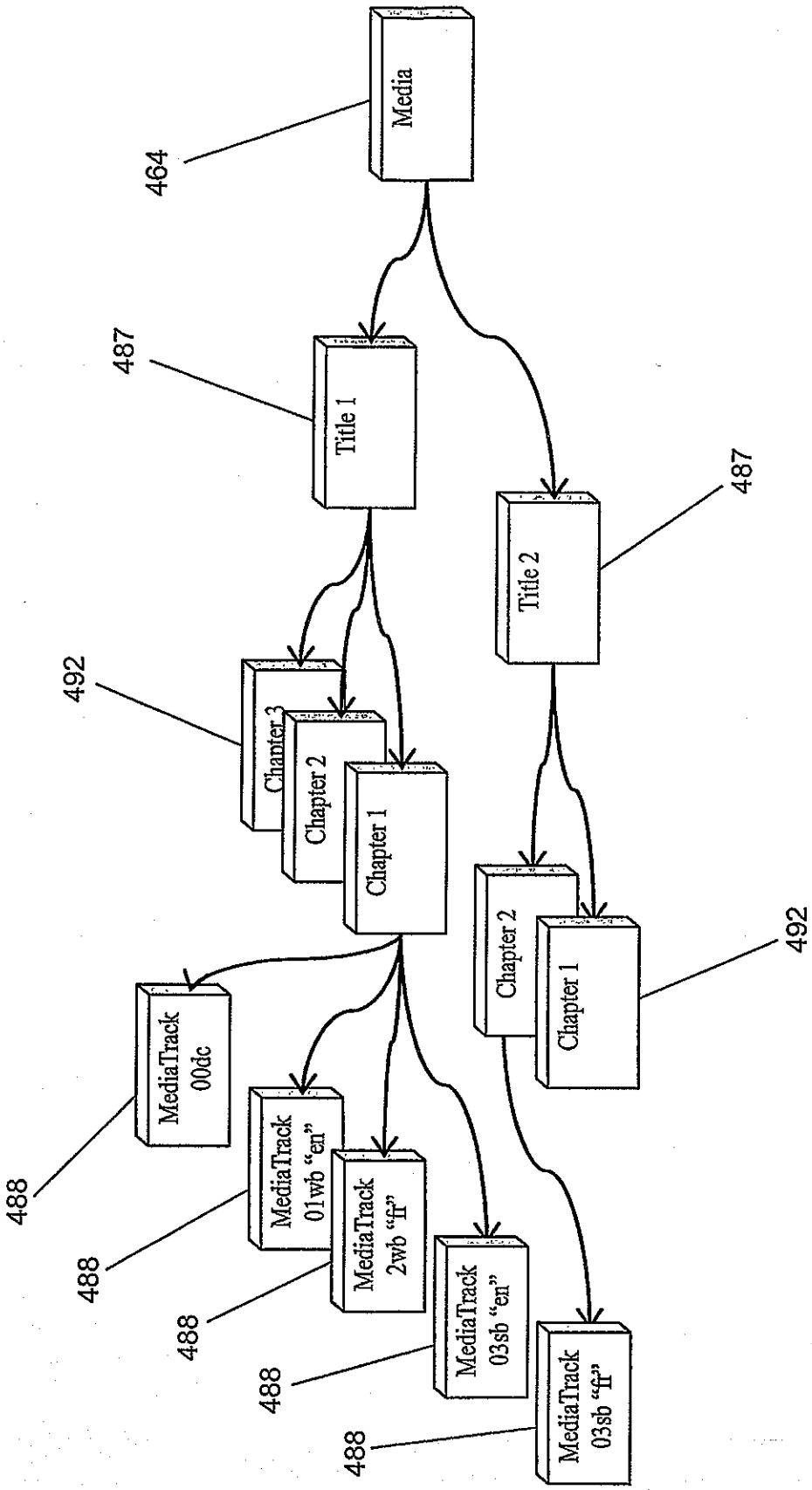

Media
464
Title 1
487
Title 2
487
Chapter 3
Chapter 2
Chapter 1
492
Chapter 2
Chapter 1
492
MediaTrack 00dc
MediaTrack 01wb "en"
MediaTrack 2wb "fr"
MediaTrack 03sb "en"
MediaTrack 03sb "fr"
488
488
488
488
488

FIG. 3.3.1.

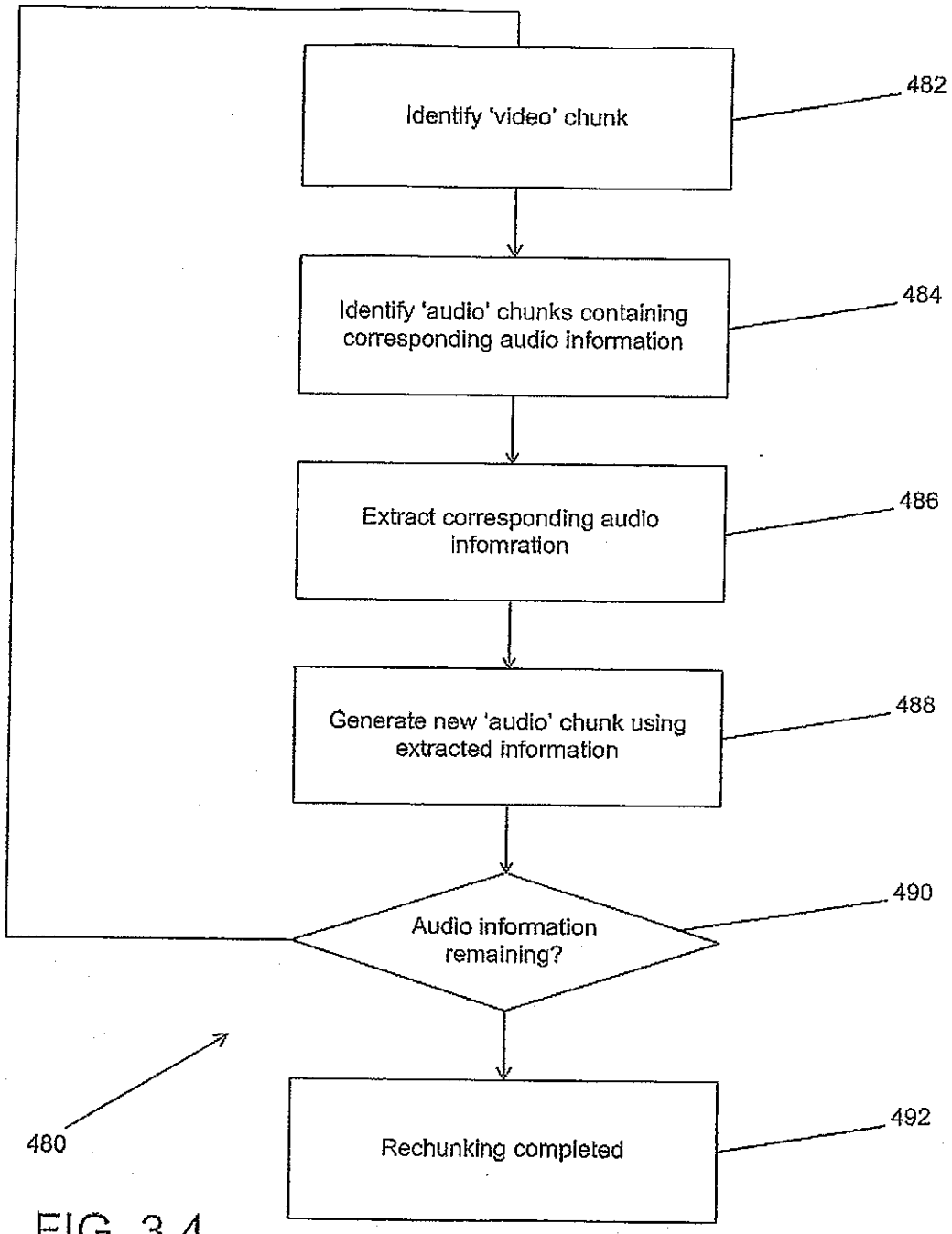

Identify 'video' chunk
482
Identify 'audio' chunks containing corresponding audio information
484
Extract corresponding audio infomration
486
Generate new 'audio' chunk using extracted information
488
Audio information remaining?
490
480
Rechunking completed
492

FIG. 3.4.

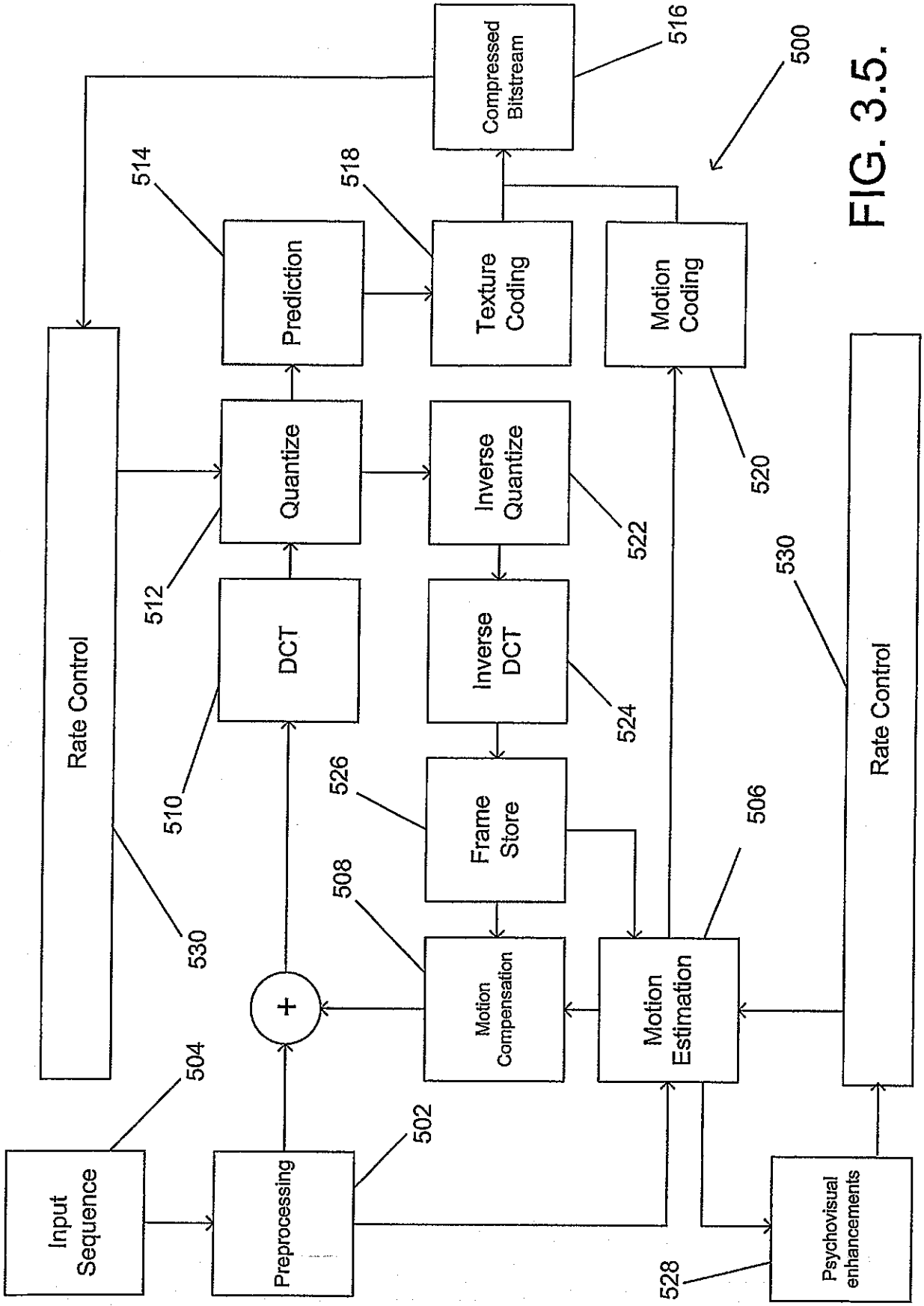

Compressed Bitstream
516
500
514
518
Prediction
Texture Coding
Motion Coding
Quantize
Inverse Quantize
520
522
512
DCT
Inverse DCT
524
510
526
Frame Store
530
Rate Control
506
508
Motion Compensation
Motion Estimation
+
504
502
Input Sequence
Preprocessing
528
Psychovisual enhancements

FIG. 3.5.

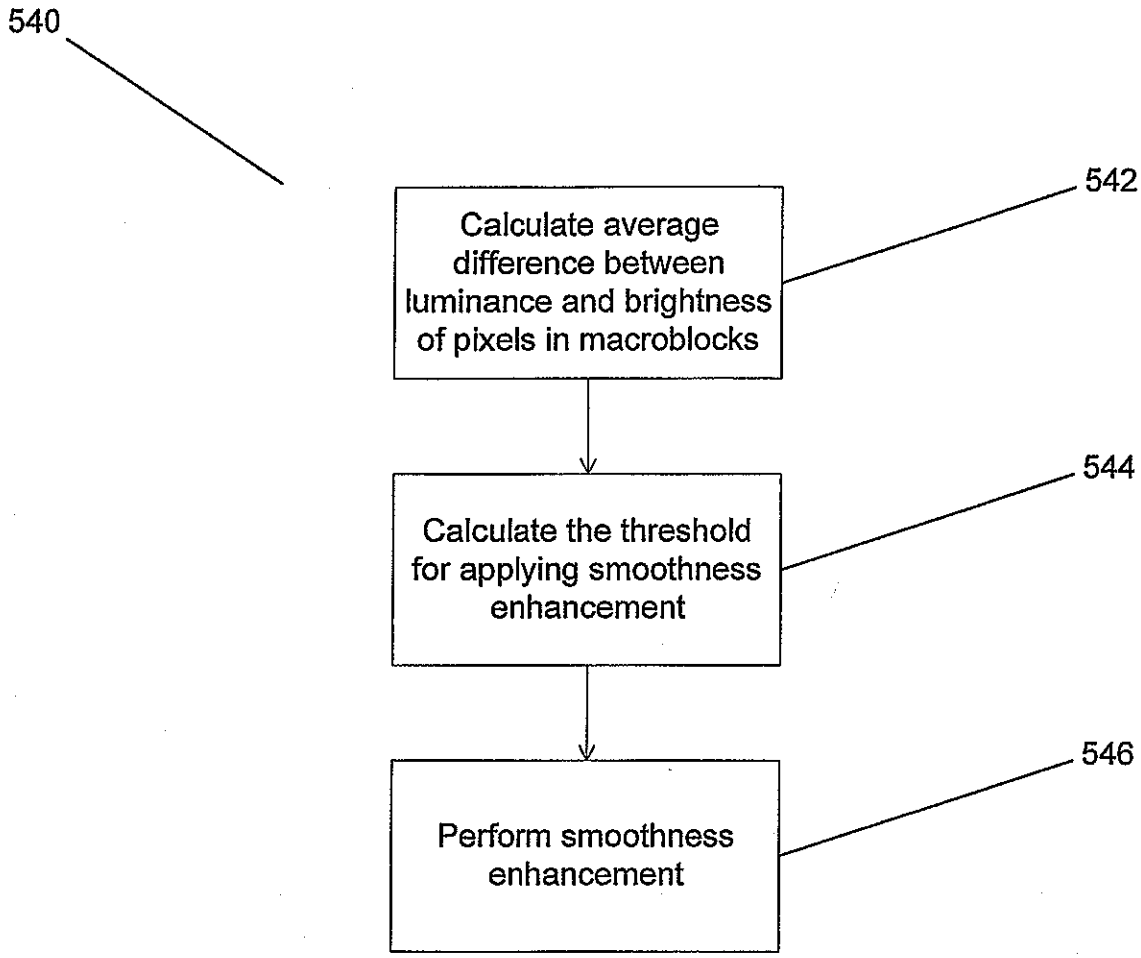

540
Calculate average difference between luminance and brightness of pixels in macroblocks
542
Calculate the threshold for applying smoothness enhancement
544
Perform smoothness enhancement
546

FIG. 3.6.

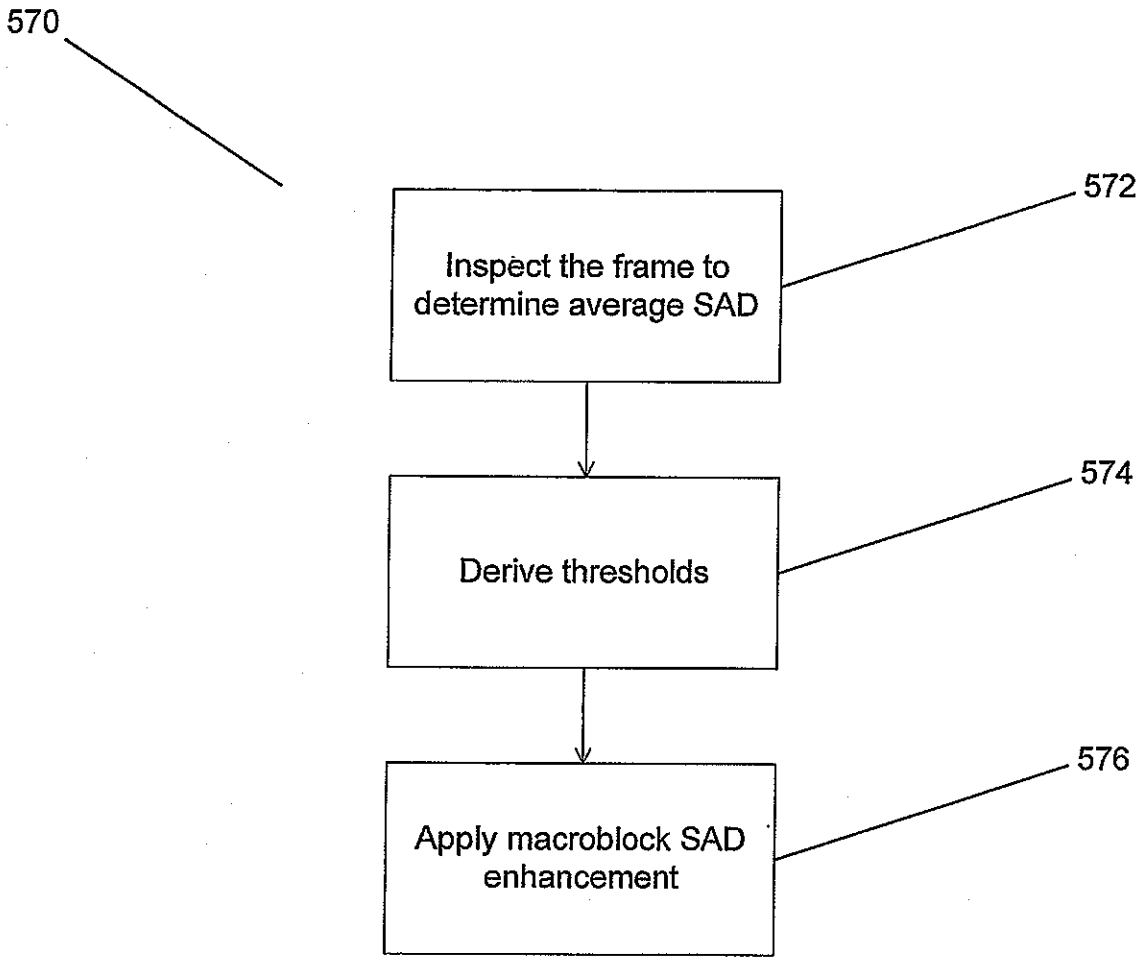

570
572
Inspect the frame to determine average SAD
574
Derive thresholds
576
Apply macroblock SAD enhancement

FIG. 3.7.

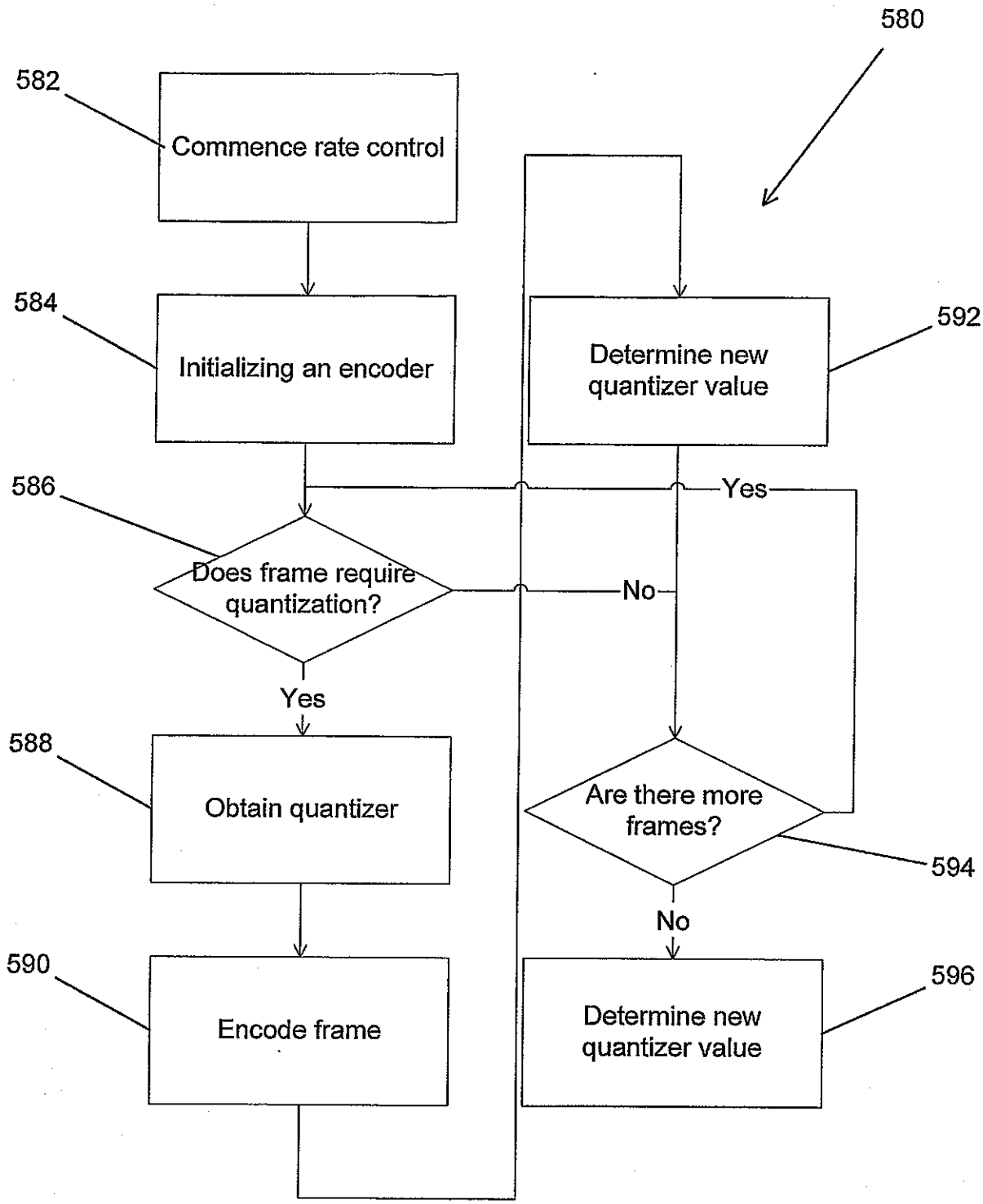

580
582
Commence rate control
584
Initializing an encoder
586
Does frame require quantization?
Yes
No
588
Obtain quantizer
590
Encode frame
592
Determine new quantizer value
Yes
Are there more frames?
594
No
596
Determine new quantizer value

FIG. 3.8.

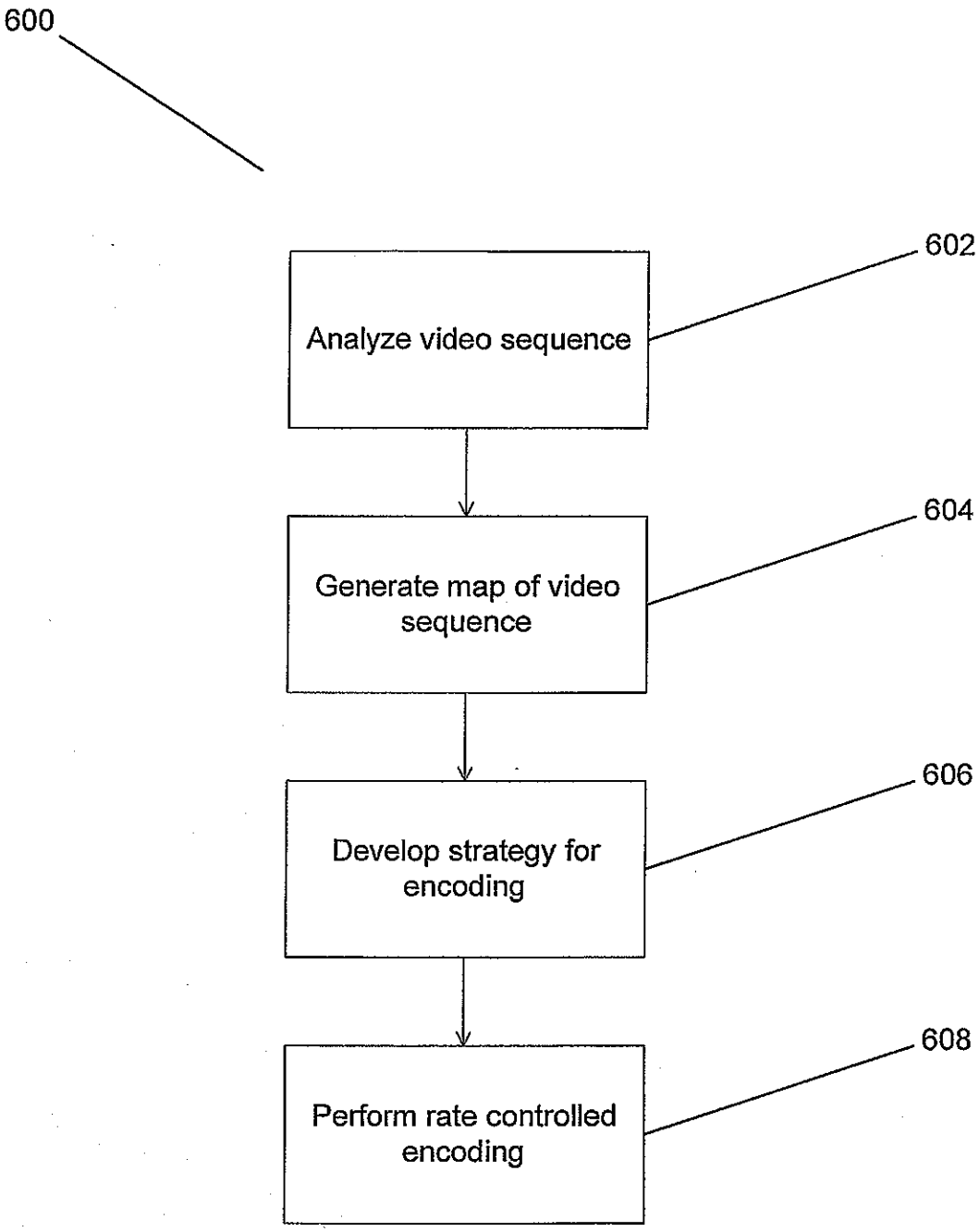

600
Analyze video sequence
602
Generate map of video sequence
604
Develop strategy for encoding
606
Perform rate controlled encoding
608

FIG. 3.9.

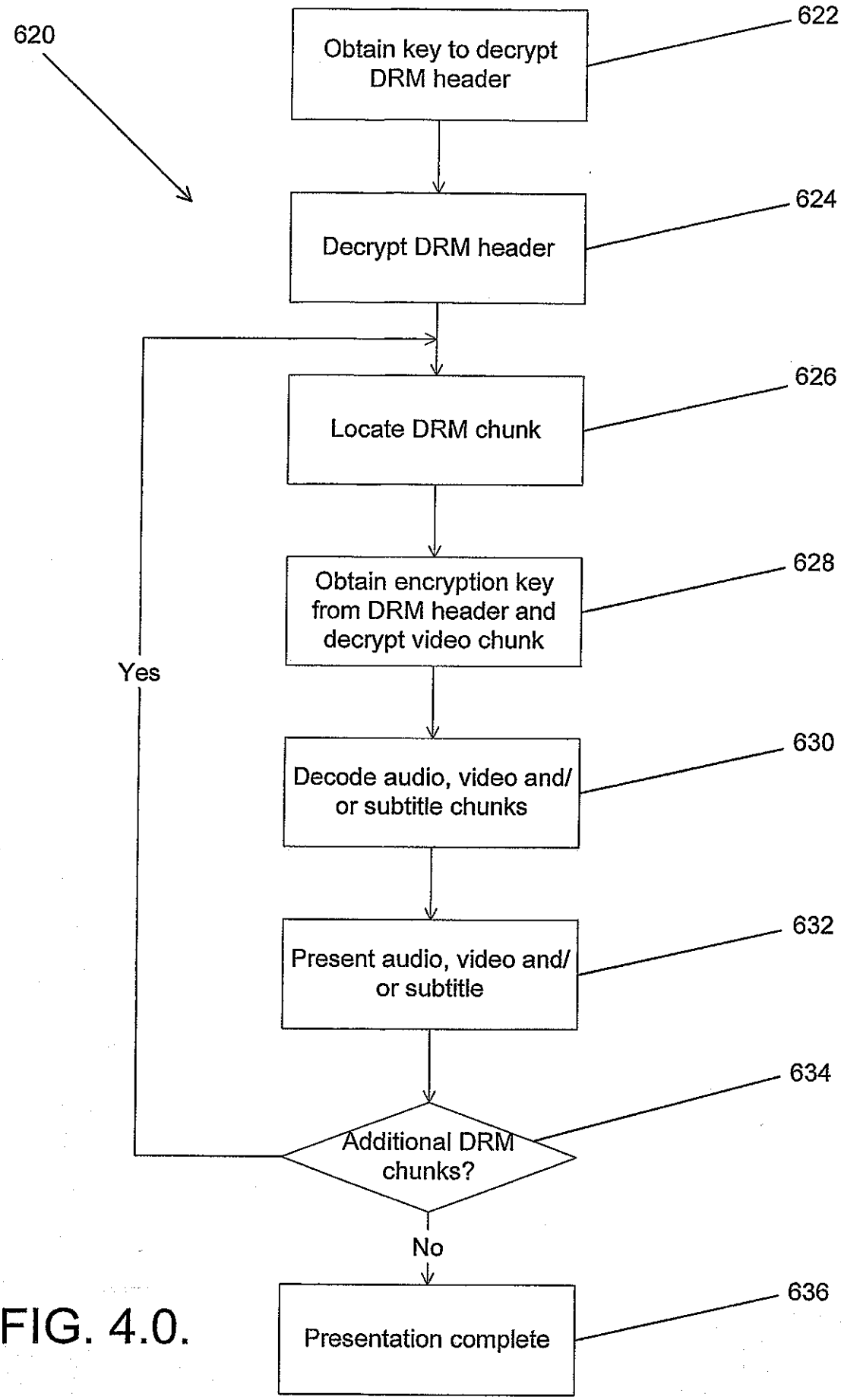

620
Obtain key to decrypt DRM header
622
Decrypt DRM header
624
Locate DRM chunk
626
Obtain encryption key from DRM header and decrypt video chunk
628
Decode audio, video and/ or subtitle chunks
630
Present audio, video and/ or subtitle
632
Additional DRM chunks?
634
Yes
No
Presentation complete
636

FIG. 4.0.

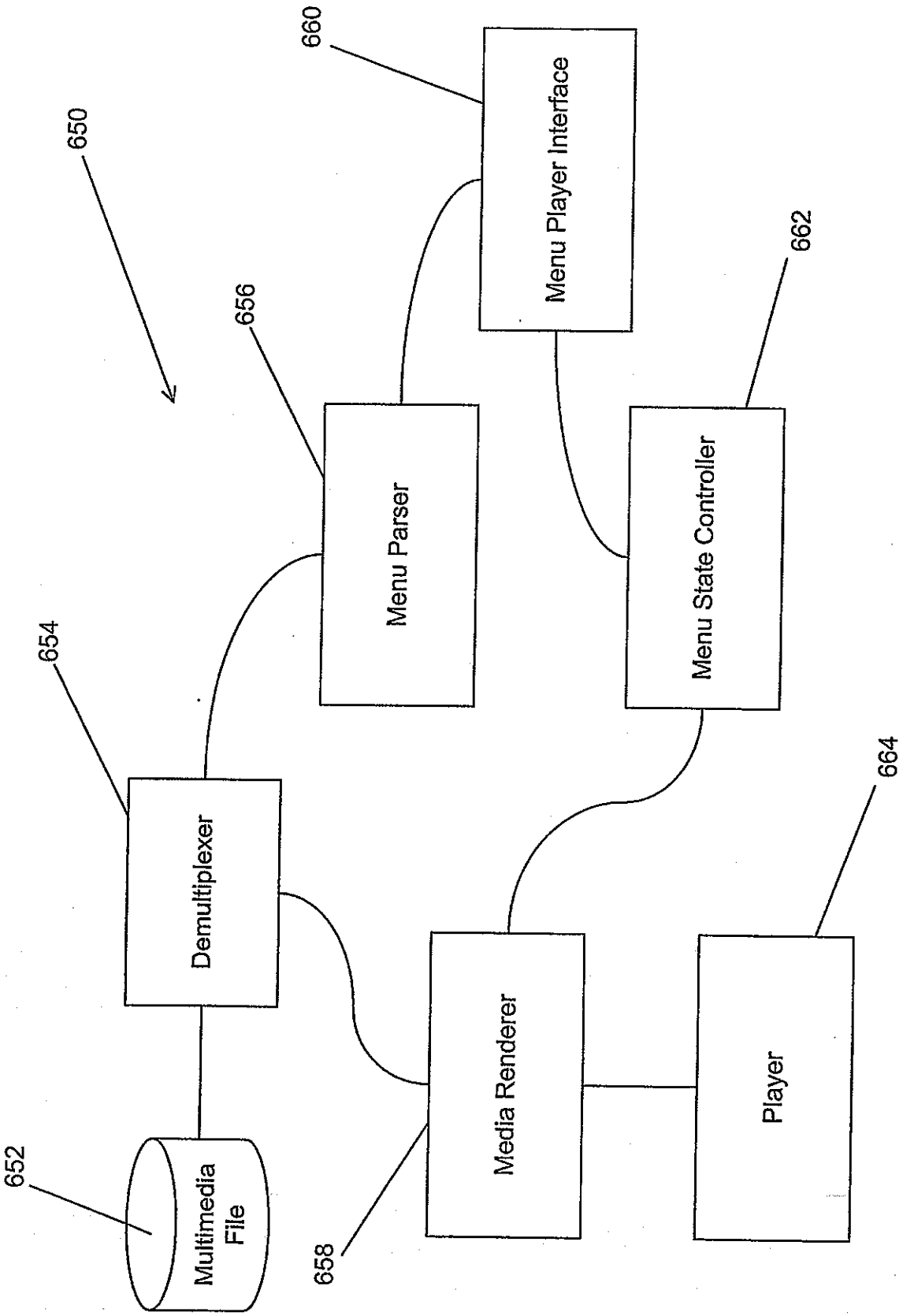

650
652
Multimedia File
654
Demultiplexer
656
Menu Parser
658
Media Renderer
660
Menu Player Interface
662
Menu State Controller
664
Player

FIG. 4.1.

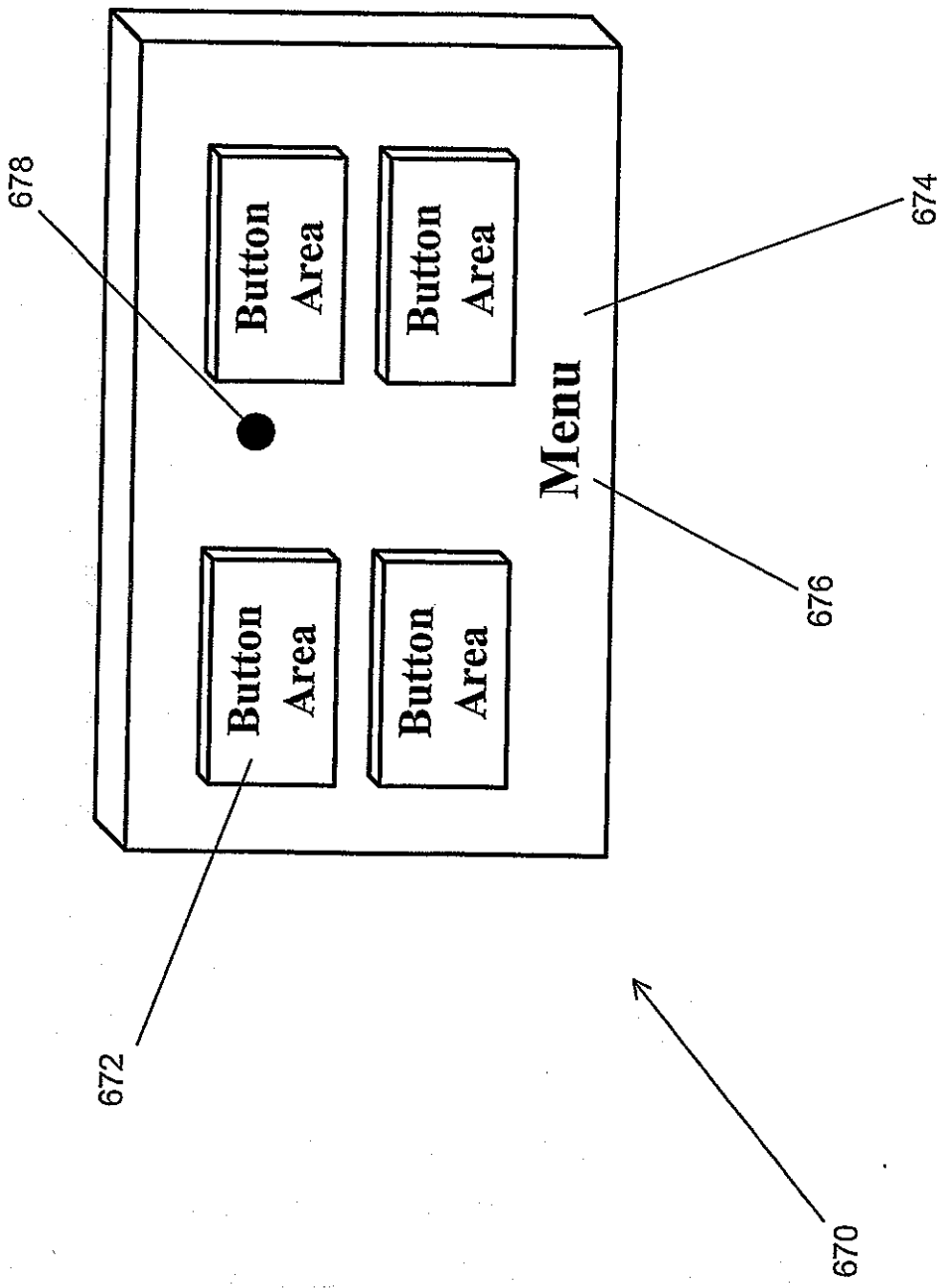

678
Button Area
Button Area
Menu
674
676
Button Area
Button Area
672
670

FIG. 4.2.

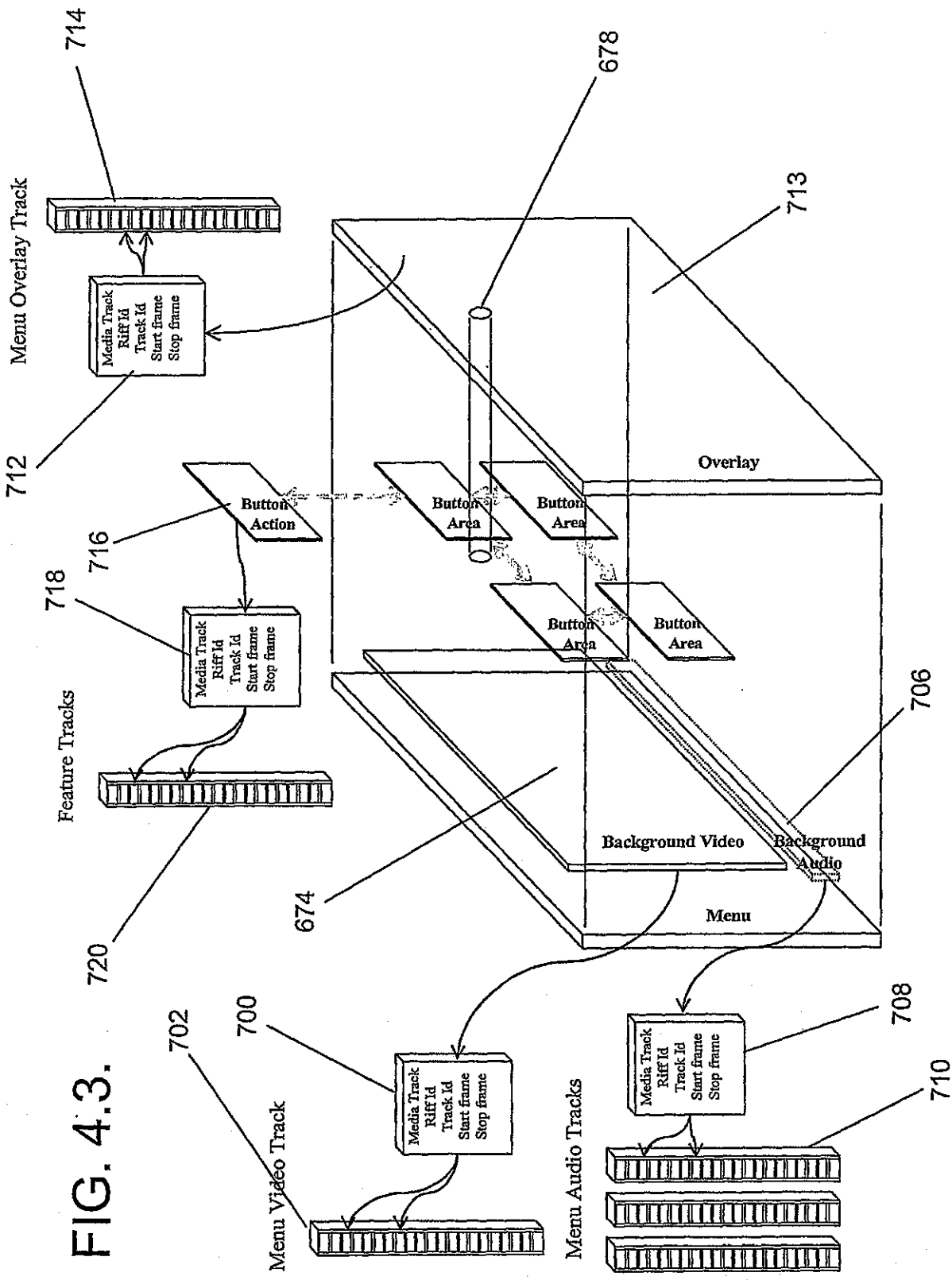

714
678
713
Menu Overlay Track
Media Track
Riff Id
Track Id
Start frame
Stop frame
712
Overlay
Button Action
Button Area
Button Area
716
718
Button Area
Button Area
Media Track
Riff Id
Track Id
Start frame
Stop frame
706
Feature Tracks
Background Video
Background Audio
674
Menu
720
700
708
702
Media Track
Riff Id
Track Id
Start frame
Stop frame
Media Track
Riff Id
Track Id
Start frame
Stop frame
710
Menu Video Track
Menu Audio Tracks

FIG. 4.3.