

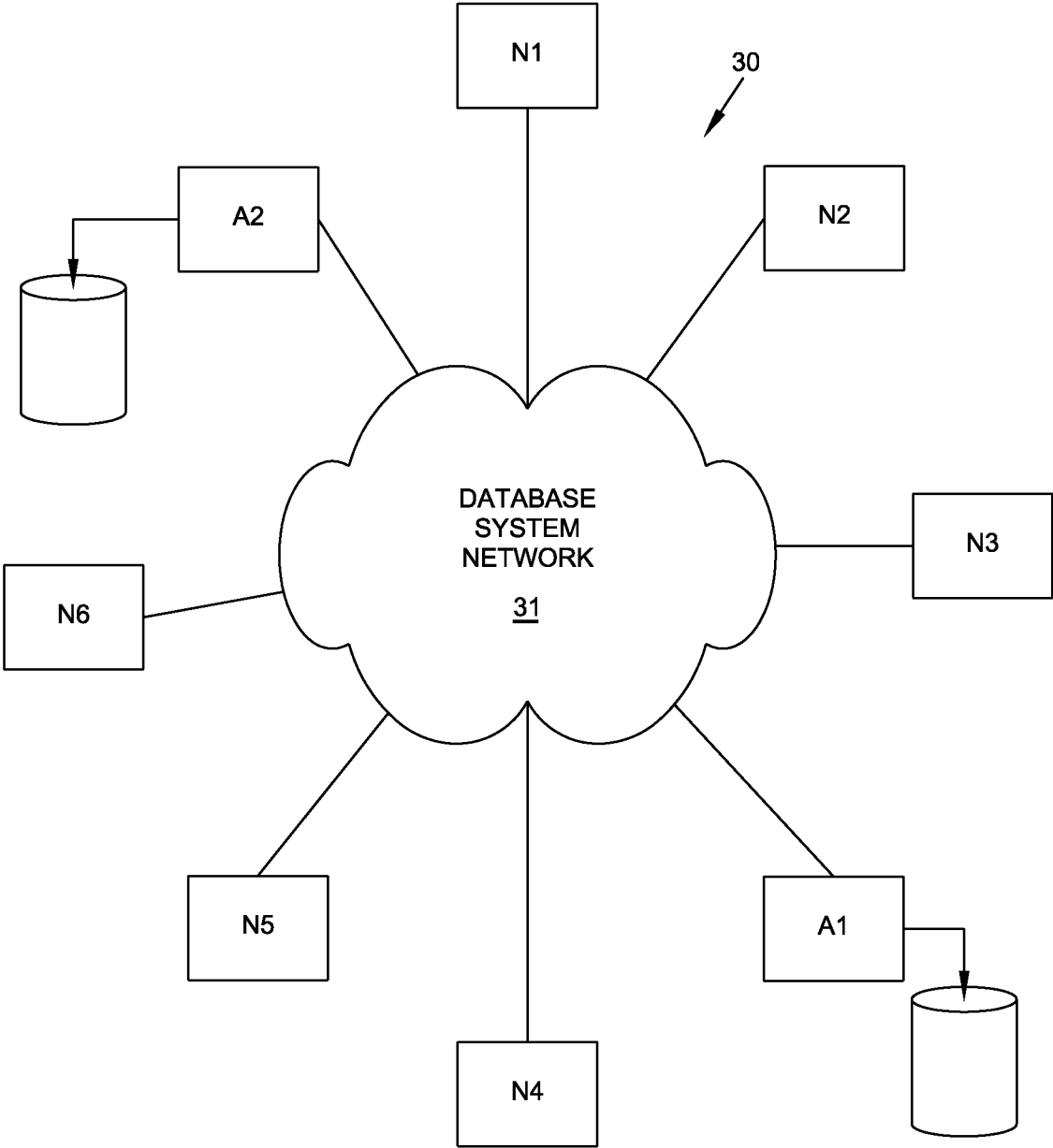
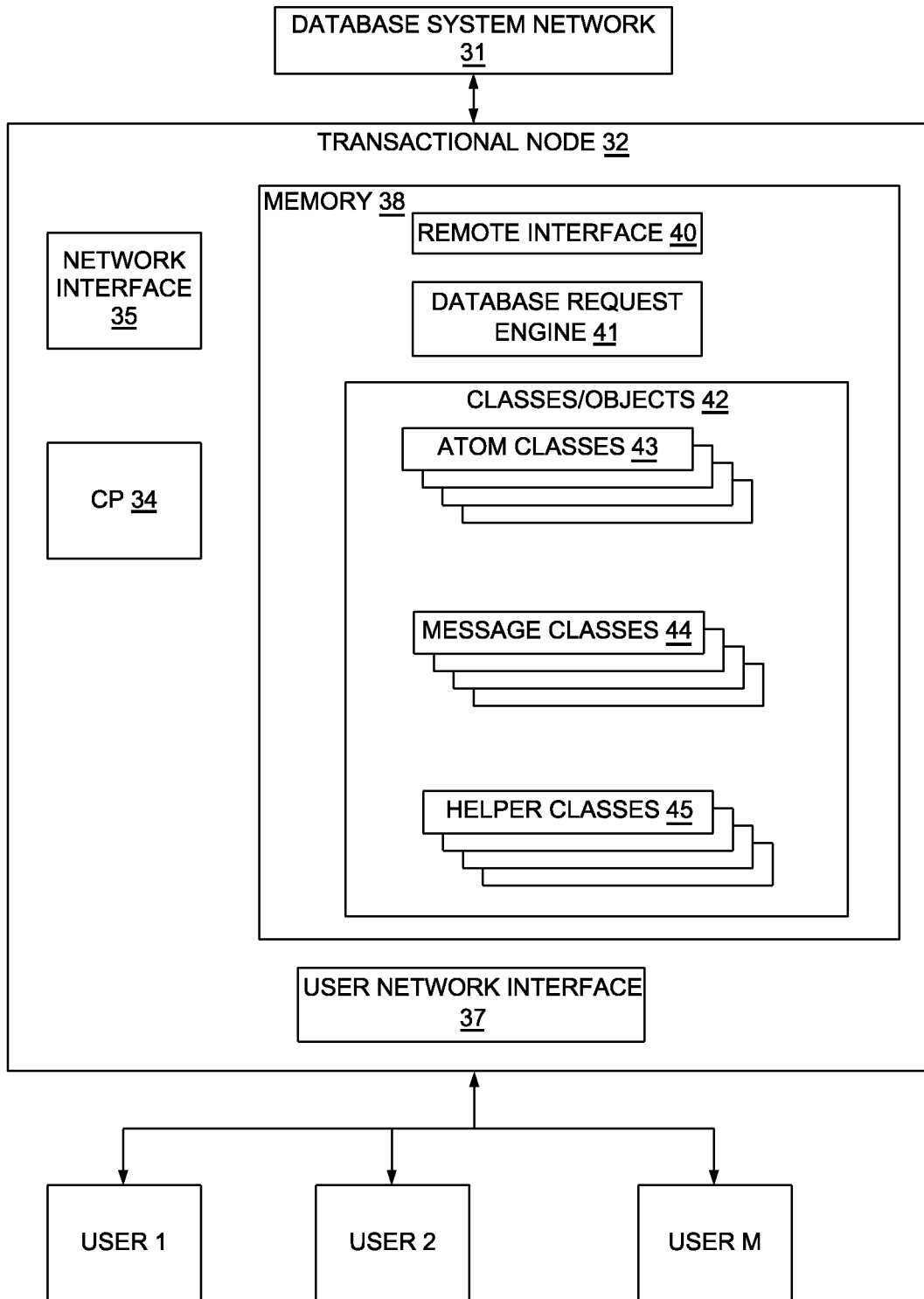


FIG. 1

2/23



33

FIG. 2

3/23

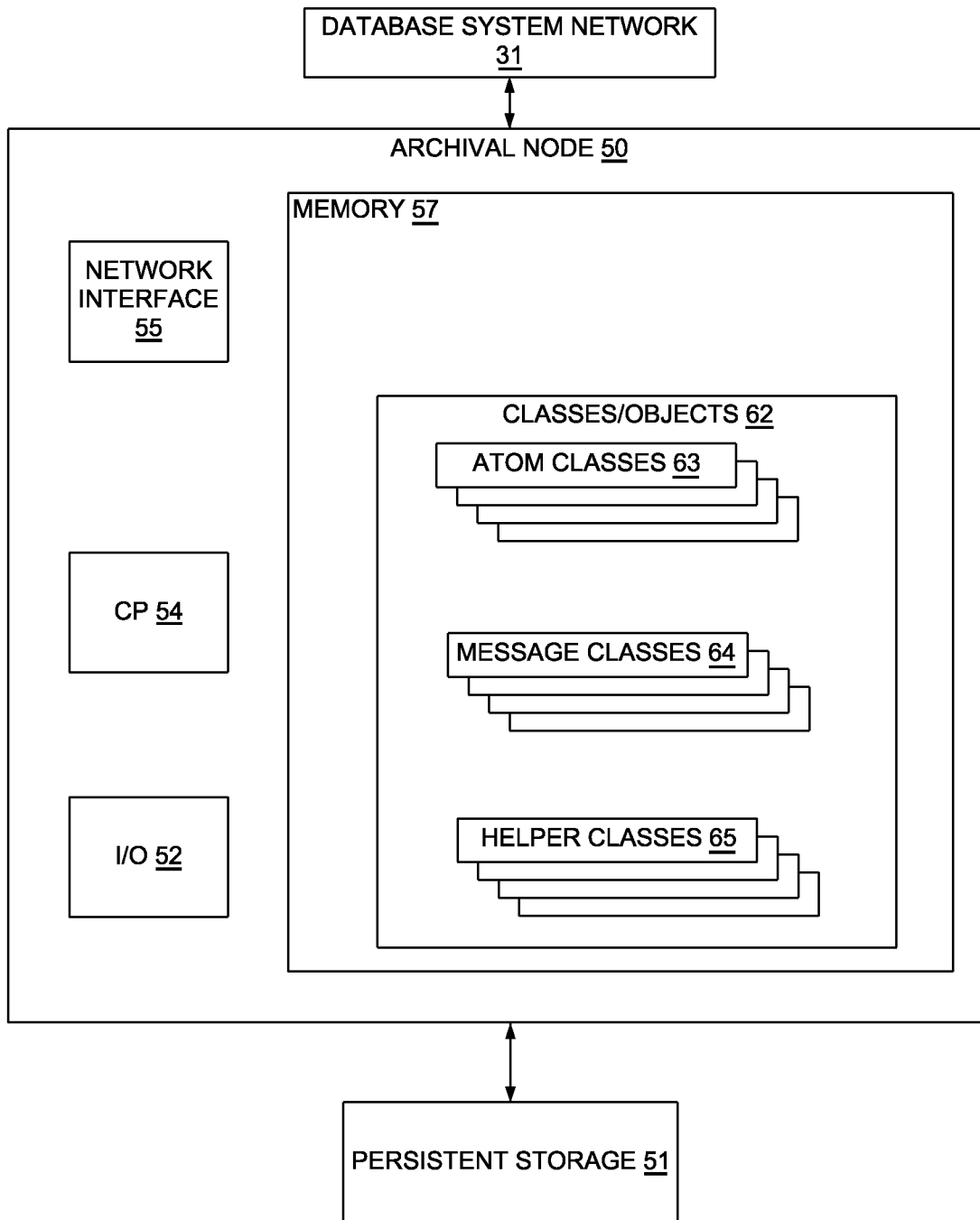


FIG. 3

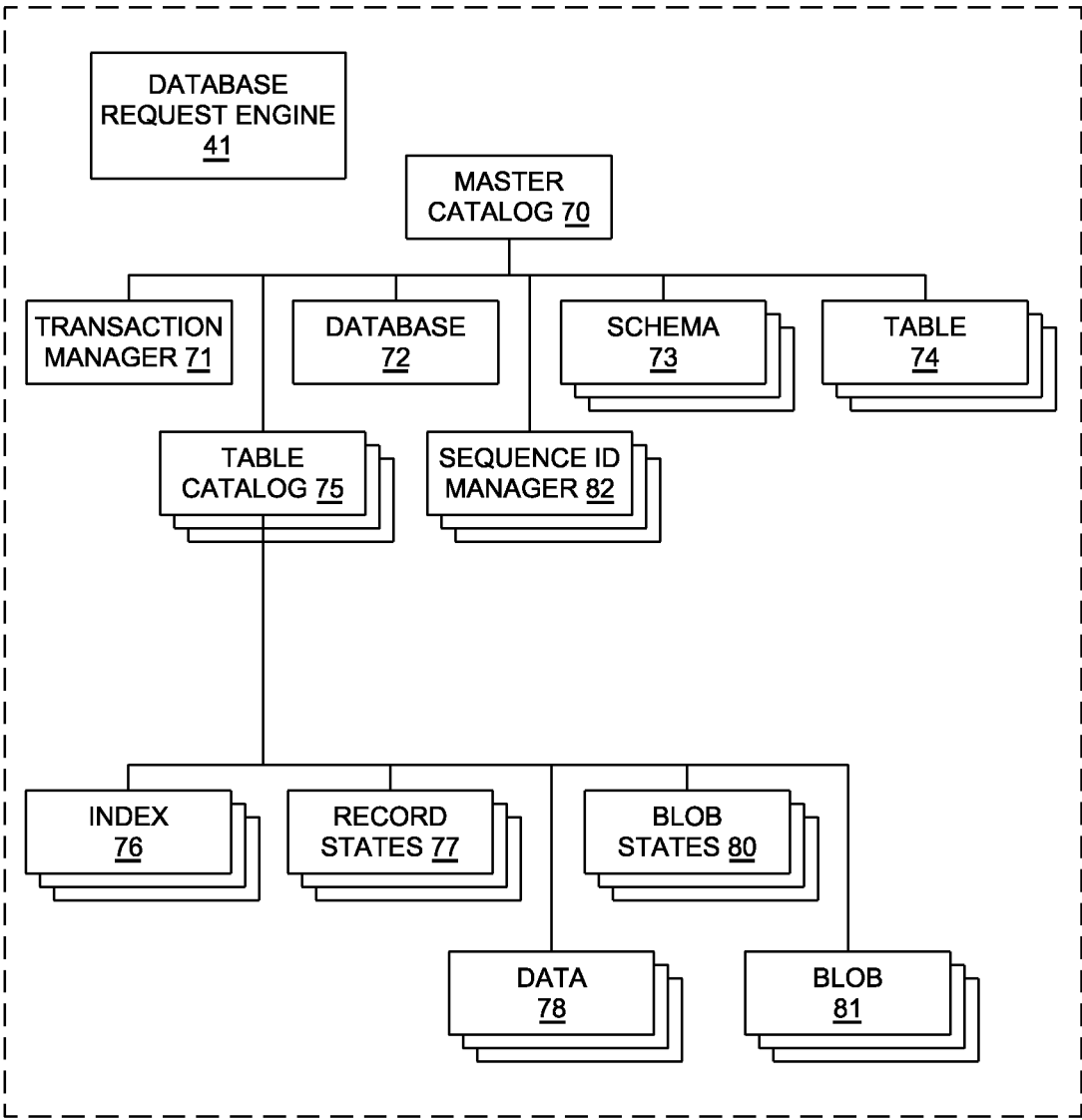


FIG. 4A

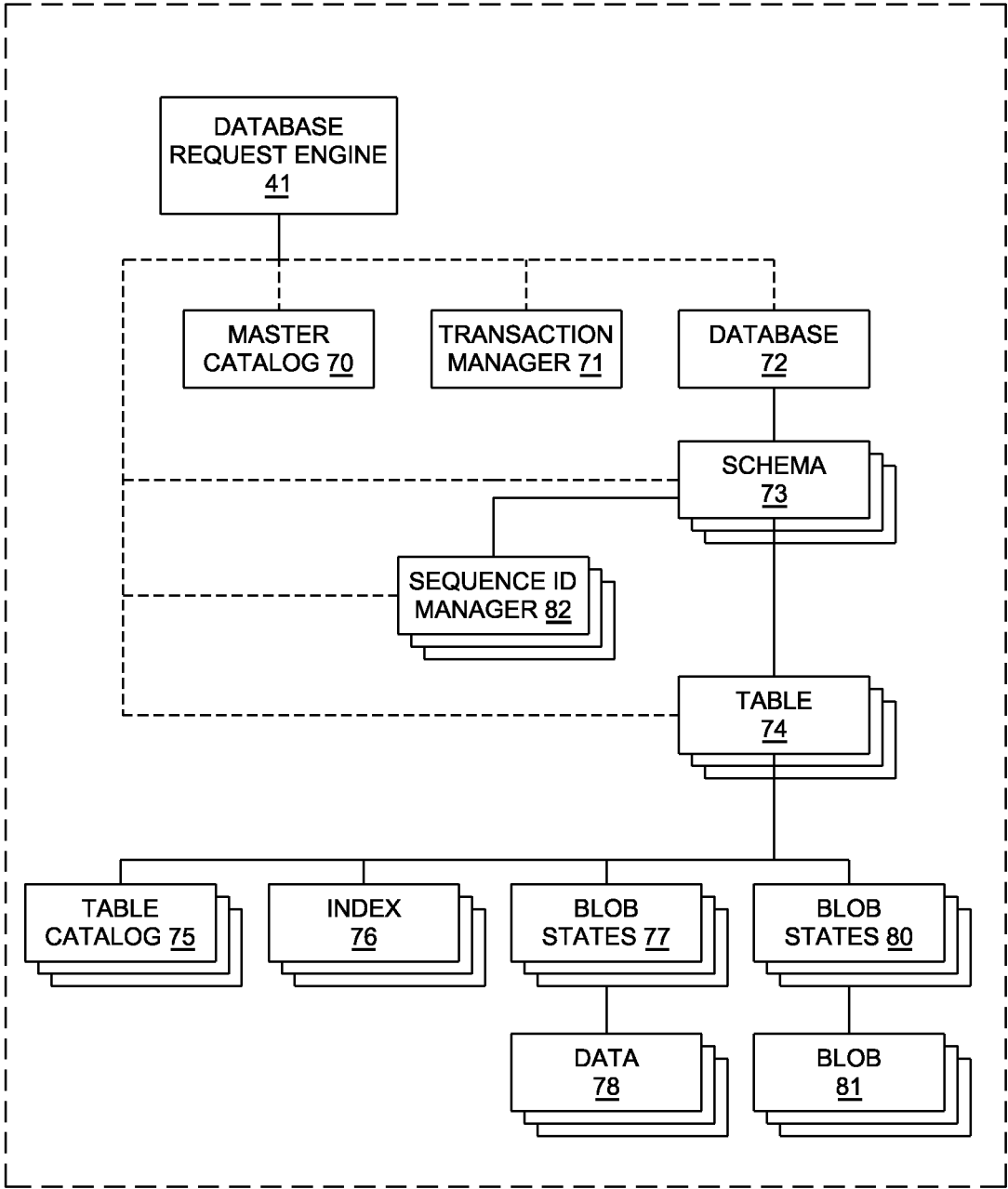


FIG. 4B

6/23

MASTER CATALOG ATOM <u>70</u>	
70A	MASTER CATALOG ID=1
70B	POINTER TO MASTER CATALOG
70C	POINTER TO CREATING CATALOG
70D	POINTER TO CHAIRMAN
70E	CHANGE NUMBER
70F	LIST OF RELAYS
70G	CYCLE REFERENCE
70H	ACTIVE NODE LIST
70I	STATUS STATES
70J	GLOBAL NODE IDS
70K	LOCAL NODE IDS
70L	CONNECTION MANAGER
70M	PENDING NODE
70N	DATABASE UI
70P	CATALOG OF DATABASE, SCHEMA, TABLE AND TABLE CATALOG ATOMS
70Q	PASSWORD
70R	ACTUAL VERSION
70S	SOFTWARE VERSION
70T	POINTER TO TRANSACTION MANAGER ATOM
70U	POINTER TO CONFIGURATION OBJECT
70V	POINTER TO GARBAGE COLLECTION THREAD
70W	POINTER TO PING THREAD

FIG. 5

7/23

TRANSACTION MANAGER ATOM <u>71</u>	
71A	TRANSACTION ATOM ID
71B	POINTER TO MASTER CATALOG
71C	POINTER TO CREATING CATALOG
71D	POINTER TO CHAIRMAN
71E	CHANGE NUMBER
71F	LIST OF RELAYS
71G	CYCLE REFERENCE
71H	ACTIVE NODE LIST
71I	STATUS STATES
71J	ID MANAGER
71K	ACTIVE TRANSACTIONS LIST
71L	COMMITTED TRANSACTIONS LIST
71M	FAILED TRANSACTIONS LIST
71N	COMMIT SEQUENCE INFORMATION
71P	TRANSACTION-TRANSITION EVENT COUNTER

FIG. 6

8/23

DATABASE ATOM <u>72</u>	
72A	DATABASE ATOM ID
72B	POINTER TO MASTER CATALOG
72C	POINTER TO CREATING CATALOG
72D	POINTER TO CHAIRMAN
72E	CHANGE NUMBER
72F	LIST OF RELAYS
72G	CYCLE REFERENCE
72H	ACTIVE NODE LIST
72I	STATUS STATES
72J	SCHEMA NAME-SCHEMA ID REGISTRY

FIG. 7

9/23

SCHEMA ATOM <u>73</u>	
73A	SCHEMA ATOM ID
73B	POINTER TO MASTER CATALOG
73C	POINTER TO CREATING CATALOG
73D	POINTER TO CHAIRMAN
73E	CHANGE NUMBER
73F	LIST OF RELAYS
73G	CYCLE REFERENCE
73H	ACTIVE NODE LIST
73I	STATUS STATES
73J	TABLE NAME-TABLE ATOM ID REGISTRY
73K	SEQUENCE NAME-SEQUENCE ID MANAGER REGISTRY

FIG. 8

10/23

TABLE ATOM 74

74A	TABLE ATOM ID
74B	POINTER TO MASTER CATALOG
74C	POINTER TO CREATING CATALOG
74D	POINTER TO CHAIRMAN
74E	CHANGE NUMBER
74F	LIST OF RELAYS
74G	CYCLE REFERENCE
74H	ACTIVE NODE LIST
74I	STATUS STATES
74J	POINTER TO CORRESPONDING TABLE CATALOG ATOM
74K	LIST OF FIELDS
74L	ID MANAGER FOR FIELD IDS
74M	ID MANAGER FOR INDEX ATOM IDS
74N	ID MANAGER FOR DATA ATOM IDS
74P	ID MANAGER FOR BLOB ATOM IDS
74Q	ID MANAGER FOR TYPES
74R	SUBTYPE LISTS
74S	ARRAY OF RECORD STATES ATOM IDS
74T	ARRAY OF BLOB STATES ATOM IDS

FIG. 9

11/23

TABLE CATALOG ATOM 75

75A	TABLE ATOM ID
75B	POINTER TO MASTER CATALOG
75C	POINTER TO CREATING CATALOG
75D	POINTER TO CHAIRMAN
75E	CHANGE NUMBER
75F	LIST OF RELAYS
75G	CYCLE REFERENCE
75H	ACTIVE NODE LIST
75I	STATUS STATES
75J	ID MANAGER FOR ATOM IDS
75K	LIST OF ALL ATOMS ASSOCIATED WITH THE CORRESPONDING TABLE ATOM
75L	POINTERS TO EACH ATOM ASSOCIATED WITH THE CORRESPONDING TABLE ATOM
75M	FOR EACH LISTED ATOM, THE IDENTIFY OF EACH NODE WITH A COPY OF THAT ATOM IN MEMORY
75N	BITMAPS TO OBJECTS AND DIRECTORIES

FIG. 10

12/23

INDEX ATOM <u>76</u>	
76A	INDEX ATOM ID
76B	POINTER TO MASTER CATALOG
76C	POINTER TO CREATING CATALOG
76D	POINTER TO CHAIRMAN
76E	CHANGE NUMBER
76F	LIST OF RELAYS
76G	CYCLE REFERENCE
76H	ACTIVE NODE LIST
76I	STATUS STATES
76J	BINARY TREE OF INDEX NODES
76K	INDEX LEVEL

FIG. 11

13/23

RECORD STATES ATOM <u>77</u>	
77A	RECORD STATES ATOM ID
77B	POINTER TO MASTER CATALOG
77C	POINTER TO CREATING CATALOG
77D	POINTER TO CHAIRMAN
77E	CHANGE NUMBER
77F	LIST OF RELAYS
77G	CYCLE REFERENCE
77H	ACTIVE NODE LIST
77I	STATUS STATES
77J	ARRAY OF MANAGED DATA ATOMS
77K	RECORD ID FOR BASE RECORD
77L	POINTER TO TABLE ATOM
77M	BITMAP OF VERSIONED RECORDS
77N	FOR EACH RECORD VERSION
77P	TRANSACTION ID
77Q	FORMAT VERSION
77R	RECORD VERSION SEQUENCE NUMBER
77S	LOCATION OF NEXT OLDER VERSION
77T	INDEX TO DATA ATOM ARRAY
77U	SLOT IN DATA ATOM FOR ACTUAL DATA

FIG. 12

14/23

DATA ATOM <u>78</u>	
78A	DATA ATOM ID
78B	POINTER TO MASTER CATALOG
78C	POINTER TO CREATING CATALOG
78D	POINTER TO CHAIRMAN
78E	CHANGE NUMBER
78F	LIST OF RELAYS
78G	CYCLE REFERENCE
78H	ACTIVE NODE LIST
78I	STATUS STATES
78J	ID MANAGER FOR RECORD SLOTS
78K	ADDRESS AND LENGTH OF EACH RECORD WITHIN THE DATA ATOM
78L	DATA RECORDS

FIG. 13

15/23

BLOB STATES ATOM <u>80</u>	
80A	BLOB STATES ATOM ID
80B	POINTER TO MASTER CATALOG
80C	POINTER TO CREATING CATALOG
80D	POINTER TO CHAIRMAN
80E	CHANGE NUMBER
80F	LIST OF RELAYS
80G	CYCLE REFERENCE
80H	ACTIVE NODE LIST
80I	STATUS STATES
80J	LIST OF ASSOCIATED BLOB ATOMS
80K	BLOB ID FOR BASE BLOB
80L	POINTER TO TABLE ATOM
80M	FOR EACH BLOB
80N	INDEX TO BLOB ATOM
80O	SLOT IN BLOB ATOM FOR ACTUAL BLOB

FIG. 14

16/23

BLOB ATOM <u>81</u>	
81A	BLOB ATOM ID
81B	POINTER TO MASTER CATALOG
81C	POINTER TO CREATING CATALOG
81D	POINTER TO CHAIRMAN
81E	CHANGE NUMBER
81F	LIST OF RELAYS
81G	CYCLE REFERENCE
81H	ACTIVE NODE LIST
81I	STATUS STATES
81J	ID MANAGER FOR BLOB SLOTS
81K	ADDRESS AND LENGTH OF EACH BLOB
81L	BLOB

FIG. 15

17/23

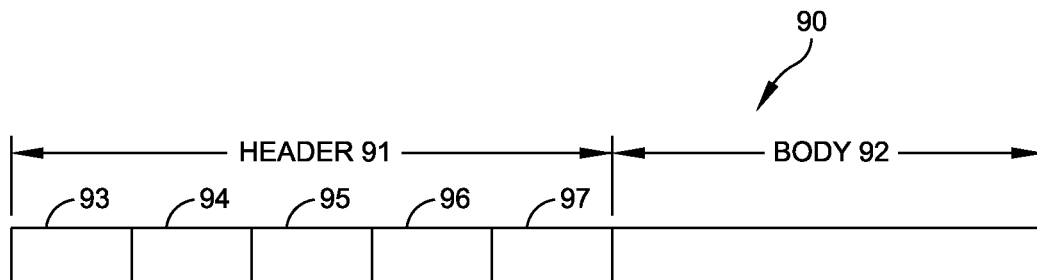


FIG. 16

MESSAGES

110	PING	135	TABLE BLOBS OBJECT
111	PING ACKNOWLEDGE	136	TABLE BLOB
112	CONNECT	137	TABLE TYPE
113	WELCOME	138	TABLE RECORD EXPUNGE
114	NEW NODE	139	TABLE GARBAGE COLLECT
115	NODE STATE	140	RECORDS UPDATE REQUEST
116	OBJECT REQUEST	141	RECORDS UPDATE RESPONSE
117	OBJECT	142	RECORDS UPDATE
118	OBJECT AVAILABLE	143	RECORDS DATA OBJECT
119	OBJECT ACKNOWLEDGED	144	RECORDS RECORD
120	OBJECT COMPLETE	145	RECORDS PRUNE
121	OBJECT UNAVAILABLE	146	BACKOUT RECORD
122	BOUNCE OBJECT	147	INDEX SPLIT REQUEST
123	REGISTER OBJECT	148	INDEX SPLIT
124	UNREGISTER OBJECT	149	INDEX PRUNE
125	OBJECT DELETE	150	INDEX NODE ADDED
126	OBJECT WRITTEN	151	TABLE INDEX READY
127	ID REQUEST	152	BLOBS BLOB
128	ID DELEGATION	153	DATA RECORD
129	TABLE FIELD ADDED	154	TRANSACTION STATE
130	TABLE FORMAT	155	TRANSACTION BLOCKAGE
131	TABLE REQUEST RECORDS	156	TRANSACTION DEADLOCK
132	TABLE RECORDS OBJECT	157	REQUEST WRITE TIMES
133	TABLE RECORD	158	WRITE TIMES
134	TABLE INDEX ADDED		

FIG. 17

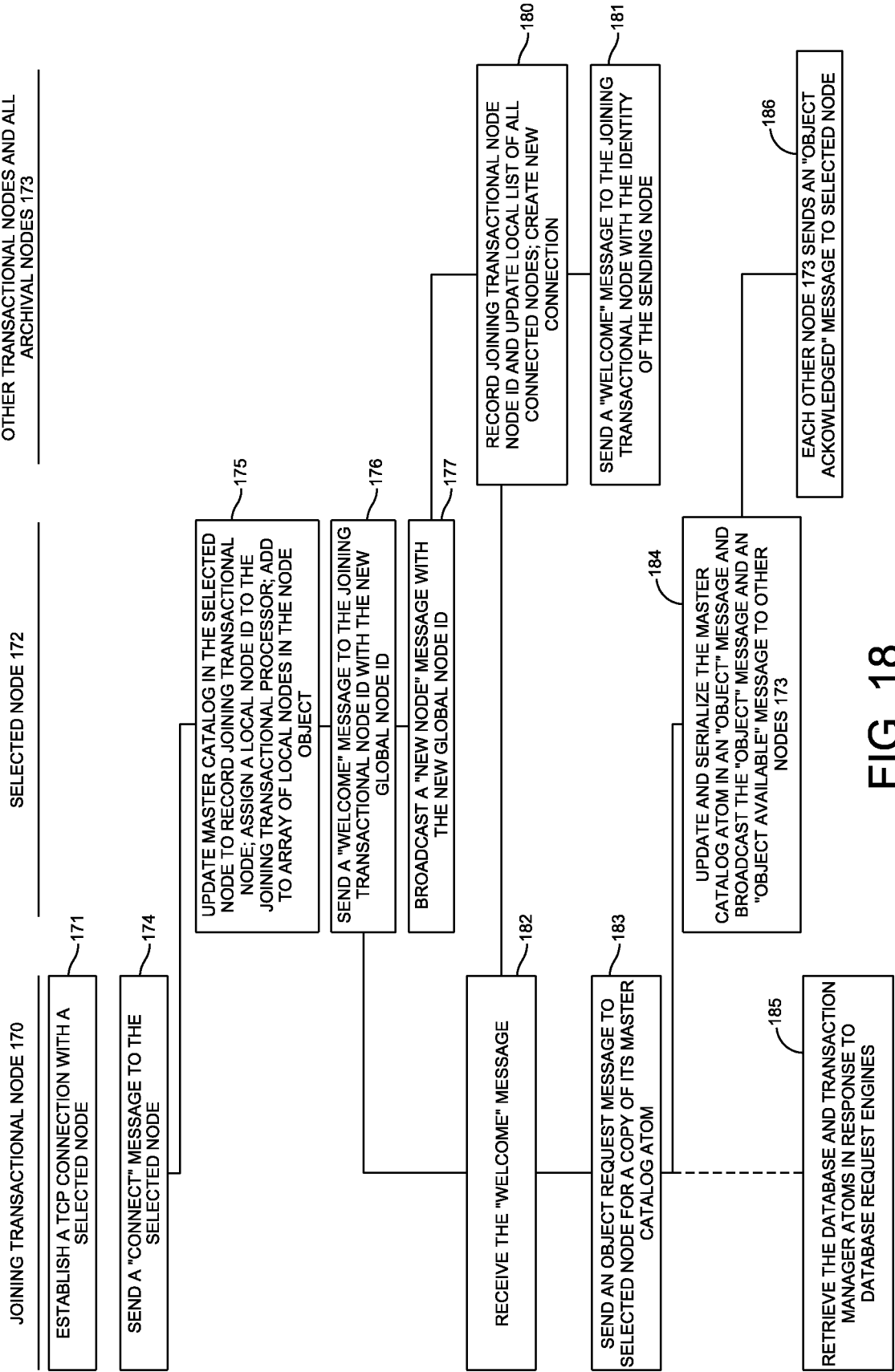


FIG. 18

19/23

NODE OBJECT 400

400A	POINTER TO THE NODE OBJECT SOCKET
400B	POINTER TO MASTER CATALOG ATOM
400C	POINTER TO THE CONNECTION MANAGER
400D	POINTER TO THE LISTENING THREAD
400E	POINTER TO A SOCKET BUFFER
400F	GLOBAL NODE ID
400G	LOCAL NODE ID
400H	POINTER TO QUEUED MESSAGES
400I	LOCAL PORT ID
400J	REMOTE PORT ID
400K	SOFTWARE VERSION AT REMOTE NODE
400L	NODE TYPE
400M	NODE NAME
400N	REMOTE NODE NAME
400P	POINTER TO CURRENT MESSAGE
400Q	LAST PING
400R	TRIP TIME
400S	COMMIT SEQUENCE NUMBER
400T	THIS NODE

FIG. 19

20/23

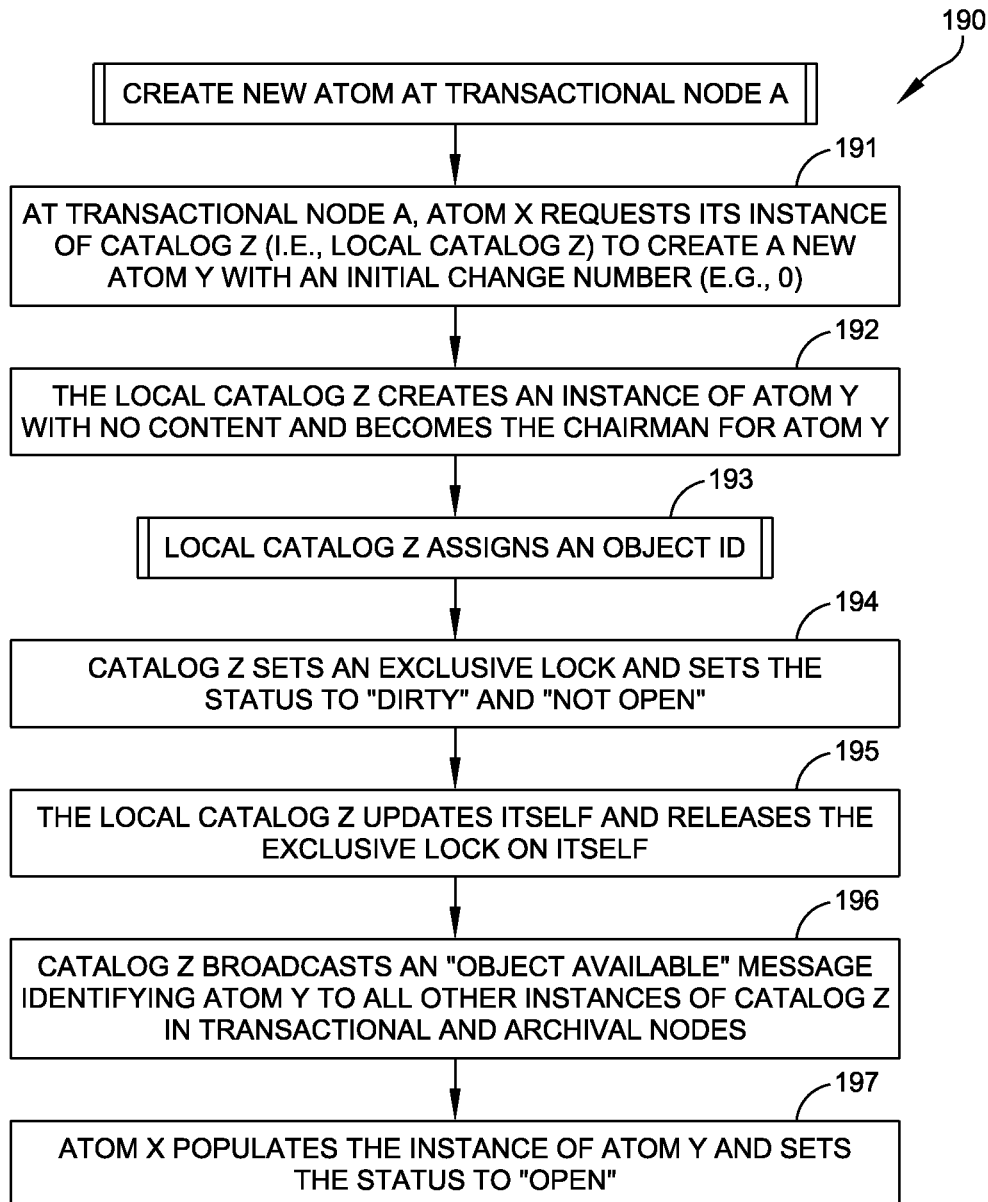


FIG. 20

21/23

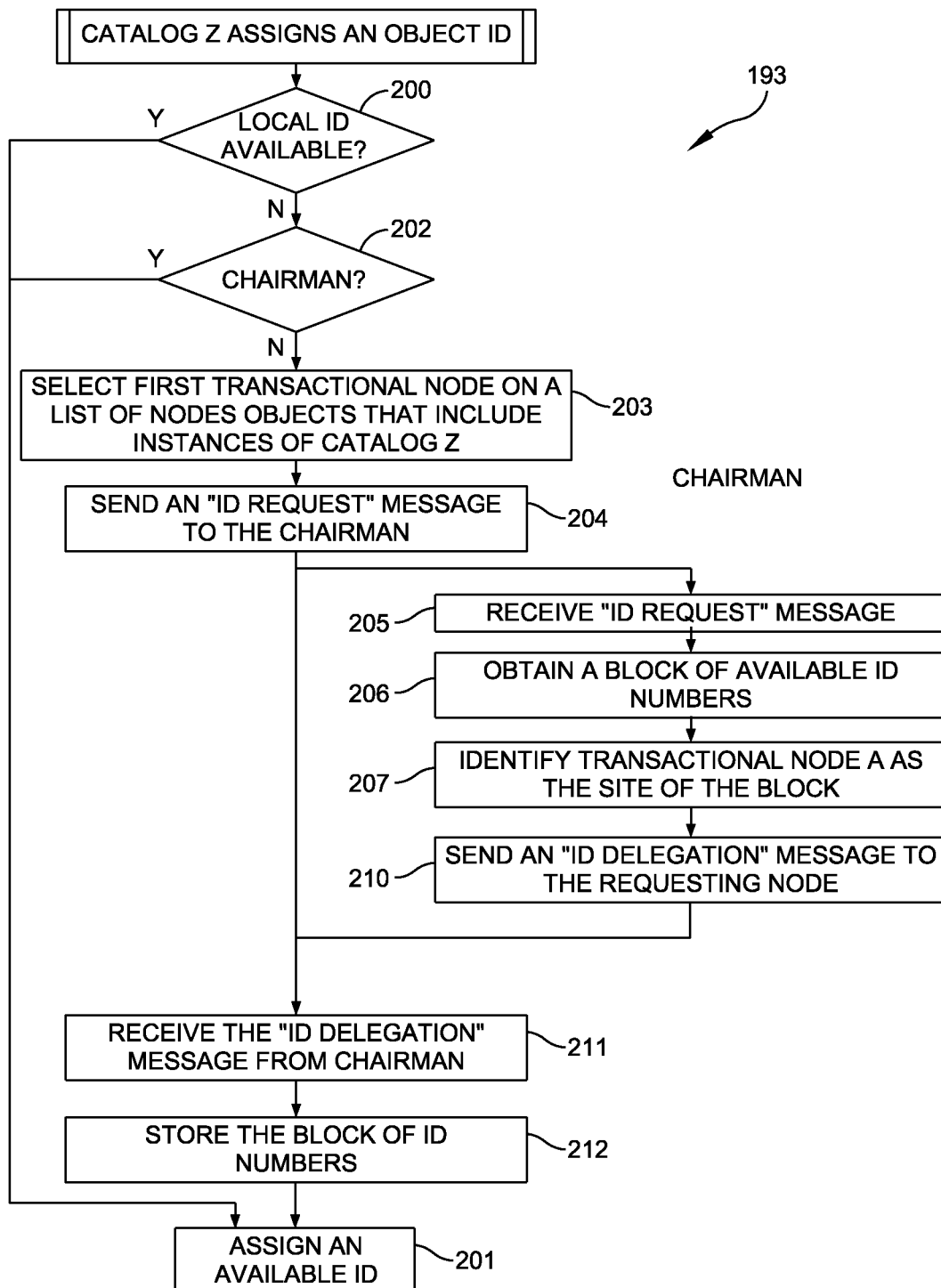


FIG. 21

22/23

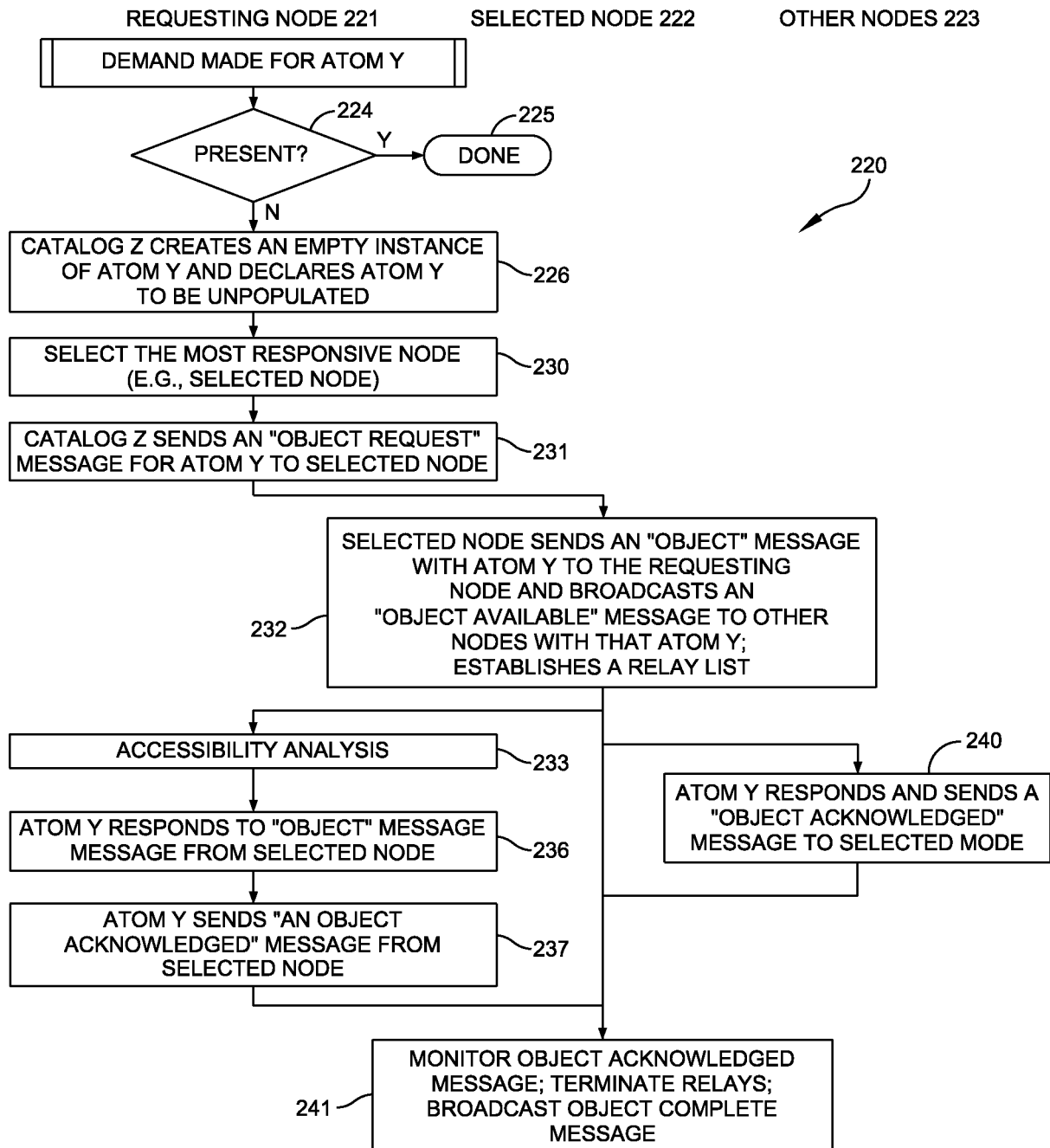


FIG. 22

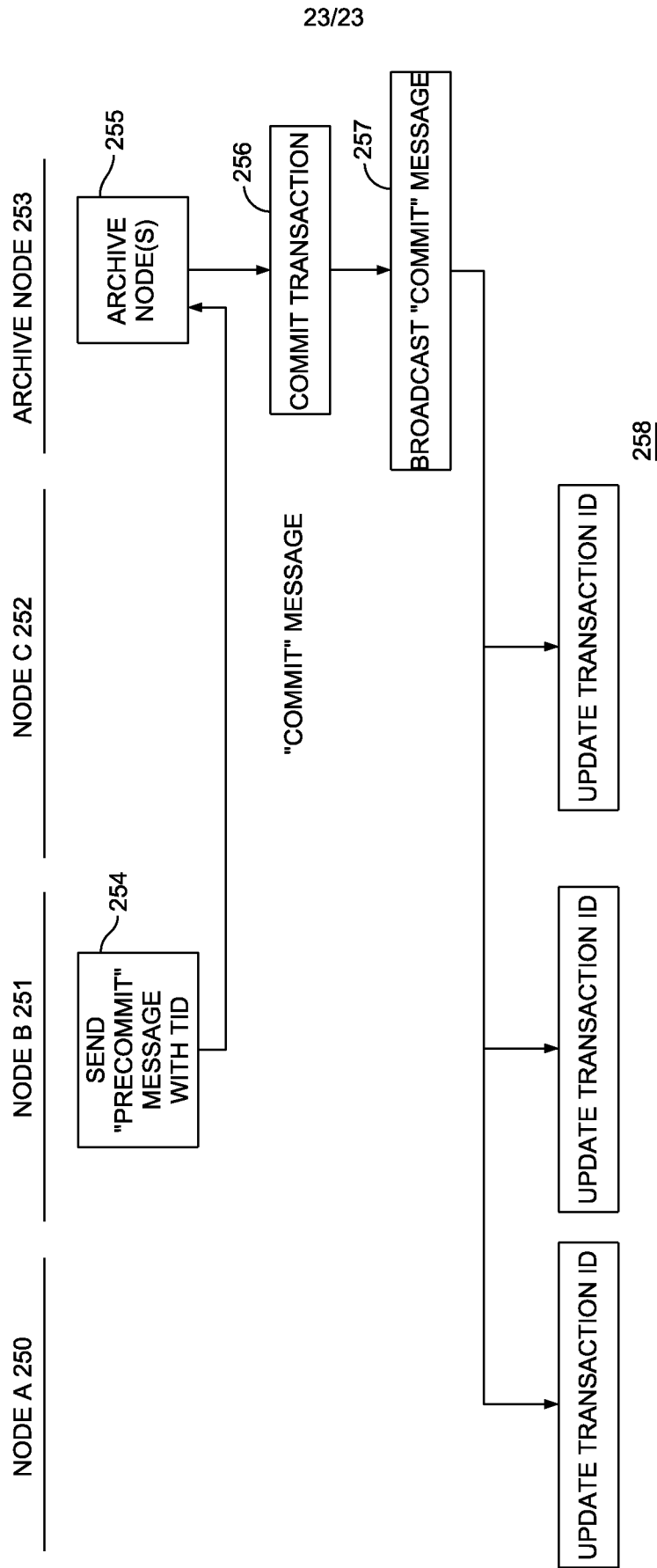


FIG. 23