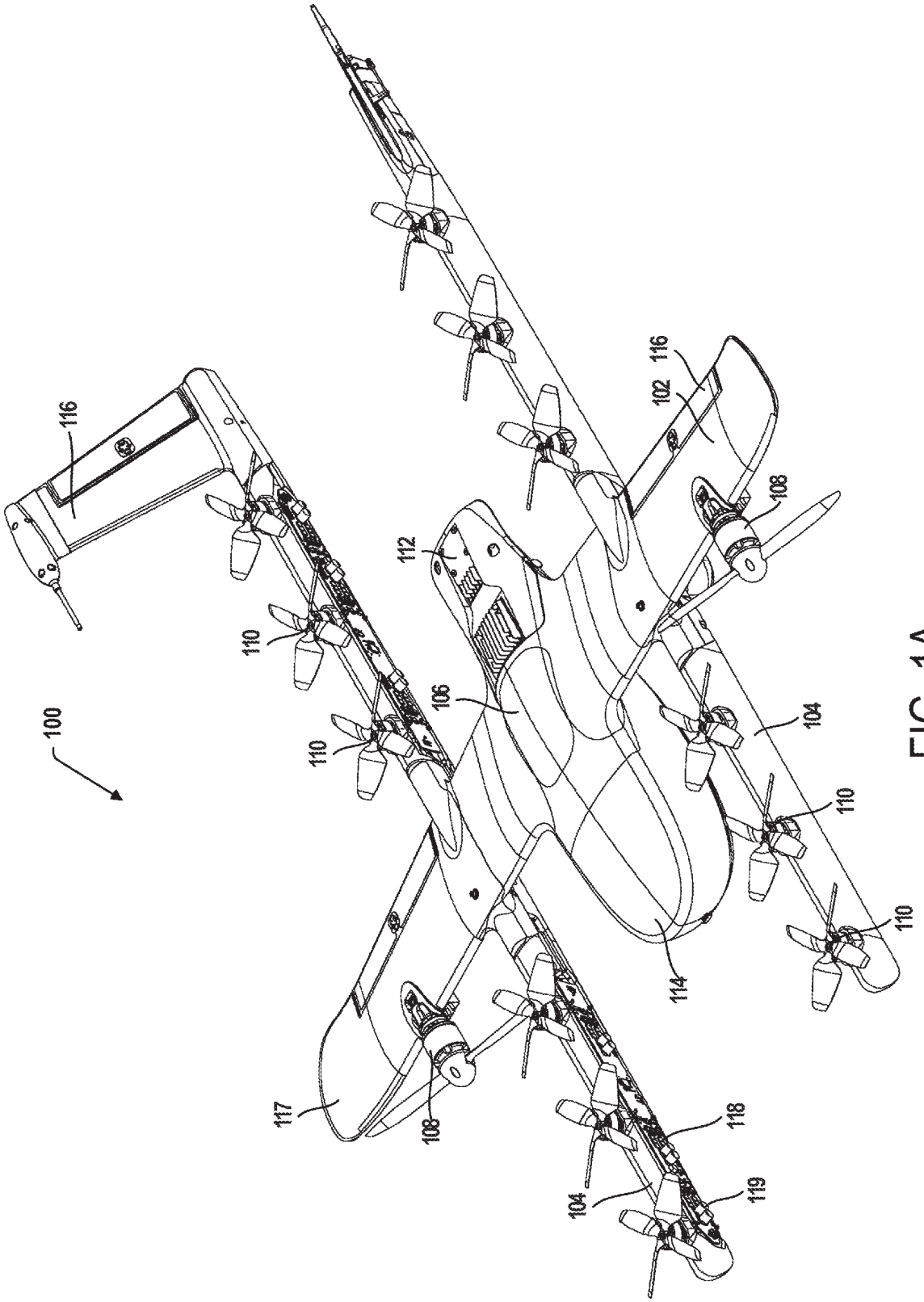


FIG. 1A

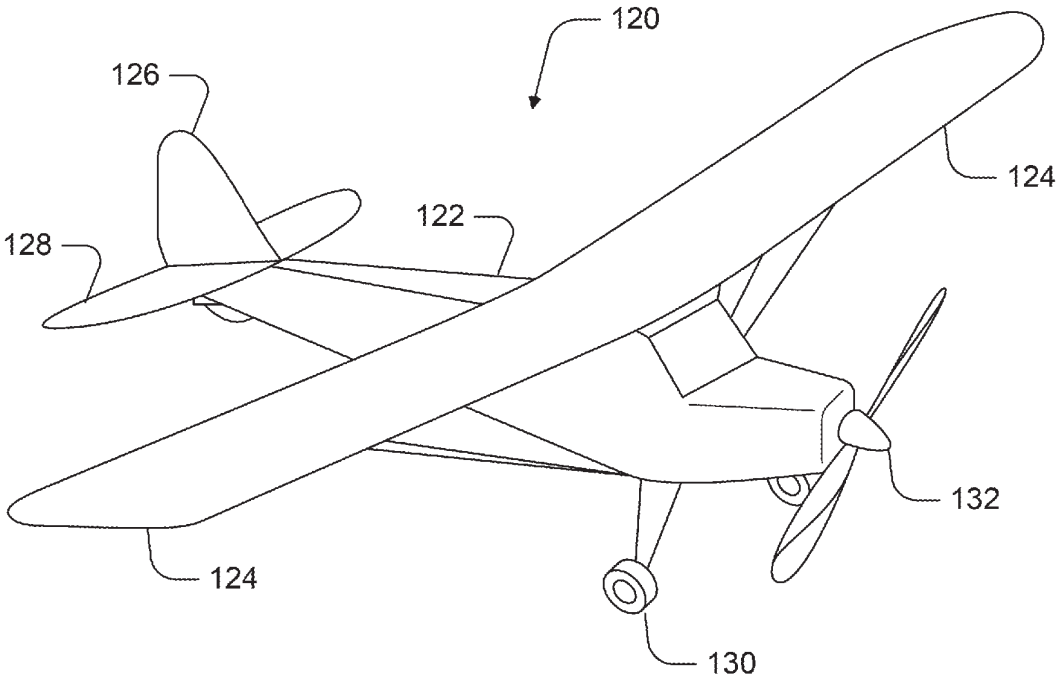


FIG. 1B

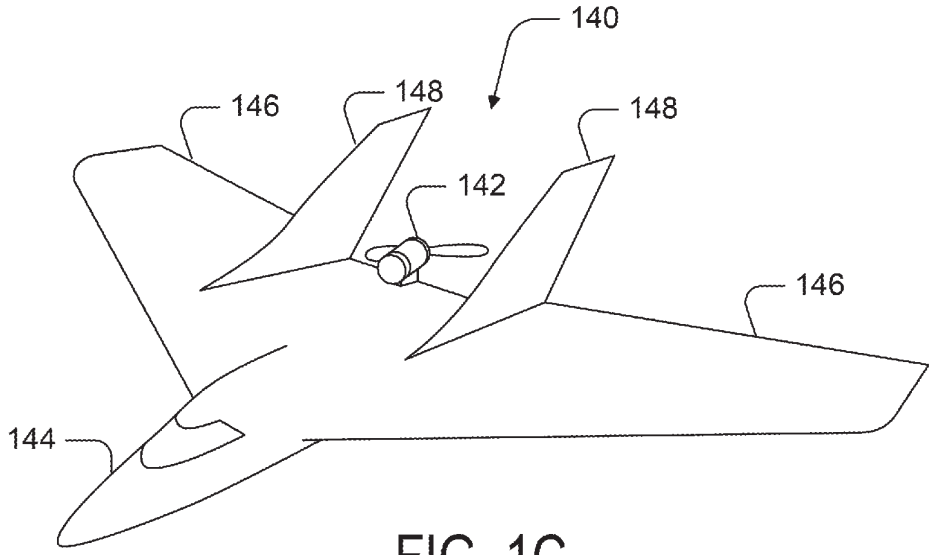


FIG. 1C

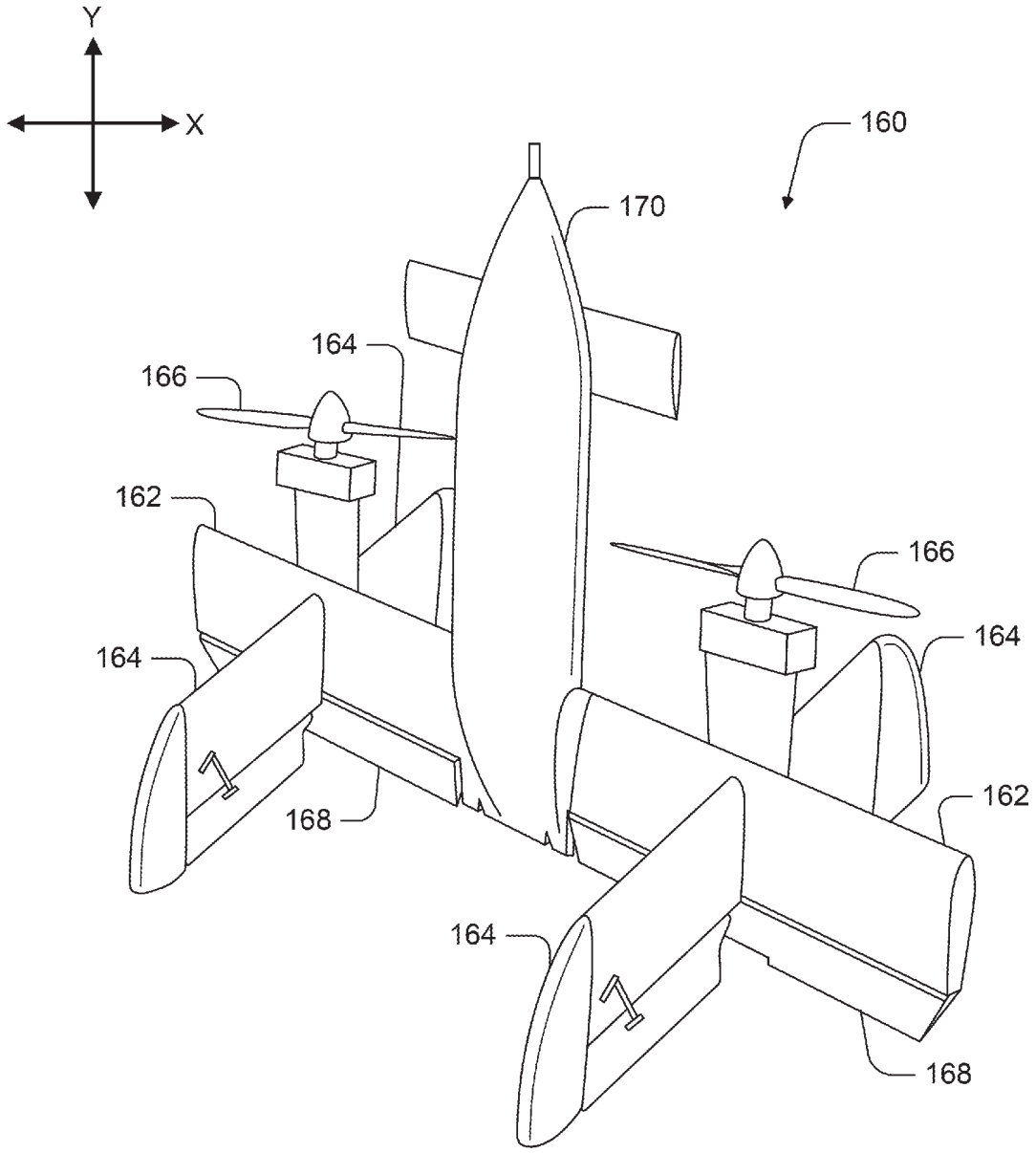


FIG. 1D

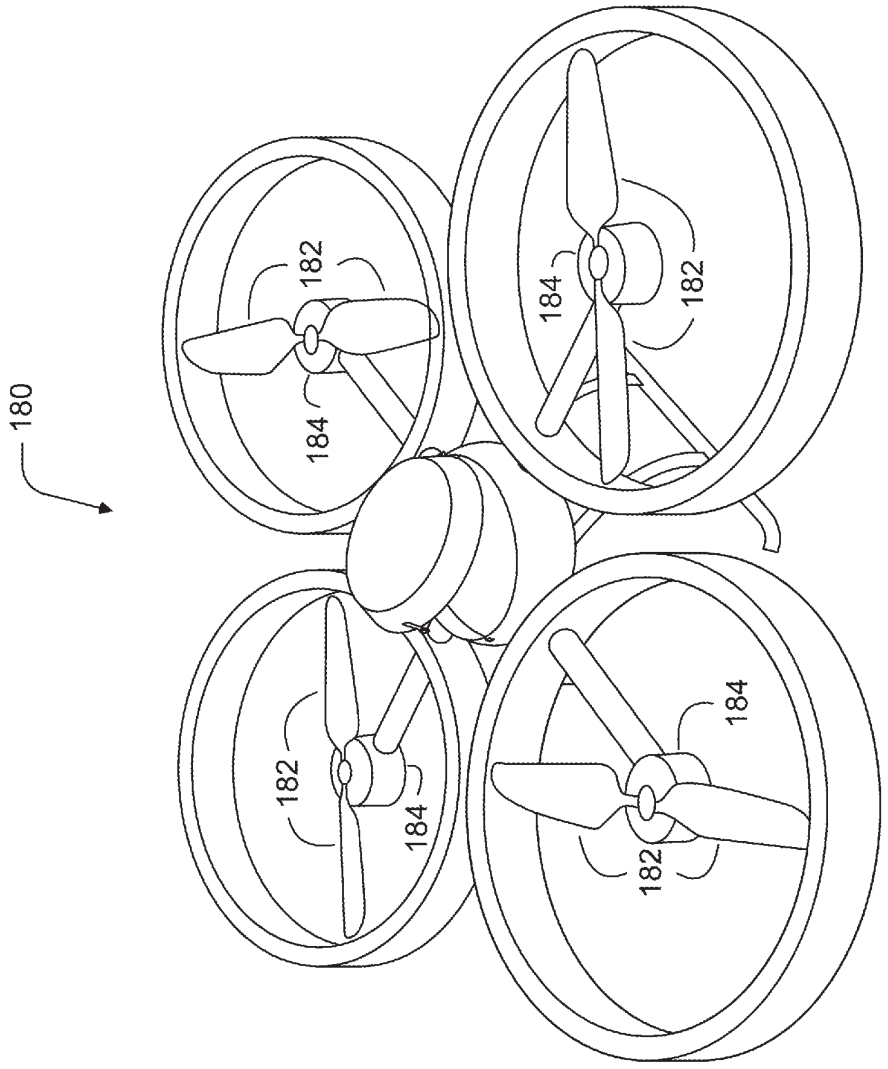


FIG. 1E

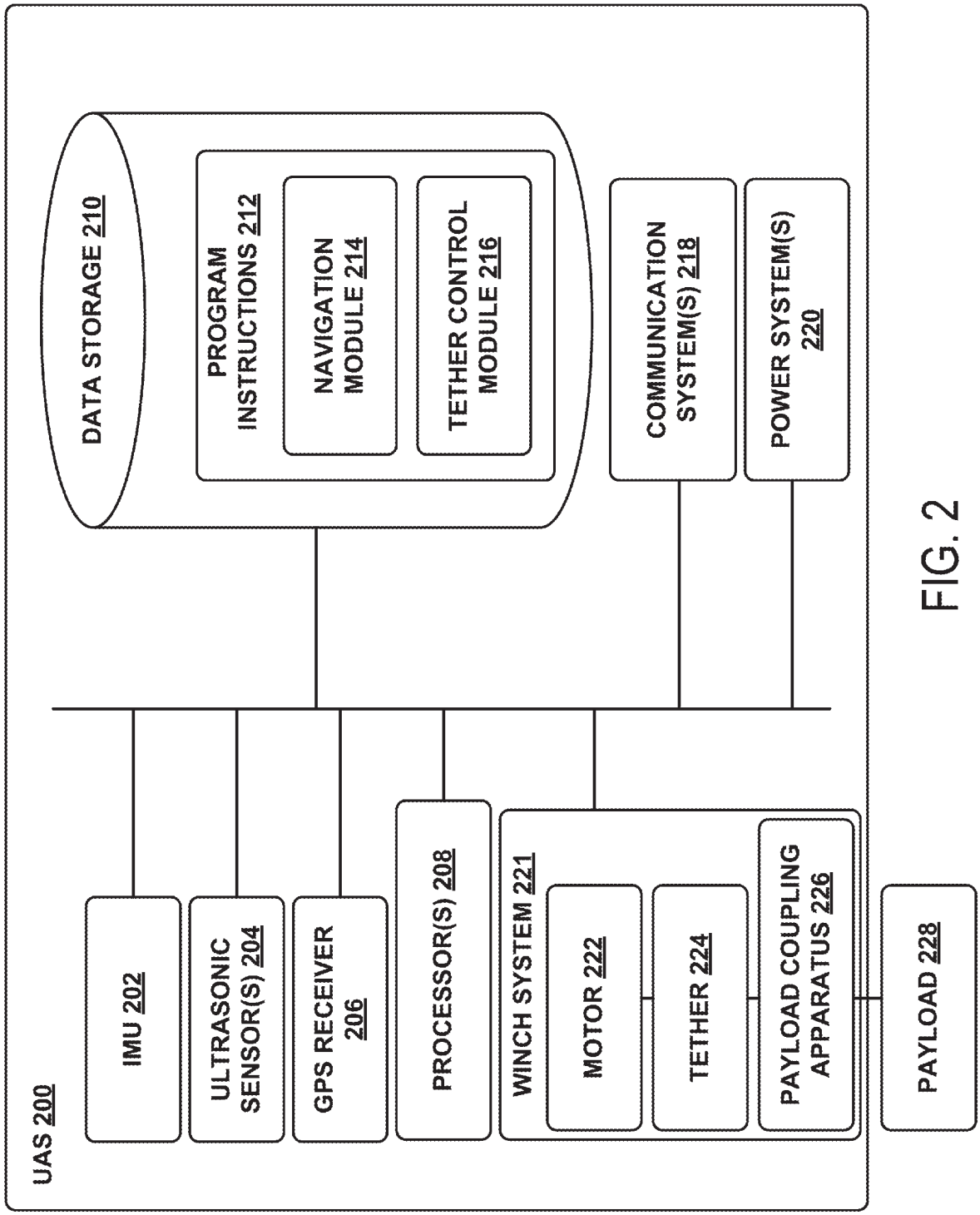

UAS 200
IMU 202
ULTRASONIC SENSOR(S) 204
GPS RECEIVER 206
PROCESSOR(S) 208
WINCH SYSTEM 221
MOTOR 222
TETHER 224
PAYLOAD COUPLING APPARATUS 226
PAYLOAD 228
DATA STORAGE 210
PROGRAM INSTRUCTIONS 212
NAVIGATION MODULE 214
TETHER CONTROL MODULE 216
COMMUNICATION SYSTEM(S) 218
POWER SYSTEM(S) 220

FIG. 2

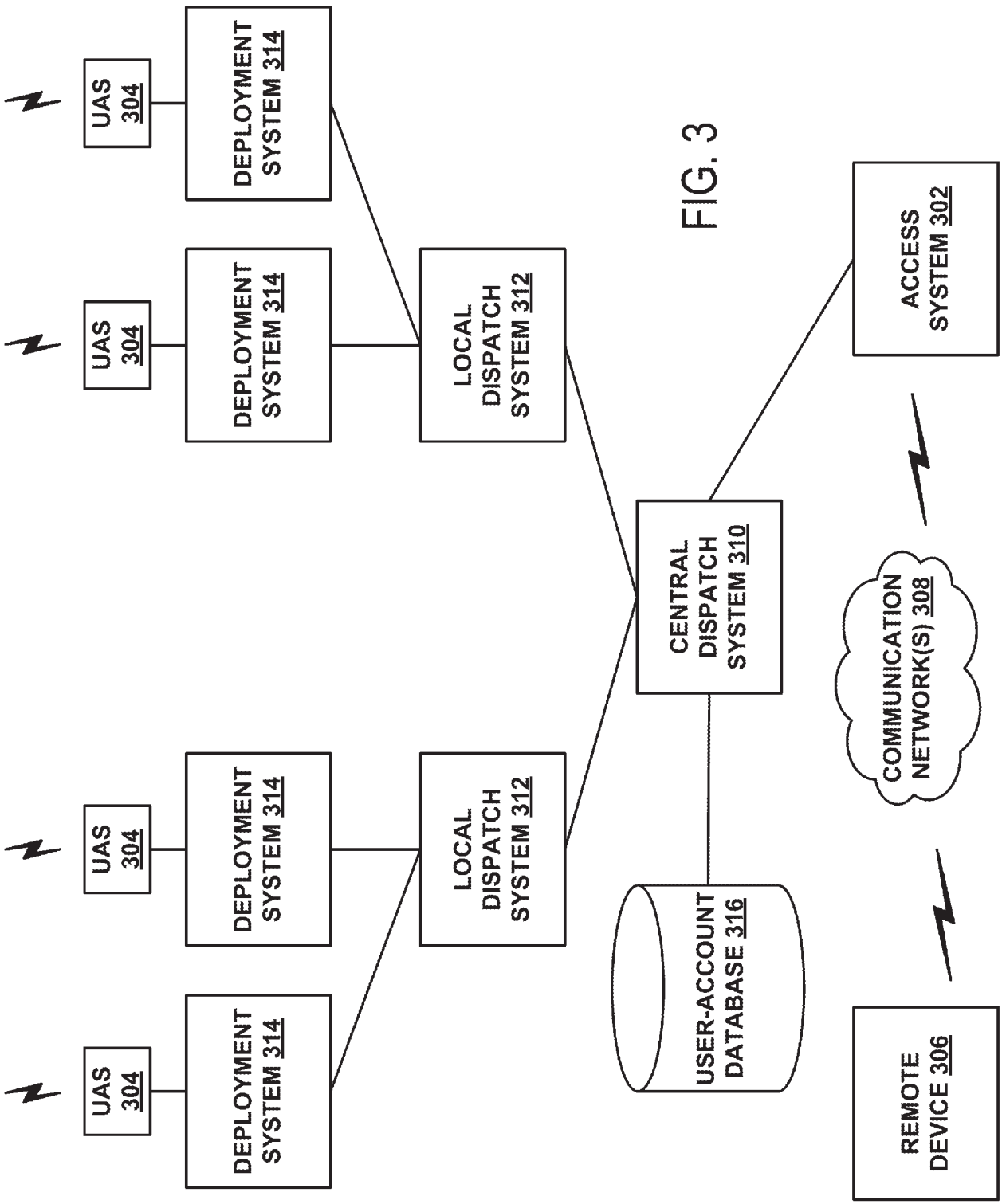

UAS 304
UAS 304
UAS 304
UAS 304
DEPLOYMENT SYSTEM 314
DEPLOYMENT SYSTEM 314
DEPLOYMENT SYSTEM 314
DEPLOYMENT SYSTEM 314
LOCAL DISPATCH SYSTEM 312
LOCAL DISPATCH SYSTEM 312
CENTRAL DISPATCH SYSTEM 310
ACCESS SYSTEM 302
USER-ACCOUNT DATABASE 316
COMMUNICATION NETWORK(S) 308
REMOTE DEVICE 306

FIG. 3

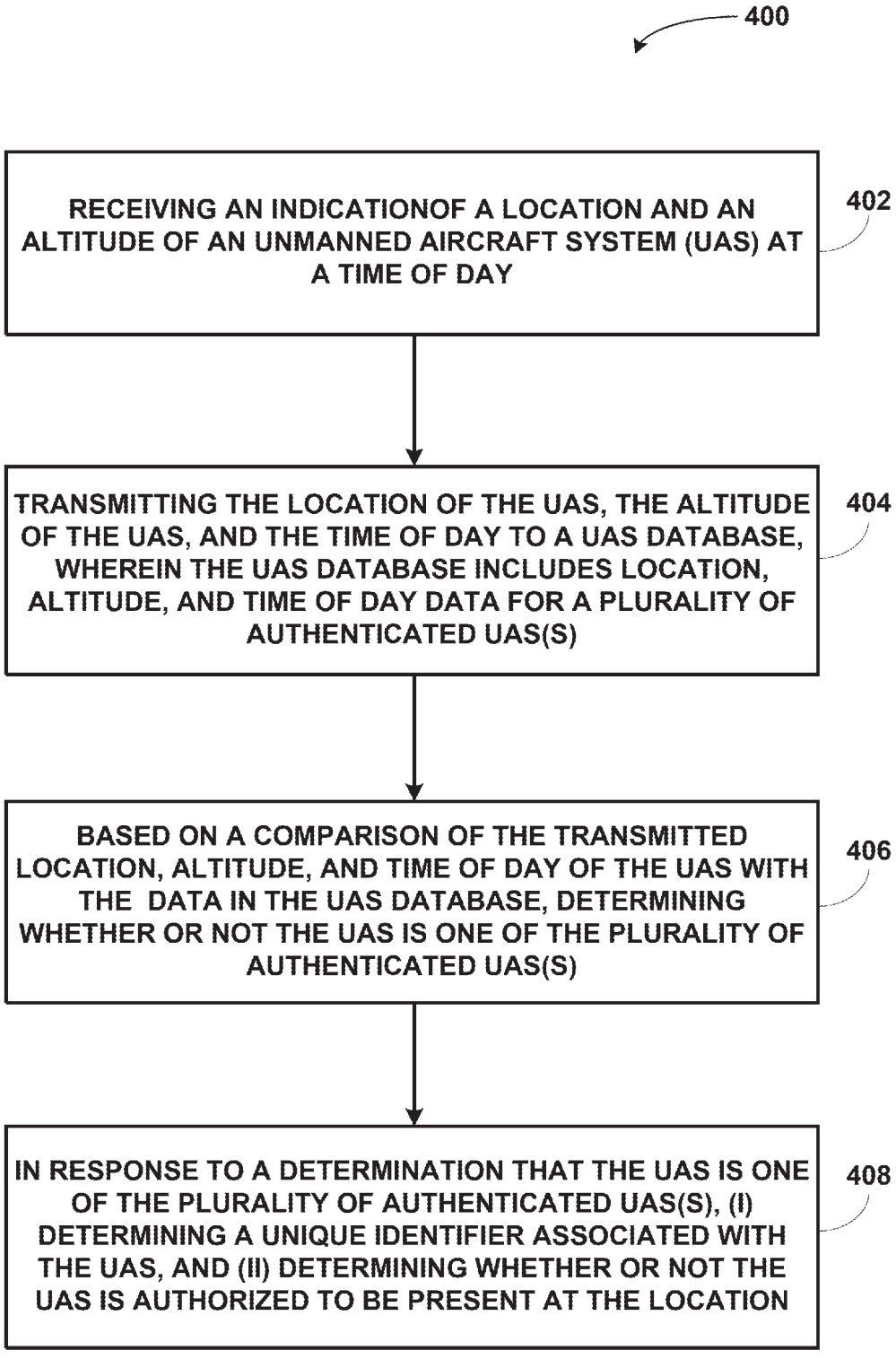

400
RECEIVING AN INDICATIONOF A LOCATION AND AN ALTITUDE OF AN UNMANNED AIRCRAFT SYSTEM (UAS) AT A TIME OF DAY
402
TRANSMITTING THE LOCATION OF THE UAS, THE ALTITUDE OF THE UAS, AND THE TIME OF DAY TO A UAS DATABASE, WHEREIN THE UAS DATABASE INCLUDES LOCATION, ALTITUDE, AND TIME OF DAY DATA FOR A PLURALITY OF AUTHENTICATED UAS(S)
404
BASED ON A COMPARISON OF THE TRANSMITTED LOCATION, ALTITUDE, AND TIME OF DAY OF THE UAS WITH THE DATA IN THE UAS DATABASE, DETERMINING WHETHER OR NOT THE UAS IS ONE OF THE PLURALITY OF AUTHENTICATED UAS(S)
406
IN RESPONSE TO A DETERMINATION THAT THE UAS IS ONE OF THE PLURALITY OF AUTHENTICATED UAS(S), (I) DETERMINING A UNIQUE IDENTIFIER ASSOCIATED WITH THE UAS, AND (II) DETERMINING WHETHER OR NOT THE UAS IS AUTHORIZED TO BE PRESENT AT THE LOCATION
408

FIG. 4

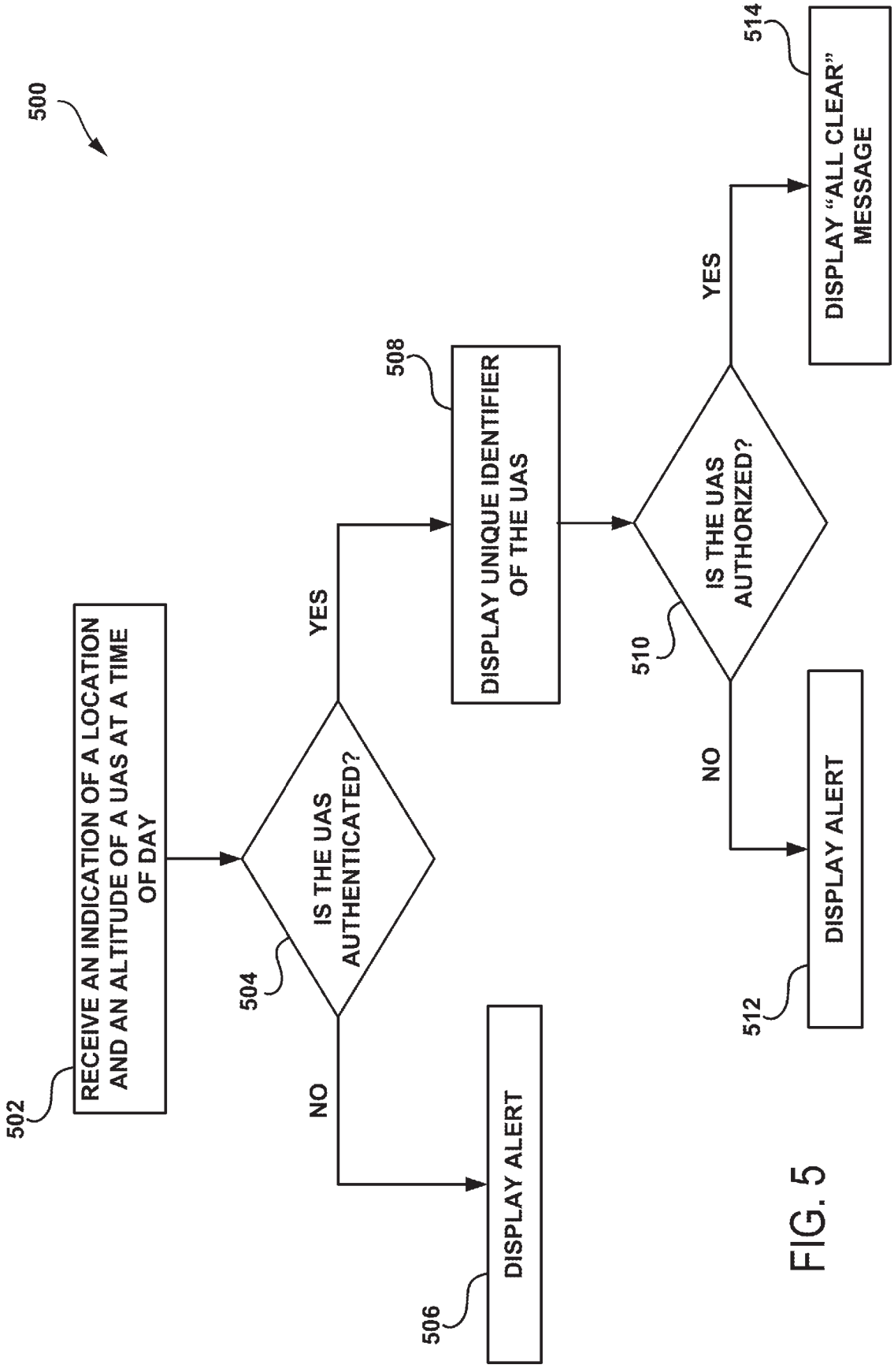

500
RECEIVE AN INDICATION OF A LOCATION AND AN ALTITUDE OF A UAS AT A TIME OF DAY
502
IS THE UAS AUTHENTICATED?
504
YES
NO
DISPLAY ALERT
506
DISPLAY UNIQUE IDENTIFIER OF THE UAS
508
IS THE UAS AUTHORIZED?
510
YES
NO
DISPLAY ALERT
512
DISPLAY "ALL CLEAR" MESSAGE
514

FIG. 5

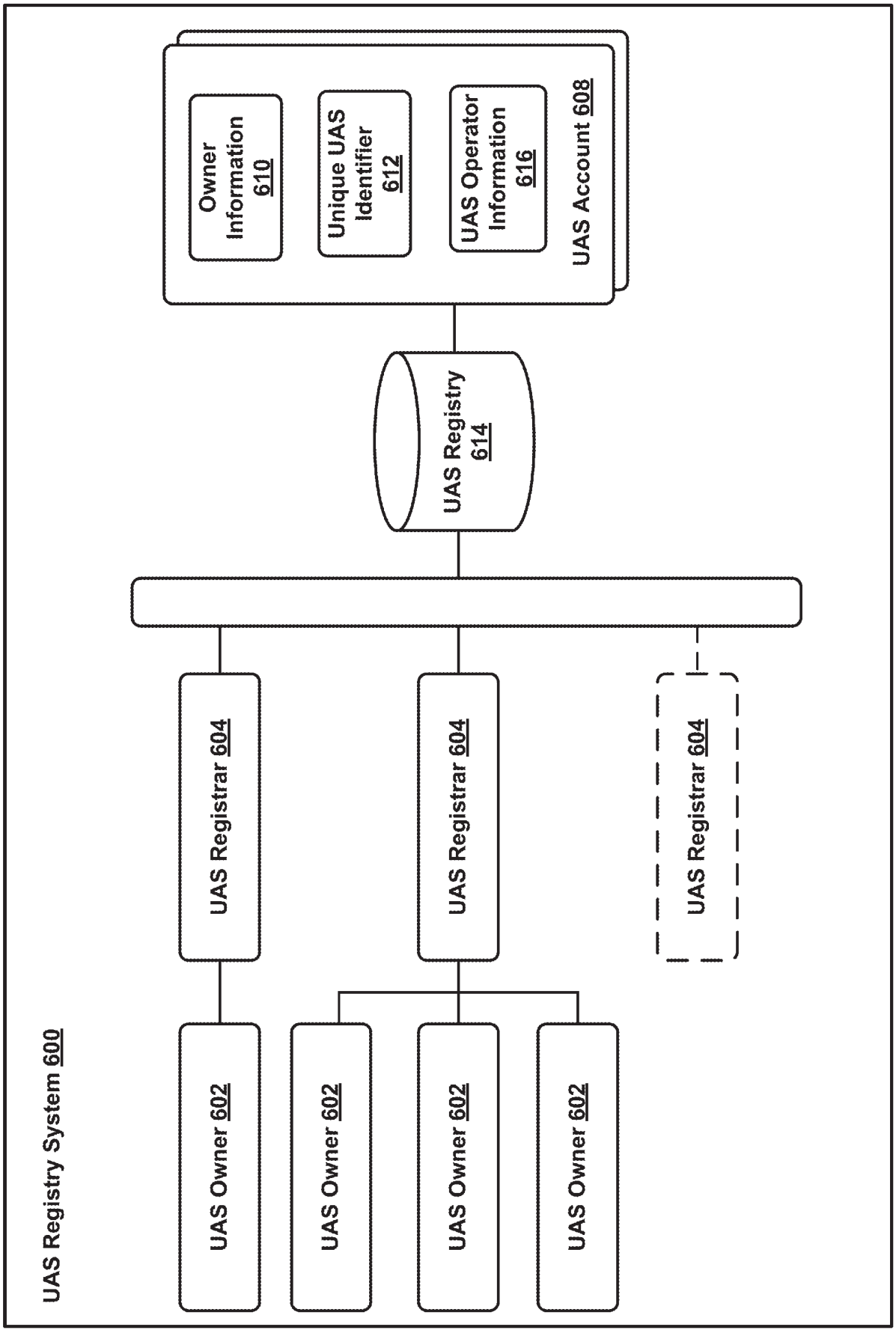

UAS Registry System 600
UAS Owner 602
UAS Owner 602
UAS Owner 602
UAS Owner 602
UAS Registrar 604
UAS Registrar 604
UAS Registrar 604
UAS Registry 614
UAS Account 608
Owner Information 610
Unique UAS Identifier 612
UAS Operator Information 616

FIG. 6A

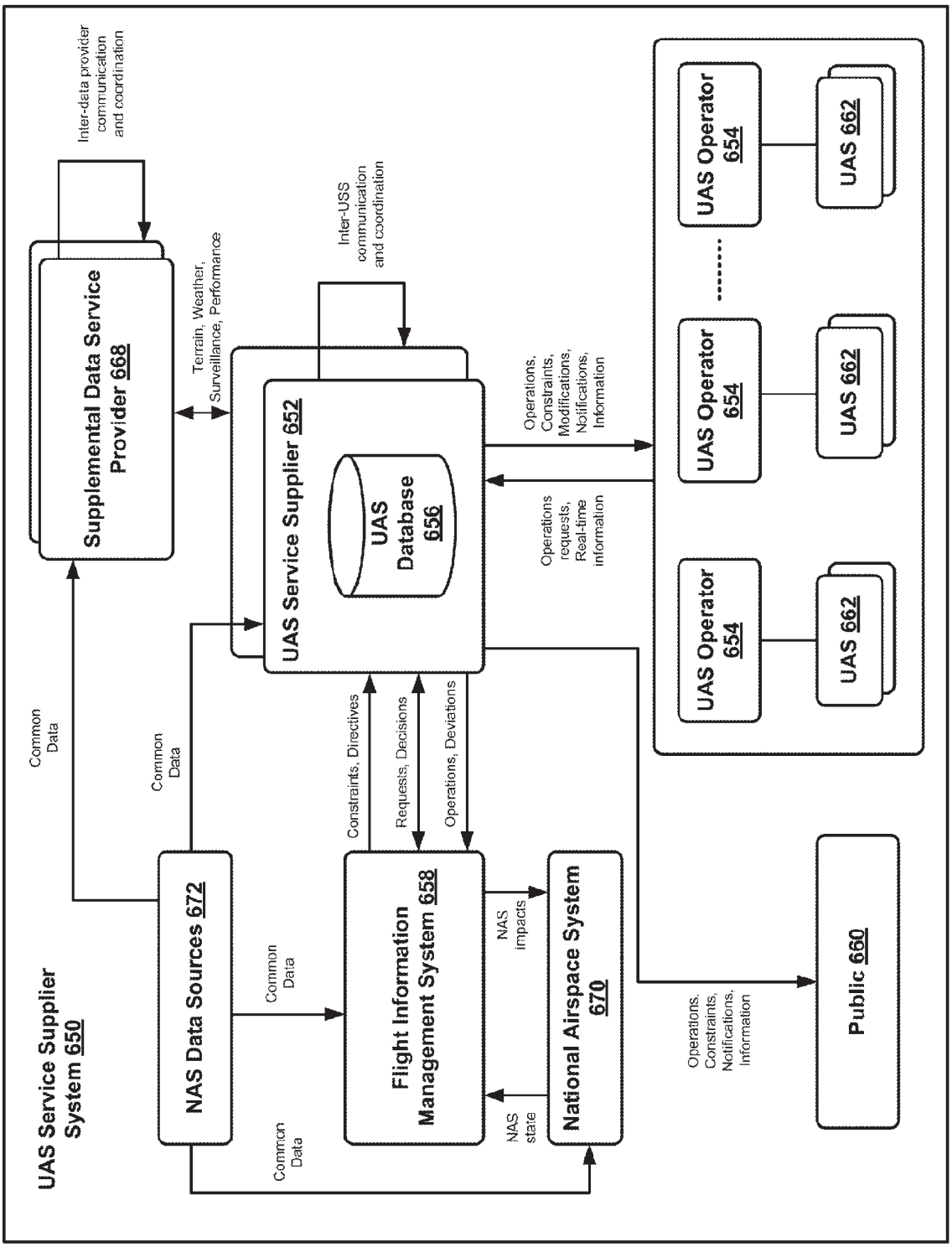

UAS Service Supplier System 650
Supplemental Data Service Provider 668
Inter-data provider communication and coordination
Terrain, Weather, Surveillance, Performance
Inter-USS communication and coordination
UAS Service Supplier 652
UAS Database 656
Operations, Constraints, Modifications, Notifications, Information
Operations requests, Real-time information
UAS Operator 654
UAS 662
Common Data
NAS Data Sources 672
Constraints, Directives
Requests, Decisions
Operations, Deviations
Flight Information Management System 658
NAS impacts
NAS state
National Airspace System 670
Operations, Constraints, Notifications, Information
Public 660

FIG. 6B

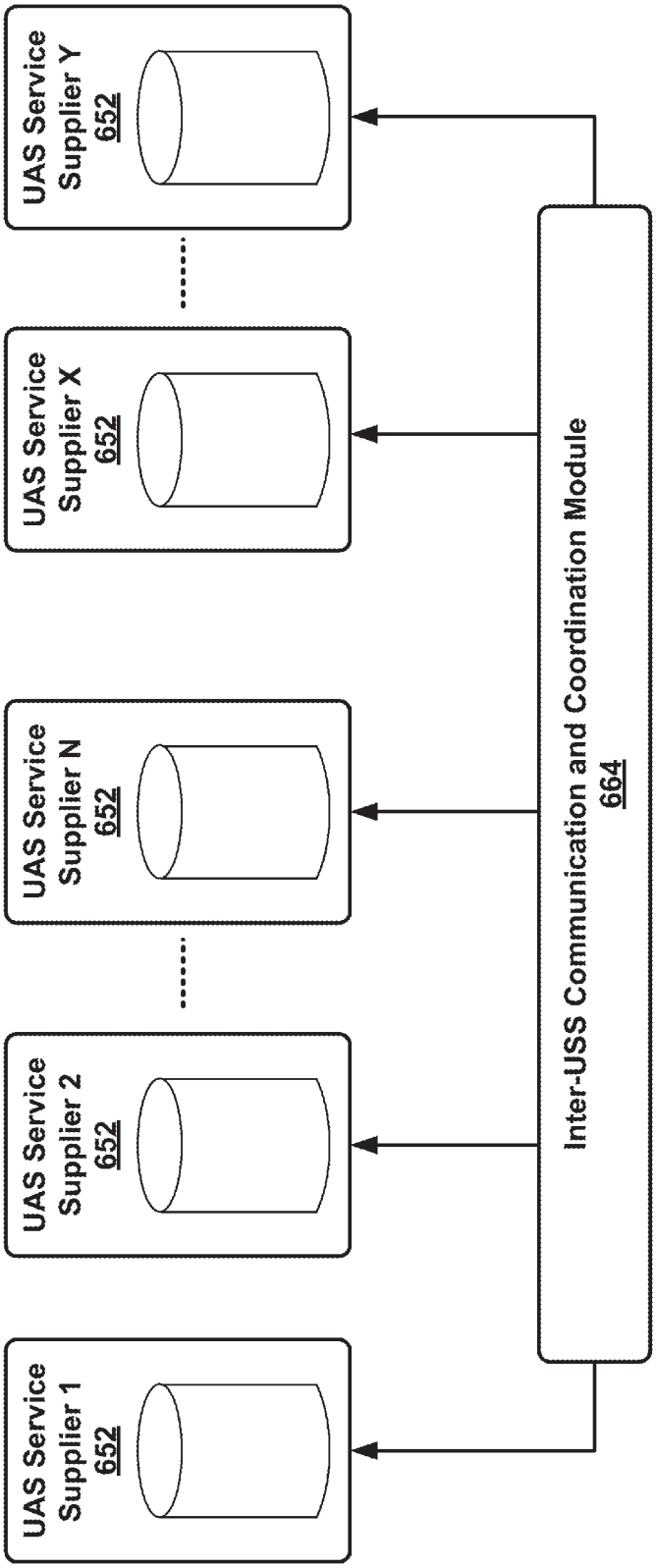

UAS Service Supplier 1 652
UAS Service Supplier 2 652
UAS Service Supplier N 652
UAS Service Supplier X 652
UAS Service Supplier Y 652
Inter-USS Communication and Coordination Module 664

FIG. 6C

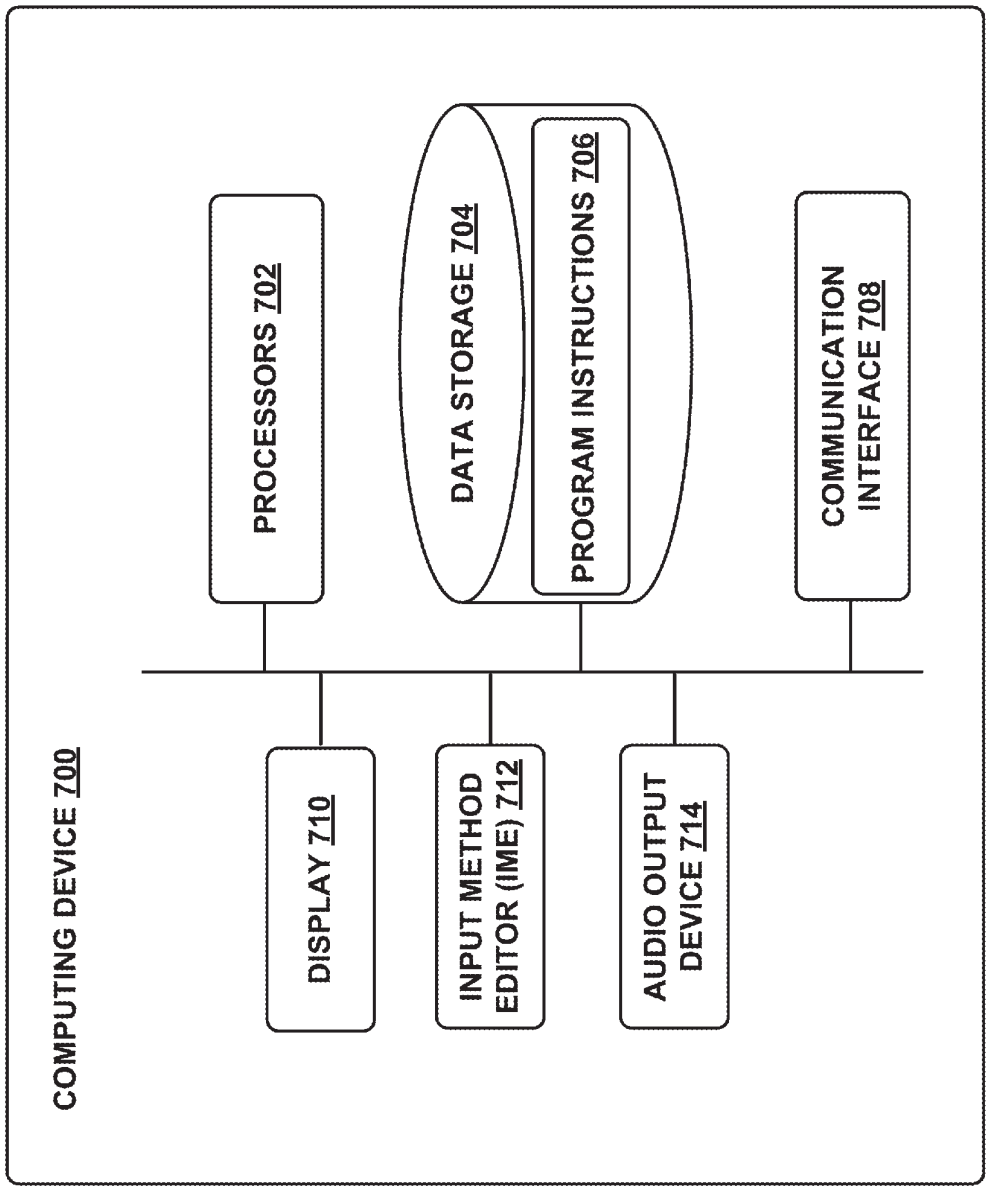

COMPUTING DEVICE 700
PROCESSORS 702
DATA STORAGE 704
PROGRAM INSTRUCTIONS 706
COMMUNICATION INTERFACE 708
DISPLAY 710
INPUT METHOD EDITOR (IME) 712
AUDIO OUTPUT DEVICE 714

FIG. 7

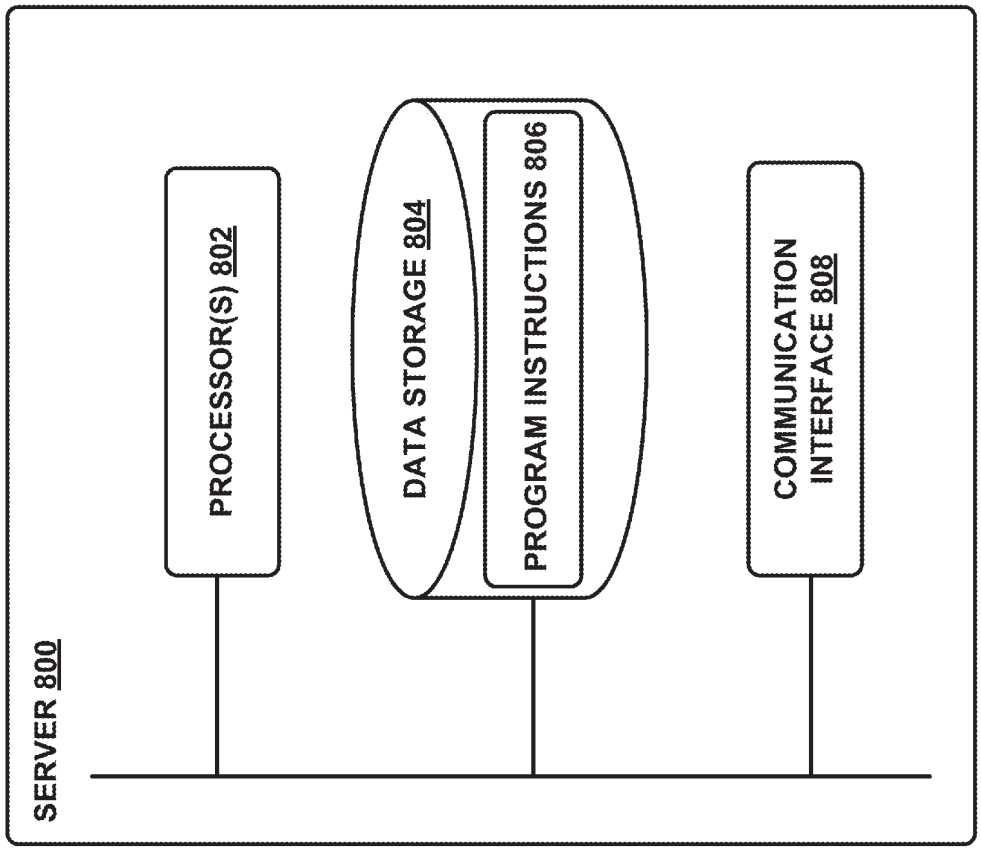

SERVER 800
PROCESSOR(S) 802
DATA STORAGE 804
PROGRAM INSTRUCTIONS 806
COMMUNICATION INTERFACE 808

FIG. 8