US008983896B2

(12) **United States Patent**
von Kaenel et al.

(10) **Patent No.: US 8,983,896 B2**
(45) **Date of Patent: Mar. 17, 2015**

(54) **METHOD, SYSTEM, AND PROGRAM FOR AN IMPROVED ENTERPRISE SPATIAL SYSTEM**

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(73) Assignee: **The Paradigm Alliance, Inc.**, Maize, KS (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **13/178,452**

(22) Filed: **Jul. 7, 2011**

(65) **Prior Publication Data**

US 2011/0270833 A1 Nov. 3, 2011

Related U.S. Application Data

(62) Division of application No. 11/458,663, filed on Jul. 19, 2006, now abandoned, which is a division of application No. 10/388,666, filed on Mar. 14, 2003, now Pat. No. 7,107,285.

(Continued)

(51) **Int. Cl.**
G06F 17/30 (2006.01)
G06Q 40/08 (2012.01)

(52) **U.S. Cl.**
CPC ***G06F 17/30*** (2013.01); ***G06F 17/30241*** (2013.01); ***G06Q 40/08*** (2013.01); *Y10S 707/99933* (2013.01); *Y10S 707/99945* (2013.01); *Y10S 707/99948* (2013.01)
USPC **707/602**; 707/687; 707/705; 707/782; 707/821; 707/789; 707/999.003; 707/999.104; 707/999.107

(58) **Field of Classification Search**
CPC G06F 17/30241; G06F 17/3087; G06F 3/0483; G06F 2203/04805; G06F 3/0481; G06F 17/30696; G06F 17/30873; G06F 3/04842; G06F 17/3089; G06F 17/30961; G06F 2203/04803; G06F 3/04817; G06F 3/0485; G06F 3/1431; G06F 15/18
USPC 707/602, 687, 705, 782, 789, 821; 705/1, 14; 342/357.13
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,659,731 A 8/1997 Gustafson
5,699,244 A 12/1997 Clark, Jr. et al.

(Continued)

FOREIGN PATENT DOCUMENTS

EP 0 860 787 8/1998
WO 9921108 4/1999

(Continued)

OTHER PUBLICATIONS

Celeritas Cease and Desist Letter, dated Feb. 20, 2007, 2 pp.

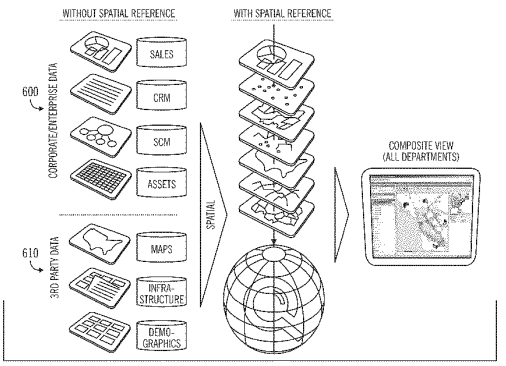
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Primary Examiner — Yicun Wu
(74) *Attorney, Agent, or Firm* — Konrad Raynes Davda & Victor LLP; Janaki K. Davda

(57) **ABSTRACT**

Disclosed is a method, system, and program for providing access to spatial data. A request for data is received. Enterprise and third party data are integrated. The integrated data is processed. Spatially referenced results are generated using the processed data. The spatially referenced results are returned in response to the request.

15 Claims, 182 Drawing Sheets



Related U.S. Application Data

(60) Provisional application No. 60/364,807, filed on Mar. 16, 2002, provisional application No. 60/433,597, filed on Dec. 16, 2002, provisional application No. 60/437,990, filed on Jan. 6, 2003.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,978,804	A	11/1999	Dietzman	
6,184,823	B1	2/2001	Smith et al.	
6,185,194	B1	2/2001	Musk et al.	
6,216,130	B1	4/2001	Hougaard et al.	
6,236,996	B1	5/2001	Bapat et al.	
6,272,457	B1	8/2001	Ford et al.	
6,307,573	B1	10/2001	Barros	
6,343,290	B1	1/2002	Cossins et al.	
6,473,770	B1	10/2002	Livshutz et al.	
6,806,813	B1	10/2004	Cheng et al.	
7,107,285	B2	9/2006	Von Kaenel et al.	
7,113,789	B1	9/2006	Boehmke	
7,249,100	B2	7/2007	Murto et al.	
7,447,509	B2	11/2008	Cossins et al.	
7,469,247	B2	12/2008	Cossins et al.	
7,472,202	B2	12/2008	Parupudi et al.	
7,707,140	B2	4/2010	Leishman et al.	
7,827,120	B1	11/2010	Evans et al.	
7,856,407	B2	12/2010	Evans et al.	
7,870,126	B2	1/2011	Lester et al.	
7,917,464	B2 *	3/2011	Frank et al.	707/602
8,046,309	B2	10/2011	Evans et al.	
8,046,310	B2	10/2011	Evans et al.	
2002/0000999	A1	1/2002	McCarty et al.	
2002/0078035	A1	6/2002	Frank et al.	
2003/0083073	A1 *	5/2003	Cossins et al.	455/446
2003/0140064	A1	7/2003	Klein	
2003/0142797	A1	7/2003	Troy et al.	
2003/0216966	A1	11/2003	Saenz et al.	
2003/0222005	A1	12/2003	Polizzotto et al.	
2004/0030706	A1	2/2004	Evans	
2004/0039621	A1	2/2004	Wood et al.	
2004/0075697	A1	4/2004	Maudlin	
2004/0260720	A1	12/2004	Cossins et al.	
2005/0004944	A1	1/2005	Cossins et al.	
2006/0100912	A1	5/2006	Kumar et al.	
2006/0105775	A1	5/2006	Von Kaenel et al.	
2006/0143082	A1	6/2006	Ebert	
2007/0016565	A1	1/2007	Evans et al.	
2007/0027903	A1	2/2007	Evans et al.	
2007/0050340	A1	3/2007	Von Kaenel et al.	
2007/0294284	A1	12/2007	Evans	
2008/0021726	A1	1/2008	Evans et al.	
2008/0027745	A1	1/2008	Evans et al.	
2008/0027975	A1	1/2008	Evans et al.	
2008/0133506	A1	6/2008	Evans et al.	
2008/0140718	A1	6/2008	Evans et al.	
2008/0147738	A1	6/2008	Lester et al.	
2008/0154675	A1	6/2008	Lester et al.	
2008/0154700	A1	6/2008	Lester et al.	
2008/0256041	A1	10/2008	Allen et al.	
2008/0270383	A1	10/2008	Allen et al.	
2008/0275848	A1	11/2008	Allen et al.	
2009/0055719	A1	2/2009	Cossins et al.	
2009/0089254	A1	4/2009	Von Kaenel et al.	
2009/0284530	A1	11/2009	Lester et al.	
2010/0070864	A1	3/2010	Allen et al.	
2010/0114941	A1	5/2010	Von Kaenel et al.	
2011/0004830	A1	1/2011	Von Kaenel et al.	

FOREIGN PATENT DOCUMENTS

WO	01/47183	6/2001
WO	0196906	12/2001
WO	03/081388	10/2003
WO	2004/059420	7/2004
WO	2004/059538	7/2004

OTHER PUBLICATIONS

Court Memorandum and Order, dated Jul. 2, 2010, 40 pp.

Trial Transcript, *Paradigm* v. *Celeritas*, Case No. 07-1121, vol. 4, dated Dec. 3, 2009, 3 pp.

Trial Transcript, *Paradigm* v. *Celeritas*, Case No. 07-1121, vol. 5, dated Dec. 4, 2009, 4 pp.

Trial Transcript, *Paradigm* v. *Celeritas*, Case No. 07-1121, vol. 9, dated Dec. 10, 2009, pp.

U.S. Appl. No. 12/425,353, filed Apr. 16, 2009, entitled "Method, System, and Program for an Improved Enterprise Spatial System", invented by T.A. Von Kaenel, et al., 479 pp.

Verified Petition for Permanent Injunctive Relief and Damages (without Exhibits), dated Mar. 29, 2007, 31 pp.

American Petroleum Institute, "Public Awareness Programs for Pipeline Operators", API Recommended Practice 1162, First Edition, Dec. 2003, pp. 1-39. (Copy not included because of copyright protection).

Brody, R., "GIS Applications in Competitive Intelligence", Proceedings of the 20th National Online Meeting, May 1999, 6 pp.

Invitation to Restrict or Pay Additional Fees for International Application No. PCT/US03/08296, dated Oct. 25, 2004, 3 pp.

International Preliminary Examination Report (IPER) for International Application No. PCT/US03/08296, dated Mar. 15, 2005, 11 pp.

International Search Report (ISR) for International Application No. PCT/US03/08296, dated Oct. 6, 2004, 14 pp.

Mattos, N. M. and K. Zeidstein, "integrating Spatial Data with Business Data", [online], 1999, [Retrieved on Oct. 26, 2004], retrieved from the Internet at <URL: http://www.db2mag.com/db_area/archives/1999/q1/99sp_mattos.shtml>, 8 pp.

Mohraz, K., "Geographical Analysis in SAP Business Information Warehouse", Proceedings of the 8th ACM Symposium on GIS, Nov. 2000, 3 pp.

Notice of Allowance 1 for U.S. Appl. No. 10/388,666, dated Apr. 20, 2006, 9 pp.

Office Action 1 for U.S. Appl. No. 10/388,666, dated Nov. 2, 2005, 11 pp.

Office Action 1 for U.S. Appl. No. 11/458,663, dated Jan. 10, 2011, 8 pp.

Preliminary Amendment 1 for U.S. Appl. No. 11/458,663, dated Jul. 19, 2006, 7 pp.

Preliminary Amendment 2 for U.S. Appl. No. 11/458,663, dated Jun. 26, 2009, 8 pp.

Response to Restriction Requirement and Preliminary Amendment for U.S. Appl. No. 10/388,666, dated Aug. 30, 2005, 14 pp.

Response to Restriction Requirement for U.S. Appl. No. 11/458,663, dated Oct. 27, 2010, 7 pp.

Restriction Requirement for U.S. Appl. No. 10/388,666, dated Jul. 1, 2005, 8 pp.

Restriction Requirement for U.S. Appl. No. 11/458,663, dated Sep. 27, 2010, 6 pp.

Response to Office Action 1 for U.S. Appl. No. 10/388,666, dated Feb. 2, 2006, 21 pp.

Response to Written Opinion for International Application No. PCT/US03/08296, dated Jan. 7, 2005, 10 pp.

Stephenson, T. and H. Voorhees, "IMACTS: An Interactive, Multiterabyte Image Archive", Proceedings of the Fourteenth IEEE Symposium on Mass Storage Systems, 1995, 16 pp.

Wang, L., "Implementation Issue: TCP Handoff", [online] Feb. 20, 2000, Retrieved from the Internet at <URL: http://www.cs.princeton.edu/~lmwang/pubps/wcw/node10.html>, 1 pp.

Written Opinion (WO) for International Application No. PCT/US03/08296, dated Dec. 7, 2004, 7 pp.

Yates, J.D. and X. Zhou, "Searching the Web Using a Map", Proceedings of the First International Conference on Web Information Systems Engineering, 2000, 8 pp.

Restriction Requirement 1 for U.S. Appl. No. 12/016,966, dated Aug. 10, 2011, 6 pp.

Response to Restriction Requirement 1 for U.S. Appl. No. 12/016,966, dated Jan. 25, 2012, 7 pp.

Restriction Requirement 2 for U.S. Appl. No. 12/016,966, dated Mar. 19, 2012, 7 pp.

(56) **References Cited**

OTHER PUBLICATIONS

Response to Restriction Requirement 2 for U.S. Appl. No. 12/016,966, dated Sep. 17, 2012, 7 pp.
Office Action 1 for U.S. Appl. No. 12/016,966, dated Oct. 22, 2012, 9 pp.
Response to Office Action 1 for U.S Appl. No. 12/016,966, dated Apr. 22, 2013, 10 pp.
Response to Notice of Non-Compliant Amendment for U.S. Appl. No. 12/016,966, dated May 22, 2013, 6 pp.
Final Office Action 1 for U.S. Appl. No. 12/016,966, dated Jun. 13, 2013, 10 pp.
Response to Final Office Action 1 for U.S. Appl. No. 12/016,966, dated Dec. 13, 2013, 13 pp.
Notice of Allowance 1 for U.S. Appl. No. 12/016,966, dated Jan. 15, 2014, 16 pp.
Notice of Allowance 2, dated Apr. 25, 2104, for U.S. Appl. No. 12/016,966, 16 pp.
Office Action 1 for U.S. Appl. No. 12/653,127, dated Apr. 30, 2012, 17 pp.
Response to Office Action 1 for U.S. Appl. No. 12/653,127, dated Oct. 30, 2012, 9 pp.
Final Office Action 1 for U.S. Appl. No. 12/653,127, dated Feb. 28, 2013, 19 pp.
Response to Final Office Action 1 for U.S. Appl. No. 12/653,127, dated Aug. 28, 2013, 10 pp.
Office Action 3 for U.S Appl. No. 12/653,127, dated Oct. 3, 2013, 10 pp.
Response to Office Action 3 for U.S. Appl. No. 12/653,127, dated Apr. 3, 2014, 10 pp.
Preliminary Remarks for U.S. Appl. No. 12/425,353, dated Apr. 16, 2009, 2 pp.
Preliminary Remarks for U.S. Appl. No. 12/479,646, dated Jun. 5, 2009, 2 pp.
Office Action 1 for U.S. Appl. No. 12/479,646, dated Nov. 8, 2012, 16 pp.
Response to Office Action 1 for U.S. Appl. No. 12/479,646, dated May 8, 2013, 11 pp.
Final Office Action 1 for U.S. Appl. No. 12/479,646, dated Jun. 6, 2013, 17 pp.
Response to Final Office Action 1 for U.S. Appl. No. 12/479,646, dated Dec. 6, 2013, 11 pp.
Notice of Allowance 1 for U.S. Appl. No. 12/479,646, dated Jan. 9, 2014, 7 pp.
Supplemental Amendment for U.S. Appl.No. 12/479,646, dated Apr. 8, 2014, 5 pp.
Notice of Allowance 2, dated May 8, 2014, for U.S. Appl. No. 12/479,646, 20 pp.
Notice of Allowance 1, dated Aug. 1, 2014, for U.S. Appl. No. 12/653,127, 21 pp.

* cited by examiner

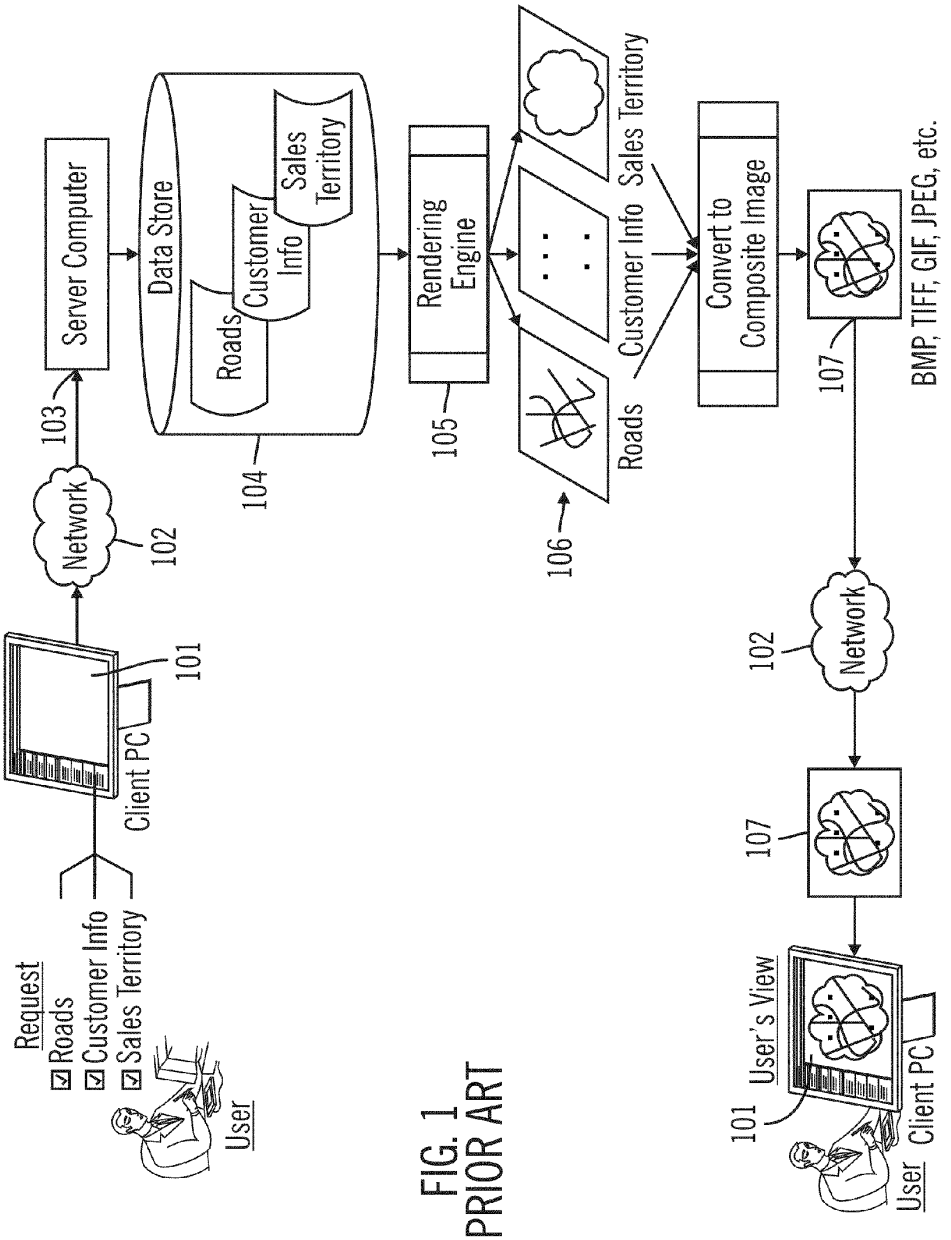


FIG. 1
PRIOR ART

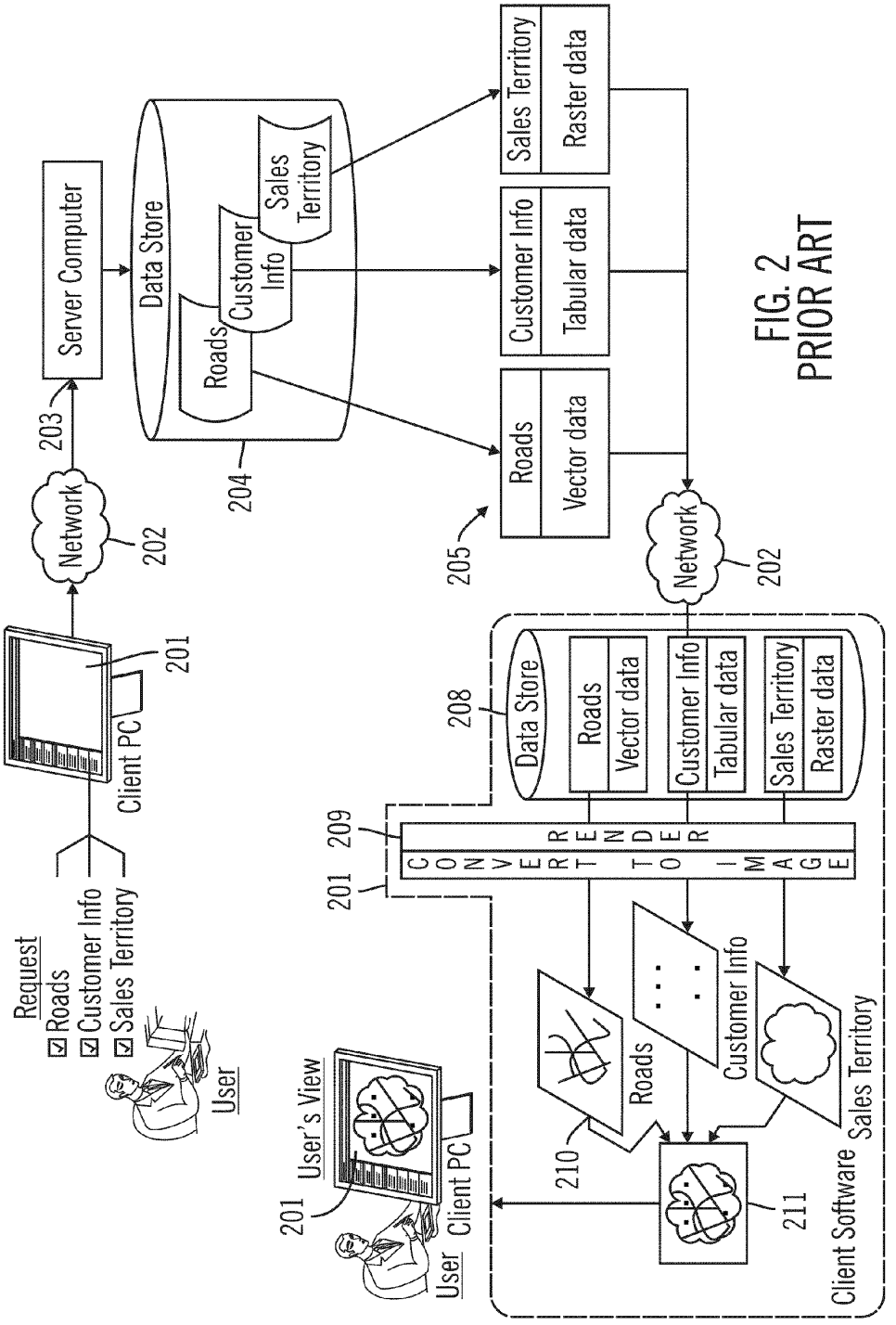


FIG. 2
PRIOR ART

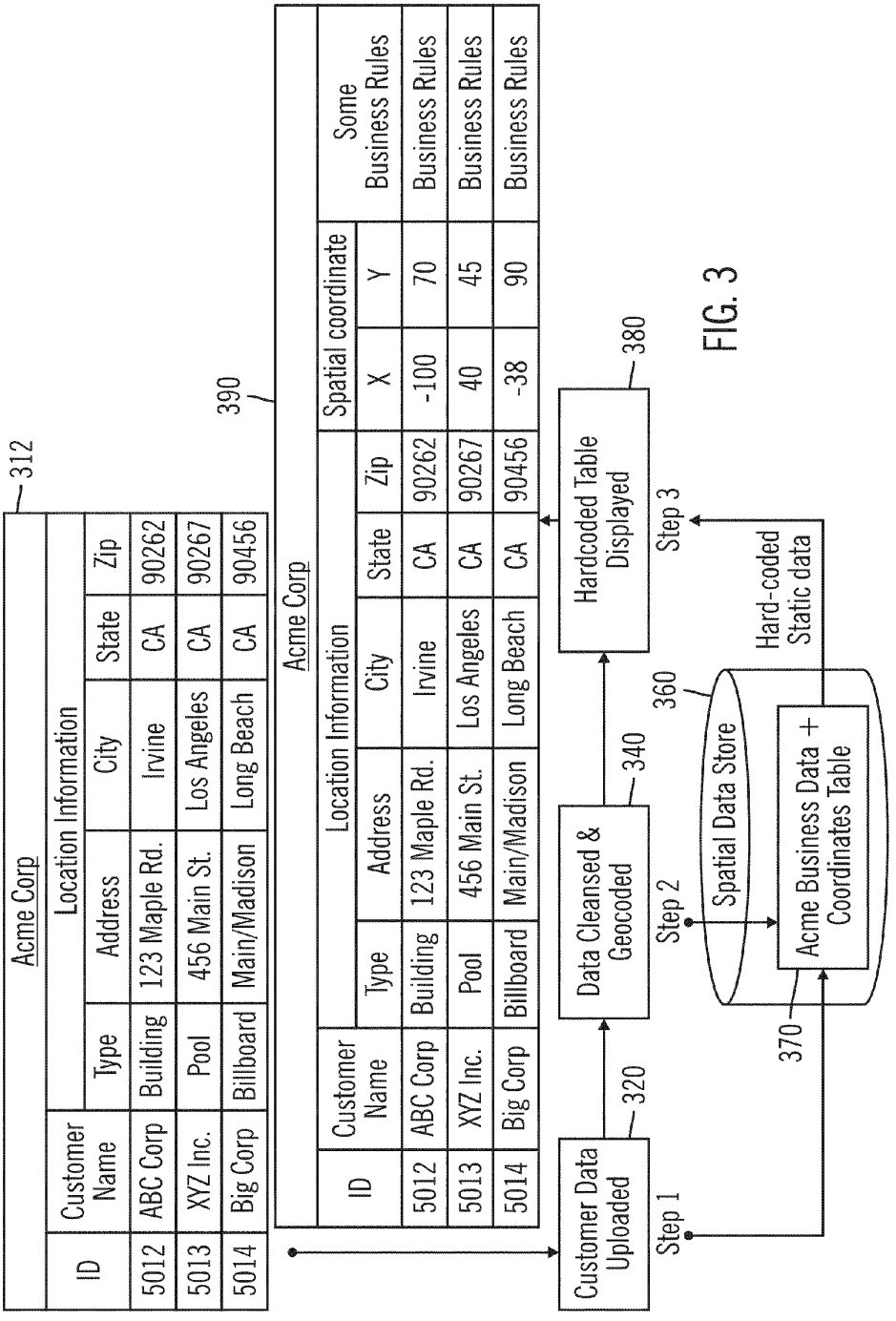

312
Acme Corp
ID
Customer Name
Location Information
Type
Address
City
State
Zip
5012
ABC Corp
Building
123 Maple Rd.
Irvine
CA
90262
5013
XYZ Inc.
Pool
456 Main St.
Los Angeles
CA
90267
5014
Big Corp
Billboard
Main/Madison
Long Beach
CA
90456
390
Acme Corp
ID
Customer Name
Location Information
Type
Address
City
State
Zip
Spatial coordinate
X
Y
Some Business Rules
5012
ABC Corp
Building
123 Maple Rd.
Irvine
CA
90262
-100
70
Business Rules
5013
XYZ Inc.
Pool
456 Main St.
Los Angeles
CA
90267
40
45
Business Rules
5014
Big Corp
Billboard
Main/Madison
Long Beach
CA
90456
-38
90
Business Rules
Customer Data Uploaded
320
Step 1
Data Cleansed & Geocoded
340
Step 2
Hardcoded Table Displayed
380
Step 3
360
Spatial Data Store
Acme Business Data + Coordinates Table
370
Hard-coded Static data

FIG. 3

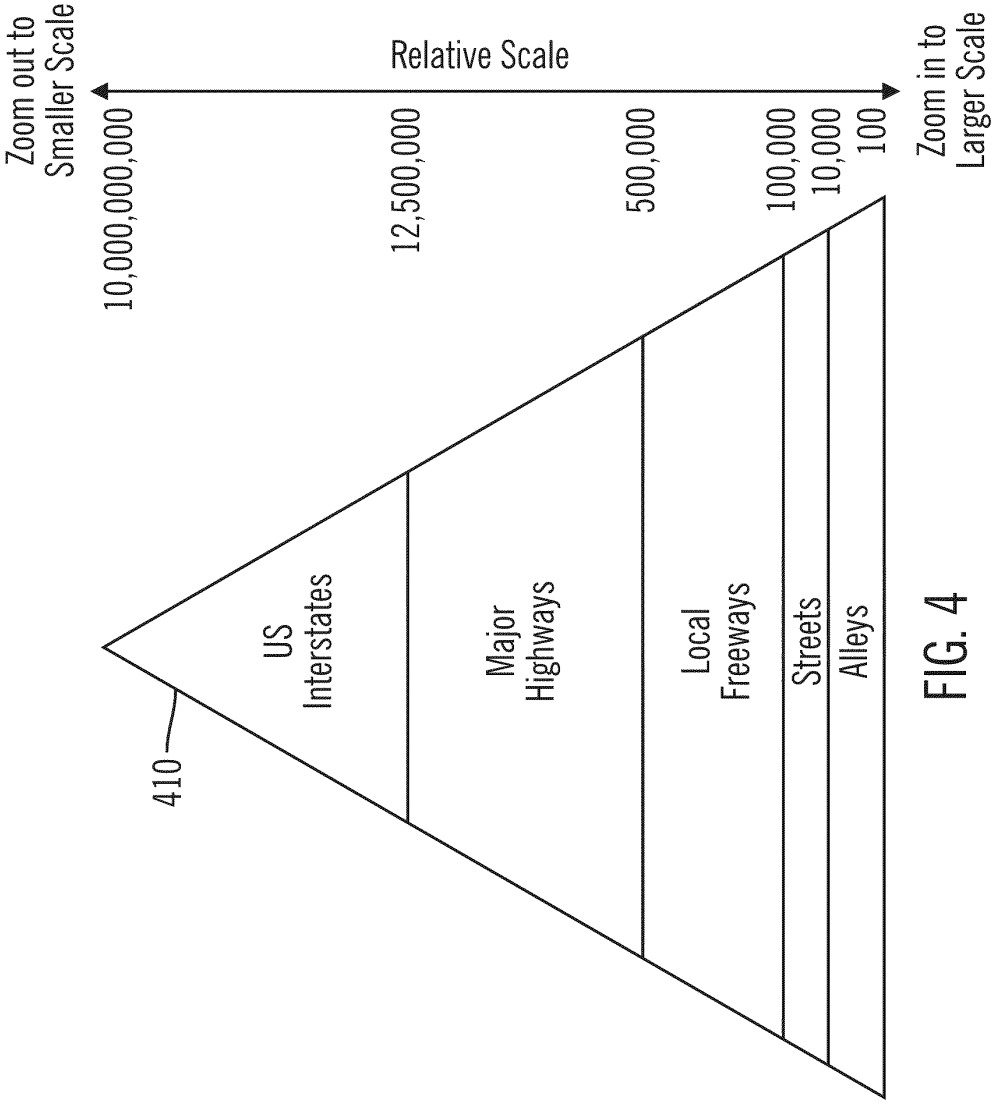

Zoom out to Smaller Scale
Relative Scale
Zoom in to Larger Scale
10,000,000,000
12,500,000
500,000
100,000
10,000
100
US Interstates
Major Highways
Local Freeways
Streets
Alleys
410

FIG. 4

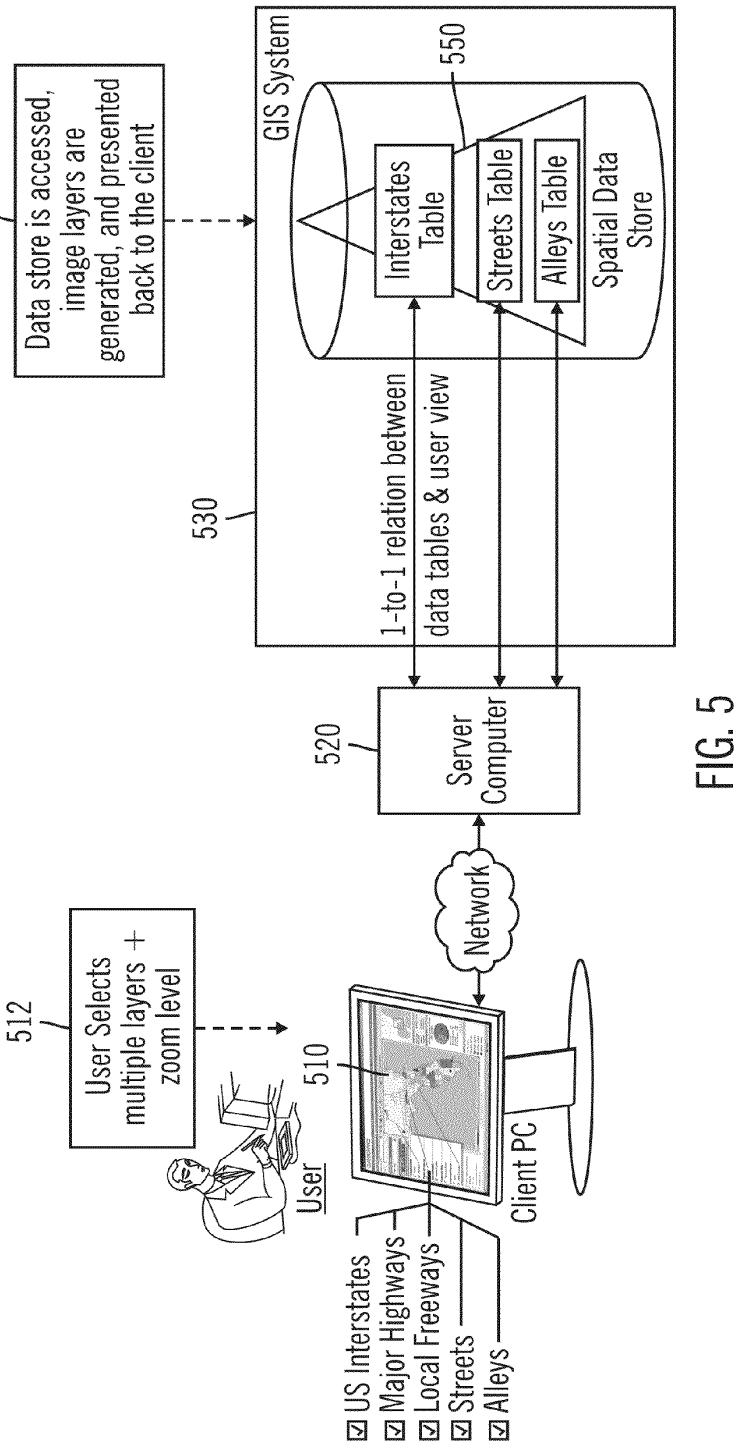

532
Data store is accessed, image layers are generated, and presented back to the client
GIS System
550
Interstates Table
Streets Table
Alleys Table
Spatial Data Store
530
1-to-1 relation between data tables & user view
520
Server Computer
Network
512
User Selects multiple layers + zoom level
510
User
Client PC
US Interstates
Major Highways
Local Freeways
Streets
Alleys

FIG. 5

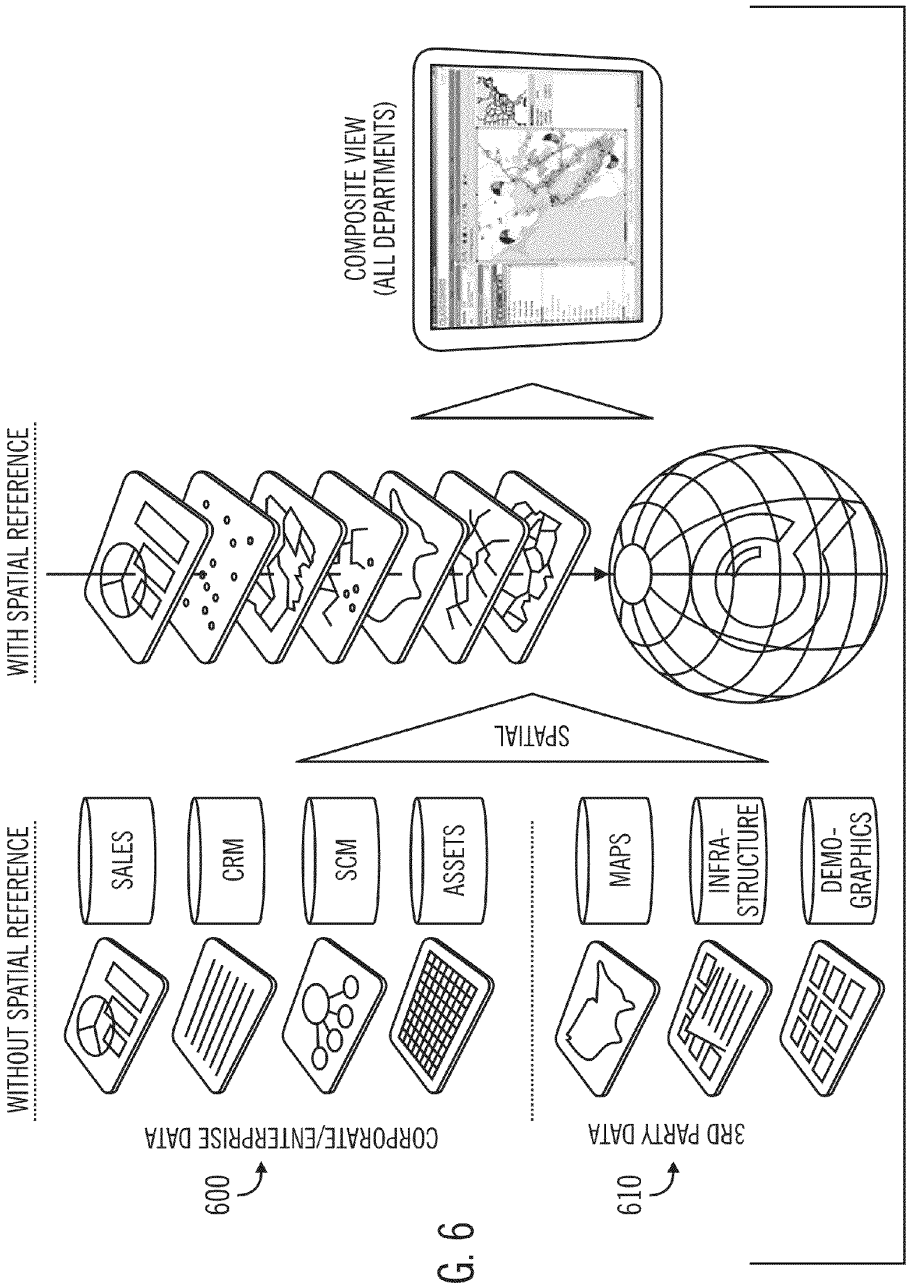

COMPOSITE VIEW
(ALL DEPARTMENTS)
WITH SPATIAL REFERENCE
SPATIAL
WITHOUT SPATIAL REFERENCE
SALES
CRM
SCM
ASSETS
MAPS
INFRA-
STRUCTURE
DEMO-
GRAPHICS
CORPORATE/ENTERPRISE DATA
3RD PARTY DATA
600
610

FIG. 6

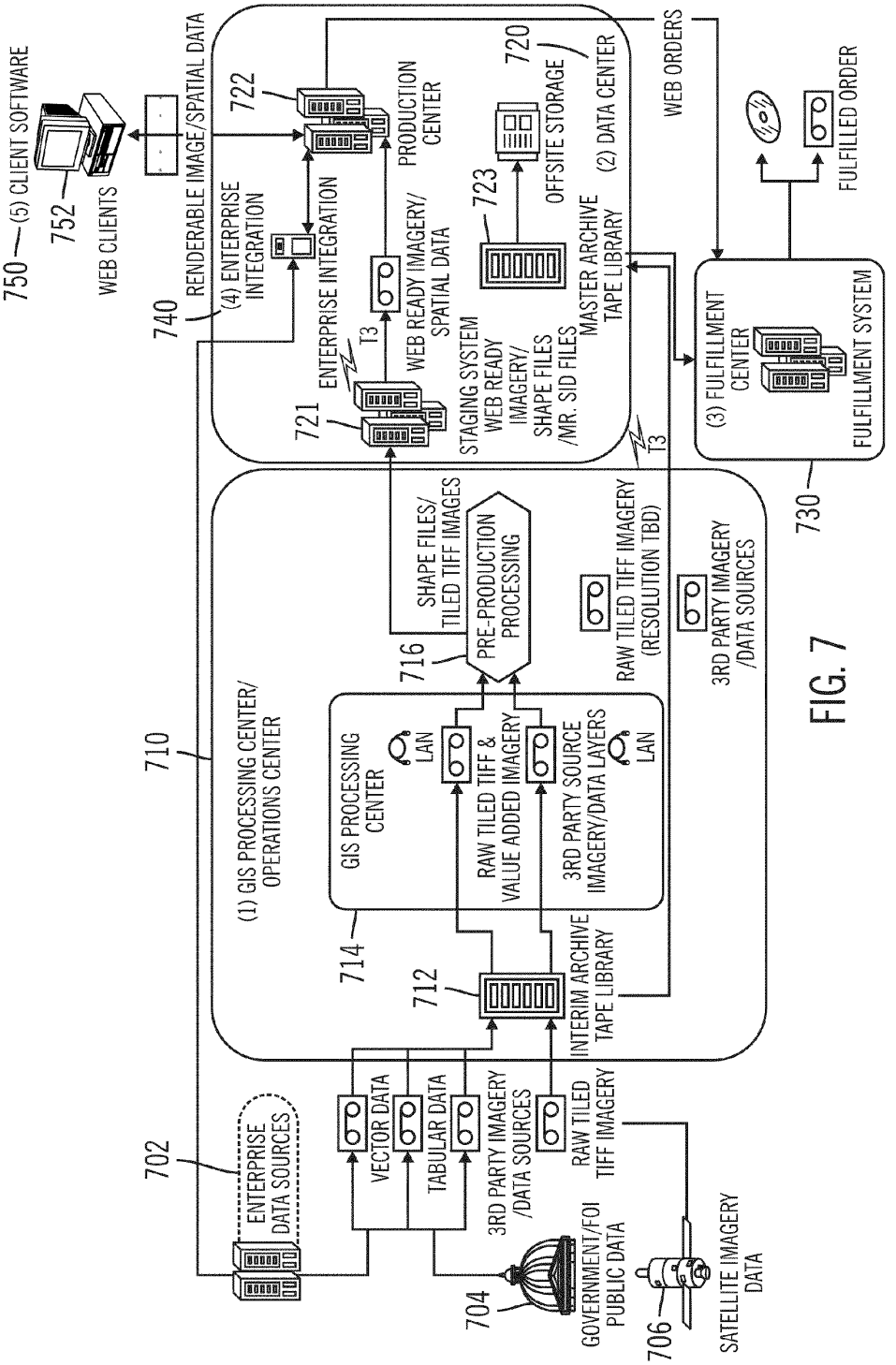

750
(5) CLIENT SOFTWARE
752
WEB CLIENTS
RENDERABLE IMAGE/SPATIAL DATA
740
(4) ENTERPRISE INTEGRATION
ENTERPRISE INTEGRATION
T3
721
722
PRODUCTION CENTER
WEB READY IMAGERY/ SPATIAL DATA
STAGING SYSTEM WEB READY IMAGERY/ SHAPE FILES /MR. SID FILES
723
MASTER ARCHIVE TAPE LIBRARY
720
OFFSITE STORAGE
(2) DATA CENTER
WEB ORDERS
(3) FULFILLMENT CENTER
FULFILLMENT SYSTEM
FULFILLED ORDER
730
710
(1) GIS PROCESSING CENTER/ OPERATIONS CENTER
GIS PROCESSING CENTER
LAN
714
RAW TILED TIFF & VALUE ADDED IMAGERY
3RD PARTY SOURCE IMAGERY/DATA LAYERS
LAN
716
PRE-PRODUCTION PROCESSING
SHAPE FILES/ TILED TIFF IMAGES
RAW TILED TIFF IMAGERY (RESOLUTION TBD)
3RD PARTY IMAGERY /DATA SOURCES
712
INTERIM ARCHIVE TAPE LIBRARY
702
ENTERPRISE DATA SOURCES
VECTOR DATA
TABULAR DATA
3RD PARTY IMAGERY /DATA SOURCES
RAW TILED TIFF IMAGERY
704
GOVERNMENT/FOI PUBLIC DATA
706
SATELLITE IMAGERY DATA

FIG. 7

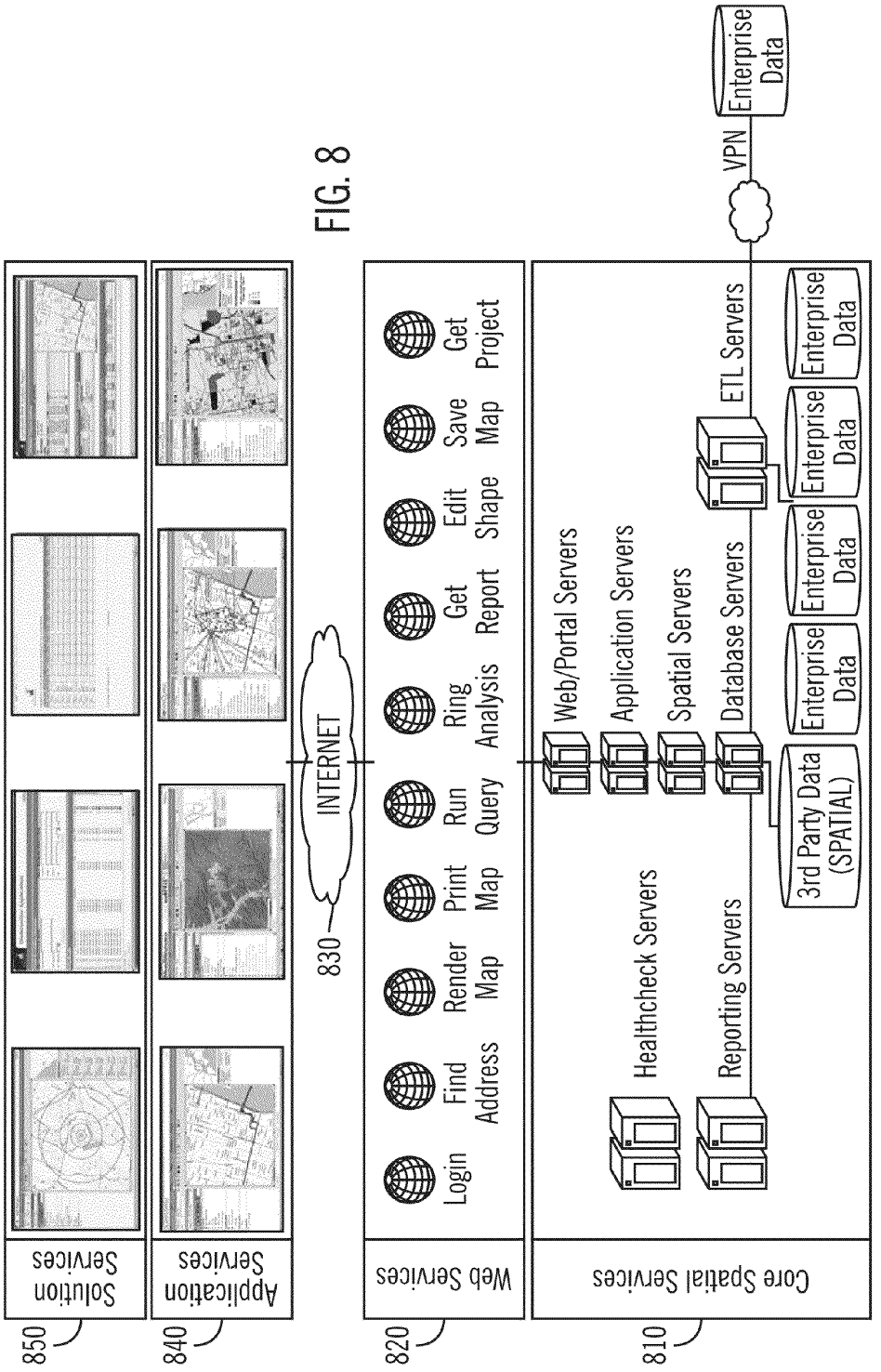

Solution Services
Application Services
Web Services
Core Spatial Services
850
840
820
810
830
INTERNET
Login
Find Address
Render Map
Print Map
Run Query
Ring Analysis
Get Report
Edit Shape
Save Map
Get Project
Web/Portal Servers
Application Servers
Spatial Servers
Database Servers
ETL Servers
Healthcheck Servers
Reporting Servers
3rd Party Data (SPATIAL)
Enterprise Data
Enterprise Data
Enterprise Data
Enterprise Data
VPN
Enterprise Data

FIG. 8

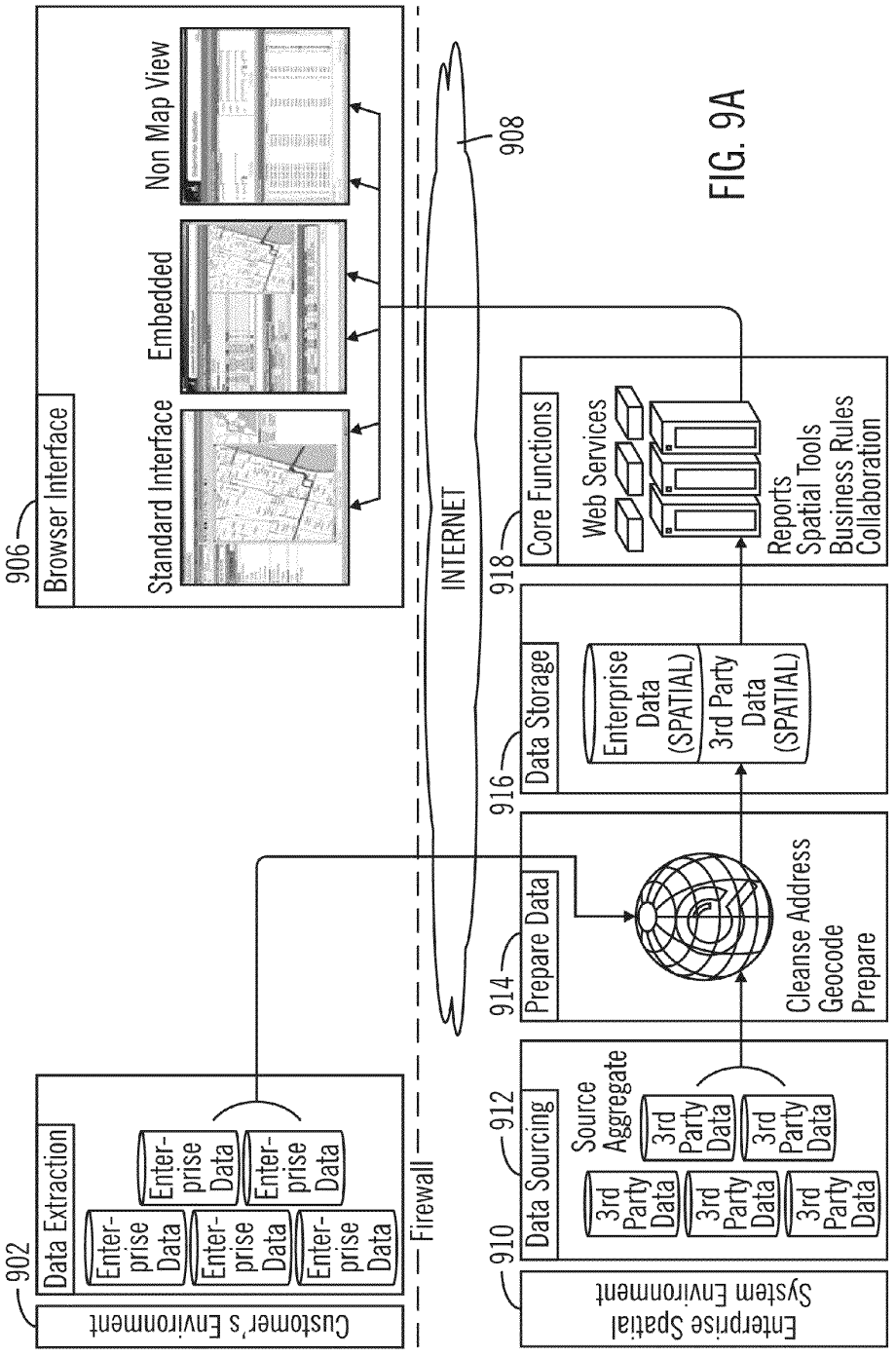

Customer's Environment
902
Data Extraction
Enter-prise Data
Enter-prise Data
Enter-prise Data
Enter-prise Data
Enter-prise Data
Enter-prise Data
Firewall
Enterprise Spatial System Environment
910
Data Sourcing
912
Source Aggregate
3rd Party Data
3rd Party Data
3rd Party Data
3rd Party Data
3rd Party Data
Prepare Data
914
Cleanse Address
Geocode
Prepare
916
Data Storage
Enterprise Data (SPATIAL)
3rd Party Data (SPATIAL)
Core Functions
918
Web Services
Reports
Spatial Tools
Business Rules
Collaboration
INTERNET
908
Browser Interface
906
Standard Interface
Embedded
Non Map View

FIG. 9A

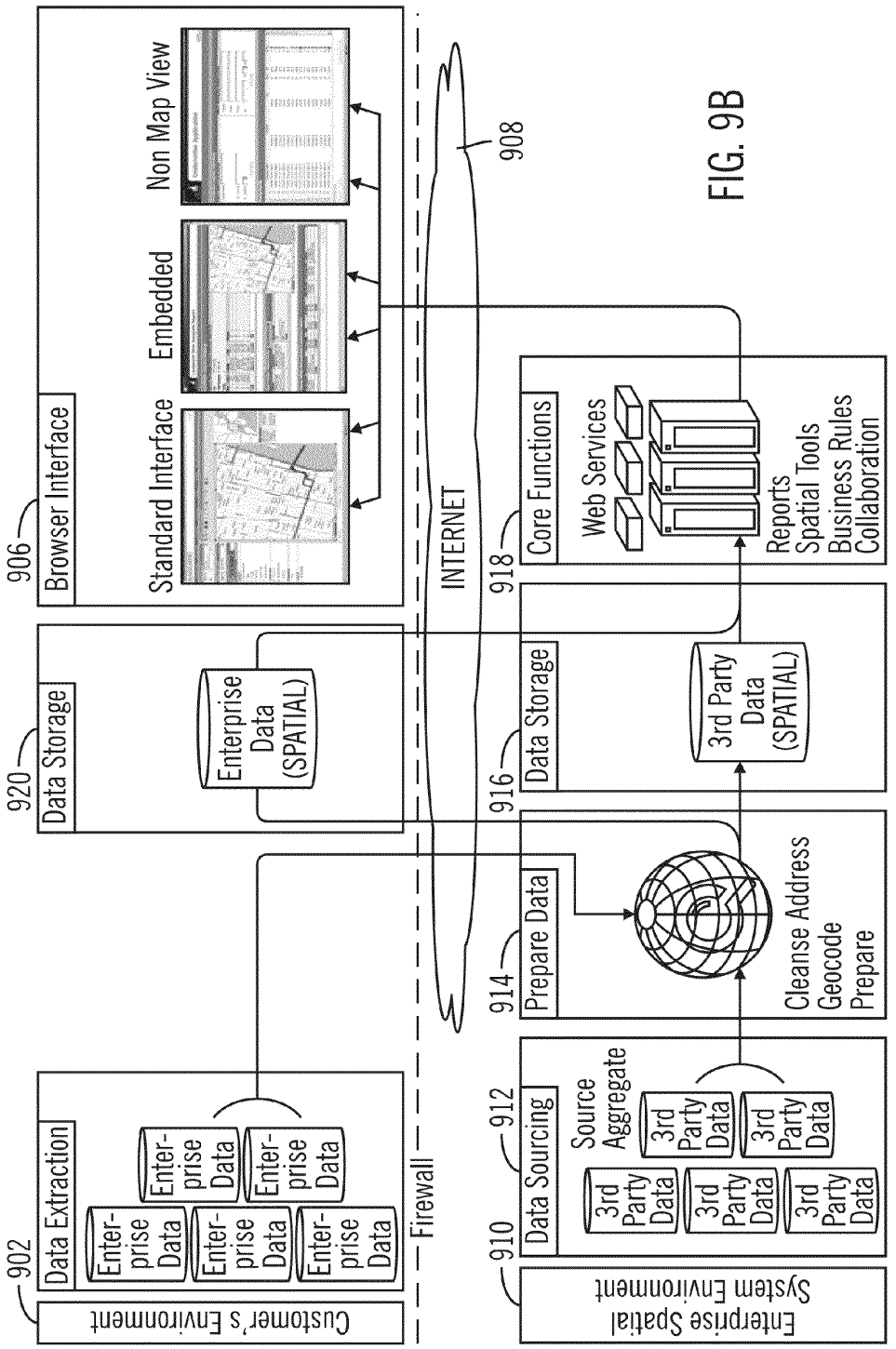

Customer's Environment
902
Data Extraction
Enter-prise Data
Enter-prise Data
Enter-prise Data
Enter-prise Data
Enter-prise Data
Firewall
Enterprise Spatial System Environment
910
Data Sourcing
912
Source Aggregate
3rd Party Data
3rd Party Data
3rd Party Data
3rd Party Data
3rd Party Data
Prepare Data
914
Cleanse Address
Geocode
Prepare
Data Storage
916
3rd Party Data (SPATIAL)
Core Functions
918
Web Services
Reports
Spatial Tools
Business Rules
Collaboration
INTERNET
908
Data Storage
920
Enterprise Data (SPATIAL)
Browser Interface
906
Standard Interface
Embedded
Non Map View

FIG. 9B

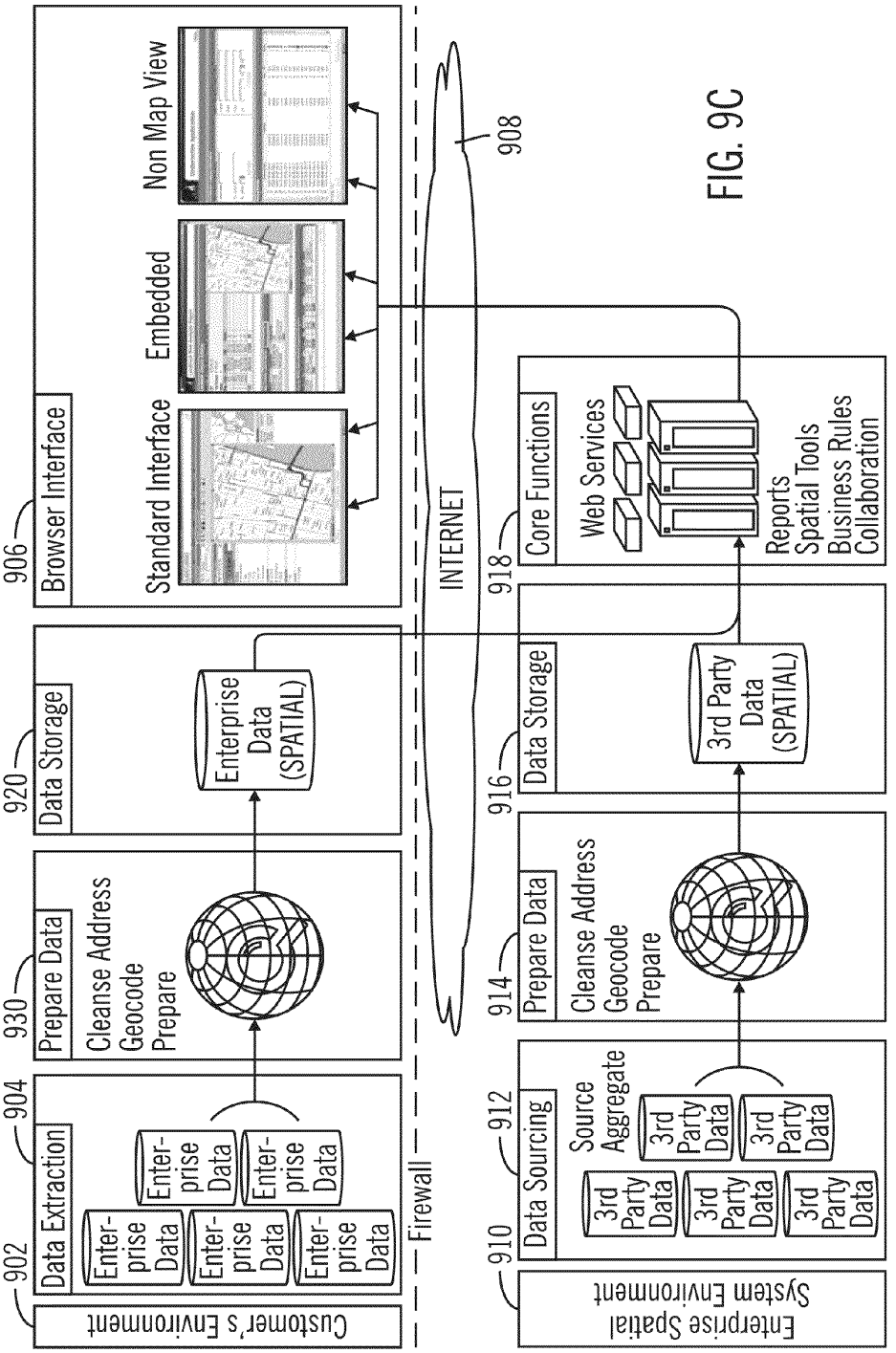

Customer's Environment
902
Data Extraction
904
Enter-prise Data
Enter-prise Data
Enter-prise Data
Enter-prise Data
Enter-prise Data
Prepare Data
930
Cleanse Address
Geocode
Prepare
Data Storage
920
Enterprise Data (SPATIAL)
Firewall
Browser Interface
906
Standard Interface
Embedded
Non Map View
INTERNET
908
Enterprise Spatial System Environment
910
Data Sourcing
912
Source Aggregate
3rd Party Data
3rd Party Data
3rd Party Data
3rd Party Data
3rd Party Data
Prepare Data
914
Cleanse Address
Geocode
Prepare
Data Storage
916
3rd Party Data (SPATIAL)
Core Functions
918
Web Services
Reports
Spatial Tools
Business Rules
Collaboration

FIG. 9C

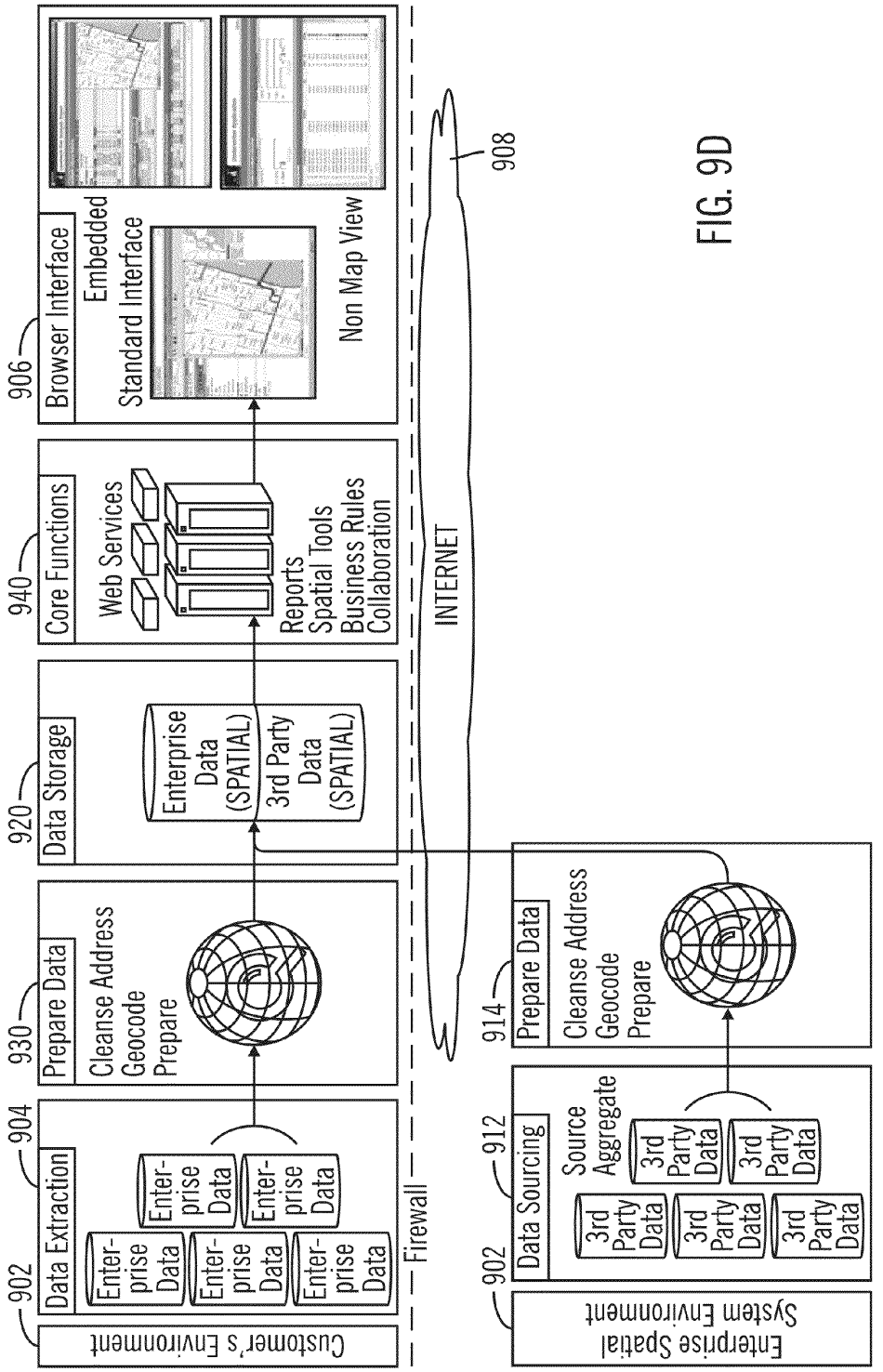

Customer's Environment
902
Data Extraction
904
Enter-prise Data
Enter-prise Data
Enter-prise Data
Enter-prise Data
Enter-prise Data
Enter-prise Data
Prepare Data
930
Cleanse Address
Geocode
Prepare
Data Storage
920
Enterprise Data (SPATIAL)
3rd Party Data (SPATIAL)
Core Functions
940
Web Services
Reports
Spatial Tools
Business Rules
Collaboration
Browser Interface
906
Embedded
Standard Interface
Non Map View
Firewall
INTERNET
908
Enterprise Spatial System Environment
902
Data Sourcing
912
Source Aggregate
3rd Party Data
3rd Party Data
3rd Party Data
3rd Party Data
3rd Party Data
Prepare Data
914
Cleanse Address
Geocode
Prepare

FIG. 9D

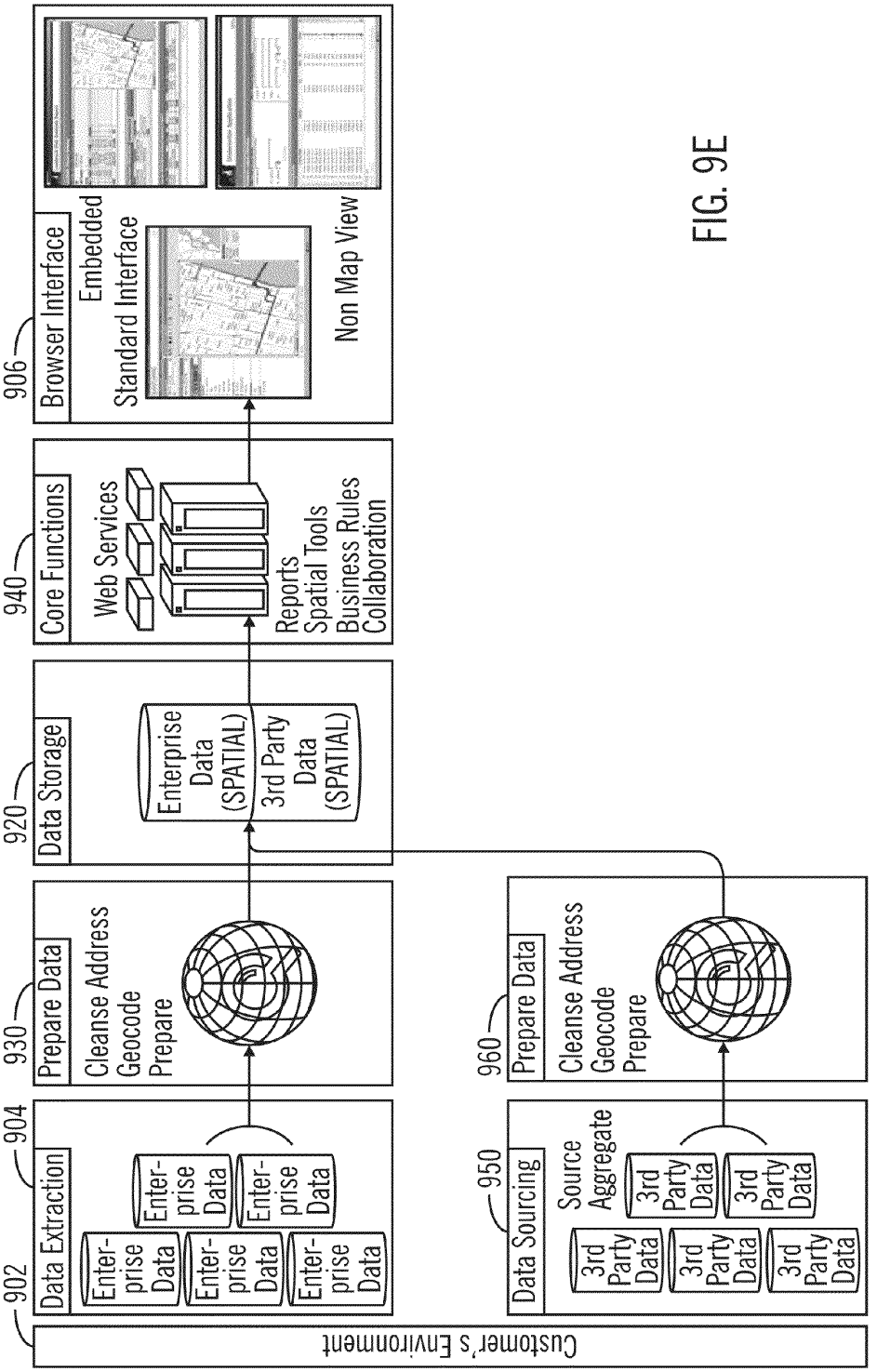

Customer's Environment
902
Data Extraction
904
Enter-prise Data
Enter-prise Data
Enter-prise Data
Enter-prise Data
Enter-prise Data
Prepare Data
930
Cleanse Address
Geocode
Prepare
Data Storage
920
Enterprise Data (SPATIAL)
3rd Party Data (SPATIAL)
Core Functions
940
Web Services
Reports
Spatial Tools
Business Rules
Collaboration
Browser Interface
906
Embedded
Standard Interface
Non Map View
Data Sourcing
950
Source Aggregate
3rd Party Data
3rd Party Data
3rd Party Data
3rd Party Data
3rd Party Data
Prepare Data
960
Cleanse Address
Geocode
Prepare

FIG. 9E

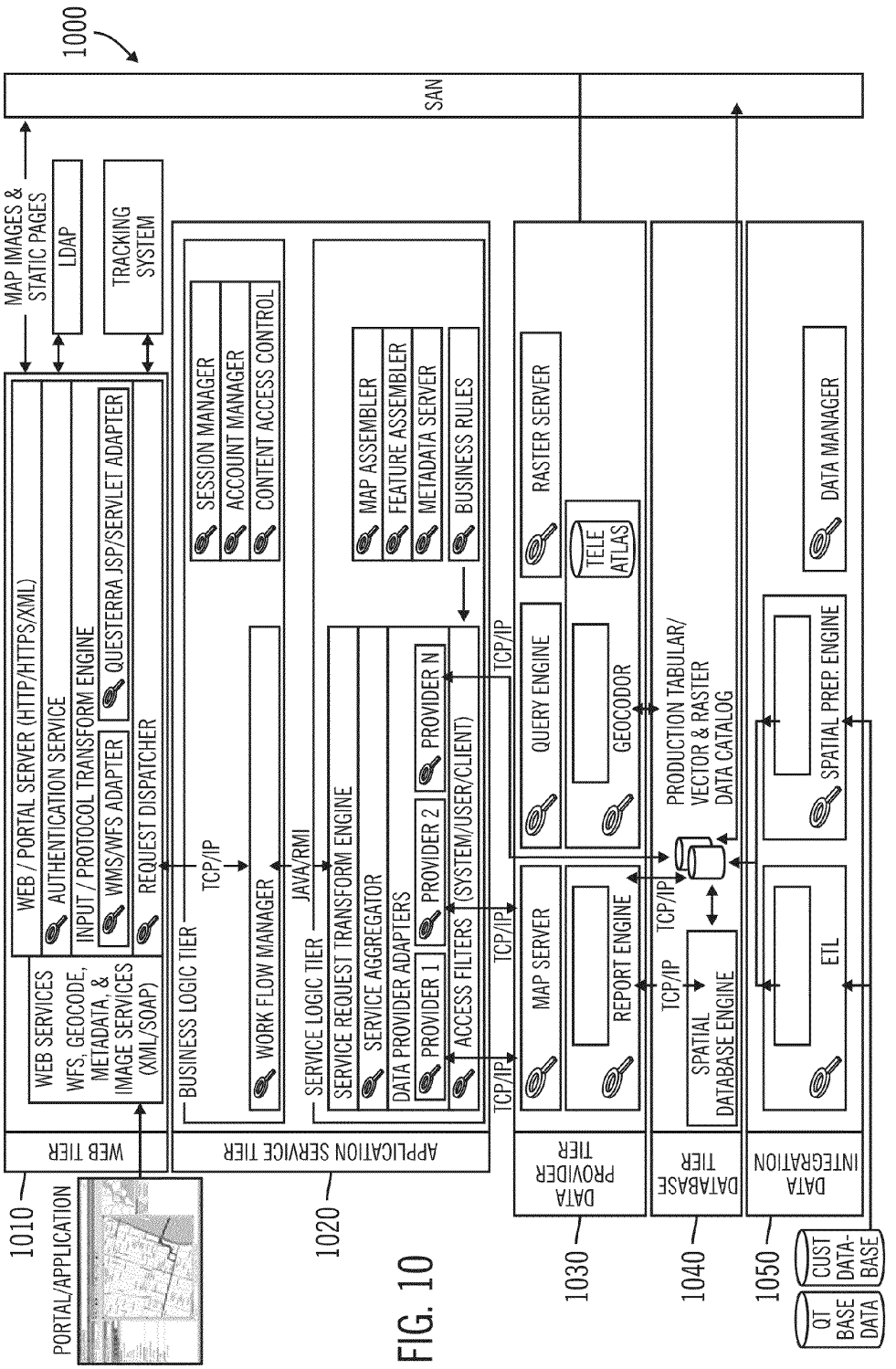

1000
SAN
MAP IMAGES & STATIC PAGES
LDAP
TRACKING SYSTEM
WEB / PORTAL SERVER (HTTP/HTTPS/XML)
AUTHENTICATION SERVICE
INPUT / PROTOCOL TRANSFORM ENGINE
WMS/WFS ADAPTER
QUESTERRA JSP/SERVLET ADAPTER
REQUEST DISPATCHER
WEB SERVICES
WFS, GEOCODE, METADATA, & IMAGE SERVICES (XML/SOAP)
BUSINESS LOGIC TIER
SESSION MANAGER
ACCOUNT MANAGER
CONTENT ACCESS CONTROL
WORK FLOW MANAGER
TCP/IP
JAVA/RMI
SERVICE LOGIC TIER
SERVICE REQUEST TRANSFORM ENGINE
SERVICE AGGREGATOR
DATA PROVIDER ADAPTERS
PROVIDER 1
PROVIDER 2
PROVIDER N
ACCESS FILTERS
(SYSTEM/USER/CLIENT)
MAP ASSEMBLER
FEATURE ASSEMBLER
METADATA SERVER
BUSINESS RULES
TCP/IP
TCP/IP
TCP/IP
MAP SERVER
REPORT ENGINE
QUERY ENGINE
GEOCODOR
RASTER SERVER
TELE ATLAS
TCP/IP
SPATIAL DATABASE ENGINE
PRODUCTION TABULAR/ VECTOR & RASTER DATA CATALOG
ETL
SPATIAL PREP. ENGINE
DATA MANAGER
WEB TIER
APPLICATION SERVICE TIER
DATA PROVIDER TIER
DATABASE TIER
DATA INTEGRATION
PORTAL/APPLICATION
1010
1020
1030
1040
1050
QT BASE DATA
CUST DATA-BASE

FIG. 10

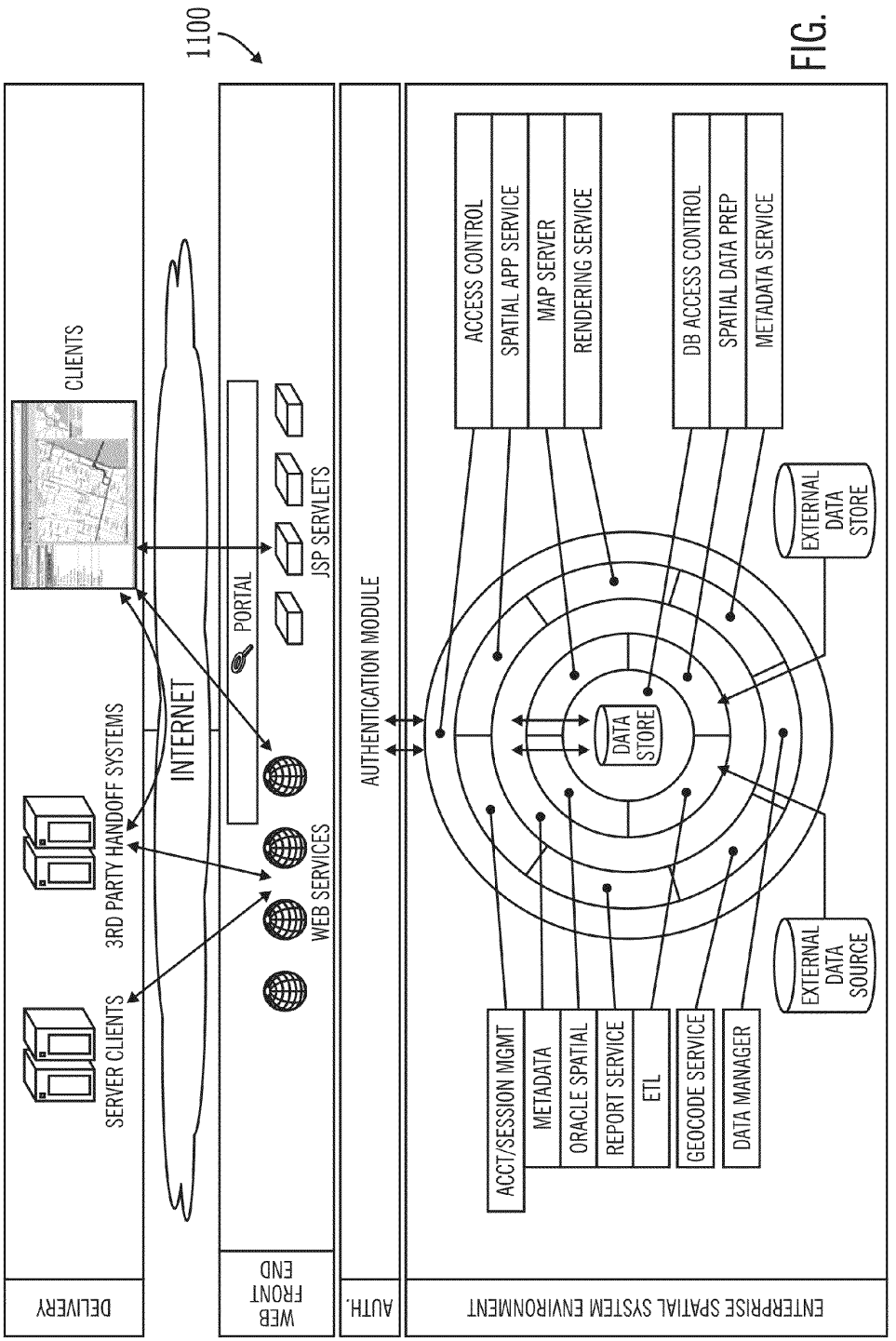

1100
DELIVERY
CLIENTS
3RD PARTY HANDOFF SYSTEMS
SERVER CLIENTS
INTERNET
WEB FRONT END
PORTAL
JSP SERVLETS
WEB SERVICES
AUTH.
AUTHENTICATION MODULE
ENTERPRISE SPATIAL SYSTEM ENVIRONMENT
ACCESS CONTROL
SPATIAL APP SERVICE
MAP SERVER
RENDERING SERVICE
DB ACCESS CONTROL
SPATIAL DATA PREP
METADATA SERVICE
EXTERNAL DATA STORE
EXTERNAL DATA SOURCE
DATA STORE
ACCT/SESSION MGMT
METADATA
ORACLE SPATIAL
REPORT SERVICE
ETL
GEOCODE SERVICE
DATA MANAGER

FIG. 11A

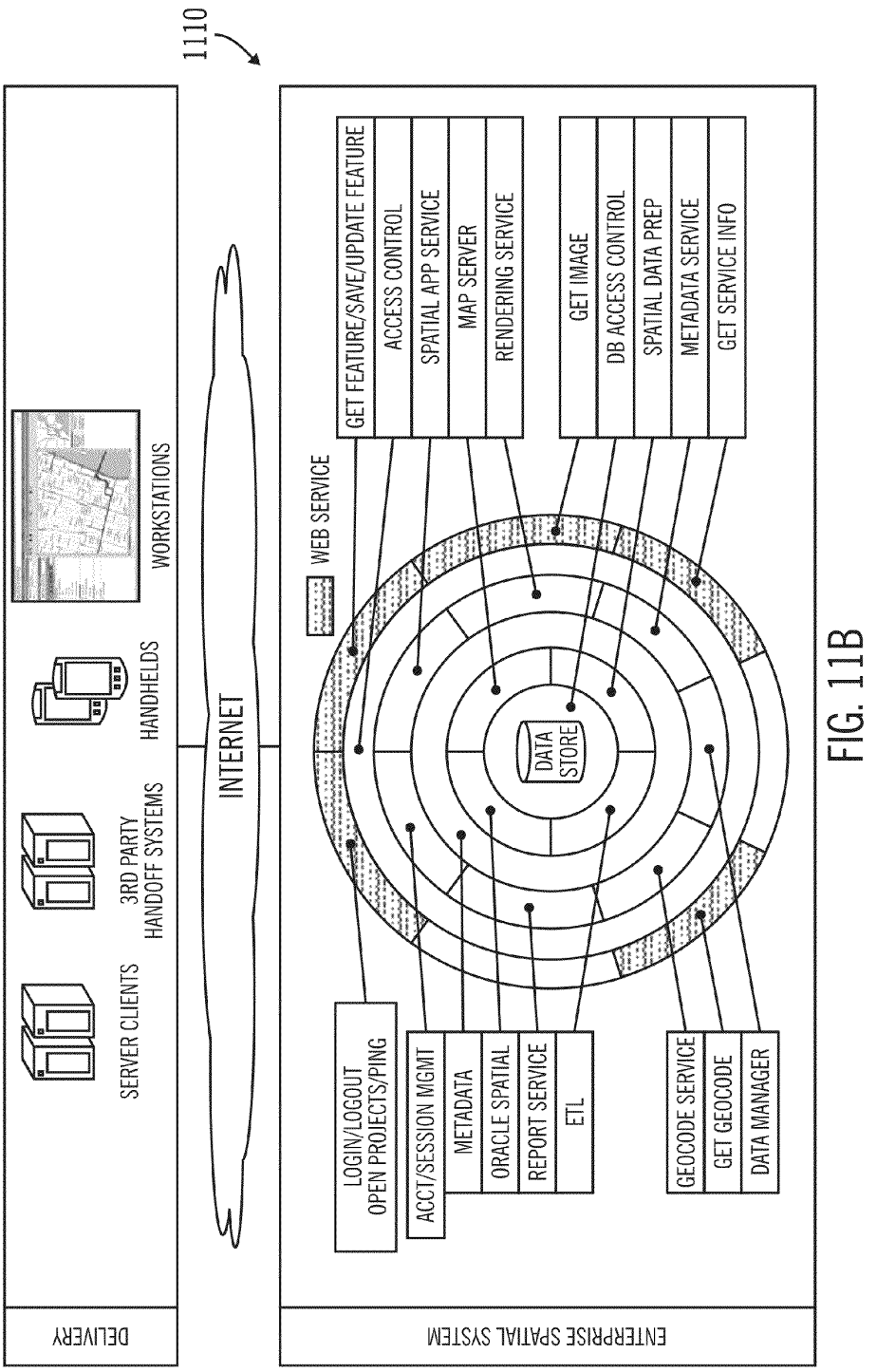

1110
DELIVERY
ENTERPRISE SPATIAL SYSTEM
SERVER CLIENTS
3RD PARTY HANDOFF SYSTEMS
HANDHELDS
WORKSTATIONS
INTERNET
WEB SERVICE
LOGIN/LOGOUT OPEN PROJECTS/PING
ACCT/SESSION MGMT
METADATA
ORACLE SPATIAL
REPORT SERVICE
ETL
GEOCODE SERVICE
GET GEOCODE
DATA MANAGER
DATA STORE
GET FEATURE/SAVE/UPDATE FEATURE
ACCESS CONTROL
SPATIAL APP SERVICE
MAP SERVER
RENDERING SERVICE
GET IMAGE
DB ACCESS CONTROL
SPATIAL DATA PREP
METADATA SERVICE
GET SERVICE INFO

FIG. 11B

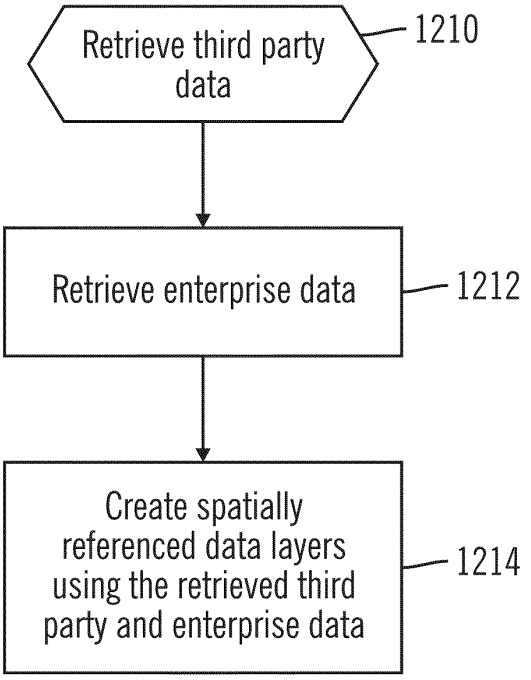

Retrieve third party data
1210
Retrieve enterprise data
1212
Create spatially referenced data layers using the retrieved third party and enterprise data
1214

FIG. 12

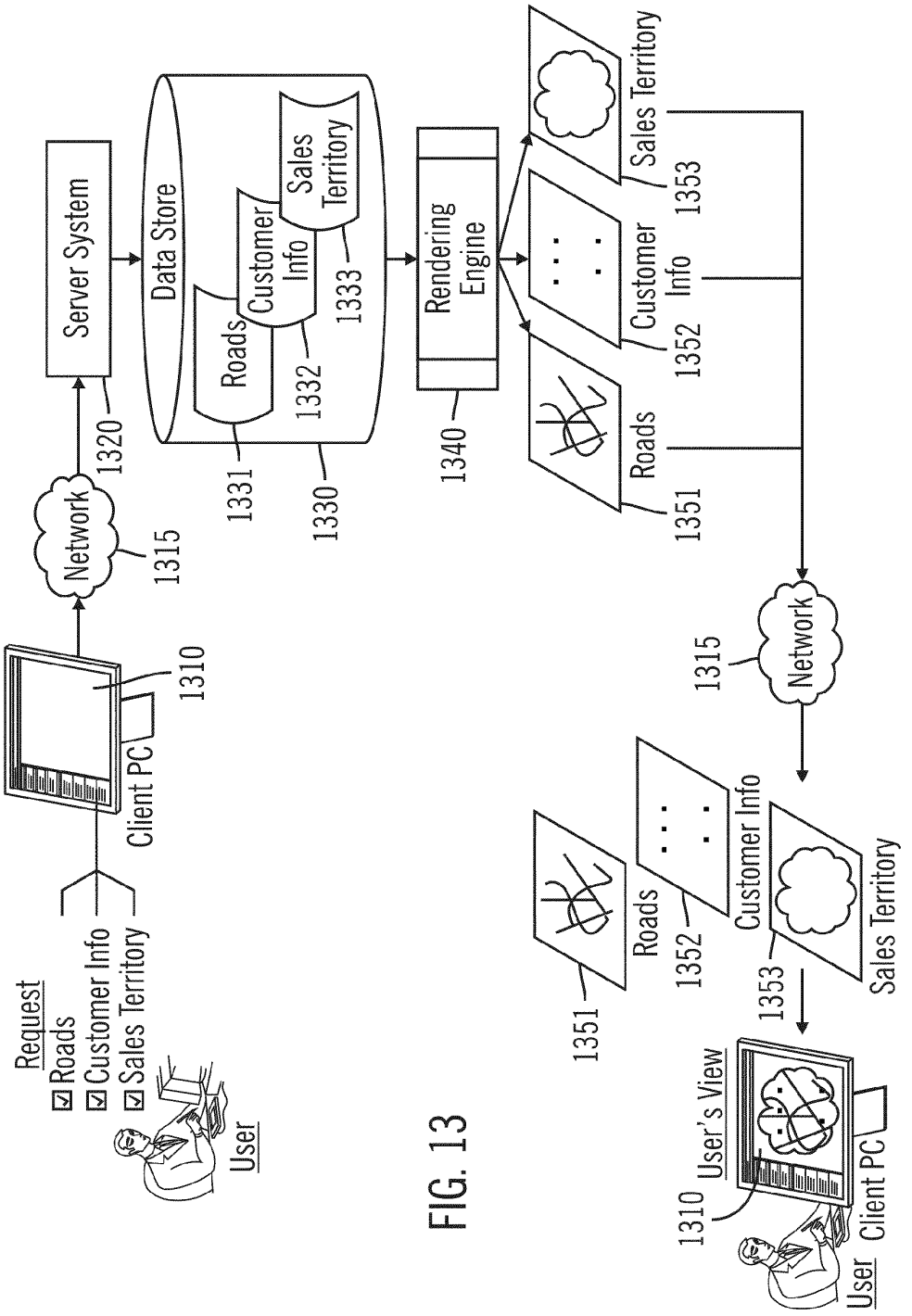

Request
Roads
Customer Info
Sales Territory
User
Client PC
1310
Network
1315
1320
Server System
Data Store
Roads
Customer Info
Sales Territory
1331
1332
1333
1330
Rendering Engine
1340
Roads
Customer Info
Sales Territory
1351
1352
1353
Network
1315
Roads
Customer Info
Sales Territory
1351
1352
1353
1310
User's View
User
Client PC

FIG. 13

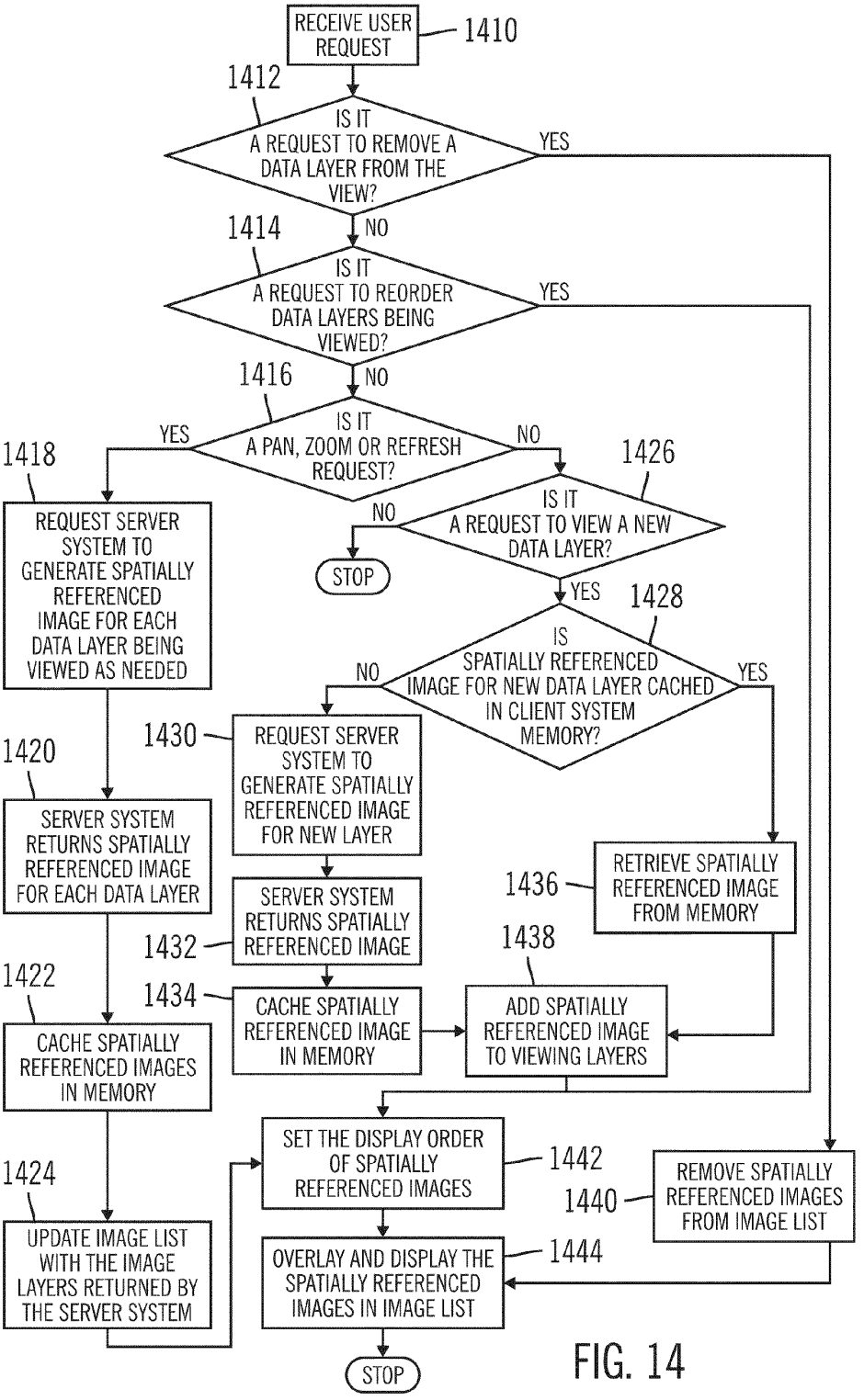

RECEIVE USER REQUEST
1410
1412
IS IT A REQUEST TO REMOVE A DATA LAYER FROM THE VIEW?
YES
NO
1414
IS IT A REQUEST TO REORDER DATA LAYERS BEING VIEWED?
YES
NO
1416
IS IT A PAN, ZOOM OR REFRESH REQUEST?
YES
NO
1418
REQUEST SERVER SYSTEM TO GENERATE SPATIALLY REFERENCED IMAGE FOR EACH DATA LAYER BEING VIEWED AS NEEDED
1426
IS IT A REQUEST TO VIEW A NEW DATA LAYER?
NO
STOP
YES
1428
IS SPATIALLY REFERENCED IMAGE FOR NEW DATA LAYER CACHED IN CLIENT SYSTEM MEMORY?
NO
YES
1430
REQUEST SERVER SYSTEM TO GENERATE SPATIALLY REFERENCED IMAGE FOR NEW LAYER
1420
SERVER SYSTEM RETURNS SPATIALLY REFERENCED IMAGE FOR EACH DATA LAYER
1436
RETRIEVE SPATIALLY REFERENCED IMAGE FROM MEMORY
1432
SERVER SYSTEM RETURNS SPATIALLY REFERENCED IMAGE
1438
1422
1434
CACHE SPATIALLY REFERENCED IMAGE IN MEMORY
ADD SPATIALLY REFERENCED IMAGE TO VIEWING LAYERS
CACHE SPATIALLY REFERENCED IMAGES IN MEMORY
SET THE DISPLAY ORDER OF SPATIALLY REFERENCED IMAGES
1442
1440
REMOVE SPATIALLY REFERENCED IMAGES FROM IMAGE LIST
1424
UPDATE IMAGE LIST WITH THE IMAGE LAYERS RETURNED BY THE SERVER SYSTEM
OVERLAY AND DISPLAY THE SPATIALLY REFERENCED IMAGES IN IMAGE LIST
1444
STOP

FIG. 14

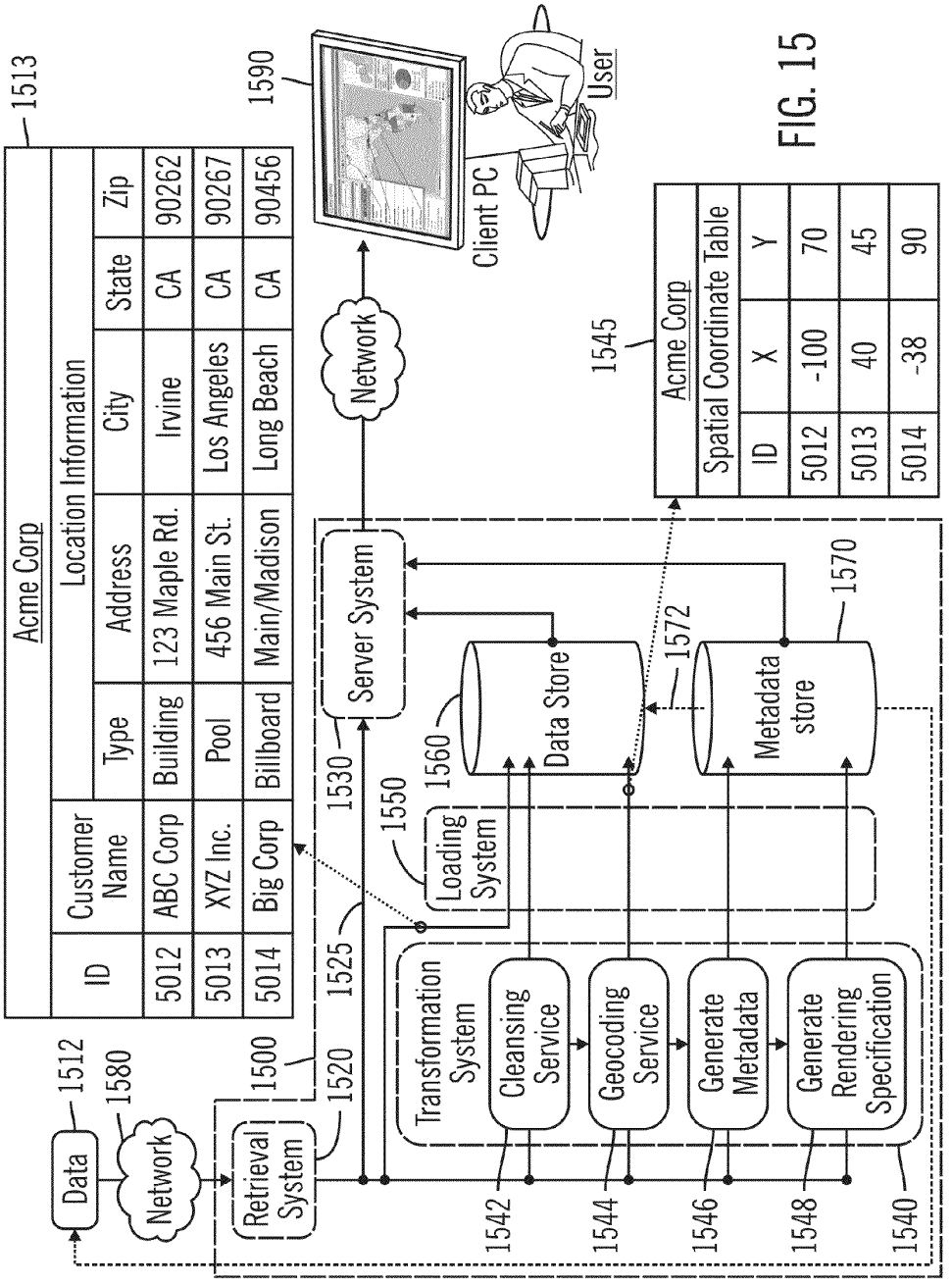

1513
Acme Corp
Location Information
ID
Customer Name
Type
Address
City
State
Zip
5012
ABC Corp
Building
123 Maple Rd.
Irvine
CA
90262
5013
XYZ Inc.
Pool
456 Main St.
Los Angeles
CA
90267
5014
Big Corp
Billboard
Main/Madison
Long Beach
CA
90456
1590
Client PC
User
Network
1545
Acme Corp
Spatial Coordinate Table
ID
X
Y
5012
-100
70
5013
40
45
5014
-38
90
1512
Data
1580
Network
1500
Retrieval System
1520
1525
1530
Server System
1550
Loading System
1560
Data Store
1572
Metadata store
1570
Transformation System
Cleansing Service
Geocoding Service
Generate Metadata
Generate Rendering Specification
1542
1544
1546
1548
1540

FIG. 15

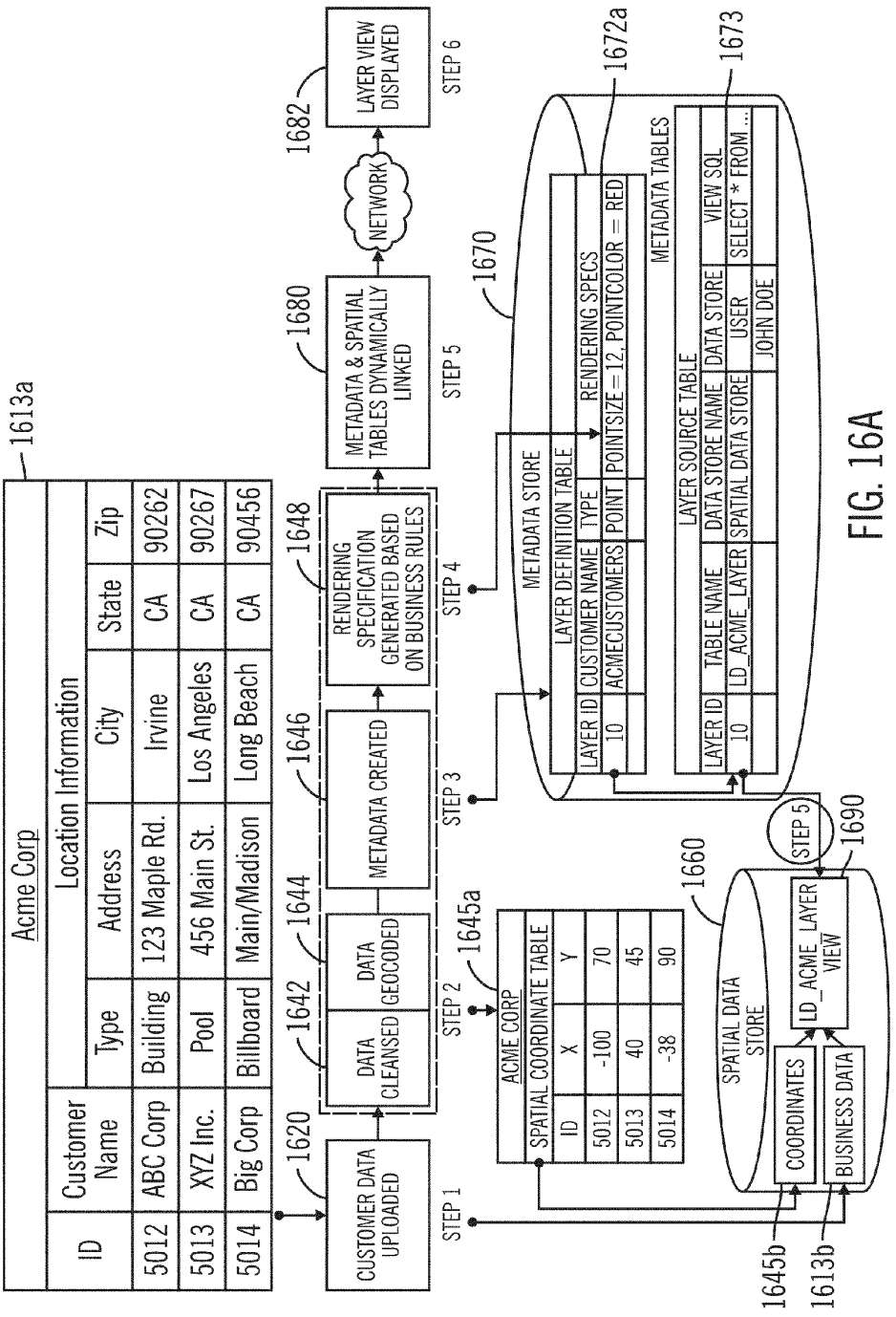

1613a
Acme Corp
ID
Customer Name
Location Information
Type
Address
City
State
Zip
5012
ABC Corp
Building
123 Maple Rd.
Irvine
CA
90262
5013
XYZ Inc.
Pool
456 Main St.
Los Angeles
CA
90267
5014
Big Corp
Billboard
Main/Madison
Long Beach
CA
90456
1620
CUSTOMER DATA UPLOADED
1642
DATA CLEANSED
1644
DATA GEOCODED
1646
METADATA CREATED
1648
RENDERING SPECIFICATION GENERATED BASED ON BUSINESS RULES
1680
METADATA & SPATIAL TABLES DYNAMICALLY LINKED
NETWORK
1682
LAYER VIEW DISPLAYED
STEP 1
STEP 2
STEP 3
STEP 4
STEP 5
STEP 6
1645a
ACME CORP
SPATIAL COORDINATE TABLE
ID
X
Y
5012
-100
70
5013
40
45
5014
-38
90
1670
METADATA STORE
LAYER DEFINITION TABLE
LAYER ID
CUSTOMER NAME
TYPE
RENDERING SPECS
10
ACMECUSTOMERS
POINT
POINTSIZE = 12, POINTCOLOR = RED
1672a
METADATA TABLES
LAYER SOURCE TABLE
LAYER ID
TABLE NAME
DATA STORE NAME
DATA STORE
VIEW SQL
10
LD_ACME_LAYER
SPATIAL DATA STORE
USER
JOHN DOE
SELECT * FROM ...
1673
1660
SPATIAL DATA STORE
COORDINATES
BUSINESS DATA
LD_ACME_LAYER VIEW
STEP 5
1690
1645b
1613b

FIG. 16A

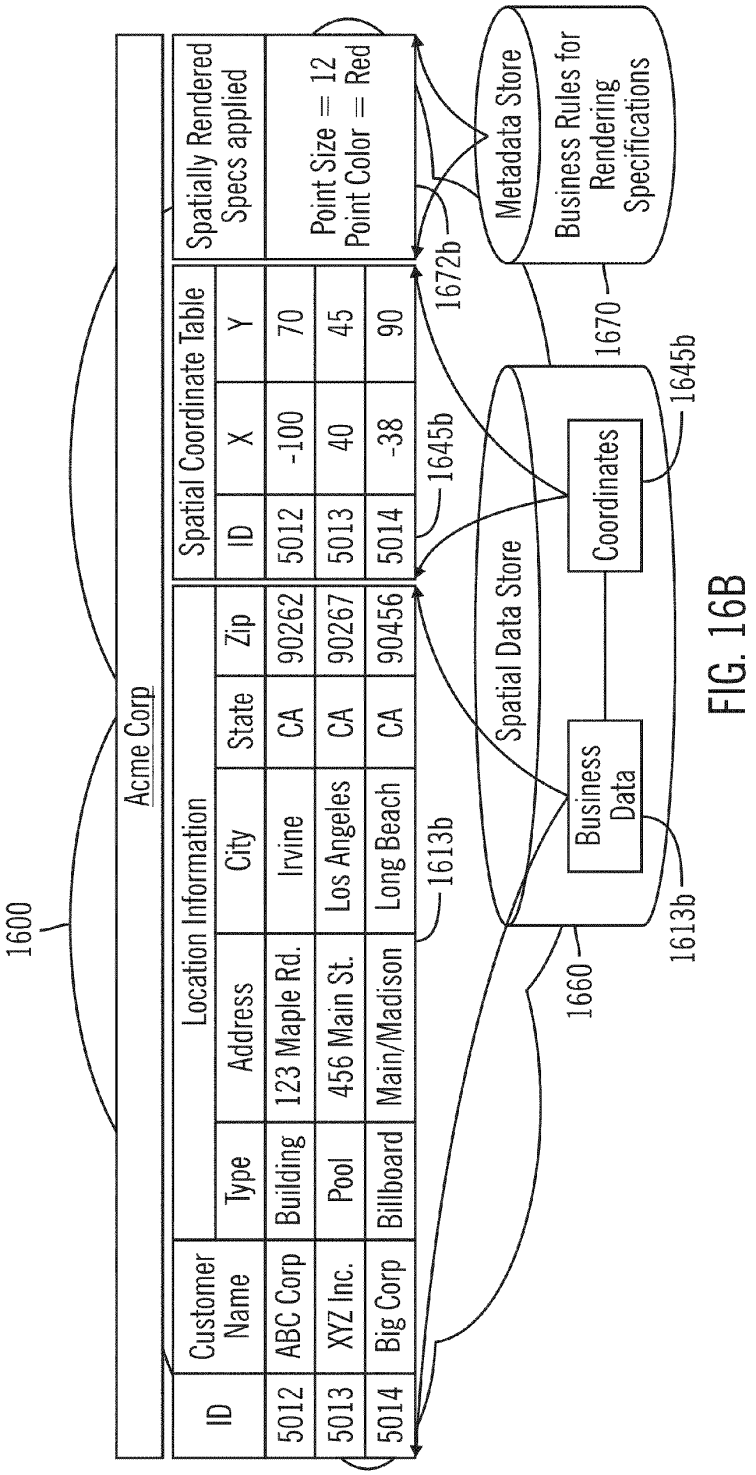

1600
Acme Corp
Location Information
ID
Customer Name
Type
Address
City
State
Zip
5012
ABC Corp
Building
123 Maple Rd.
Irvine
CA
90262
5013
XYZ Inc.
Pool
456 Main St.
Los Angeles
CA
90267
5014
Big Corp
Billboard
Main/Madison
Long Beach
CA
90456
1613b
Spatial Coordinate Table
ID
X
Y
5012
-100
70
5013
40
45
5014
-38
90
1645b
1672b
Spatially Rendered Specs applied
Point Size = 12
Point Color = Red
Spatial Data Store
Business Data
Coordinates
1660
1645b
1613b
Metadata Store
Business Rules for Rendering Specifications
1670

FIG. 16B

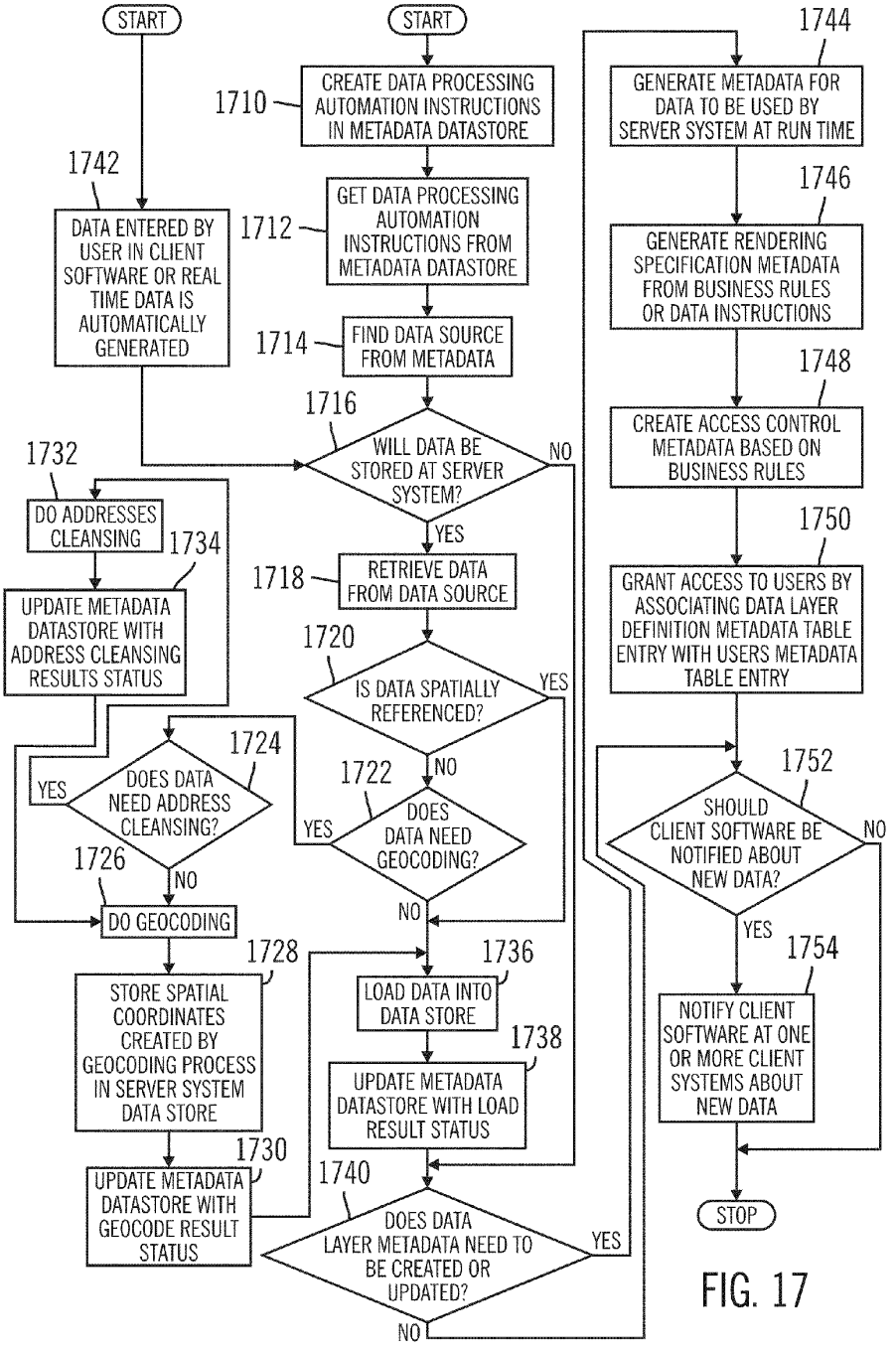

START
START
1710
CREATE DATA PROCESSING AUTOMATION INSTRUCTIONS IN METADATA DATASTORE
1742
DATA ENTERED BY USER IN CLIENT SOFTWARE OR REAL TIME DATA IS AUTOMATICALLY GENERATED
1712
GET DATA PROCESSING AUTOMATION INSTRUCTIONS FROM METADATA DATASTORE
1714
FIND DATA SOURCE FROM METADATA
1716
WILL DATA BE STORED AT SERVER SYSTEM?
NO
YES
1732
DO ADDRESSES CLEANSING
1734
UPDATE METADATA DATASTORE WITH ADDRESS CLEANSING RESULTS STATUS
1718
RETRIEVE DATA FROM DATA SOURCE
1720
IS DATA SPATIALLY REFERENCED?
YES
NO
1724
DOES DATA NEED ADDRESS CLEANSING?
YES
NO
1722
DOES DATA NEED GEOCODING?
YES
NO
1726
DO GEOCODING
1728
STORE SPATIAL COORDINATES CREATED BY GEOCODING PROCESS IN SERVER SYSTEM DATA STORE
1730
UPDATE METADATA DATASTORE WITH GEOCODE RESULT STATUS
1736
LOAD DATA INTO DATA STORE
1738
UPDATE METADATA DATASTORE WITH LOAD RESULT STATUS
1740
DOES DATA LAYER METADATA NEED TO BE CREATED OR UPDATED?
YES
NO
1744
GENERATE METADATA FOR DATA TO BE USED BY SERVER SYSTEM AT RUN TIME
1746
GENERATE RENDERING SPECIFICATION METADATA FROM BUSINESS RULES OR DATA INSTRUCTIONS
1748
CREATE ACCESS CONTROL METADATA BASED ON BUSINESS RULES
1750
GRANT ACCESS TO USERS BY ASSOCIATING DATA LAYER DEFINITION METADATA TABLE ENTRY WITH USERS METADATA TABLE ENTRY
1752
SHOULD CLIENT SOFTWARE BE NOTIFIED ABOUT NEW DATA?
NO
YES
1754
NOTIFY CLIENT SOFTWARE AT ONE OR MORE CLIENT SYSTEMS ABOUT NEW DATA
STOP

FIG. 17

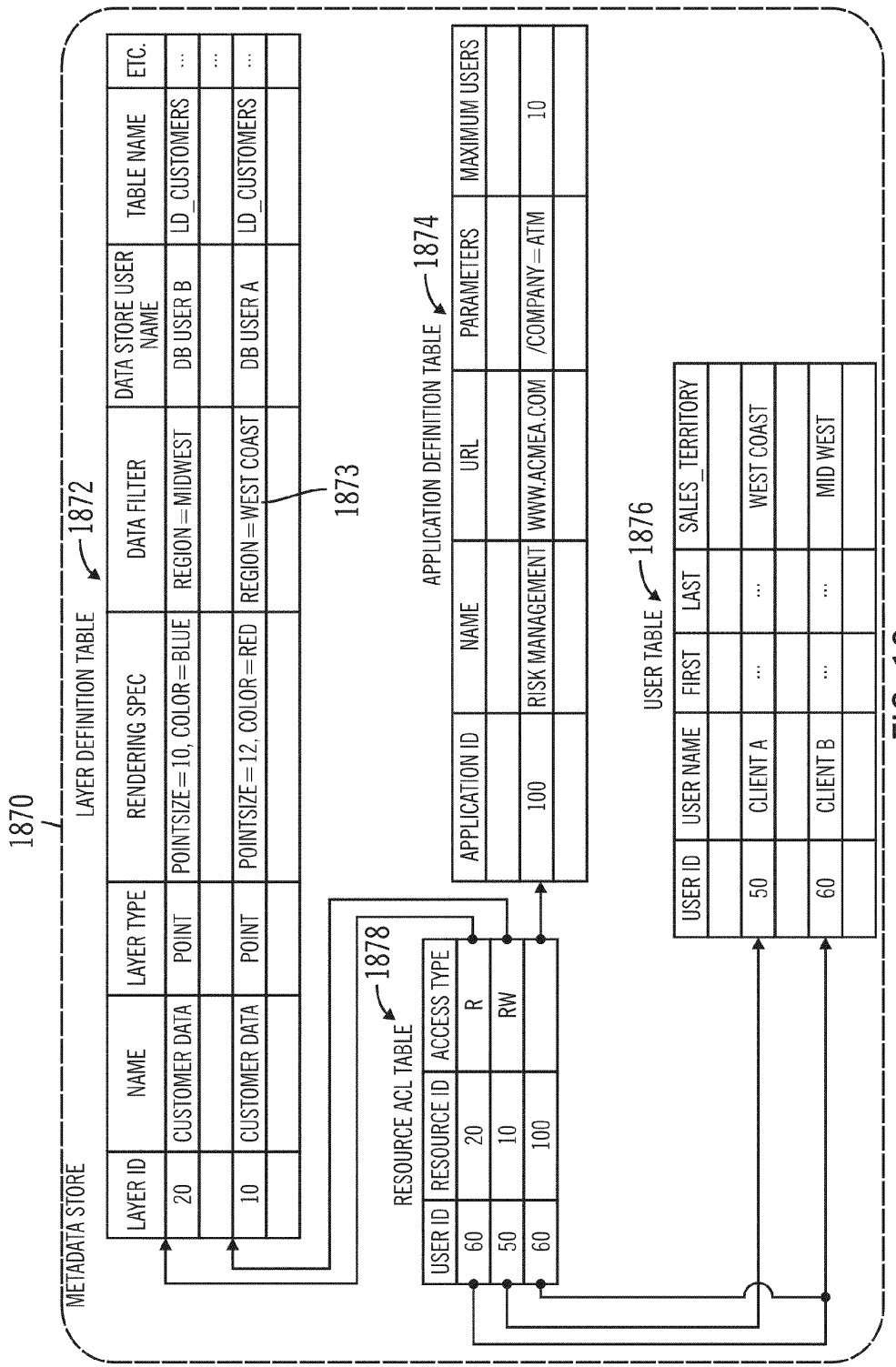

1870
METADATA STORE
LAYER DEFINITION TABLE
1872
LAYER ID
NAME
LAYER TYPE
RENDERING SPEC
DATA FILTER
DATA STORE USER NAME
TABLE NAME
ETC.
20
CUSTOMER DATA
POINT
POINTSIZE=10, COLOR=BLUE
REGION=MIDWEST
DB USER B
LD_CUSTOMERS
...
10
CUSTOMER DATA
POINT
POINTSIZE=12, COLOR=RED
REGION=WEST COAST
DB USER A
LD_CUSTOMERS
...
1873
RESOURCE ACL TABLE
1878
USER ID
RESOURCE ID
ACCESS TYPE
60
20
R
50
10
RW
60
100
APPLICATION DEFINITION TABLE
1874
APPLICATION ID
NAME
URL
PARAMETERS
MAXIMUM USERS
100
RISK MANAGEMENT
WWW.ACMEA.COM
/COMPANY=ATM
10
USER TABLE
1876
USER ID
USER NAME
FIRST
LAST
SALES_TERRITORY
50
CLIENT A
...
...
WEST COAST
60
CLIENT B
...
...
MID WEST

FIG. 18

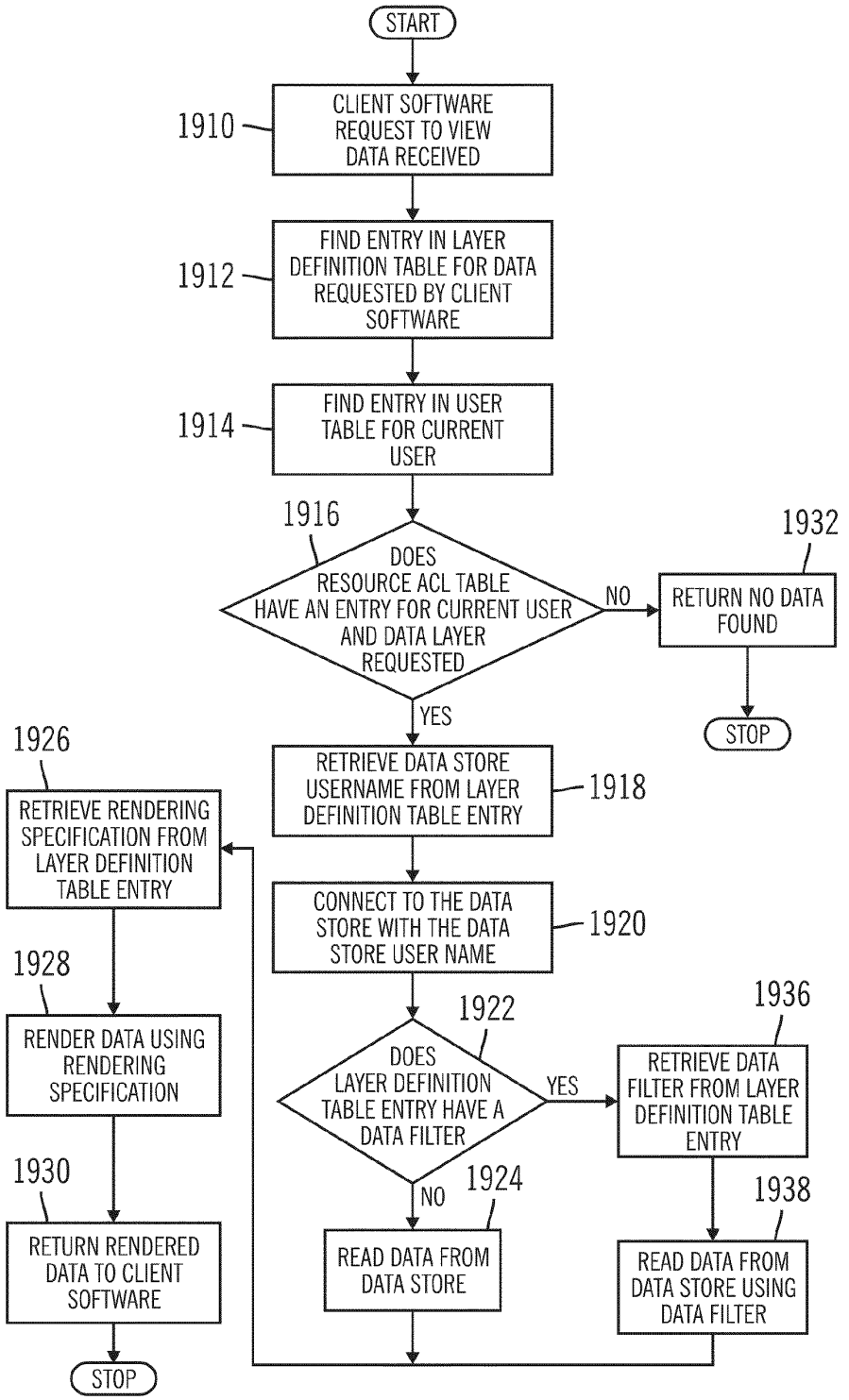

START
1910
CLIENT SOFTWARE REQUEST TO VIEW DATA RECEIVED
1912
FIND ENTRY IN LAYER DEFINITION TABLE FOR DATA REQUESTED BY CLIENT SOFTWARE
1914
FIND ENTRY IN USER TABLE FOR CURRENT USER
1916
DOES RESOURCE ACL TABLE HAVE AN ENTRY FOR CURRENT USER AND DATA LAYER REQUESTED
NO
1932
RETURN NO DATA FOUND
STOP
YES
1926
RETRIEVE RENDERING SPECIFICATION FROM LAYER DEFINITION TABLE ENTRY
RETRIEVE DATA STORE USERNAME FROM LAYER DEFINITION TABLE ENTRY
1918
CONNECT TO THE DATA STORE WITH THE DATA STORE USER NAME
1920
1928
RENDER DATA USING RENDERING SPECIFICATION
1922
DOES LAYER DEFINITION TABLE ENTRY HAVE A DATA FILTER
YES
1936
RETRIEVE DATA FILTER FROM LAYER DEFINITION TABLE ENTRY
1930
RETURN RENDERED DATA TO CLIENT SOFTWARE
NO
1924
READ DATA FROM DATA STORE
1938
READ DATA FROM DATA STORE USING DATA FILTER
STOP

FIG. 19

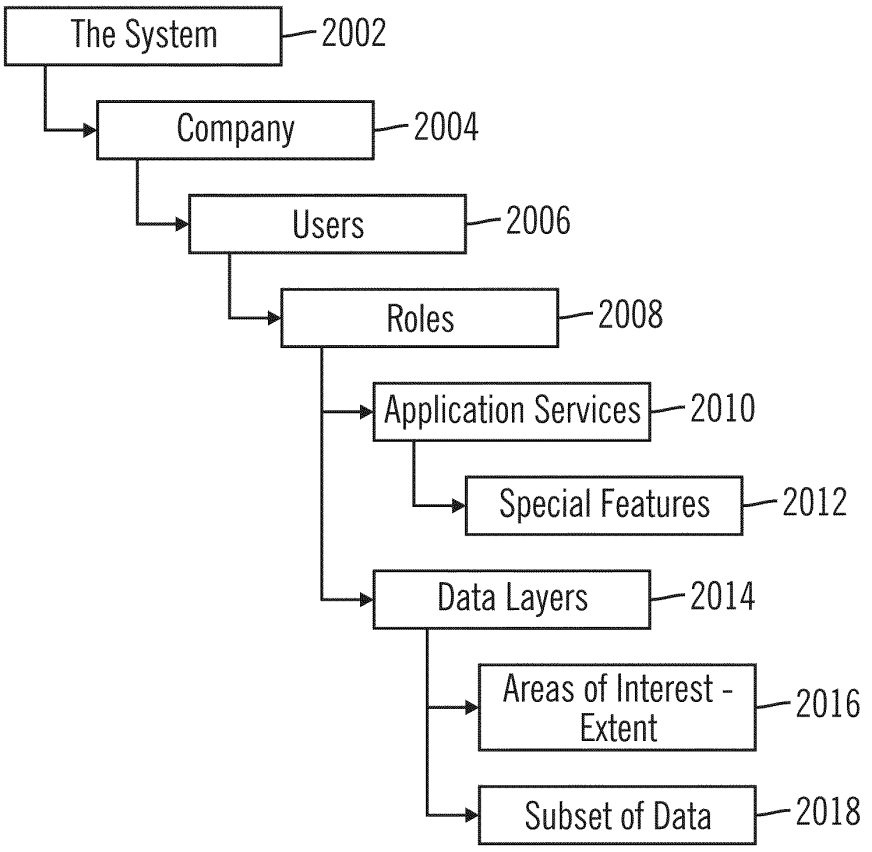

The System
2002
Company
2004
Users
2006
Roles
2008
Application Services
2010
Special Features
2012
Data Layers
2014
Areas of Interest - Extent
2016
Subset of Data
2018

FIG. 20

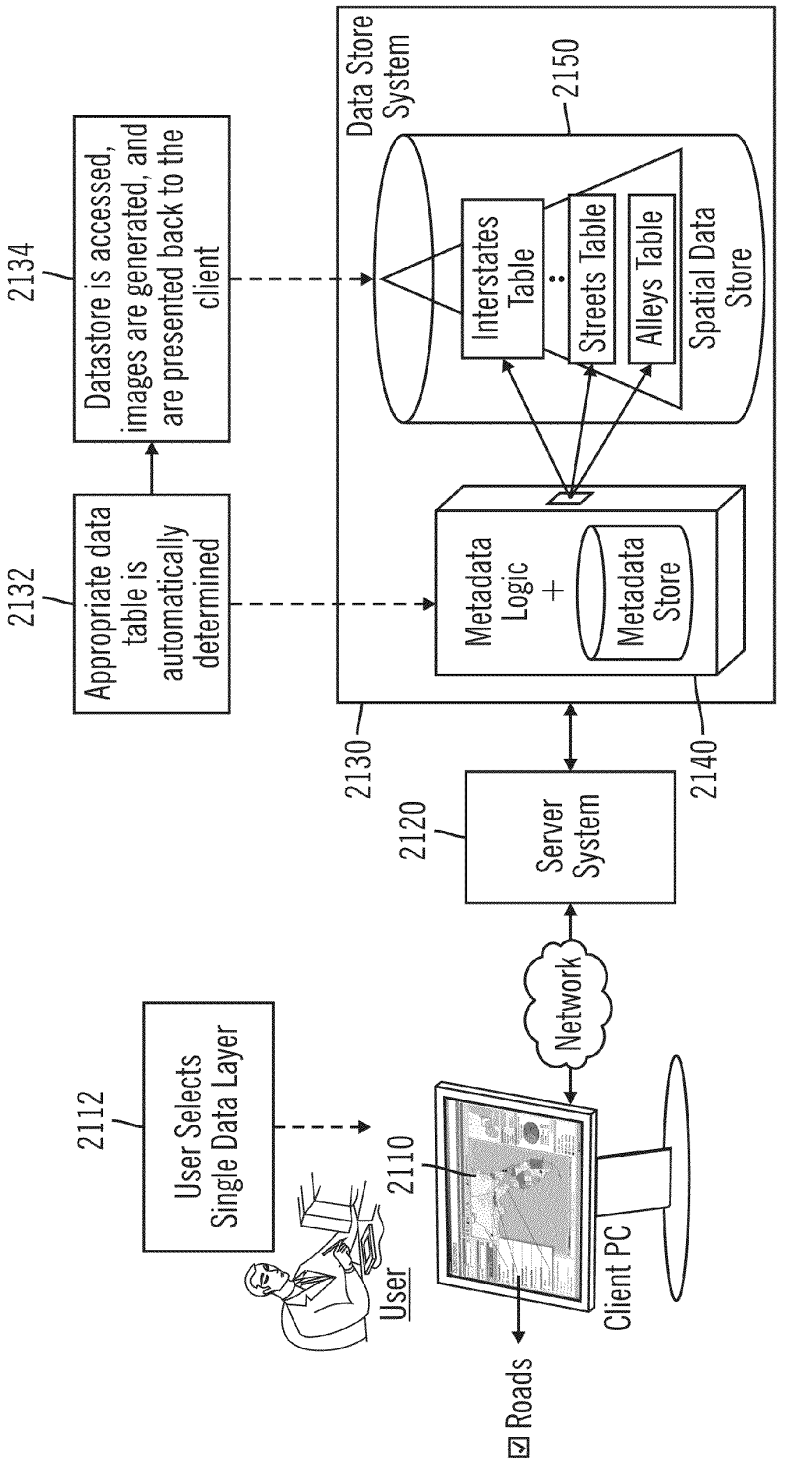

2112
User Selects Single Data Layer
2110
User
Network
Client PC
Roads
2120
Server System
2130
2140
Data Store System
2150
Interstates Table
Streets Table
Alleys Table
Spatial Data Store
Metadata Logic
Metadata Store
2132
Appropriate data table is automatically determined
2134
Datastore is accessed, images are generated, and are presented back to the client

FIG. 21

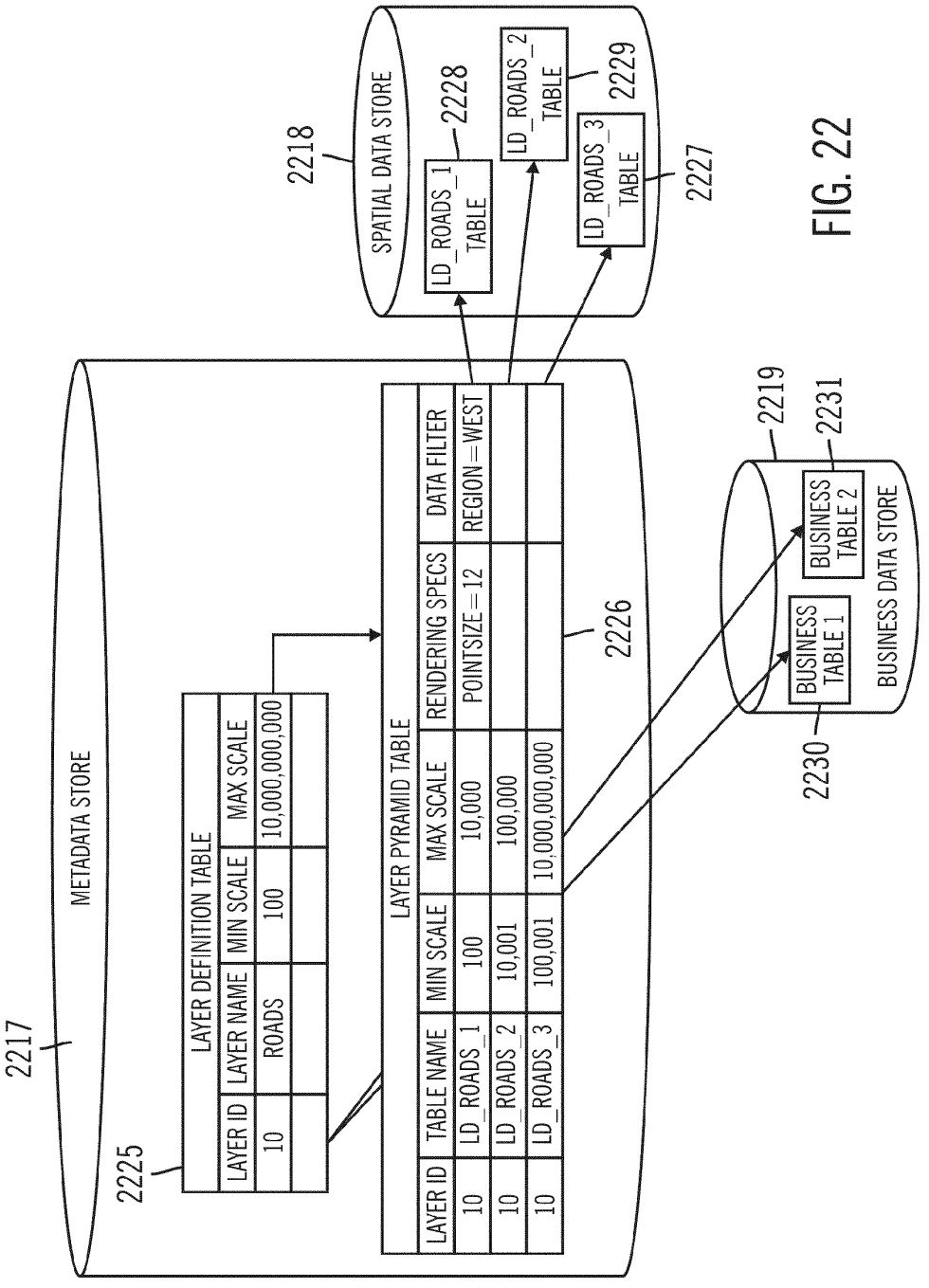

2217
METADATA STORE
2225
LAYER DEFINITION TABLE
LAYER ID
LAYER NAME
MIN SCALE
MAX SCALE
10
ROADS
100
10,000,000,000
LAYER PYRAMID TABLE
LAYER ID
TABLE NAME
MIN SCALE
MAX SCALE
RENDERING SPECS
DATA FILTER
10
LD_ROADS_1
100
10,000
POINTSIZE=12
REGION=WEST
10
LD_ROADS_2
10,001
100,000
10
LD_ROADS_3
100,001
10,000,000,000
2226
2218
SPATIAL DATA STORE
LD_ROADS_1 TABLE
2228
LD_ROADS_2 TABLE
2229
LD_ROADS_3 TABLE
2227
2219
2231
BUSINESS TABLE 2
BUSINESS TABLE 1
BUSINESS DATA STORE
2230

FIG. 22

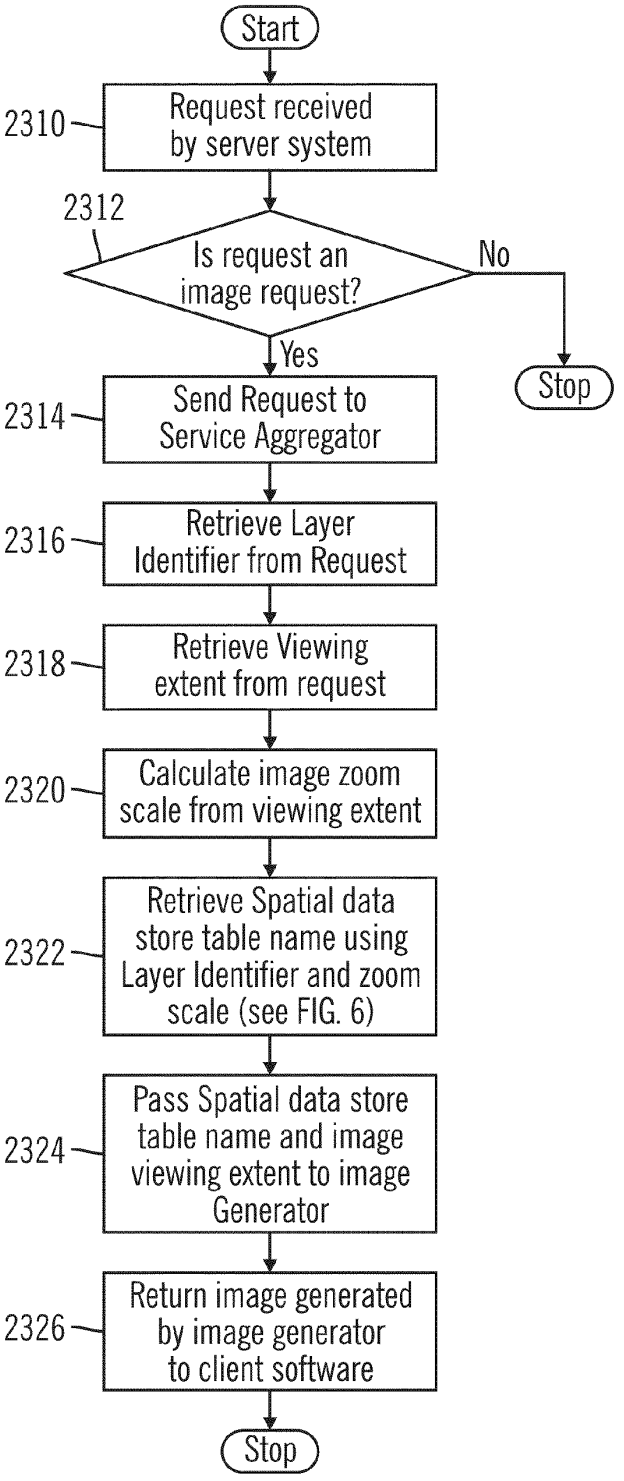

Start
2310
Request received by server system
2312
Is request an image request?
No
Stop
Yes
2314
Send Request to Service Aggregator
2316
Retrieve Layer Identifier from Request
2318
Retrieve Viewing extent from request
2320
Calculate image zoom scale from viewing extent
2322
Retrieve Spatial data store table name using Layer Identifier and zoom scale (see FIG. 6)
2324
Pass Spatial data store table name and image viewing extent to image Generator
2326
Return image generated by image generator to client software
Stop

FIG. 23

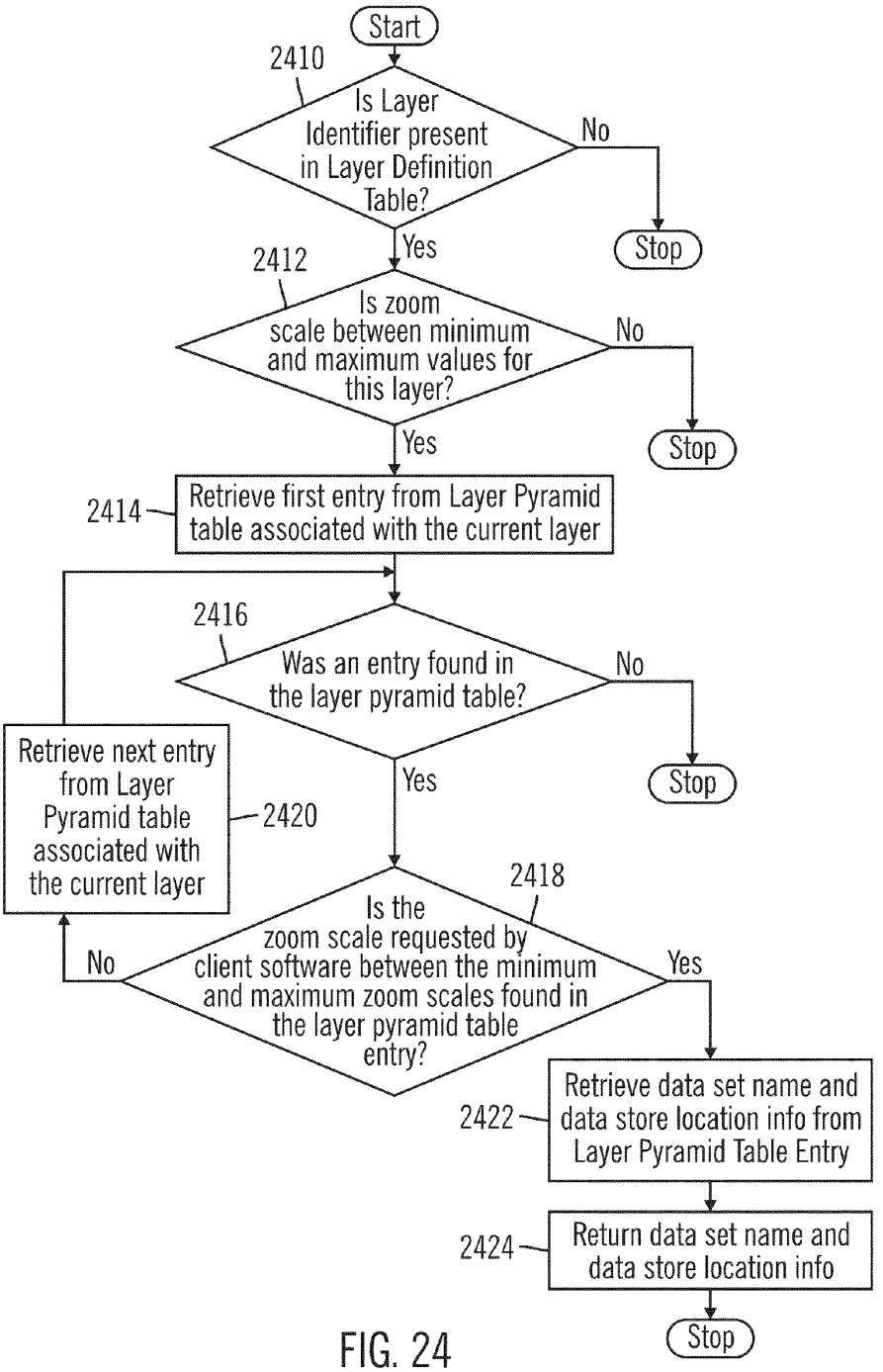

Start
2410
Is Layer Identifier present in Layer Definition Table?
No
Stop
Yes
2412
Is zoom scale between minimum and maximum values for this layer?
No
Stop
Yes
2414
Retrieve first entry from Layer Pyramid table associated with the current layer
2416
Was an entry found in the layer pyramid table?
No
Stop
Yes
Retrieve next entry from Layer Pyramid table associated with the current layer
2420
2418
Is the zoom scale requested by client software between the minimum and maximum zoom scales found in the layer pyramid table entry?
No
Yes
2422
Retrieve data set name and data store location info from Layer Pyramid Table Entry
2424
Return data set name and data store location info
Stop

FIG. 24

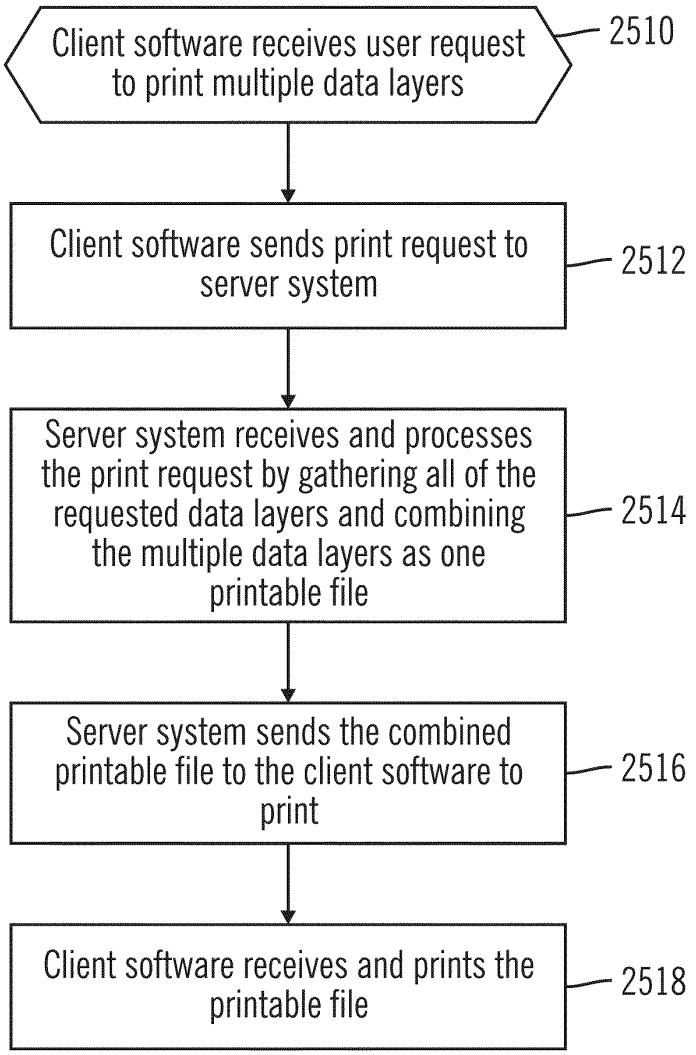

Client software receives user request to print multiple data layers
2510
Client software sends print request to server system
2512
Server system receives and processes the print request by gathering all of the requested data layers and combining the multiple data layers as one printable file
2514
Server system sends the combined printable file to the client software to print
2516
Client software receives and prints the printable file
2518

FIG. 25

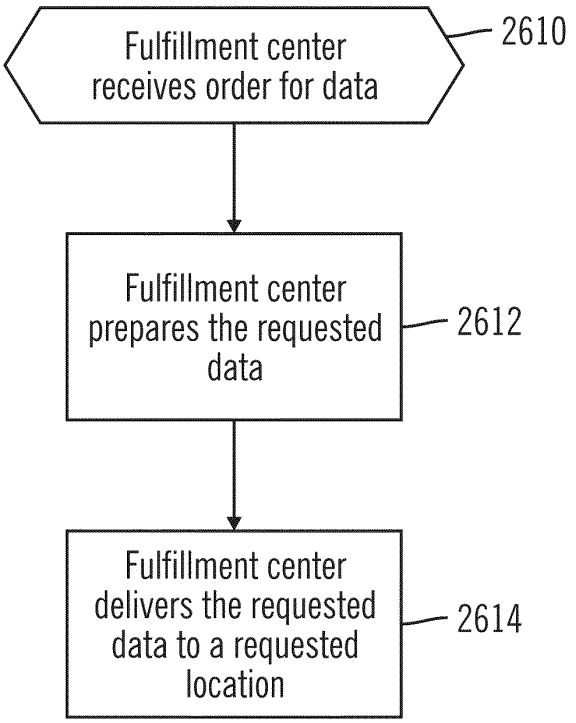

Fulfillment center receives order for data
2610
Fulfillment center prepares the requested data
2612
Fulfillment center delivers the requested data to a requested location
2614

FIG. 26

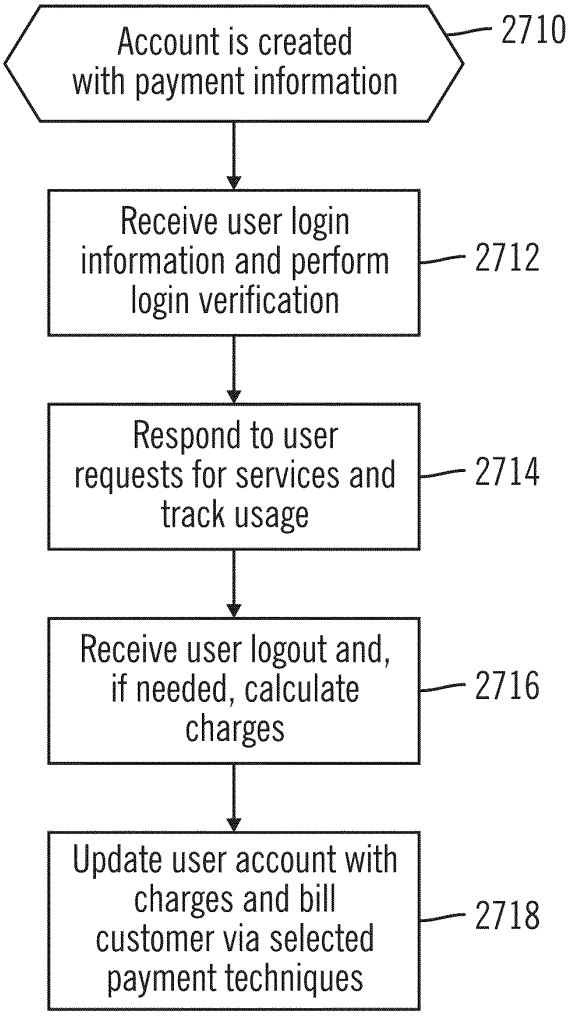

Account is created with payment information
2710
Receive user login information and perform login verification
2712
Respond to user requests for services and track usage
2714
Receive user logout and, if needed, calculate charges
2716
Update user account with charges and bill customer via selected payment techniques
2718

FIG. 27

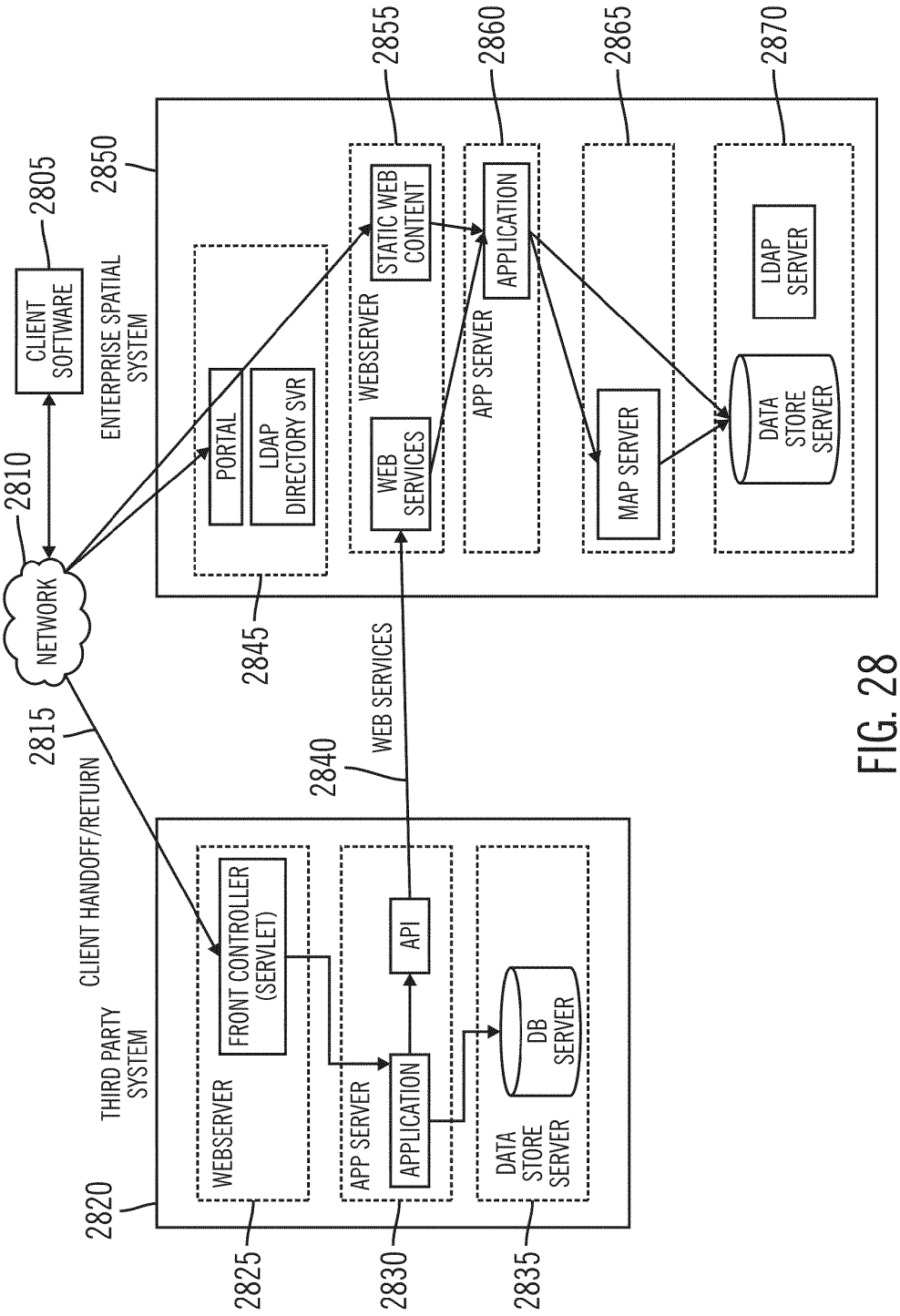

2805
CLIENT SOFTWARE
2810
NETWORK
2815
CLIENT HANDOFF/RETURN
2820
THIRD PARTY SYSTEM
WEBSERVER
FRONT CONTROLLER (SERVLET)
2825
APP SERVER
API
APPLICATION
2830
DATA STORE SERVER
DB SERVER
2835
2840
WEB SERVICES
2845
2850
ENTERPRISE SPATIAL SYSTEM
PORTAL
LDAP DIRECTORY SVR
2855
WEBSERVER
STATIC WEB CONTENT
WEB SERVICES
2860
APP SERVER
APPLICATION
2865
MAP SERVER
2870
LDAP SERVER
DATA STORE SERVER

FIG. 28

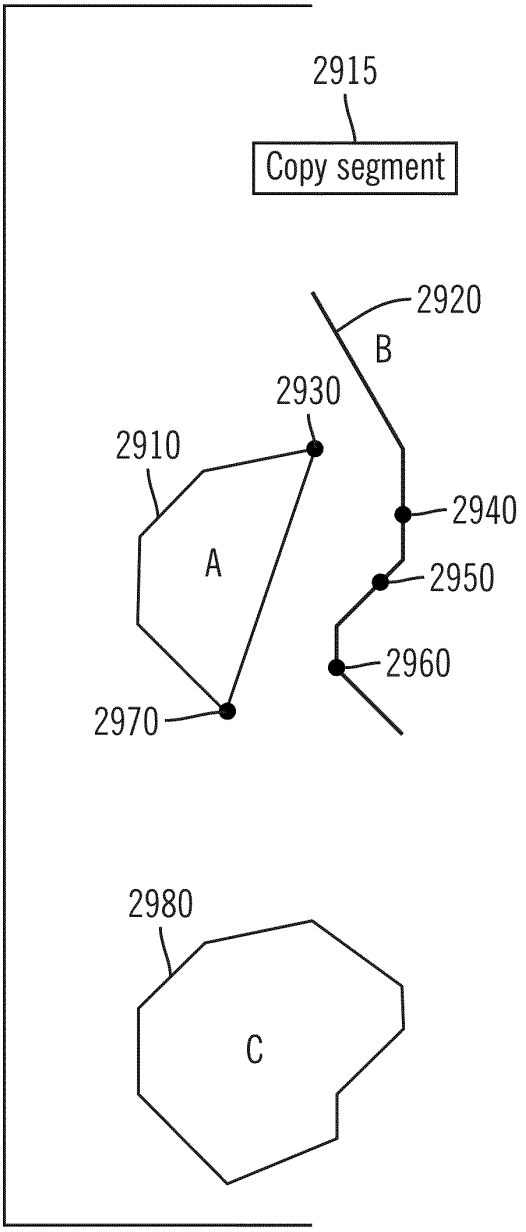

2915
Copy segment
2920
B
2930
2910
2940
A
2950
2960
2970
2980
C

FIG. 29

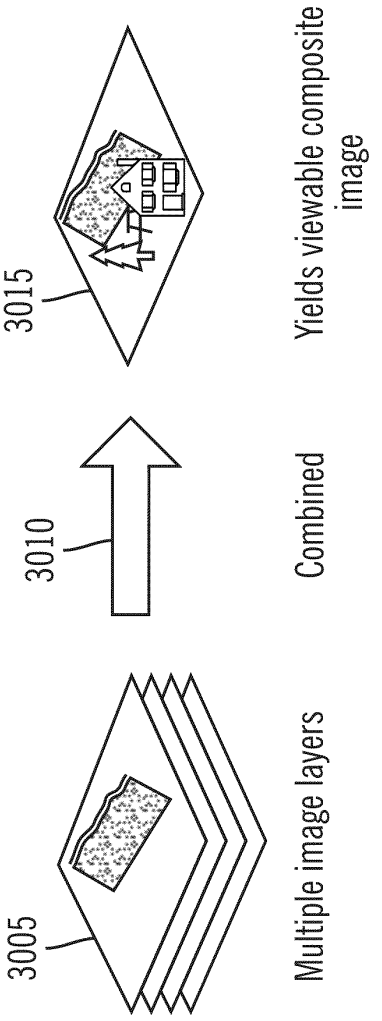

3005
Multiple image layers
3010
Combined
3015
Yields viewable composite image

FIG. 30A

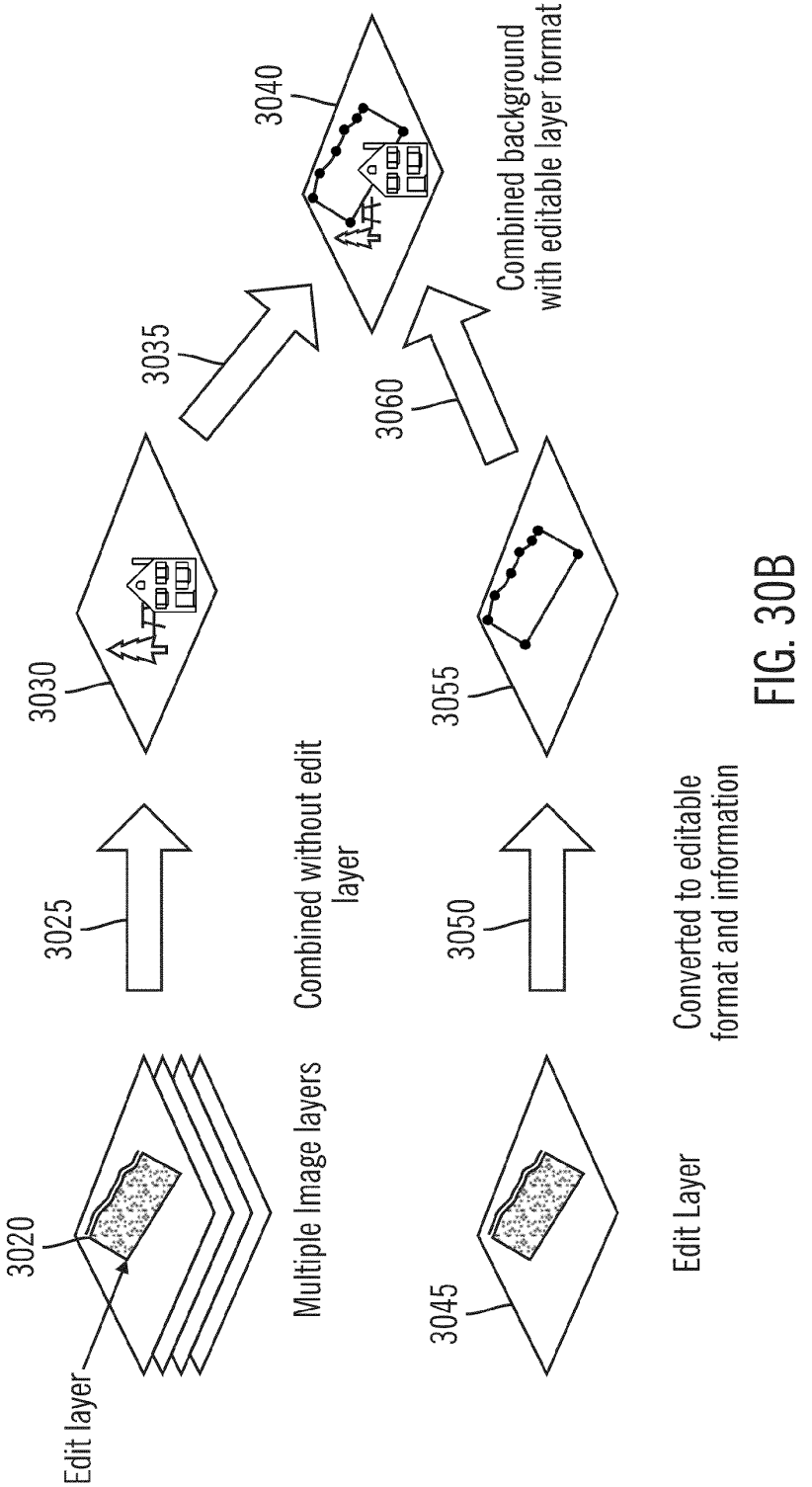

3020
Edit layer
Multiple Image layers
3025
Combined without edit layer
3030
3035
3040
Combined background with editable layer format
3060
3055
Converted to editable format and information
3050
Edit Layer
3045

FIG. 30B

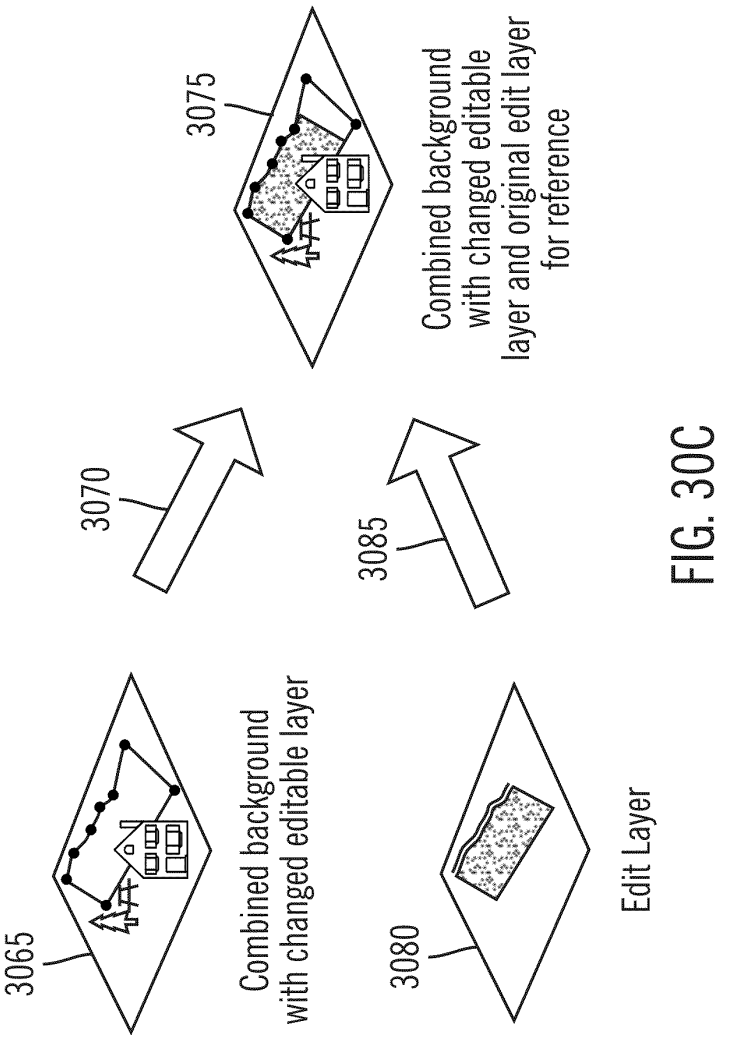

3065
Combined background with changed editable layer
3070
3075
Combined background with changed editable layer and original edit layer for reference
3080
Edit Layer
3085

FIG. 30C

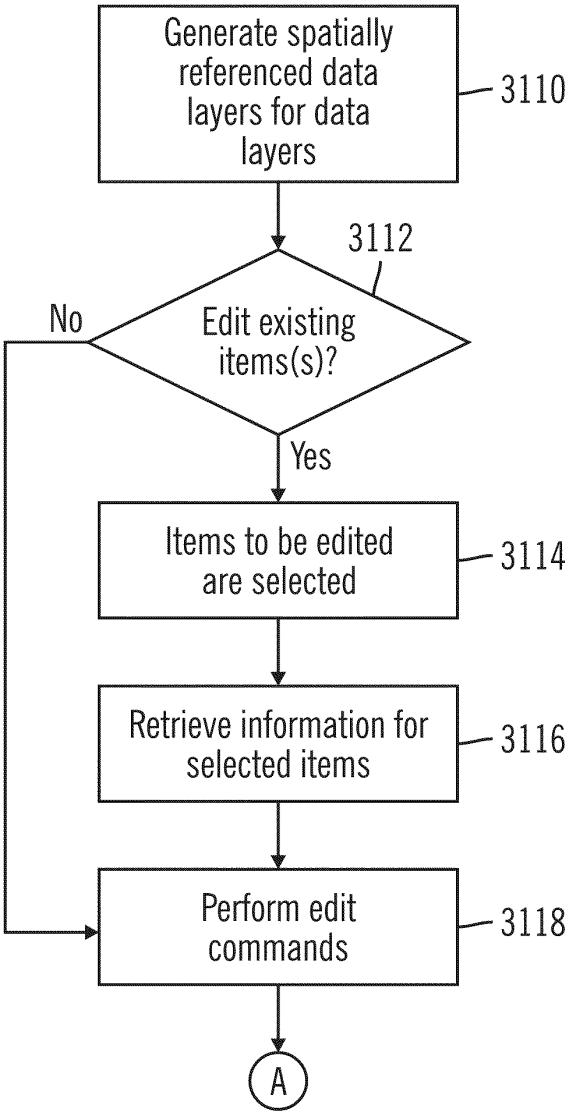

Generate spatially referenced data layers for data layers
3110
3112
Edit existing items(s)?
No
Yes
Items to be edited are selected
3114
Retrieve information for selected items
3116
Perform edit commands
3118
A

FIG. 31A

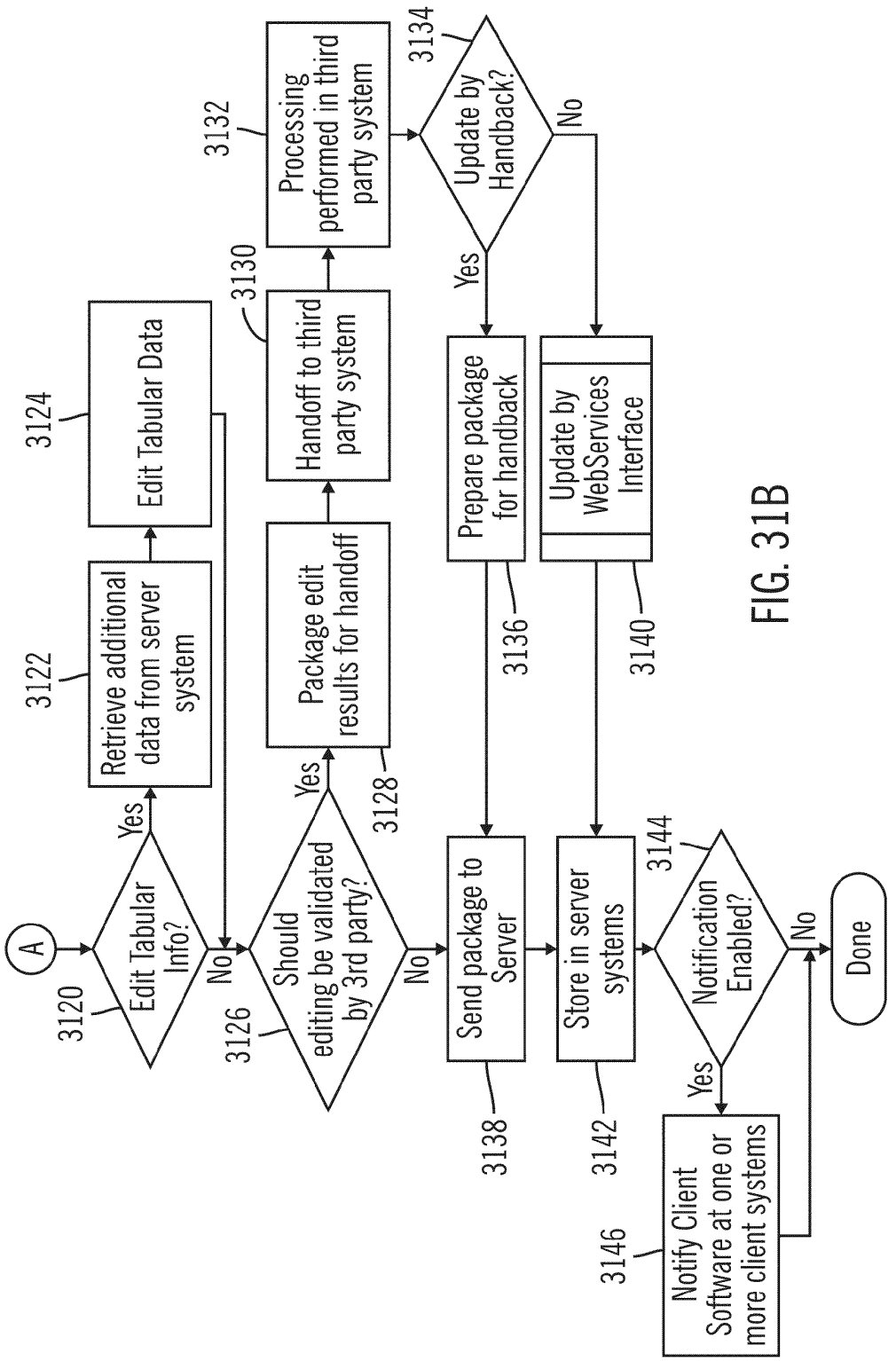

A
3120
Edit Tabular Info?
Yes
No
3122
Retrieve additional data from server system
3124
Edit Tabular Data
3126
Should editing be validated by 3rd party?
Yes
No
3128
Package edit results for handoff
3130
Handoff to third party system
3132
Processing performed in third party system
3134
Update by Handback?
Yes
No
3136
Prepare package for handback
3138
Send package to Server
3140
Update by WebServices Interface
3142
Store in server systems
3144
Notification Enabled?
Yes
No
3146
Notify Client Software at one or more client systems
Done

FIG. 31B

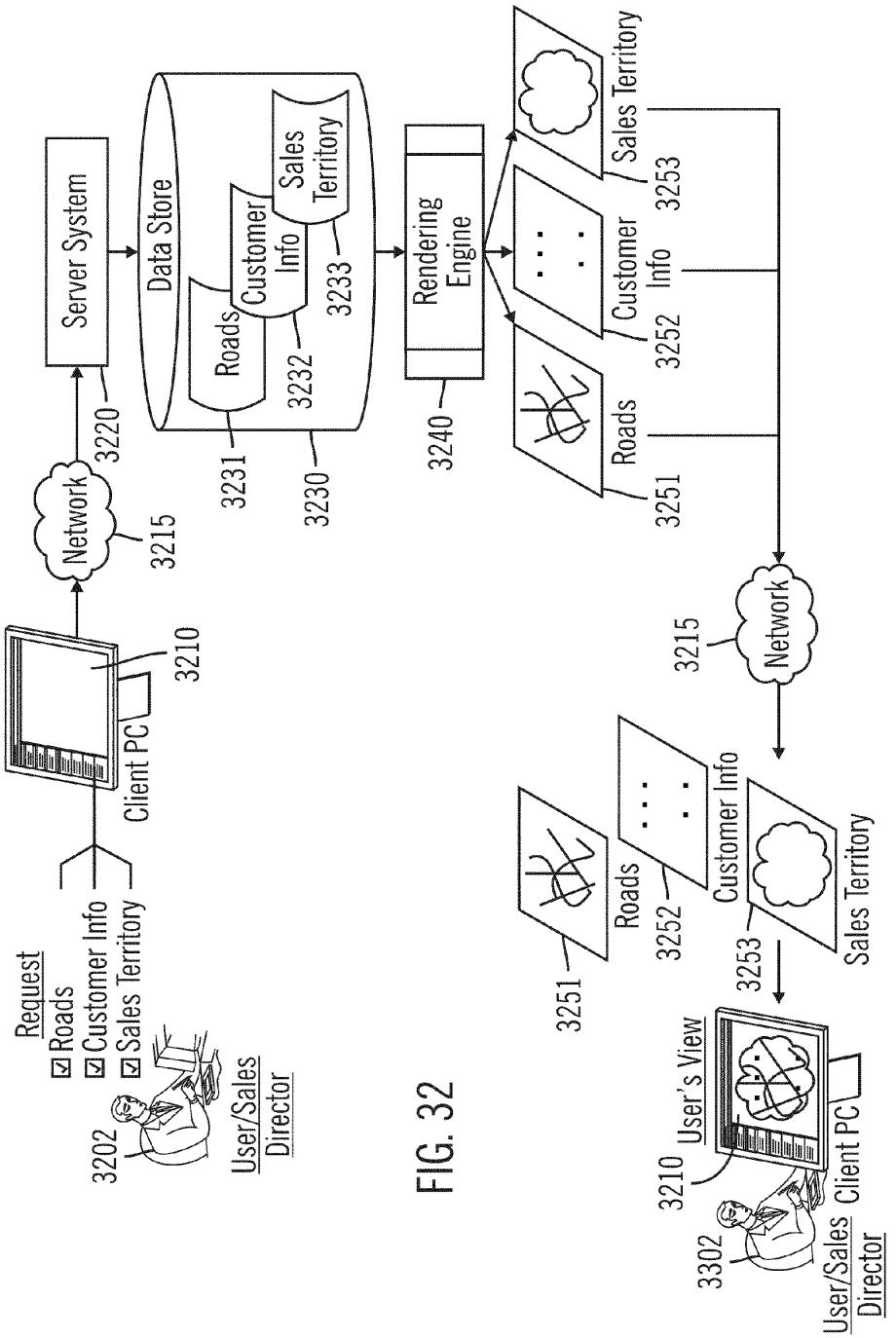

Request
☑ Roads
☑ Customer Info
☑ Sales Territory
User/Sales Director
3202
Client PC
3210
Network
3215
Server System
3220
Data Store
Roads
Customer Info
Sales Territory
3231
3232
3233
3230
Rendering Engine
3240
Roads
Customer Info
Sales Territory
3251
3252
3253
Network
3215
Roads
Customer Info
Sales Territory
3251
3252
3253
User's View
3210
User/Sales Director
3302
Client PC

FIG. 32

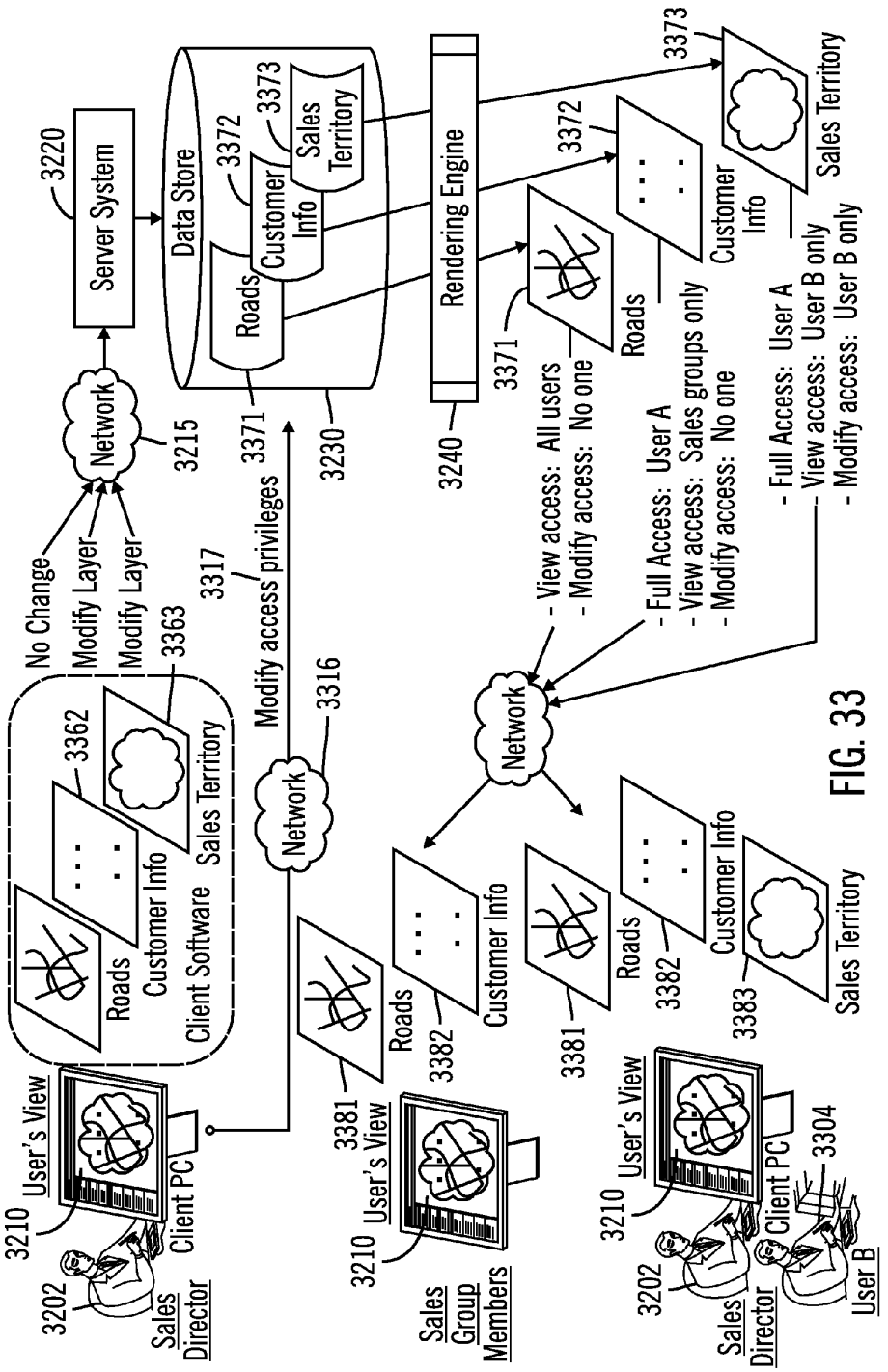

3220
Server System
Data Store
3372
Customer Info
3373
Sales Territory
Roads
3371
3230
3240
Rendering Engine
3215
Network
No Change
Modify Layer
Modify Layer
3363
3362
Roads
Customer Info
Sales Territory
Client Software
3317
Modify access privileges
3316
Network
- View access: All users
- Modify access: No one
- Full Access: User A
- View access: Sales groups only
- Modify access: No one
- Full Access: User A
- View access: User B only
- Modify access: User B only
3371
3372
3373
Roads
Customer Info
Sales Territory
3210
User's View
Client PC
3202
Sales Director
3381
3382
3383
Roads
Customer Info
Sales Territory
Sales Group Members
3304
User B

FIG. 33

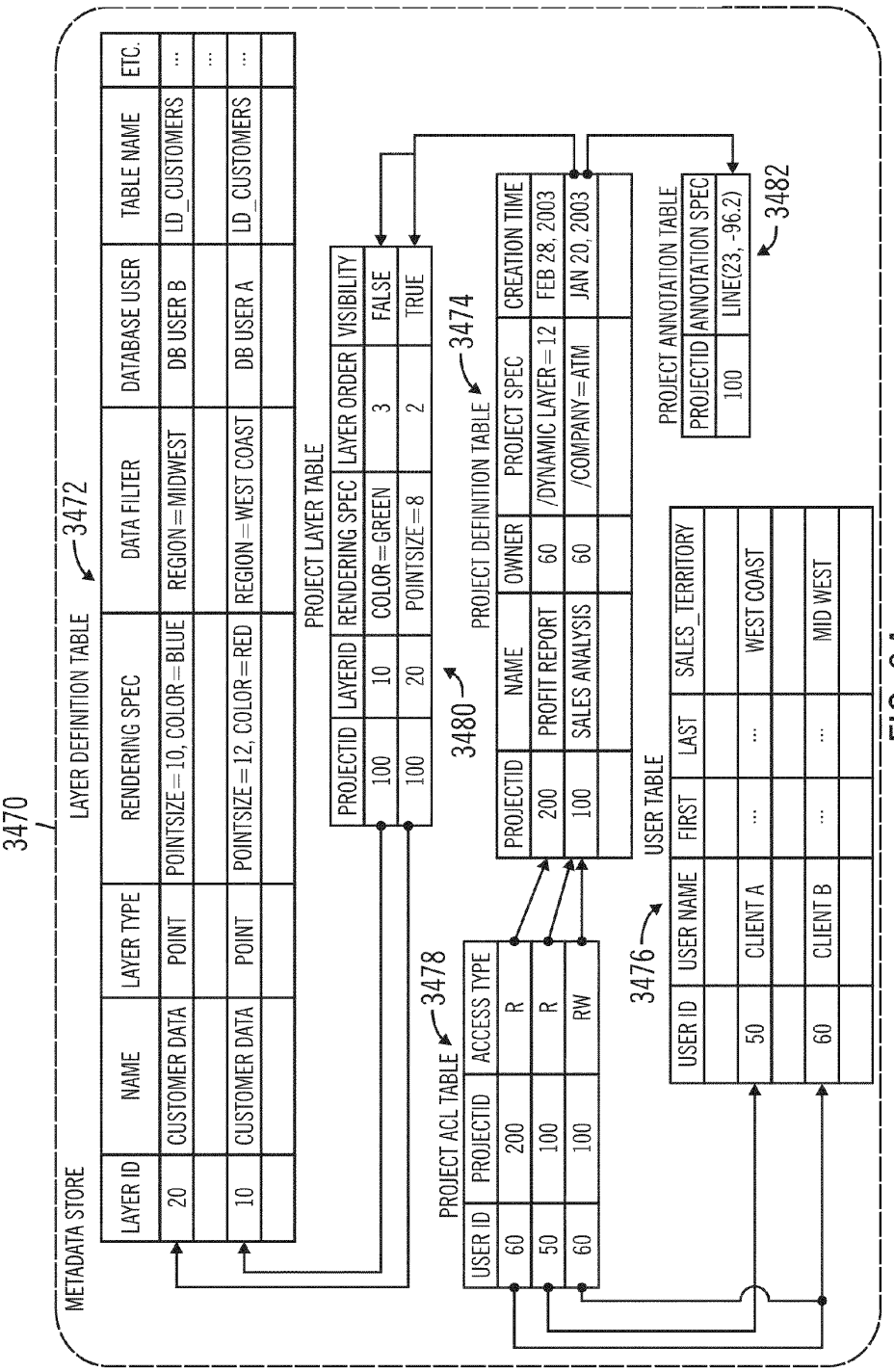

3470
METADATA STORE
LAYER DEFINITION TABLE
3472
LAYER ID
NAME
LAYER TYPE
RENDERING SPEC
DATA FILTER
DATABASE USER
TABLE NAME
ETC.
20
CUSTOMER DATA
POINT
POINTSIZE=10, COLOR=BLUE
REGION=MIDWEST
DB USER B
LD_CUSTOMERS
10
CUSTOMER DATA
POINT
POINTSIZE=12, COLOR=RED
REGION=WEST COAST
DB USER A
LD_CUSTOMERS
PROJECT LAYER TABLE
PROJECTID
LAYERID
RENDERING SPEC
LAYER ORDER
VISIBILITY
100
10
COLOR=GREEN
3
FALSE
100
20
POINTSIZE=8
2
TRUE
3480
PROJECT DEFINITION TABLE
3474
PROJECTID
NAME
OWNER
PROJECT SPEC
CREATION TIME
200
PROFIT REPORT
60
/DYNAMIC LAYER=12
FEB 28, 2003
100
SALES ANALYSIS
60
/COMPANY=ATM
JAN 20, 2003
PROJECT ANNOTATION TABLE
PROJECTID
ANNOTATION SPEC
100
LINE(23, -96.2)
3482
PROJECT ACL TABLE
3478
USER ID
PROJECTID
ACCESS TYPE
60
200
R
50
100
R
60
100
RW
3476
USER TABLE
USER ID
USER NAME
FIRST
LAST
SALES_TERRITORY
50
CLIENT A
...
...
WEST COAST
60
CLIENT B
...
...
MID WEST

FIG. 34

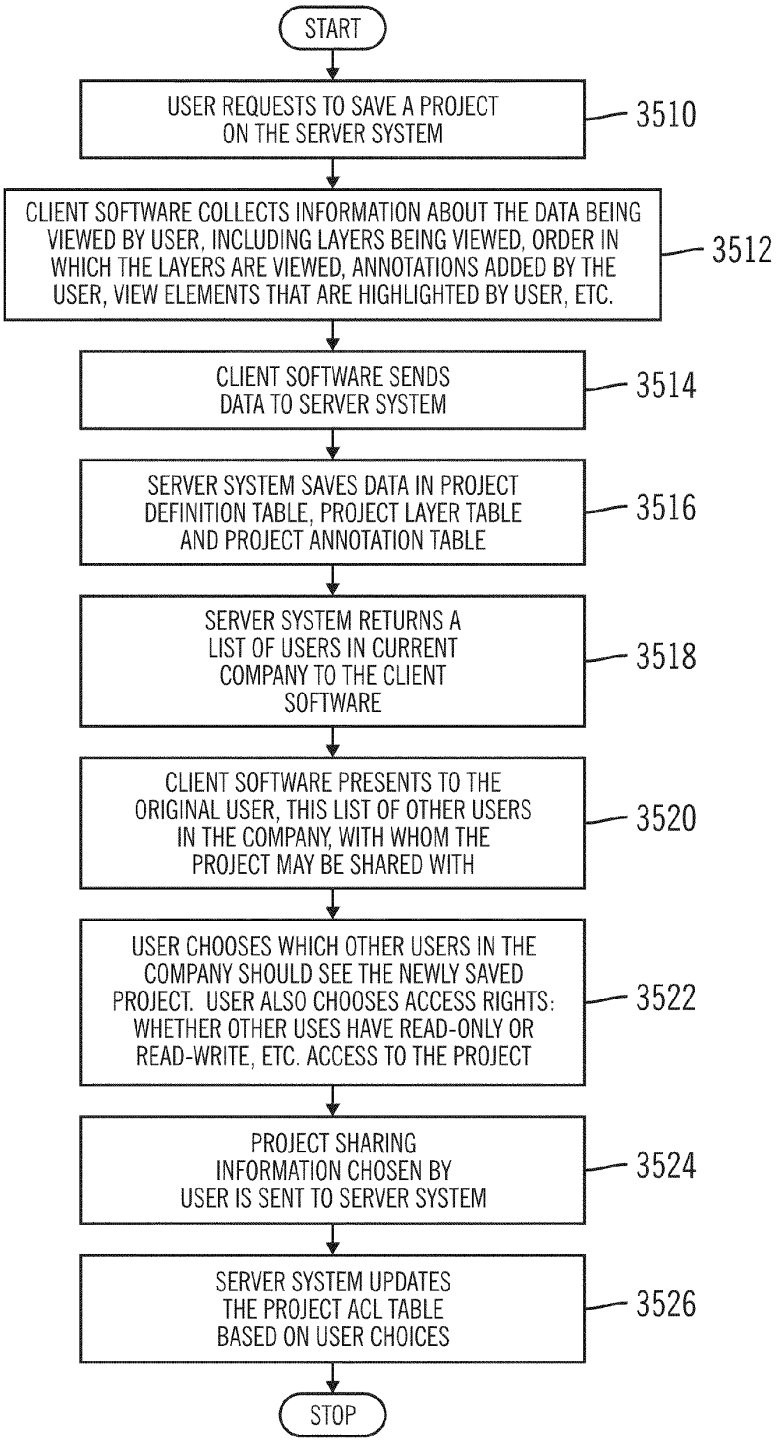

START
USER REQUESTS TO SAVE A PROJECT ON THE SERVER SYSTEM
3510
CLIENT SOFTWARE COLLECTS INFORMATION ABOUT THE DATA BEING VIEWED BY USER, INCLUDING LAYERS BEING VIEWED, ORDER IN WHICH THE LAYERS ARE VIEWED, ANNOTATIONS ADDED BY THE USER, VIEW ELEMENTS THAT ARE HIGHLIGHTED BY USER, ETC.
3512
CLIENT SOFTWARE SENDS DATA TO SERVER SYSTEM
3514
SERVER SYSTEM SAVES DATA IN PROJECT DEFINITION TABLE, PROJECT LAYER TABLE AND PROJECT ANNOTATION TABLE
3516
SERVER SYSTEM RETURNS A LIST OF USERS IN CURRENT COMPANY TO THE CLIENT SOFTWARE
3518
CLIENT SOFTWARE PRESENTS TO THE ORIGINAL USER, THIS LIST OF OTHER USERS IN THE COMPANY, WITH WHOM THE PROJECT MAY BE SHARED WITH
3520
USER CHOOSES WHICH OTHER USERS IN THE COMPANY SHOULD SEE THE NEWLY SAVED PROJECT. USER ALSO CHOOSES ACCESS RIGHTS: WHETHER OTHER USES HAVE READ-ONLY OR READ-WRITE, ETC. ACCESS TO THE PROJECT
3522
PROJECT SHARING INFORMATION CHOSEN BY USER IS SENT TO SERVER SYSTEM
3524
SERVER SYSTEM UPDATES THE PROJECT ACL TABLE BASED ON USER CHOICES
3526
STOP

FIG. 35

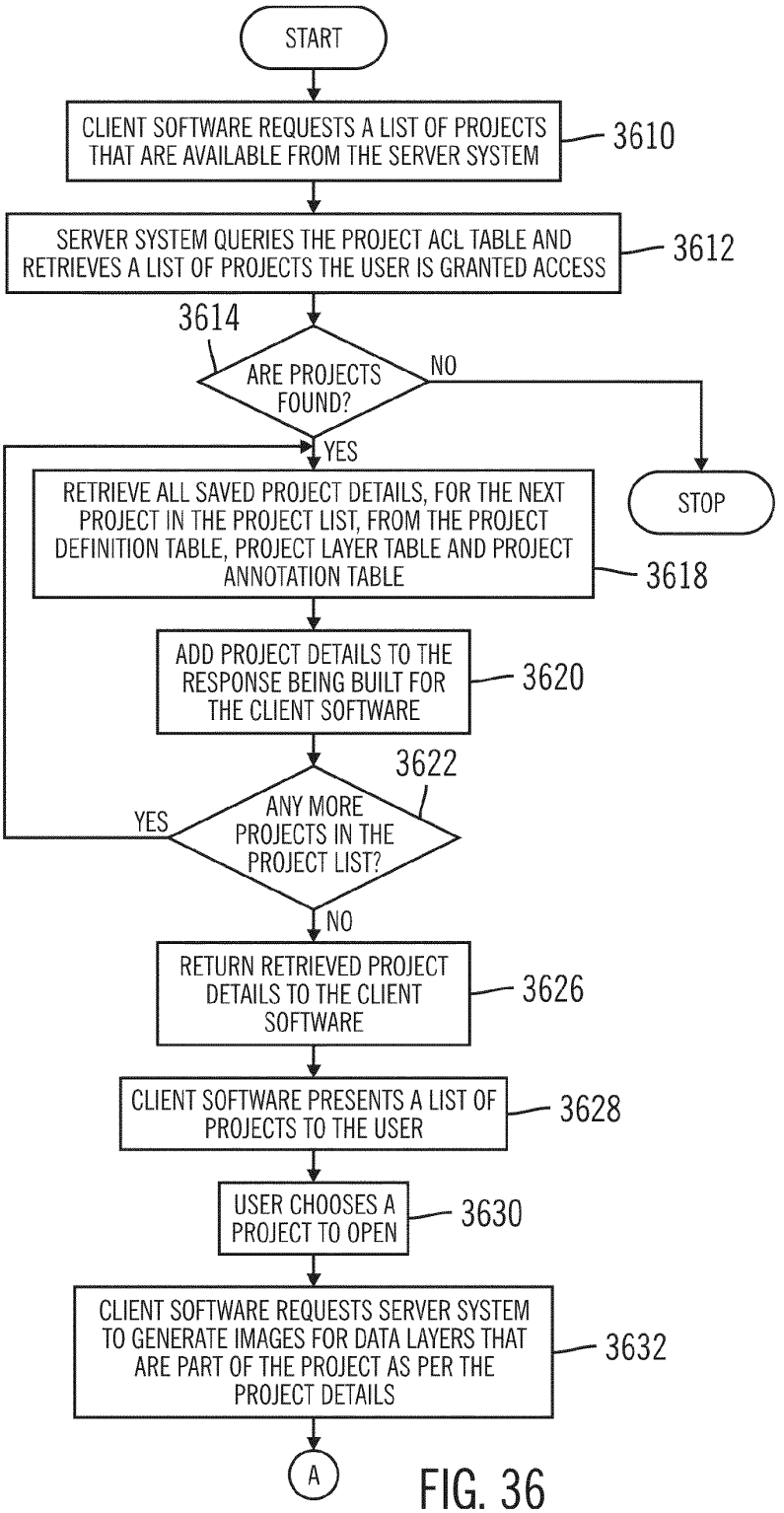

START
CLIENT SOFTWARE REQUESTS A LIST OF PROJECTS THAT ARE AVAILABLE FROM THE SERVER SYSTEM
3610
SERVER SYSTEM QUERIES THE PROJECT ACL TABLE AND RETRIEVES A LIST OF PROJECTS THE USER IS GRANTED ACCESS
3612
3614
ARE PROJECTS FOUND?
NO
YES
STOP
RETRIEVE ALL SAVED PROJECT DETAILS, FOR THE NEXT PROJECT IN THE PROJECT LIST, FROM THE PROJECT DEFINITION TABLE, PROJECT LAYER TABLE AND PROJECT ANNOTATION TABLE
3618
ADD PROJECT DETAILS TO THE RESPONSE BEING BUILT FOR THE CLIENT SOFTWARE
3620
3622
ANY MORE PROJECTS IN THE PROJECT LIST?
YES
NO
RETURN RETRIEVED PROJECT DETAILS TO THE CLIENT SOFTWARE
3626
CLIENT SOFTWARE PRESENTS A LIST OF PROJECTS TO THE USER
3628
USER CHOOSES A PROJECT TO OPEN
3630
CLIENT SOFTWARE REQUESTS SERVER SYSTEM TO GENERATE IMAGES FOR DATA LAYERS THAT ARE PART OF THE PROJECT AS PER THE PROJECT DETAILS
3632
A

FIG. 36

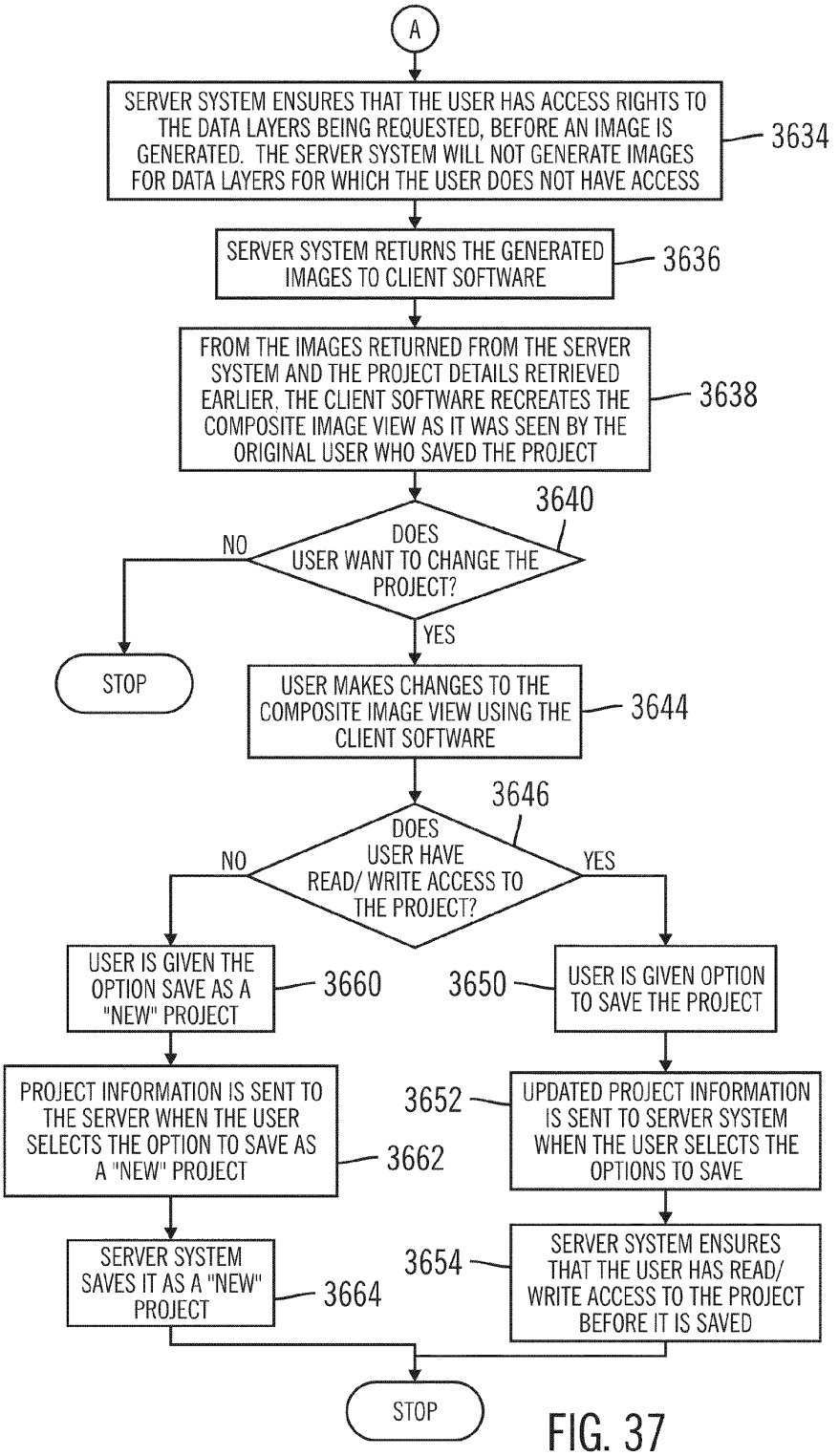

A
SERVER SYSTEM ENSURES THAT THE USER HAS ACCESS RIGHTS TO THE DATA LAYERS BEING REQUESTED, BEFORE AN IMAGE IS GENERATED. THE SERVER SYSTEM WILL NOT GENERATE IMAGES FOR DATA LAYERS FOR WHICH THE USER DOES NOT HAVE ACCESS
3634
SERVER SYSTEM RETURNS THE GENERATED IMAGES TO CLIENT SOFTWARE
3636
FROM THE IMAGES RETURNED FROM THE SERVER SYSTEM AND THE PROJECT DETAILS RETRIEVED EARLIER, THE CLIENT SOFTWARE RECREATES THE COMPOSITE IMAGE VIEW AS IT WAS SEEN BY THE ORIGINAL USER WHO SAVED THE PROJECT
3638
3640
DOES USER WANT TO CHANGE THE PROJECT?
NO
YES
STOP
USER MAKES CHANGES TO THE COMPOSITE IMAGE VIEW USING THE CLIENT SOFTWARE
3644
3646
DOES USER HAVE READ/ WRITE ACCESS TO THE PROJECT?
NO
YES
USER IS GIVEN THE OPTION SAVE AS A "NEW" PROJECT
3660
3650
USER IS GIVEN OPTION TO SAVE THE PROJECT
PROJECT INFORMATION IS SENT TO THE SERVER WHEN THE USER SELECTS THE OPTION TO SAVE AS A "NEW" PROJECT
3662
3652
UPDATED PROJECT INFORMATION IS SENT TO SERVER SYSTEM WHEN THE USER SELECTS THE OPTIONS TO SAVE
SERVER SYSTEM SAVES IT AS A "NEW" PROJECT
3664
3654
SERVER SYSTEM ENSURES THAT THE USER HAS READ/ WRITE ACCESS TO THE PROJECT BEFORE IT IS SAVED
STOP

FIG. 37

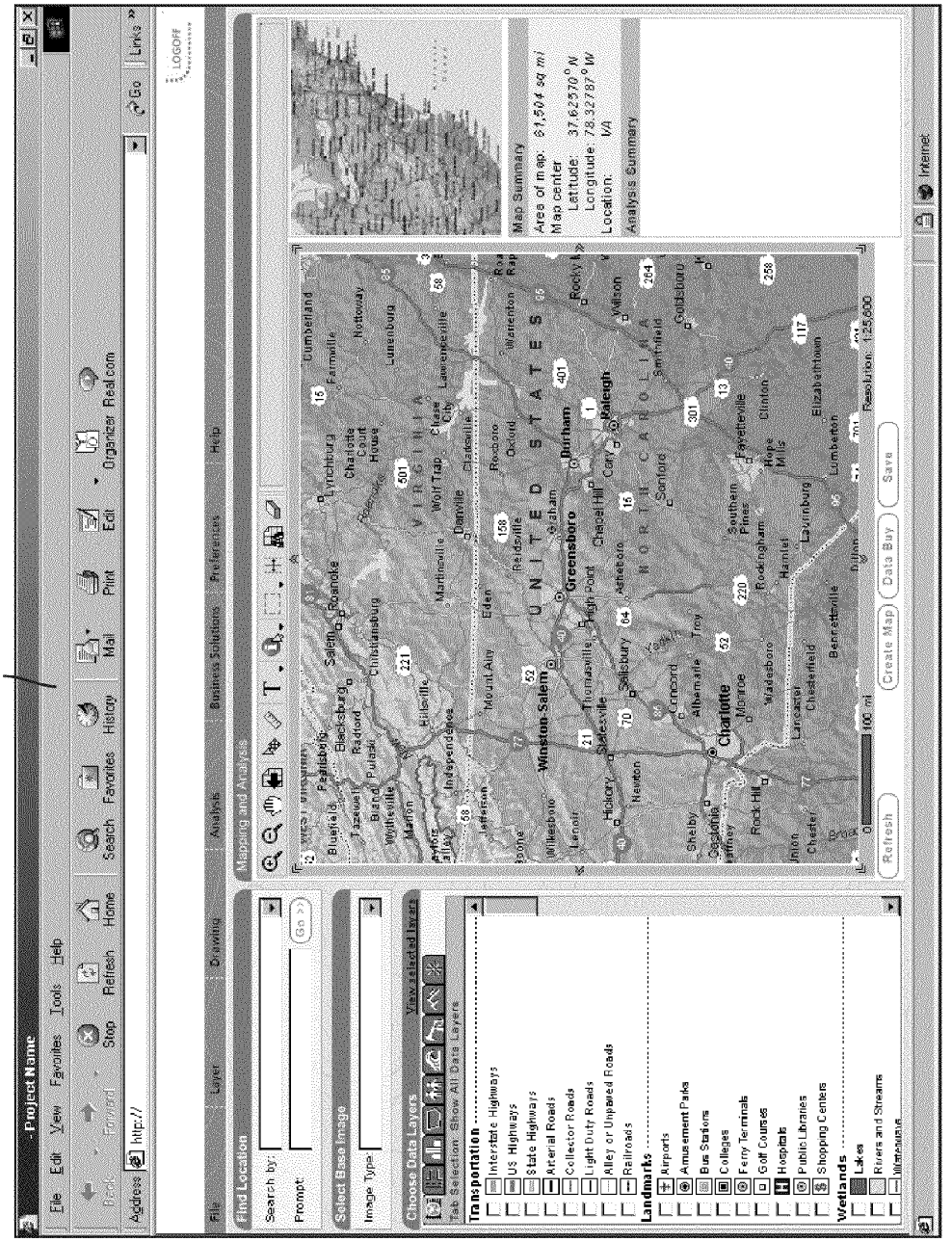

3810
Project Name
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Organize RealCom
Address http://
Links
LOGOFF
File Layer Drawing Analysis Business Solutions Preferences Help
Find Location
Search by:
Prompt:
Go >>
Select Base Image
Image Type:
Choose Data Layers
View selected layers
Tab Selection Show All Data Layers
Transportation
Interstate Highways
US Highways
State Highways
Arterial Roads
Collector Roads
Light Duty Roads
Alley or Unpaved Roads
Railroads
Landmarks
Airports
Amusement Parks
Bus Stations
Colleges
Ferry Terminals
Golf Courses
Hospitals
Public Libraries
Shopping Centers
Wetlands
Lakes
Rivers and Streams
Mapping and Analysis
Refresh
Create Map
Data Buy
Save
Resolution: 125,000
Map Summary
Area of map: 61,504 sq mi
Map center
Latitude: 37.62570° N
Longitude: 78.32787° W
Location: VA
Analysis Summary
Internet

FIG. 38

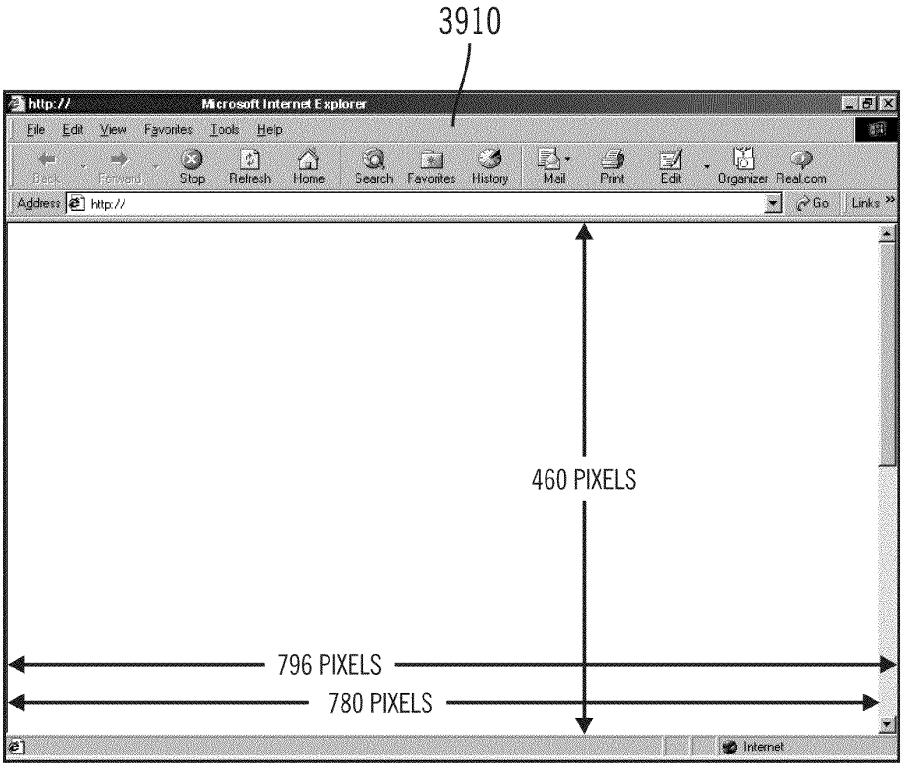

3910
http://
Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Organizer Real.com
Address http://
Go Links
460 PIXELS
796 PIXELS
780 PIXELS
Internet

FIG. 39

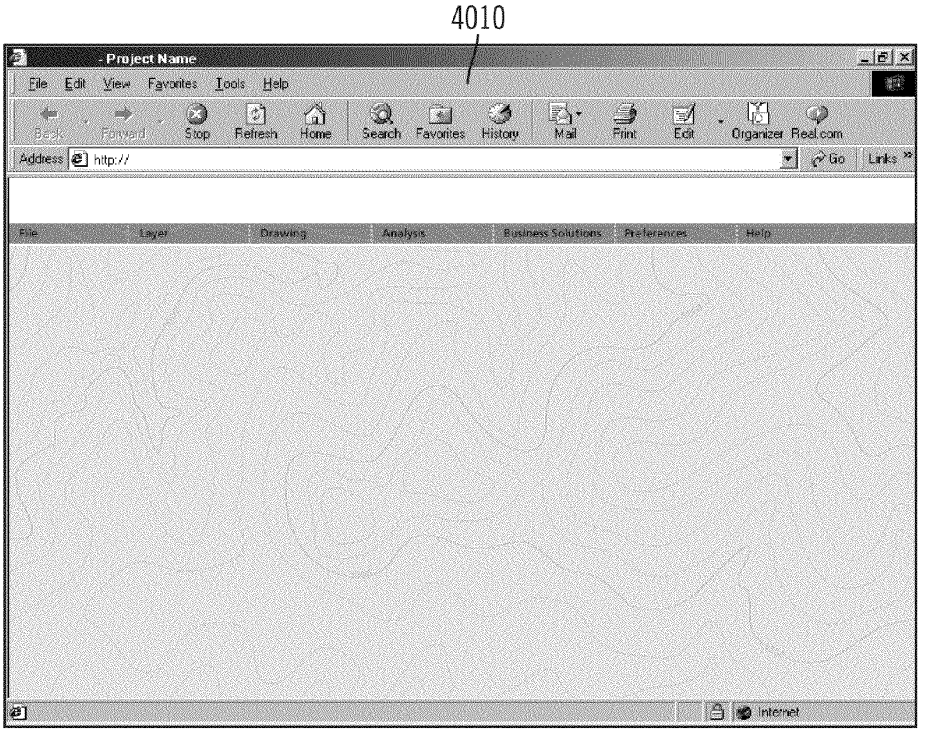


FIG. 40A

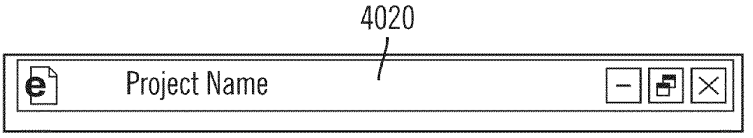


FIG. 40B

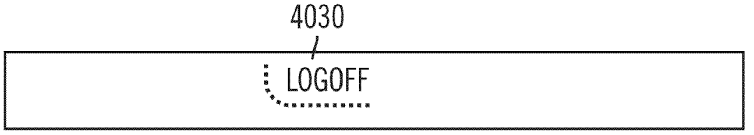


FIG. 40C

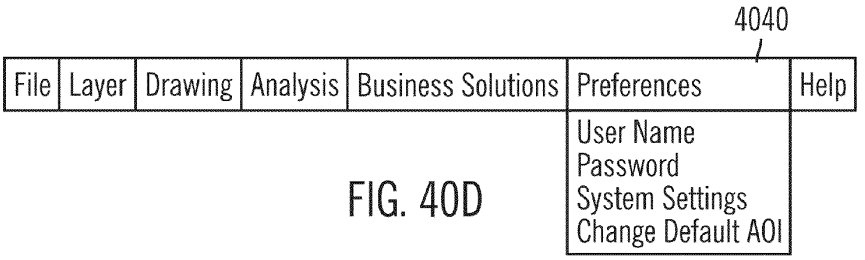


FIG. 40D

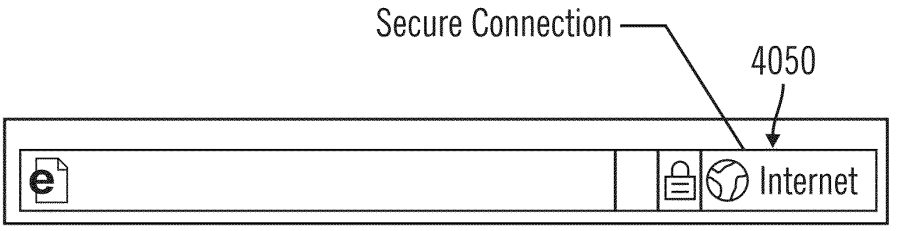


FIG. 40E

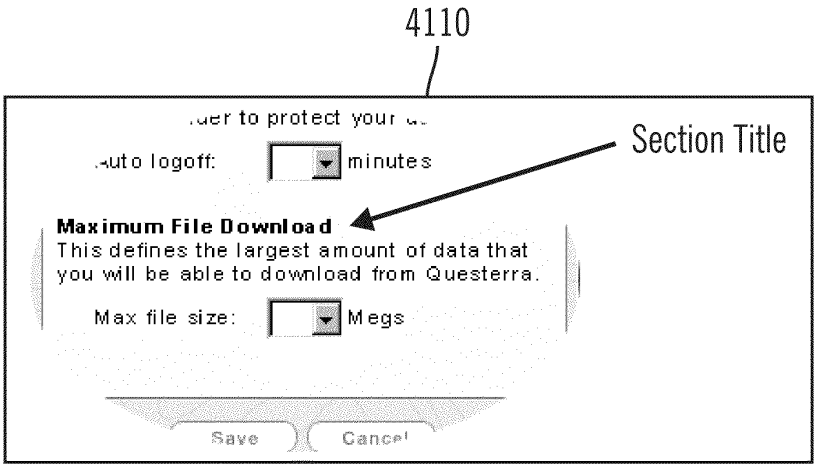


FIG. 41

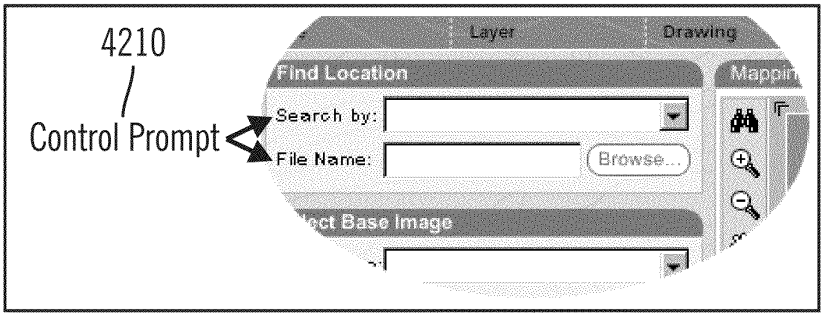

4210
Control Prompt
Layer
Drawing
Find Location
Search by:
File Name:
Browse...

FIG. 42

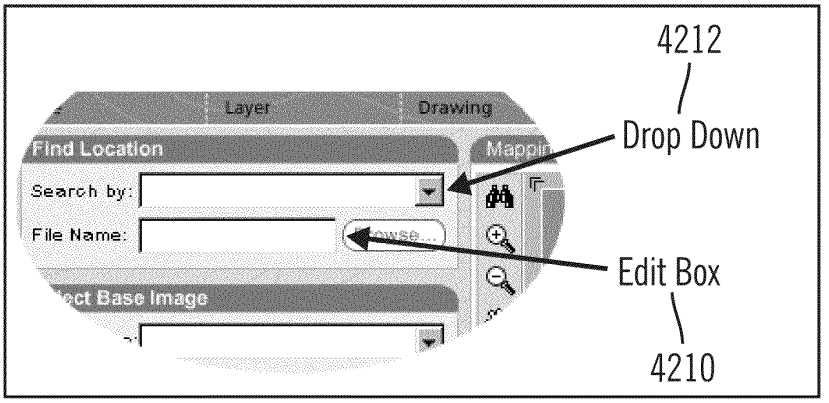

4212
Drop Down
Layer
Drawing
Find Location
Search by:
File Name:
Edit Box
4210

FIG. 43

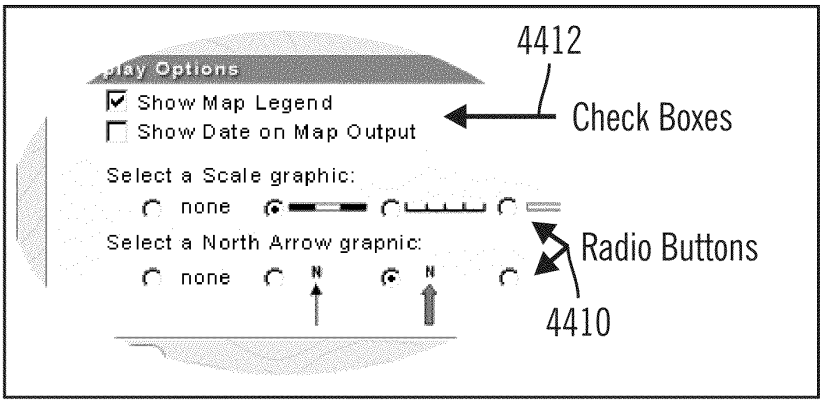

4412
play Options
Show Map Legend
Show Date on Map Output
Check Boxes
Select a Scale graphic:
none
Select a North Arrow grapnic:
none
Radio Buttons
4410

FIG. 44

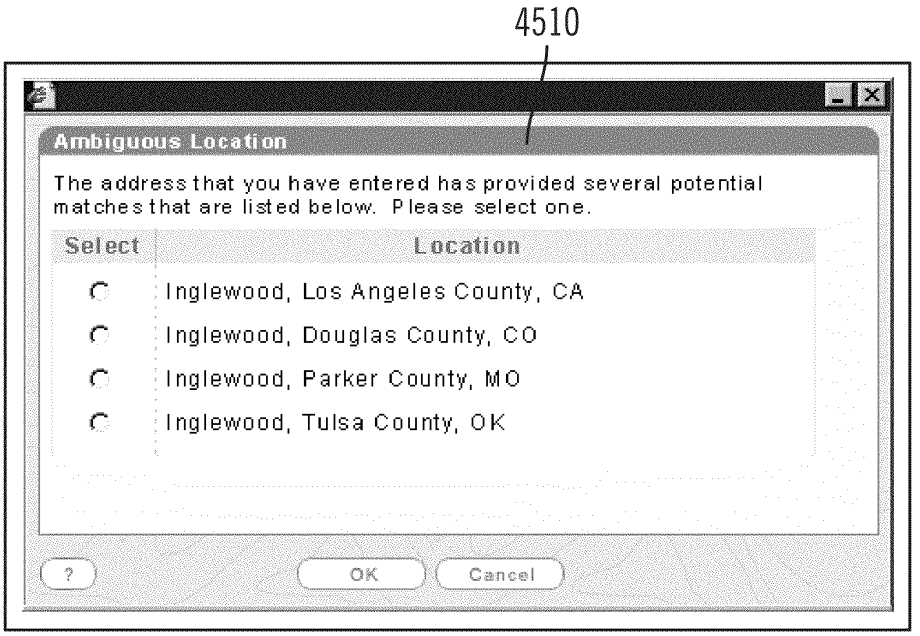

4510
Ambiguous Location
The address that you have entered has provided several potential matches that are listed below. Please select one.
Select
Location
Inglewood, Los Angeles County, CA
Inglewood, Douglas County, CO
Inglewood, Parker County, MO
Inglewood, Tulsa County, OK
?
OK
Cancel

FIG. 45

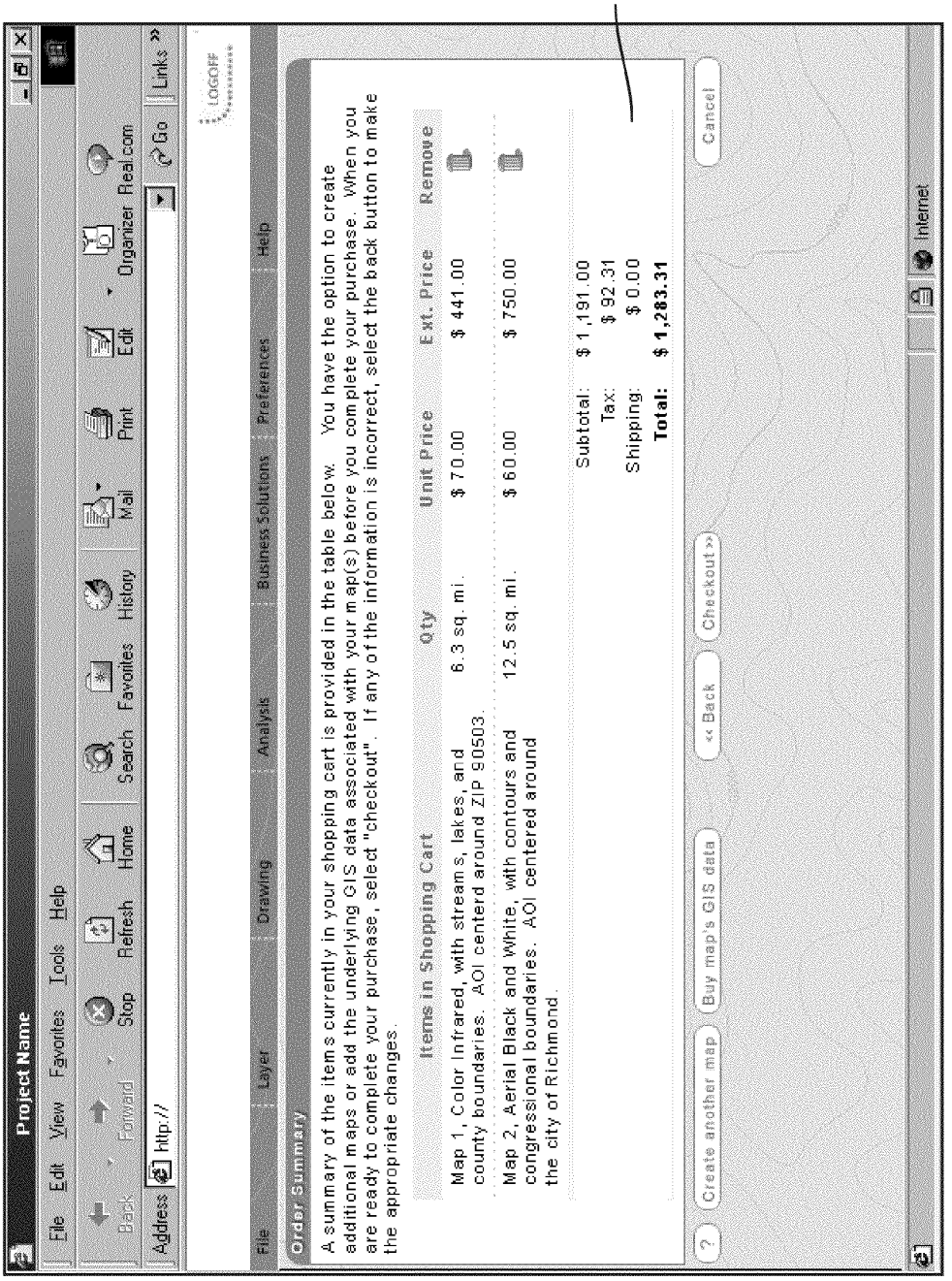

Project Name
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Organizer Real.com
Address http://
Go Links
LOGOFF
File Layer Drawing Analysis Business Solutions Preferences Help
Order Summary
A summary of the items currently in your shopping cart is provided in the table below. You have the option to create additional maps or add the underlying GIS data associated with your map(s) before you complete your purchase. When you are ready to complete your purchase, select "checkout". If any of the information is incorrect, select the back button to make the appropriate changes.
Items in Shopping Cart
Qty
Unit Price
Ext. Price
Remove
Map 1, Color Infrared, with streams, lakes, and county boundaries. AOI centerd around ZIP 90503
6.3 sq. mi.
$ 70.00
$ 441.00
Map 2, Aerial Black and White, with contours and congressional boundaries. AOI centered around the city of Richmond.
12.5 sq. mi.
$ 60.00
$ 750.00
Subtotal: $ 1,191.00
Tax: $ 92.31
Shipping: $ 0.00
Total: $ 1,283.31
4610
Create another map
Buy map's GIS data
<< Back
Checkout >>
Cancel
Internet

FIG. 46

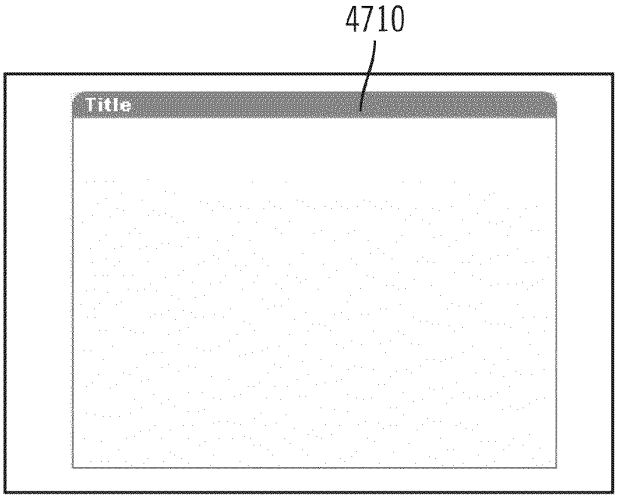


FIG. 47

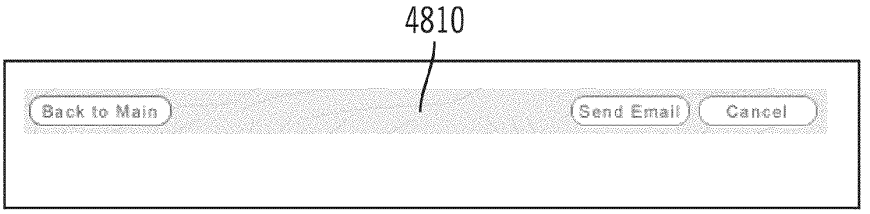


FIG. 48

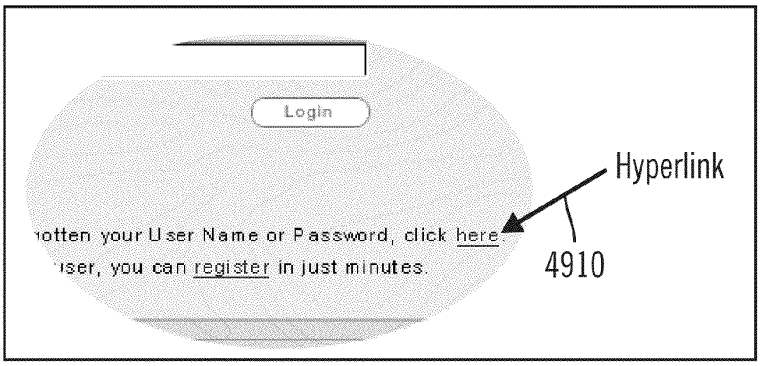


FIG. 49

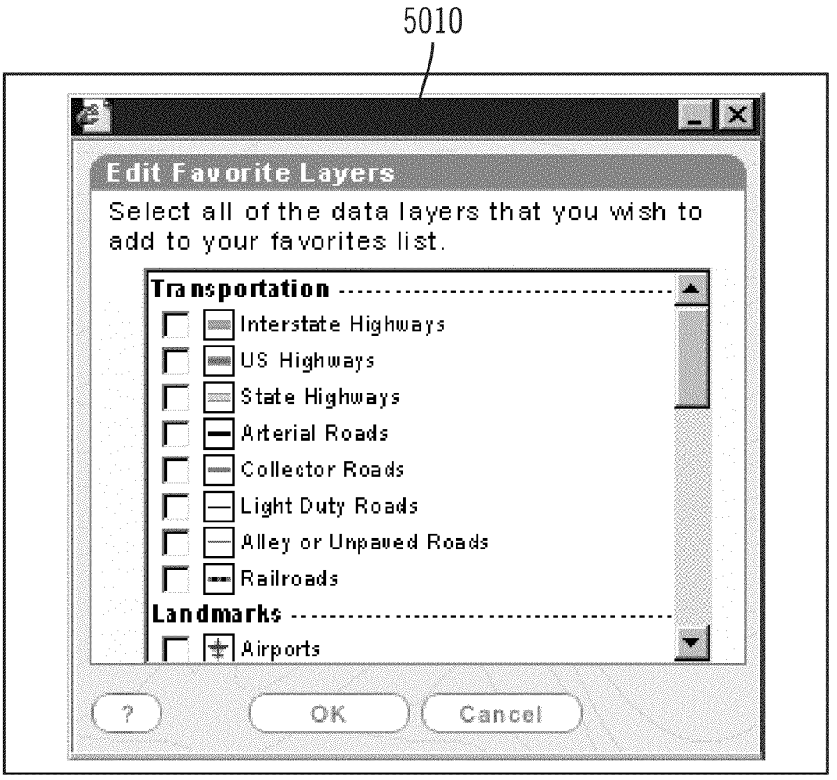

5010
Edit Favorite Layers
Select all of the data layers that you wish to add to your favorites list.
Transportation
Interstate Highways
US Highways
State Highways
Arterial Roads
Collector Roads
Light Duty Roads
Alley or Unpaved Roads
Railroads
Landmarks
Airports
?
OK
Cancel

FIG. 50

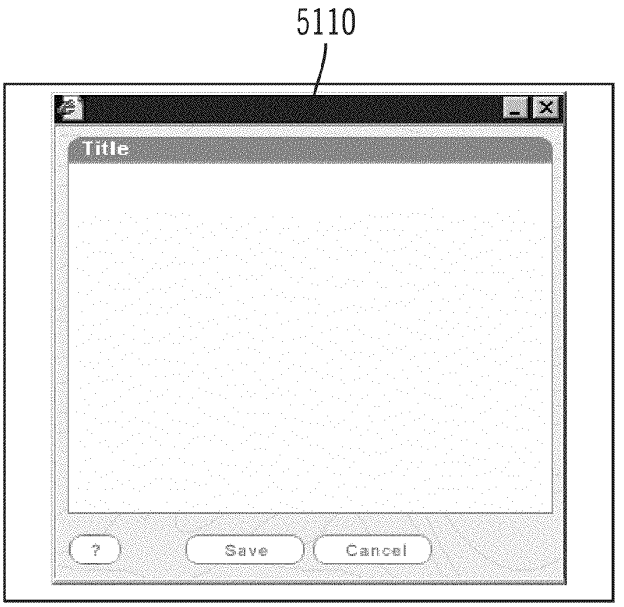

5110
Title
?
Save
Cancel

FIG. 51

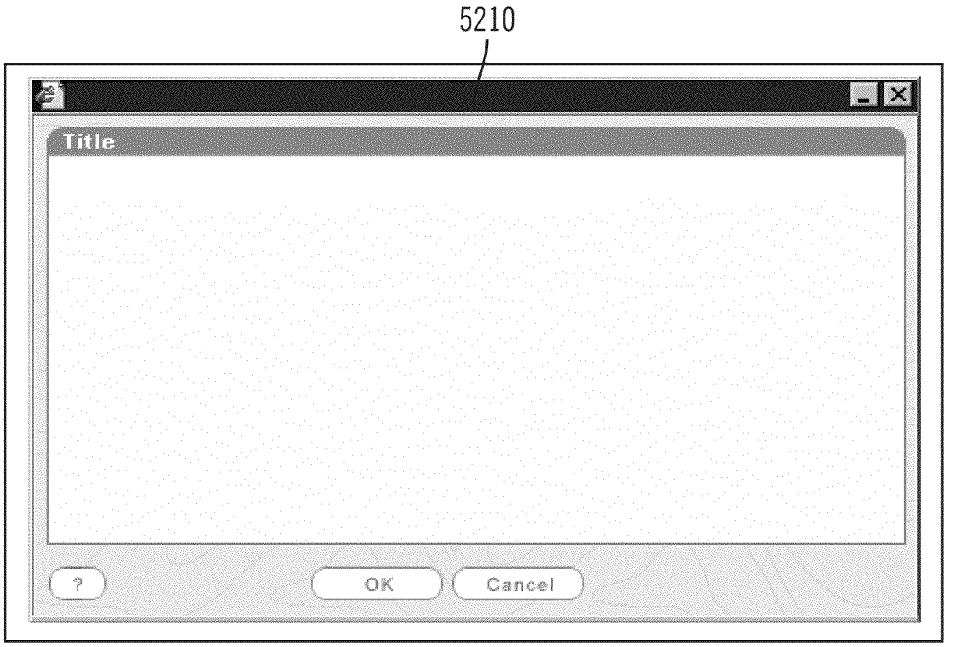


FIG. 52

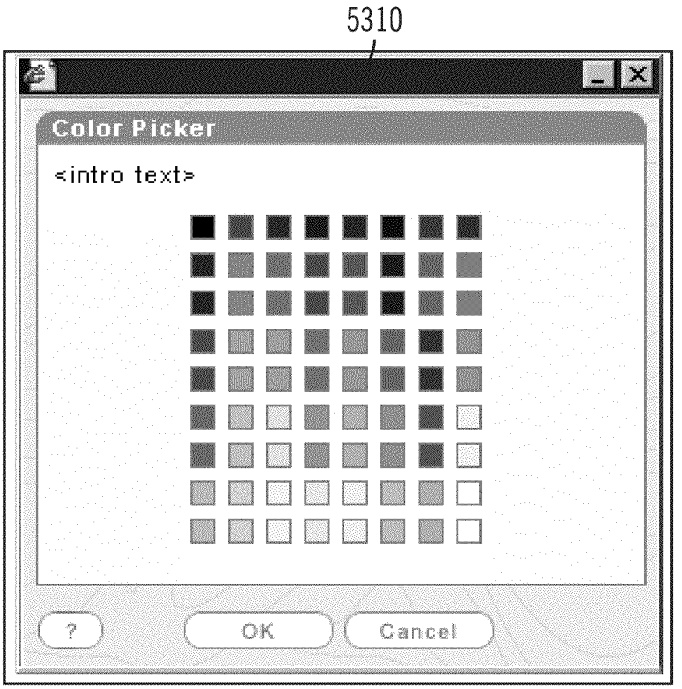


FIG. 53

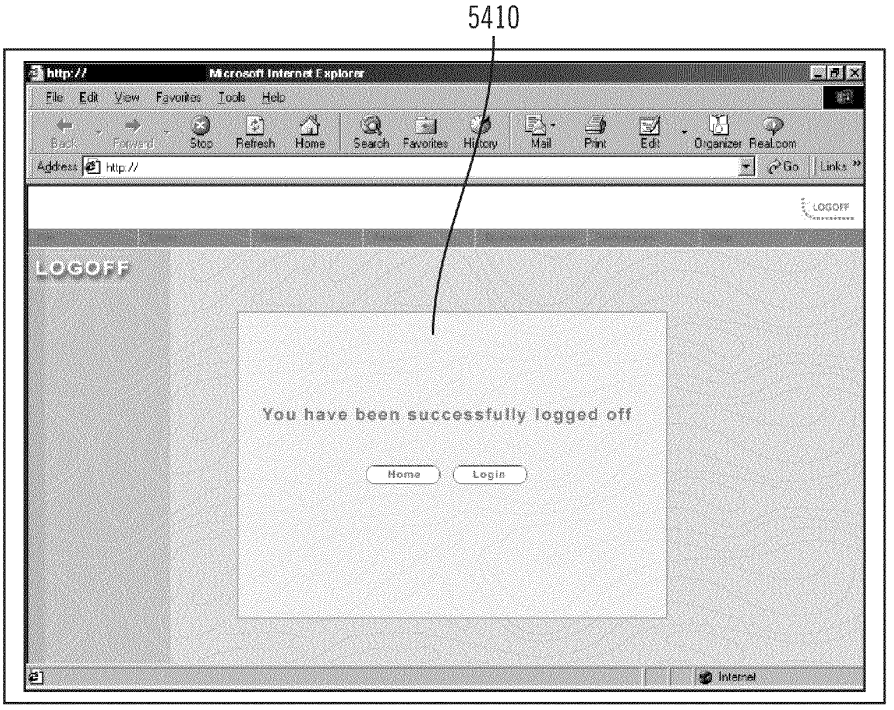
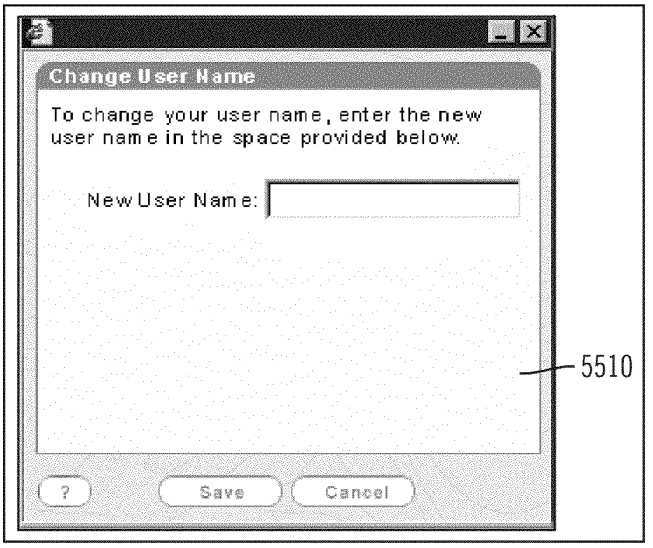

5410
http://
Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Organizer RealCom
Address http://
Go Links
LOGOFF
LOGOFF
You have been successfully logged off
Home
Login
Internet

FIG. 54

FIG. 55


Change User Name
To change your user name, enter the new user name in the space provided below.
New User Name:
5510
?
Save
Cancel

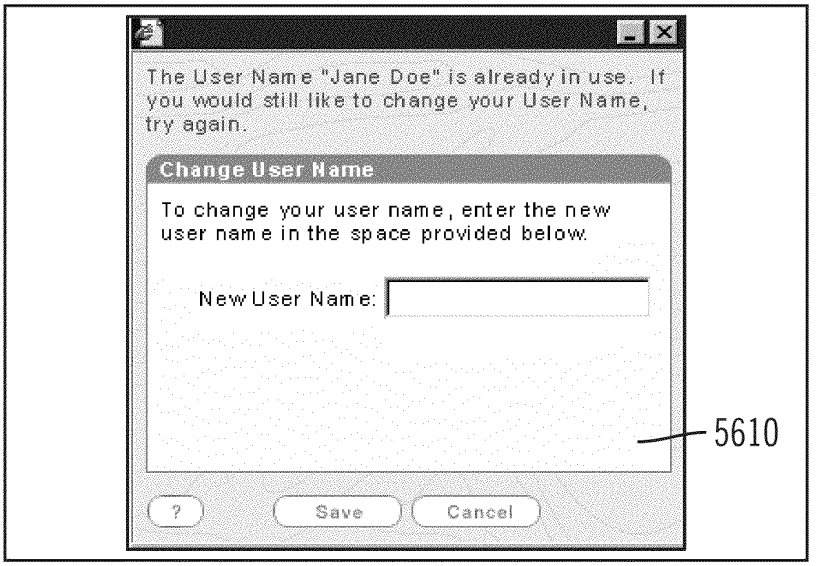

The User Name "Jane Doe" is already in use. If you would still like to change your User Name, try again.
Change User Name
To change your user name, enter the new user name in the space provided below.
New User Name:
?
Save
Cancel
5610

FIG. 56

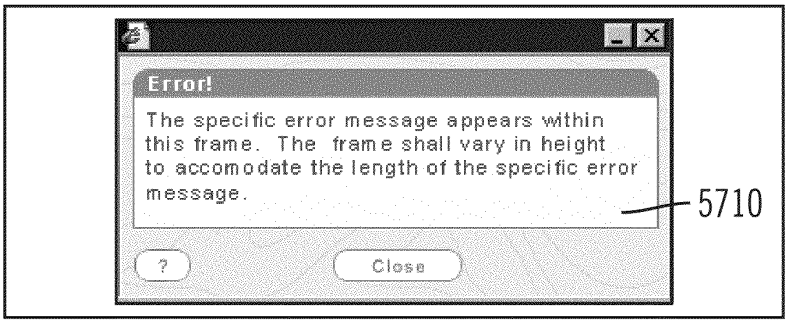

Error!
The specific error message appears within this frame. The frame shall vary in height to accomodate the length of the specific error message.
?
Close
5710

FIG. 57

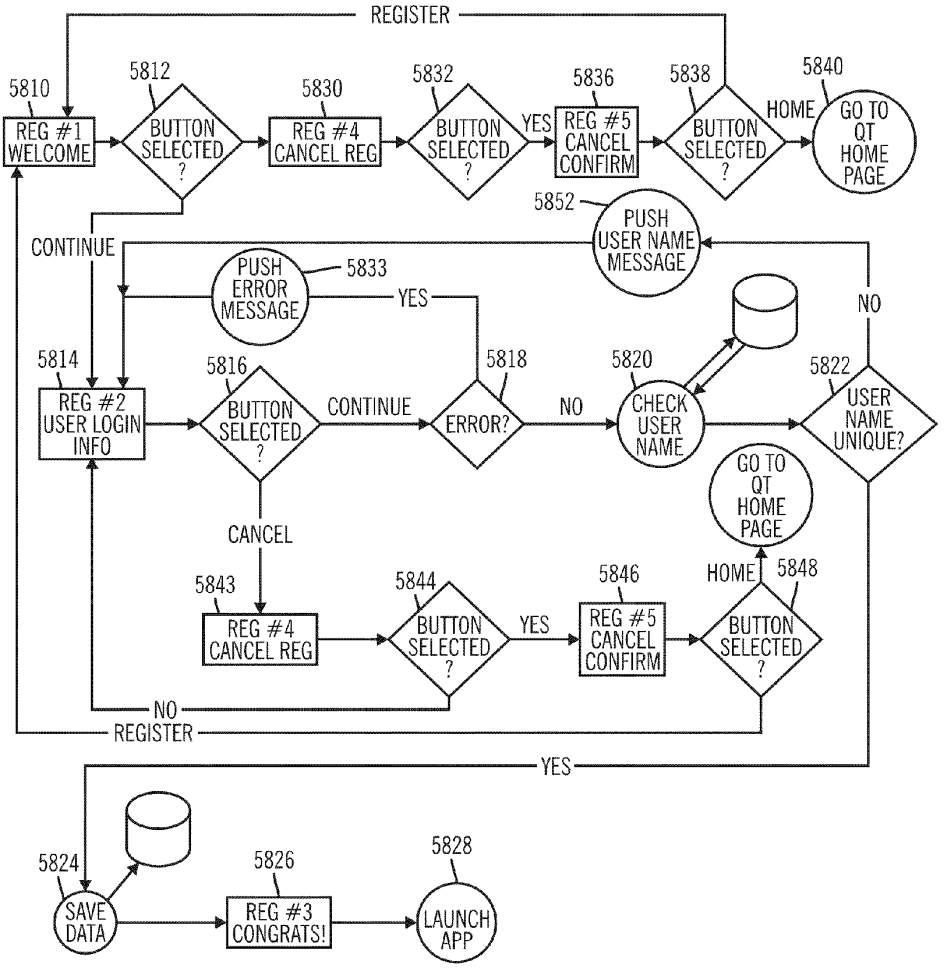

REGISTER
5810
REG #1 WELCOME
5812
BUTTON SELECTED ?
5830
REG #4 CANCEL REG
5832
BUTTON SELECTED ?
YES
5836
REG #5 CANCEL CONFIRM
5838
BUTTON SELECTED ?
HOME
5840
GO TO QT HOME PAGE
CONTINUE
5852
PUSH USER NAME MESSAGE
PUSH ERROR MESSAGE
5833
YES
NO
5814
REG #2 USER LOGIN INFO
5816
BUTTON SELECTED ?
CONTINUE
5818
ERROR?
NO
5820
CHECK USER NAME
5822
USER NAME UNIQUE?
GO TO QT HOME PAGE
CANCEL
5843
REG #4 CANCEL REG
5844
BUTTON SELECTED ?
YES
5846
REG #5 CANCEL CONFIRM
HOME
5848
BUTTON SELECTED ?
NO
REGISTER
YES
5824
SAVE DATA
5826
REG #3 CONGRATS!
5828
LAUNCH APP

FIG. 58

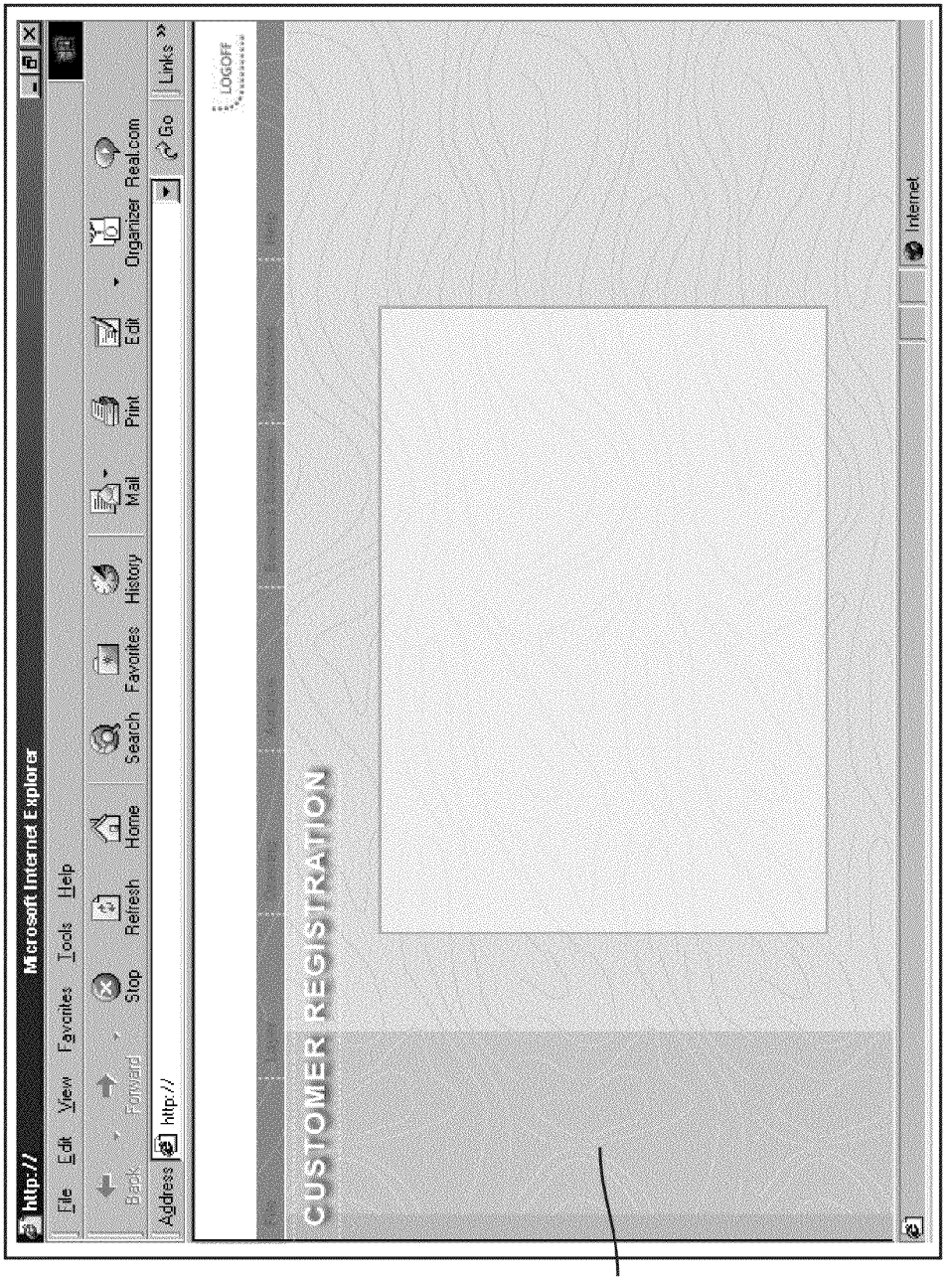
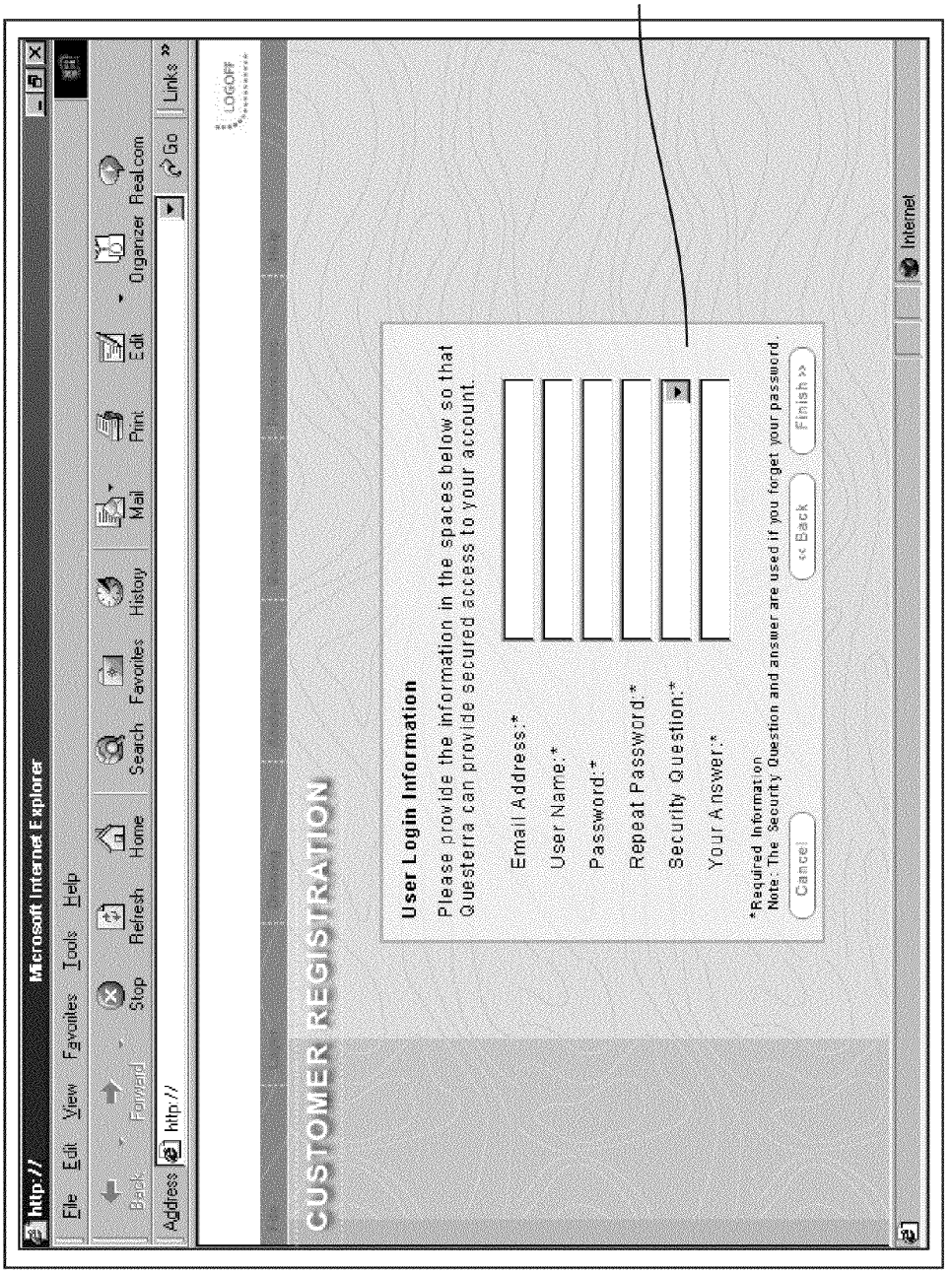

http://
Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Organizer Real.com
Address http://
Go Links
LOGOFF
CUSTOMER REGISTRATION
Internet
5910

FIG. 59

FIG. 60


6010
http://
Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Organizer Real.com
Address http://
Go Links
LOGOFF
CUSTOMER REGISTRATION
User Login Information
Please provide the information in the spaces below so that Questerra can provide secured access to your account.
Email Address:*
User Name:*
Password:*
Repeat Password:*
Security Question:*
Your Answer:*
*Required Information
Note: The Security Question and answer are used if you forget your password.
Cancel
<< Back
Finish >>
Internet

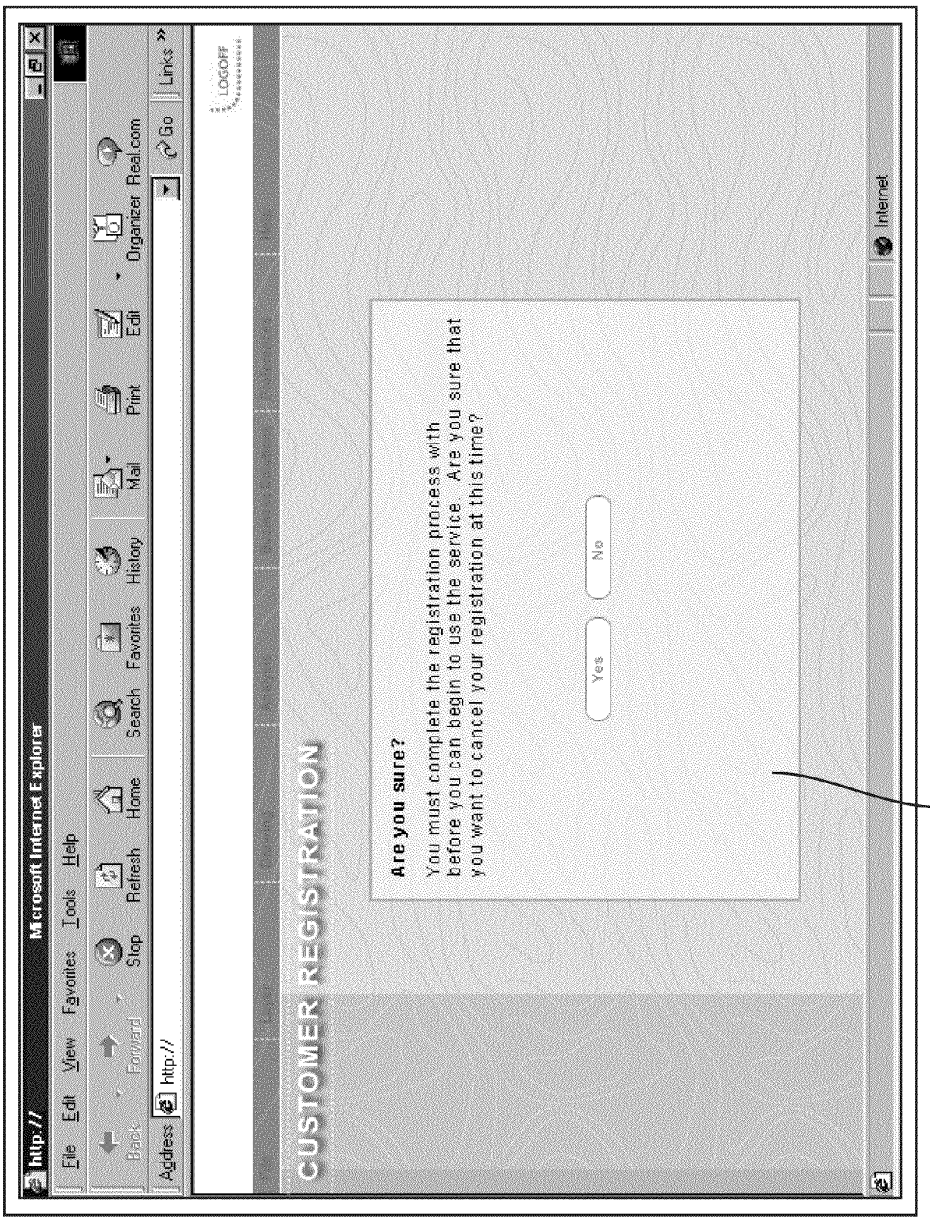

http://
Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Organizer Real.com
Address http://
Go Links
LOGOFF
CUSTOMER REGISTRATION
Are you sure?
You must complete the registration process with before you can begin to use the service. Are you sure that you want to cancel your registration at this time?
Yes
No
Internet
6110

FIG. 61

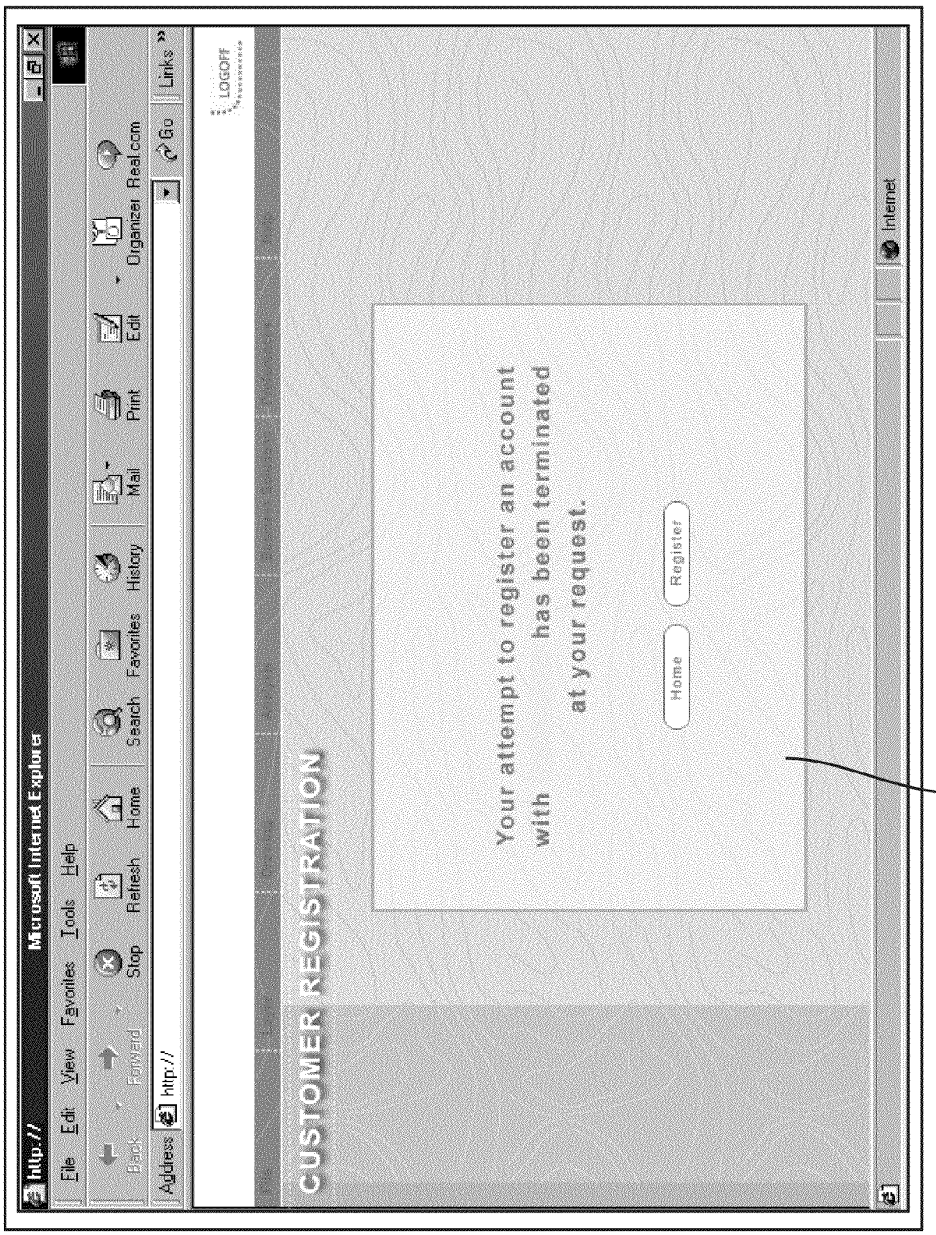

http://
Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Organizer Real.com
Address http://
Go Links
LOGOFF
CUSTOMER REGISTRATION
Your attempt to register an account with has been terminated at your request.
Home
Register
Internet
6210

FIG. 62

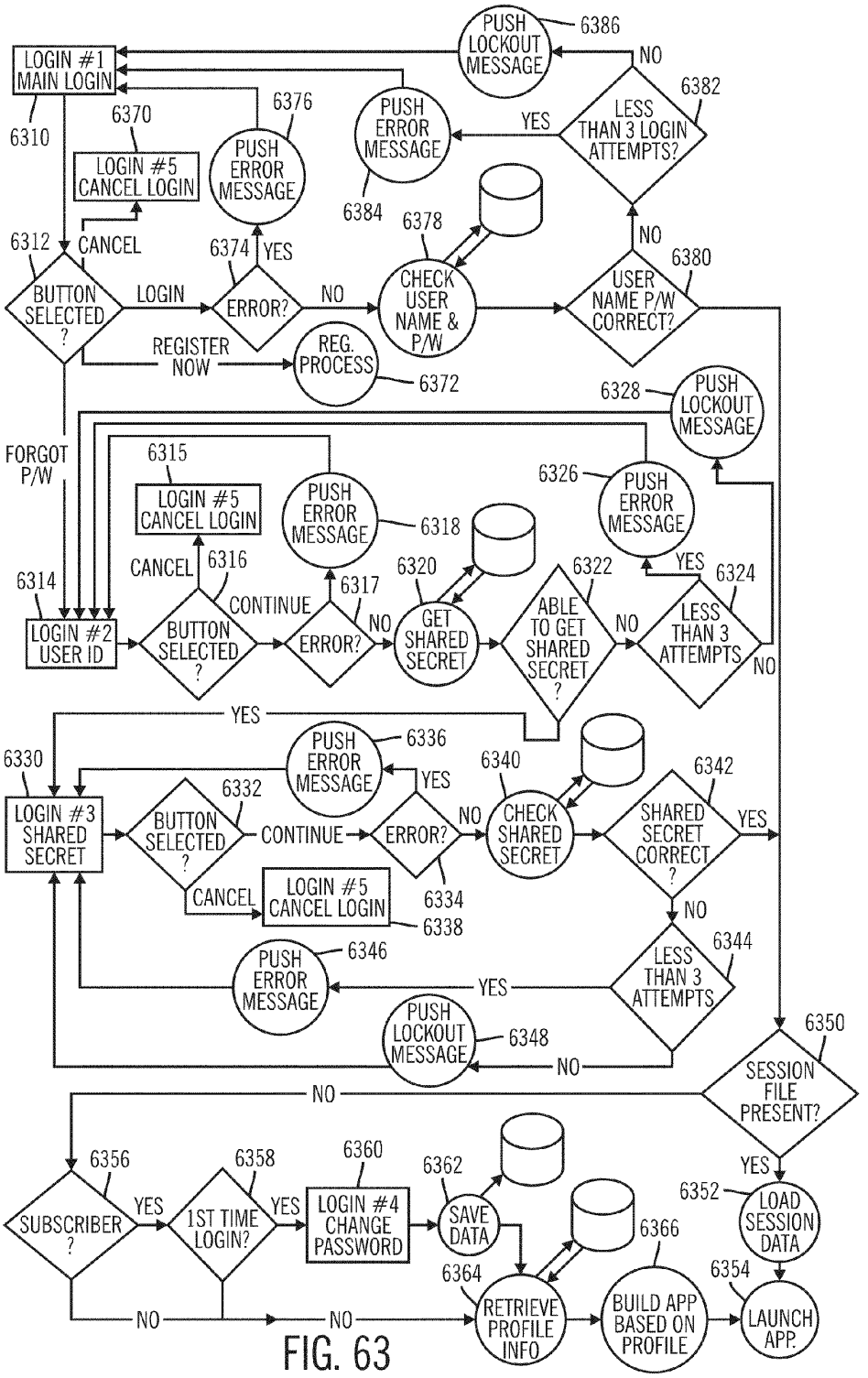

LOGIN #1 MAIN LOGIN
6310
PUSH LOCKOUT MESSAGE
6386
NO
LESS THAN 3 LOGIN ATTEMPTS?
6382
YES
PUSH ERROR MESSAGE
6384
6376
PUSH ERROR MESSAGE
6370
LOGIN #5 CANCEL LOGIN
6312
CANCEL
BUTTON SELECTED ?
LOGIN
6374
YES
ERROR?
NO
6378
CHECK USER NAME & P/W
NO
6380
USER NAME P/W CORRECT?
REGISTER NOW
REG. PROCESS
6372
6328
PUSH LOCKOUT MESSAGE
FORGOT P/W
6315
LOGIN #5 CANCEL LOGIN
PUSH ERROR MESSAGE
6318
6326
PUSH ERROR MESSAGE
6314
CANCEL
6316
CONTINUE
6317
6320
6322
YES
6324
LOGIN #2 USER ID
BUTTON SELECTED ?
ERROR?
NO
GET SHARED SECRET
ABLE TO GET SHARED SECRET ?
NO
LESS THAN 3 ATTEMPTS
NO
YES
6330
PUSH ERROR MESSAGE
6336
YES
6340
6342
LOGIN #3 SHARED SECRET
6332
BUTTON SELECTED ?
CONTINUE
ERROR?
NO
CHECK SHARED SECRET
SHARED SECRET CORRECT ?
YES
CANCEL
LOGIN #5 CANCEL LOGIN
6334
6338
NO
6344
PUSH ERROR MESSAGE
6346
YES
LESS THAN 3 ATTEMPTS
PUSH LOCKOUT MESSAGE
6348
NO
6350
SESSION FILE PRESENT?
NO
YES
6356
6358
6360
6362
6352
SUBSCRIBER ?
YES
1ST TIME LOGIN?
YES
LOGIN #4 CHANGE PASSWORD
SAVE DATA
LOAD SESSION DATA
6366
6364
6354
NO
NO
RETRIEVE PROFILE INFO
BUILD APP BASED ON PROFILE
LAUNCH APP.

FIG. 63

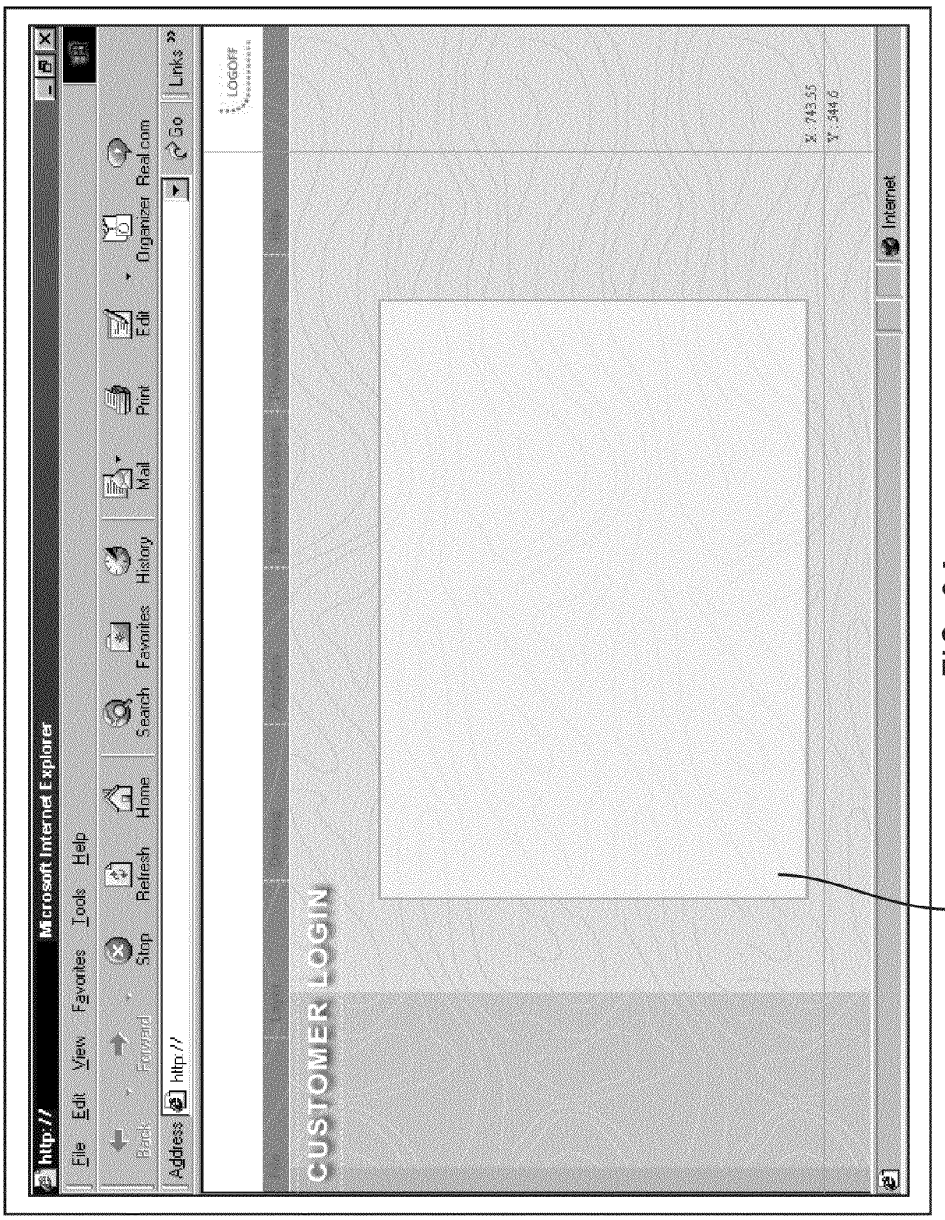
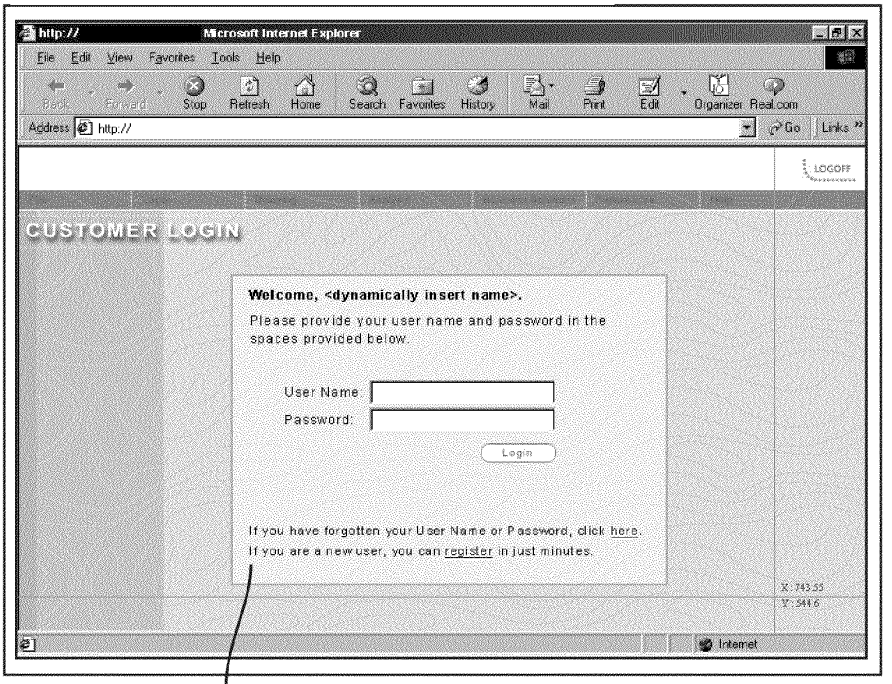
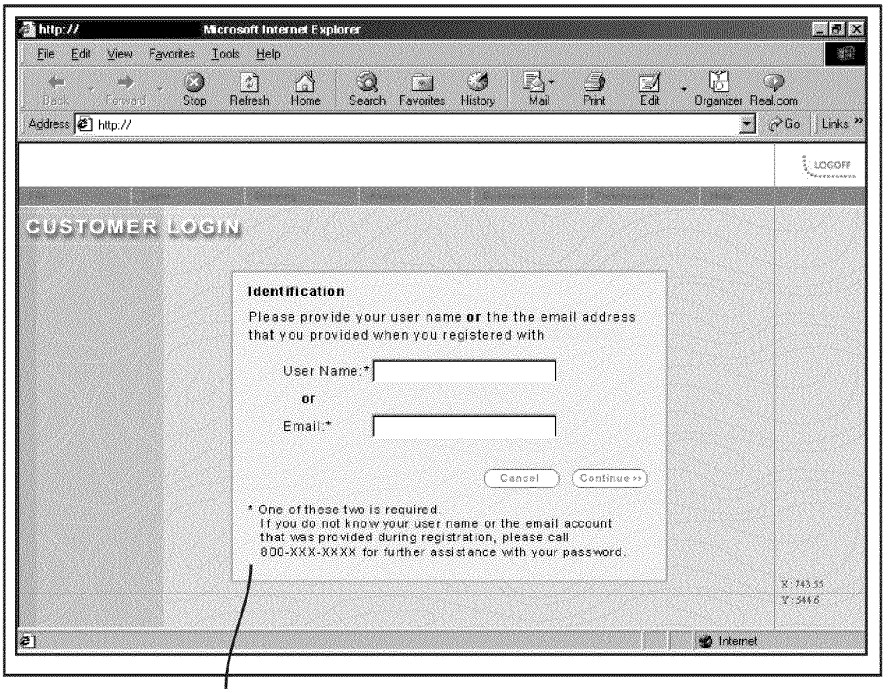

http://
Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Organizer Real.com
Address http://
Go Links
LOGOFF
CUSTOMER LOGIN
6410
Internet

FIG. 64



6510 FIG. 65



6610 FIG. 66

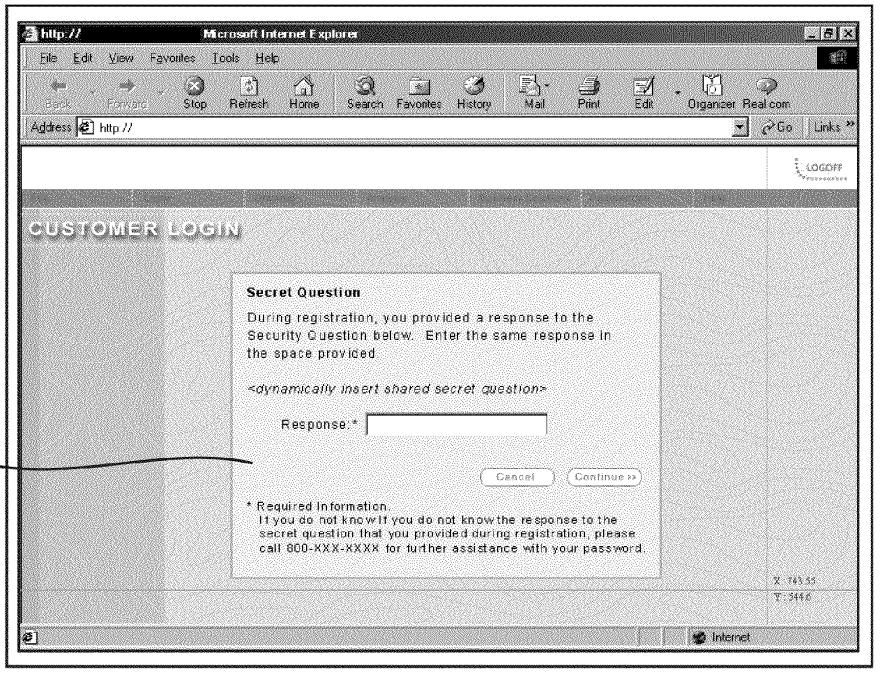

http://
Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Organizer Real.com
Address http://
Go Links
LOGOFF
CUSTOMER LOGIN
Secret Question
During registration, you provided a response to the Security Question below. Enter the same response in the space provided.
<dynamically insert shared secret question>
Response:*
Cancel
Continue >>
* Required Information.
If you do not know if you do not know the response to the secret question that you provided during registration, please call 800-XXX-XXXX for further assistance with your password.
Internet
6710

FIG. 67

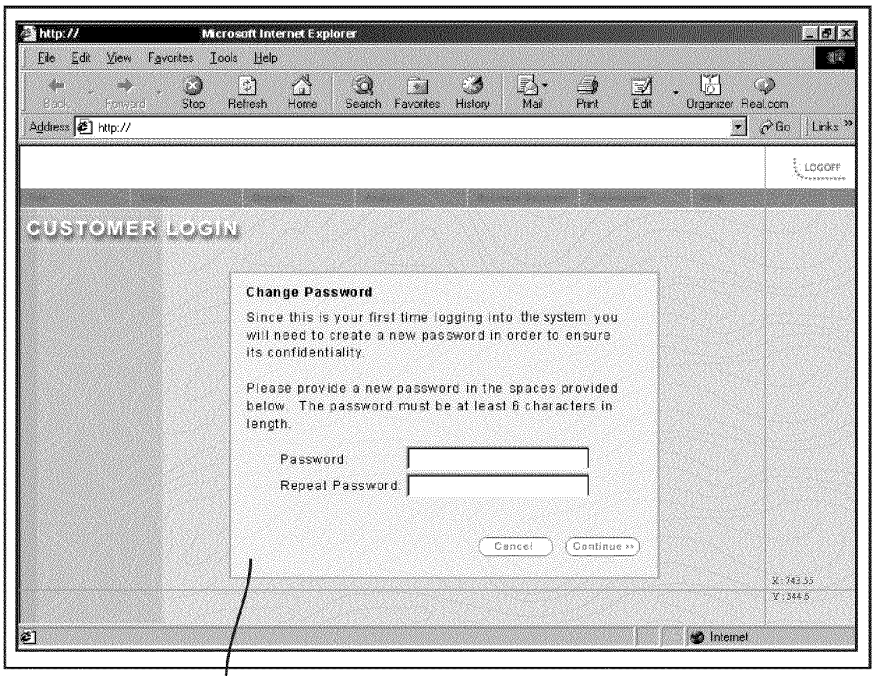

http://
Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Organizer Real.com
Address http://
Go Links
LOGOFF
CUSTOMER LOGIN
Change Password
Since this is your first time logging into the system you will need to create a new password in order to ensure its confidentiality.
Please provide a new password in the spaces provided below. The password must be at least 6 characters in length.
Password:
Repeat Password:
Cancel
Continue >>
Internet
6810

FIG. 68

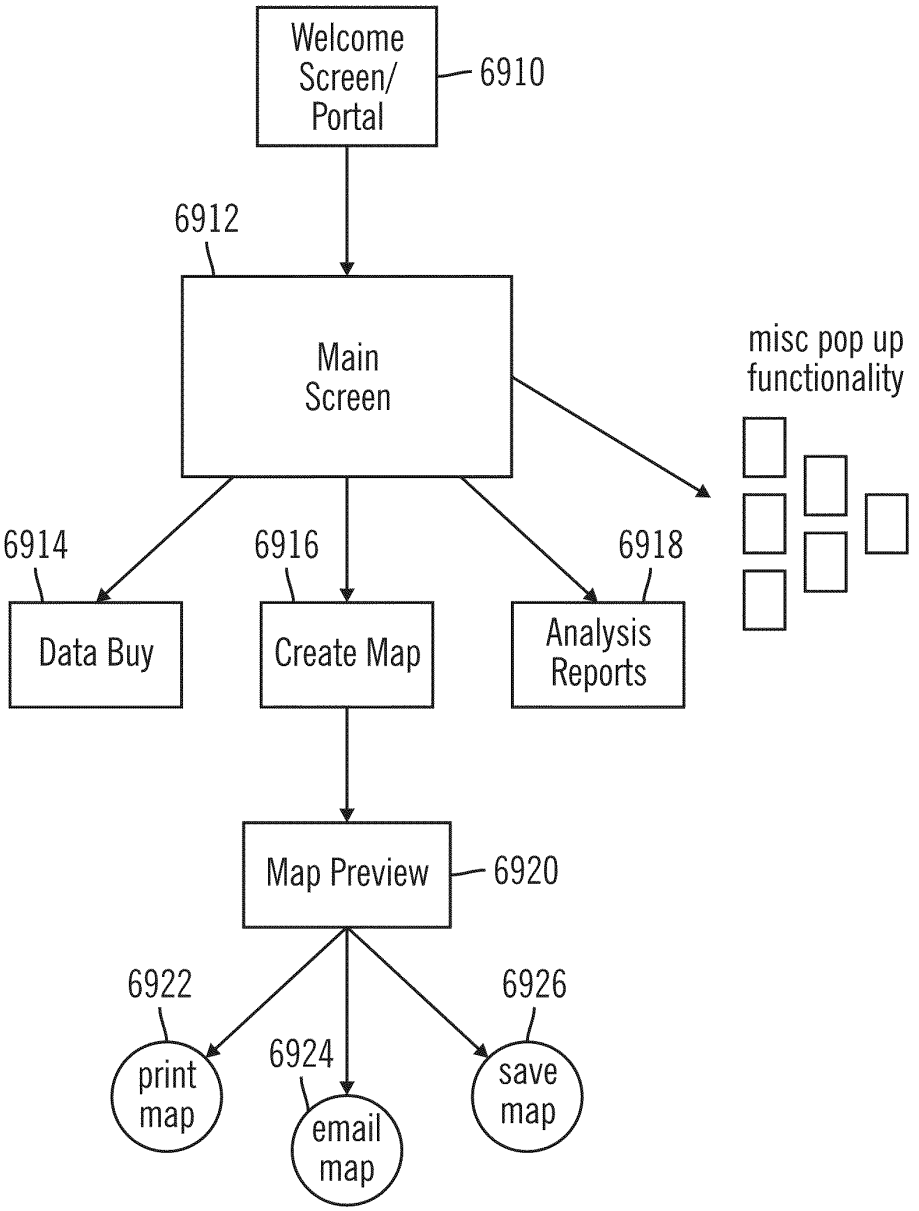
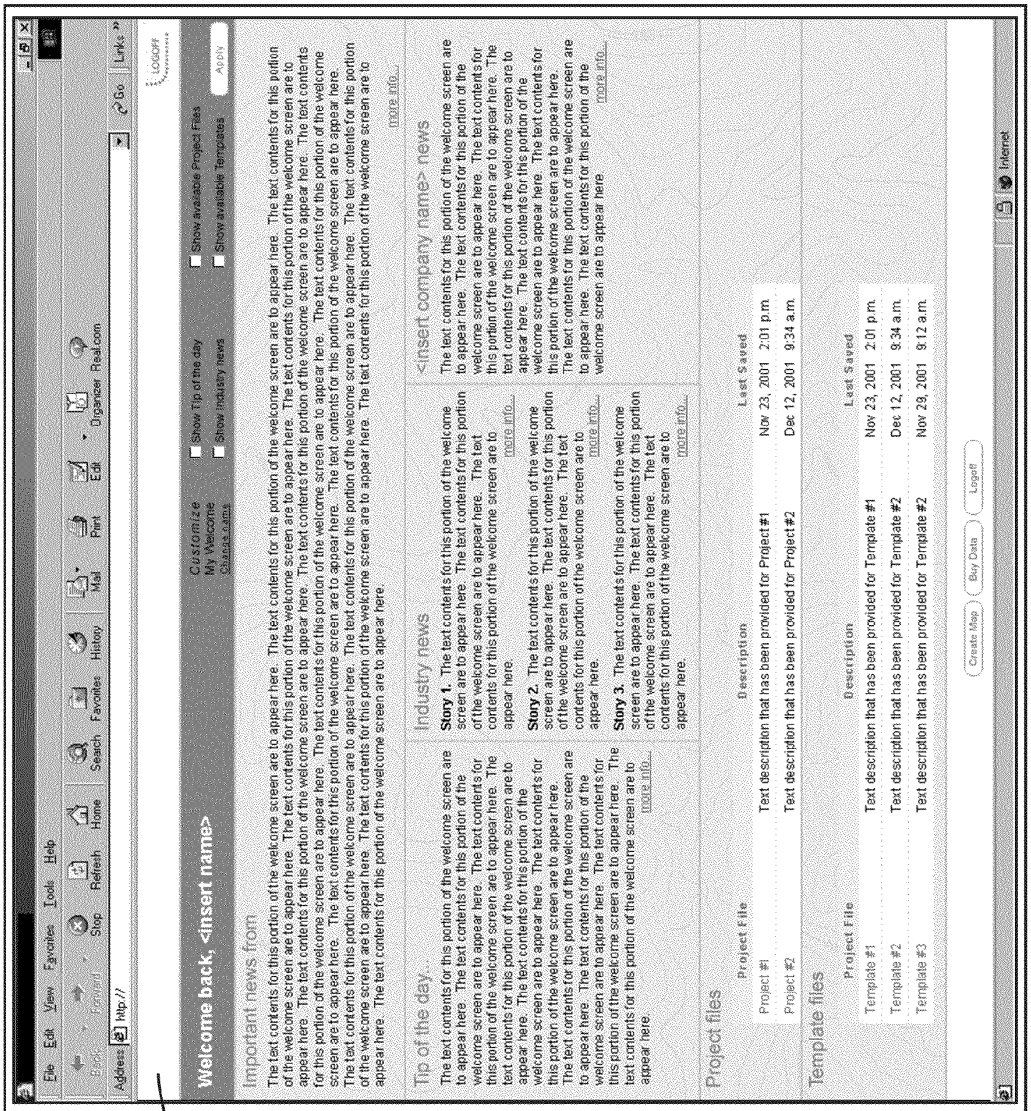

Welcome Screen/ Portal
6910
6912
Main Screen
misc pop up functionality
6914
6916
6918
Data Buy
Create Map
Analysis Reports
Map Preview
6920
6922
6924
6926
print map
email map
save map

FIG. 69


File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Organizer Real.com
Address http://
Go Links
LOGOFF
Welcome back, <insert name>
Customize My Welcome
Change name
Show Tip of the day
Show Industry news
Show available Project Files
Show available Templates
Apply
Important news from
more info...
Tip of the day.
Industry news
Story 1.
Story 2.
Story 3.
<insert company name> news
Project files
Project File
Description
Last Saved
Project #1
Text description that has been provided for Project #1
Nov 23, 2001 2:01 p.m.
Project #2
Text description that has been provided for Project #2
Dec 12, 2001 9:34 a.m.
Template files
Template #1
Text description that has been provided for Template #1
Nov 23, 2001 2:01 p.m.
Template #2
Text description that has been provided for Template #2
Dec 12, 2001 9:34 a.m.
Template #3
Text description that has been provided for Template #2
Nov 29, 2001 9:12 a.m.
Create Map
Buy Data
Logoff
Internet

7010

FIG. 70

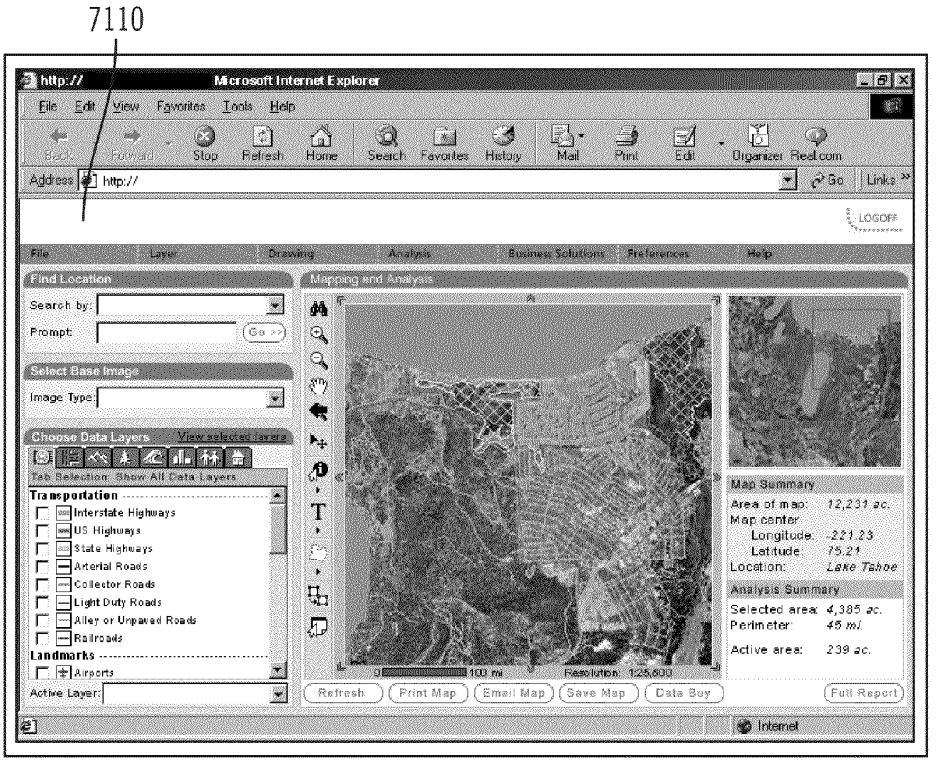


FIG. 71

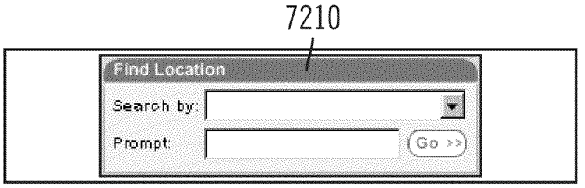


FIG. 72A

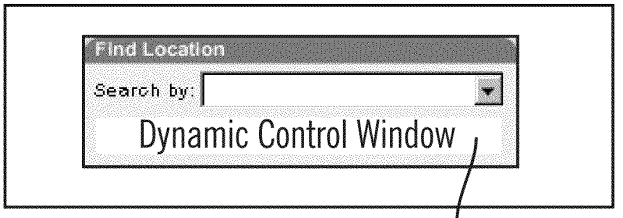


FIG. 72B 7212

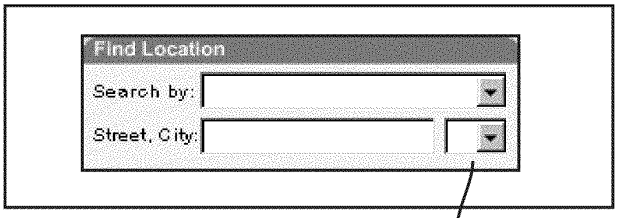


FIG. 72C 7214

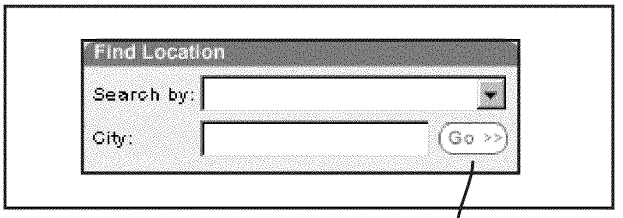


FIG. 72D 7215

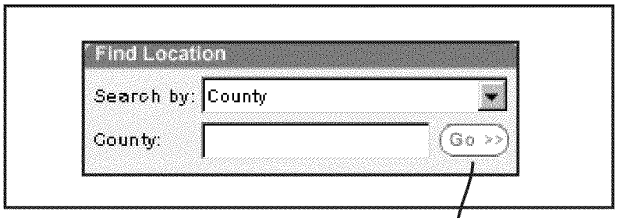


FIG. 72E 7216

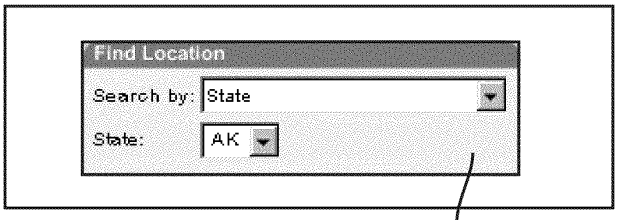


FIG. 72F 7218

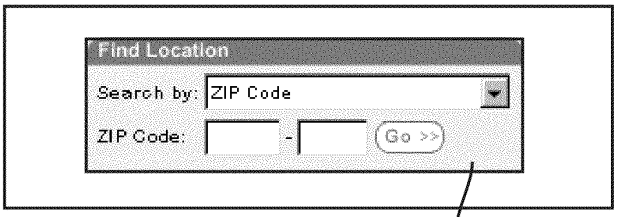


FIG. 72G 7220

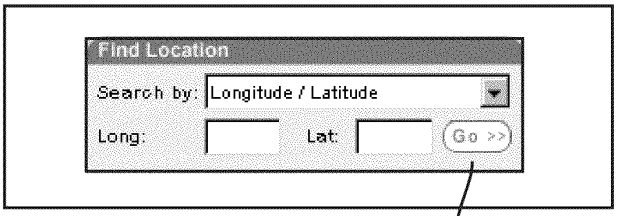


FIG. 72H 7222

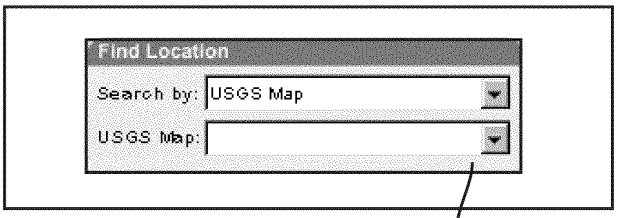


FIG. 72I 7224

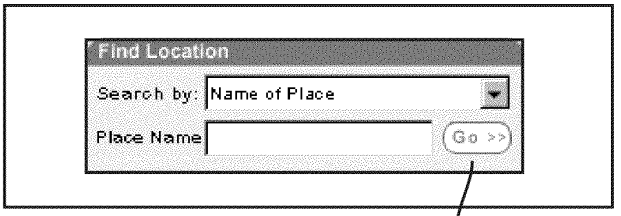


FIG. 72J 7226

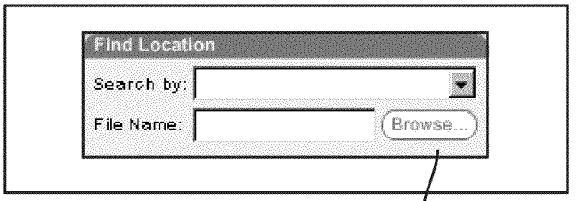


FIG. 72K

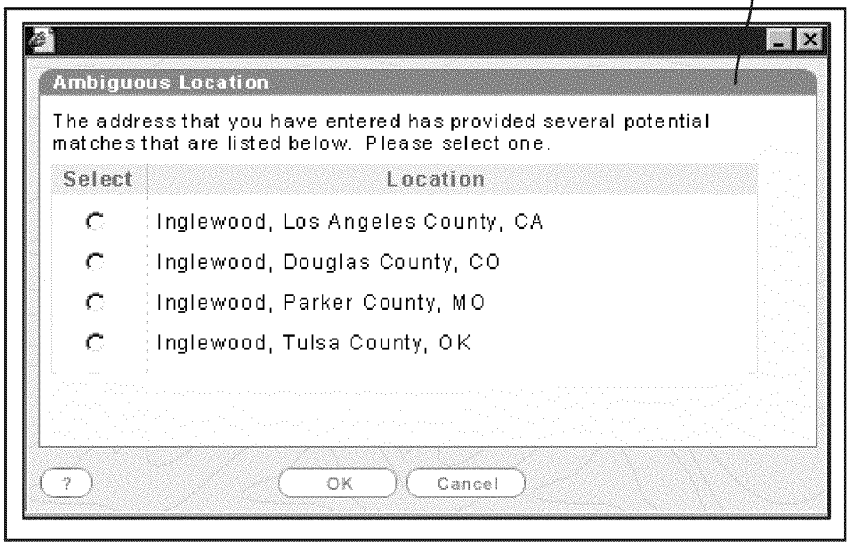


FIG. 73

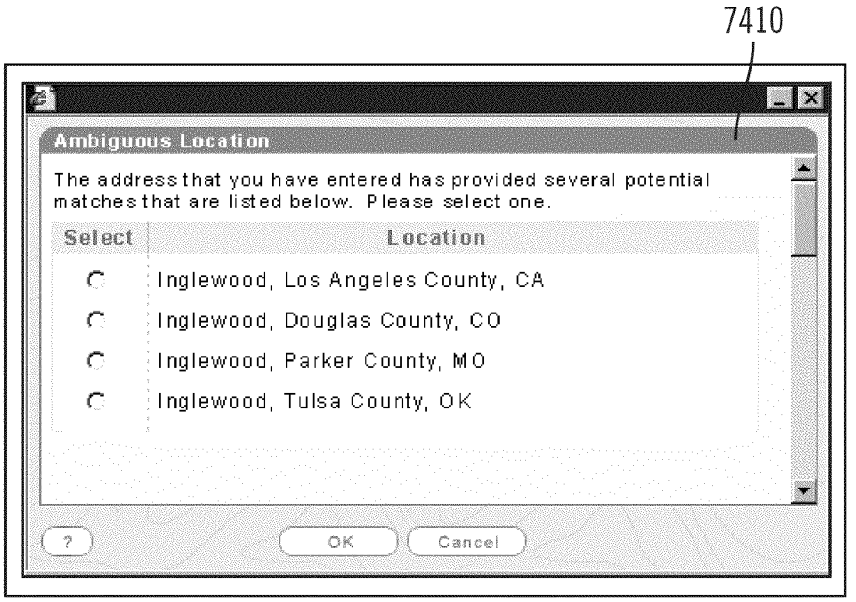


FIG. 74

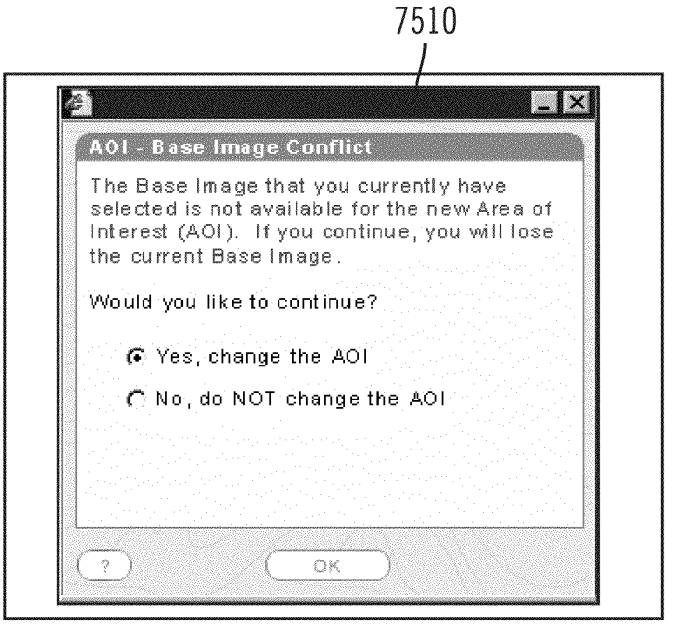

7510
AOI - Base Image Conflict
The Base Image that you currently have selected is not available for the new Area of Interest (AOI). If you continue, you will lose the current Base Image.
Would you like to continue?
Yes, change the AOI
No, do NOT change the AOI
?
OK

FIG. 75

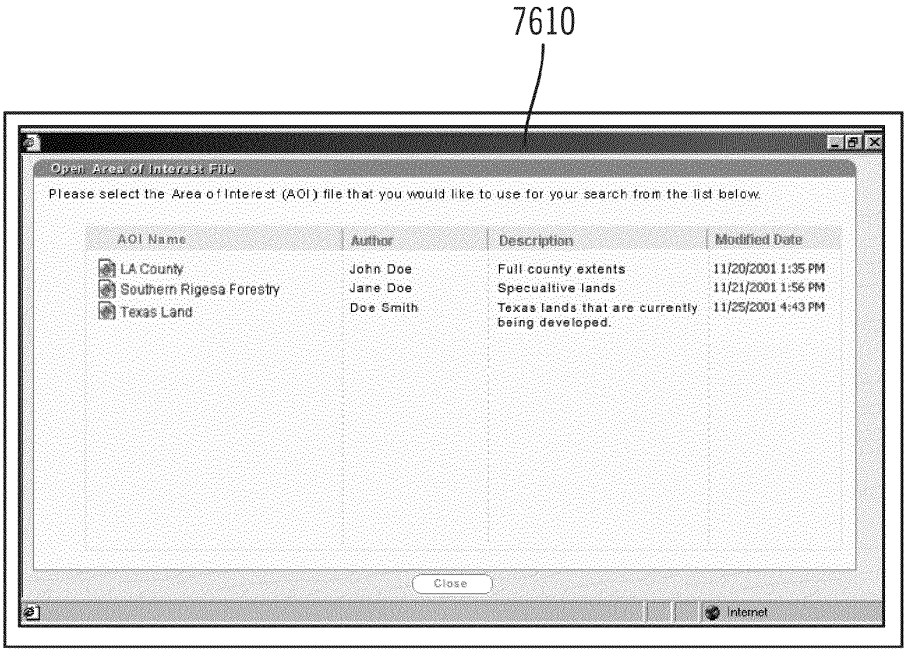

7610
Open Area of Interest File
Please select the Area of Interest (AOI) file that you would like to use for your search from the list below.
AOI Name
Author
Description
Modified Date
LA County
John Doe
Full county extents
11/20/2001 1:35 PM
Southern Rigesa Forestry
Jane Doe
Specualtive lands
11/21/2001 1:56 PM
Texas Land
Doe Smith
Texas lands that are currently being developed.
11/25/2001 4:43 PM
Close
Internet

FIG. 76

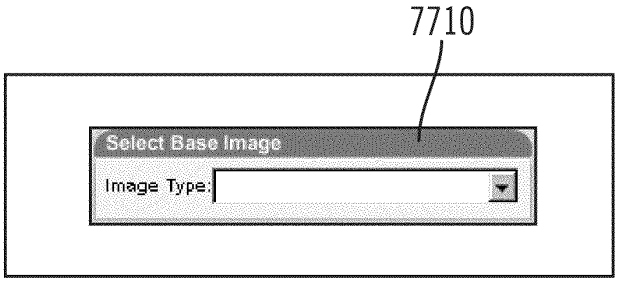

7710
Select Base Image
Image Type:

FIG. 77

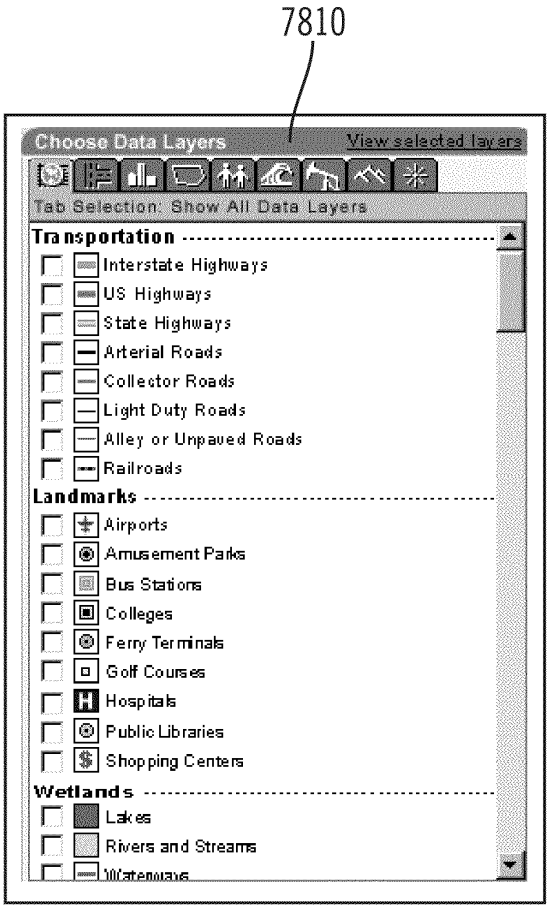

7810
Choose Data Layers
View selected layers
Tab Selection: Show All Data Layers
Transportation
Interstate Highways
US Highways
State Highways
Arterial Roads
Collector Roads
Light Duty Roads
Alley or Unpaved Roads
Railroads
Landmarks
Airports
Amusement Parks
Bus Stations
Colleges
Ferry Terminals
Golf Courses
Hospitals
Public Libraries
Shopping Centers
Wetlands
Lakes
Rivers and Streams

FIG. 78

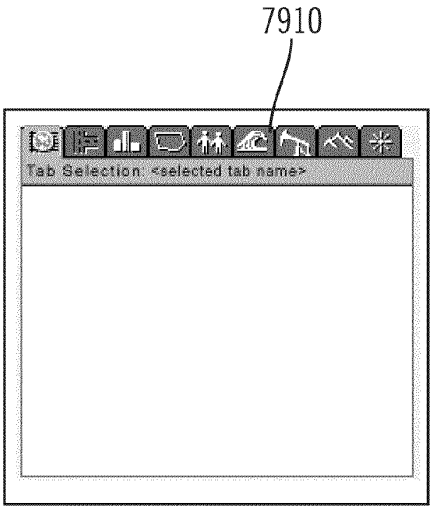

7910
Tab Selection: <selected tab name>

FIG. 79

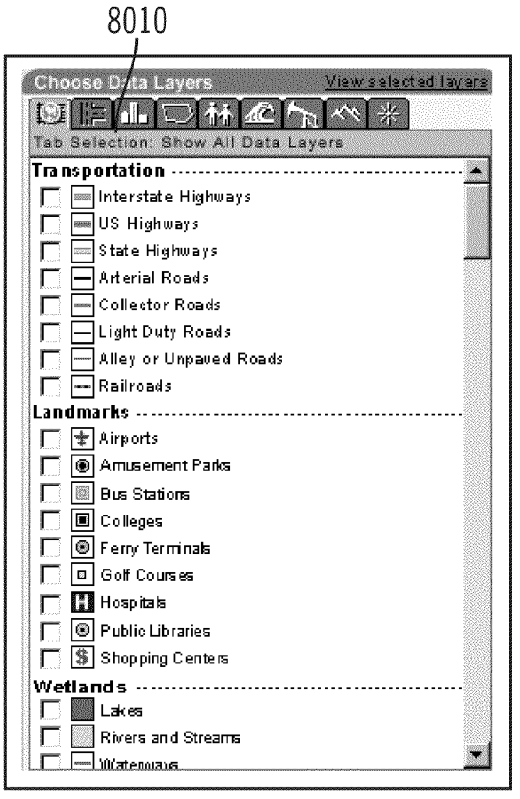

8010
Choose Data Layers
View selected layers
Tab Selection: Show All Data Layers
Transportation
Interstate Highways
US Highways
State Highways
Arterial Roads
Collector Roads
Light Duty Roads
Alley or Unpaved Roads
Railroads
Landmarks
Airports
Amusement Parks
Bus Stations
Colleges
Ferry Terminals
Golf Courses
Hospitals
Public Libraries
Shopping Centers
Wetlands
Lakes
Rivers and Streams

FIG. 80

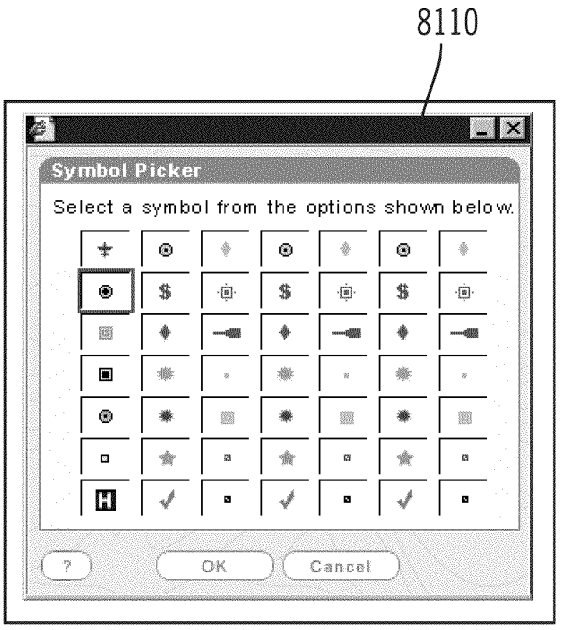


FIG. 81

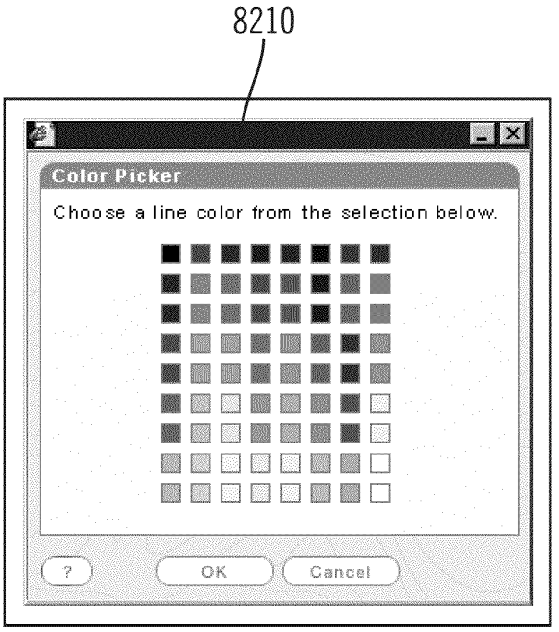


FIG. 82A

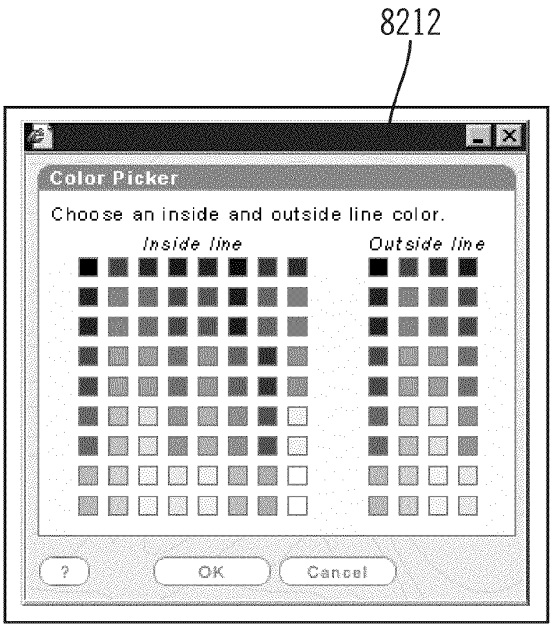


FIG. 82B

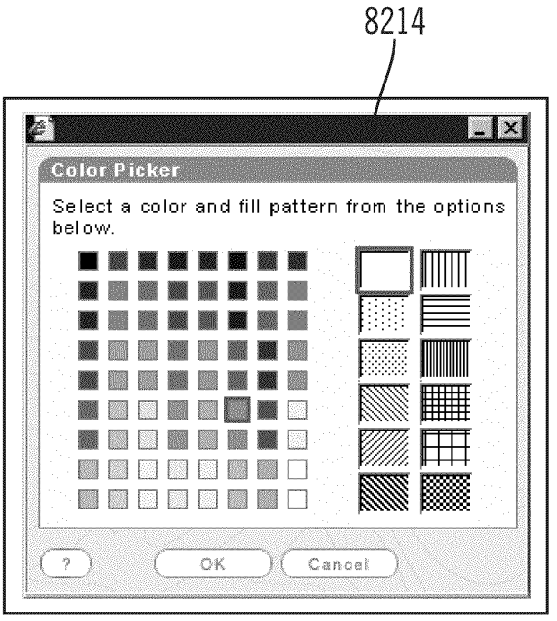


FIG. 82C

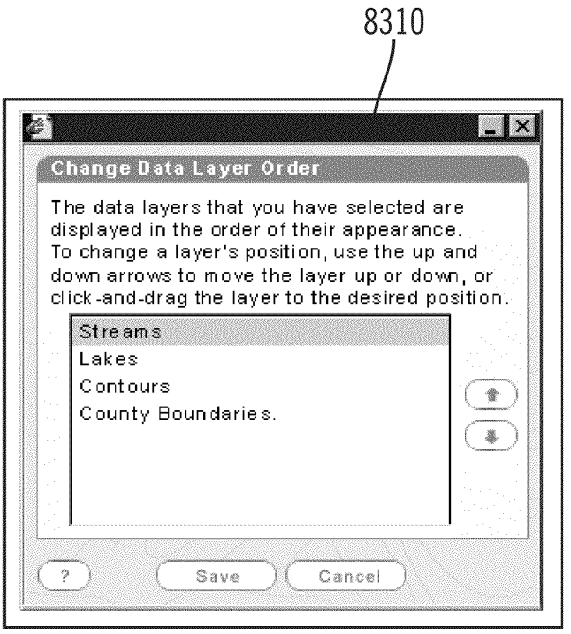

8310
Change Data Layer Order
The data layers that you have selected are displayed in the order of their appearance.
To change a layer's position, use the up and down arrows to move the layer up or down, or click-and-drag the layer to the desired position.
Streams
Lakes
Contours
County Boundaries.
?
Save
Cancel

FIG. 83

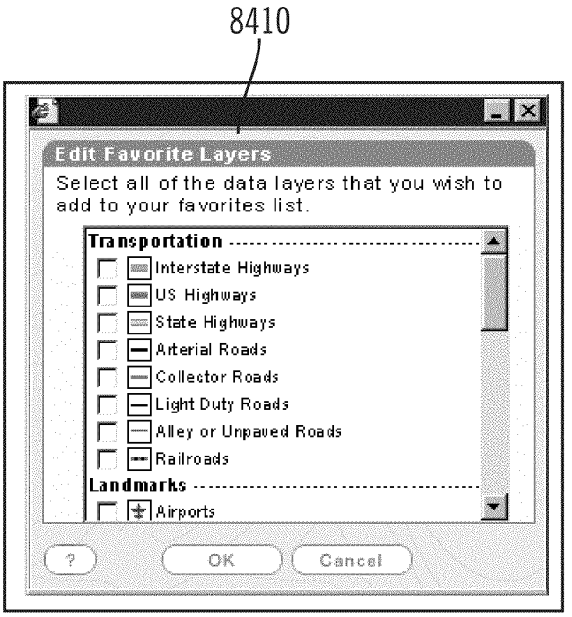

8410
Edit Favorite Layers
Select all of the data layers that you wish to add to your favorites list.
Transportation
Interstate Highways
US Highways
State Highways
Arterial Roads
Collector Roads
Light Duty Roads
Alley or Unpaved Roads
Railroads
Landmarks
Airports
?
OK
Cancel

FIG. 84

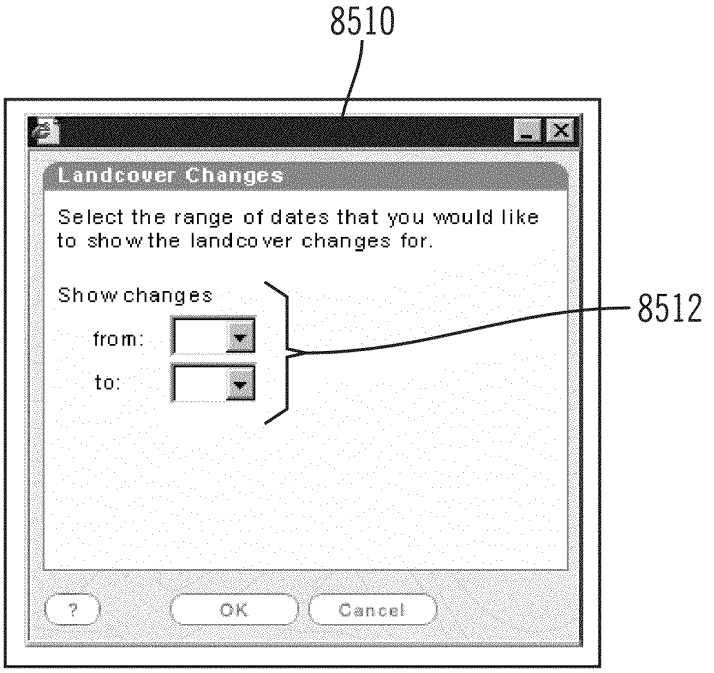

8510
Landcover Changes
Select the range of dates that you would like to show the landcover changes for.
Show changes
from:
to:
8512
?
OK
Cancel

FIG. 85

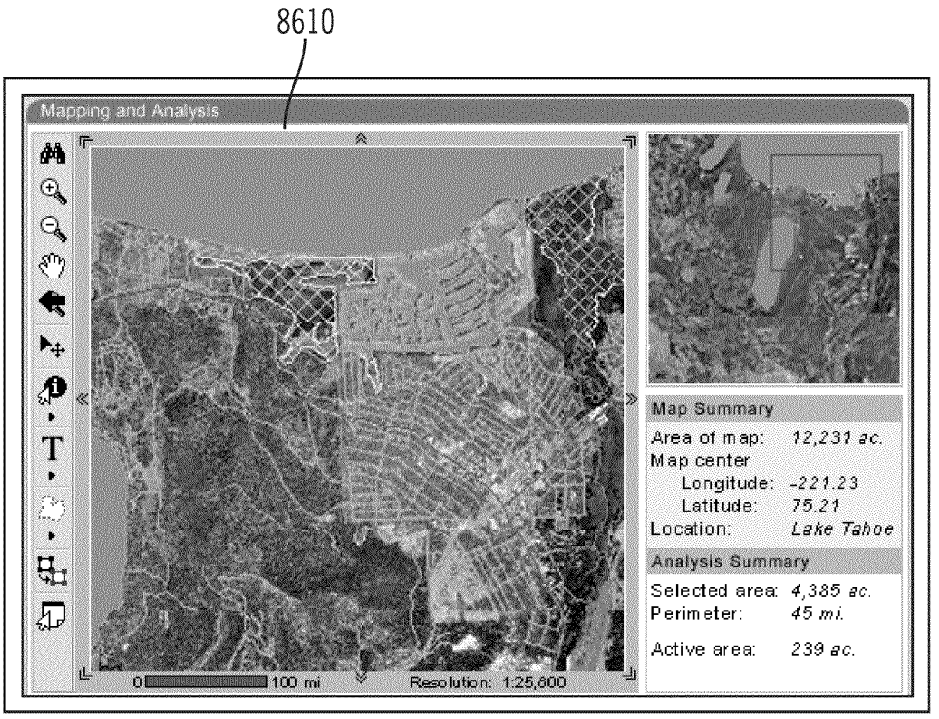

8610
Mapping and Analysis
Map Summary
Area of map: 12,231 ac.
Map center
Longitude: -221.23
Latitude: 75.21
Location: Lake Tahoe
Analysis Summary
Selected area: 4,385 ac.
Perimeter: 45 mi.
Active area: 239 ac.
0
100 mi
Resolution: 1:25,600

FIG. 86

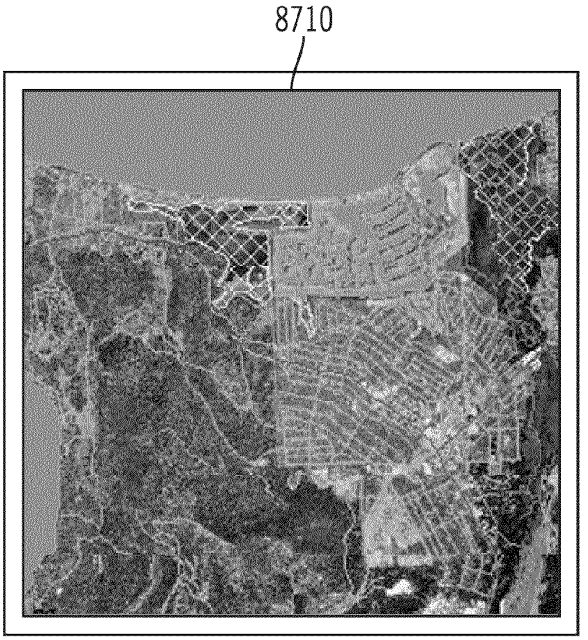

8710

FIG. 87

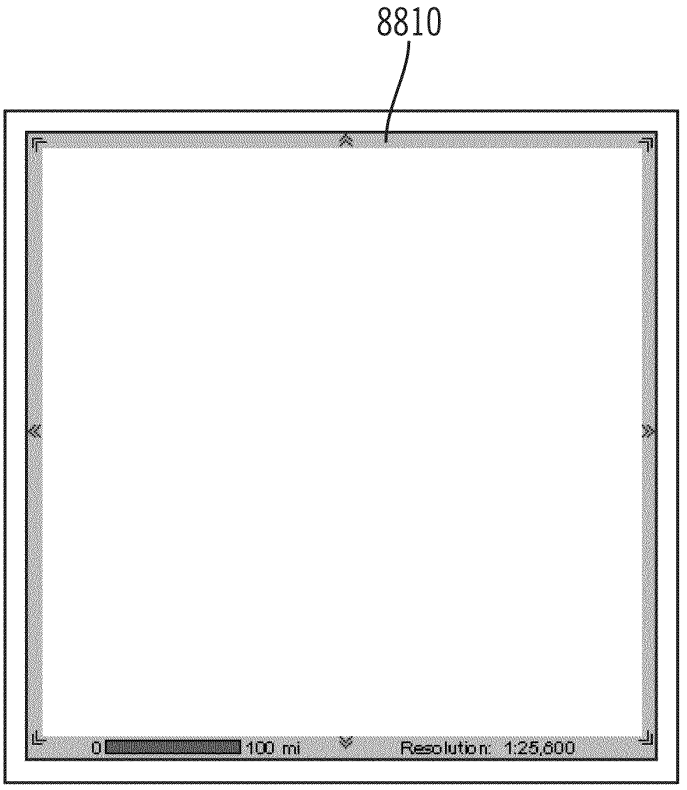


FIG. 88

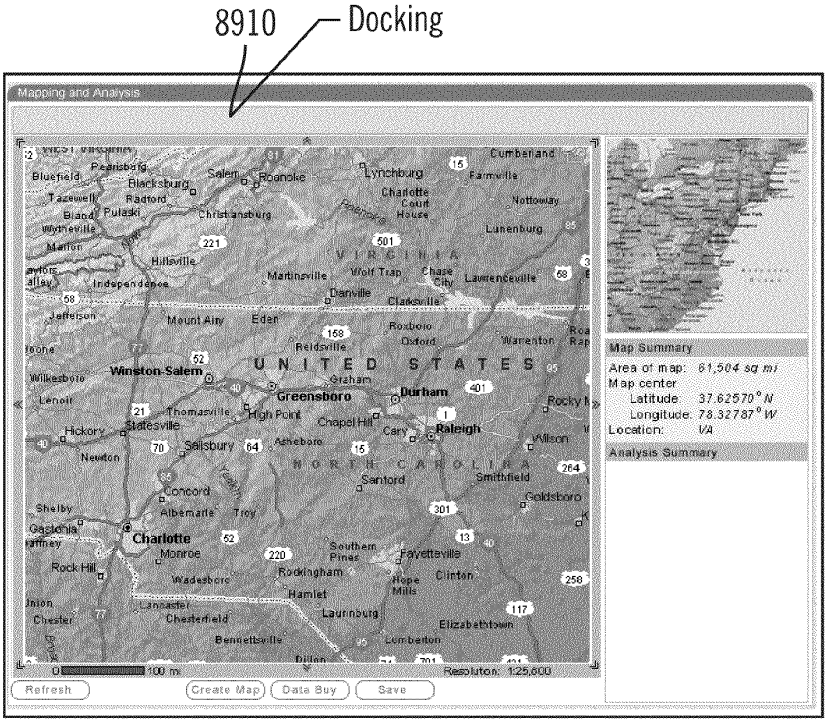

8910
Docking
Mapping and Analysis
Map Summary
Area of map: 61,504 sq mi
Map center
Latitude: 37.62570° N
Longitude: 78.32787° W
Location: VA
Analysis Summary
Refresh
Create Map
Data Buy
Save

FIG. 89

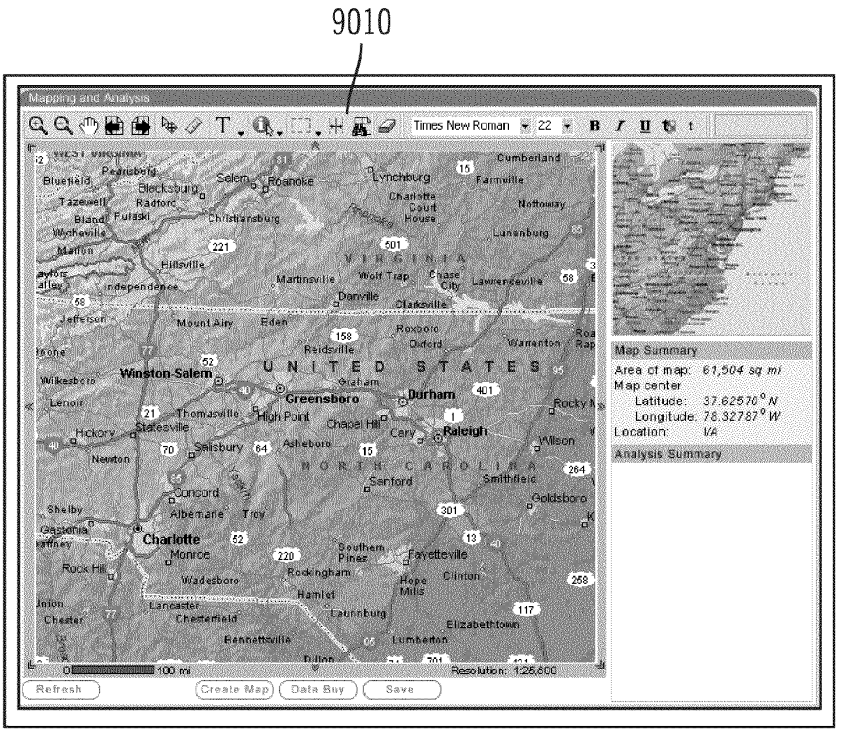

9010
Mapping and Analysis
Times New Roman
22
Map Summary
Area of map: 61,504 sq mi
Map center
Latitude: 37.62570° N
Longitude: 78.32787° W
Location: VA
Analysis Summary
Refresh
Create Map
Data Buy
Save

FIG. 90

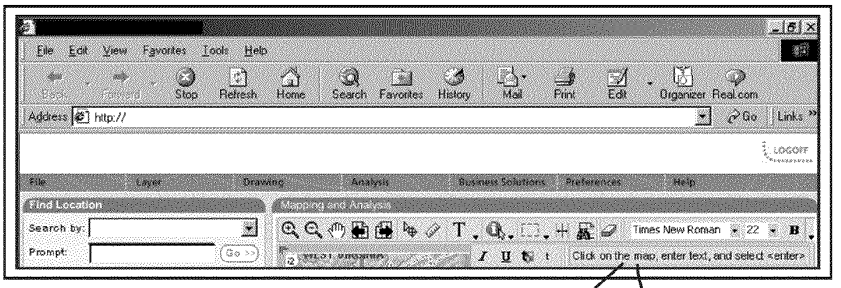

File Edit View Favorites Tools Help
Stop Refresh Home Search Favorites History Mail Print Edit Organizer Real.com
Address http://
Go
Links
LOGOFF
File Layer Drawing Analysis Business Solutions Preferences Help
Find Location
Search by:
Prompt:
Go
Mapping and Analysis
Times New Roman
22
Click on the map, enter text, and select <enter>
Expansion Docking
9110

FIG. 91

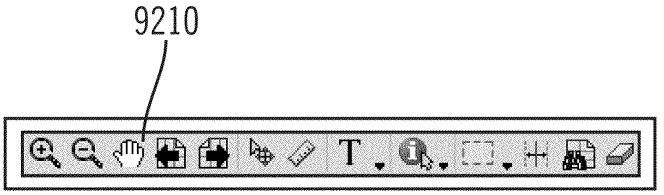


FIG. 92A

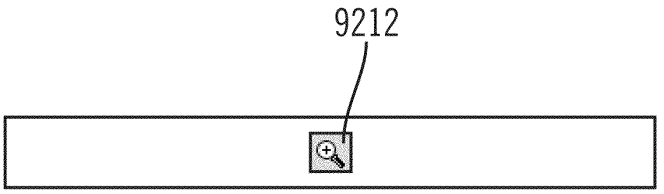


FIG. 92B

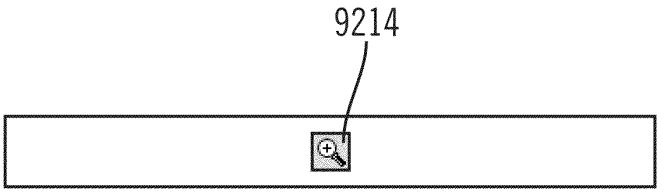


FIG. 92C

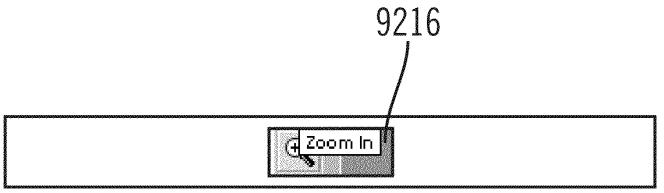


FIG. 92D

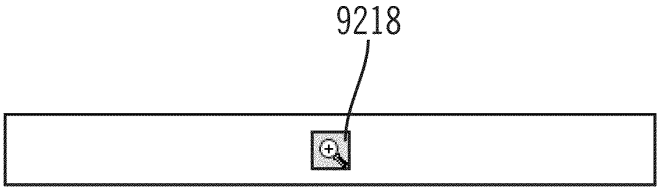


FIG. 92E

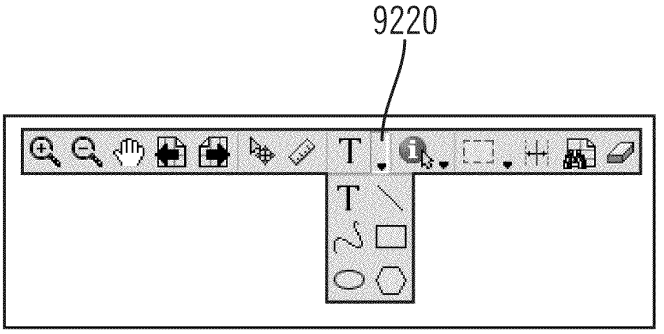


FIG. 92F

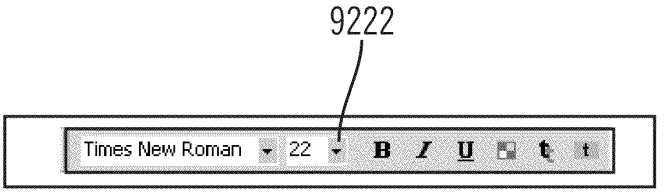


FIG. 92G

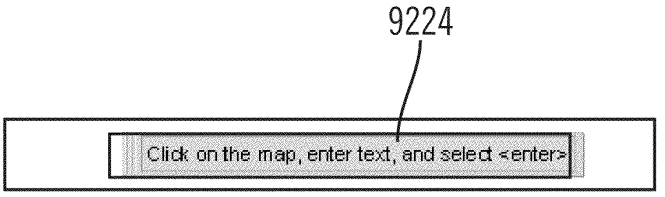


FIG. 92H

FIG. 92I



FIG. 92J



FIG. 92K



FIG. 92L



FIG. 92M



FIG. 92N



FIG. 92O



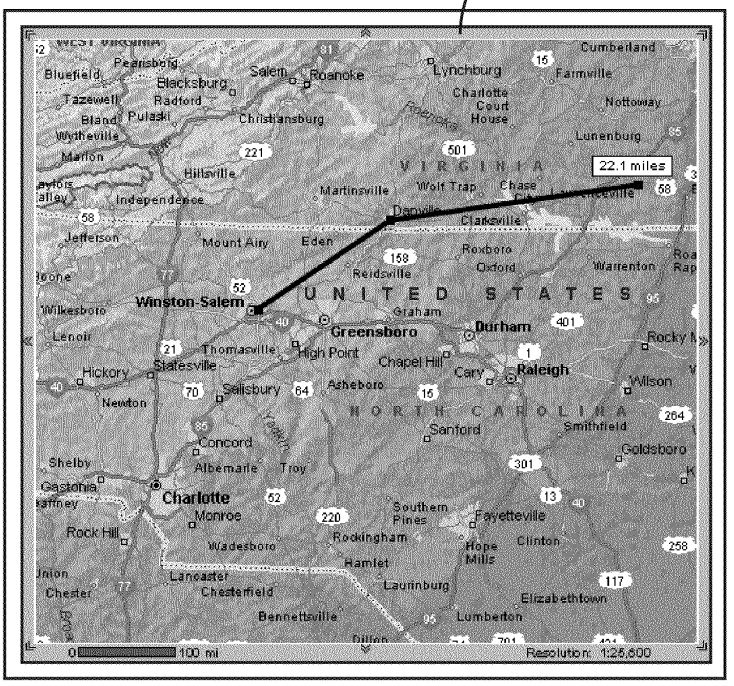

9310
22.1 miles
VIRGINIA
UNITED STATES
NORTH CAROLINA
Winston-Salem
Greensboro
Durham
Raleigh
Charlotte
Fayetteville
Wilson
Goldsboro
Smithfield
Sanford
Lumberton
Elizabethtown
Laurinburg
Rockingham
Wadesboro
Monroe
Concord
Salisbury
Asheboro
Thomasville
High Point
Chapel Hill
Cary
Hickory
Statesville
Lenoir
Newton
Wilkesboro
Mount Airy
Eden
Reidsville
Roxboro
Oxford
Warrenton
Danville
Martinsville
Hillsville
Wytheville
Marion
Bluefield
Tazewell
Bland
Pulaski
Radford
Blacksburg
Christiansburg
Salem
Roanoke
Lynchburg
Farmville
Nottoway
Lunenburg
Charlotte Court House
Wolf Trap
Chase
Clarksville
Rock Hill
Shelby
Gastonia
Albemarle
Troy
Southern Pines
Hope Mills
Clinton
Hamlet
Lancaster
Chesterfield
Bennettsville
Dillon
Union
Chester
Graham
Rocky
Resolution: 1:25,600
100 mi

FIG. 93

FIG. 94A



FIG. 94B



FIG. 94C



FIG. 94D



FIG. 94E



FIG. 94F



FIG. 94G



FIG. 94H



FIG. 94I

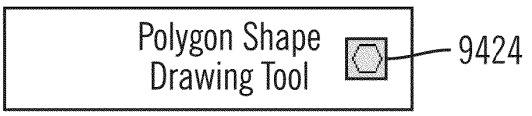


FIG. 94J



FIG. 94K



FIG. 94L



FIG. 94M



FIG. 94N



FIG. 94O

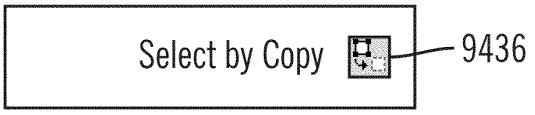


FIG. 94P



FIG. 94Q



FIG. 94R



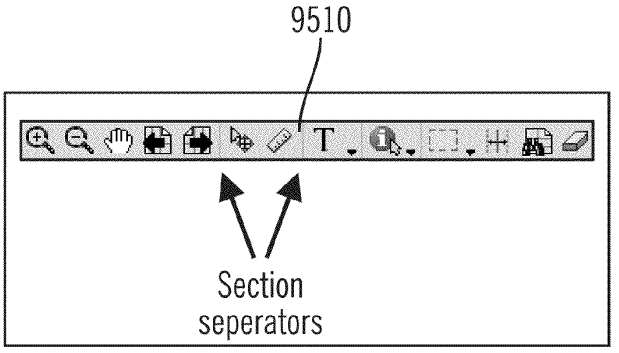


FIG. 95A

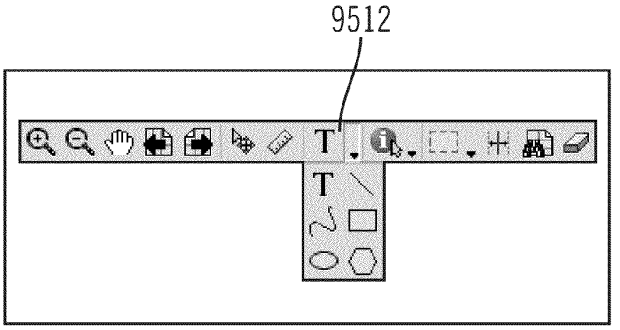


FIG. 95B

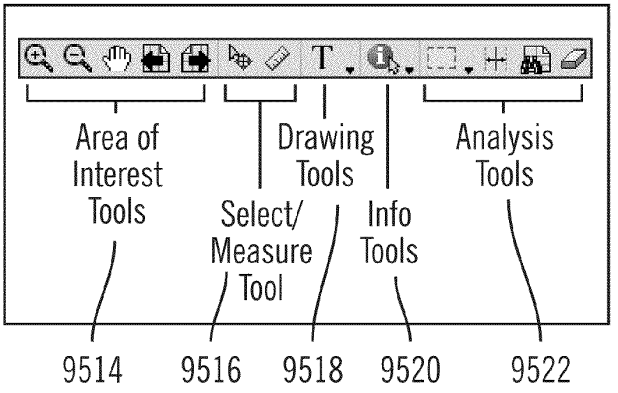


FIG. 95C

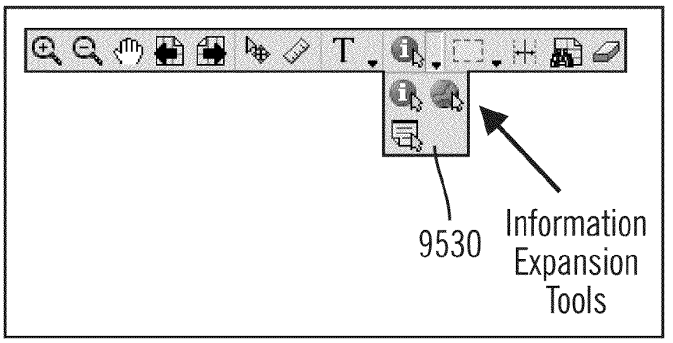


FIG. 95D

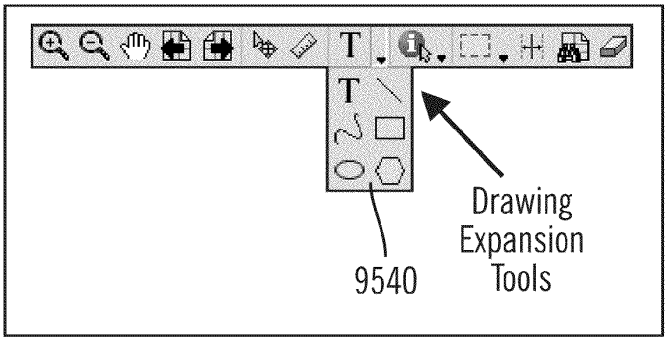


FIG. 95E

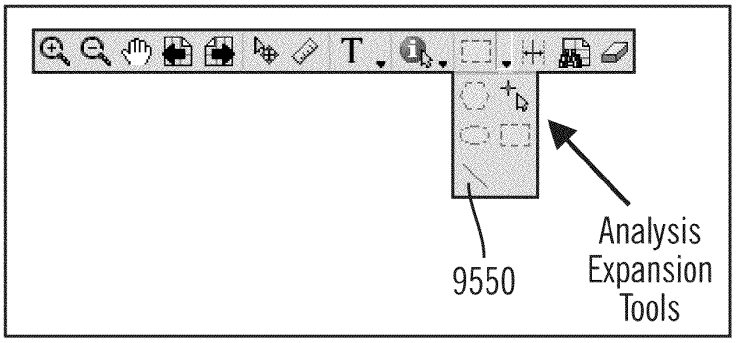


FIG. 95F

9610

Tool Name	Section	Expansion Toolbar
Find Area Tool	Area of Interest	n/a
Zoom in Tool	Area of Interest	n/a
Zoom Out Tool	Area of Interest	n/a
Pan Tool	Area of Interest	n/a
Previous Extent Tool	Area of Interest	n/a
Selection	Select / Measure	n/a
Measure	Select / Measure	n/a
Measure Polyline	Select / Measure	n/a
Point n' View	Information Tools	Information Tools E.T.
Global Point n' View	Information Tools	Information Tools E.T.
Point n' Attribute	Information Tools	Information Tools E.T.
Text Tool	Drawing Tools	Drawing Tools E. T.
Lin Tool	Drawing Tools	Drawing Tools E. T.
Polyline Tool	Drawing Tools	Drawing Tools E. T.
Rectangle Tool	Drawing Tools	Drawing Tools E. T.
Ellipse Tool	Drawing Tools	Drawing Tools E. T.
Polygon Tool	Drawing Tools	Drawing Tools E. T.
Attribute Tool	Drawing Tools	Drawing Tools E. T.
Select Point Tool	Analysis Tools	Analysis Tools E.T.
Select Line Tool	Analysis Tools	Analysis Tools E.T.
Select Rectangle	Analysis Tools	Analysis Tools E.T.
Select Ellipse	Analysis Tools	Analysis Tools E.T.
Select Polygon	Analysis Tools	Analysis Tools E.T.
Select by Copy	Analysis Tools	Analysis Tools E.T.
Buffer Tool	Analysis Tools	n/a
Clear Tool	Analysis Tools	n/a

FIG. 96

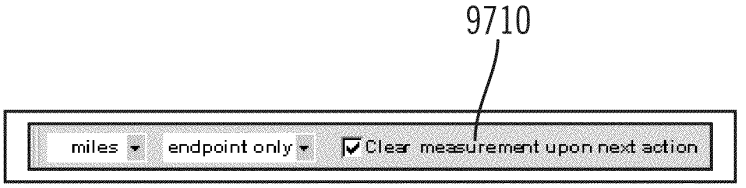


FIG. 97A

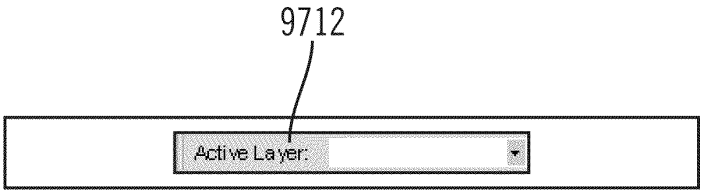


FIG. 97B

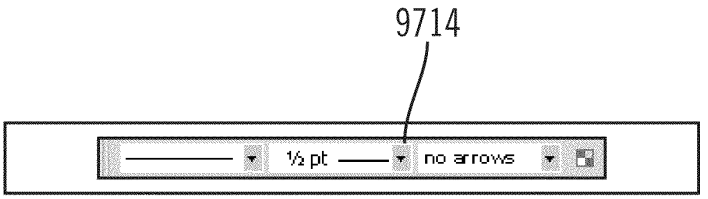


FIG. 97C

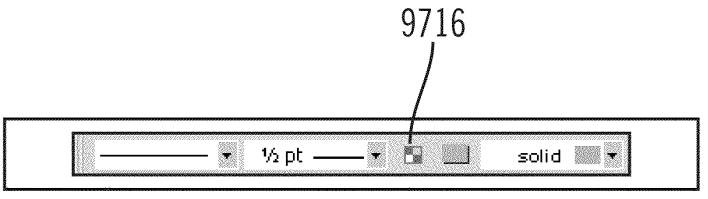


FIG. 97D

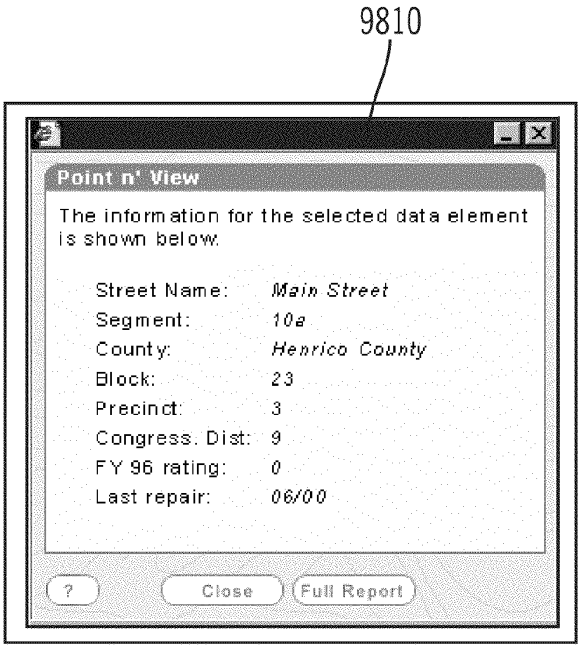


FIG. 98A

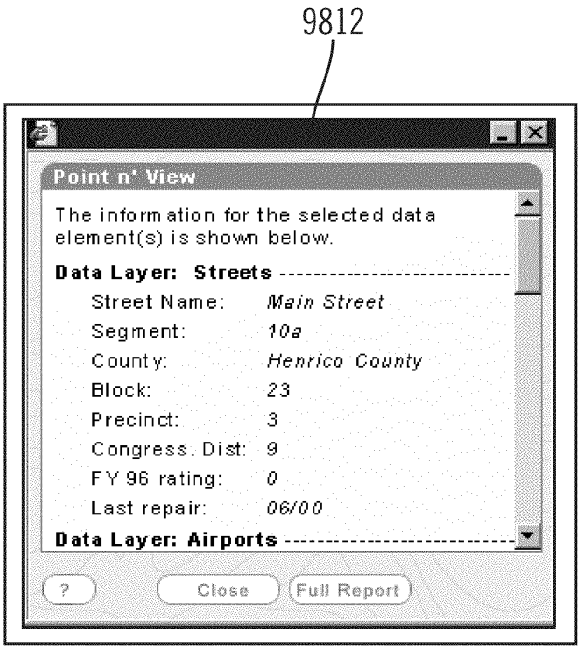


FIG. 98B

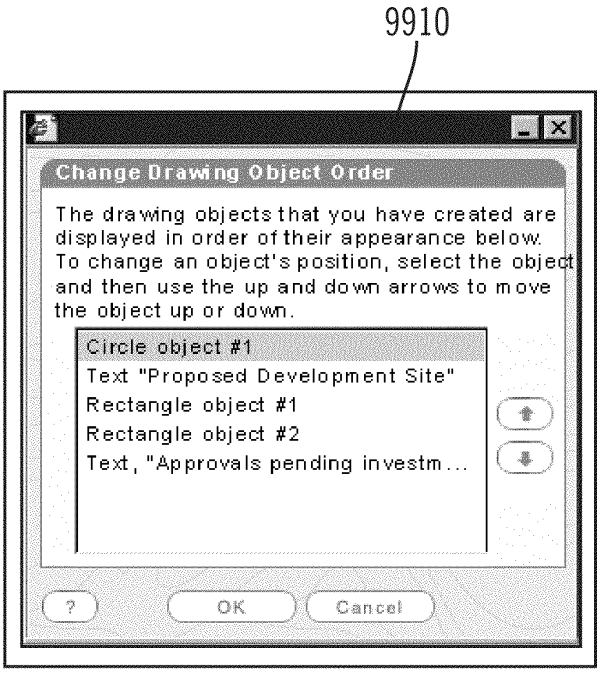

9910
Change Drawing Object Order
The drawing objects that you have created are displayed in order of their appearance below. To change an object's position, select the object and then use the up and down arrows to move the object up or down.
Circle object #1
Text "Proposed Development Site"
Rectangle object #1
Rectangle object #2
Text, "Approvals pending investm...
?
OK
Cancel

FIG. 99

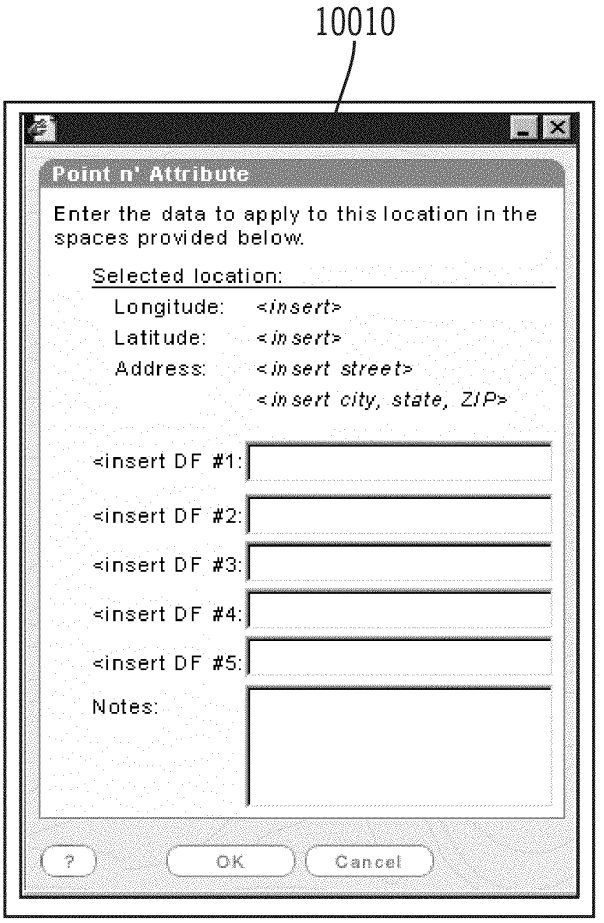

10010
Point n' Attribute
Enter the data to apply to this location in the spaces provided below.
Selected location:
Longitude: <insert>
Latitude: <insert>
Address: <insert street>
<insert city, state, ZIP>
<insert DF #1:
<insert DF #2:
<insert DF #3:
<insert DF #4:
<insert DF #5:
Notes:
?
OK
Cancel

FIG. 100

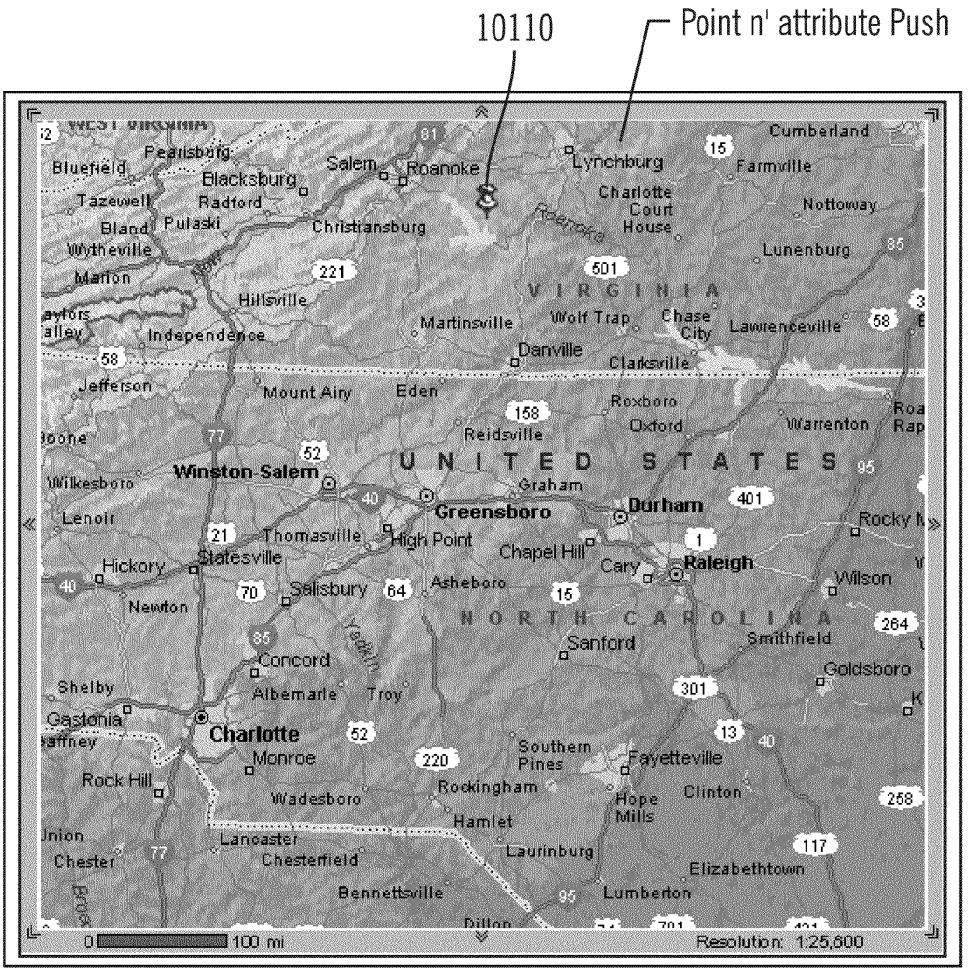

10110
Point n' attribute Push
Cumberland
Pearisburg
Bluefield
Blacksburg
Salem
Roanoke
Lynchburg
Farmville
Tazewell
Radford
Charlotte Court House
Nottoway
Bland
Pulaski
Christiansburg
Wytheville
Lunenburg
Marion
Hillsville
VIRGINIA
Martinsville
Wolf Trap
Chase City
Lawrenceville
Independence
Danville
Clarksville
Jefferson
Mount Airy
Eden
Roxboro
Reidsville
Oxford
Warrenton
UNITED STATES
Winston-Salem
Wilkesboro
Graham
Greensboro
Durham
Lenoir
Thomasville
High Point
Chapel Hill
Raleigh
Hickory
Statesville
Cary
Wilson
Salisbury
Asheboro
Newton
NORTH CAROLINA
Sanford
Smithfield
Concord
Goldsboro
Shelby
Albemarle
Troy
Gastonia
Charlotte
Monroe
Southern Pines
Fayetteville
Rock Hill
Rockingham
Wadesboro
Hope Mills
Clinton
Hamlet
Union
Lancaster
Chester
Chesterfield
Laurinburg
Elizabethtown
Bennettsville
Lumberton
Dillon
0
100 mi
Resolution: 1:25,500

FIG. 101

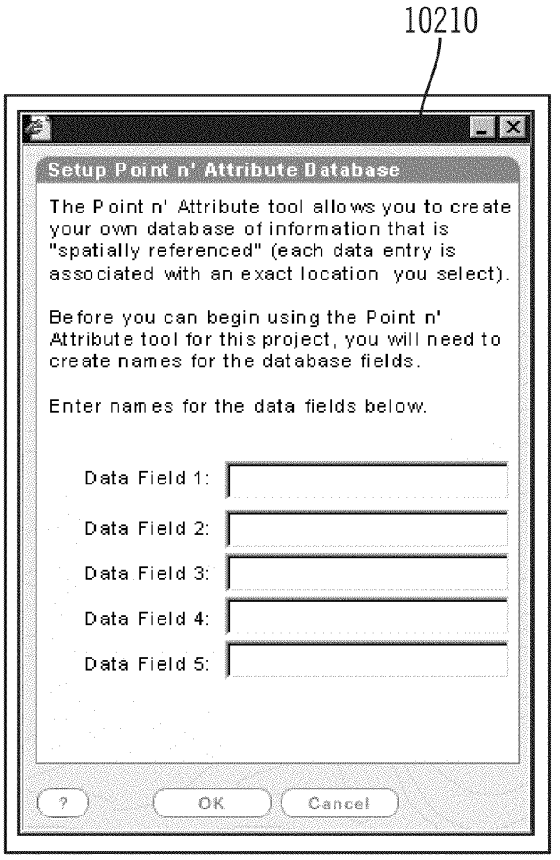


FIG. 102

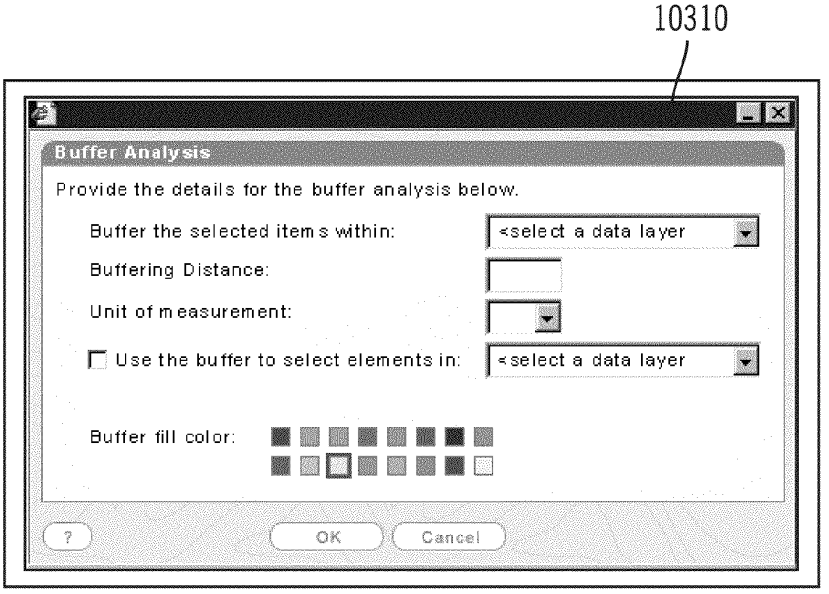


FIG. 103

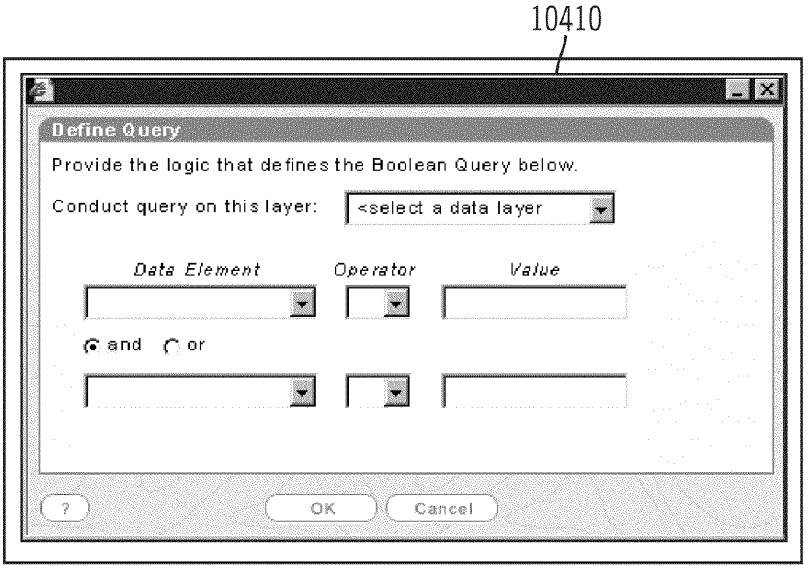


FIG. 104

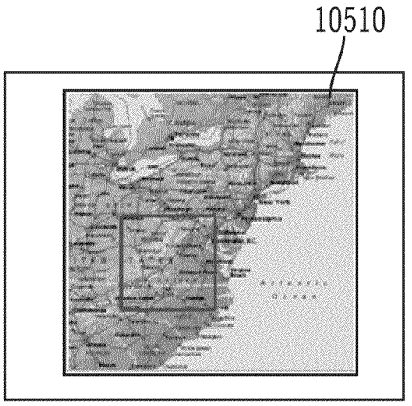


FIG. 105

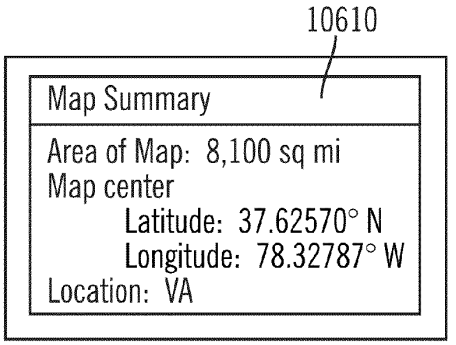


FIG. 106

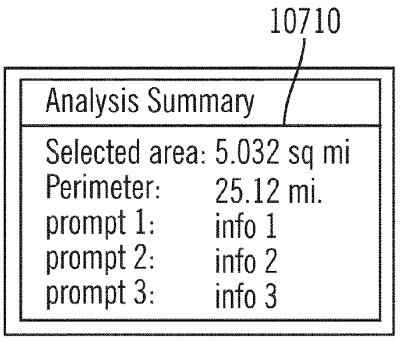


FIG. 107

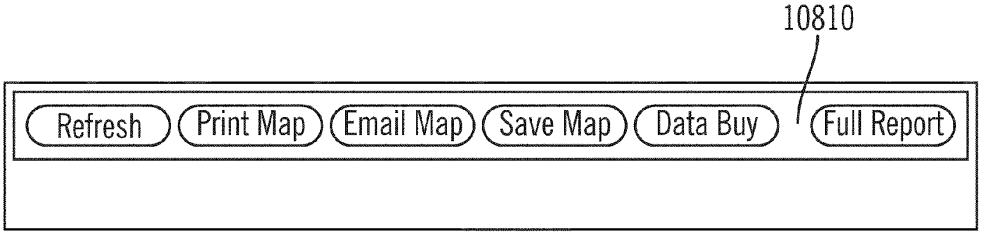


FIG. 108

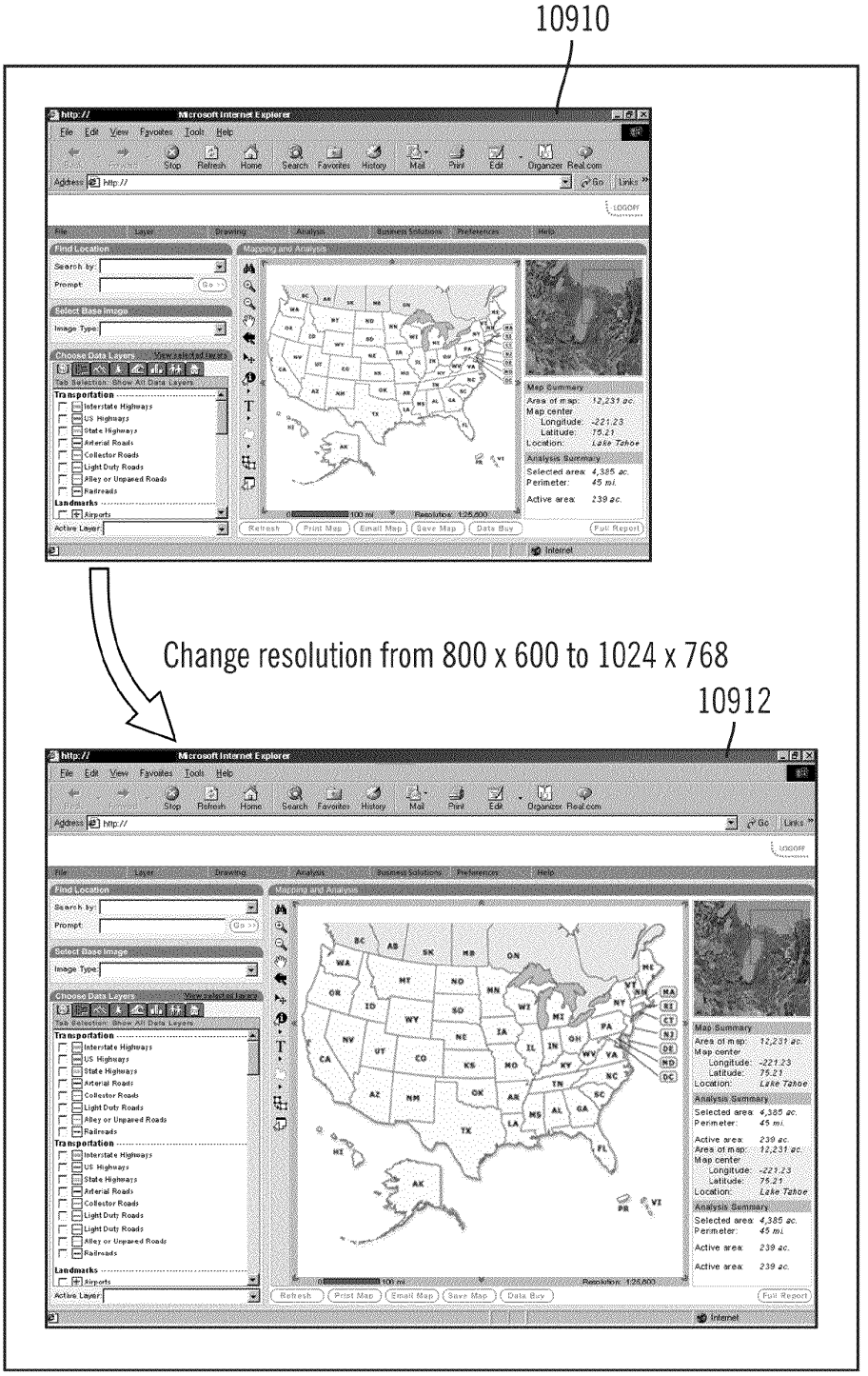


FIG. 109

11010

Screen resolution	Map Window Size (in pixels)
800 x 600	325 x 325
1024 x 768	493 x 493
1280 x 1024	749 x 749
1400 x 1050	775 x 775
1600 x1200	925 x 925

FIG. 110

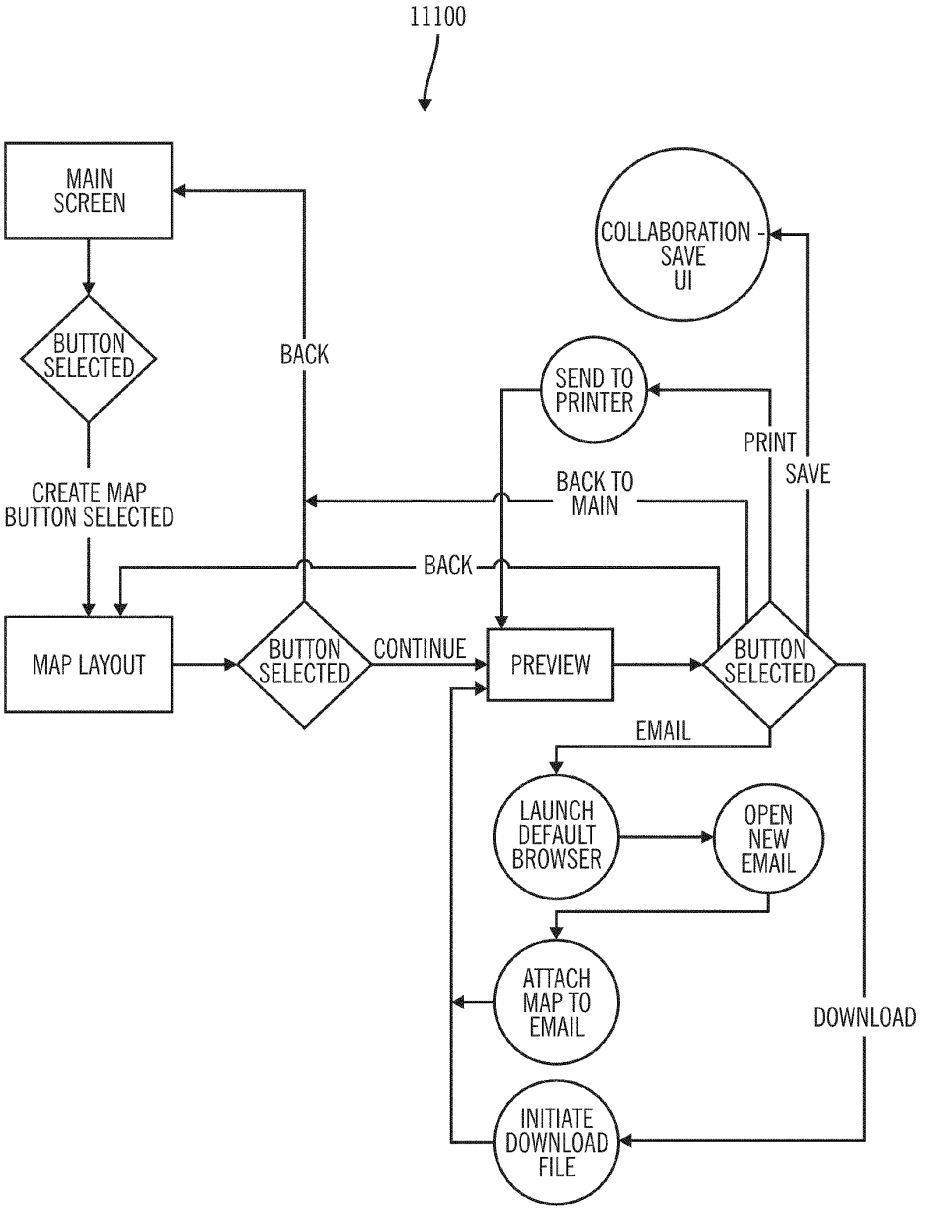

11100
MAIN SCREEN
BUTTON SELECTED
CREATE MAP BUTTON SELECTED
MAP LAYOUT
BUTTON SELECTED
CONTINUE
PREVIEW
BUTTON SELECTED
BACK
BACK
BACK TO MAIN
SEND TO PRINTER
COLLABORATION - SAVE UI
PRINT
SAVE
EMAIL
LAUNCH DEFAULT BROWSER
OPEN NEW EMAIL
ATTACH MAP TO EMAIL
INITIATE DOWNLOAD FILE
DOWNLOAD

FIG. 111

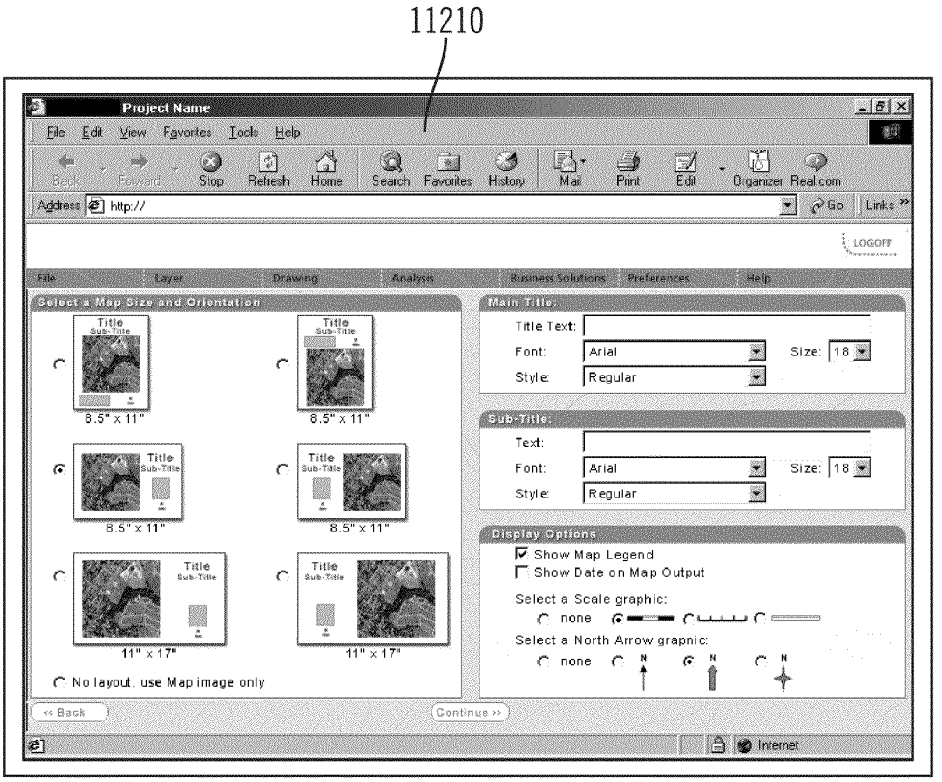

11210
Project Name
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Organizer Real.com
Address http://
Go Links
LOGOFF
File Layer Drawing Analysis Business Solutions Preferences Help
Select a Map Size and Orientation
Title
Sub-Title
8.5" x 11"
11" x 17"
No layout, use Map image only
Main Title:
Title Text:
Font: Arial
Size: 18
Style: Regular
Sub-Title:
Text:
Display Options
Show Map Legend
Show Date on Map Output
Select a Scale graphic:
none
Select a North Arrow graphic:
<< Back
Continue >>
Internet

FIG. 112

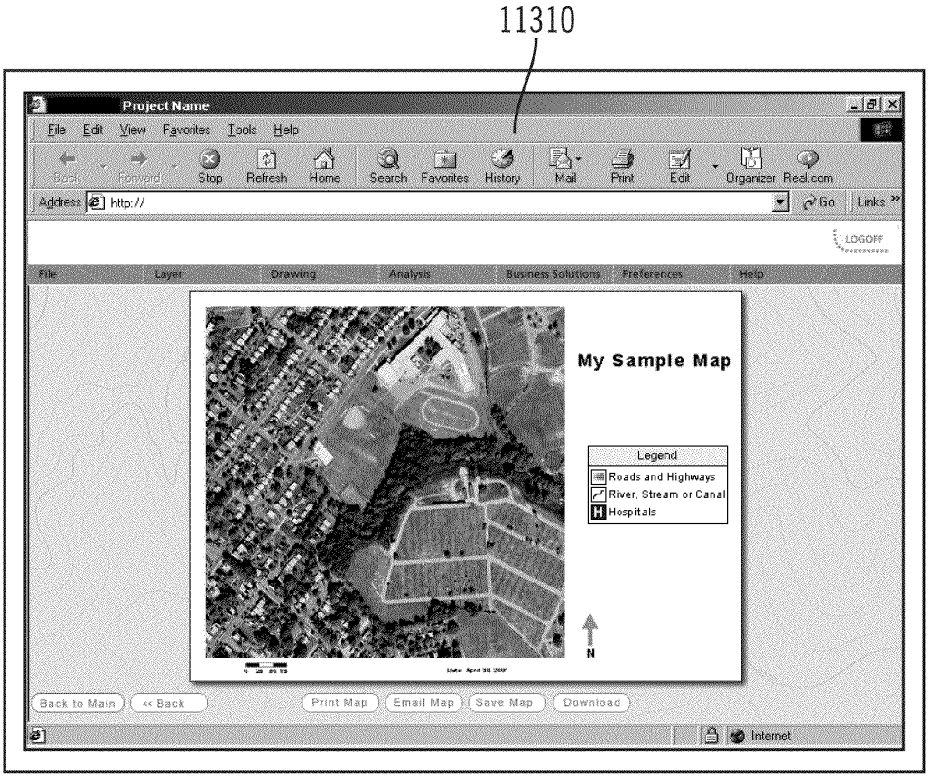

11310
Project Name
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Organizer Real.com
Address http://
Go Links
LOGOFF
File Layer Drawing Analysis Business Solutions Preferences Help
My Sample Map
Legend
Roads and Highways
River, Stream or Canal
Hospitals
N
Back to Main
<< Back
Print Map
Email Map
Save Map
Download
Internet

FIG. 113


11410
File Download
You have chosen to download a file from this location.
...plogic+DownloadMapfile download.download.queste
What would you like to do with this file?
Open this file from its current location
Save this file to disk
Always ask before opening this type of file
OK
Cancel
More Info

FIG. 114

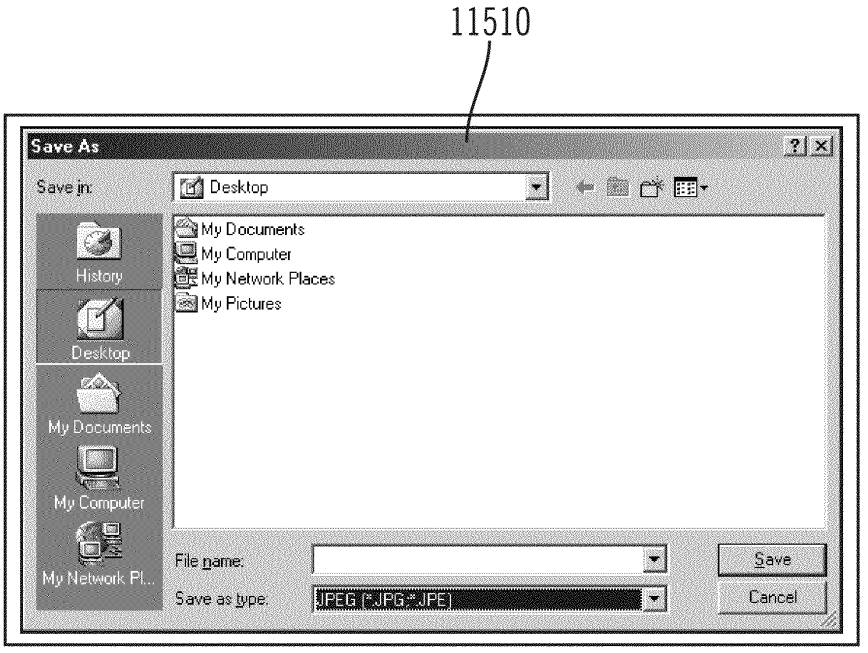

11510
Save As
Save in:
Desktop
My Documents
My Computer
My Network Places
My Pictures
History
Desktop
My Documents
My Computer
My Network Pl...
File name:
Save as type:
JPEG (*.JPG;*.JPE)
Save
Cancel

FIG. 115

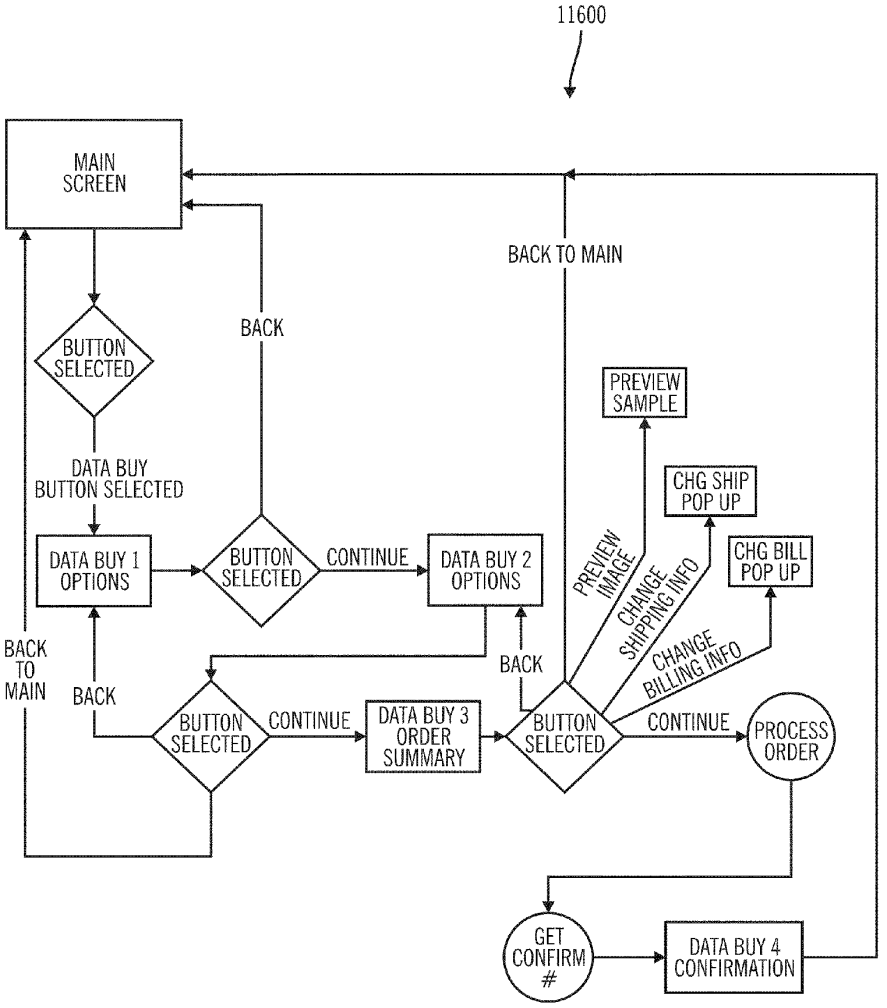

11600
MAIN SCREEN
BUTTON SELECTED
DATA BUY BUTTON SELECTED
DATA BUY 1 OPTIONS
BUTTON SELECTED
CONTINUE
DATA BUY 2 OPTIONS
BACK
BACK TO MAIN
BACK TO MAIN
BACK
BUTTON SELECTED
CONTINUE
DATA BUY 3 ORDER SUMMARY
BUTTON SELECTED
CONTINUE
PROCESS ORDER
BACK
PREVIEW IMAGE
CHANGE SHIPPING INFO
CHANGE BILLING INFO
PREVIEW SAMPLE
CHG SHIP POP UP
CHG BILL POP UP
GET CONFIRM #
DATA BUY 4 CONFIRMATION

FIG. 116

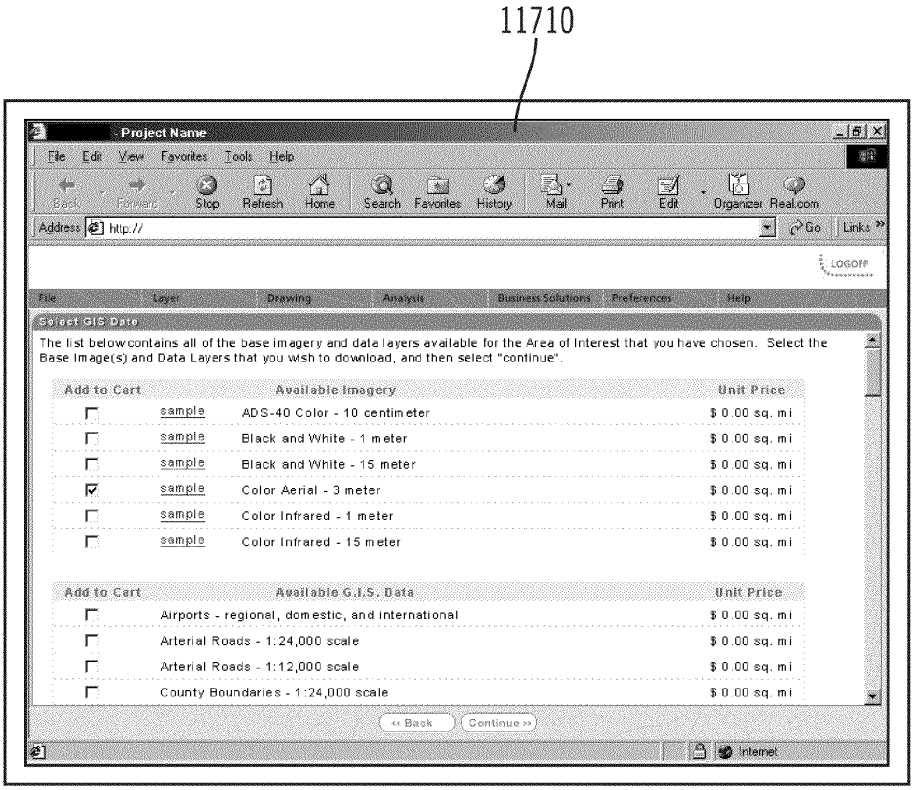

11710
Project Name
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Organizer Real.com
Address http://
Go Links
LOGOFF
File Layer Drawing Analysis Business Solutions Preferences Help
Select GIS Data
The list below contains all of the base imagery and data layers available for the Area of Interest that you have chosen. Select the Base Image(s) and Data Layers that you wish to download, and then select "continue".
Add to Cart
Available Imagery
Unit Price
sample ADS-40 Color - 10 centimeter $ 0.00 sq. mi
sample Black and White - 1 meter $ 0.00 sq. mi
sample Black and White - 15 meter $ 0.00 sq. mi
sample Color Aerial - 3 meter $ 0.00 sq. mi
sample Color Infrared - 1 meter $ 0.00 sq. mi
sample Color Infrared - 15 meter $ 0.00 sq. mi
Add to Cart
Available G.I.S. Data
Unit Price
Airports - regional, domestic, and international $ 0.00 sq. mi
Arterial Roads - 1:24,000 scale $ 0.00 sq. mi
Arterial Roads - 1:12,000 scale $ 0.00 sq. mi
County Boundaries - 1:24,000 scale $ 0.00 sq. mi
<< Back
Continue >>
Internet

FIG. 117



FIG. 118

FIG. 119

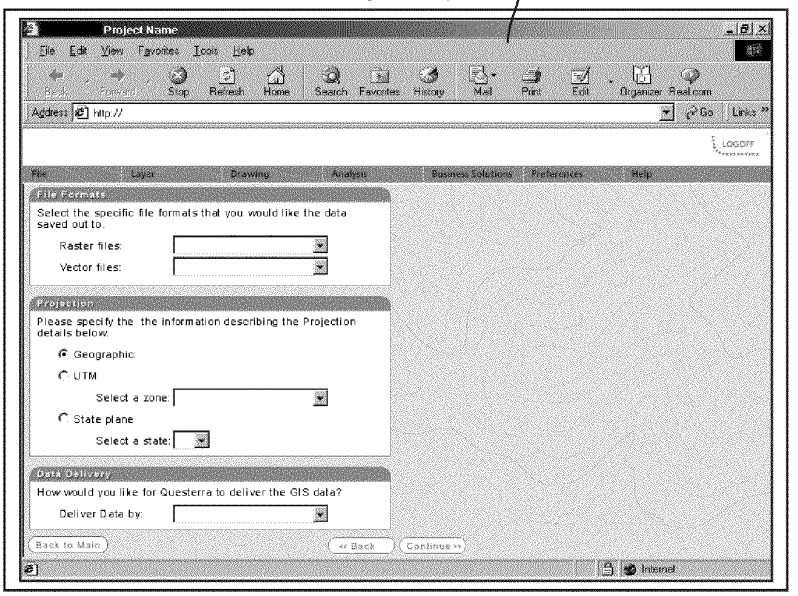
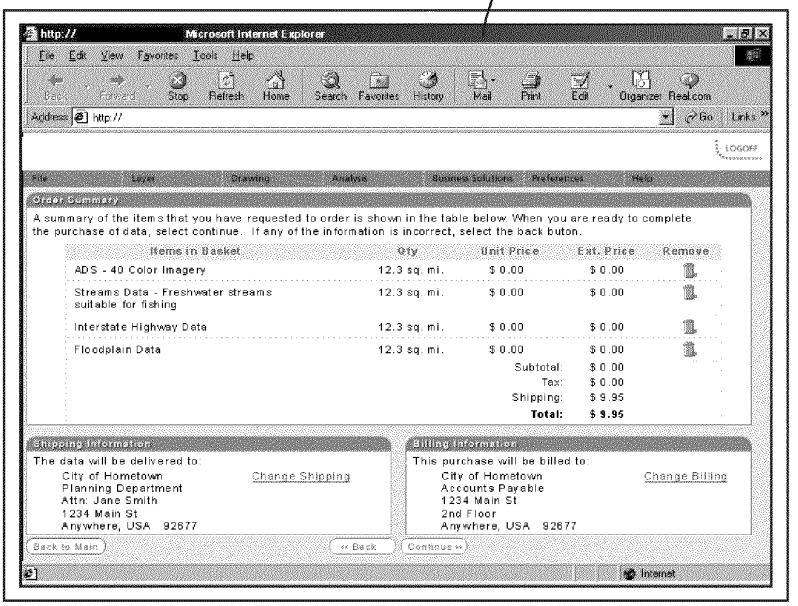


FIG. 120



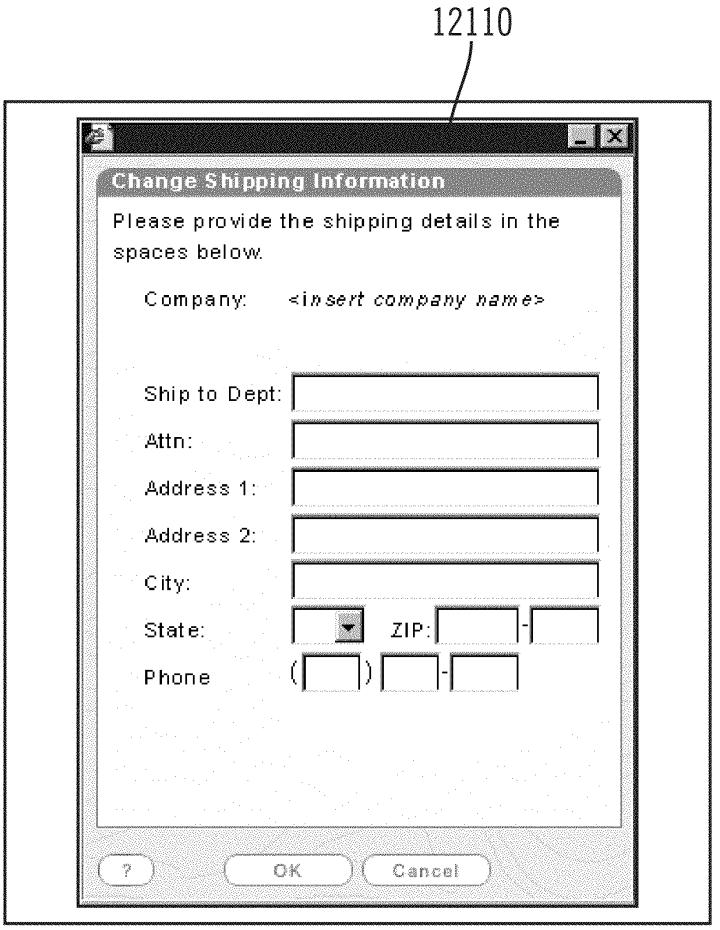

12110
Change Shipping Information
Please provide the shipping details in the spaces below.
Company: <insert company name>
Ship to Dept:
Attn:
Address 1:
Address 2:
City:
State:
ZIP:
Phone
?
OK
Cancel

FIG. 121

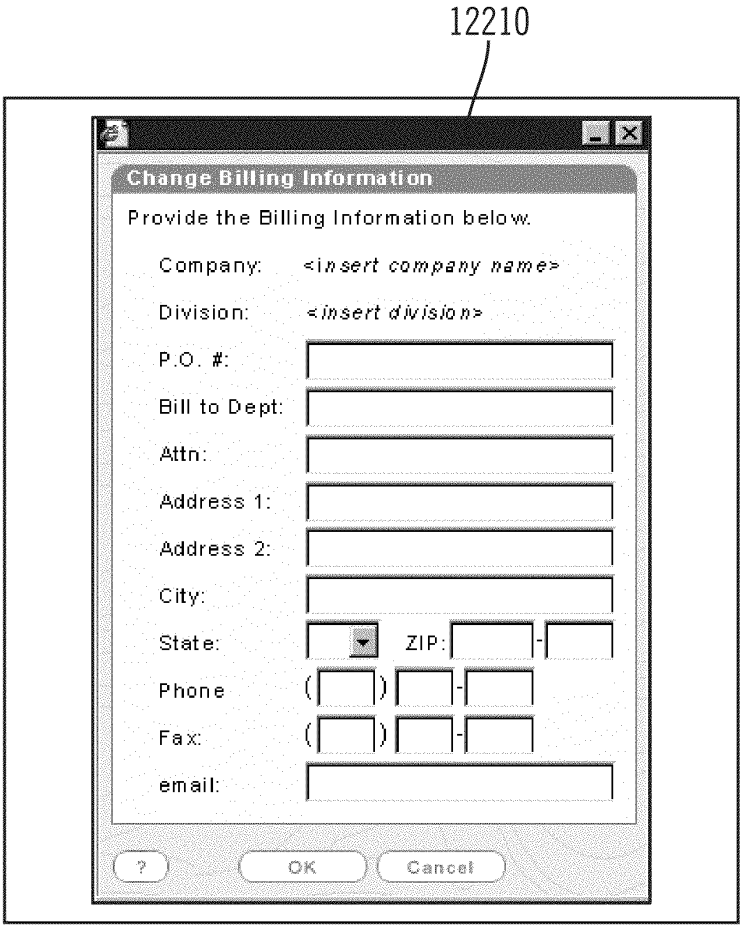

12210
Change Billing Information
Provide the Billing Information below.
Company: <insert company name>
Division: <insert division>
P.O. #:
Bill to Dept:
Attn:
Address 1:
Address 2:
City:
State:
ZIP:
Phone
Fax:
email:
?
OK
Cancel

FIG. 122