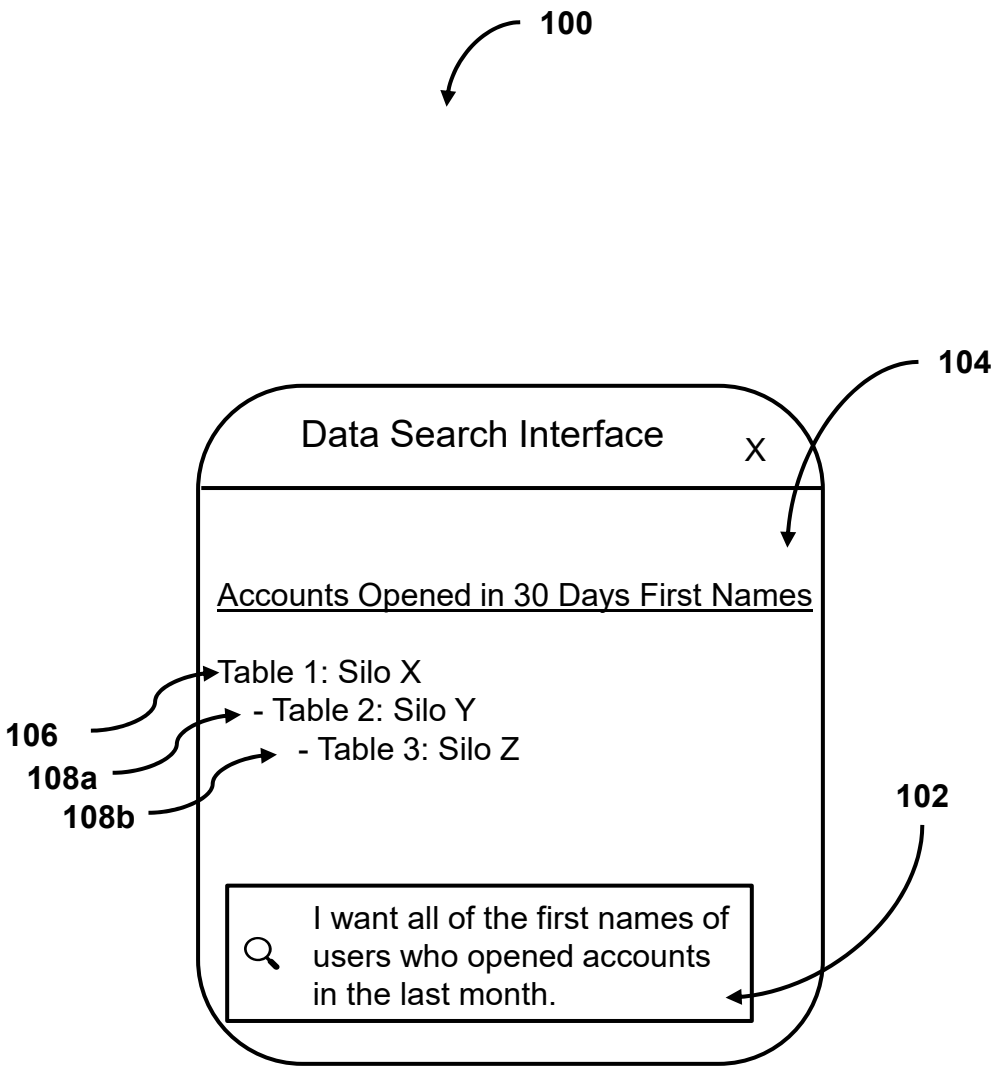

100
104
Data Search Interface
X
Accounts Opened in 30 Days First Names
Table 1: Silo X
- Table 2: Silo Y
- Table 3: Silo Z
106
108a
108b
102
I want all of the first names of users who opened accounts in the last month.

FIG. 1

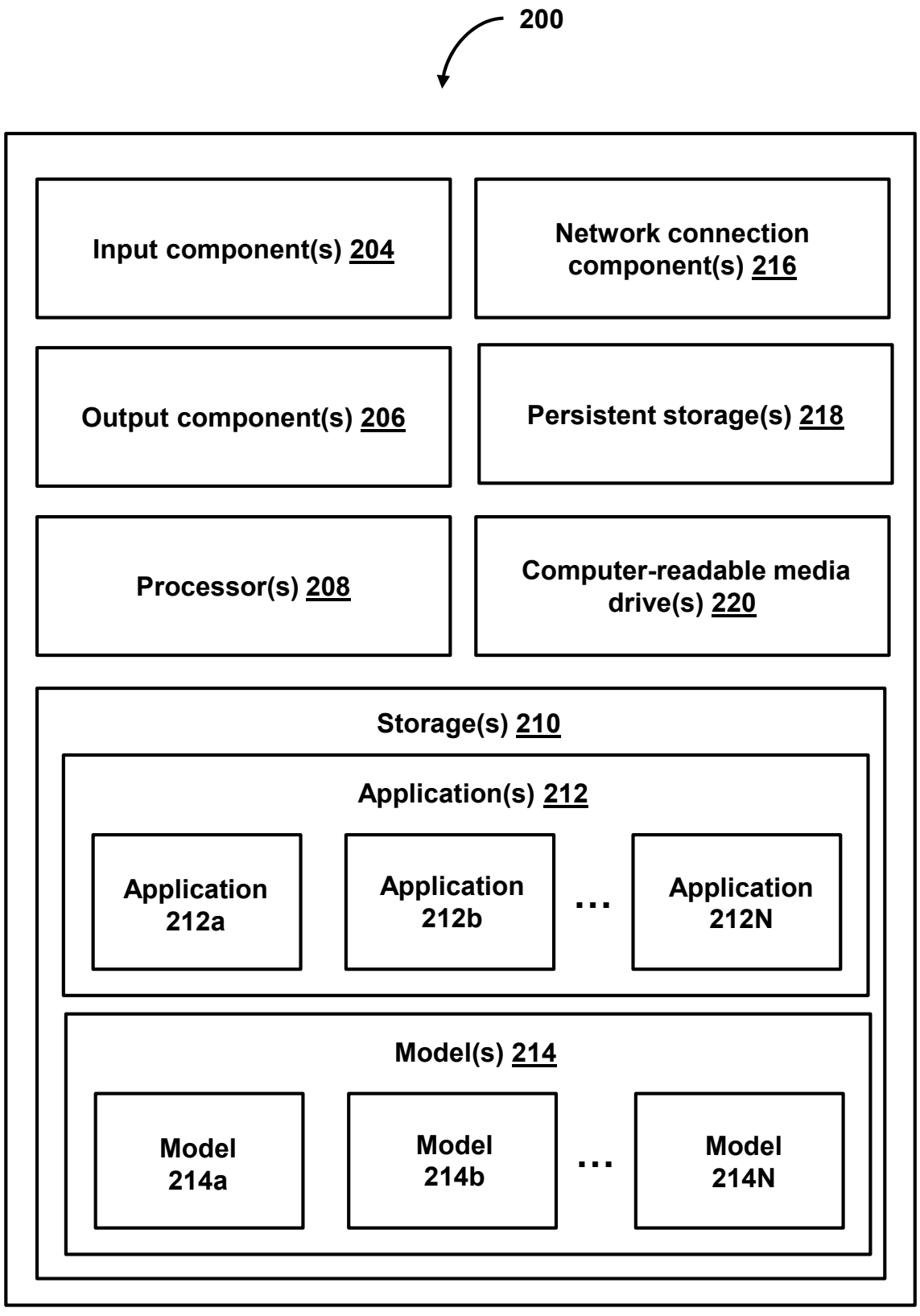

200
Input component(s) 204
Network connection component(s) 216
Output component(s) 206
Persistent storage(s) 218
Processor(s) 208
Computer-readable media drive(s) 220
Storage(s) 210
Application(s) 212
Application 212a
Application 212b
...
Application 212N
Model(s) 214
Model 214a
Model 214b
...
Model 214N

FIG. 2

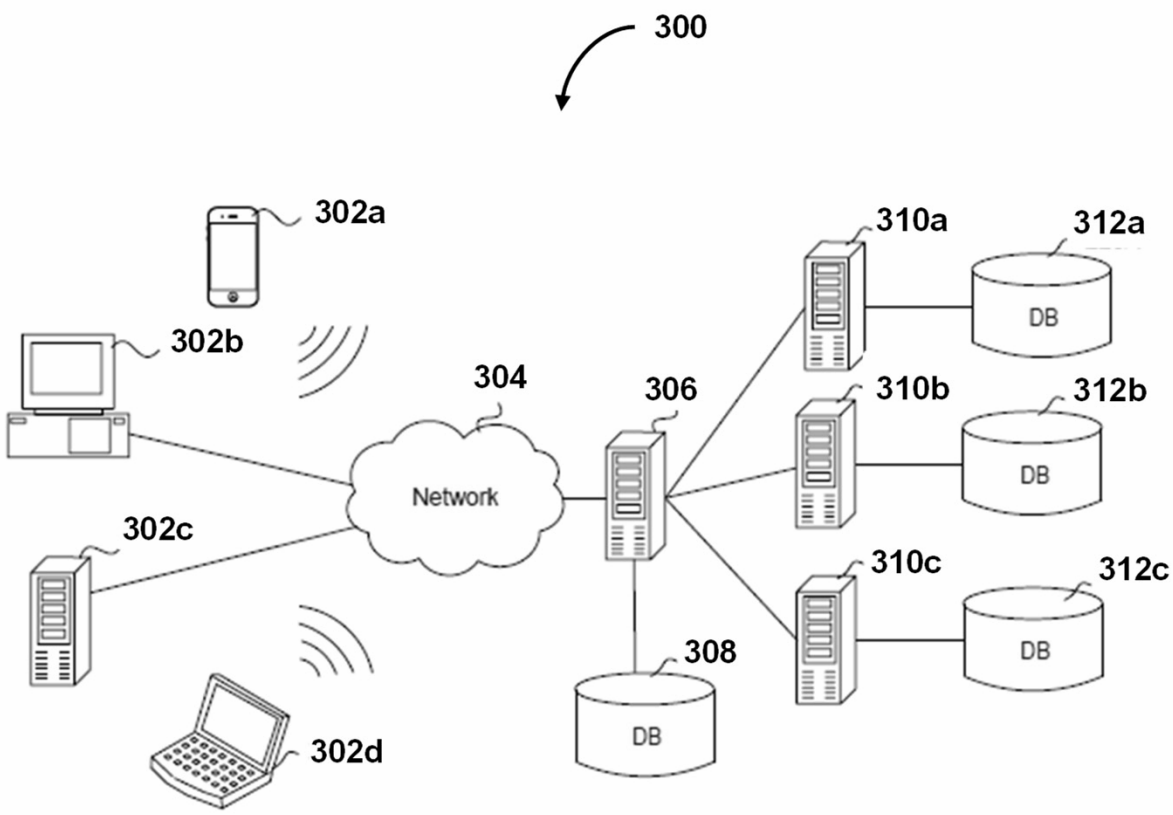

300
302a
302b
304
306
310a
312a
DB
310b
312b
DB
Network
302c
310c
312c
DB
308
DB
302d

FIG. 3

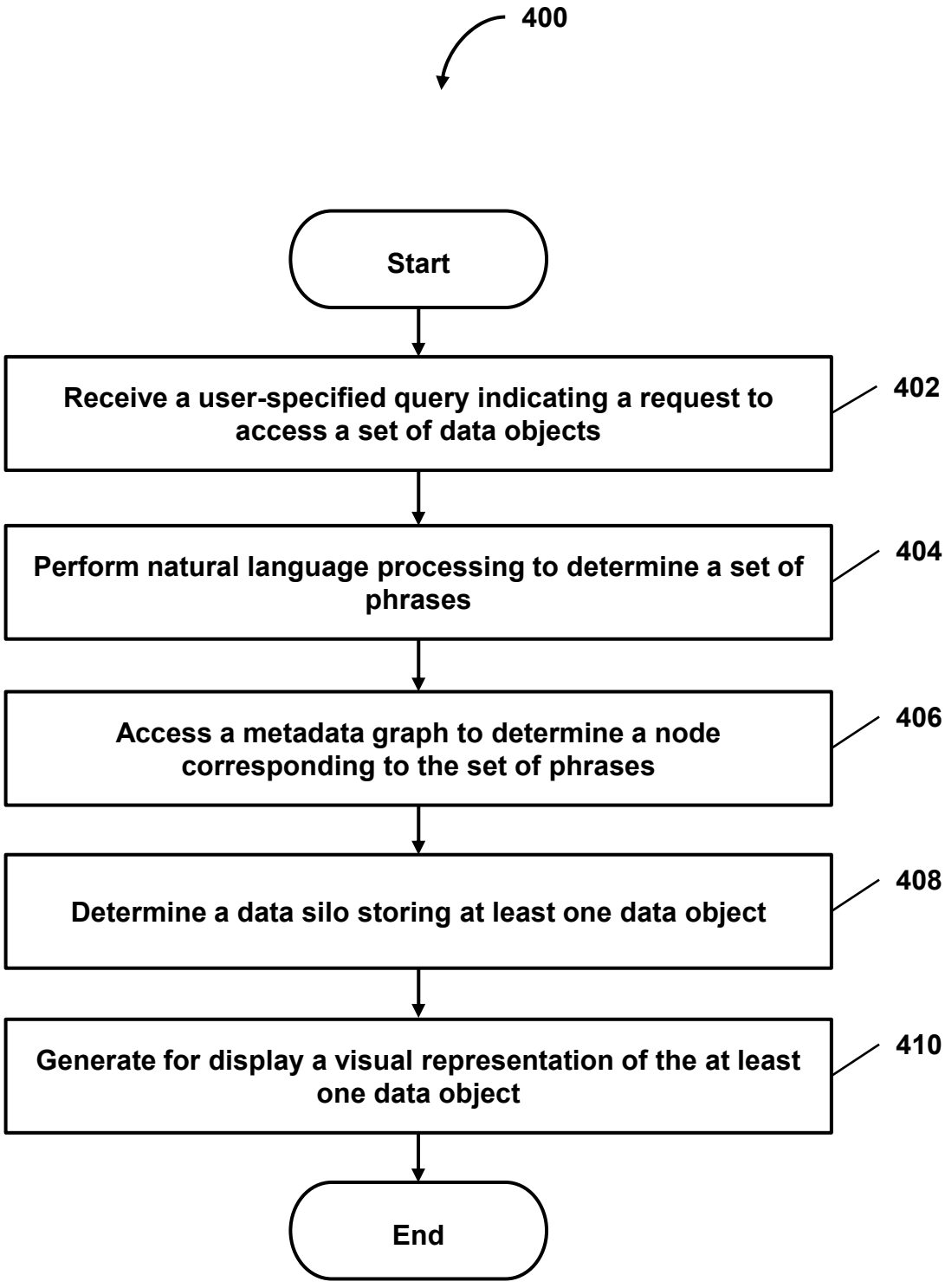

400
Start
Receive a user-specified query indicating a request to access a set of data objects
402
Perform natural language processing to determine a set of phrases
404
Access a metadata graph to determine a node corresponding to the set of phrases
406
Determine a data silo storing at least one data object
408
Generate for display a visual representation of the at least one data object
410
End

FIG. 4

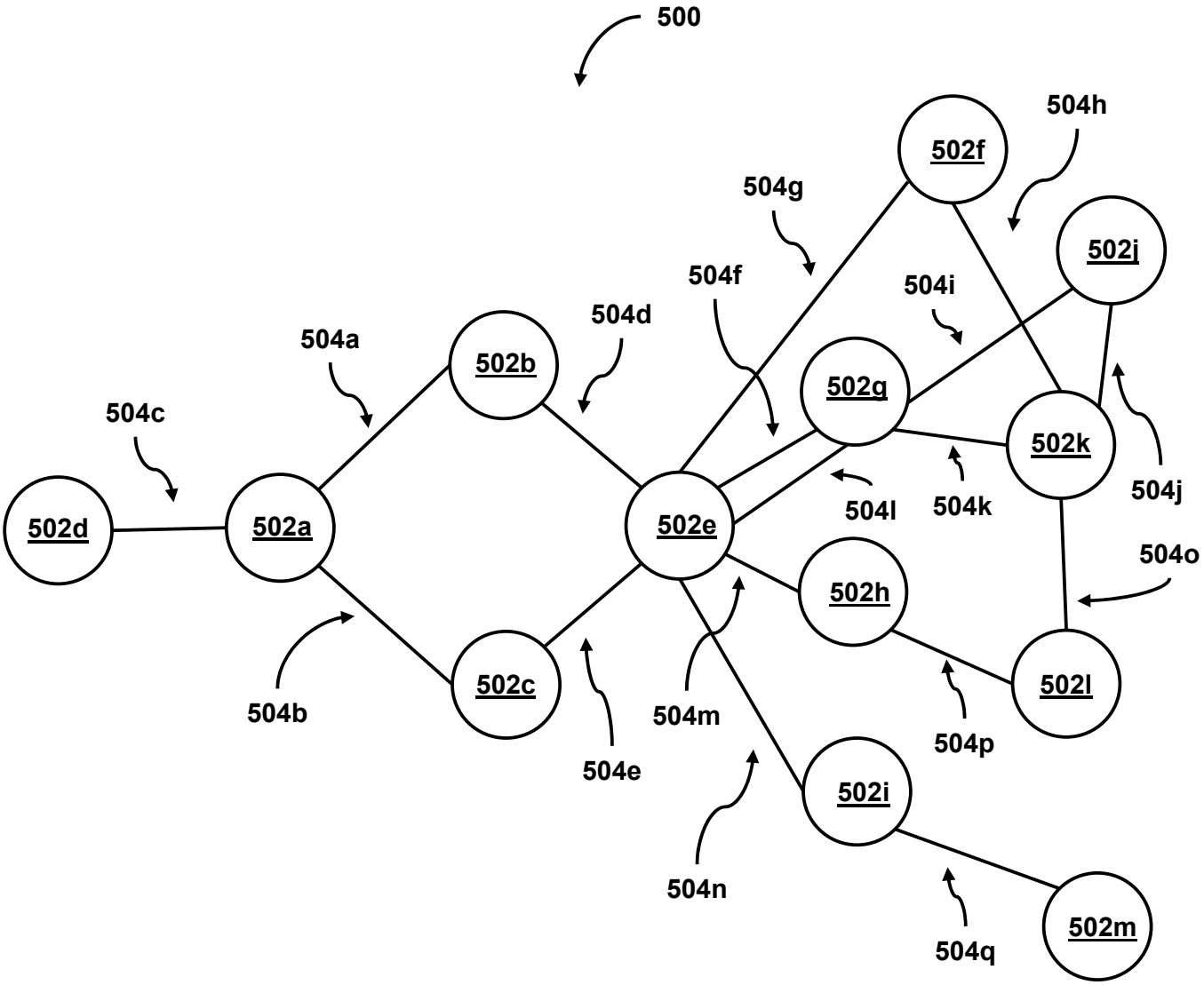

500
502f
504h
504g
502j
504f
504i
504d
504a
502b
502g
504c
502k
504j
502d
502a
502e
504l
504k
504o
502h
502c
504b
504m
502l
504p
504e
502i
504n
502m
504q

FIG. 5

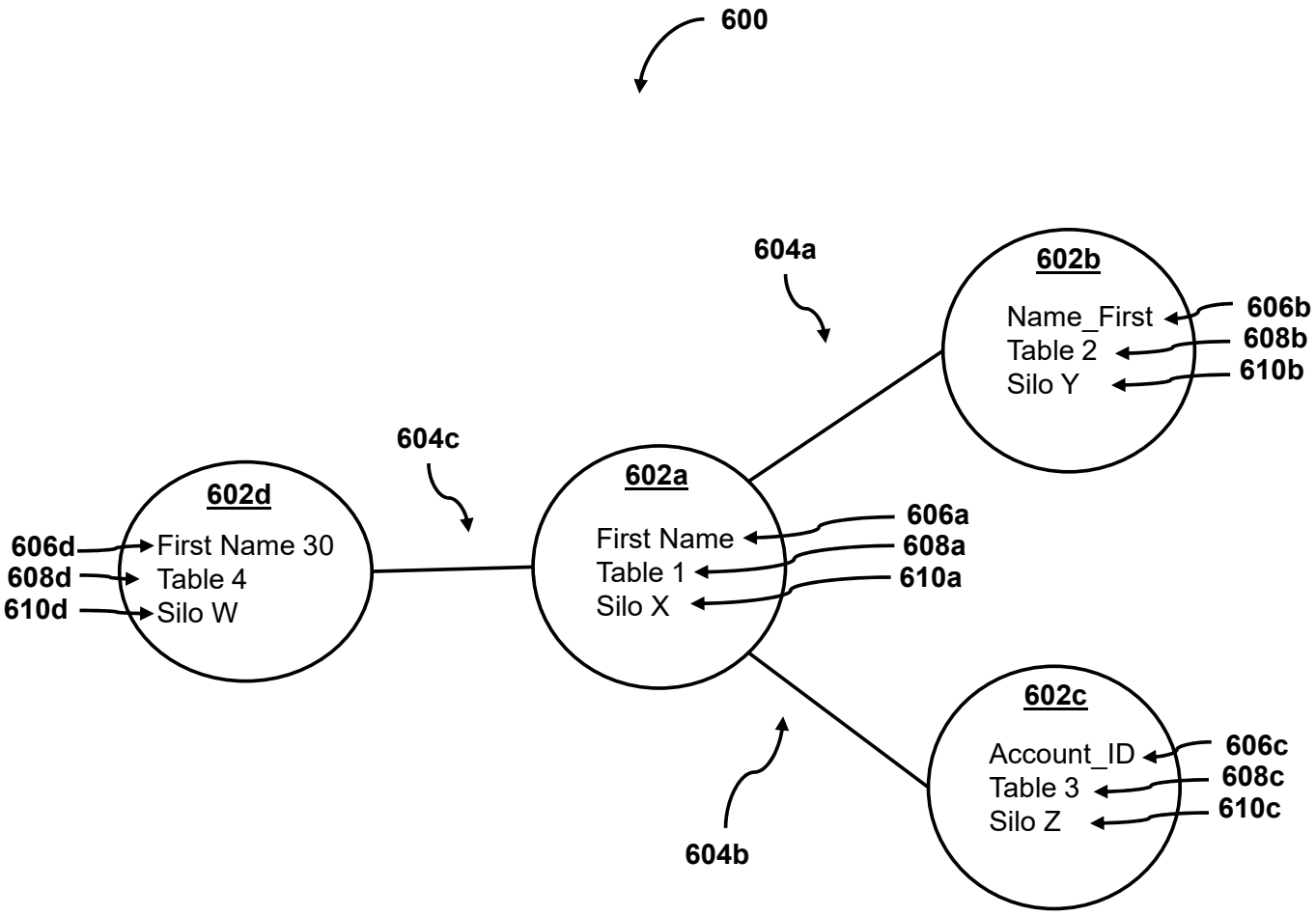

600
604a
602b
Name_First
Table 2
Silo Y
606b
608b
610b
604c
602d
606d
First Name 30
608d
Table 4
610d
Silo W
602a
First Name
Table 1
Silo X
606a
608a
610a
602c
Account_ID
Table 3
Silo Z
606c
608c
610c
604b

FIG. 6

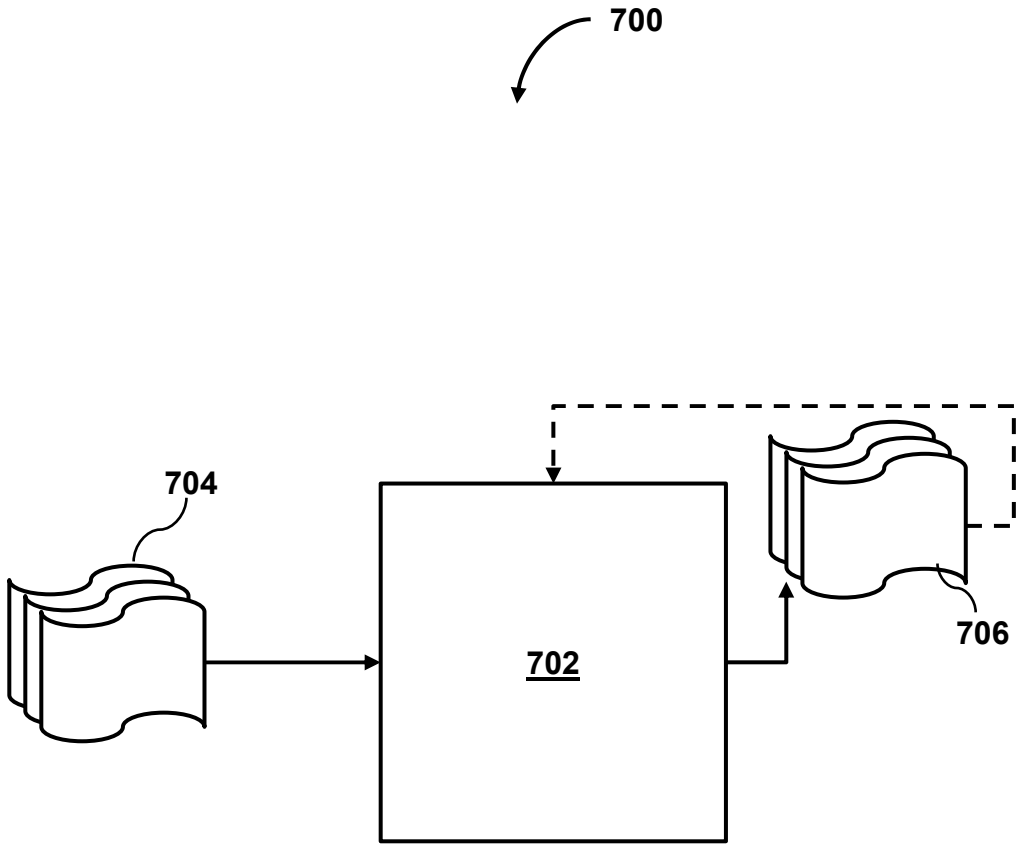


FIG. 7

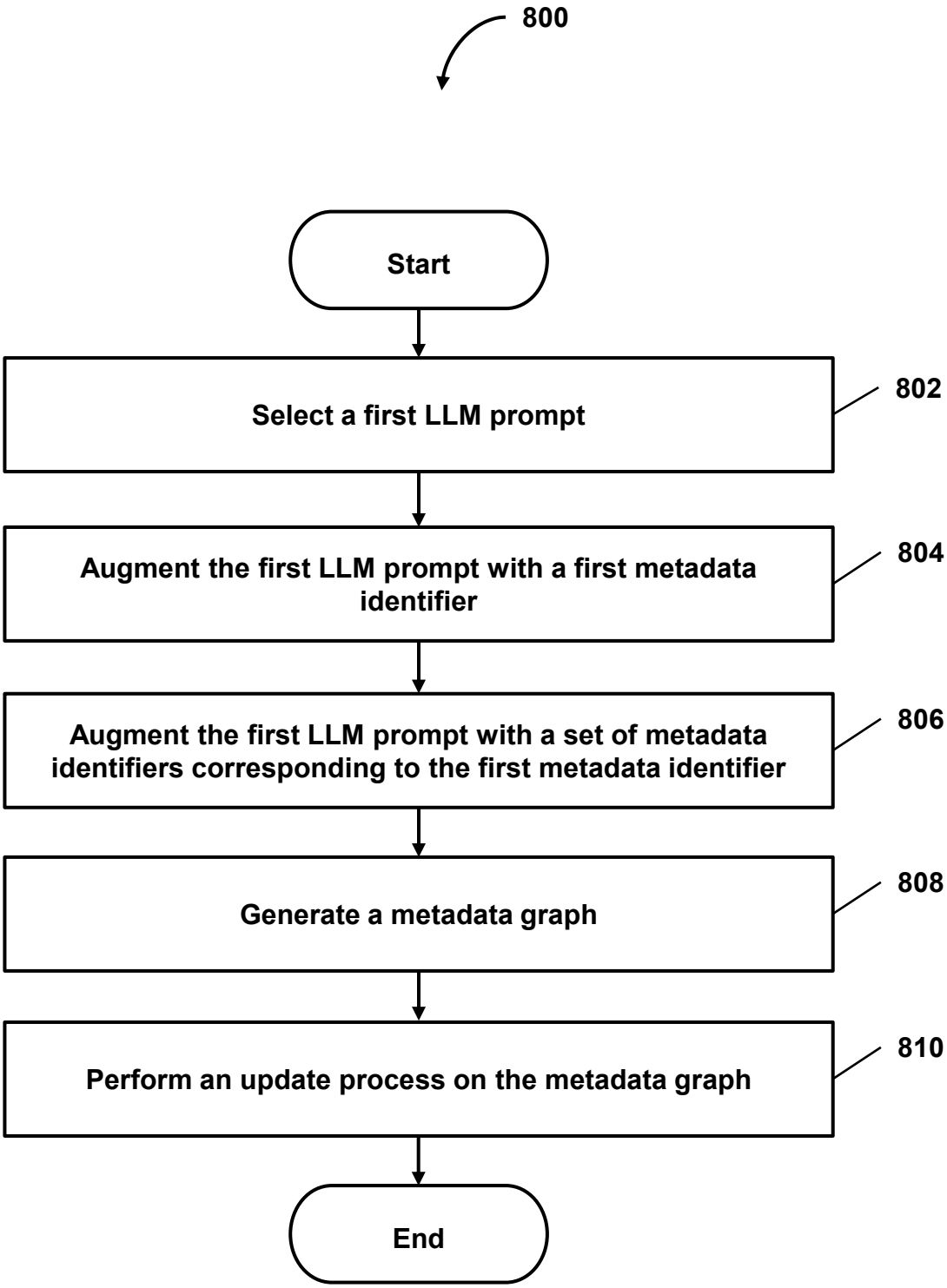

800
Start
Select a first LLM prompt
802
Augment the first LLM prompt with a first metadata identifier
804
Augment the first LLM prompt with a set of metadata identifiers corresponding to the first metadata identifier
806
Generate a metadata graph
808
Perform an update process on the metadata graph
810
End

FIG. 8

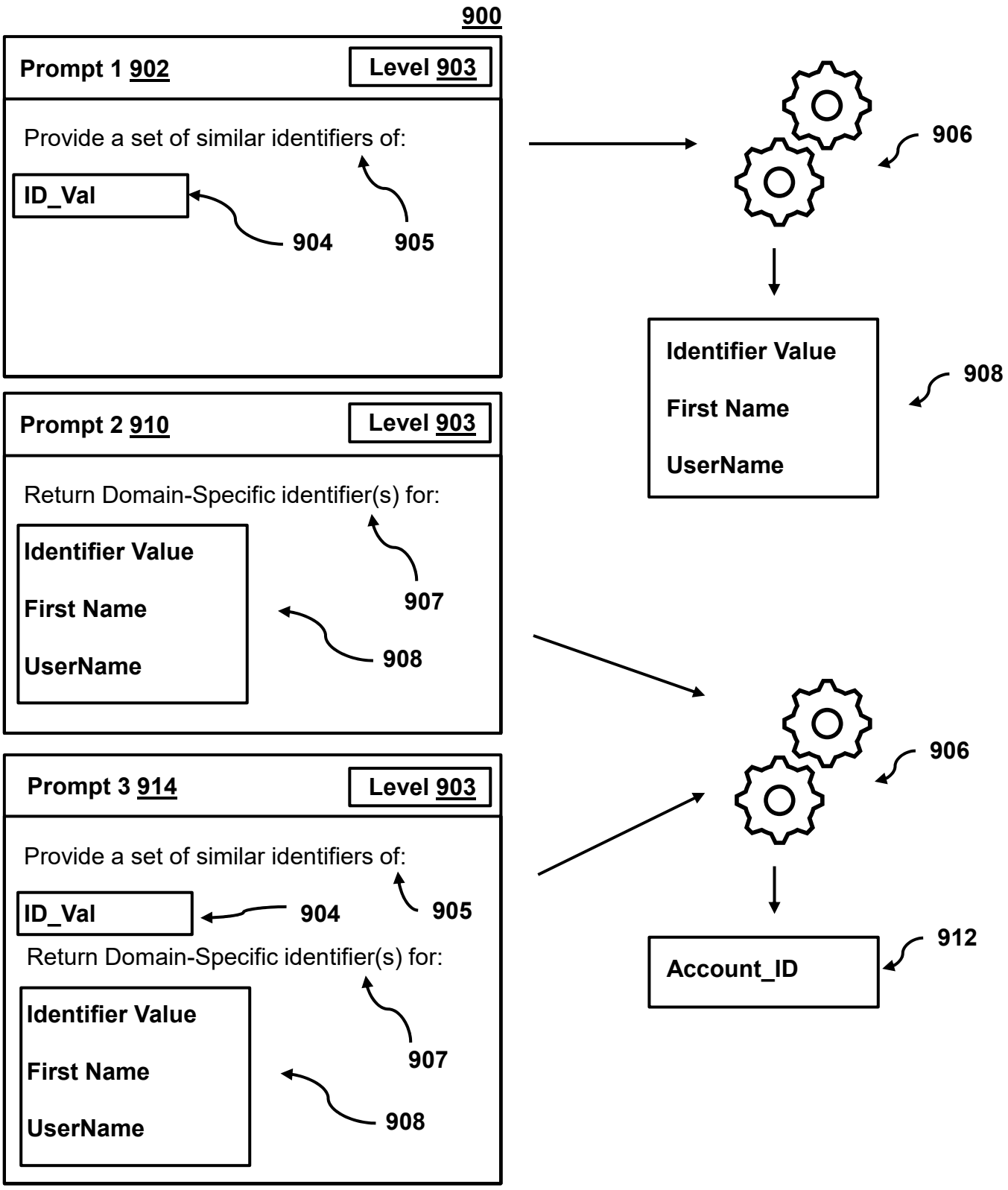

900
Prompt 1 902
Level 903
Provide a set of similar identifiers of:
ID_Val
904
905
906
Identifier Value
First Name
UserName
908
Prompt 2 910
Level 903
Return Domain-Specific identifier(s) for:
Identifier Value
First Name
UserName
907
908
906
Prompt 3 914
Level 903
Provide a set of similar identifiers of:
ID_Val
904
905
Return Domain-Specific identifier(s) for:
Identifier Value
First Name
UserName
907
908
Account_ID
912

FIG. 9A

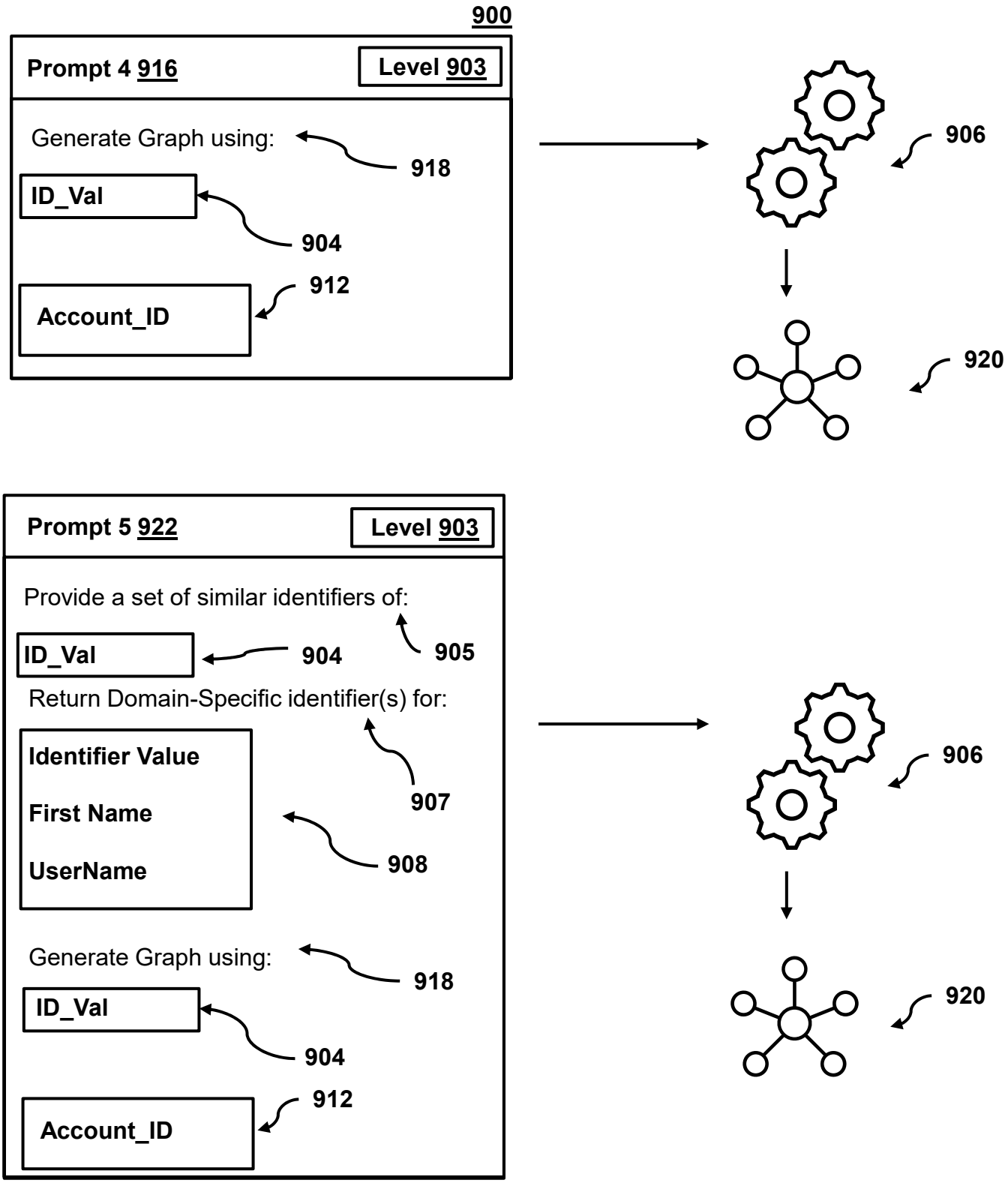

900
Prompt 4 916
Level 903
Generate Graph using:
918
ID_Val
904
Account_ID
912
906
920
Prompt 5 922
Level 903
Provide a set of similar identifiers of:
905
ID_Val
904
Return Domain-Specific identifier(s) for:
907
Identifier Value
First Name
UserName
908
Generate Graph using:
918
ID_Val
904
Account_ID
912
906
920

FIG. 9B

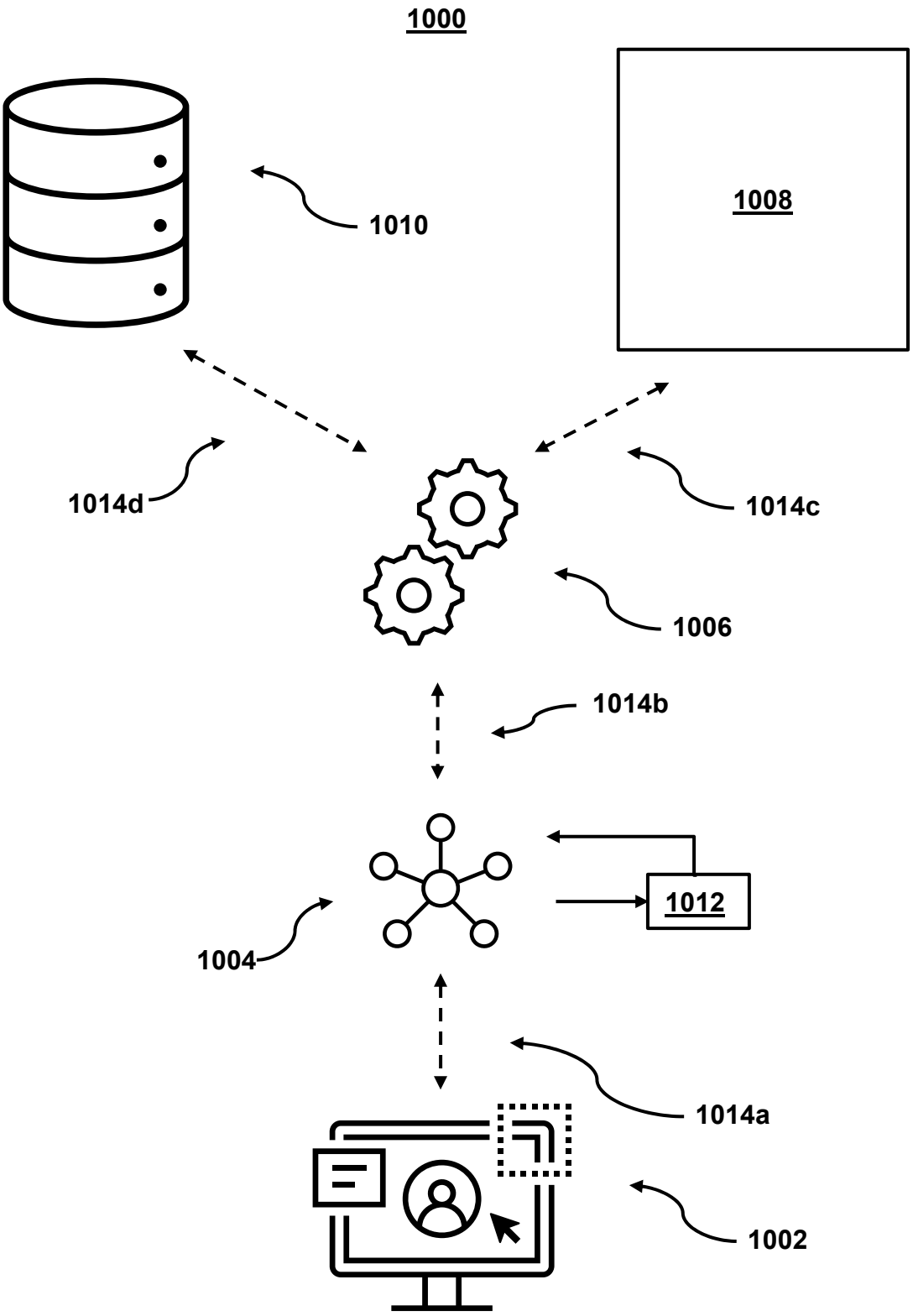


FIG. 10A

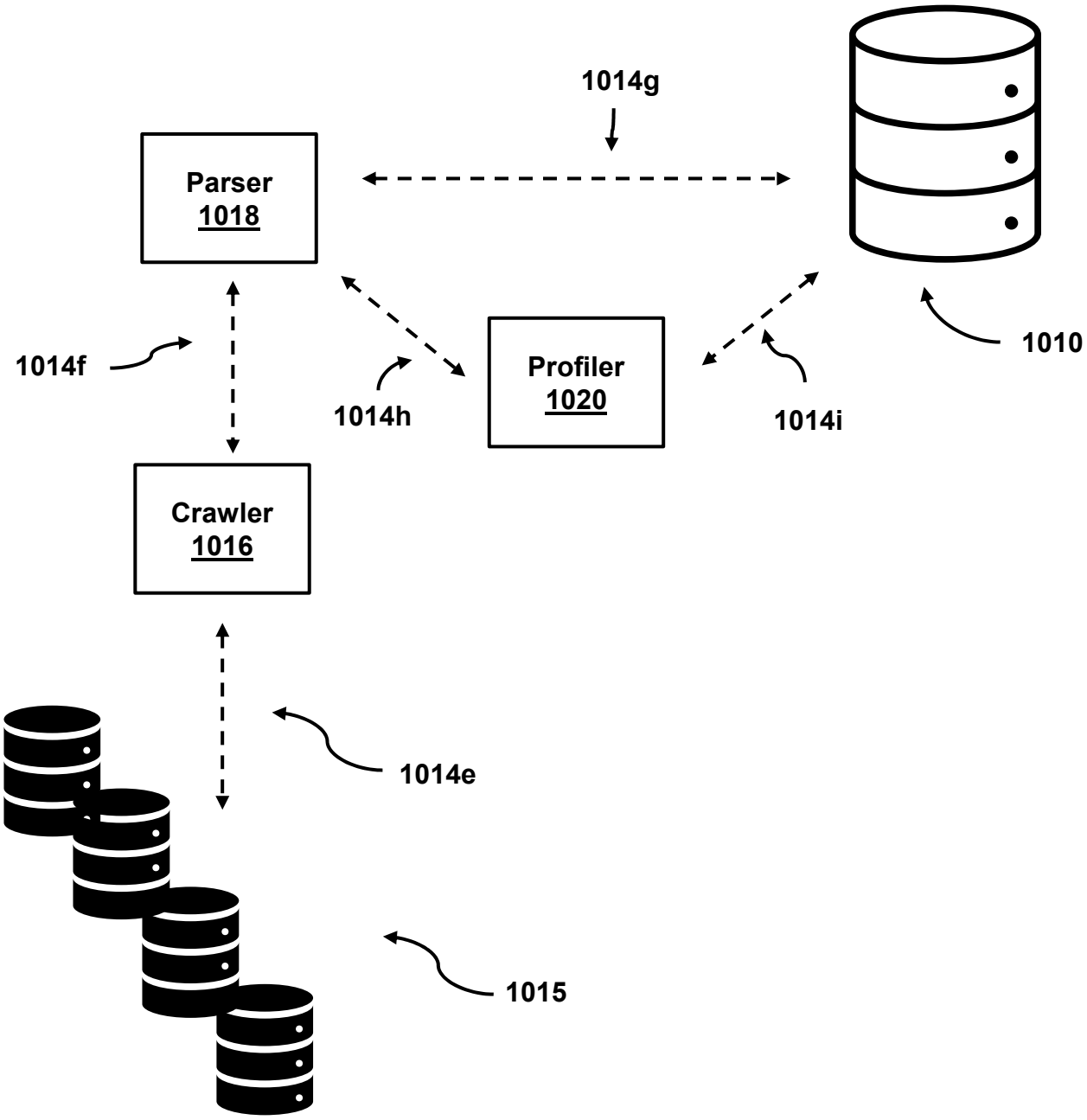

1014g
Parser
1018
1010
1014f
1014h
Profiler
1020
1014i
Crawler
1016
1014e
1015

FIG. 10B

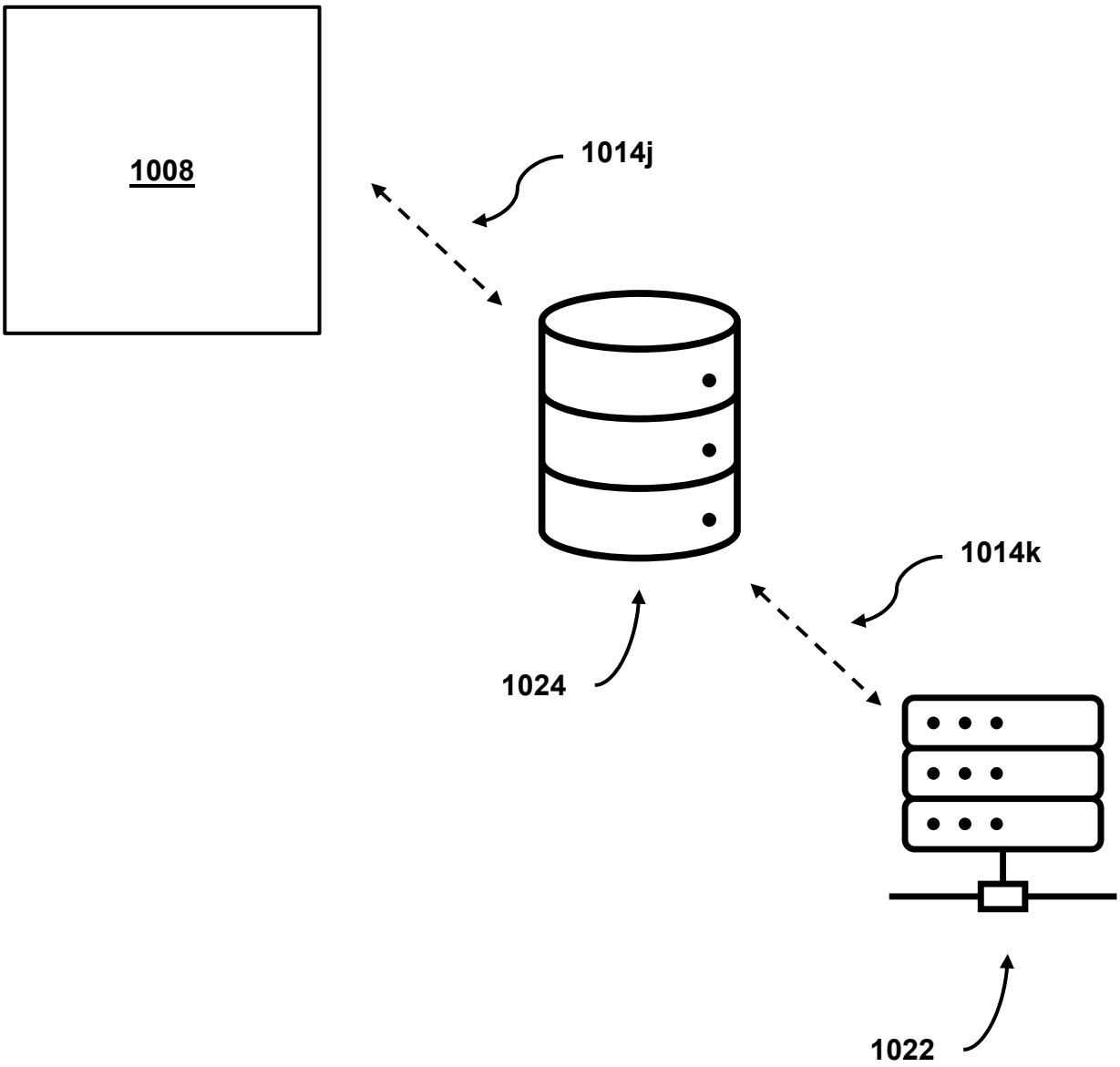


FIG. 10C

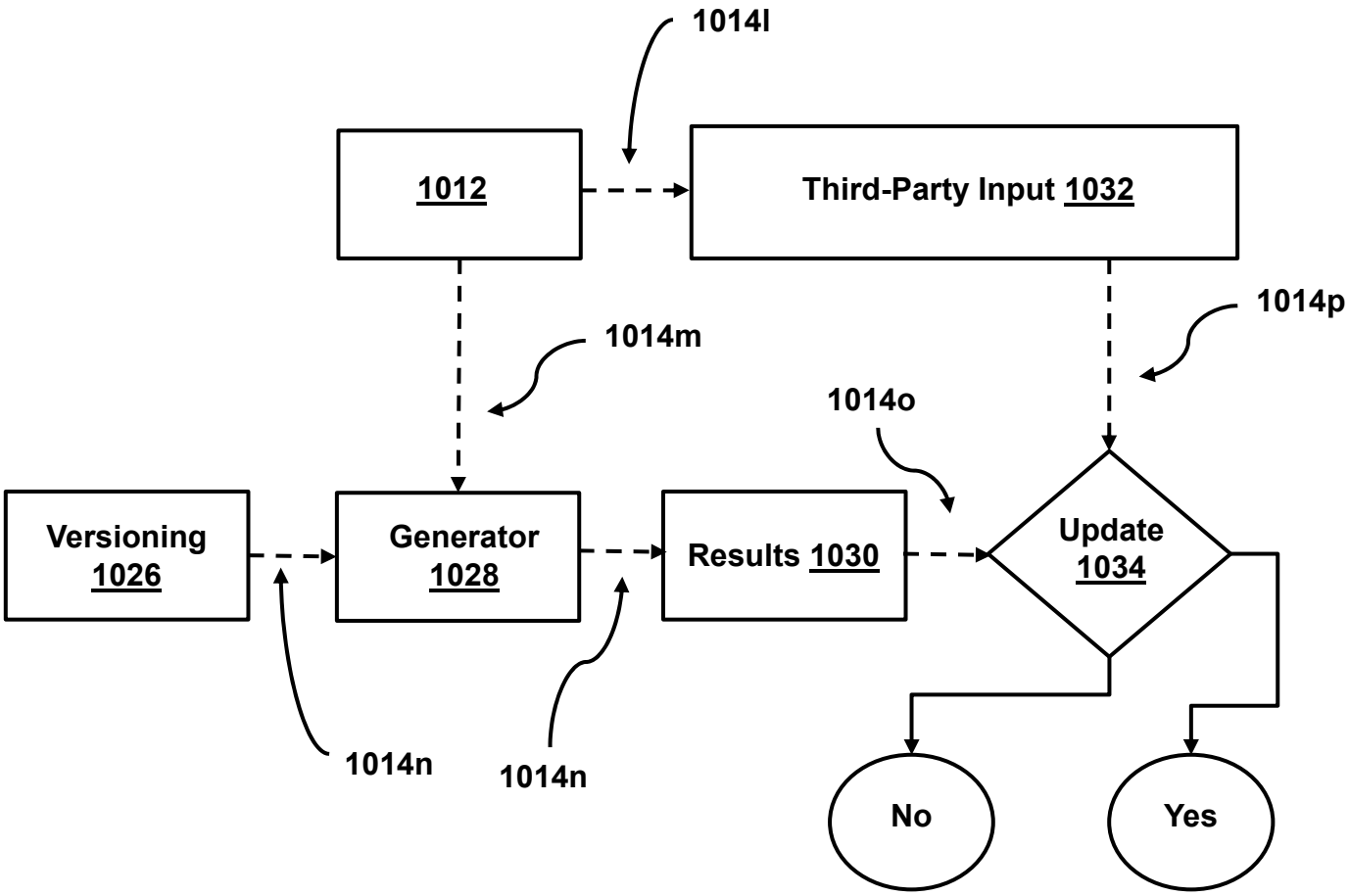

1014l
1012
Third-Party Input 1032
1014p
1014m
1014o
Versioning 1026
Generator 1028
Results 1030
Update 1034
1014n
1014n
No
Yes

FIG. 10D

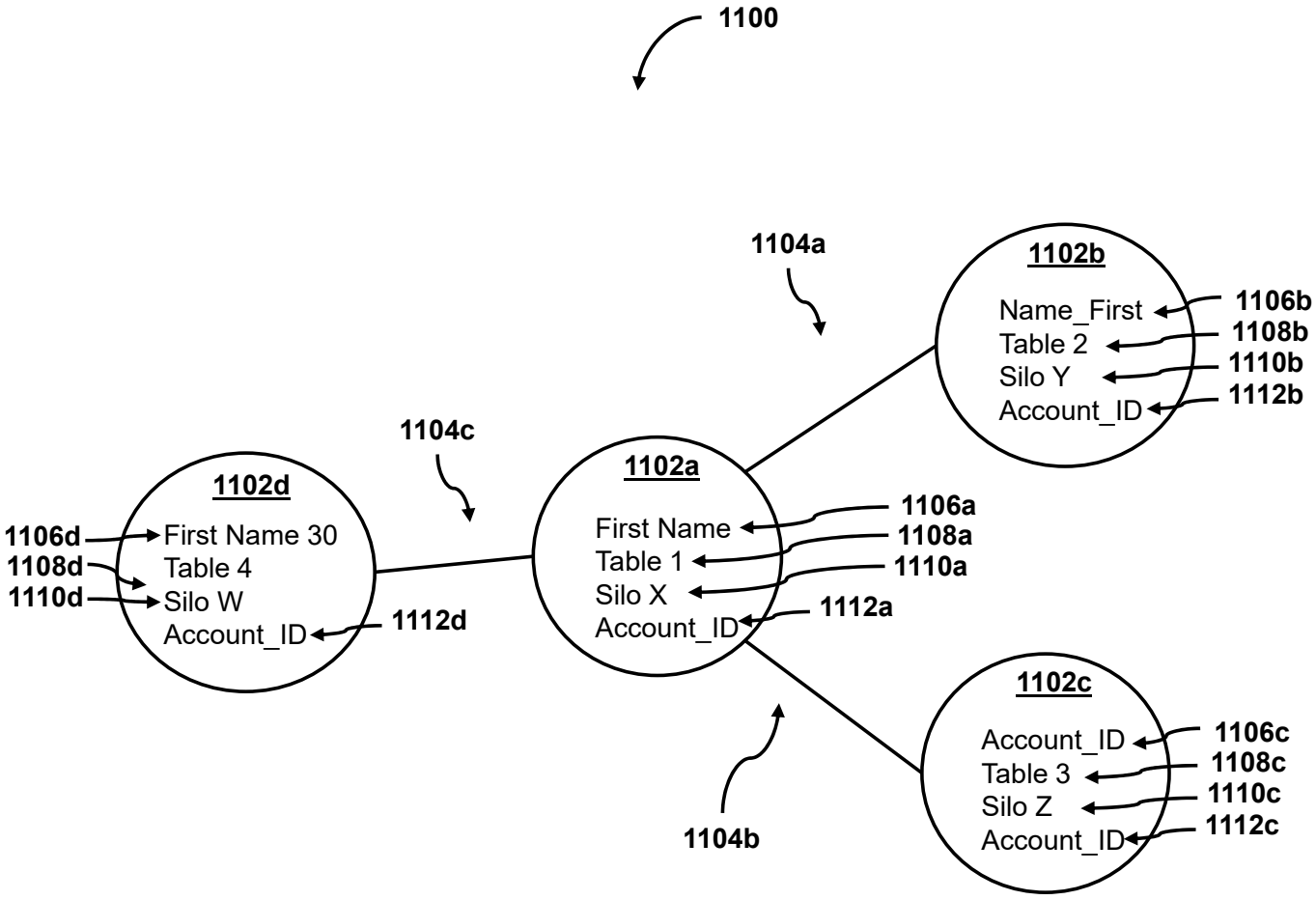

1100
1104a
1102b
Name_First
Table 2
Silo Y
Account_ID
1106b
1108b
1110b
1112b
1104c
1102d
1106d
1108d
1110d
First Name 30
Table 4
Silo W
Account_ID
1112d
1102a
First Name
Table 1
Silo X
Account_ID
1106a
1108a
1110a
1112a
1102c
Account_ID
Table 3
Silo Z
Account_ID
1106c
1108c
1110c
1112c
1104b

FIG. 11

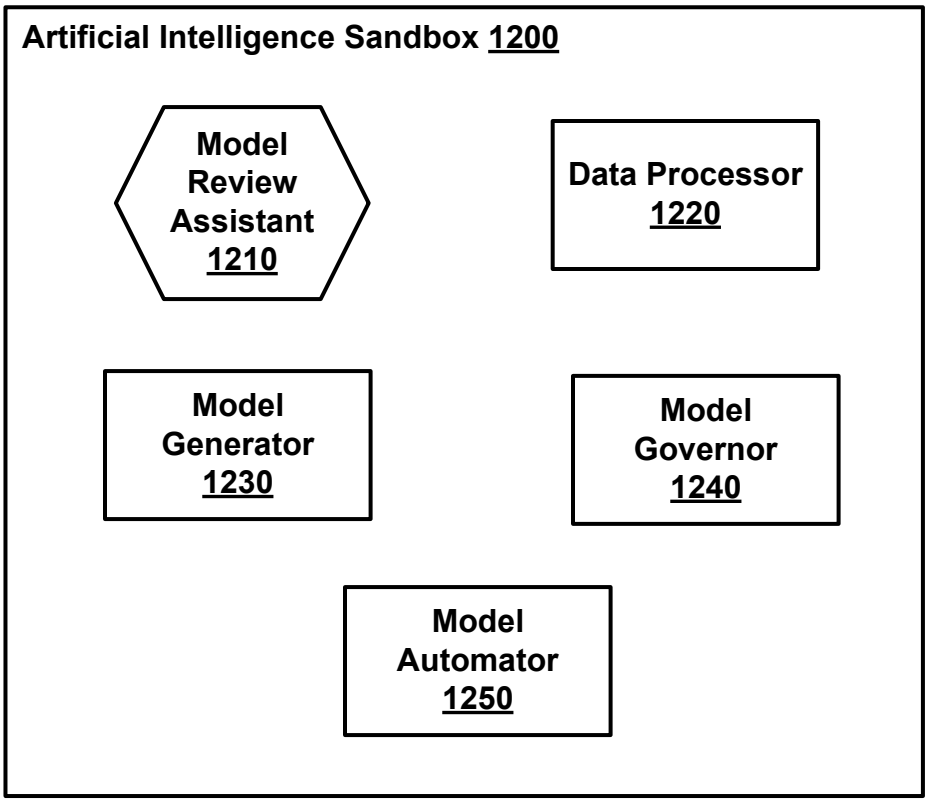

Artificial Intelligence Sandbox 1200
Model Review Assistant 1210
Data Processor 1220
Model Generator 1230
Model Governor 1240
Model Automator 1250

FIG. 12

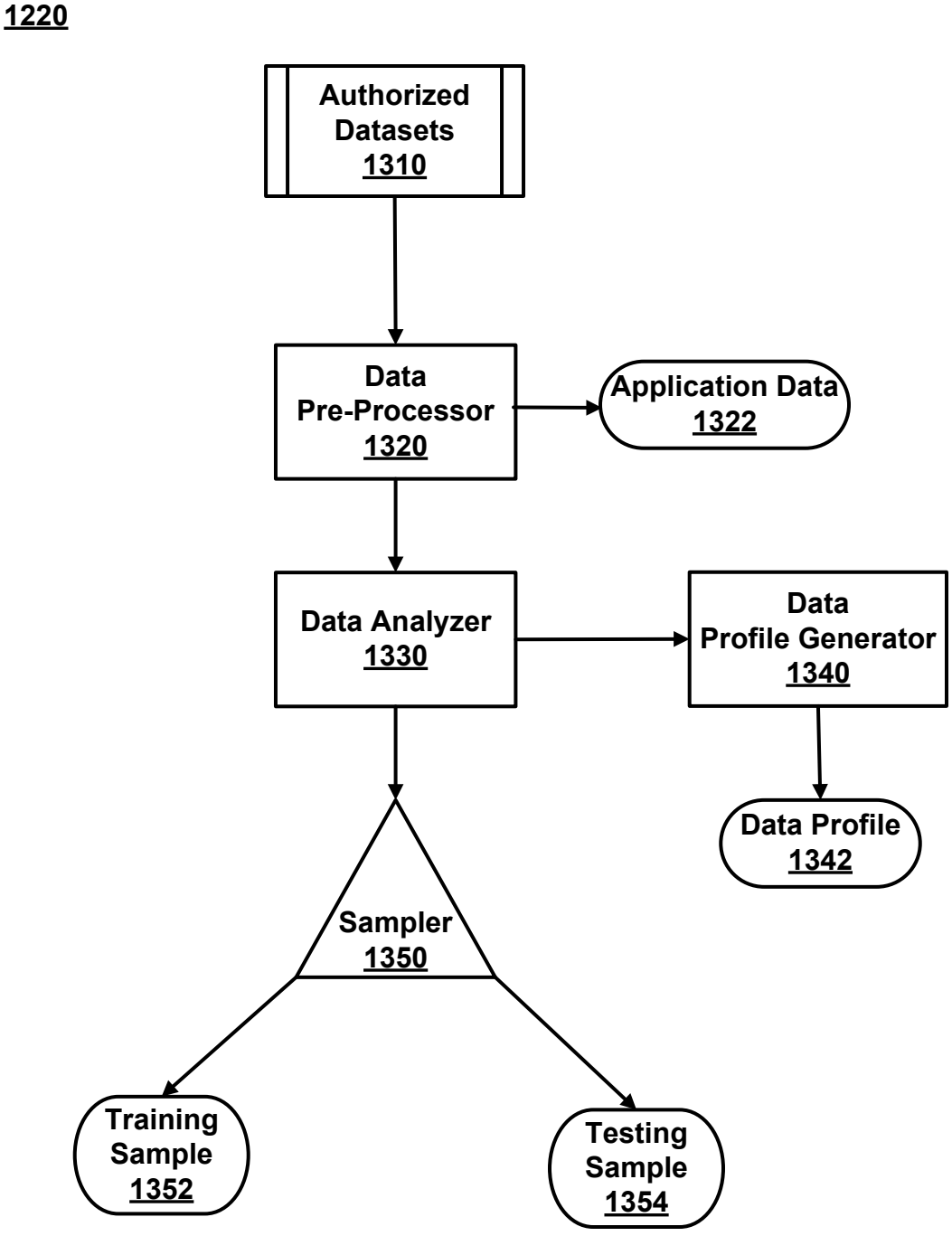

1220
Authorized Datasets 1310
Data Pre-Processor 1320
Application Data 1322
Data Analyzer 1330
Data Profile Generator 1340
Data Profile 1342
Sampler 1350
Training Sample 1352
Testing Sample 1354

FIG. 13

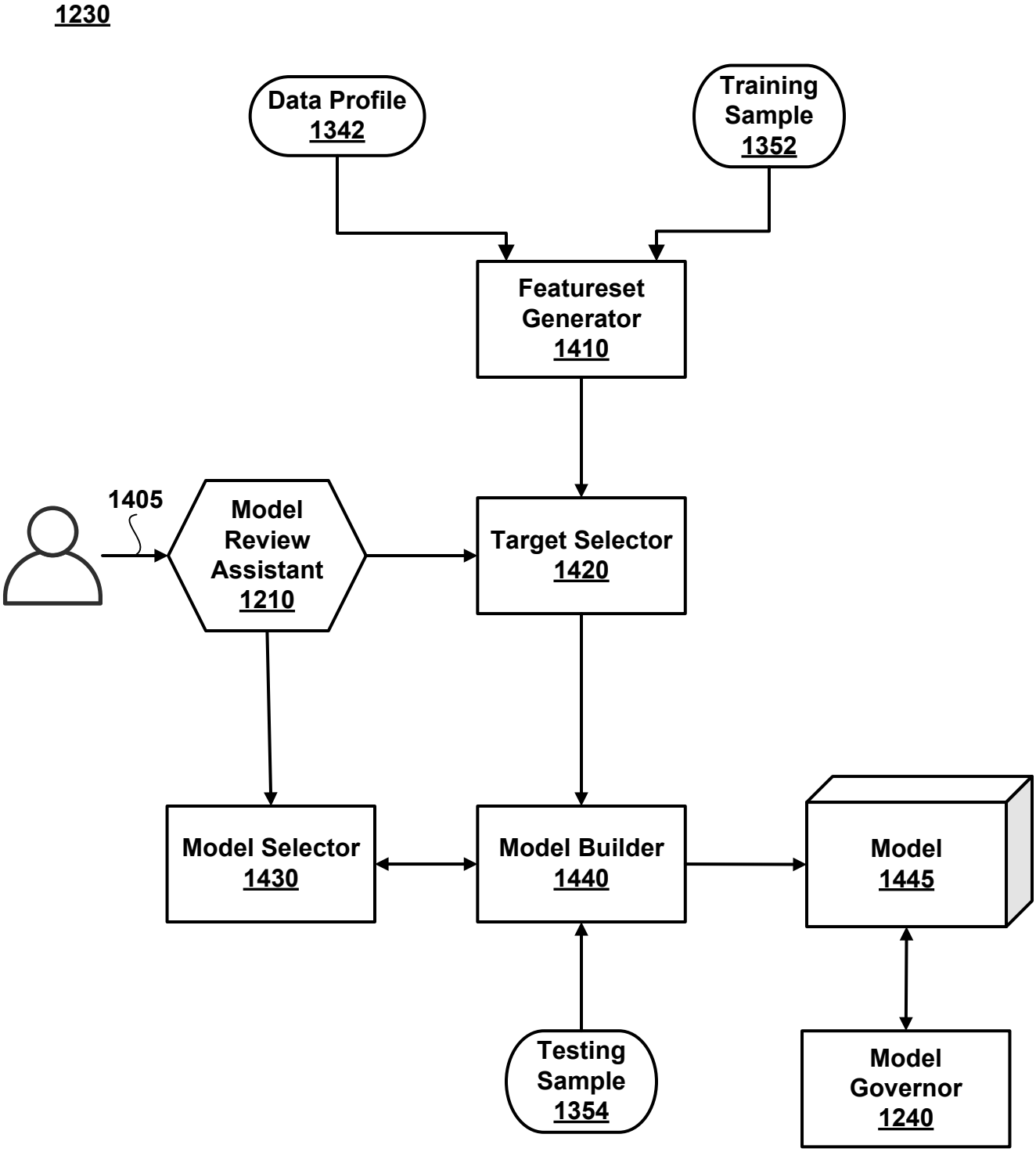

1230
Data Profile
1342
Training
Sample
1352
Featureset
Generator
1410
1405
Model
Review
Assistant
1210
Target Selector
1420
Model Selector
1430
Model Builder
1440
Model
1445
Testing
Sample
1354
Model
Governor
1240

FIG. 14

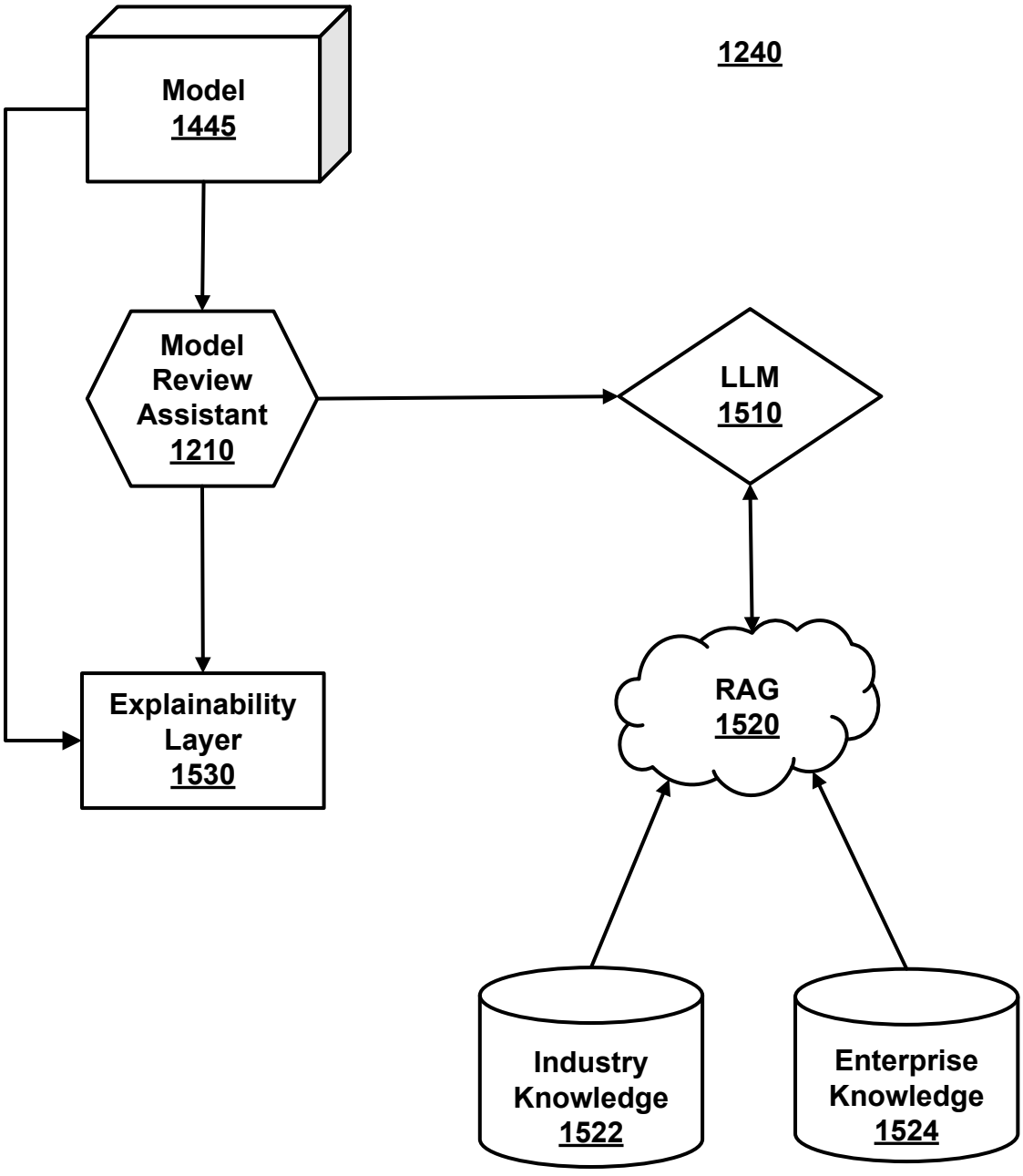

1240
Model
1445
Model
Review
Assistant
1210
LLM
1510
Explainability
Layer
1530
RAG
1520
Industry
Knowledge
1522
Enterprise
Knowledge
1524

FIG. 15

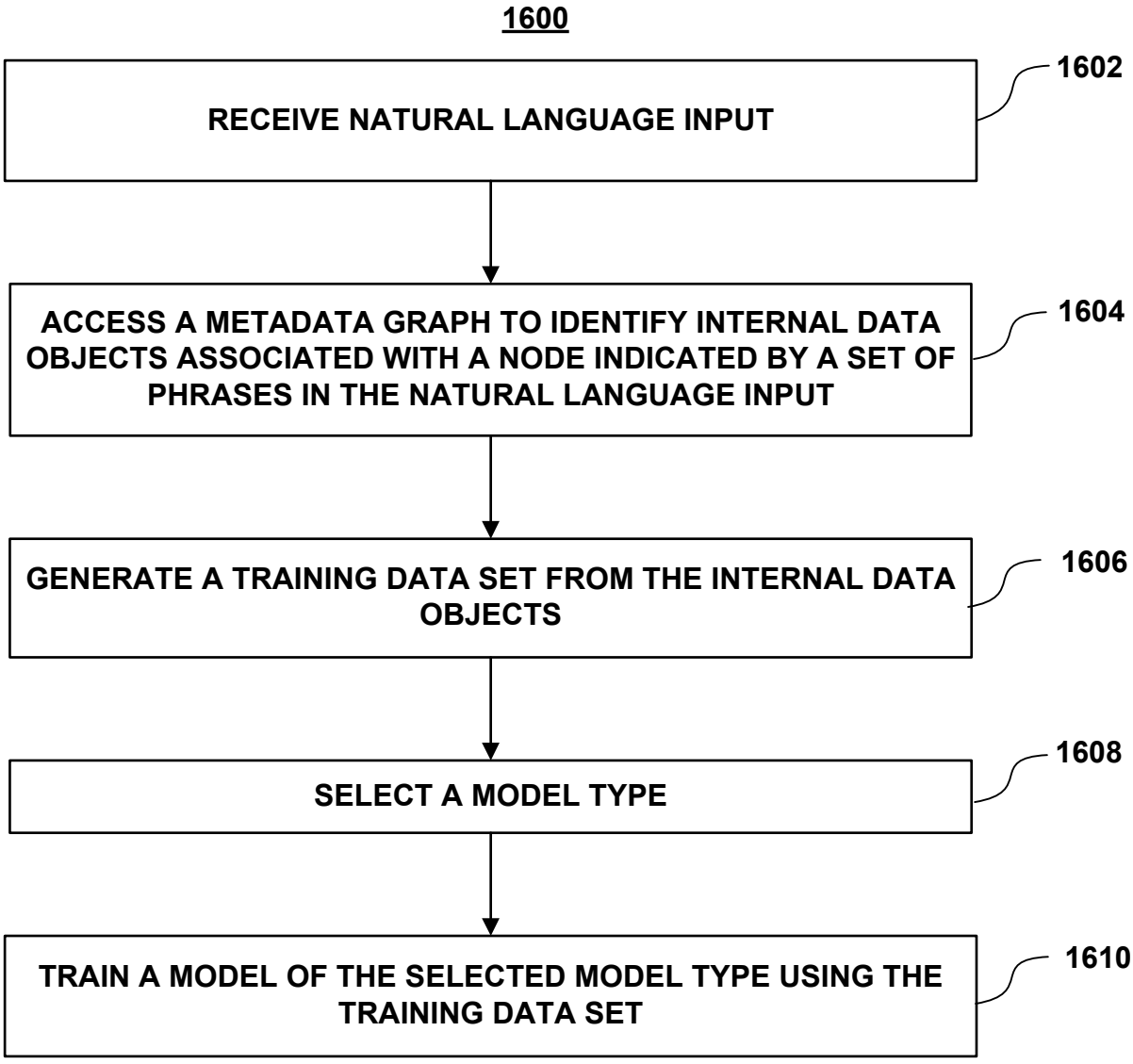

1600
RECEIVE NATURAL LANGUAGE INPUT
1602
ACCESS A METADATA GRAPH TO IDENTIFY INTERNAL DATA OBJECTS ASSOCIATED WITH A NODE INDICATED BY A SET OF PHRASES IN THE NATURAL LANGUAGE INPUT
1604
GENERATE A TRAINING DATA SET FROM THE INTERNAL DATA OBJECTS
1606
SELECT A MODEL TYPE
1608
TRAIN A MODEL OF THE SELECTED MODEL TYPE USING THE TRAINING DATA SET
1610

FIG. 16A

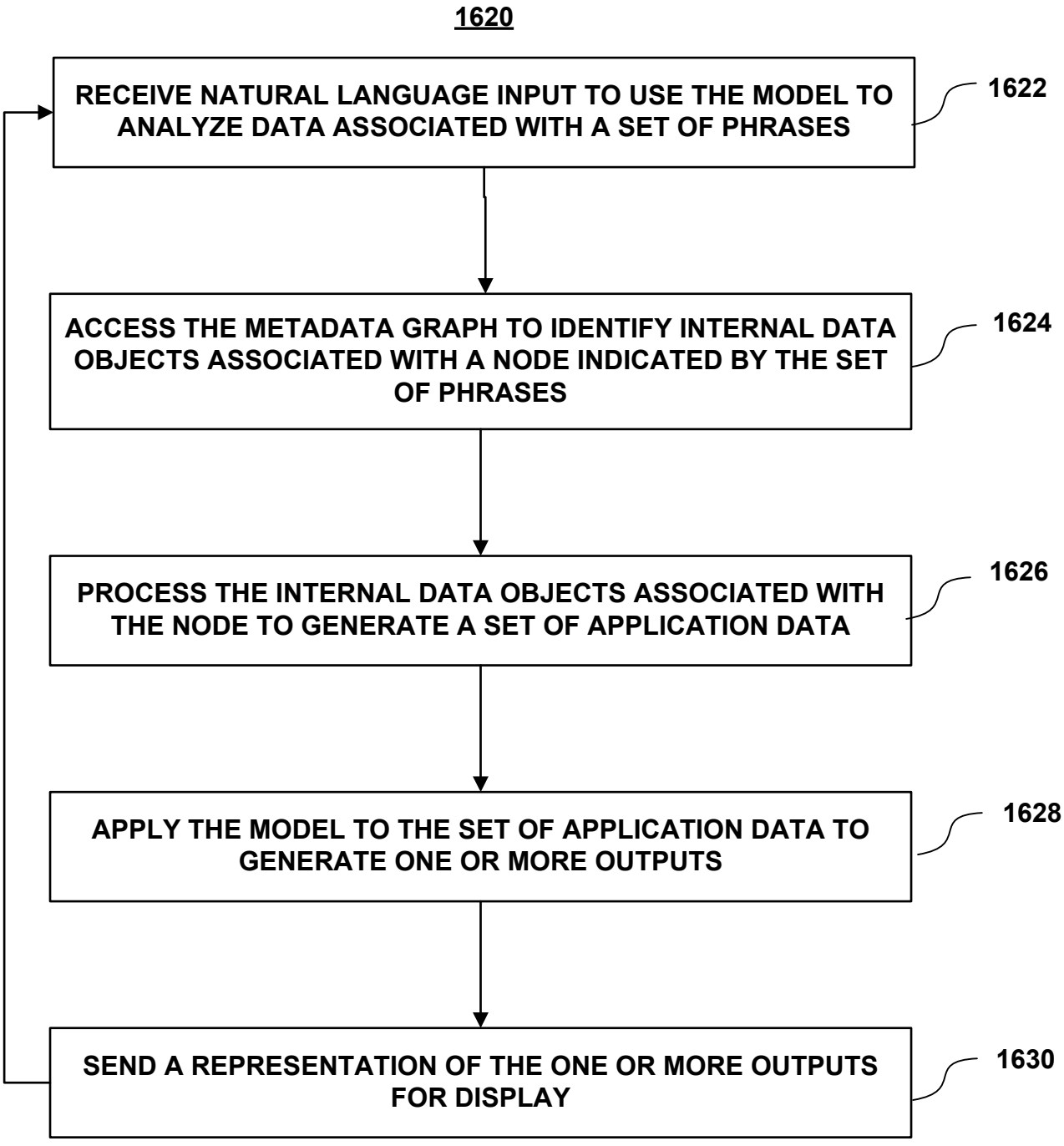

1620
RECEIVE NATURAL LANGUAGE INPUT TO USE THE MODEL TO ANALYZE DATA ASSOCIATED WITH A SET OF PHRASES
1622
ACCESS THE METADATA GRAPH TO IDENTIFY INTERNAL DATA OBJECTS ASSOCIATED WITH A NODE INDICATED BY THE SET OF PHRASES
1624
PROCESS THE INTERNAL DATA OBJECTS ASSOCIATED WITH THE NODE TO GENERATE A SET OF APPLICATION DATA
1626
APPLY THE MODEL TO THE SET OF APPLICATION DATA TO GENERATE ONE OR MORE OUTPUTS
1628
SEND A REPRESENTATION OF THE ONE OR MORE OUTPUTS FOR DISPLAY
1630

FIG. 16B

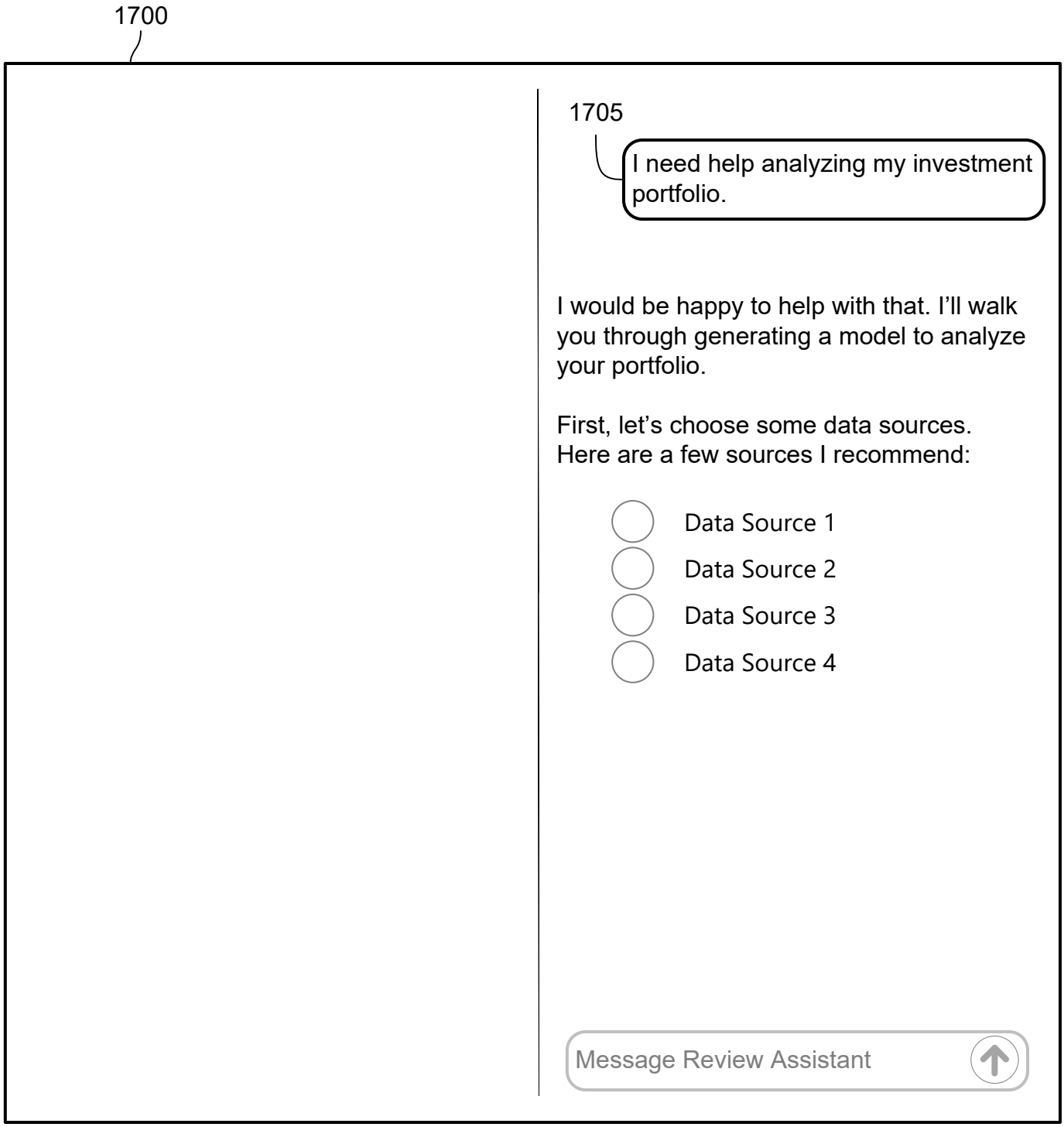

1700
1705
I need help analyzing my investment portfolio.
I would be happy to help with that. I'll walk you through generating a model to analyze your portfolio.
First, let's choose some data sources. Here are a few sources I recommend:
Data Source 1
Data Source 2
Data Source 3
Data Source 4
Message Review Assistant

FIG. 17A

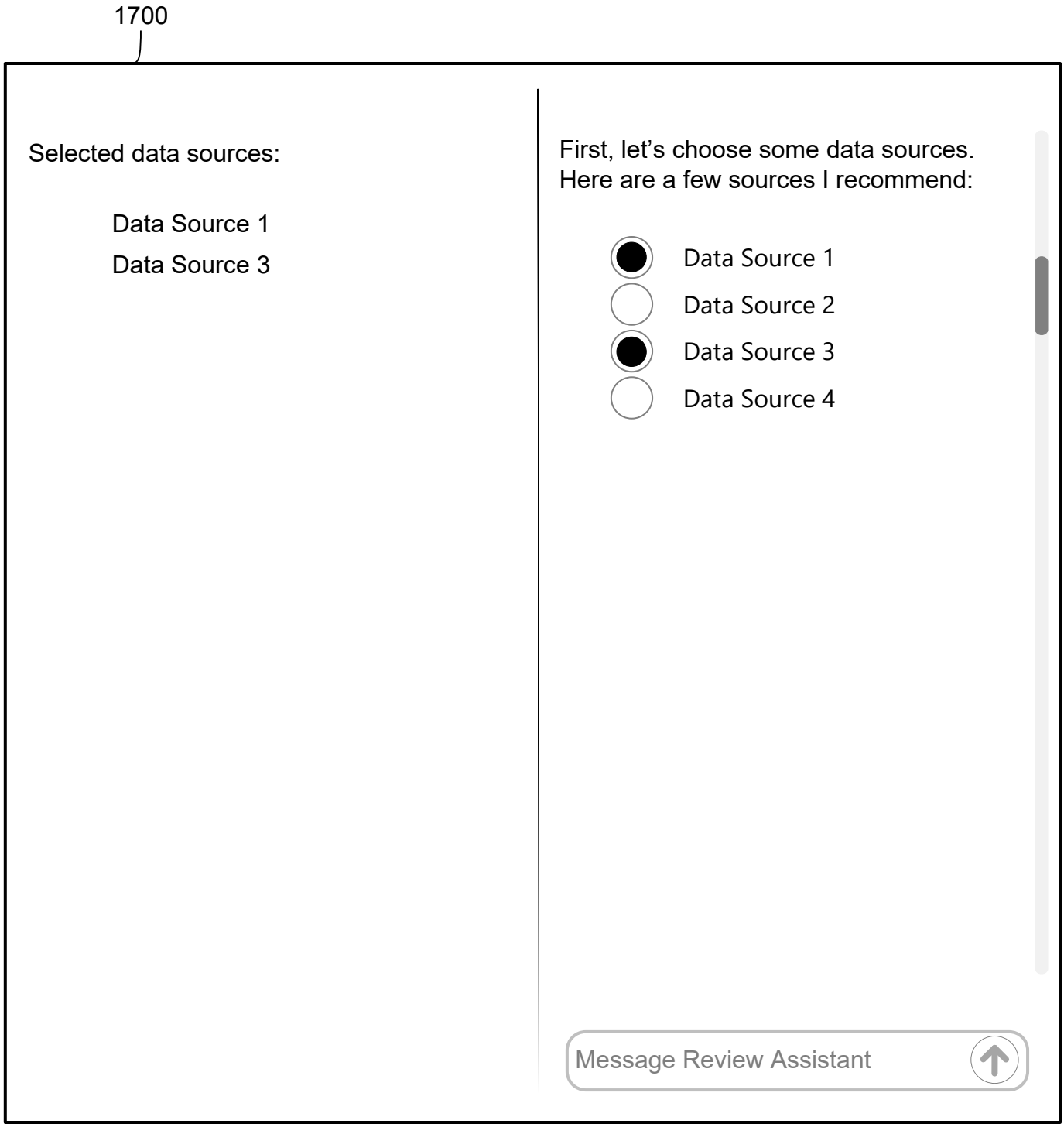

1700
Selected data sources:
Data Source 1
Data Source 3
First, let's choose some data sources.
Here are a few sources I recommend:
Data Source 1
Data Source 2
Data Source 3
Data Source 4
Message Review Assistant

FIG. 17B

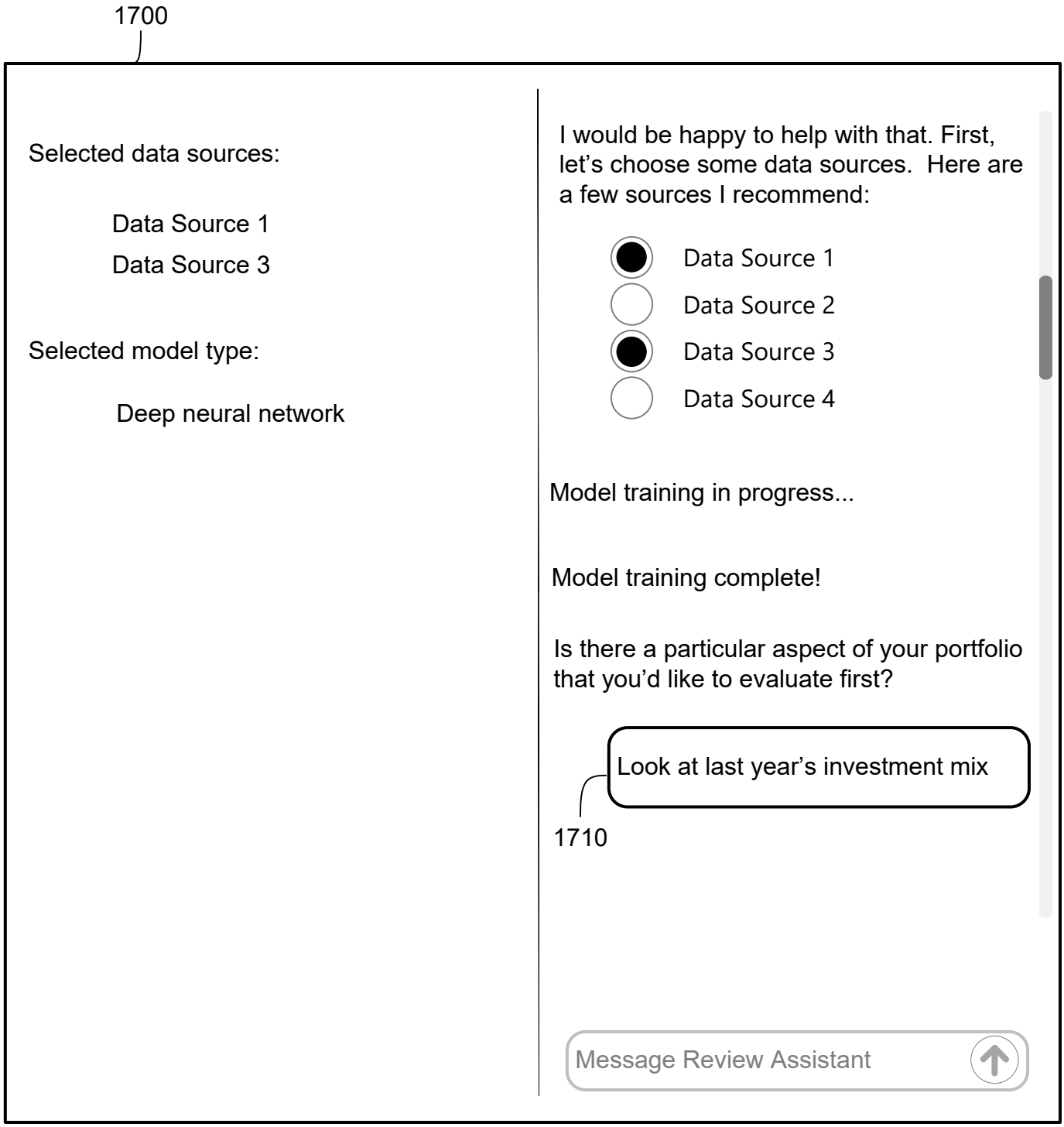

1700
Selected data sources:
Data Source 1
Data Source 3
Selected model type:
Deep neural network
I would be happy to help with that. First, let's choose some data sources. Here are a few sources I recommend:
Data Source 1
Data Source 2
Data Source 3
Data Source 4
Model training in progress...
Model training complete!
Is there a particular aspect of your portfolio that you'd like to evaluate first?
Look at last year's investment mix
1710
Message Review Assistant

FIG. 17C

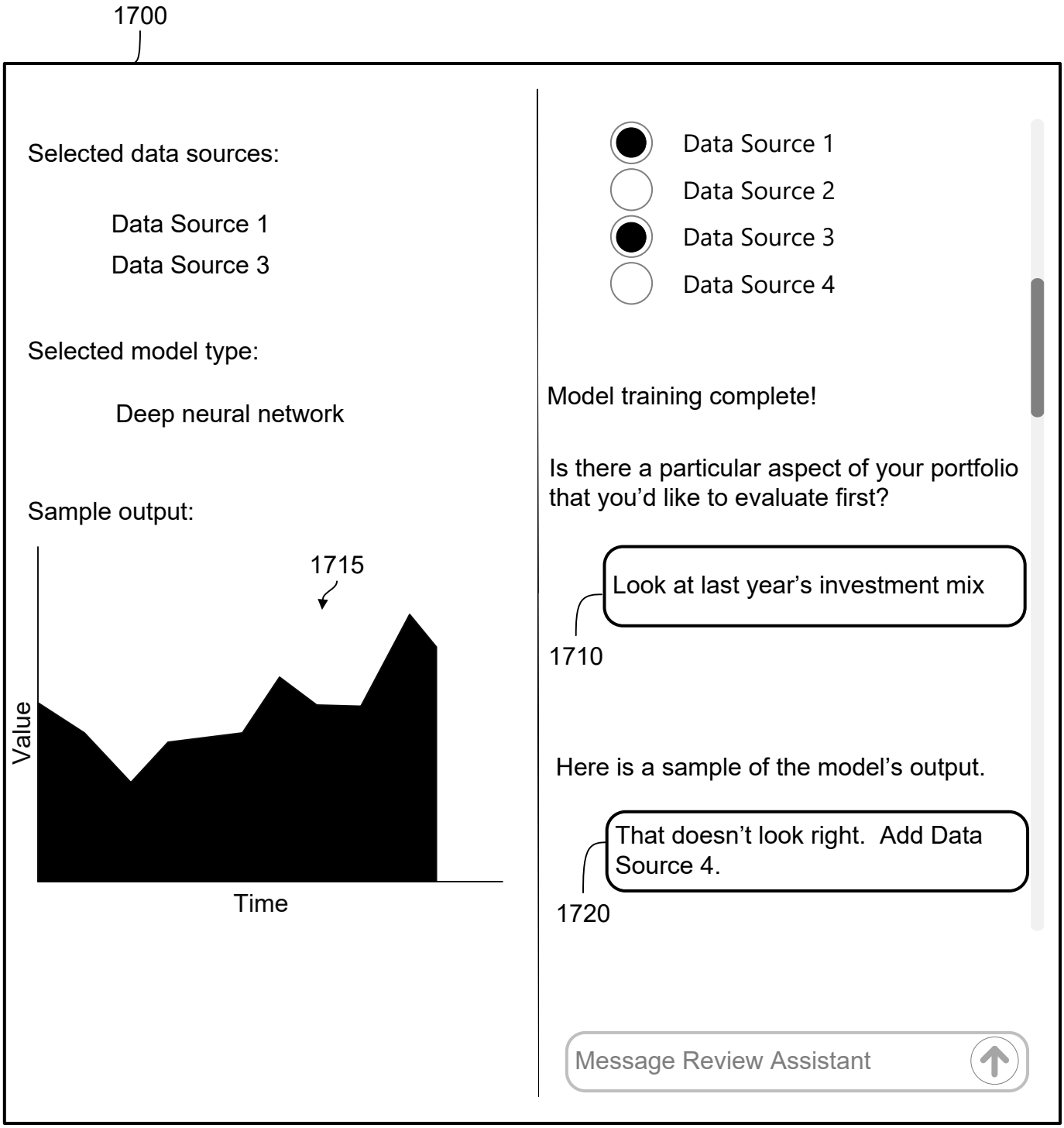

1700
Selected data sources:
Data Source 1
Data Source 3
Selected model type:
Deep neural network
Sample output:
1715
Value
Time
Data Source 1
Data Source 2
Data Source 3
Data Source 4
Model training complete!
Is there a particular aspect of your portfolio that you'd like to evaluate first?
Look at last year's investment mix
1710
Here is a sample of the model's output.
That doesn't look right. Add Data Source 4.
1720
Message Review Assistant

FIG. 17D

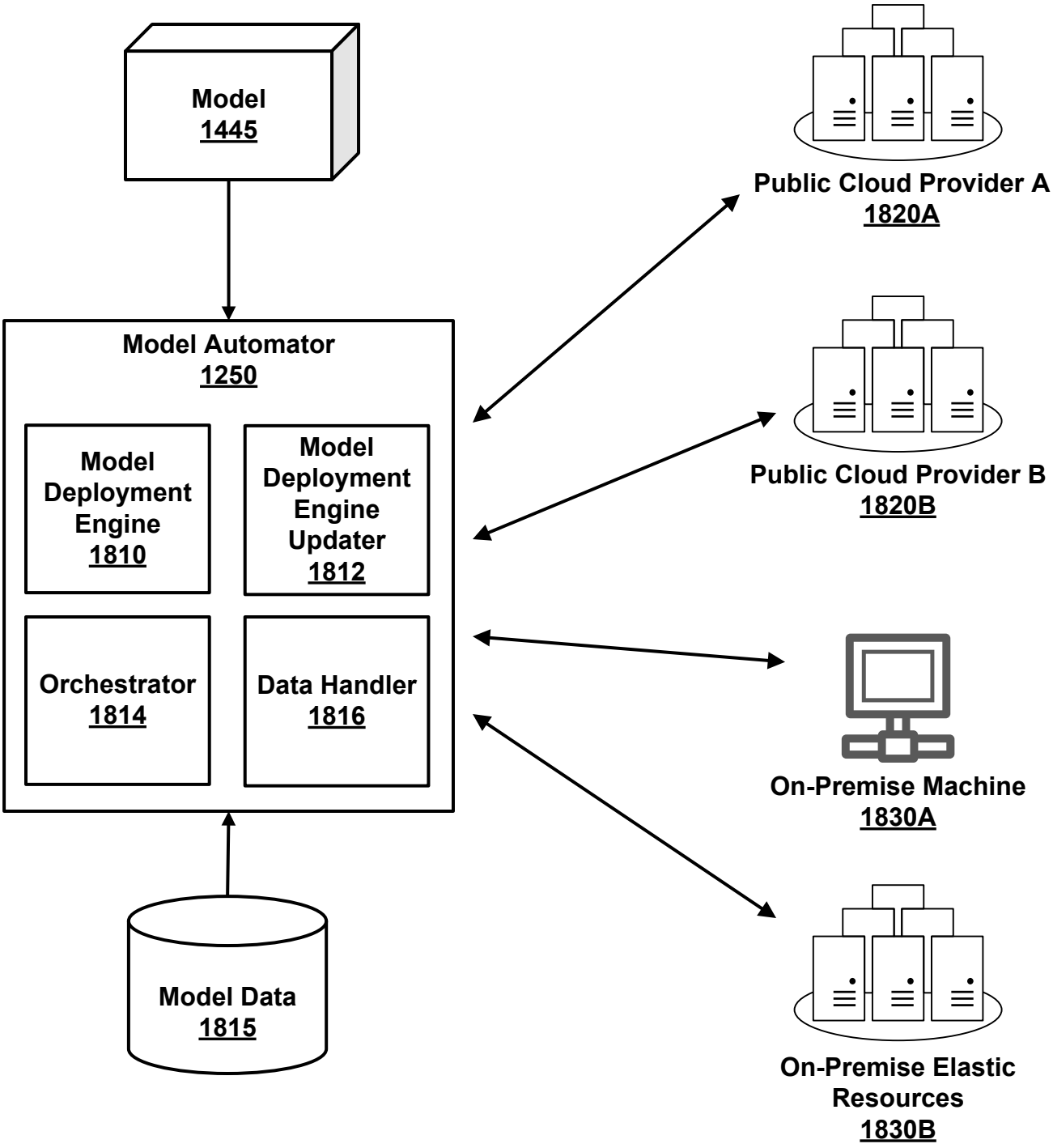

Model
1445
Model Automator
1250
Model Deployment Engine
1810
Model Deployment Engine Updater
1812
Orchestrator
1814
Data Handler
1816
Model Data
1815
Public Cloud Provider A
1820A
Public Cloud Provider B
1820B
On-Premise Machine
1830A
On-Premise Elastic Resources
1830B

FIG. 18

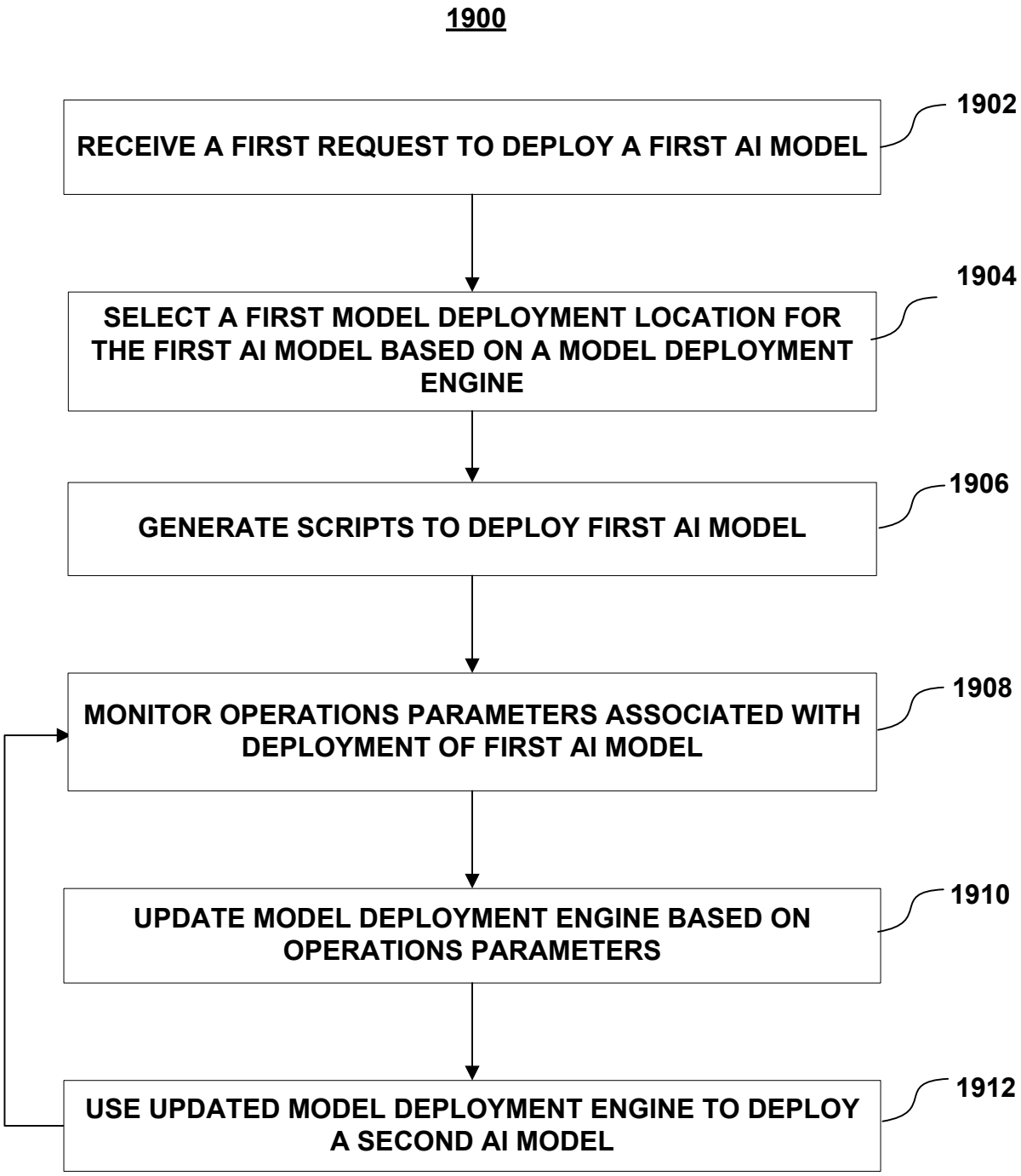

1900
RECEIVE A FIRST REQUEST TO DEPLOY A FIRST AI MODEL
1902
SELECT A FIRST MODEL DEPLOYMENT LOCATION FOR THE FIRST AI MODEL BASED ON A MODEL DEPLOYMENT ENGINE
1904
GENERATE SCRIPTS TO DEPLOY FIRST AI MODEL
1906
MONITOR OPERATIONS PARAMETERS ASSOCIATED WITH DEPLOYMENT OF FIRST AI MODEL
1908
UPDATE MODEL DEPLOYMENT ENGINE BASED ON OPERATIONS PARAMETERS
1910
USE UPDATED MODEL DEPLOYMENT ENGINE TO DEPLOY A SECOND AI MODEL
1912

FIG. 19