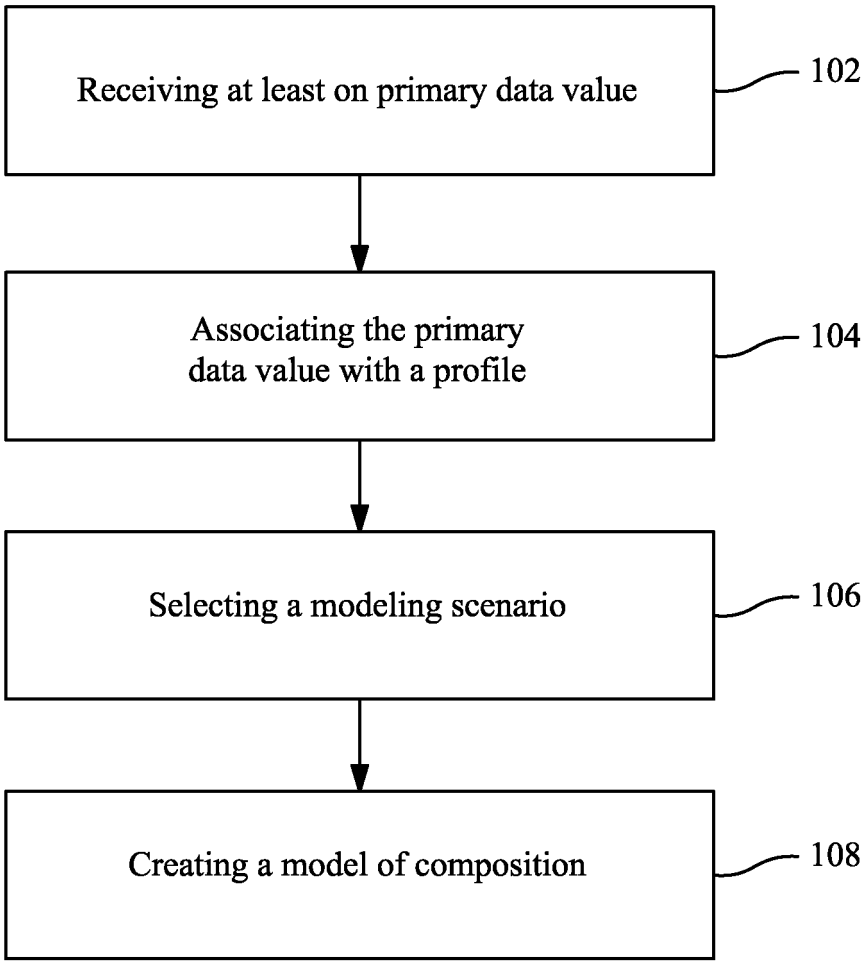

Receiving at least on primary data value
102
Associating the primary data value with a profile
104
Selecting a modeling scenario
106
Creating a model of composition
108

FIG. 1

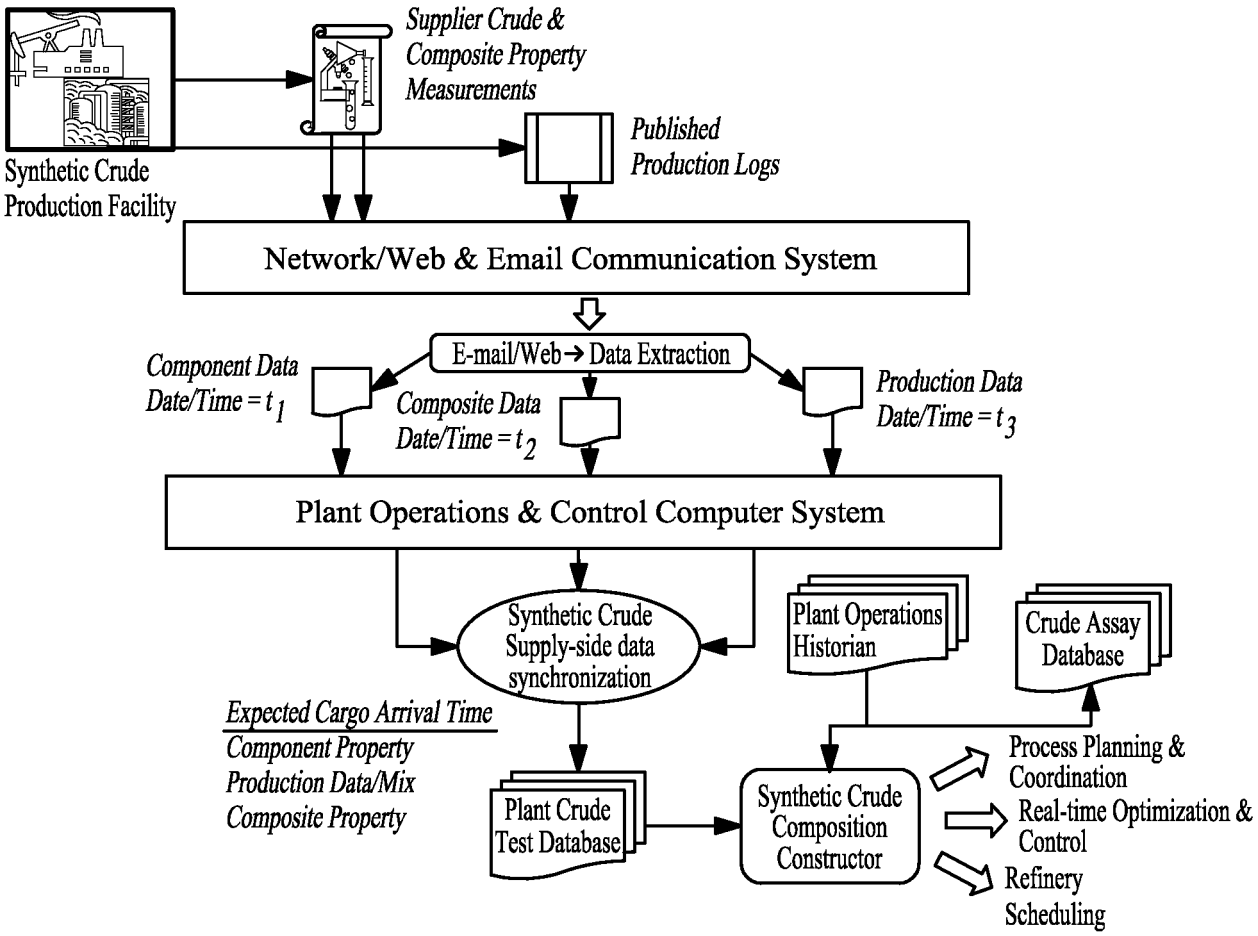

Supplier Crude &
Composite Property
Measurements
Published
Production Logs
Synthetic Crude
Production Facility
Network/Web & Email Communication System
E-mail/Web→ Data Extraction
Component Data
Date/Time = t1
Composite Data
Date/Time = t2
Production Data
Date/Time = t3
Plant Operations & Control Computer System
Synthetic Crude
Supply-side data
synchronization
Plant Operations
Historian
Crude Assay
Database
Expected Cargo Arrival Time
Component Property
Production Data/Mix
Composite Property
Plant Crude
Test Database
Synthetic Crude
Composition
Constructor
Process Planning &
Coordination
Real-time Optimization &
Control
Refinery
Scheduling

FIG. 2

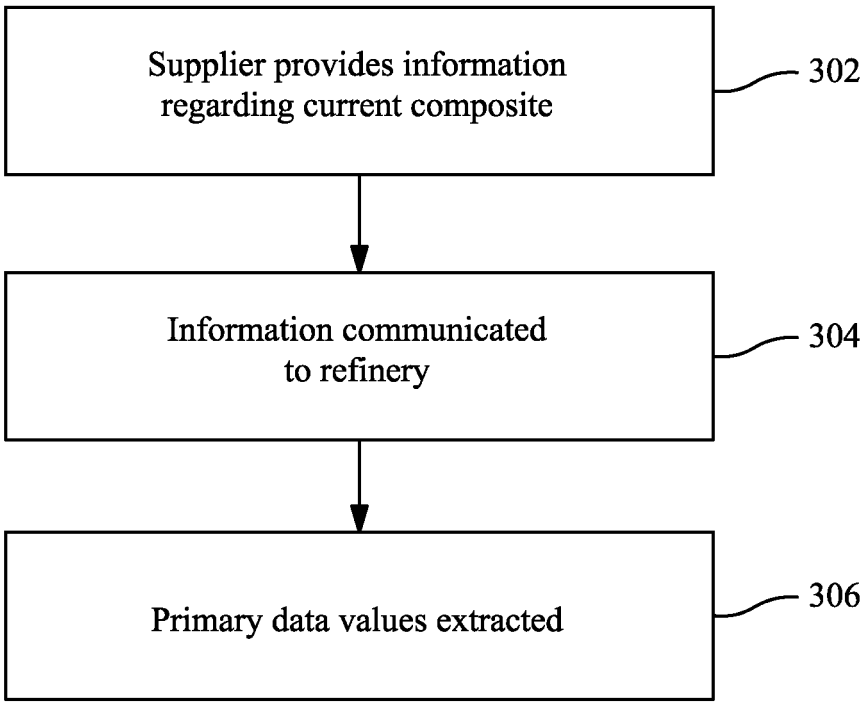

Supplier provides information regarding current composite
302
Information communicated to refinery
304
Primary data values extracted
306

FIG. 3

To:	ModelingInbox@Refiner.com	
From:	MeasuredData@Supplier.com	
Composite Identifier:	1234567	
Composite Name:	Supplier1234567	
Arrival Date:	5/10/2013	
Estimated Arrival Time:	04:00 PM	
Composite Data:	Density:	X
	Sulfur :	Y
	.....	
	Boiling Point Distribution:	Z
Composition Information:	Stream1:	N/A
	Stream1%:	N/A
	.....	
	Stream N:	N/A
	Stream N%:	N/A
Stream1 Information:	Name:	N/A
	Density:	N/A
.....		
StreamN Information:	Name:	N/A
	Density:	N/A
	.....	
	Boiling Point:	N/A

FIG. 4

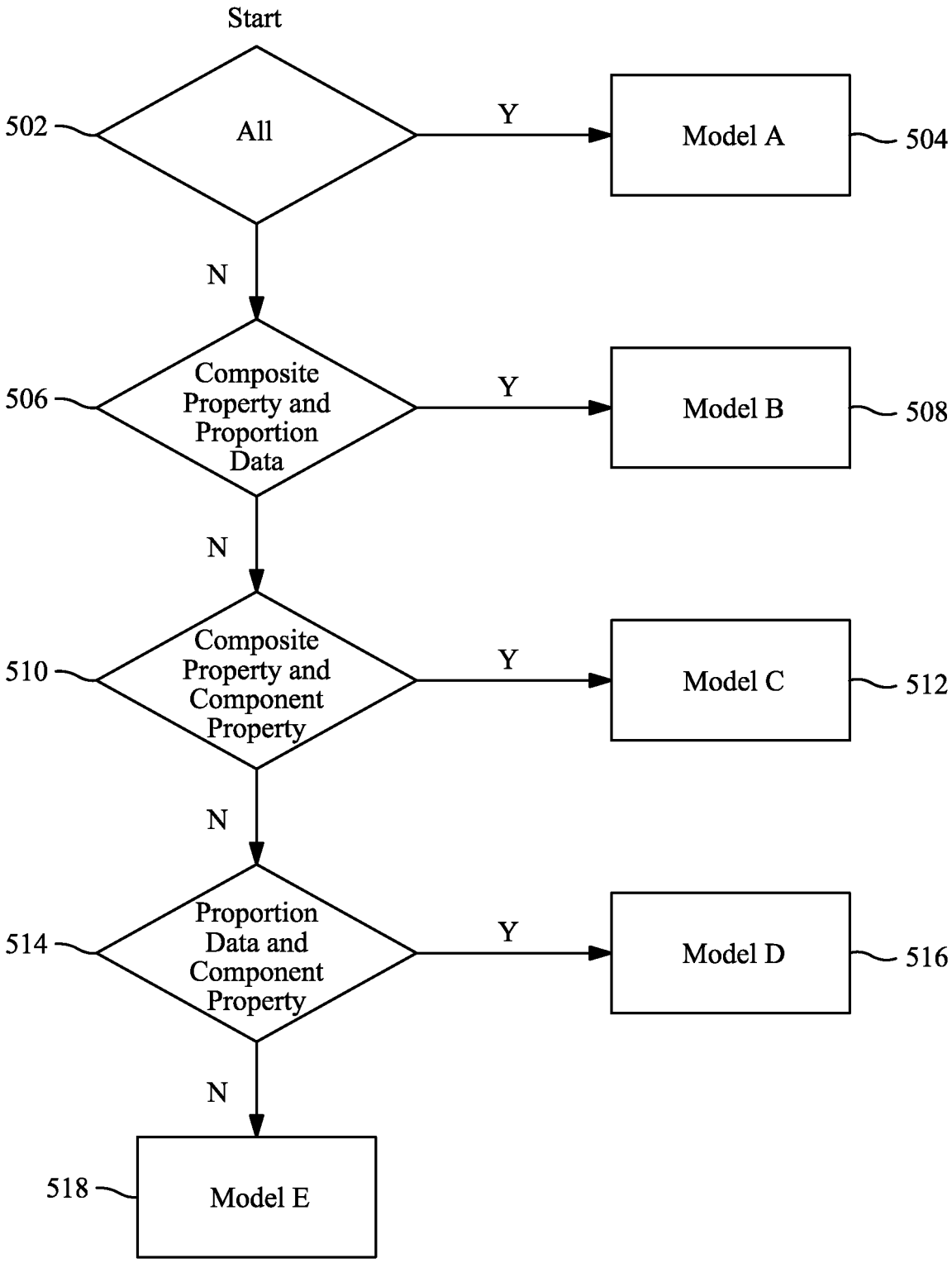

Start
502
All
Y
Model A
504
N
506
Composite Property and Proportion Data
Y
Model B
508
N
510
Composite Property and Component Property
Y
Model C
512
N
514
Proportion Data and Component Property
Y
Model D
516
N
518
Model E

FIG. 5

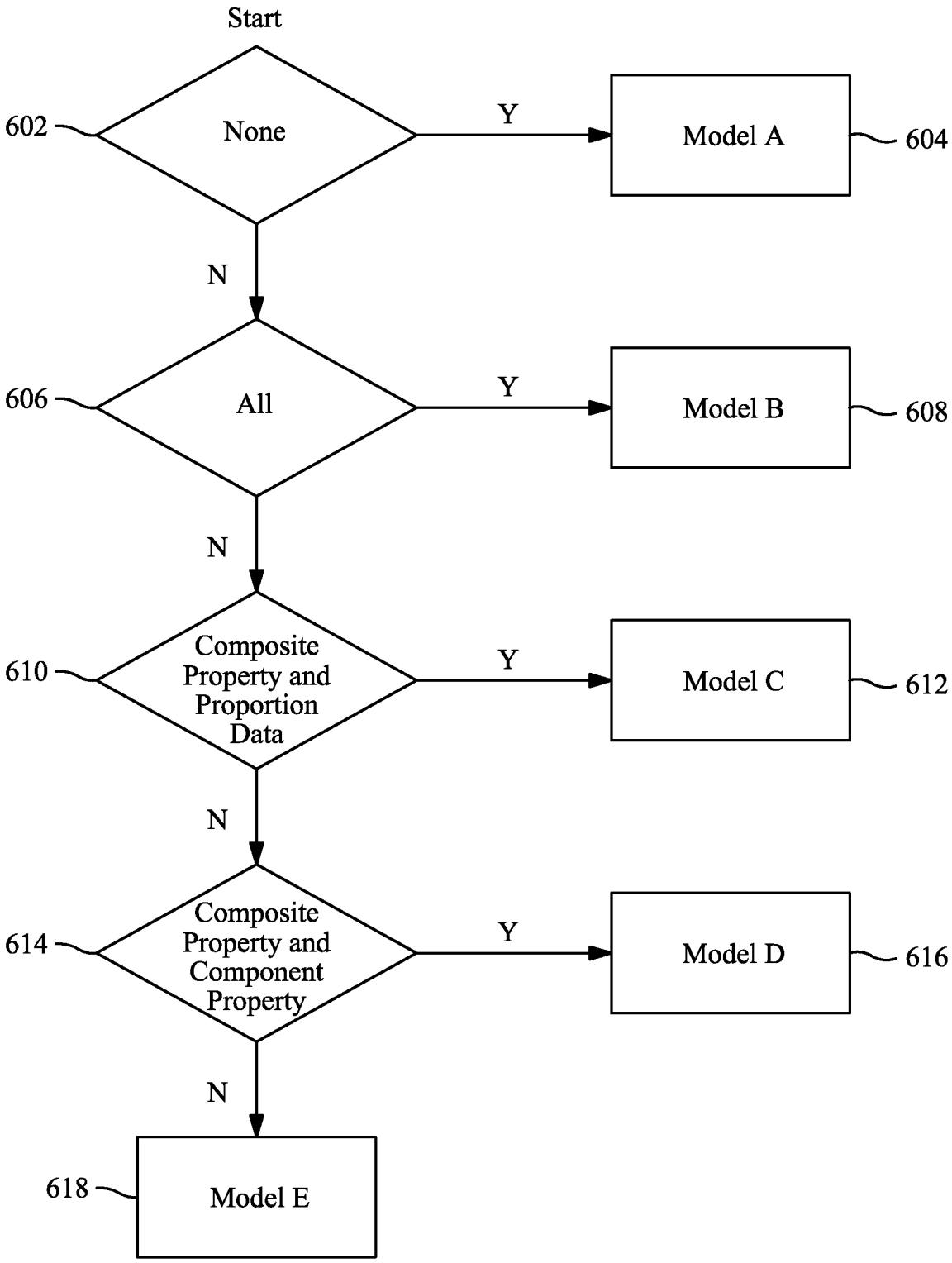

Start
602
None
Y
Model A
604
N
606
All
Y
Model B
608
N
610
Composite Property and Proportion Data
Y
Model C
612
N
614
Composite Property and Component Property
Y
Model D
616
N
618
Model E

FIG. 6

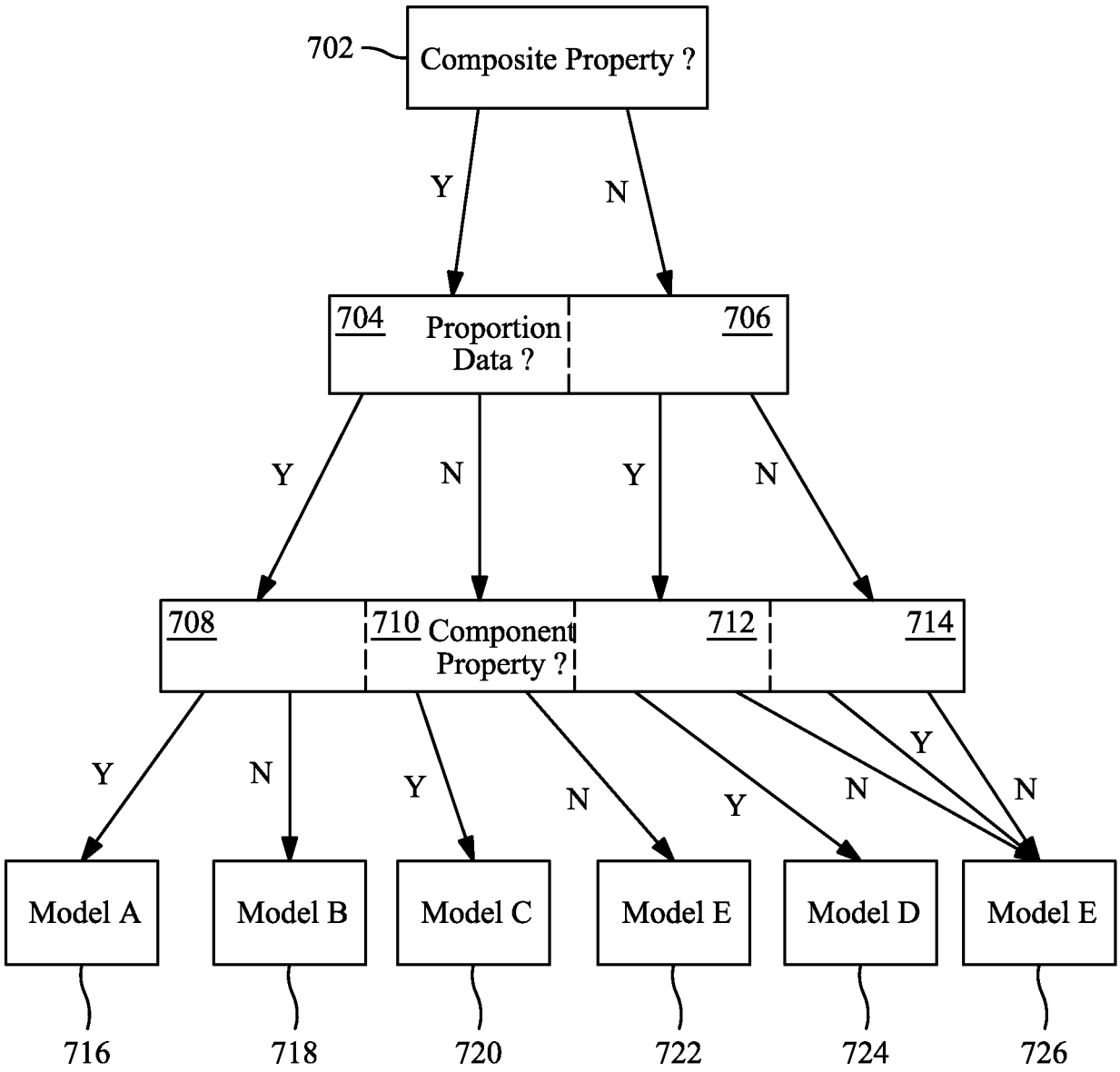

702
Composite Property ?
Y
N
704
Proportion Data ?
706
Y
N
Y
N
708
710
Component Property ?
712
714
Y
N
Y
N
Y
N
Y
N
Model A
Model B
Model C
Model E
Model D
Model E
716
718
720
722
724
726

FIG. 7

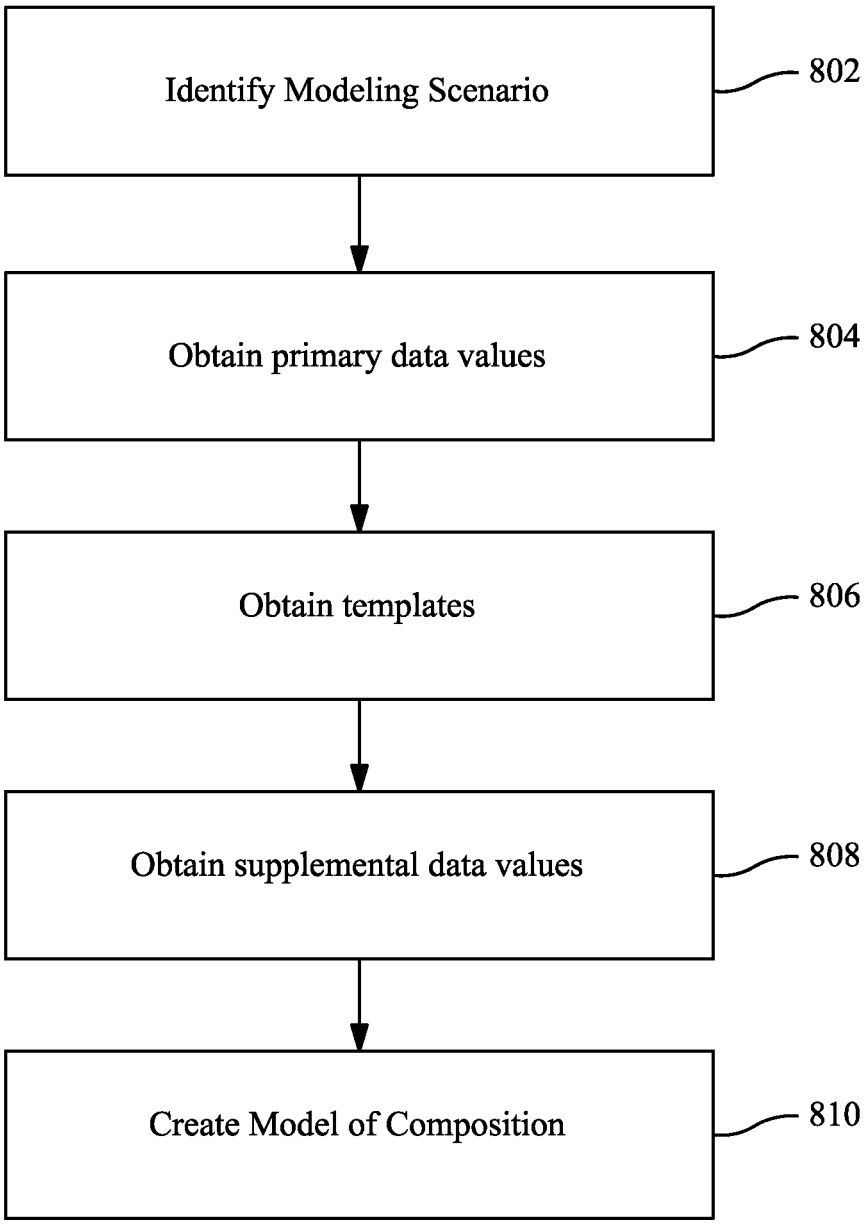

Identify Modeling Scenario
802
Obtain primary data values
804
Obtain templates
806
Obtain supplemental data values
808
Create Model of Composition
810

FIG. 8

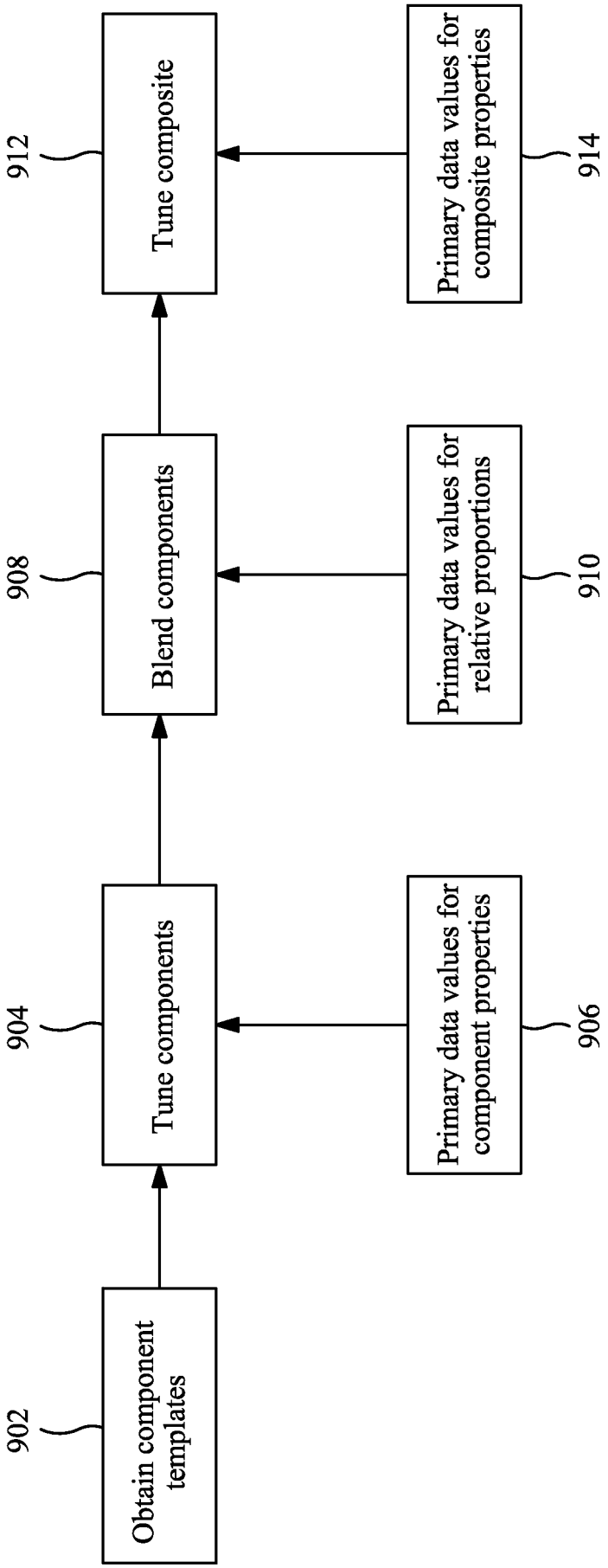

Obtain component templates
902
Tune components
904
Primary data values for component properties
906
Blend components
908
Primary data values for relative proportions
910
Tune composite
912
Primary data values for composite properties
914

FIG. 9

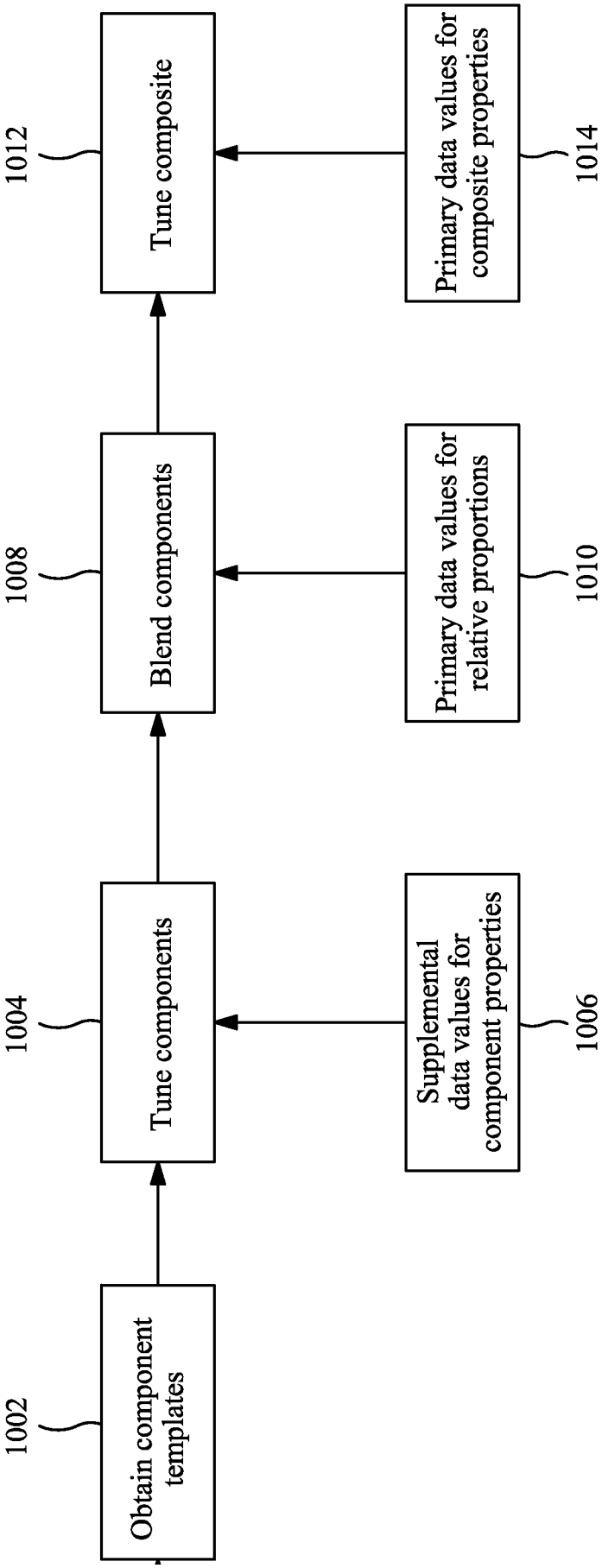

Obtain component templates
1002
Tune components
1004
Supplemental data values for component properties
1006
Blend components
1008
Primary data values for relative proportions
1010
Tune composite
1012
Primary data values for composite properties
1014

FIG. 10

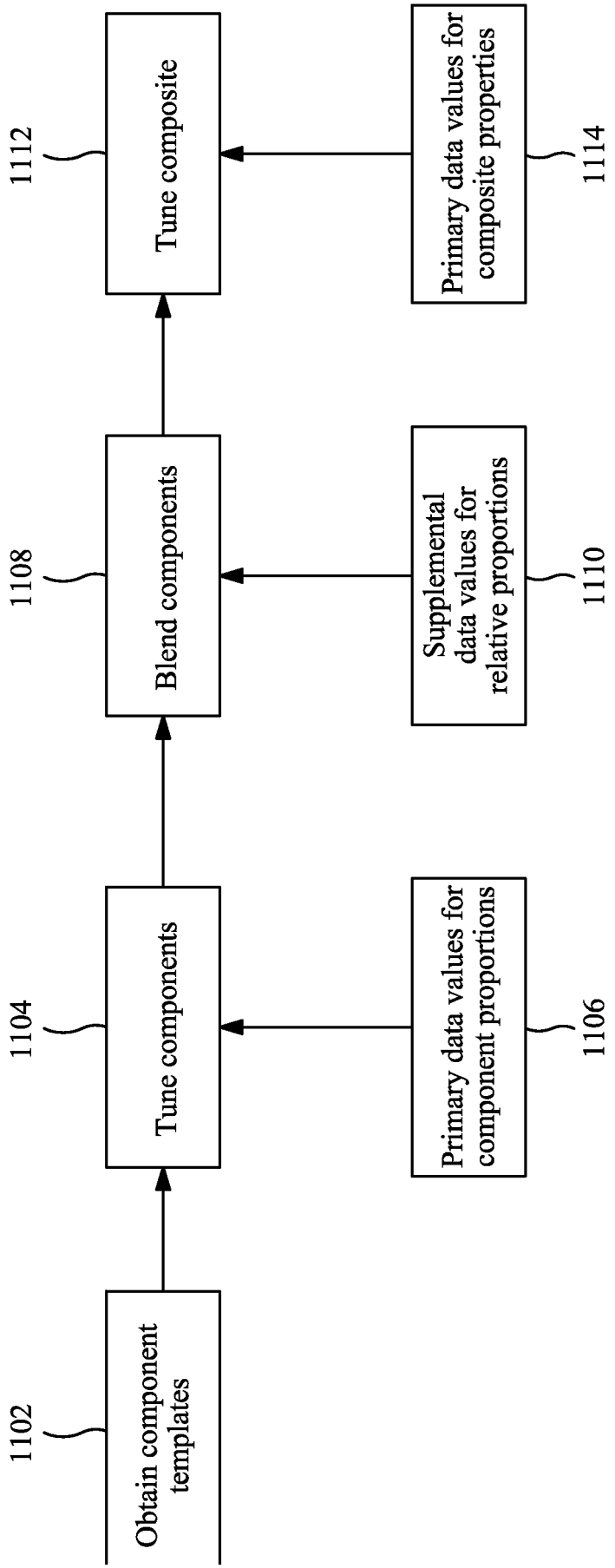

1102
Obtain component templates
1104
Tune components
1106
Primary data values for component proportions
1108
Blend components
1110
Supplemental data values for relative proportions
1112
Tune composite
1114
Primary data values for composite properties

FIG. 11

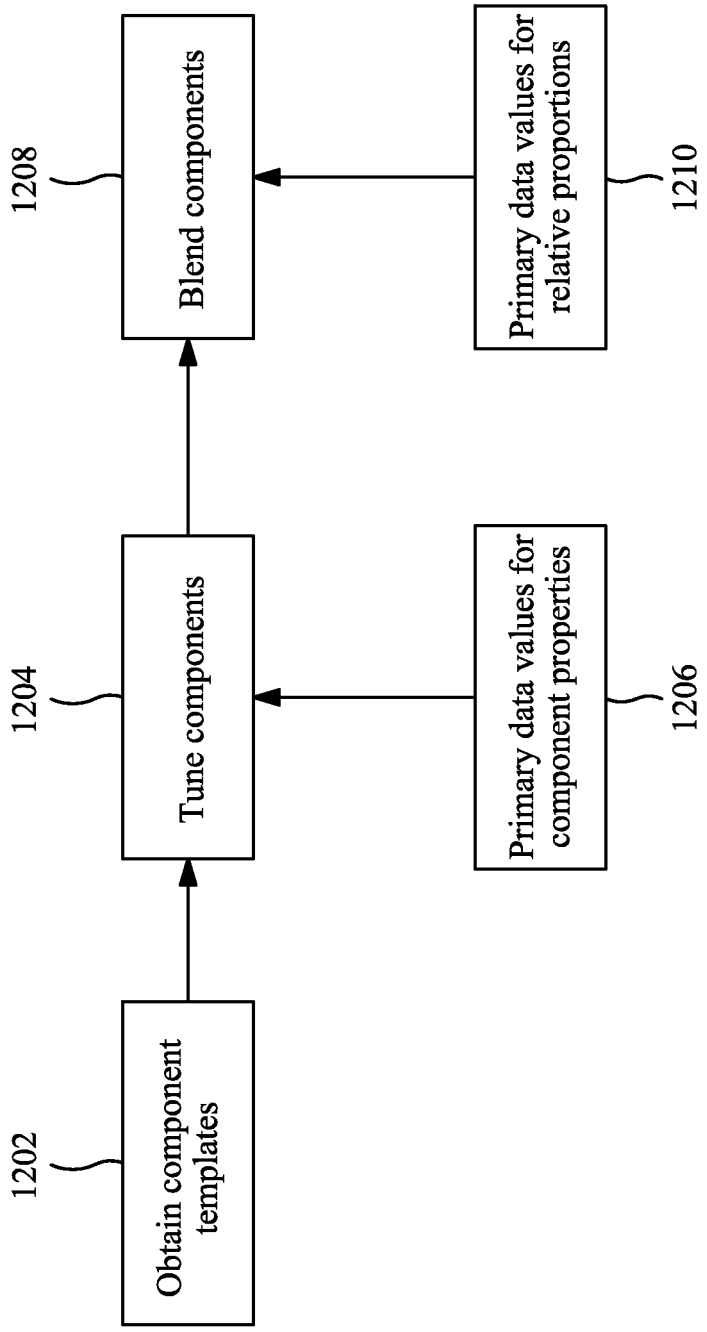

Obtain component templates
1202
Tune components
1204
Primary data values for component properties
1206
Blend components
1208
Primary data values for relative proportions
1210

FIG. 12

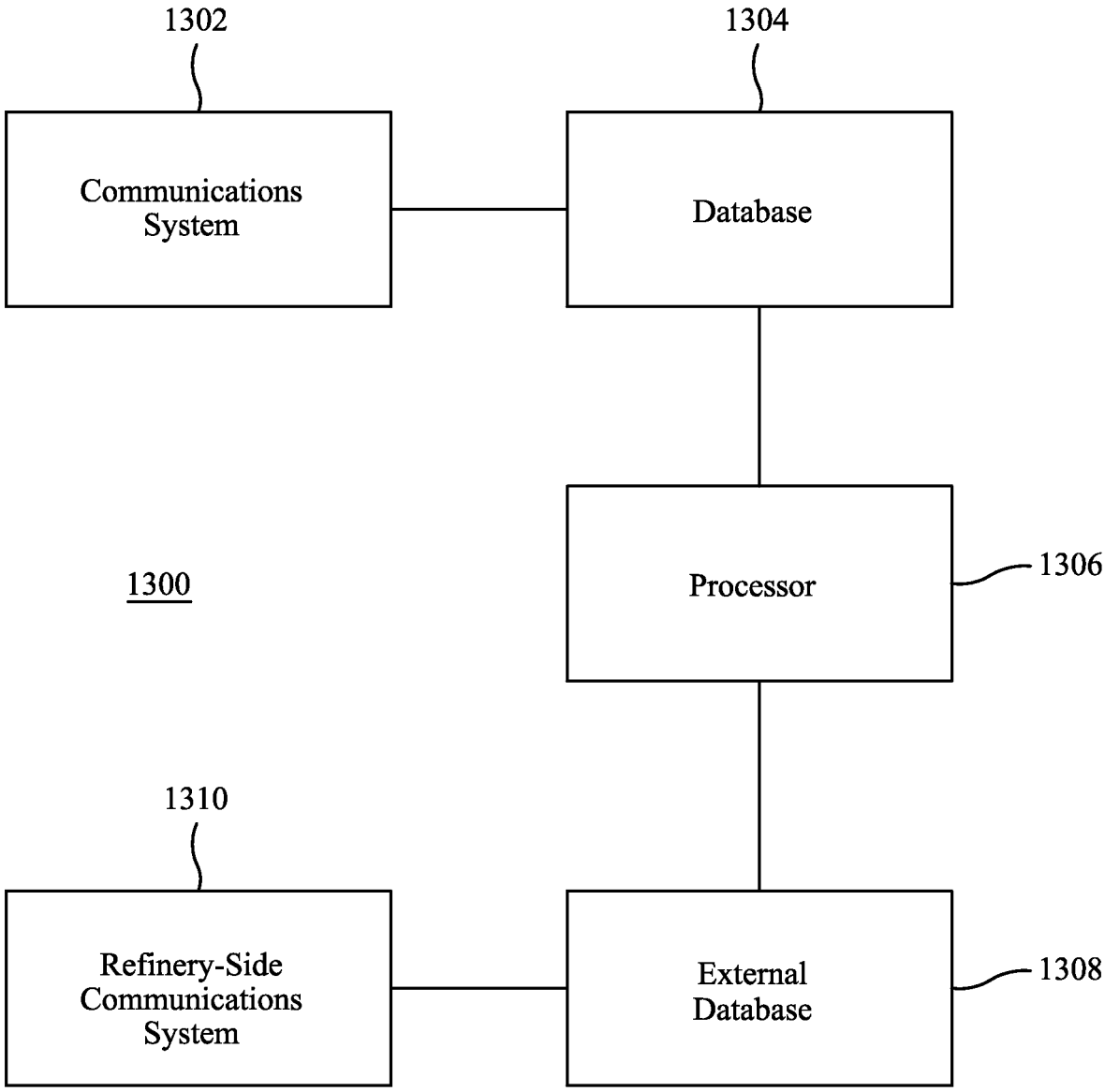

1302
1304
Communications System
Database
Processor
1306
1300
1310
Refinery-Side Communications System
External Database
1308

FIG. 13