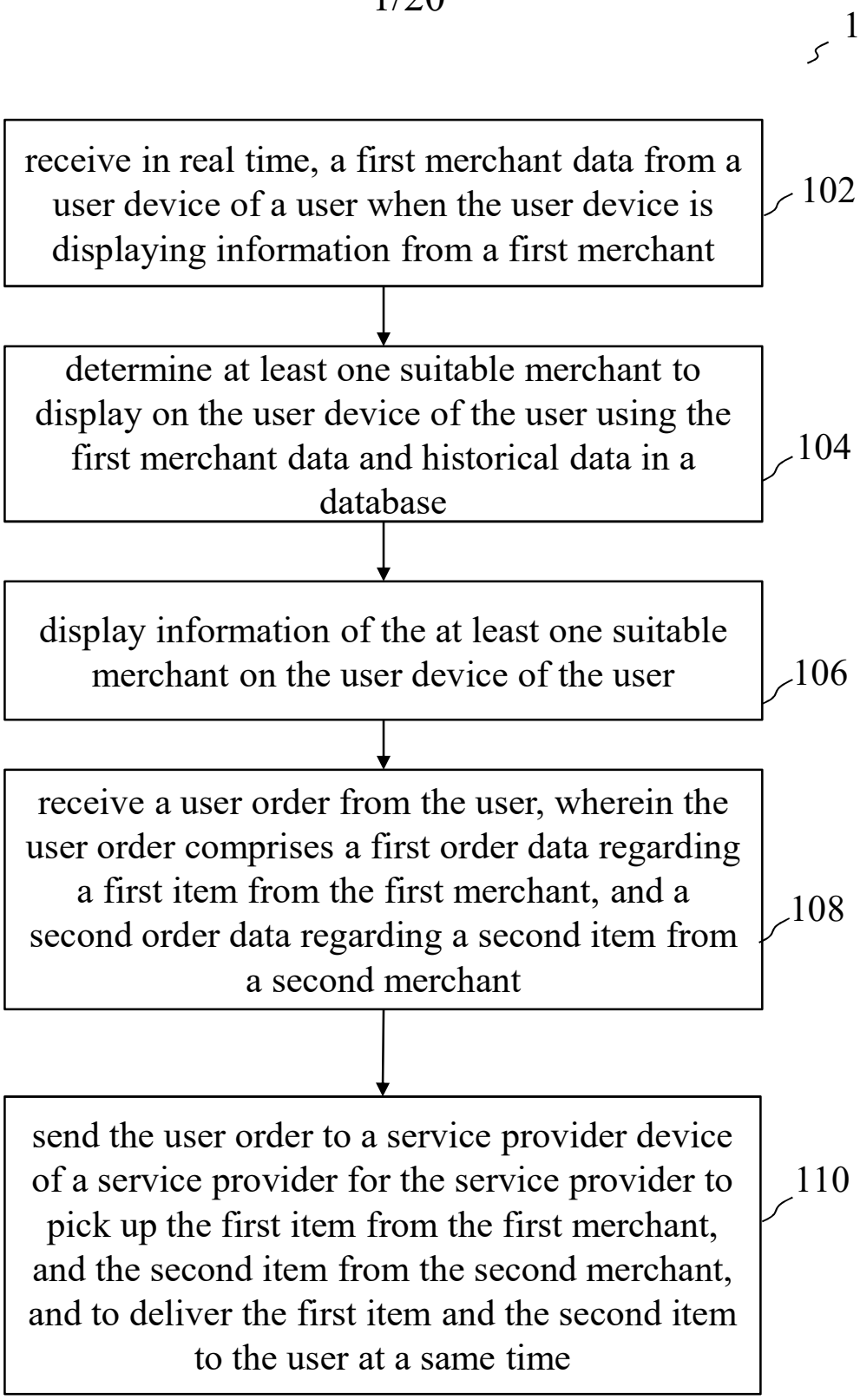
100
receive in real time, a first merchant data from a user device of a user when the user device is displaying information from a first merchant
102
determine at least one suitable merchant to display on the user device of the user using the first merchant data and historical data in a database
104
display information of the at least one suitable merchant on the user device of the user
106
receive a user order from the user, wherein the user order comprises a first order data regarding a first item from the first merchant, and a second order data regarding a second item from a second merchant
108
send the user order to a service provider device of a service provider for the service provider to pick up the first item from the first merchant, and the second item from the second merchant, and to deliver the first item and the second item to the user at a same time
110

FIG. 1

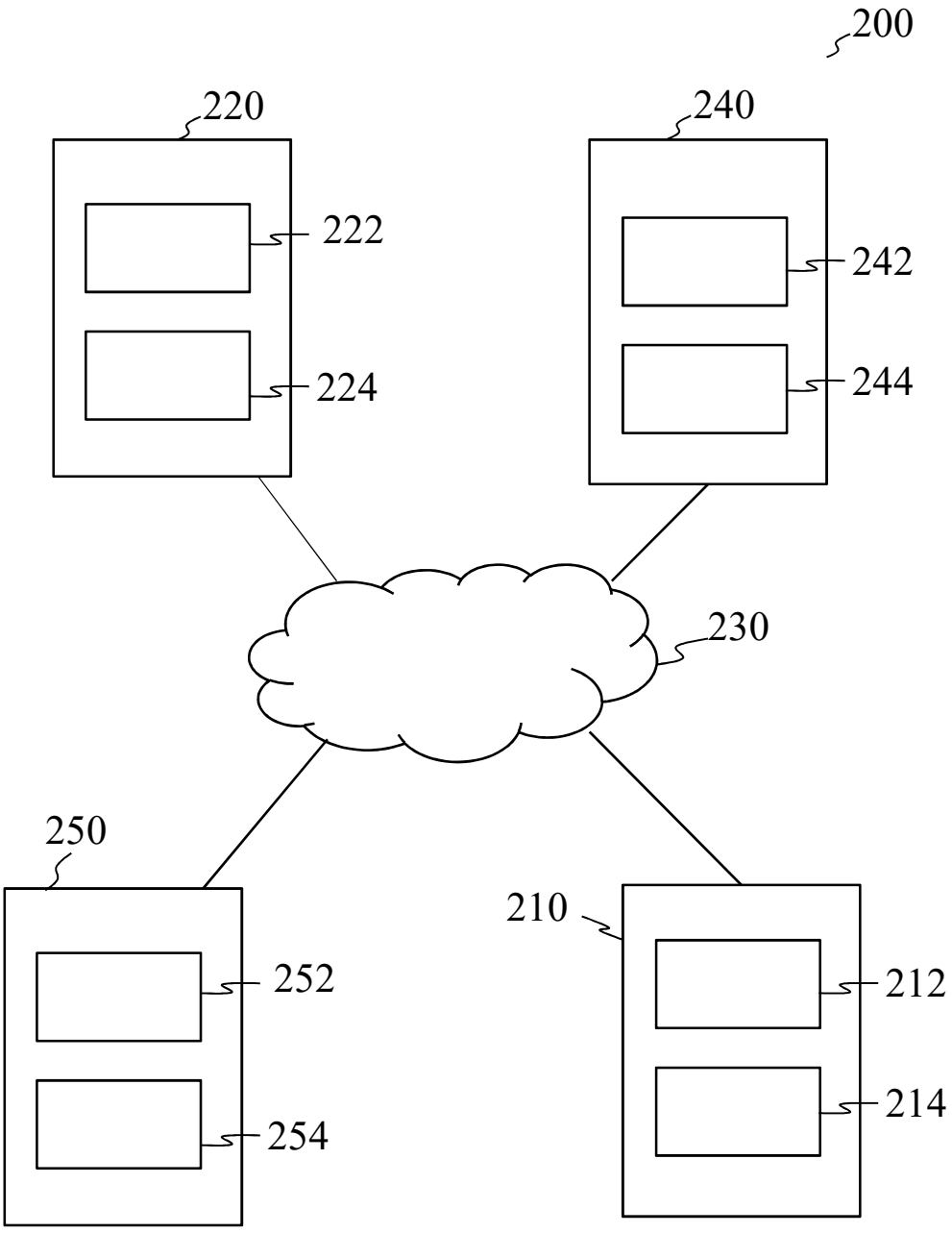

FIG. 2

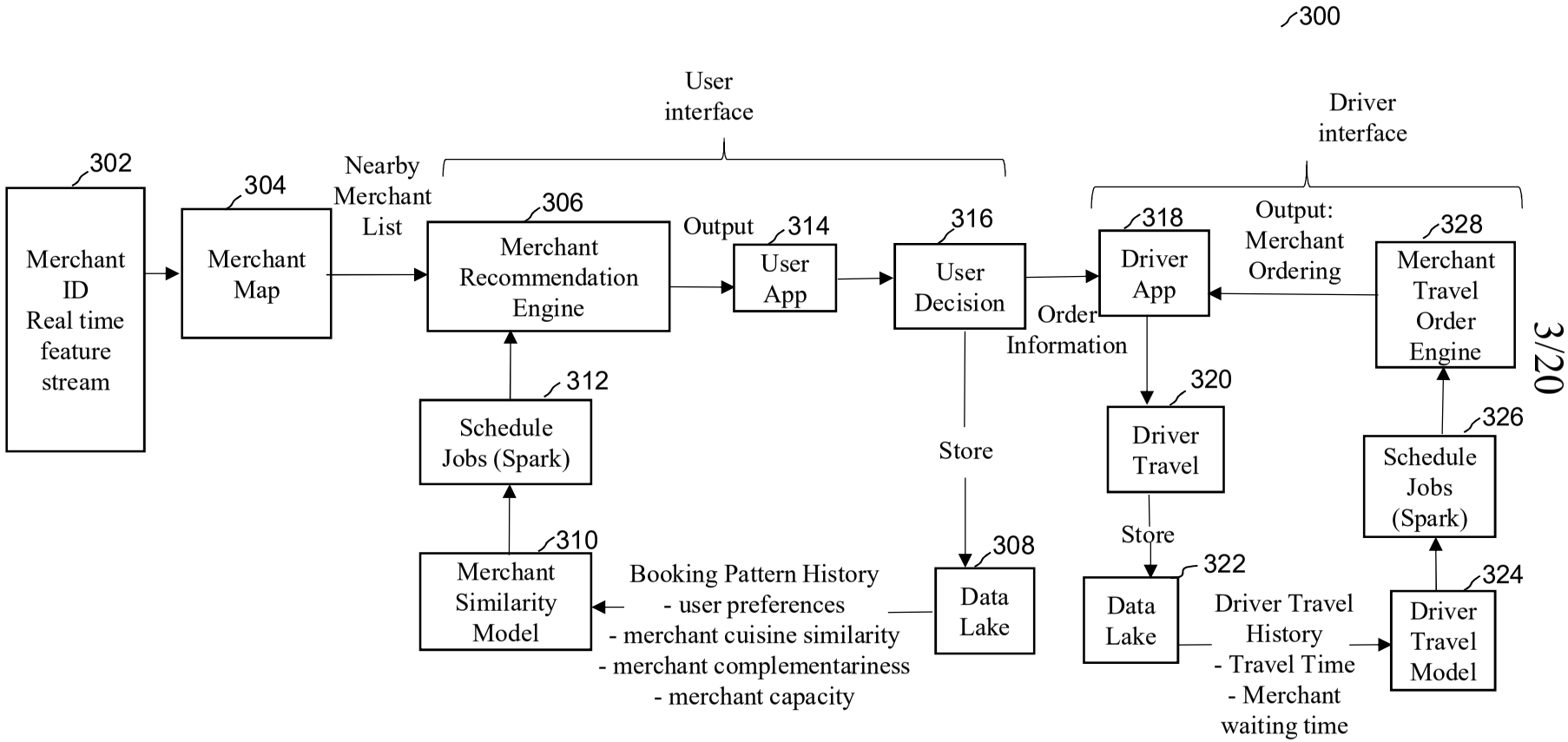
300
User interface
Driver interface
302
Merchant ID Real time feature stream
304
Merchant Map
Nearby Merchant List
306
Merchant Recommendation Engine
Output
314
User App
316
User Decision
318
Driver App
Output: Merchant Ordering
328
Merchant Travel Order Engine
Order Information
312
Schedule Jobs (Spark)
320
Driver Travel
326
Schedule Jobs (Spark)
Store
310
Merchant Similarity Model
Booking Pattern History
- user preferences
- merchant cuisine similarity
- merchant complementariness
- merchant capacity
308
Data Lake
Store
322
Data Lake
Driver Travel History
- Travel Time
- Merchant waiting time
324
Driver Travel Model
3/20

FIG. 3

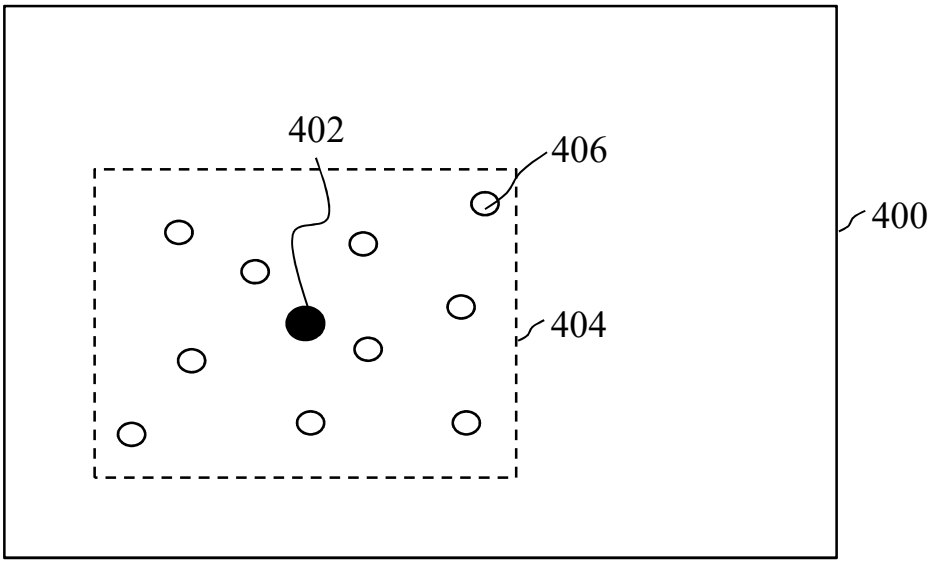
402
406
400
404

FIG. 4

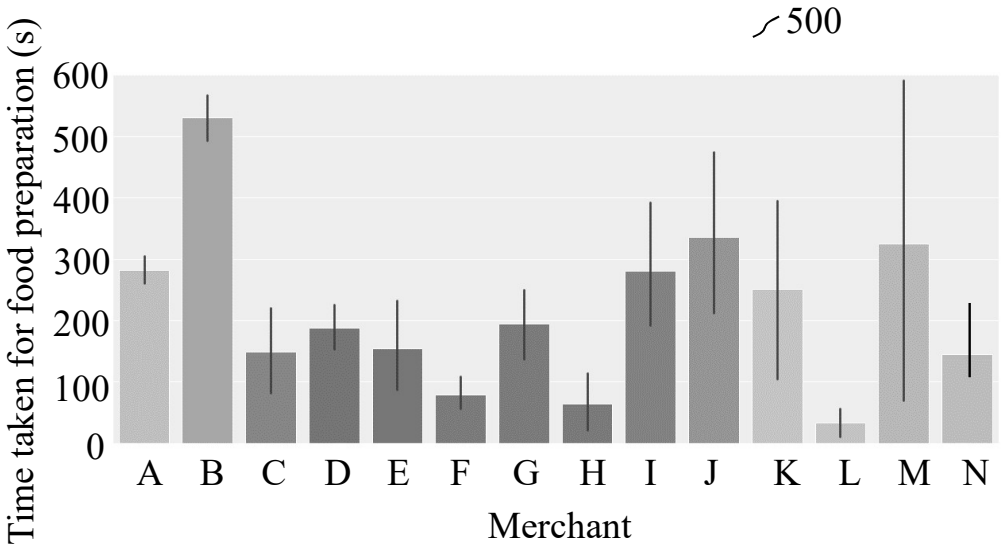
500
Time taken for food preparation (s)
600
500
400
300
200
100
0
A
B
C
D
E
F
G
H
I
J
K
L
M
N
Merchant

FIG. 5

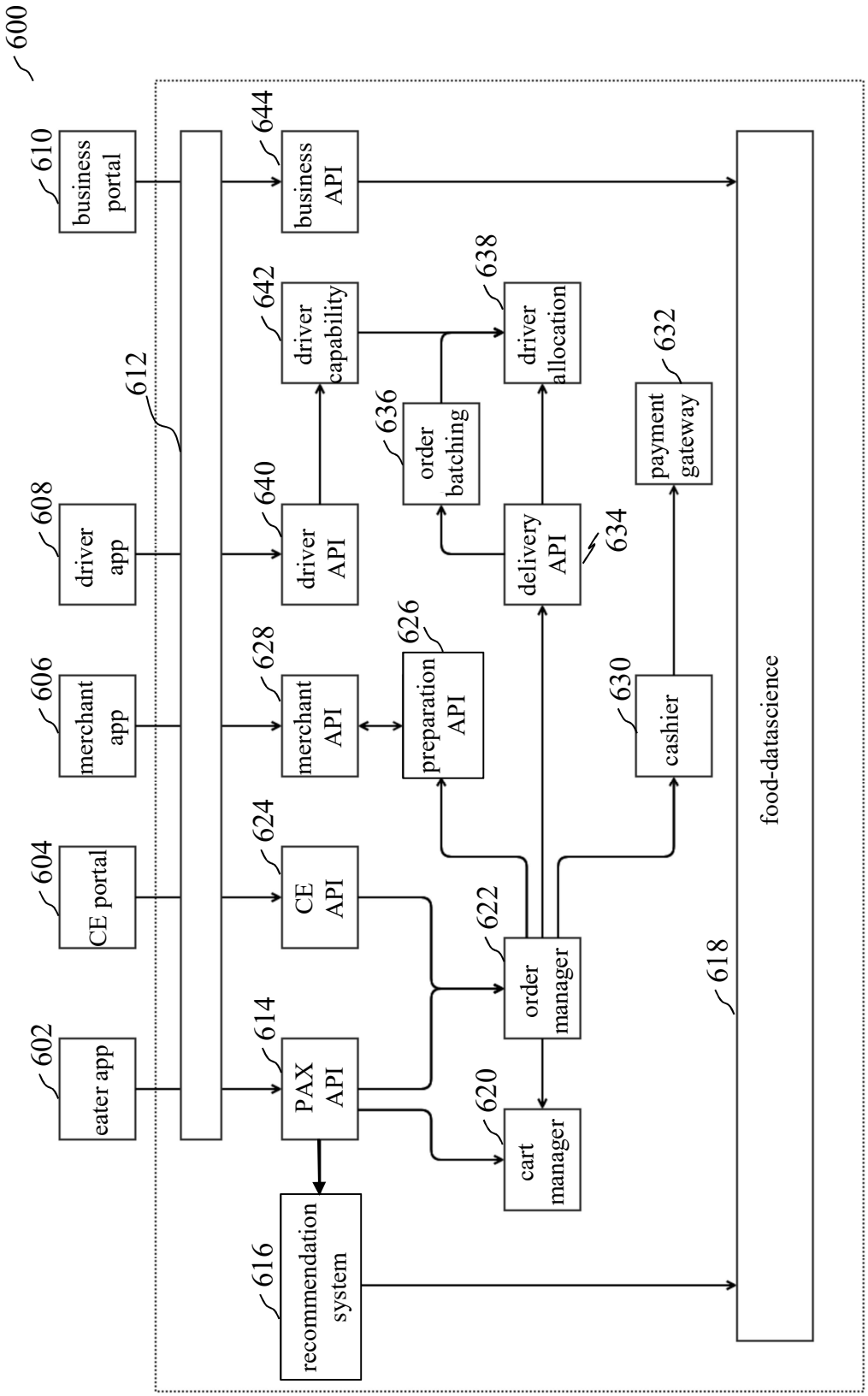
600
610
business portal
644
business API
612
642
driver capability
638
driver allocation
636
order batching
632
payment gateway
608
driver app
640
driver API
634
delivery API
606
merchant app
628
merchant API
626
preparation API
630
cashier
604
CE portal
624
CE API
622
order manager
618
food-datascience
602
eater app
614
PAX API
620
cart manager
616
recommendation system

FIG. 6

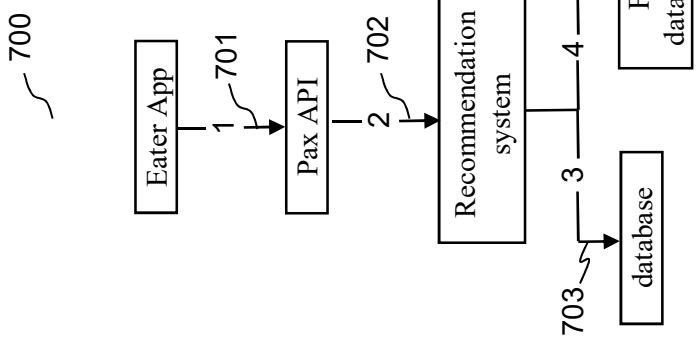
700
Eater App
1
701
Pax API
2
702
Recommendation system
3
4
704
Food dataservice
703
database

FIG. 7A

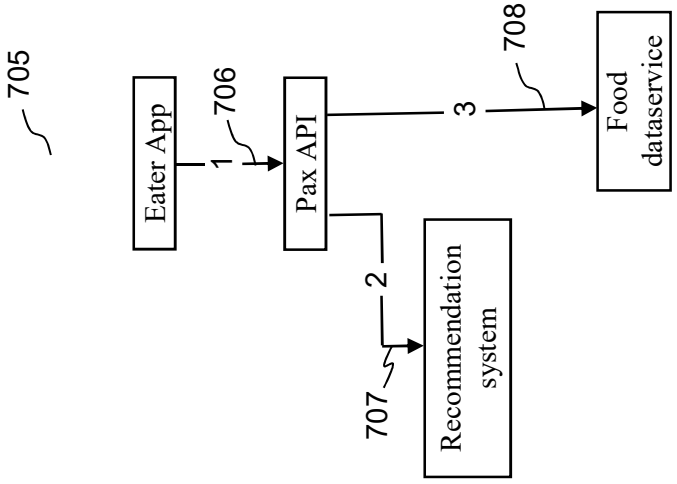
705
Eater App
1
706
Pax API
3
708
Food dataservice
2
707
Recommendation system

FIG. 7B

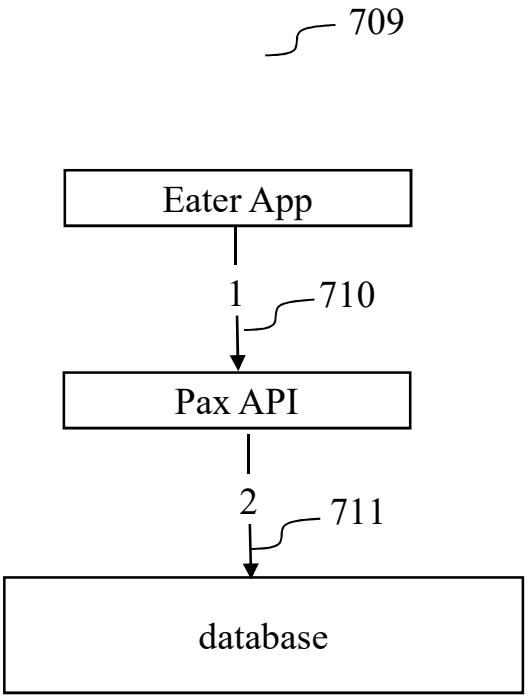

FIG. 7C

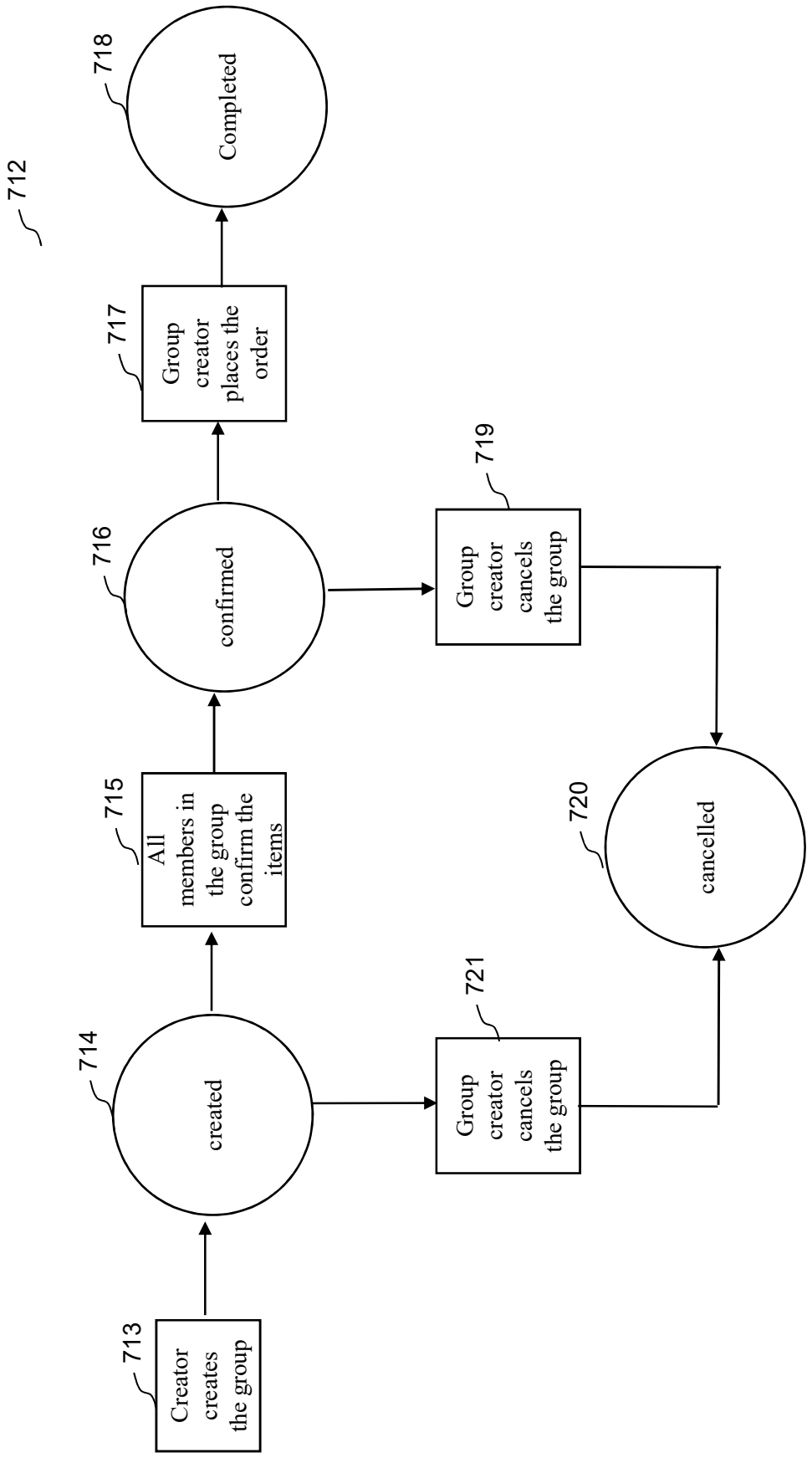
712
713
Creator creates the group
714
created
715
All members in the group confirm the items
716
confirmed
717
Group creator places the order
718
Completed
719
Group creator cancels the group
720
cancelled
721
Group creator cancels the group

FIG. 7D

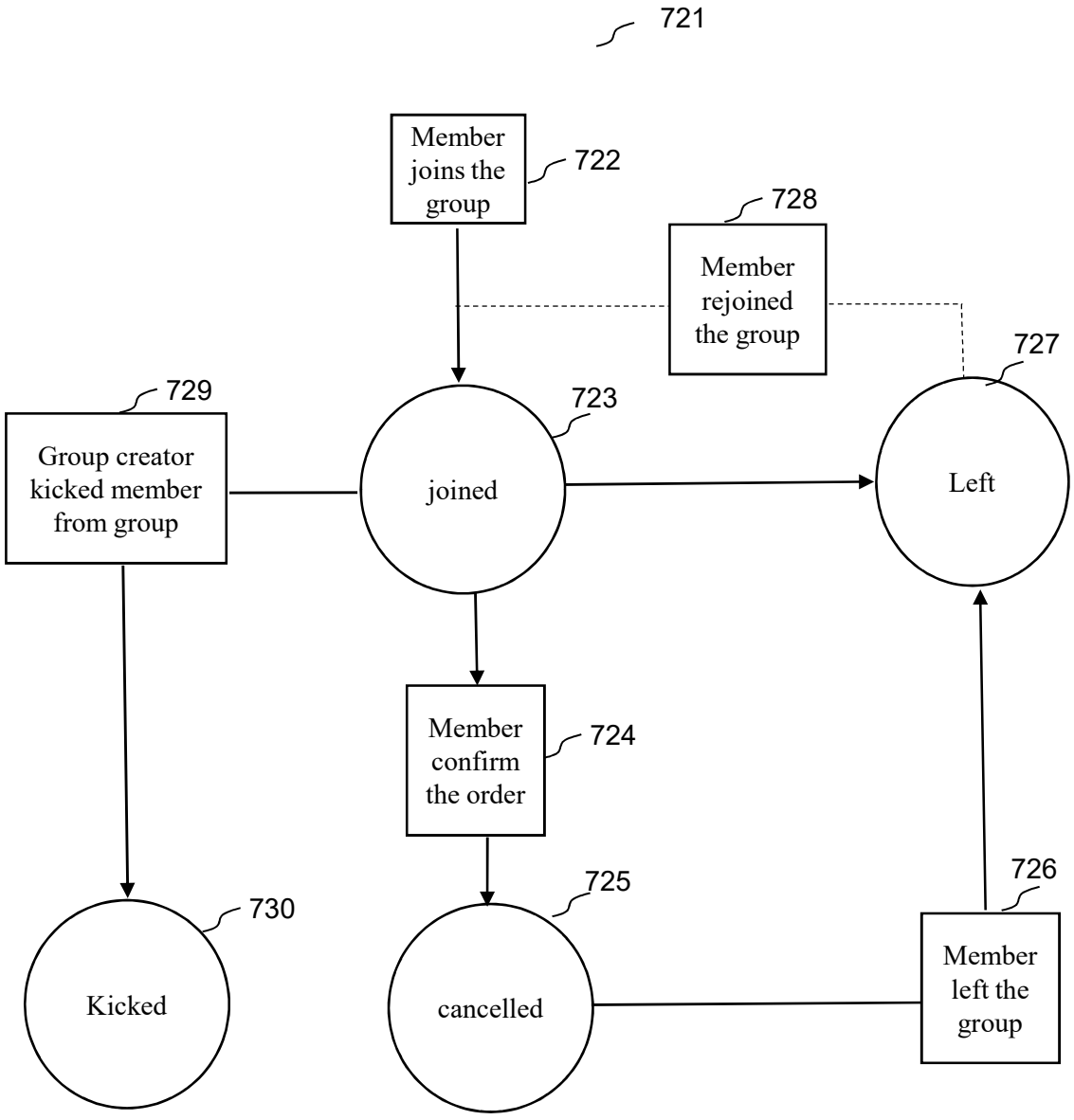
721
Member joins the group
722
728
Member rejoined the group
727
729
723
Group creator kicked member from group
joined
Left
Member confirm the order
724
726
725
730
Kicked
cancelled
Member left the group

FIG. 7E

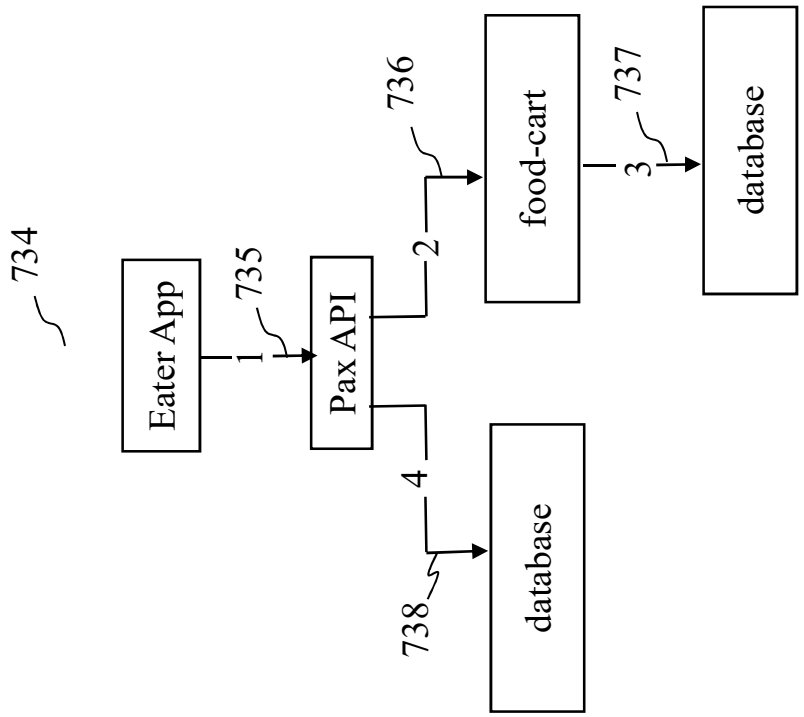
734
Eater App
1
735
Pax API
2
736
food-cart
3
737
database
4
738
database

FIG. 7G

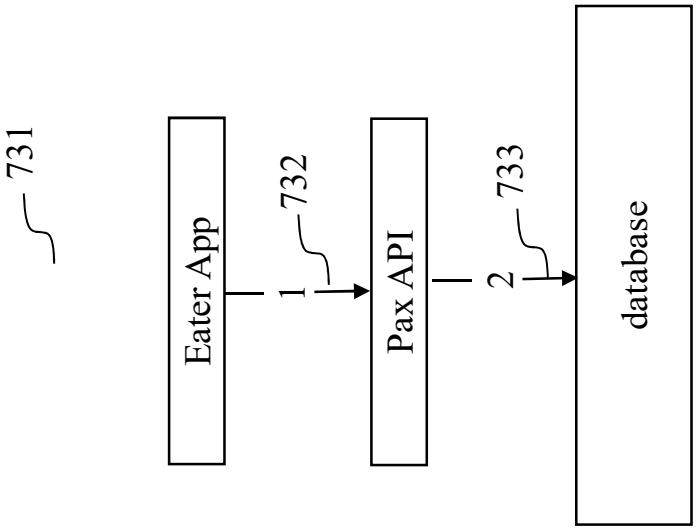
731
Eater App
1
732
Pax API
2
733
database

FIG. 7F

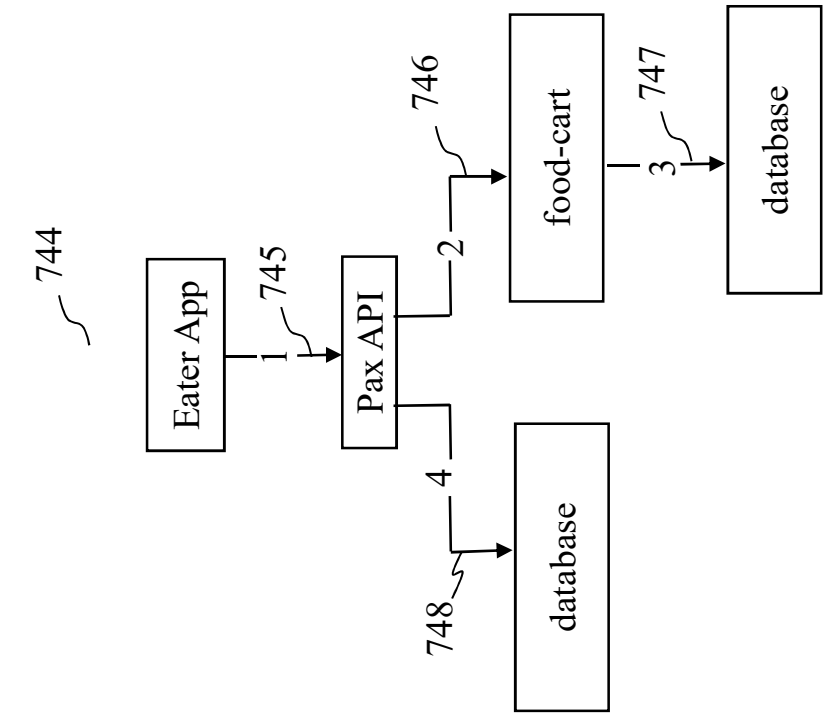
744
Eater App
1
745
Pax API
2
746
food-cart
3
747
database
4
748
database

FIG. 7I

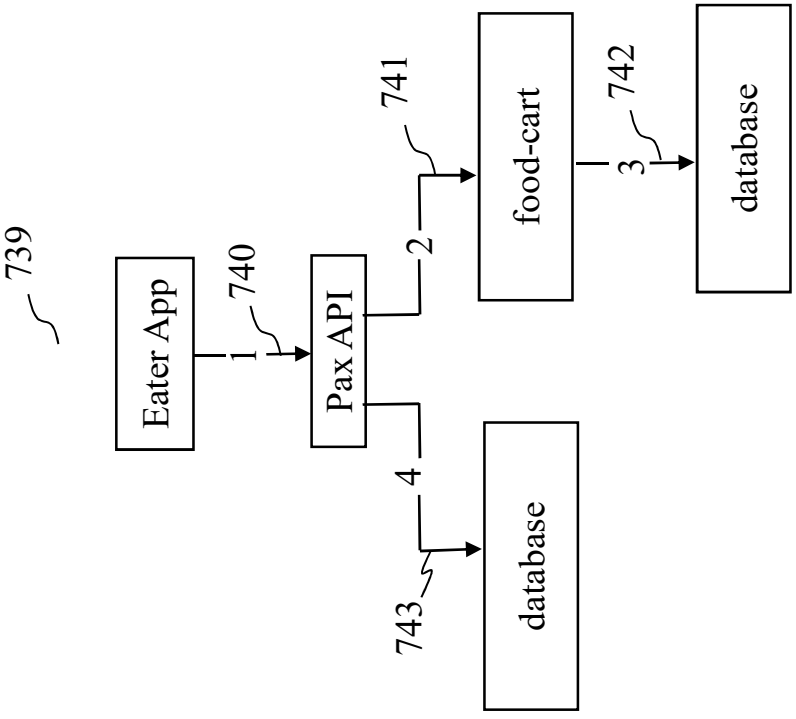
739
Eater App
1
740
Pax API
2
741
food-cart
3
742
database
4
743
database

FIG. 7H

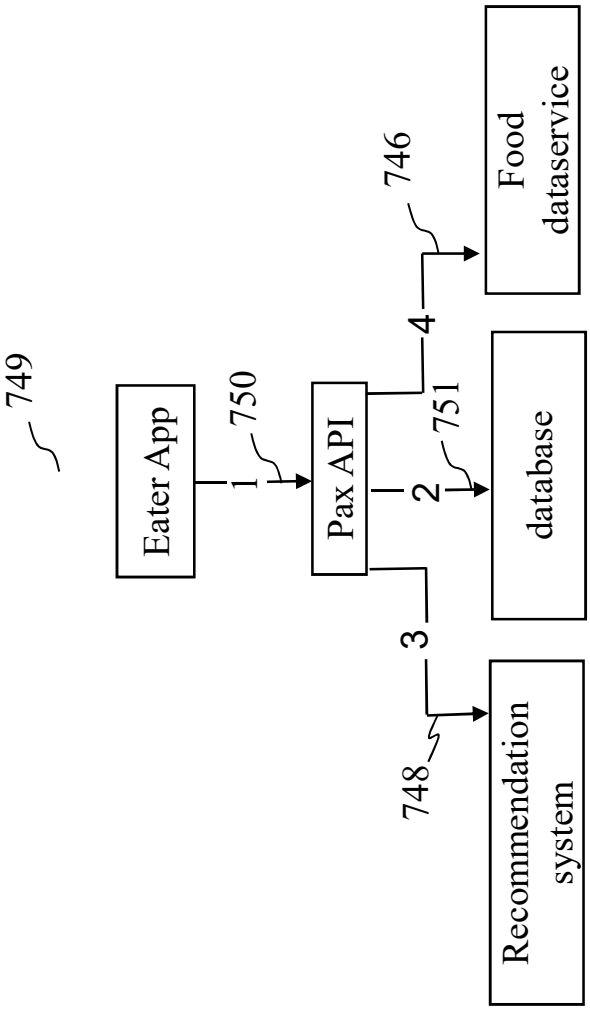
749
Eater App
1
750
Pax API
2
751
database
3
748
Recommendation system
4
746
Food dataservice

FIG. 7J

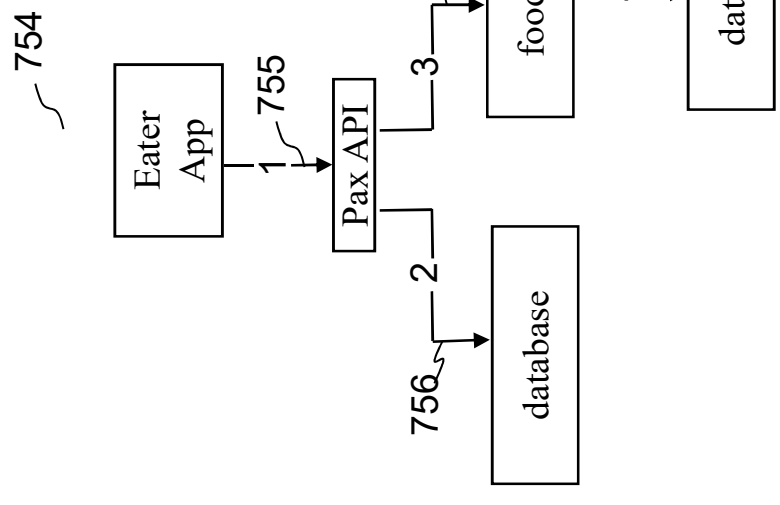
754
Eater App
1
755
Pax API
2
756
database
3
757
food-cart
4
758
database

FIG. 7K

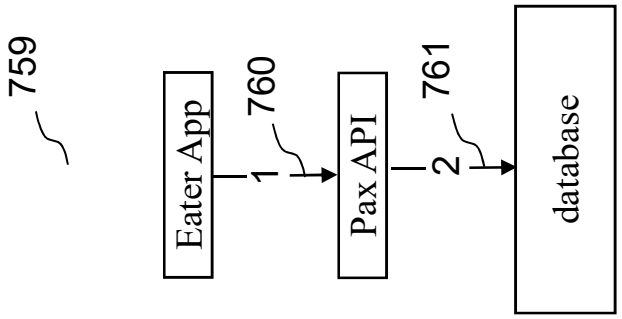
759
Eater App
1
760
Pax API
2
761
database

FIG. 7L

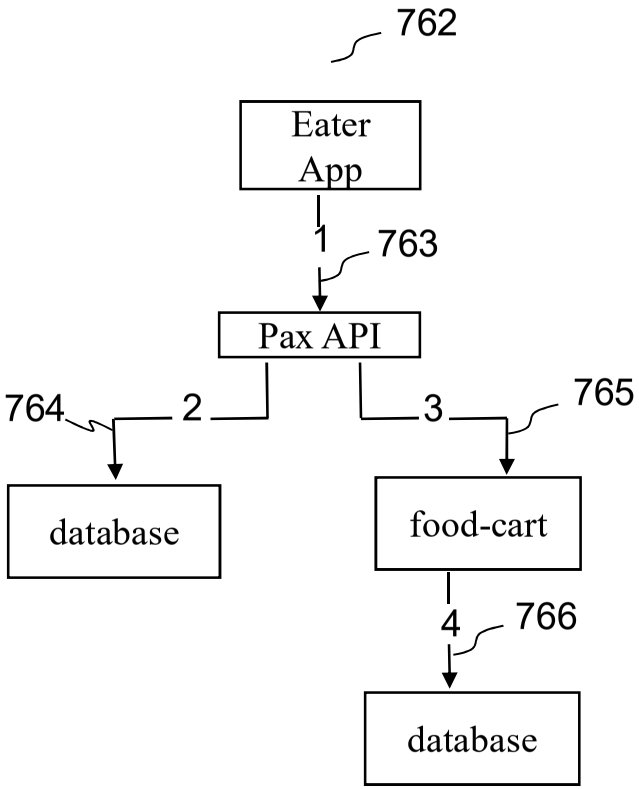
762
Eater App
1
763
Pax API
764
2
3
765
database
food-cart
4
766
database

FIG. 7M

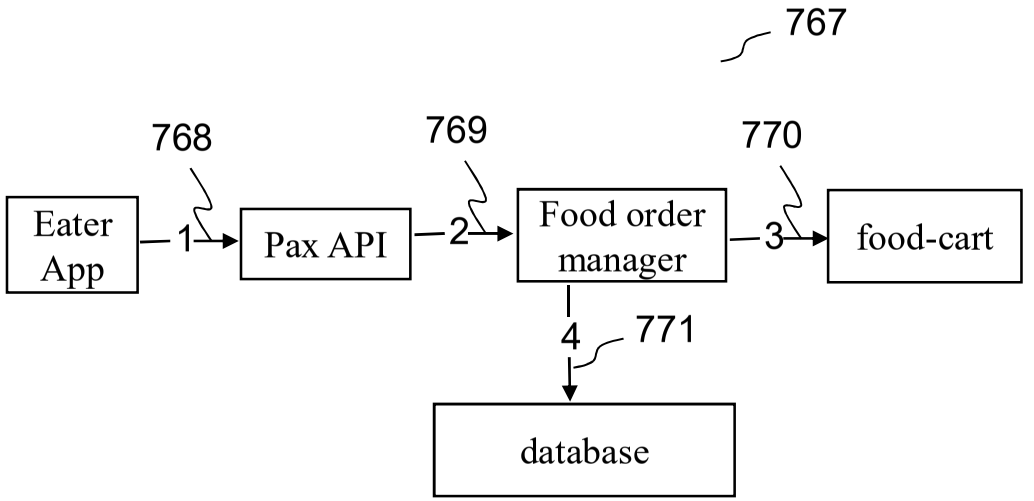
767
768
769
770
Eater App
1
Pax API
2
Food order manager
3
food-cart
4
771
database

FIG. 7N

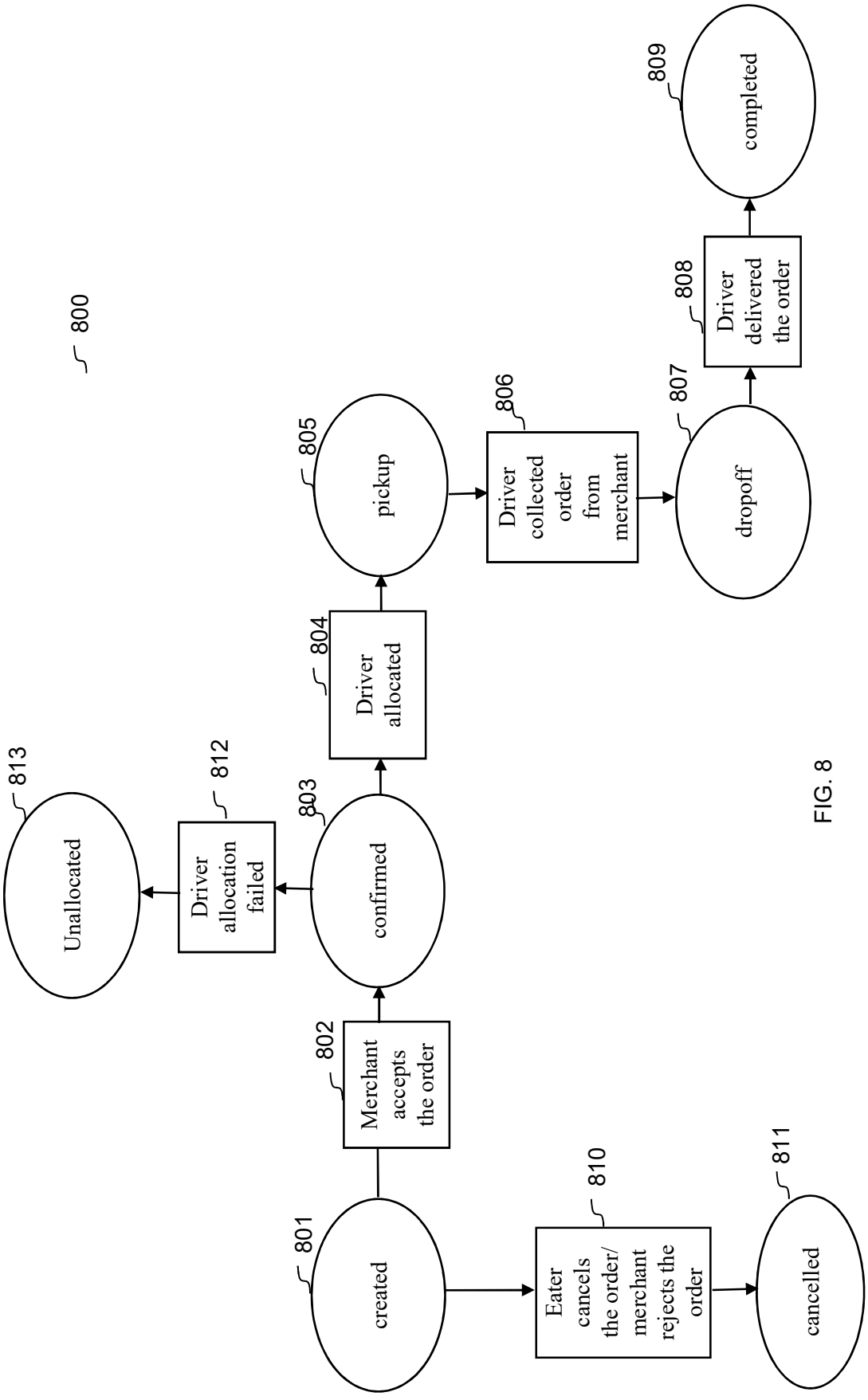
800
created
801
Merchant accepts the order
802
confirmed
803
Driver allocated
804
pickup
805
Driver collected order from merchant
806
dropoff
807
Driver delivered the order
808
completed
809
Eater cancels the order/ merchant rejects the order
810
cancelled
811
Driver allocation failed
812
Unallocated
813

FIG. 8

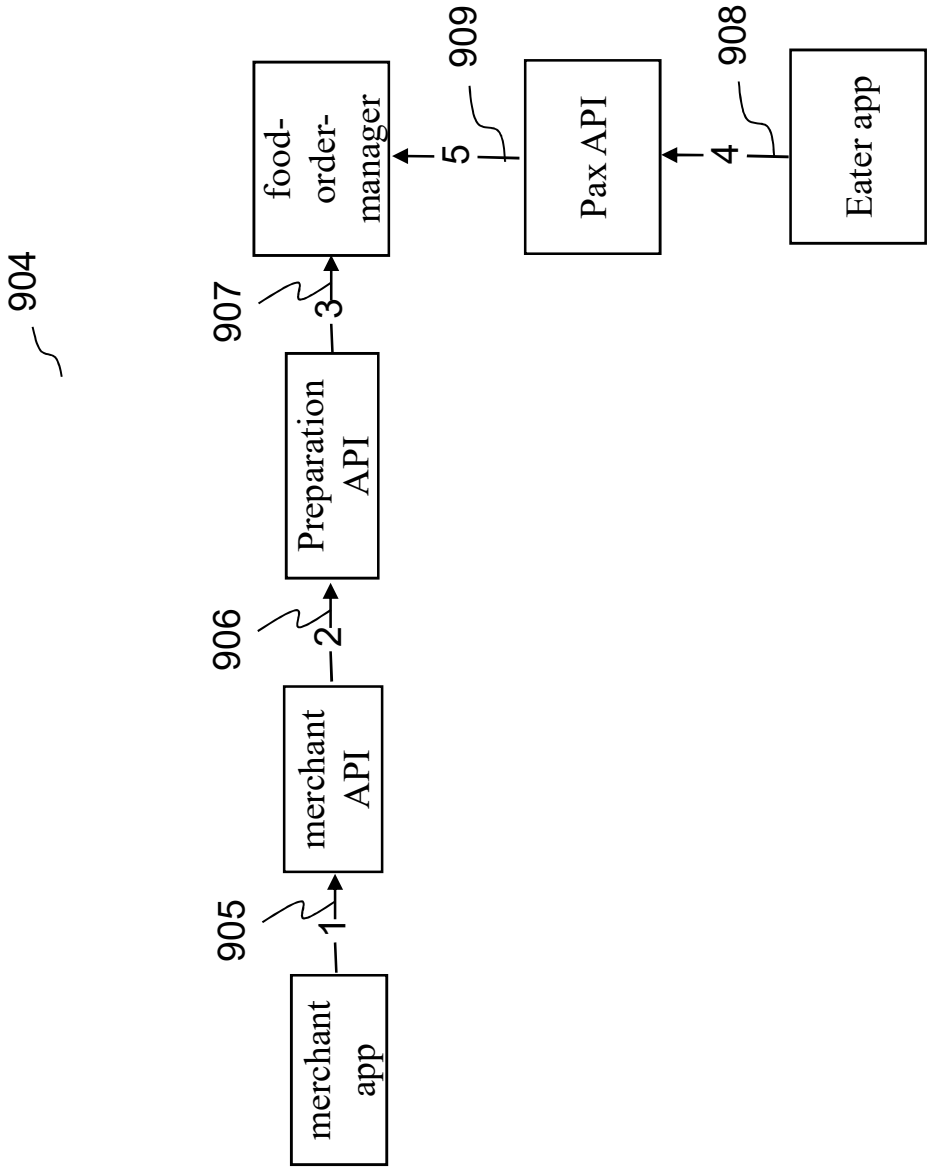
904
905
1
merchant app
906
2
merchant API
907
3
Preparation API
food-order-manager
909
5
Pax API
908
4
Eater app

FIG. 9B

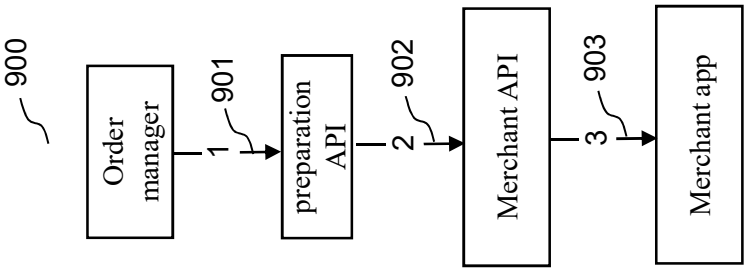
900
Order manager
1
901
preparation API
2
902
Merchant API
3
903
Merchant app

FIG. 9A

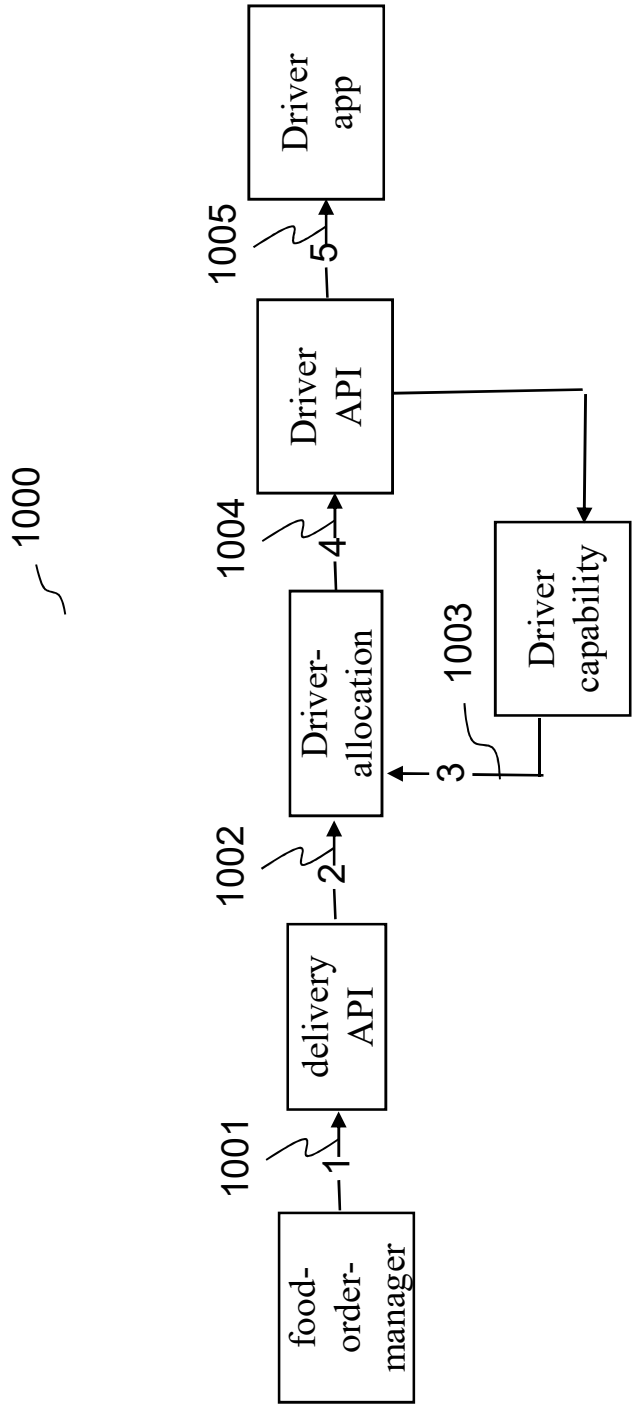
1000
food-order-manager
1001
1
delivery API
1002
2
Driver-allocation
3
1003
Driver capability
1004
4
Driver API
1005
5
Driver app

FIG. 10A

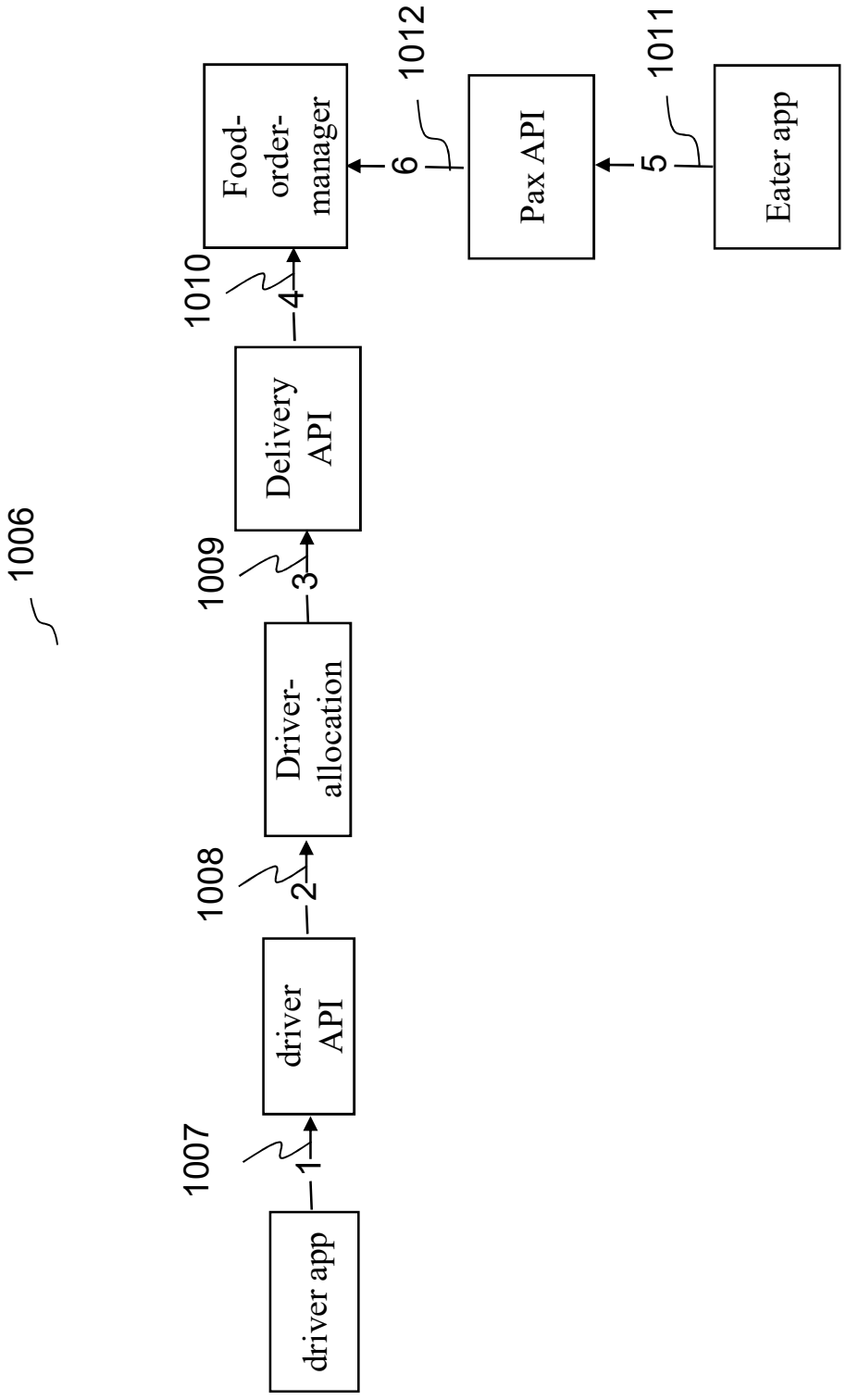
1006
driver app
1
1007
driver API
2
1008
Driver-allocation
3
1009
Delivery API
4
1010
Food-order-manager
6
1012
Pax API
5
1011
Eater app

FIG. 10B

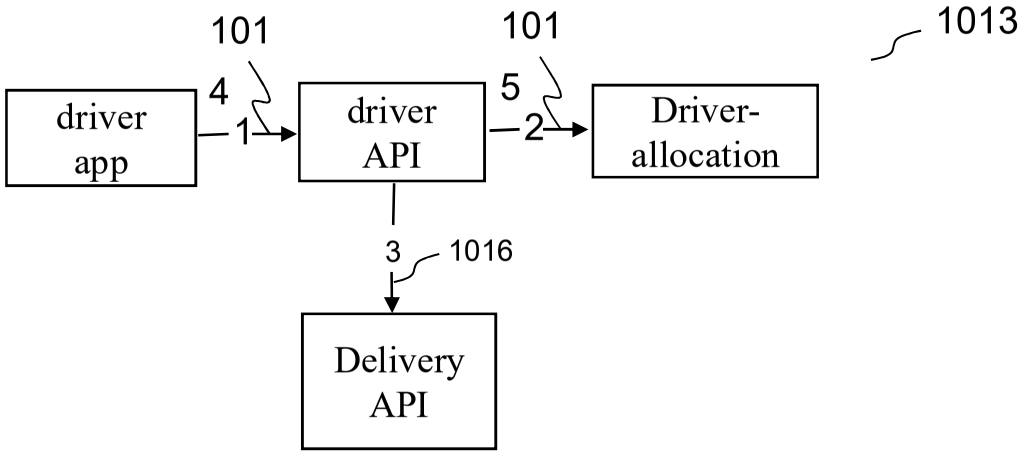

FIG. 10C

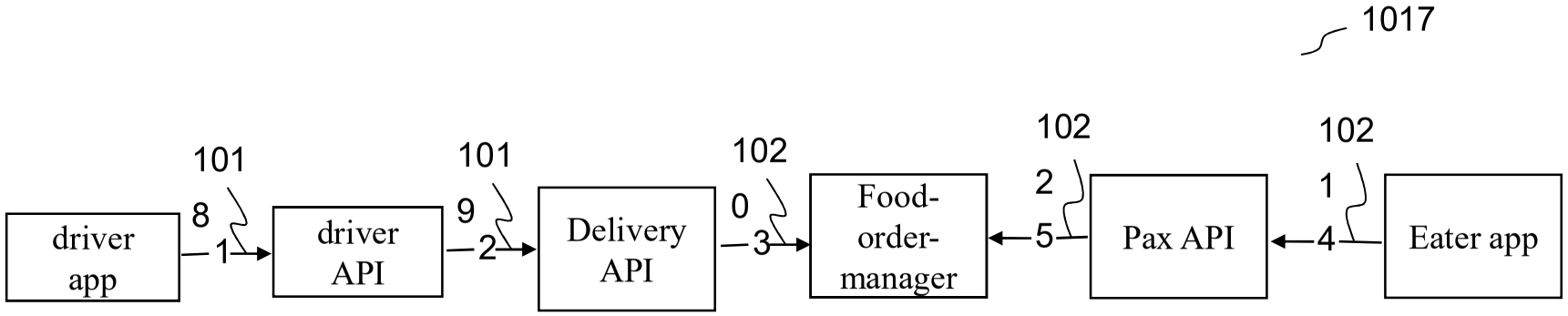

FIG. 10D

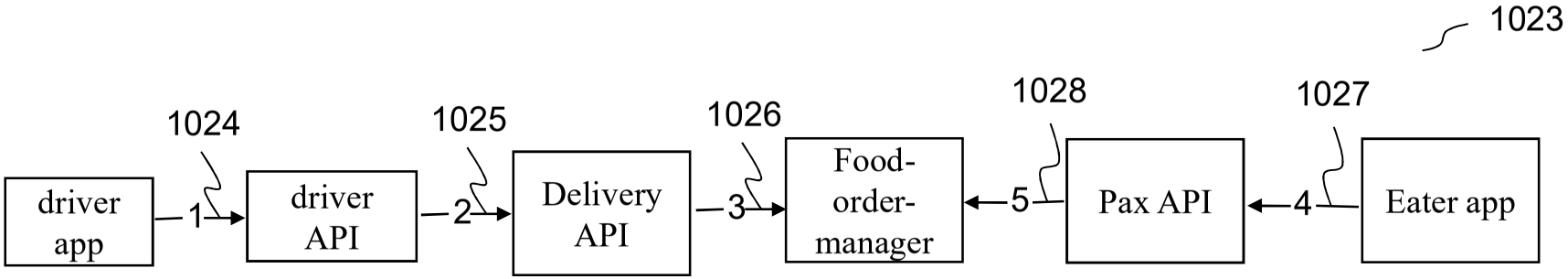

FIG. 10E

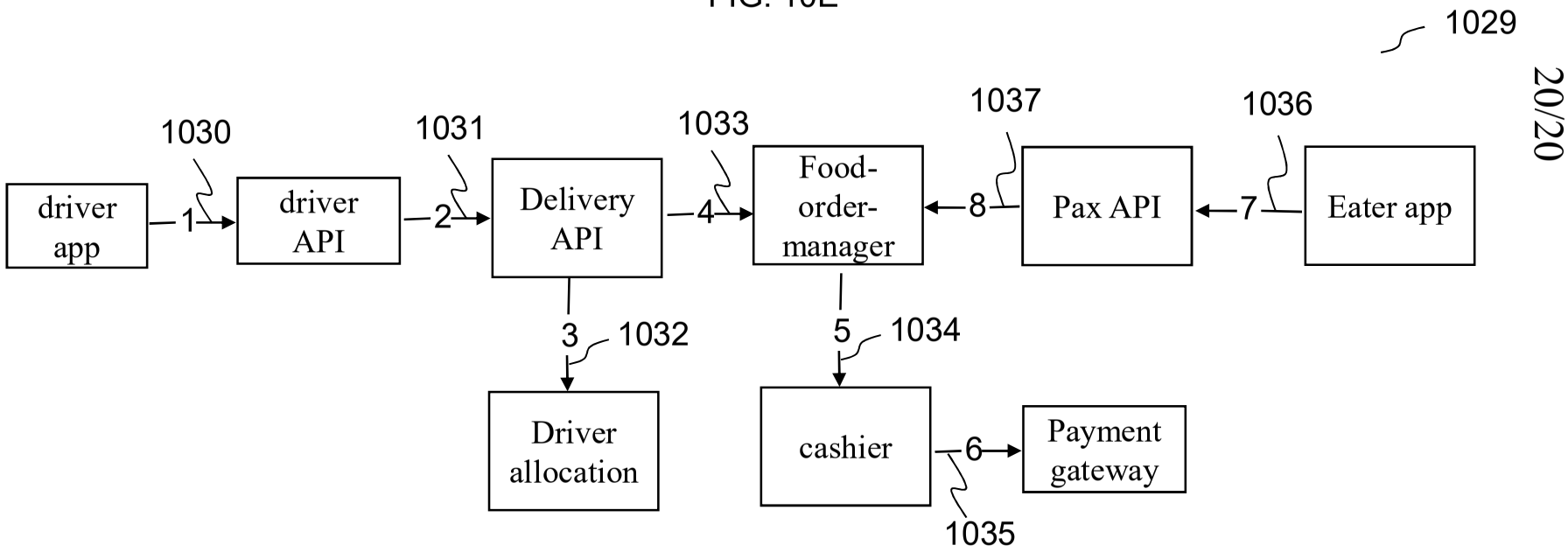

FIG. 10F