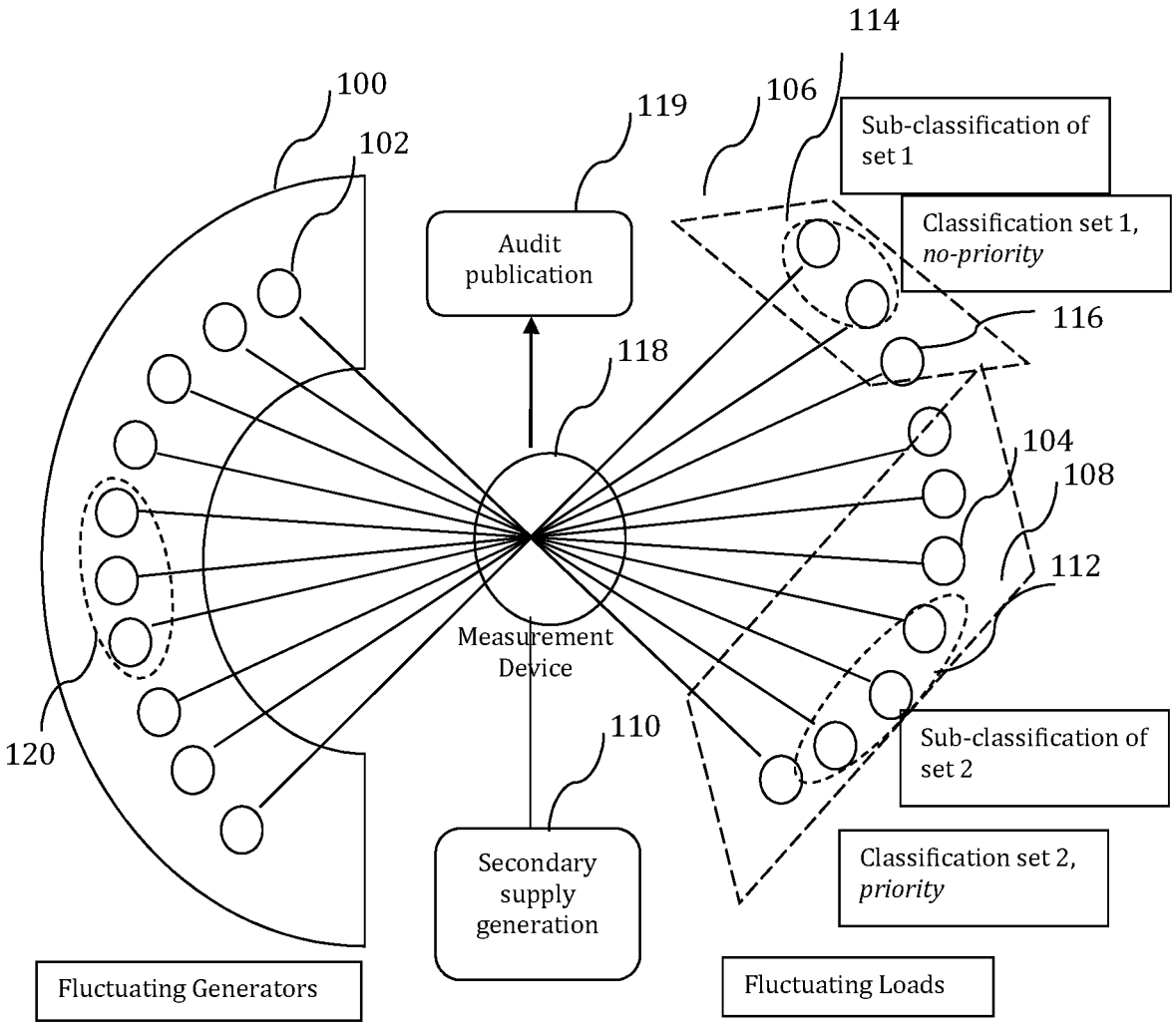

114
100
102
119
106
Sub-classification of set 1
Classification set 1, *no-priority*
Audit publication
116
118
104
108
112
Measurement Device
120
110
Sub-classification of set 2
Secondary supply generation
Classification set 2, *priority*
Fluctuating Generators
Fluctuating Loads

Fig. 1

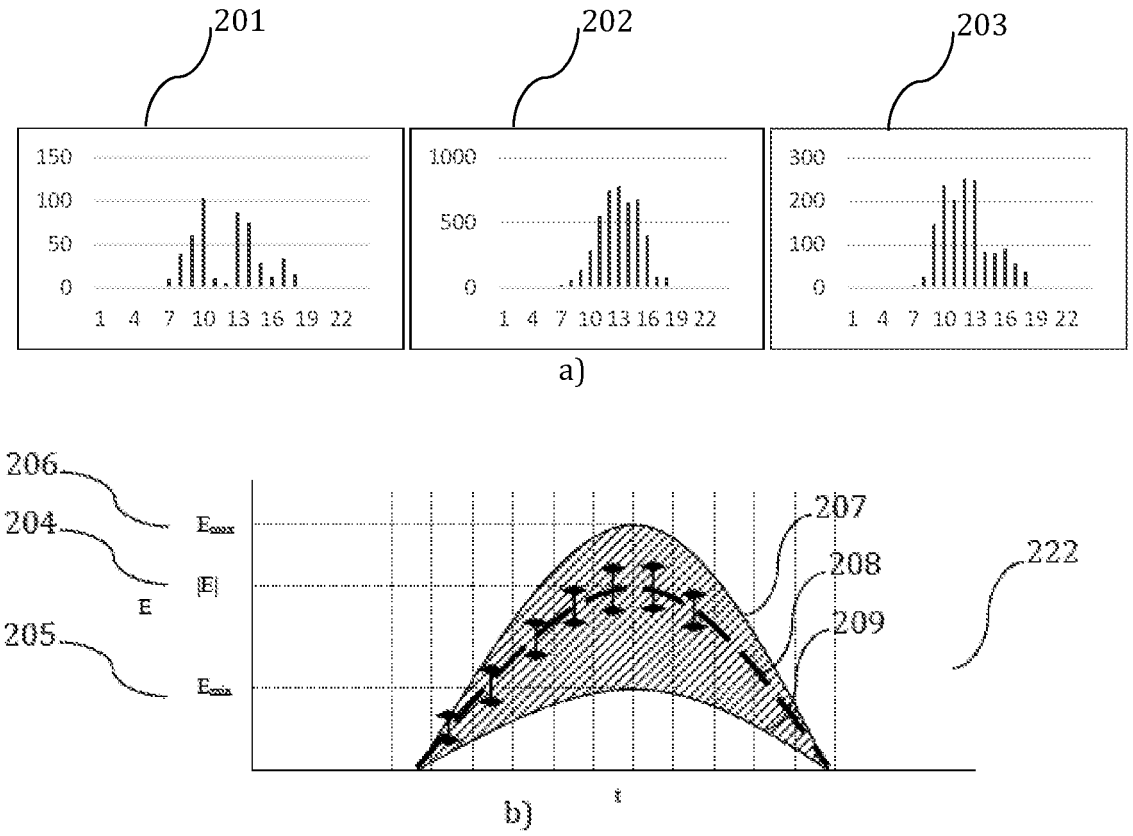

201
202
203
150
100
50
0
1000
500
0
300
200
100
0
1 4 7 10 13 16 19 22
a)
206
204
205
E
|E|
207
208
209
222
t
b)

Fig. 2

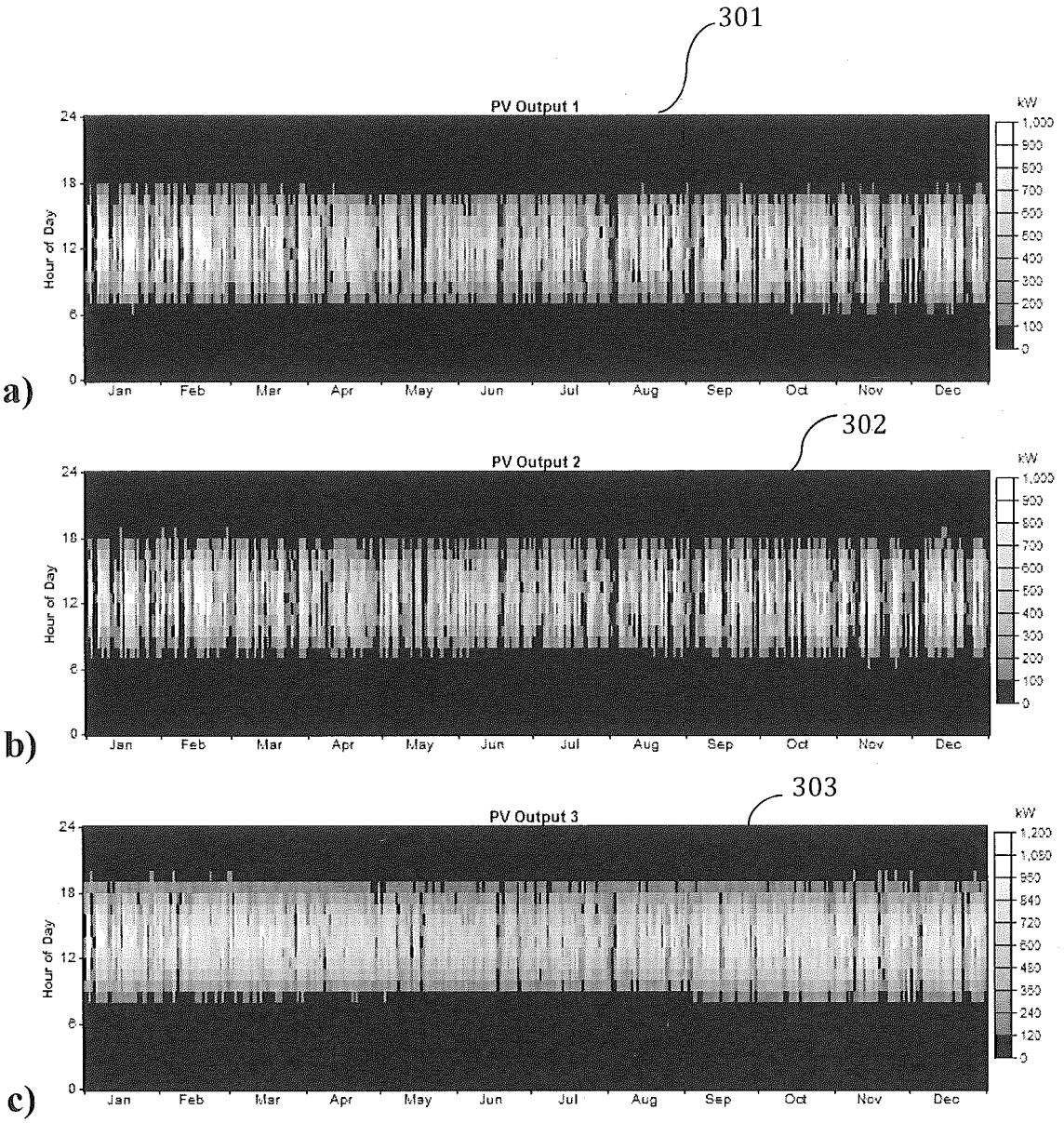

301
PV Output 1
kW
1,000
900
800
700
600
500
400
300
200
100
0
Hour of Day
24
18
12
6
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
a)
302
PV Output 2
b)
303
PV Output 3
1,200
1,080
960
840
720
600
480
360
240
120
c)

Fig. 3

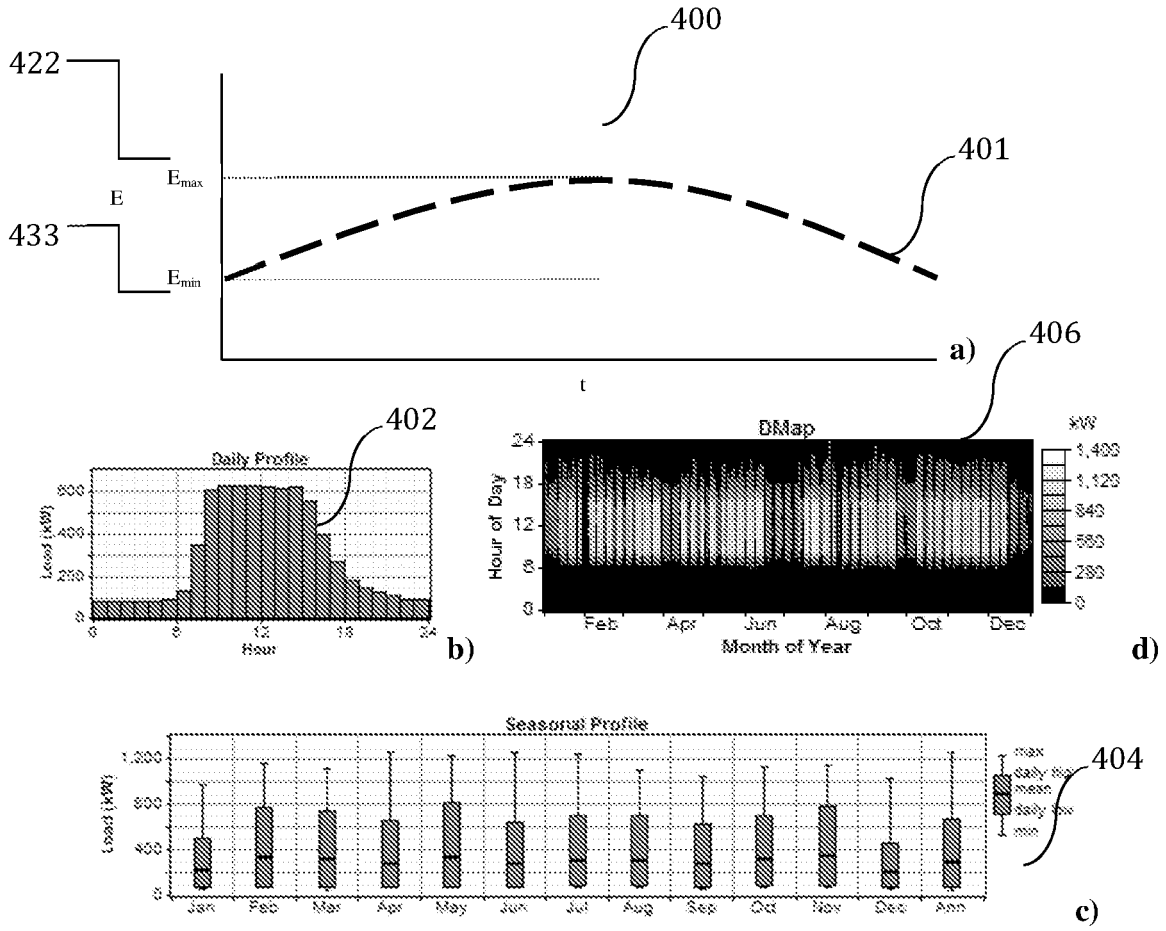

400
422
401
E
E_{max}
433
E_{min}
a)
t
406
402
Daily Profile
Load (kW)
Hour
b)
DMap
Hour of Day
Month of Year
kW
1,400
1,120
840
560
280
0
d)
Seasonal Profile
Load (kW)
1,200
800
400
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Ann
max
mean
min
404
c)

Fig. 4

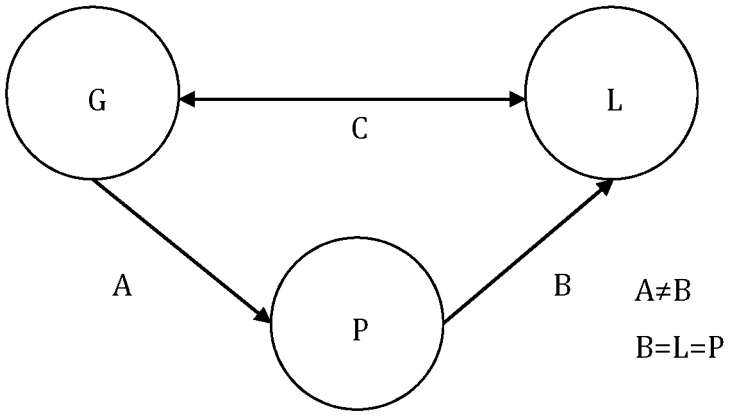


Fig. 5

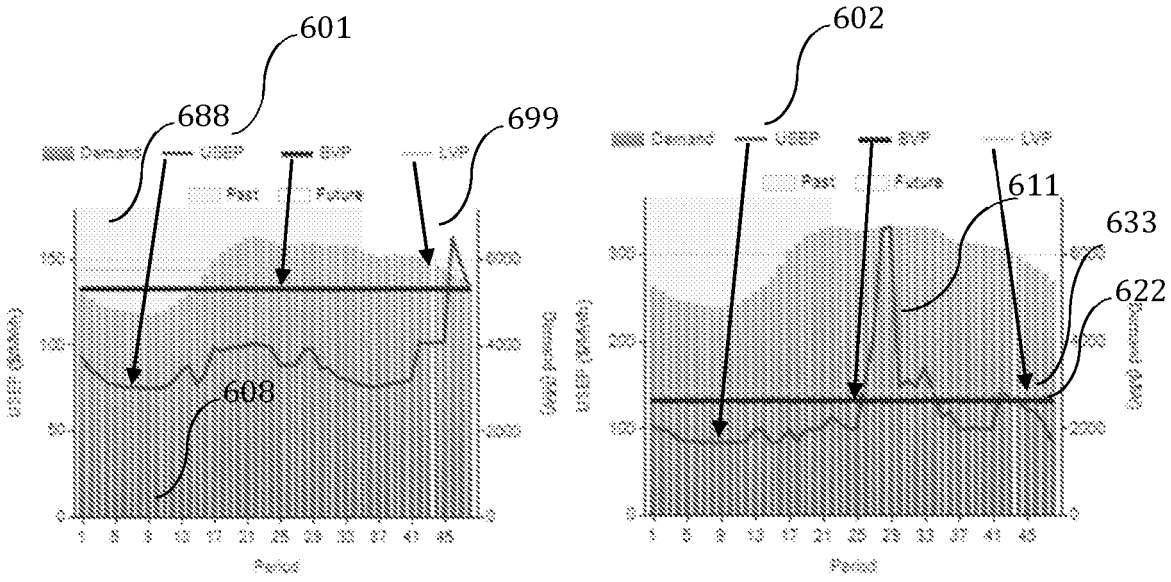


Fig. 6

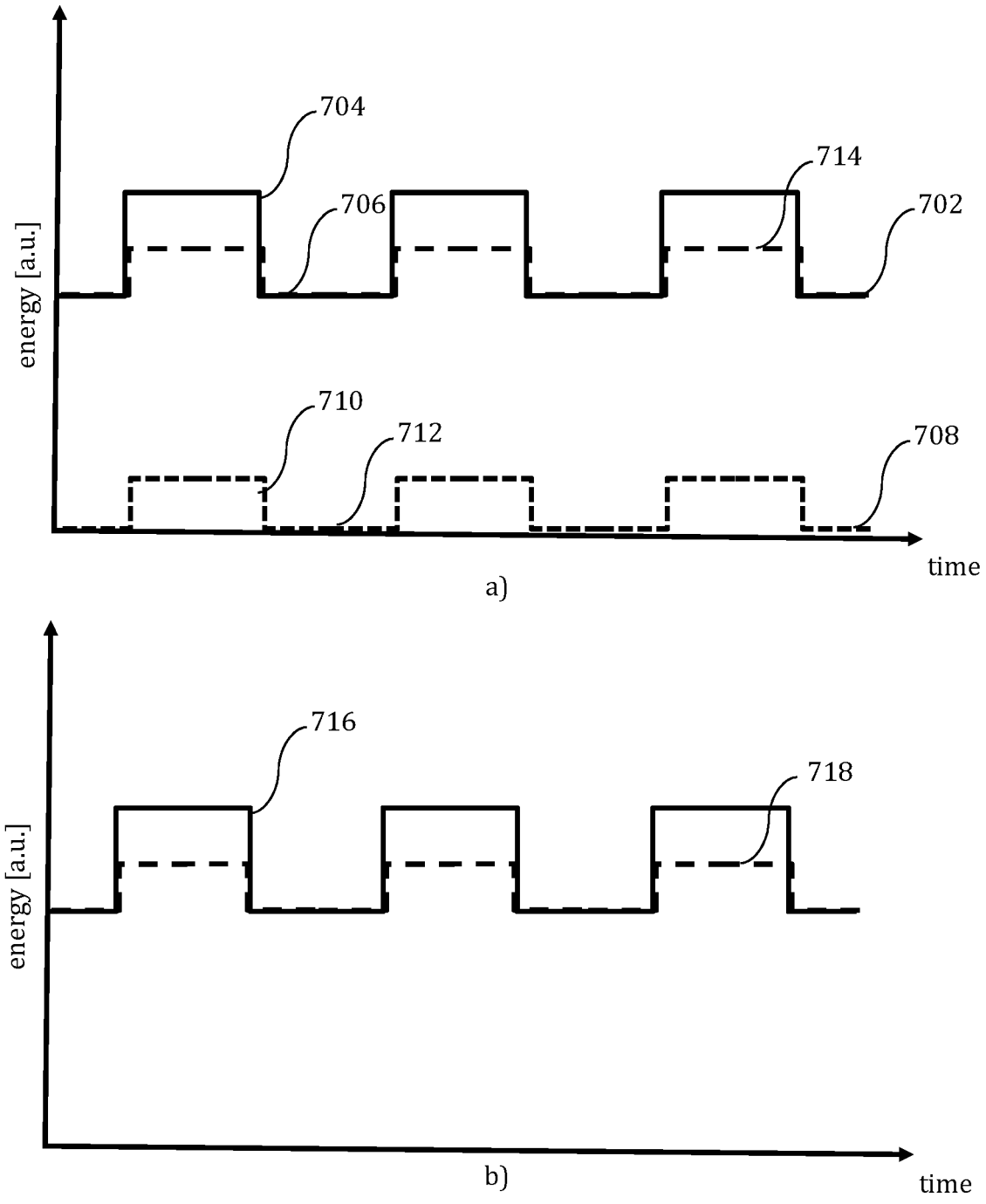

704
706
714
702
energy [a.u.]
710
712
708
time
a)
716
718
energy [a.u.]
b)
time

Fig. 7

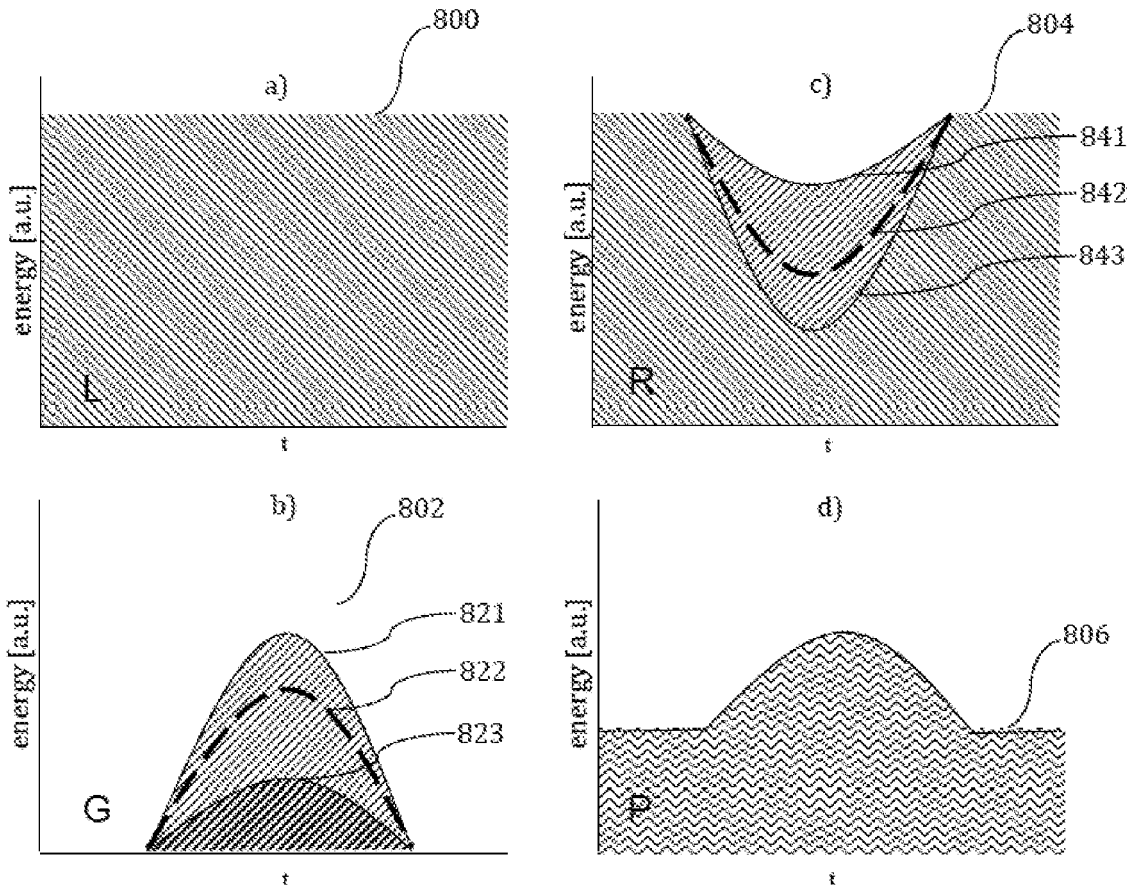

a)
800
energy [a.u.]
L
t
c)
804
841
842
843
energy [a.u.]
R
t
b)
802
821
822
823
energy [a.u.]
G
t
d)
806
energy [a.u.]
P
t

Fig. 8

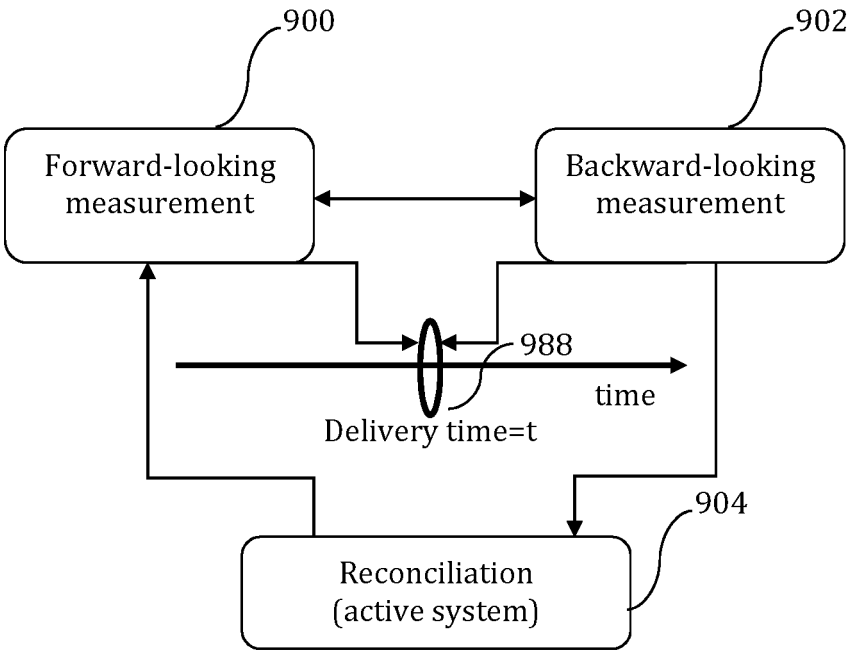

900
902
Forward-looking measurement
Backward-looking measurement
988
time
Delivery time=t
904
Reconciliation (active system)

Fig. 9

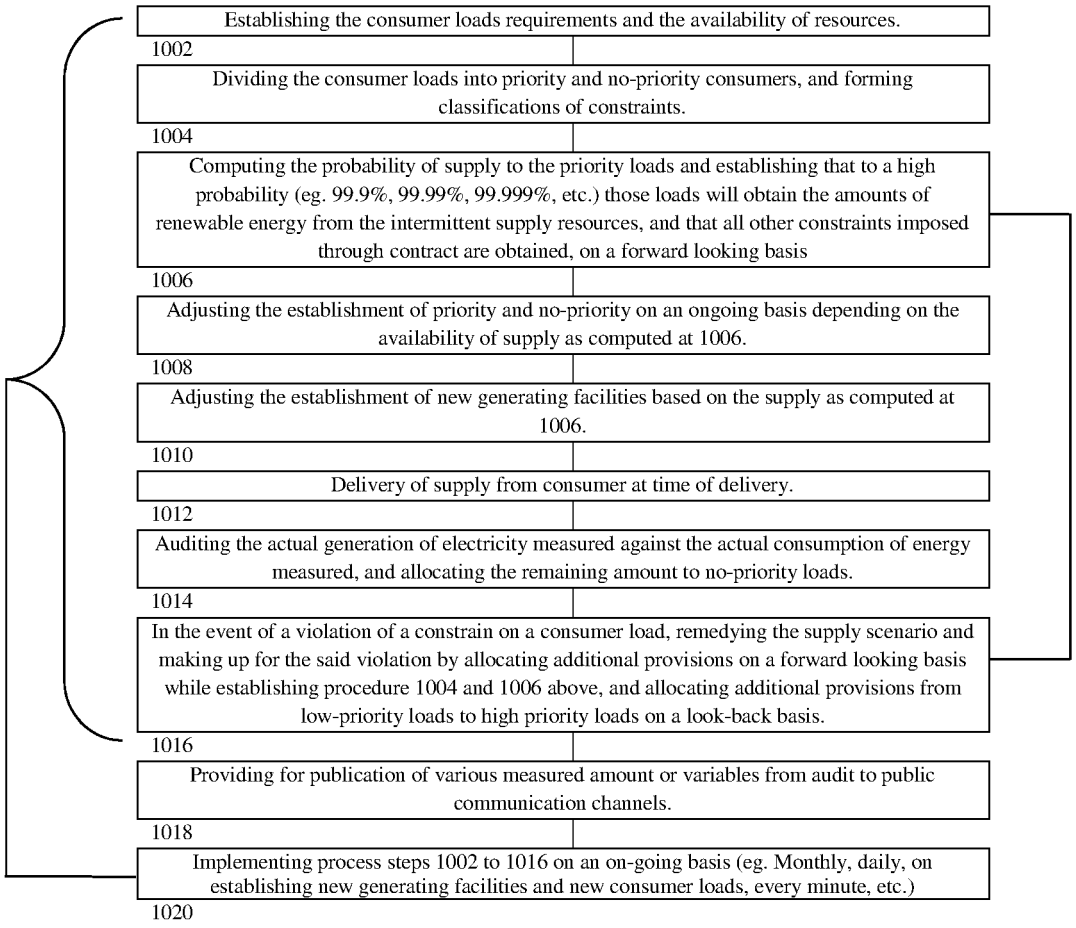

Establishing the consumer loads requirements and the availability of resources.
1002
Dividing the consumer loads into priority and no-priority consumers, and forming classifications of constraints.
1004
Computing the probability of supply to the priority loads and establishing that to a high probability (eg. 99.9%, 99.99%, 99.999%, etc.) those loads will obtain the amounts of renewable energy from the intermittent supply resources, and that all other constraints imposed through contract are obtained, on a forward looking basis
1006
Adjusting the establishment of priority and no-priority on an ongoing basis depending on the availability of supply as computed at 1006.
1008
Adjusting the establishment of new generating facilities based on the supply as computed at 1006.
1010
Delivery of supply from consumer at time of delivery.
1012
Auditing the actual generation of electricity measured against the actual consumption of energy measured, and allocating the remaining amount to no-priority loads.
1014
In the event of a violation of a constrain on a consumer load, remedying the supply scenario and making up for the said violation by allocating additional provisions on a forward looking basis while establishing procedure 1004 and 1006 above, and allocating additional provisions from low-priority loads to high priority loads on a look-back basis.
1016
Providing for publication of various measured amount or variables from audit to public communication channels.
1018
Implementing process steps 1002 to 1016 on an on-going basis (eg. Monthly, daily, on establishing new generating facilities and new consumer loads, every minute, etc.)
1020

Fig. 10

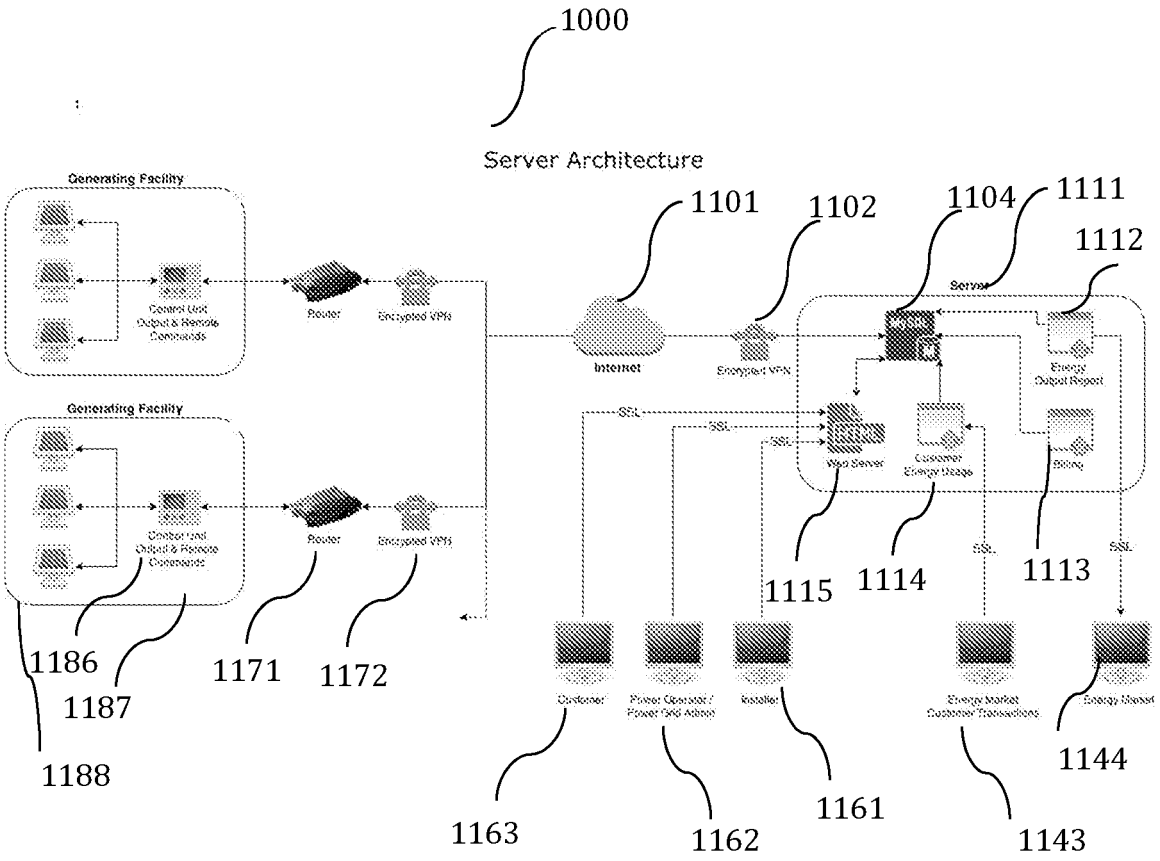

1000
Server Architecture
Generating Facility
Generating Facility
Router
Encrypted VPN
Internet
Server
1101
1102
1104
1111
1112
1113
1114
1115
1171
1172
1186
1187
1188
1143
1144
1161
1162
1163
SSL

Fig. 11

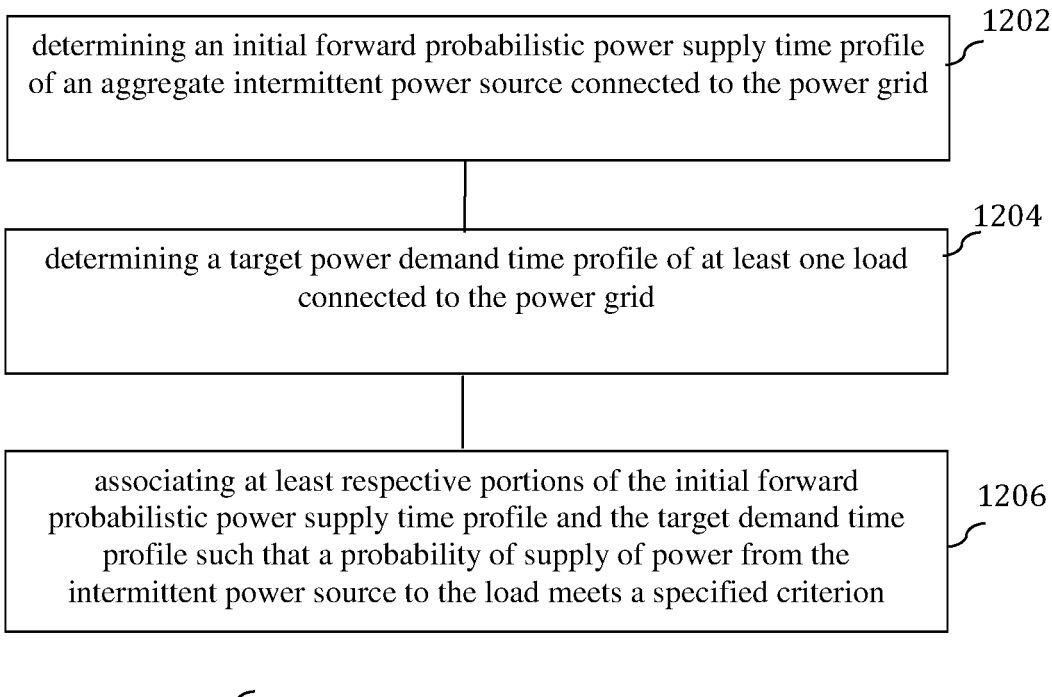

determining an initial forward probabilistic power supply time profile of an aggregate intermittent power source connected to the power grid
1202
determining a target power demand time profile of at least one load connected to the power grid
1204
associating at least respective portions of the initial forward probabilistic power supply time profile and the target demand time profile such that a probability of supply of power from the intermittent power source to the load meets a specified criterion
1206
1200

Fig. 12

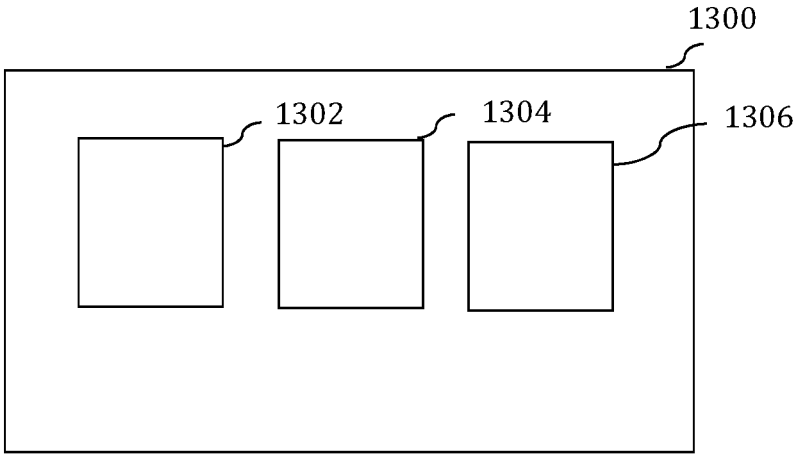

1300
1302
1304
1306

Fig. 13

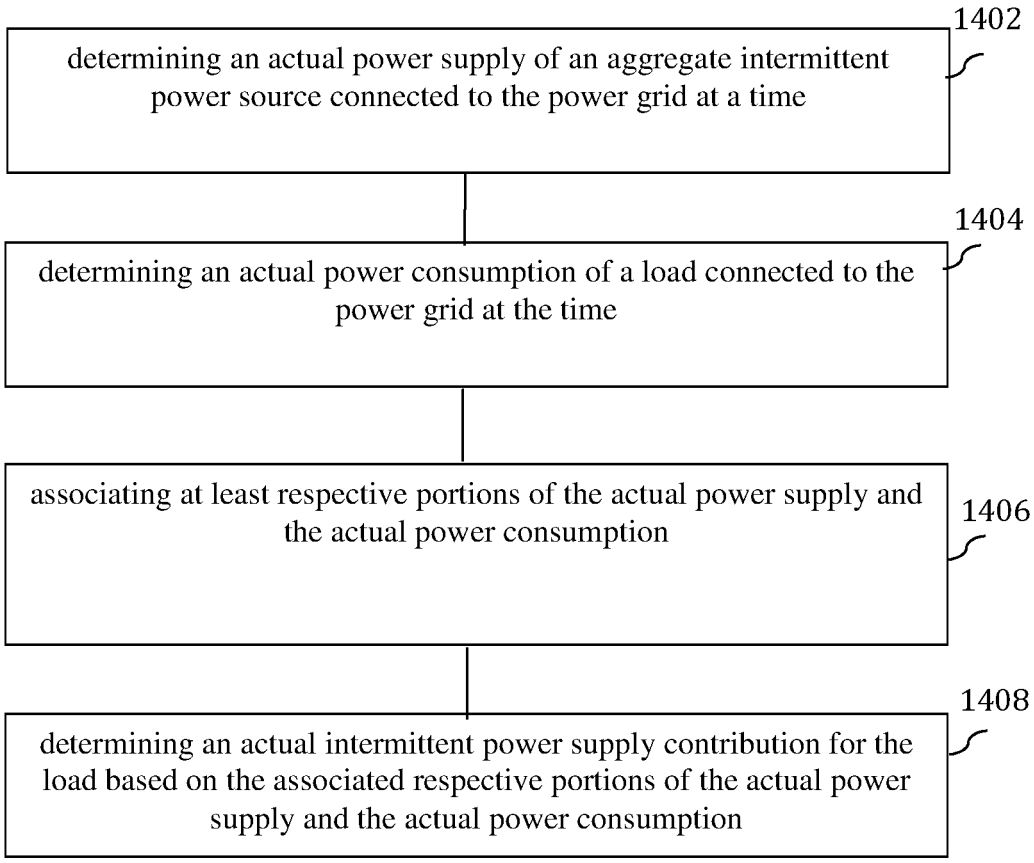

1402
determining an actual power supply of an aggregate intermittent power source connected to the power grid at a time
1404
determining an actual power consumption of a load connected to the power grid at the time
associating at least respective portions of the actual power supply and the actual power consumption
1406
1408
determining an actual intermittent power supply contribution for the load based on the associated respective portions of the actual power supply and the actual power consumption
1400

Fig. 14

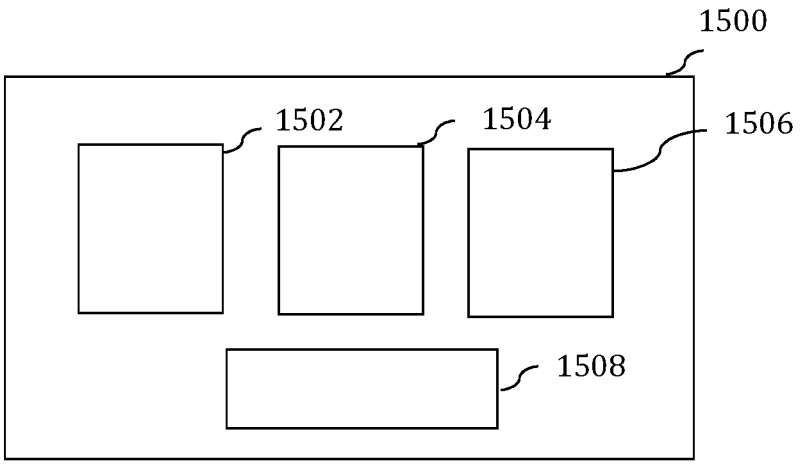

1500
1502
1504
1506
1508

Fig. 15

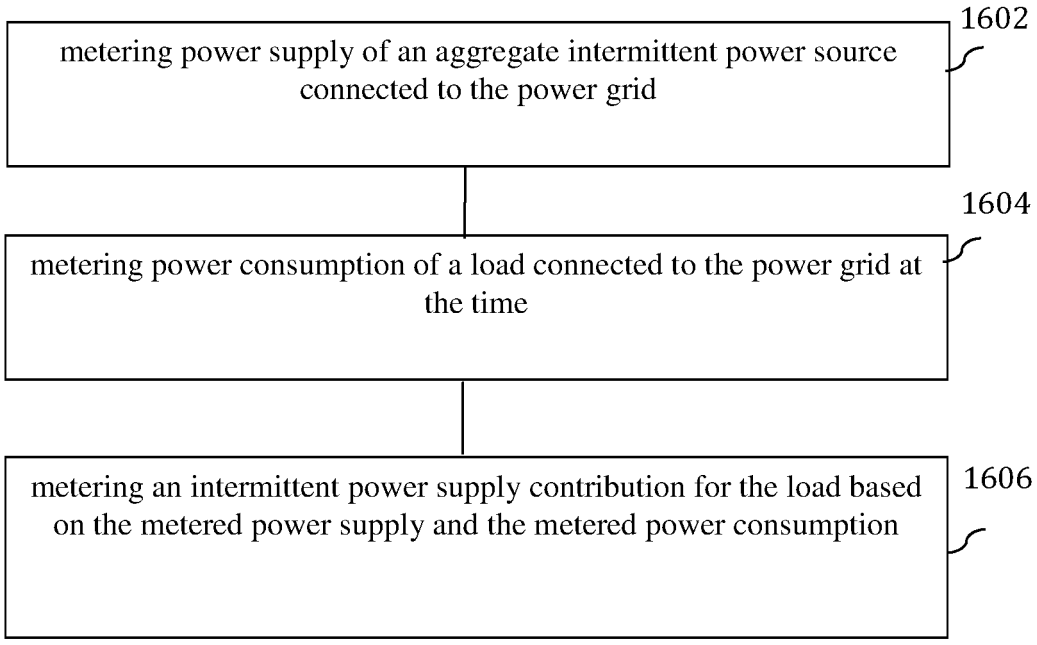

metering power supply of an aggregate intermittent power source connected to the power grid
1602
metering power consumption of a load connected to the power grid at the time
1604
metering an intermittent power supply contribution for the load based on the metered power supply and the metered power consumption
1606
1600

Fig. 16

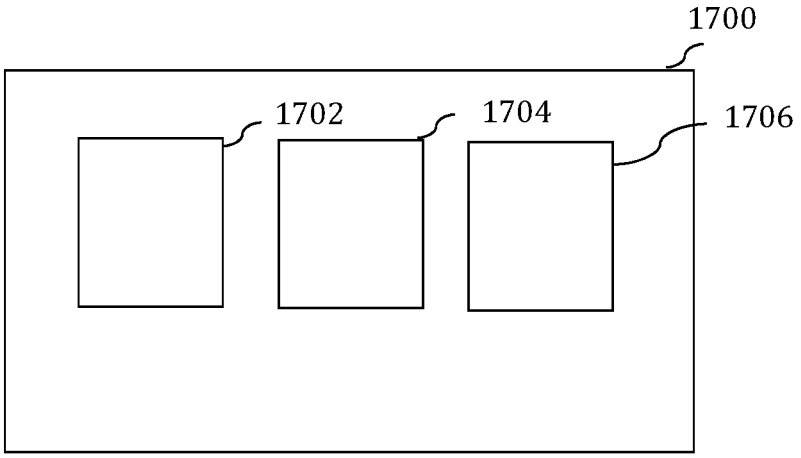

1700
1702
1704
1706

Fig. 17