FIG.1

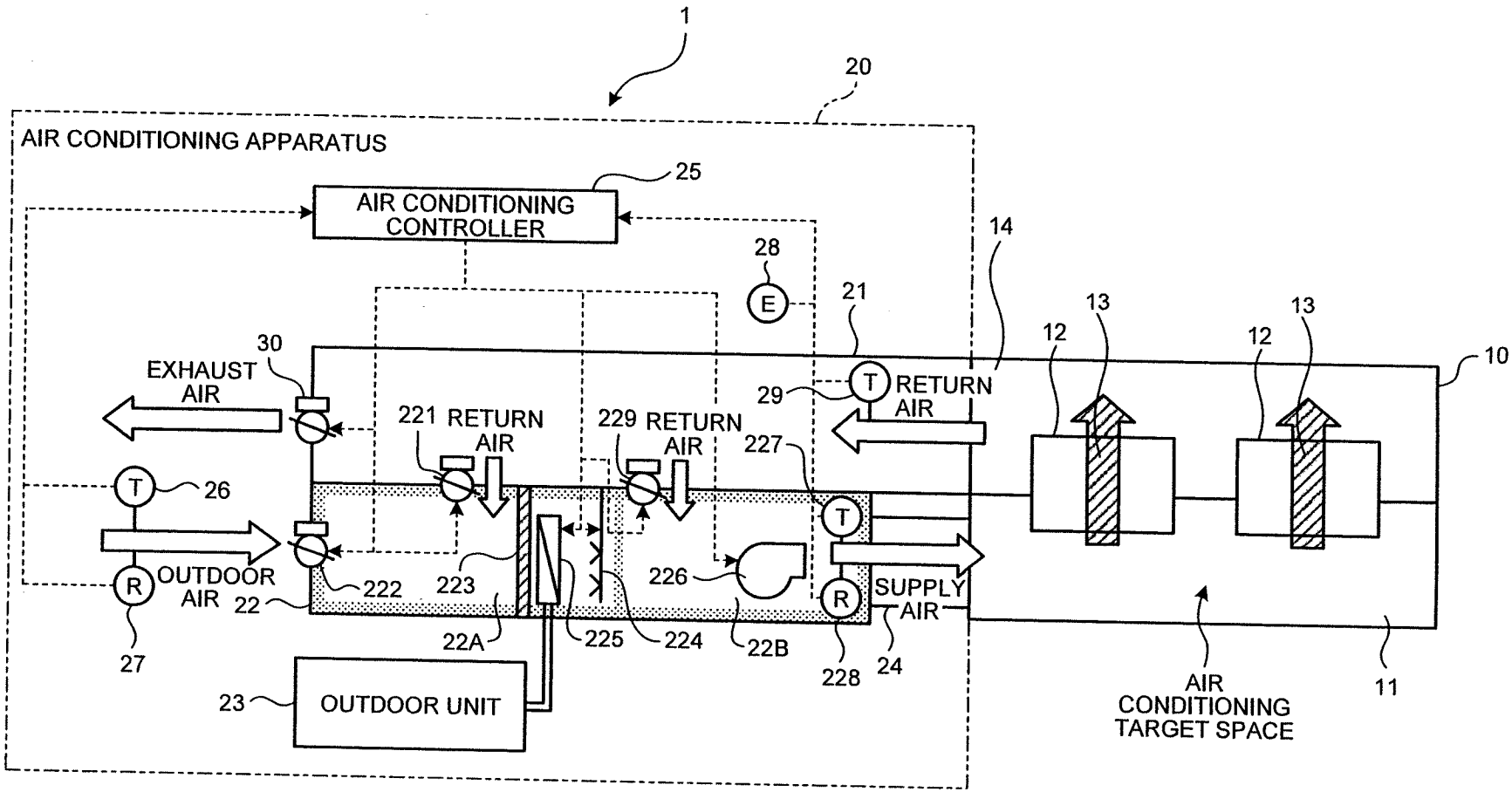
1
20
AIR CONDITIONING APPARATUS
25
AIR CONDITIONING CONTROLLER
28
E
21
14
13
12
13
12
10
30
EXHAUST AIR
29
T
RETURN AIR
221
RETURN AIR
229
RETURN AIR
227
T
26
T
R
OUTDOOR AIR
22
222
223
226
R
SUPPLY AIR
22A
225
224
22B
228
24
27
23
OUTDOOR UNIT
AIR CONDITIONING TARGET SPACE
11

FIG.2

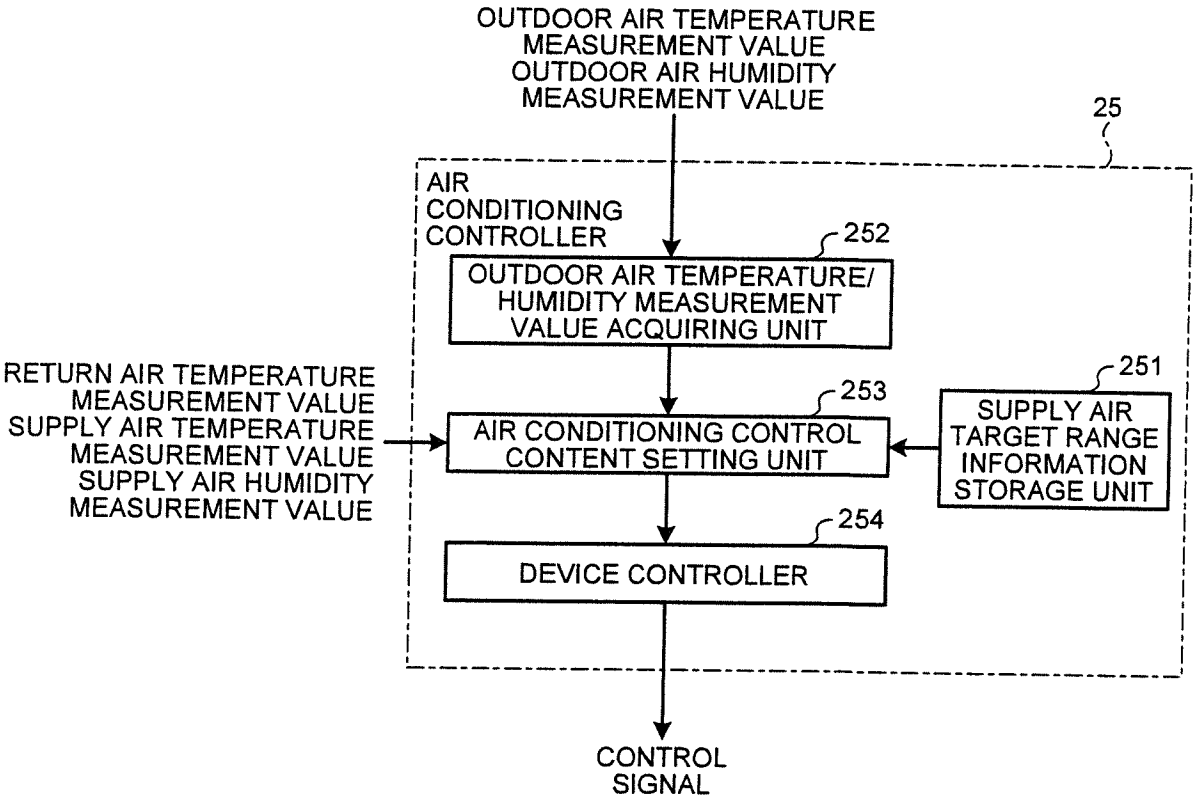
OUTDOOR AIR TEMPERATURE MEASUREMENT VALUE
OUTDOOR AIR HUMIDITY MEASUREMENT VALUE
25
AIR CONDITIONING CONTROLLER
252
OUTDOOR AIR TEMPERATURE/ HUMIDITY MEASUREMENT VALUE ACQUIRING UNIT
RETURN AIR TEMPERATURE MEASUREMENT VALUE
SUPPLY AIR TEMPERATURE MEASUREMENT VALUE
SUPPLY AIR HUMIDITY MEASUREMENT VALUE
253
AIR CONDITIONING CONTROL CONTENT SETTING UNIT
251
SUPPLY AIR TARGET RANGE INFORMATION STORAGE UNIT
254
DEVICE CONTROLLER
CONTROL SIGNAL

FIG.3

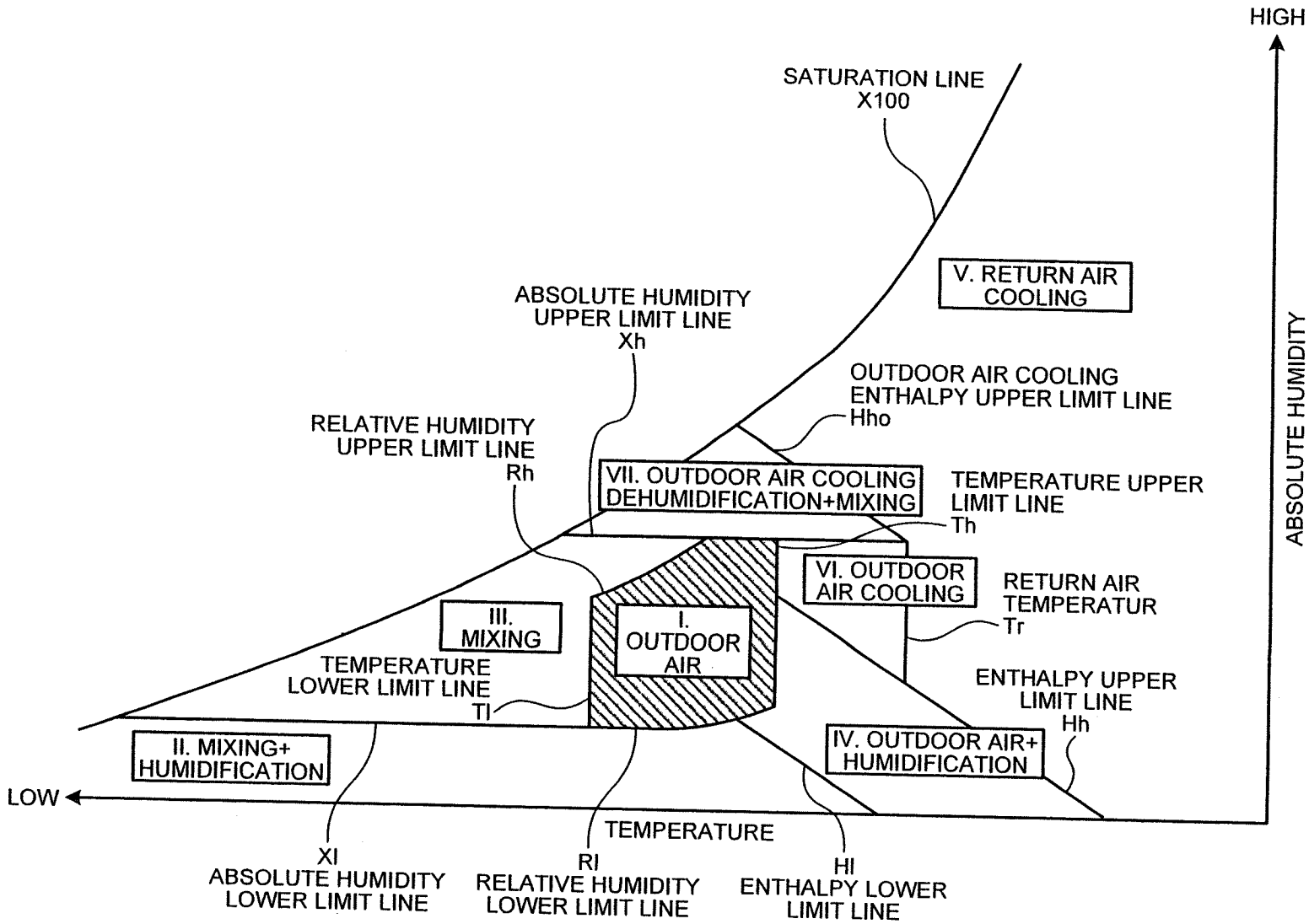
HIGH
ABSOLUTE HUMIDITY
SATURATION LINE
X100
V. RETURN AIR COOLING
ABSOLUTE HUMIDITY UPPER LIMIT LINE
Xh
OUTDOOR AIR COOLING ENTHALPY UPPER LIMIT LINE
Hho
RELATIVE HUMIDITY UPPER LIMIT LINE
Rh
VII. OUTDOOR AIR COOLING DEHUMIDIFICATION+MIXING
TEMPERATURE UPPER LIMIT LINE
Th
VI. OUTDOOR AIR COOLING
RETURN AIR TEMPERATUR
Tr
III. MIXING
I. OUTDOOR AIR
TEMPERATURE LOWER LIMIT LINE
Tl
ENTHALPY UPPER LIMIT LINE
Hh
II. MIXING+ HUMIDIFICATION
IV. OUTDOOR AIR+ HUMIDIFICATION
LOW
TEMPERATURE
Xl
ABSOLUTE HUMIDITY LOWER LIMIT LINE
Rl
RELATIVE HUMIDITY LOWER LIMIT LINE
Hl
ENTHALPY LOWER LIMIT LINE

FIG.4

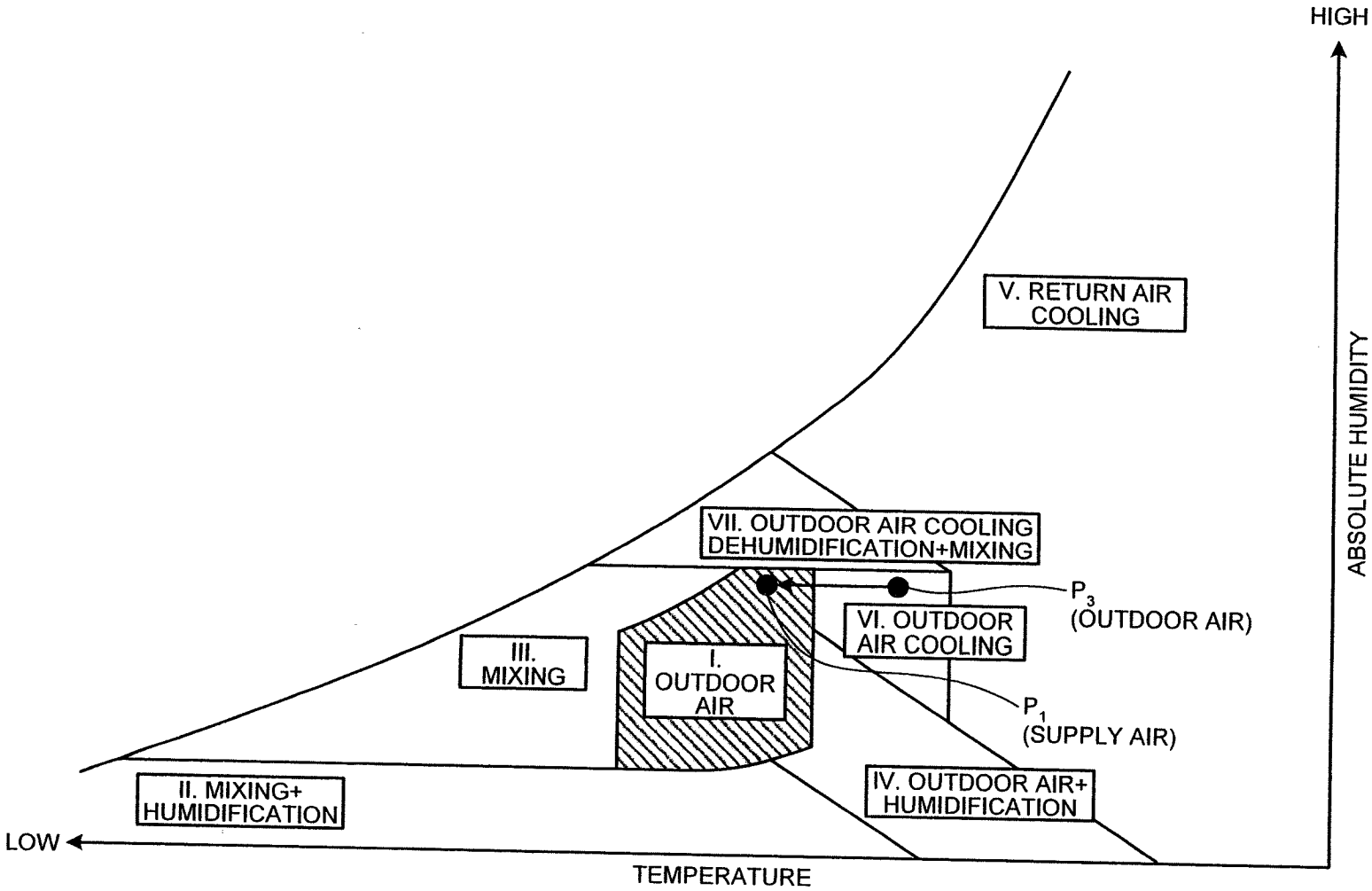
HIGH
ABSOLUTE HUMIDITY
V. RETURN AIR COOLING
VII. OUTDOOR AIR COOLING DEHUMIDIFICATION+MIXING
P3 (OUTDOOR AIR)
VI. OUTDOOR AIR COOLING
III. MIXING
I. OUTDOOR AIR
P1 (SUPPLY AIR)
II. MIXING+ HUMIDIFICATION
IV. OUTDOOR AIR+ HUMIDIFICATION
LOW
TEMPERATURE

FIG.5

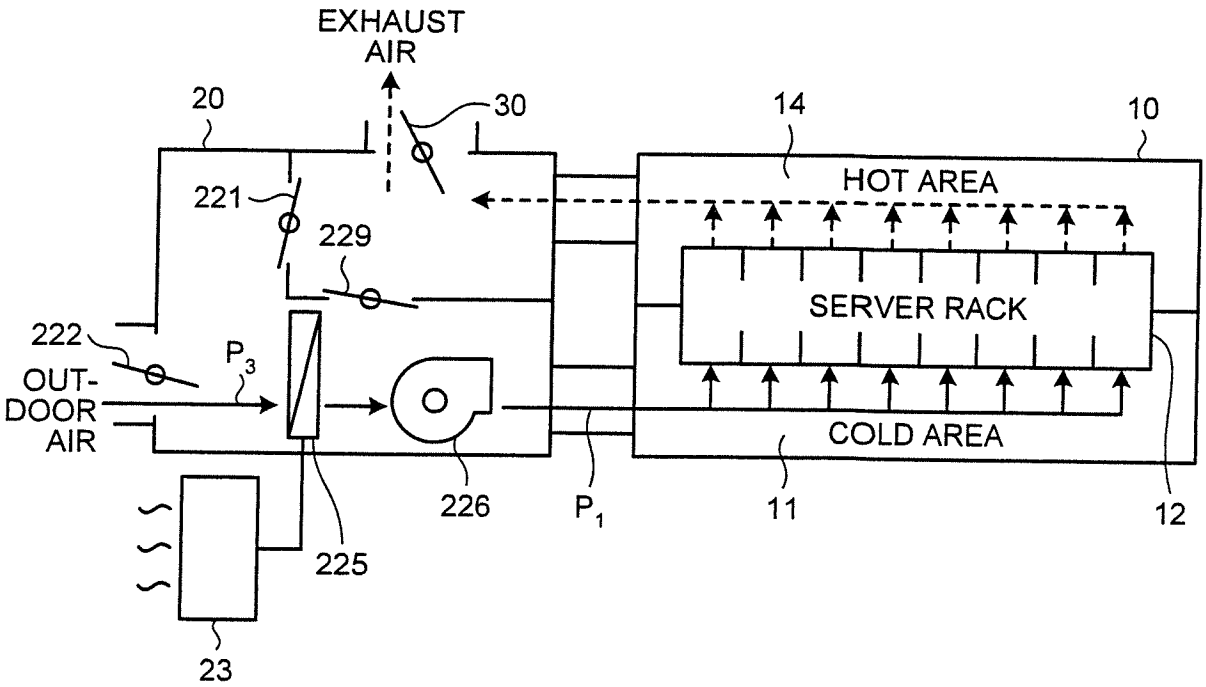
EXHAUST
AIR
20
30
14
10
HOT AREA
221
229
SERVER RACK
222
P3
OUT-
DOOR
AIR
COLD AREA
226
P1
11
12
225
23

FIG.6

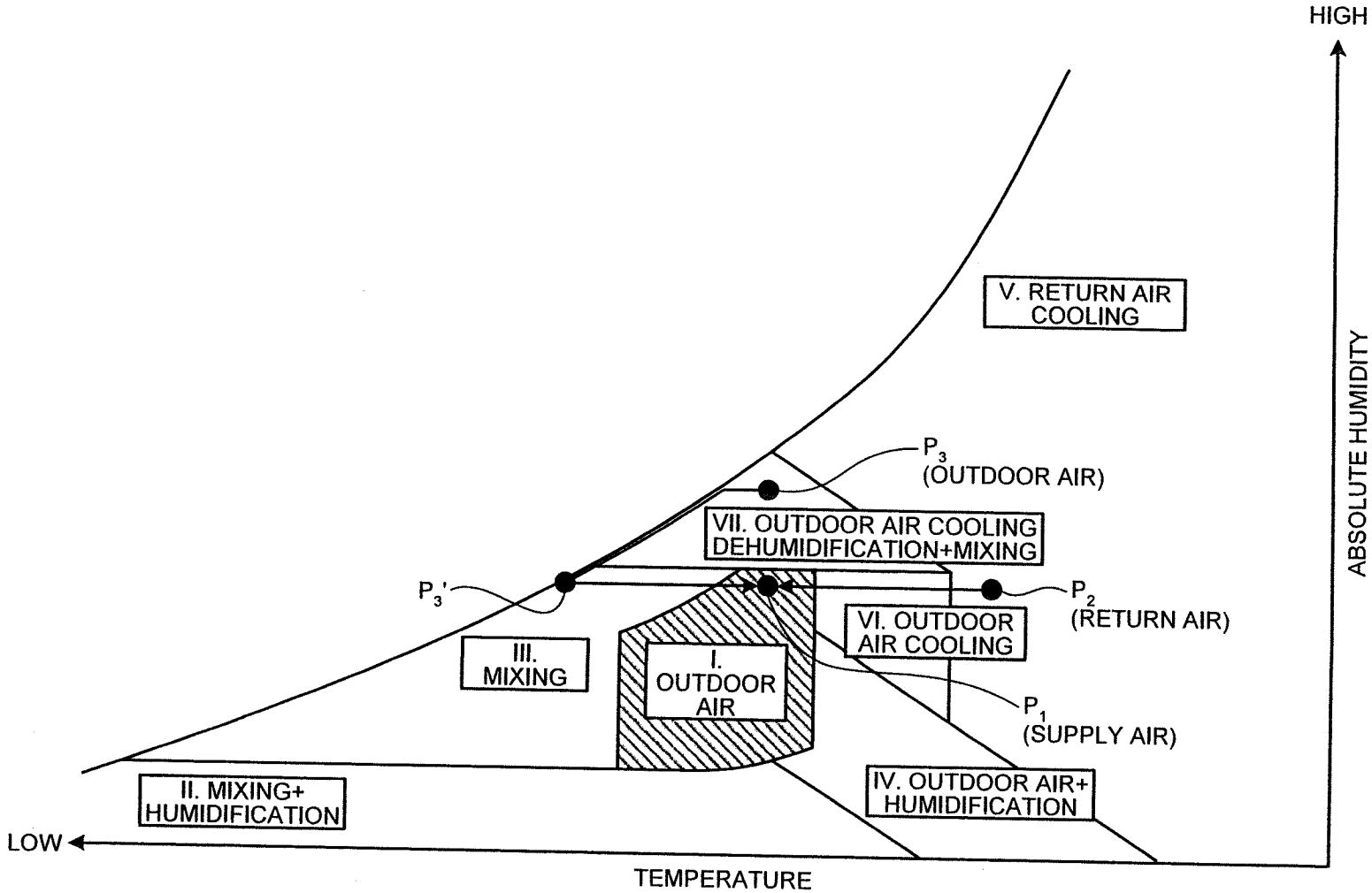
HIGH
ABSOLUTE HUMIDITY
V. RETURN AIR COOLING
P3 (OUTDOOR AIR)
VII. OUTDOOR AIR COOLING DEHUMIDIFICATION+MIXING
P3'
P2 (RETURN AIR)
VI. OUTDOOR AIR COOLING
III. MIXING
I. OUTDOOR AIR
P1 (SUPPLY AIR)
II. MIXING+ HUMIDIFICATION
IV. OUTDOOR AIR+ HUMIDIFICATION
LOW
TEMPERATURE

FIG.7

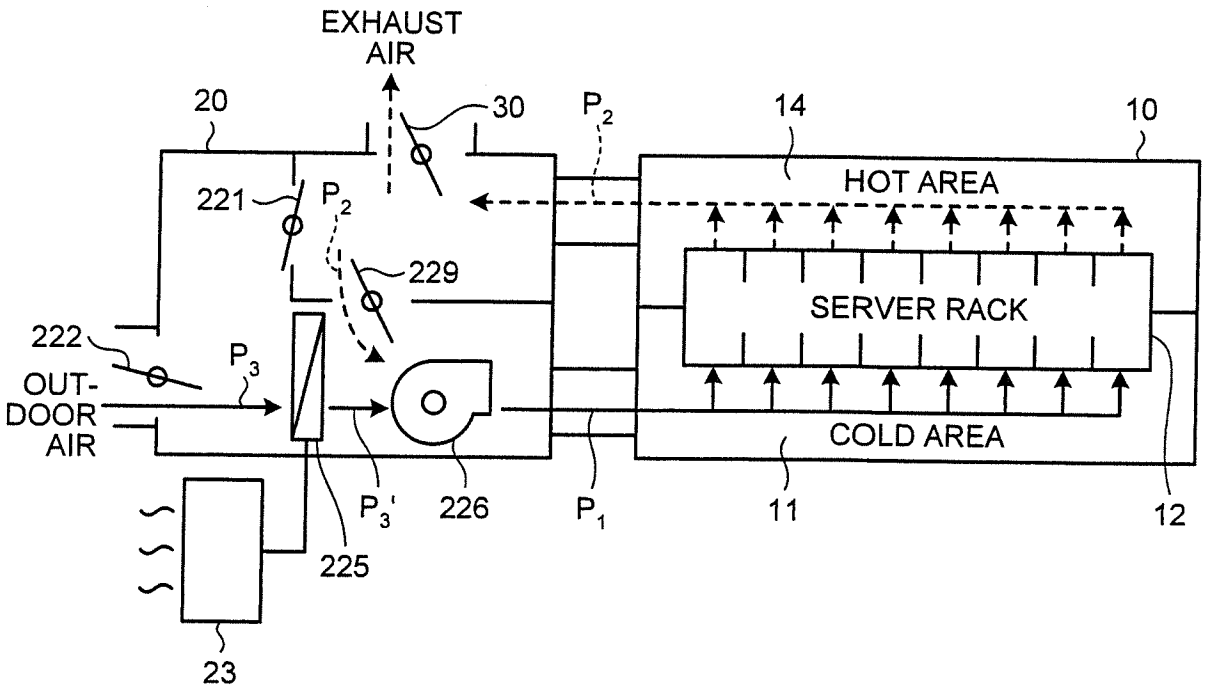

FIG.8

SERVER TEMPERATURE/HUMIDITY CONDITION

Class	Temperature	Humidity	Duw Point	Usage
A1	15 ℃ TO 32 ℃	20% TO 80%	17 ℃	Enterprise servers, storage products
A2	10 ℃ TO 35 ℃	20% TO 80%	21 ℃	Volume servers, storage products
A3	5 ℃ TO 40 ℃	8% TO 85%	24 ℃	Volume servers, storage products
A4	5 ℃ TO 45 ℃	8% TO 90%	24 ℃	Volume servers, storage products