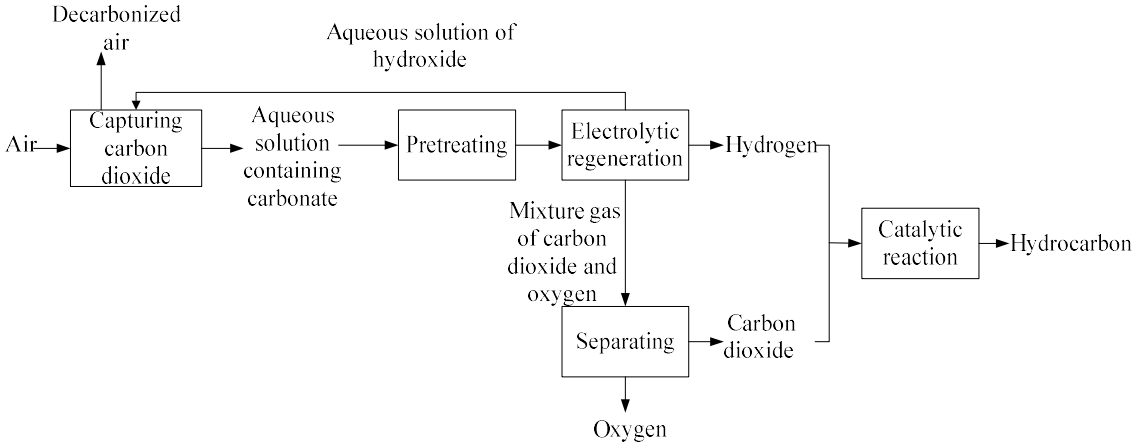

Decarbonized air
Aqueous solution of hydroxide
Air
Capturing carbon dioxide
Aqueous solution containing carbonate
Pretreating
Electrolytic regeneration
Hydrogen
Mixture gas of carbon dioxide and oxygen
Catalytic reaction
Hydrocarbon
Separating
Carbon dioxide
Oxygen

FIG. 1

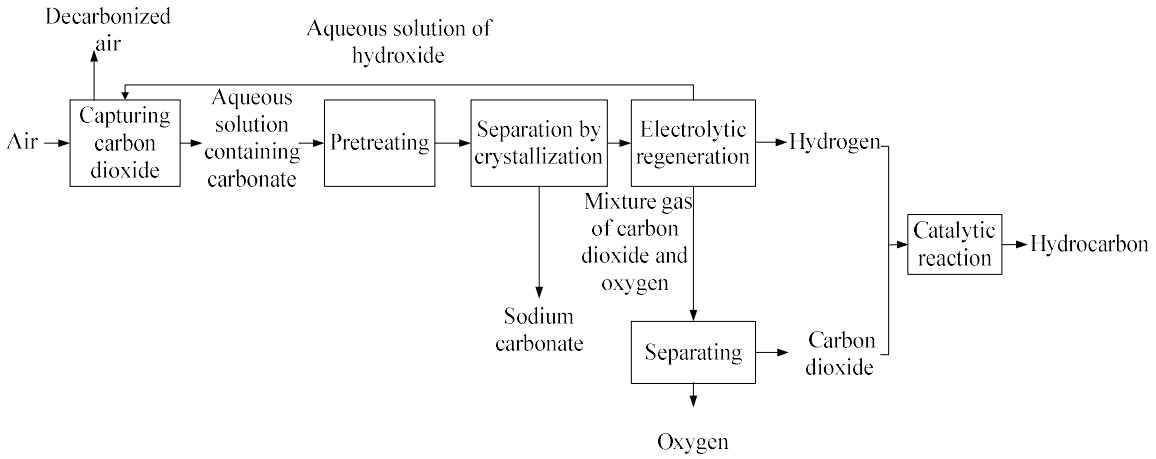

Decarbonized air
Aqueous solution of hydroxide
Air
Capturing carbon dioxide
Aqueous solution containing carbonate
Pretreating
Separation by crystallization
Electrolytic regeneration
Hydrogen
Mixture gas of carbon dioxide and oxygen
Catalytic reaction
Hydrocarbon
Sodium carbonate
Separating
Carbon dioxide
Oxygen

FIG. 2

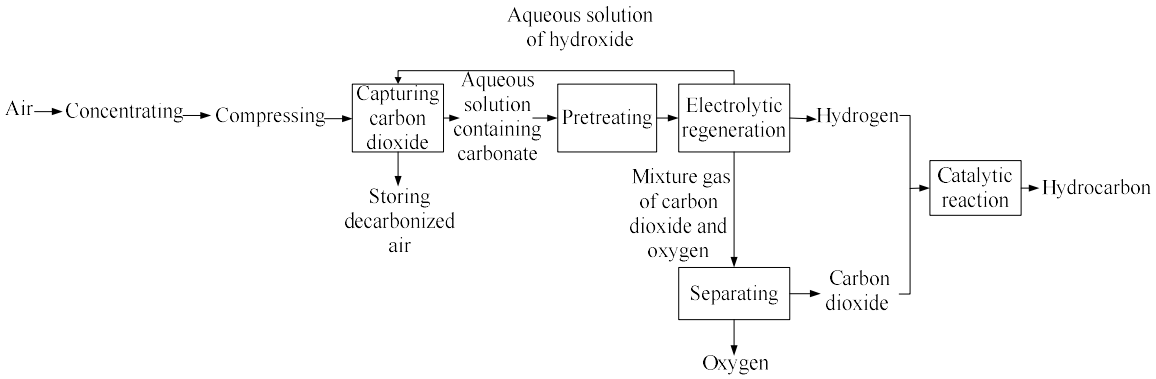

Aqueous solution of hydroxide
Air
Concentrating
Compressing
Capturing carbon dioxide
Aqueous solution containing carbonate
Pretreating
Electrolytic regeneration
Hydrogen
Storing decarbonized air
Mixture gas of carbon dioxide and oxygen
Catalytic reaction
Hydrocarbon
Separating
Carbon dioxide
Oxygen

FIG. 3

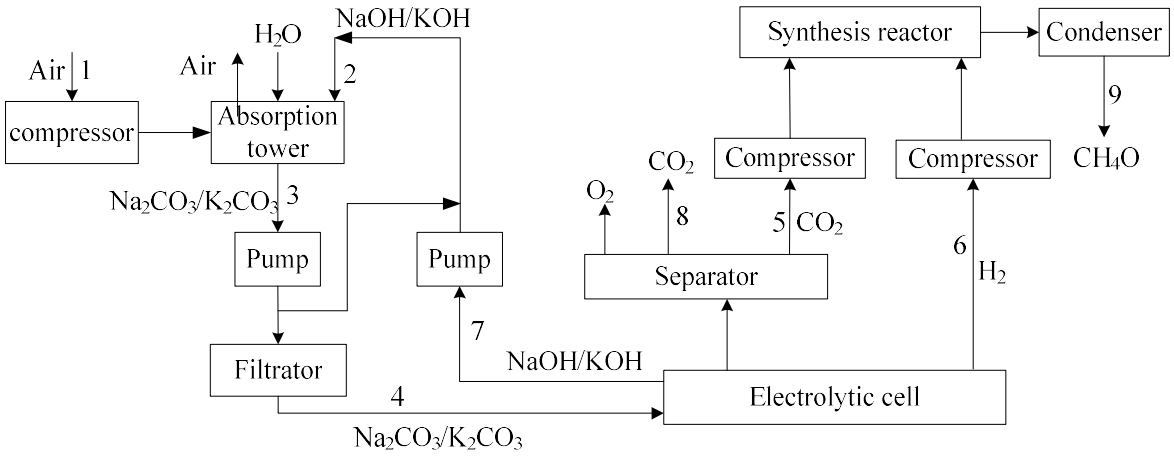

Air
1
compressor
Air
H_2O
NaOH/KOH
2
Absorption tower
Na_2CO_3/K_2CO_3
3
Pump
Pump
Filtrator
4
Na_2CO_3/K_2CO_3
7
NaOH/KOH
Electrolytic cell
O_2
CO_2
8
Separator
5
CO_2
Compressor
Compressor
6
H_2
Synthesis reactor
Condenser
9
CH_4O

FIG. 4