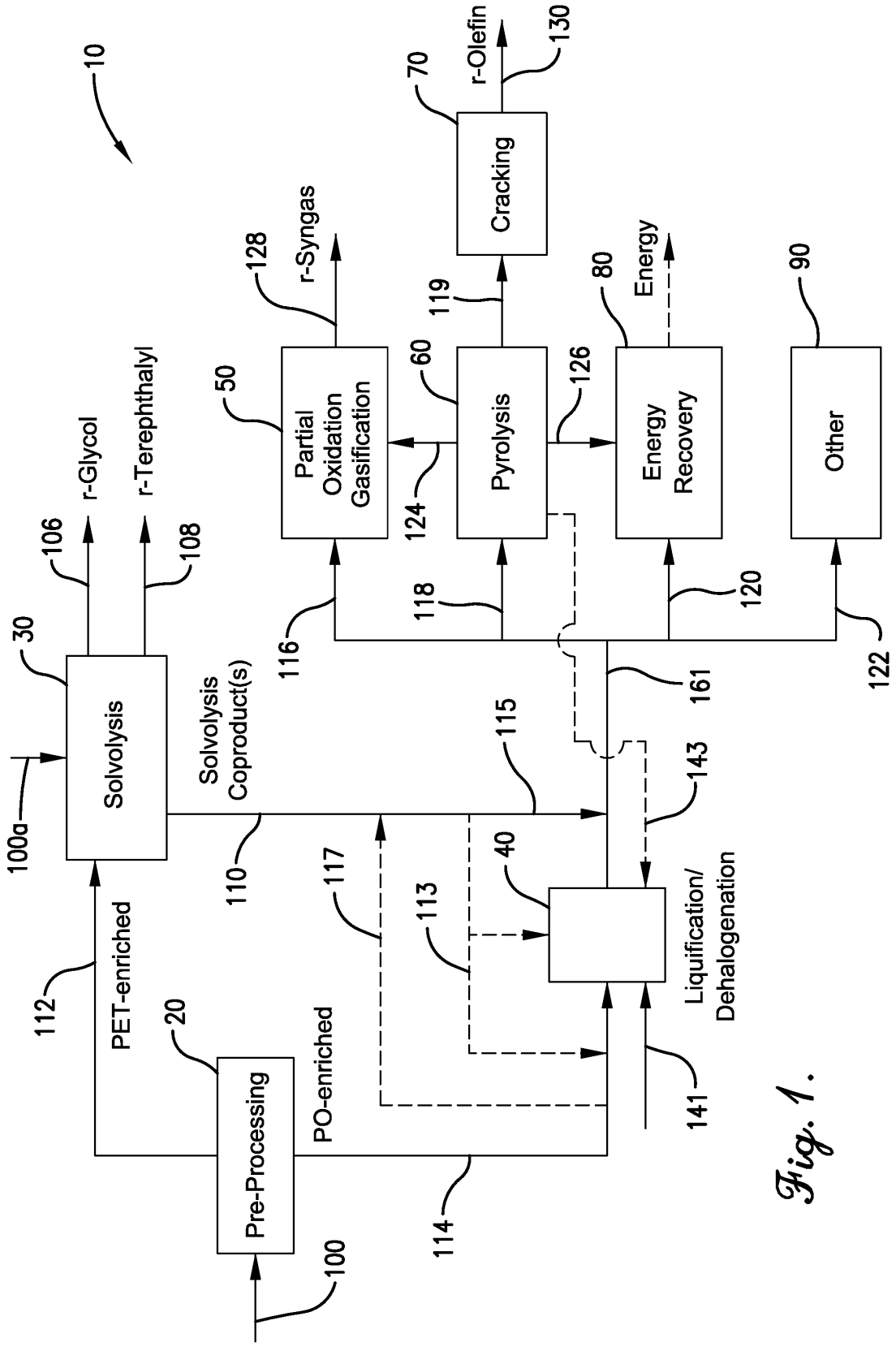
10
Pre-Processing
100
PET-enriched
112
20
PO-enriched
114
Solvolysis
100a
30
r-Glycol
106
r-Terephthalyl
108
Solvolysis Coproduct(s)
110
117
113
40
Liquification/ Dehalogenation
141
143
115
161
Partial Oxidation Gasification
50
r-Syngas
128
Pyrolysis
60
124
Cracking
70
r-Olefin
130
119
Energy Recovery
80
Energy
126
Other
90
116
118
120
122

Fig. 1.

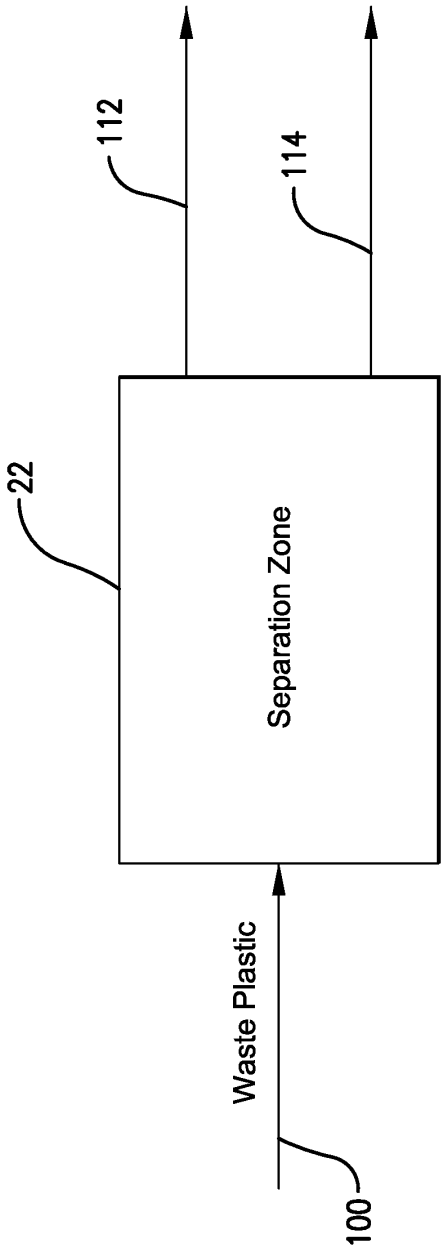

Fig. 2.

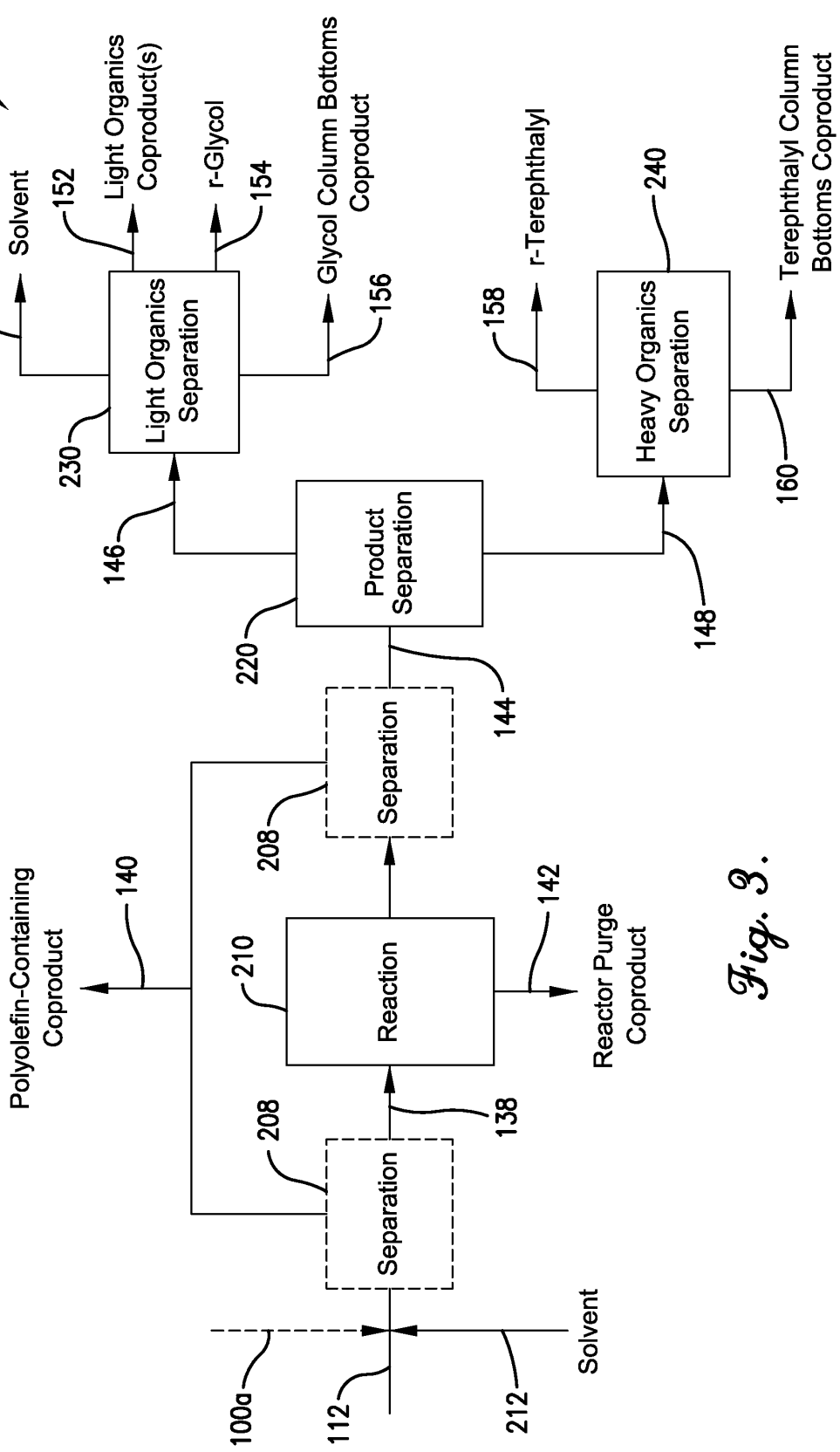
30
Solvent
150
Light Organics Coproduct(s)
152
r-Glycol
154
Glycol Column Bottoms Coproduct
156
Light Organics Separation
230
r-Terephthalyl
158
Heavy Organics Separation
240
Terephthalyl Column Bottoms Coproduct
160
Product Separation
220
146
148
144
Separation
208
Polyolefin-Containing Coproduct
140
Reaction
210
142
Reactor Purge Coproduct
138
Separation
208
100a
112
212
Solvent

Fig. 3.

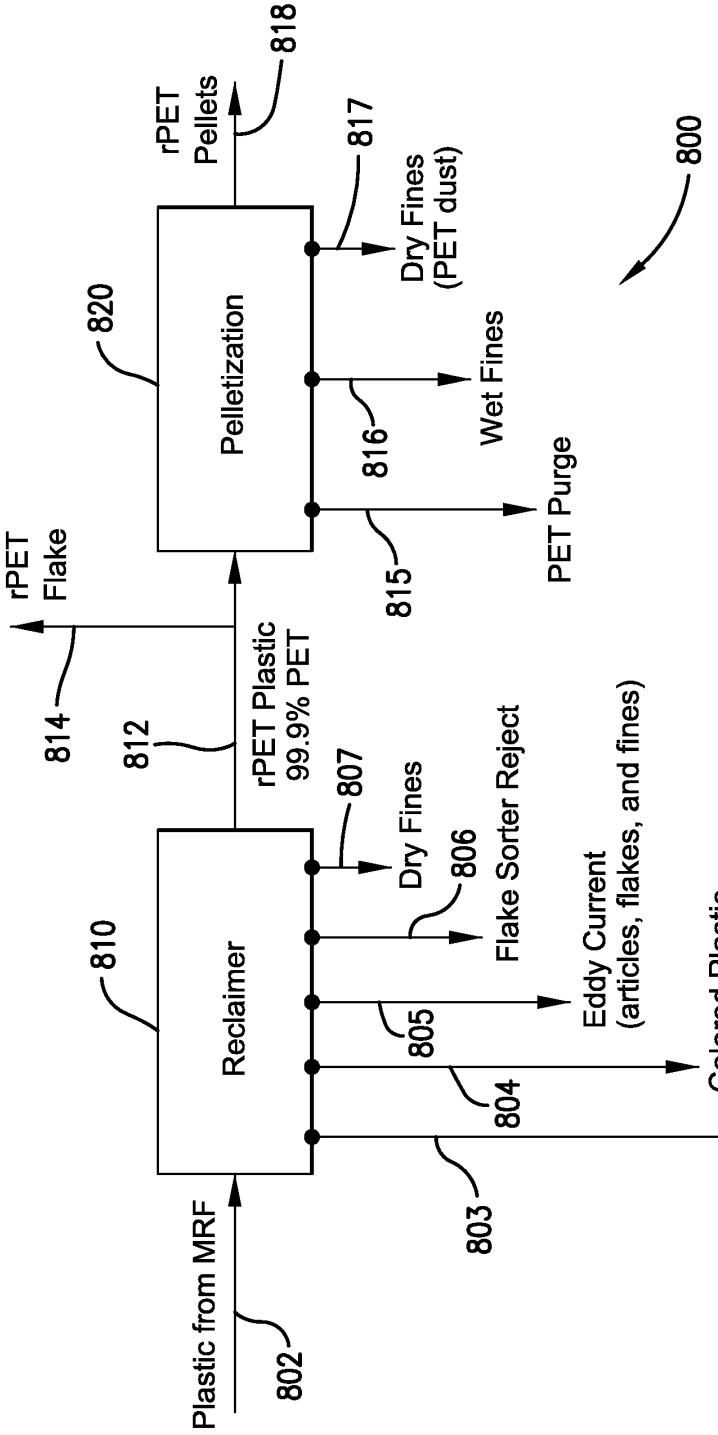
800
Plastic from MRF
802
Reclaimer
810
803
Wet Fines
804
Colored Plastic
805
Eddy Current
(articles, flakes, and fines)
806
Flake Sorter Reject
807
Dry Fines
rPET Plastic
99.9% PET
812
rPET
Flake
814
Pelletization
820
815
PET Purge
816
Wet Fines
817
Dry Fines
(PET dust)
rPET
Pellets
818

Fig. 4.

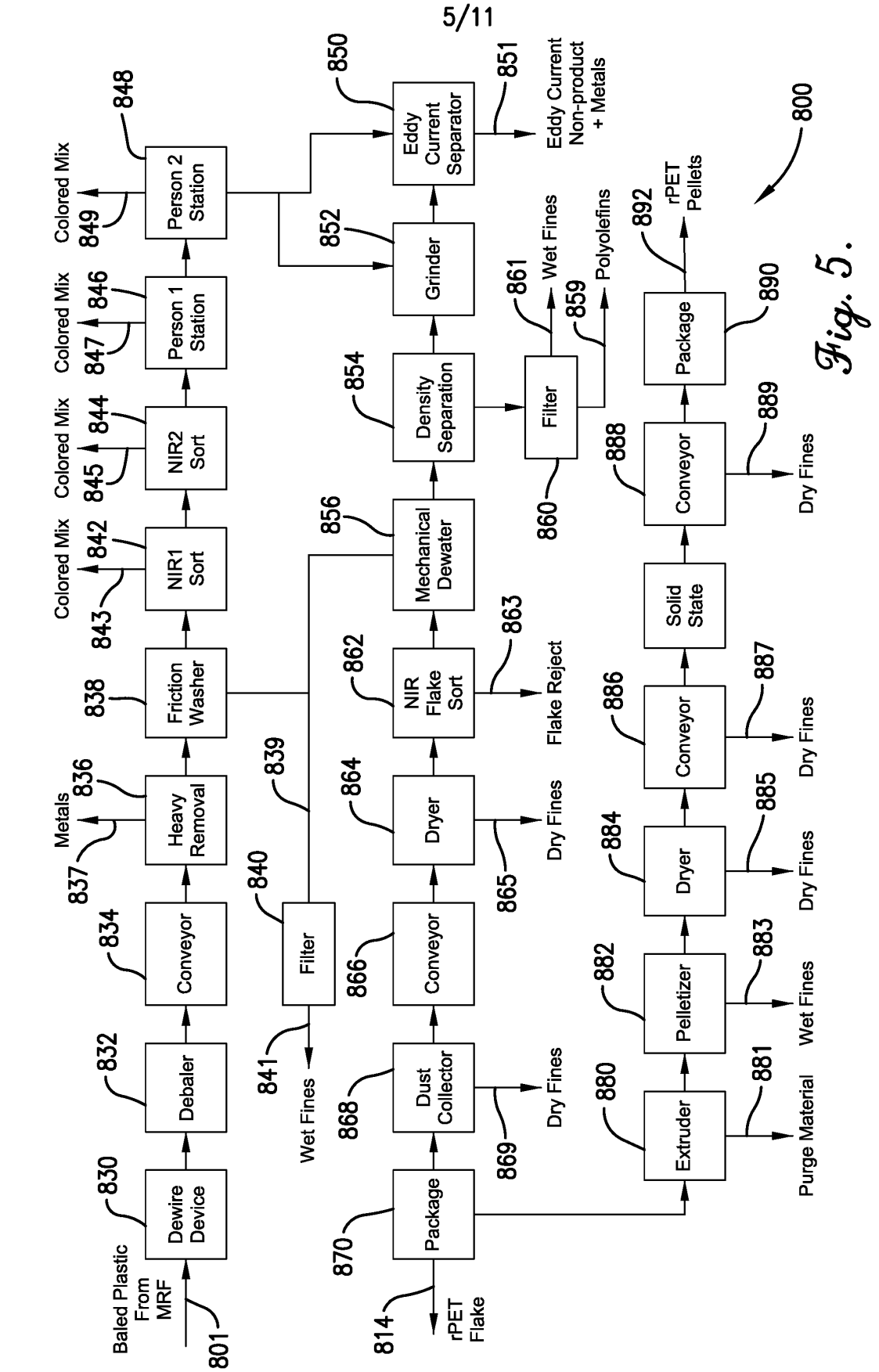
800
Baled Plastic From MRF
801
Dewire Device
830
Debaler
832
Conveyor
834
Heavy Removal
836
Metals
837
Friction Washer
838
NIR1 Sort
842
Colored Mix
843
NIR2 Sort
844
Colored Mix
845
Person 1 Station
846
Colored Mix
847
Person 2 Station
848
Colored Mix
849
Eddy Current Separator
850
Eddy Current Non-product + Metals
851
Grinder
852
Density Separation
854
Mechanical Dewater
856
NIR Flake Sort
862
Flake Reject
863
Dryer
864
Dry Fines
865
Conveyor
866
Dust Collector
868
Dry Fines
869
Package
870
rPET Flake
814
Filter
840
Wet Fines
841
Filter
860
Wet Fines
861
Polyolefins
859
Solid State
886
Conveyor
887
Dry Fines
Dryer
884
Dry Fines
885
Pelletizer
882
Wet Fines
883
Extruder
880
Purge Material
881
Conveyor
888
Dry Fines
889
Package
890
rPET Pellets
892

Fig. 5.

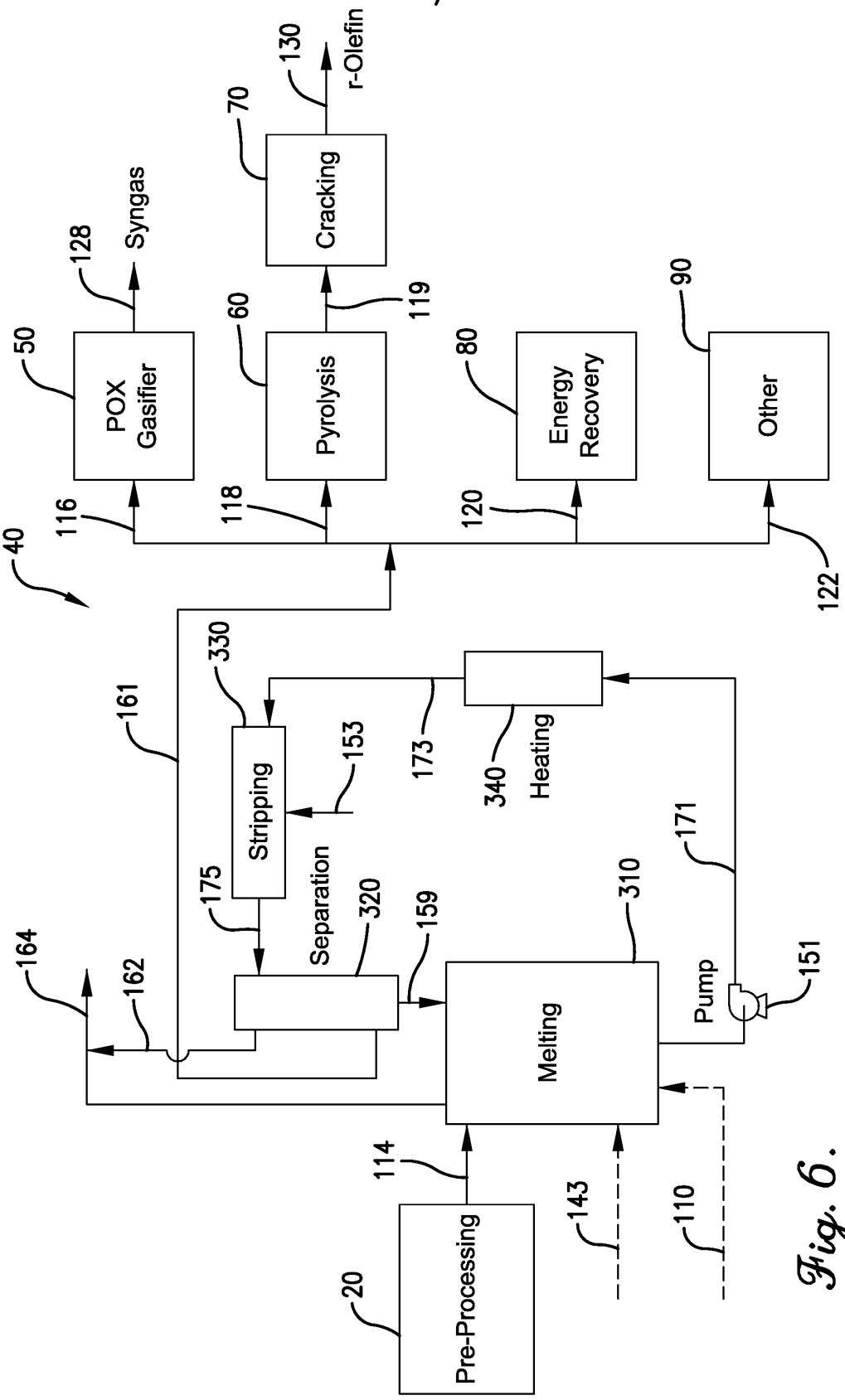
Pre-Processing
20
114
143
110
Melting
310
Pump
151
171
Separation
320
159
Stripping
153
175
161
330
173
Heating
340
164
162
40
116
118
120
122
POX Gasifier
50
Pyrolysis
60
Energy Recovery
80
Other
90
Cracking
70
119
128
Syngas
130
r-Olefin

Fig. 6.

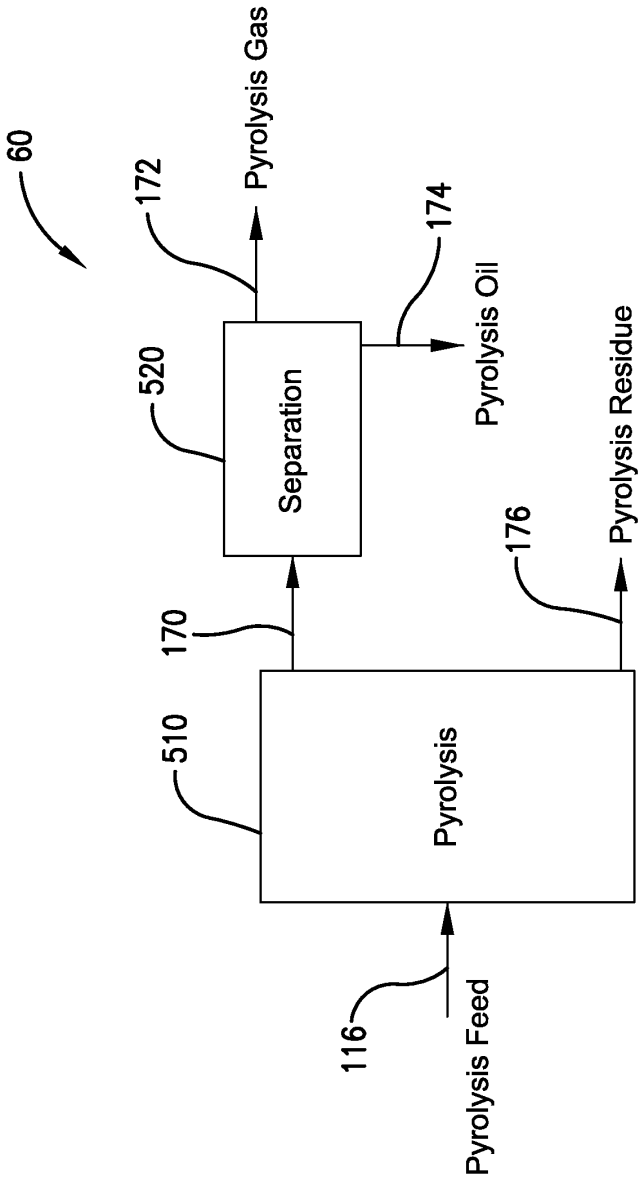
60
172
Pyrolysis Gas
174
Pyrolysis Oil
520
Separation
176
Pyrolysis Residue
170
510
Pyrolysis
116
Pyrolysis Feed

Fig. 7.

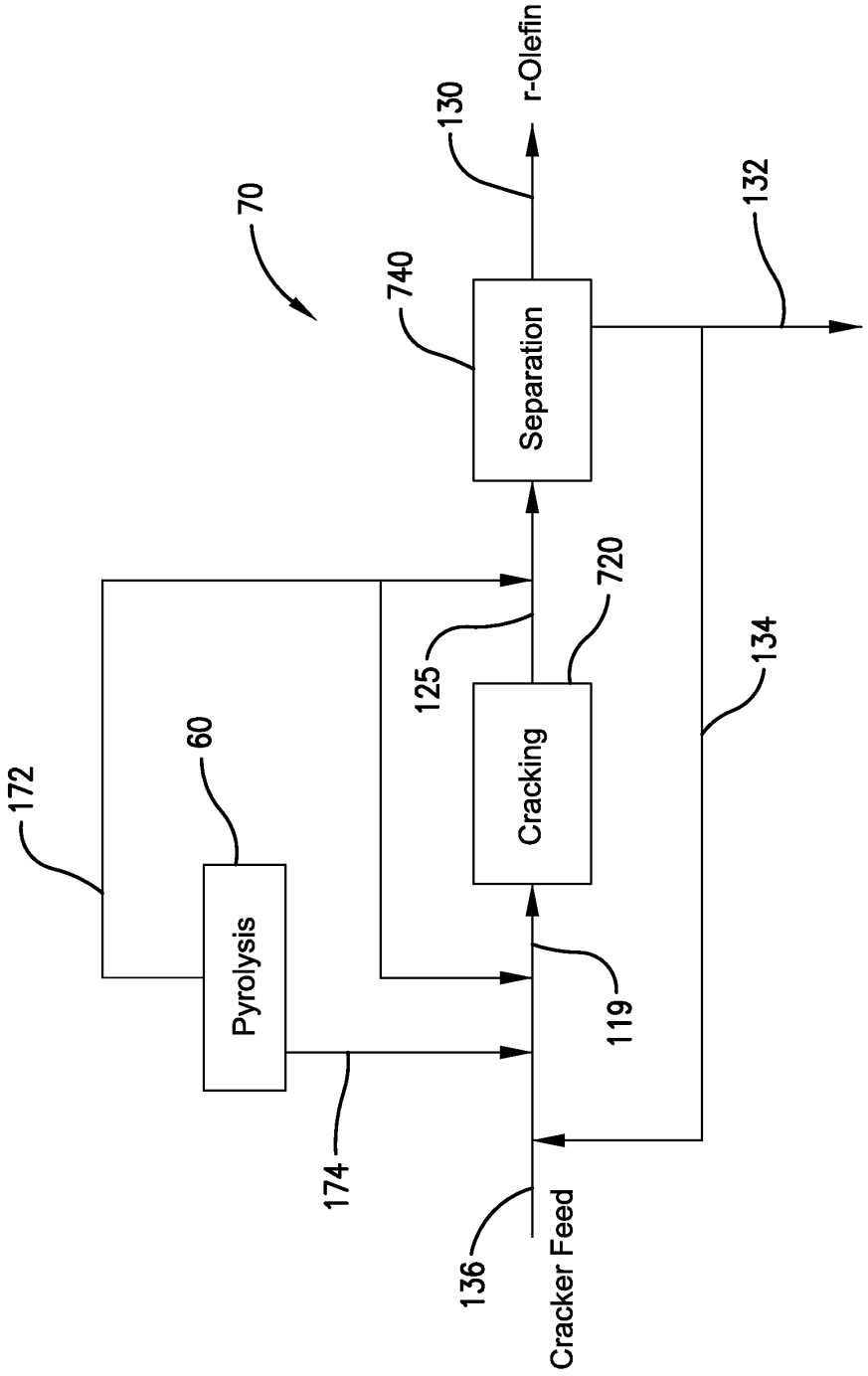
70
740
Separation
130
r-Olefin
132
720
125
Cracking
134
172
60
Pyrolysis
119
174
136
Cracker Feed

Fig. 8A.

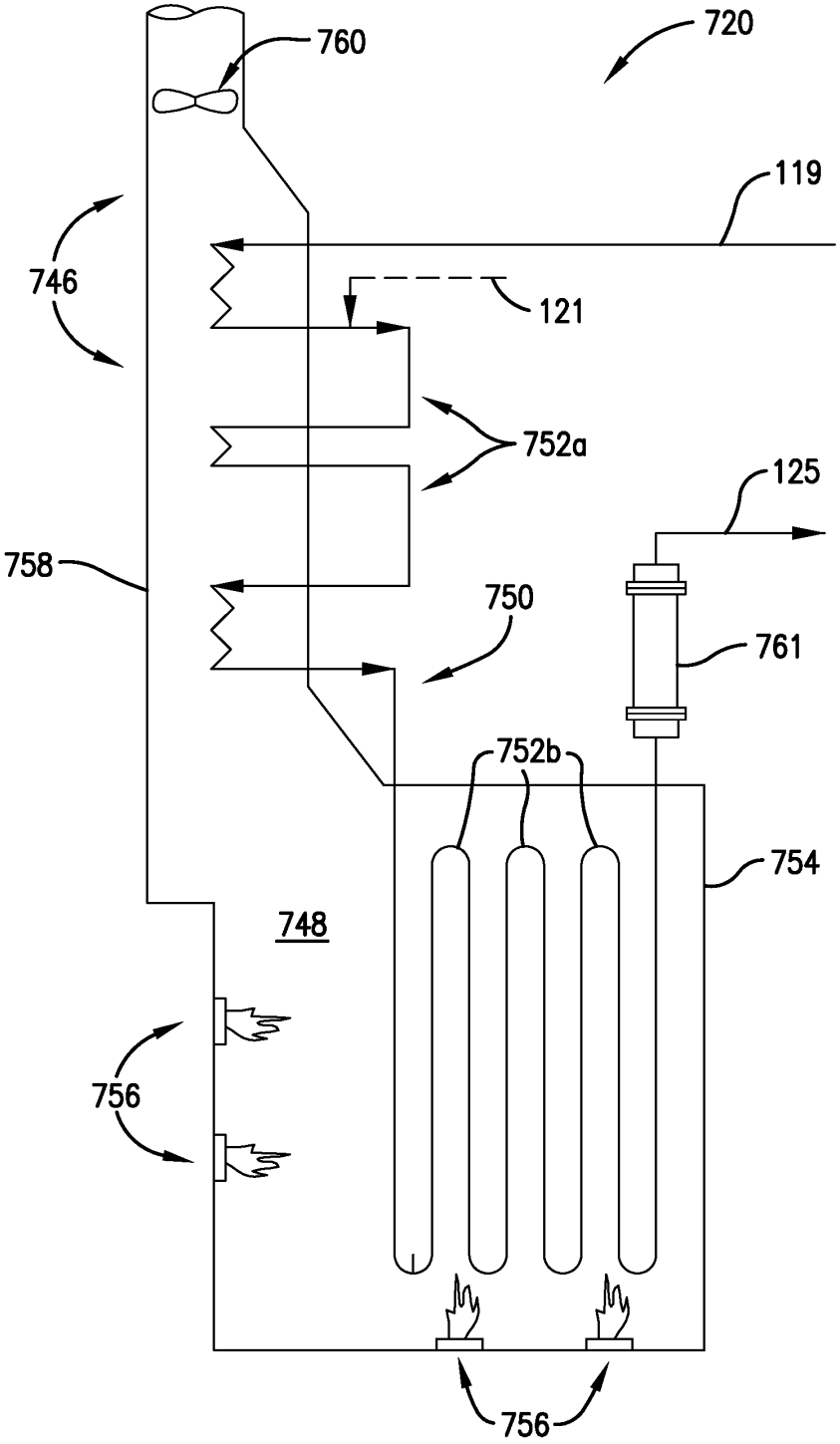

Fig. 8B.

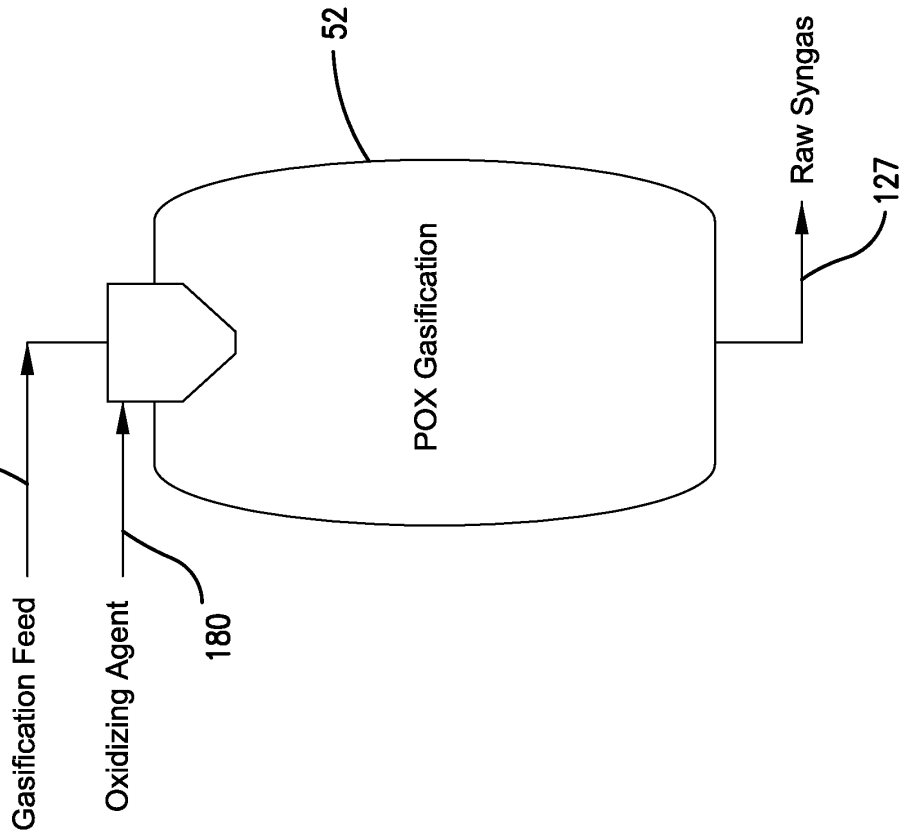
52
POX Gasification
Raw Syngas
127
116
Gasification Feed
Oxidizing Agent
180

Fig. 9.

Feed
Light
Medium
Heavy
A
B
C
Per Unit Time
Product Efficiency$_A$ = Product weight of A/feed rate of A
Contamination Efficiency$_B$ = Product weight of B/feed rate of B
Contamination Efficiency$_C$ = Product weight of C/feed rate of C
Product Purity$_A$ = Product weight of A/(product rate of A+B+C)
Per Unit Time
Contamination Efficiency$_A$ = weight of A/feed rate of A
Product Efficiency$_B$ = Product weight of B/feed rate of B
Product Efficiency$_C$ = Product weight of C/feed rate of C
Product Purity = (Product weight of B+C)/(product rate of A+B+C)

Fig. 10.