1CASCADED OR COMBINED, DIVERSE CONVERSIONS IN WHICH THE FREQUENCY OR PHASE OR COMBINED CONVERSION IS WITHOUT INTERMEDIATE CONVERSION TO D.C.

2...Current and phase (e.g., D.C.-Ph1-Ph2)

3...Phase 1 to phase 2 to D.C.

4...Single phase to polyphase to D.C.

5...With interphase transformer

6....Including plural anode/single cathode device

7...With dynamic rectifier in phase 2 to D.C. stage (e.g., commutator type)

8...Current and frequency (e.g., f1-f2-D.C.)

9...Combined phase and frequency conversion (i.e., Ph1f1-Ph2f2)

10...By semiconductor device converter

11...By electron tube converter

12...By saturable reactor converter

13CURRENT CONVERSION

14.Cryogenic

15.Including D.C.-A.C.-D.C. converter

16...Having transistorized inverter

17...Single type

18...Single-ended, self-oscillating type

19....With automatic control of the magnitude of output voltage or current

20...Single-ended, separately-driven type

21.01....With automatic control of the magnitude of output voltage or current

21.02....For resonant-type converter

21.03....Having particular zero-switching control circuit (e.g., for quasi-resonant converter, etc.)

21.04....For forward-type converter

21.05....Having digital logic

21.06....Having synchronous rectifier

21.07....Having feedback isolation (e.g., optoisolator, transformer coupled, etc.)

21.08....Having feedback winding inductively coupled to inverter inductive device (e.g., tertiary winding, etc.)

21.09....Having output current feedback

21.1....Utilizing pulse-width modulation

21.11....Having particular pulse-width modulation circuit

21.12....For flyback-type converter

21.13....Having digital logic

21.14....Having synchronous rectifier

21.15....Having feedback isolation (e.g., optoisolator, transformer coupled, etc.)

21.16....Having feedback winding inductively coupled to inverter inductive device (e.g., tertiary winding, etc.)

21.17....Having output current feedback

21.18....Utilizing pulse-width modulation

22...Double-ended (i.e., push-pull), self-oscillating type

23....With automatic control of the magnitude of output voltage or current

24...Double-ended (i.e., push-pull), separately-driven type

25....With automatic control of the magnitude of output voltage or current

26....Utilizing pulse-width modulation

27...Having thyristor inverter (e.g., SCR, etc.)

28....With automatic control of the magnitude of output voltage or current

29...Having electron-tube inverter

30...Single-ended type

31...Double-ended type (i.e., push-pull)

32...Rotary-commutator-type inverter

33...Vibrator-type inverter

34...Including an A.C.-D.C.-A.C. converter

35...For transfer of power via a high voltage D.C. link (i.e., HVDC transmission system)
For change of phase (e.g., number of phases)
By semiconductor rectifier and inverter
By electron tube rectifier and inverter
With means to introduce or eliminate frequency components
In inverter systems

By pulse modulation technique (e.g., PWM, PPM, etc.)
Including notching

By step-wave, amplitude summation technique
In rectifier systems
Including means for reducing ripples from the output
With ripple responsive, automatic control

With low pass L or LC filter
For semiconductor rectifier
With starting arrangement
Including automatic or integral protection means
For high voltage D.C. transmission systems

For rectifiers
Semiconductor type
Thyristor
For inverters
Transistor inverter
Bridge type

Having current protection (e.g., over current, short, etc.)
Including short protection across a series-connected pair of transistors (e.g., shoot-through protection, etc.)

Having voltage protection
Double-ended type
Having current protection
Having voltage protection
Single-ended type

Having current protection
Having voltage protection

Transient protection (e.g., snubber, etc.)
Thyristor inverter
Bridge type

With voltage multiplication means (i.e., V out > V in)
Including semiconductor means

For rectifying
With voltage division by storage type impedance (i.e., V out)
With means to selectively provide D.C. of either polarity
With interphase transformer
Having plural converters for single conversion
Including plural anodes and single cathode (e.g., vapor arc device)
Plural rectifiers

In series (e.g., series SCR's, bridge circuits, etc.)

In parallel
Including semiconductor device
Plural inverters
Master-slave
Constant current to constant voltage or vice versa
With condition responsive means to control the output voltage or current
Including inductive integral sensing and control means (e.g., ferroresonant circuit)
Including integral sensing and control means for rectifier
With semiconductor conversion means
Cooperating separate sensing and control means

Including plural sensing or control means
With transistor as control means in the line circuit
By rectifier
With inductive control means in the line circuit
With electron tube or valve as control means in the line circuit

For rectifier system
With thyristor control means in the line circuit
External to rectifier (e.g., pre or post regulation)
For plural phase to D.C. rectifier
For full wave rectifier with at least 1 three electrode device

April 2003
89 ....With transistor control means in the line circuit
90 ....With inductive control means in the line circuit
91 ....Saturable reactor (e.g., magnetic amplifier)
92 .......In plural phase to D.C. system
93 .......With plural control windings
94 ....With electron tube or valve control means in the line circuit
95 ...For inverter
96 .......With thyristor control means in the line circuit
97 .......With transistor control means in the line circuit
98 .....For bridge-type inverter
99 .......With electron tube or valve control means in the line circuit
100 .With manual control of the output voltage or current
101 .With auxiliary bucking or boosting EMF
102 .Using dynamoelectric machine converter
103 ..Plural collector type
104 ...Having plural field windings
105 ...Having auxiliary motor drive
106 .By circuit interrupter type
107 ..Rotating
108 ...Rectifier (i.e., A.C.-D.C.)
109 ...Inverter (i.e., D.C.-A.C.)
110 ..Vibrating
111 .Using electronic tube converter
112 ..With gap in open atmosphere
113 ..With cathode element control
114 ....In rectifier systems
115 ....With retarding or delaying control means
116 ......With discharge control means (e.g., grid)
117 .....D.C. bias control
118 ....Phase angle control
119 ....Particular waveform grid excitation
120 ....In inverter systems
121 ....With discharge control means (e.g., grid)
122 ....Grid-like electrode
123 .Using semiconductor-type converter
124 ..In chopper converter systems
125 ..In rectifier systems
126 ...Diode
127 ...Transistor
128 ....Thyristor
129 ....Plural phase to D.C.
130 ....With magnetic control means
131 ..In transistor inverter systems
132 ....Bridge type
133 ...Double ended (i.e., push-pull) type
134 ....Separately driven
135 ..In thyristor inverter systems
136 ....Bridge type
137 ....D.C. to plural phase
138 .....With commutation means
139 ...Double ended (i.e., push-pull) type
140 .Using impedance-type converter
141 .With cooling means
142 .With means to connect the input to diverse power sources
143 ..110/220 Volts A.C. in, constant 110 Volts D.C. out
144 .With conductive support mounting
145 ..Adapted for use with alternators
146 ..Encased in plug housing
147 .Integrated circuit
148

PHASE CONVERSION (PH1-PH2)

149 .With automatic voltage magnitude or phase angle control
150 .By dynamoelectric machine converter
151 .By electron tube converter
152 .By induction-type converter ..Transformer type
153 ....Stationary
154 ....With passive phase shift element
155 ....By passive phase shift elements
156

FREQUENCY CONVERSION (F1-F2)

157

APRIL 2003
With automatic frequency control
By electron tube converter
With discharge control means
...Including plural anodes and single cathode device (e.g., vapor arc device)
...Thyratron type
By induction-type converter
Transformer
...Saturable core
...LC circuit
Dynamoelectric machine
...Motor generator type
...Including induction motor
By circuit interrupter converter
MISCELLANEOUS

FOREIGN ART COLLECTIONS

FOR 000 CLASS-RELATED FOREIGN DOCUMENTS

Any foreign patents or non-patent literature from subclasses that have been reclassified have been transferred directly to FOR Collection listed below. These collections contain ONLY foreign patents or non-patent literature. The parenthetical references in the Collection titles refer to the abolished subclasses from which these Collections were derived.

CURRENT CONVERSION
.Cryogenic
...Including D.C.-A.C.-D.C. converter
...Bridge type
FOR 100 ....With automatic control of the magnitude of the output voltage or current (363/21)
FOR 101 ...Semiconductor type (363/56)