100 **PRIMARY CELL DEPOLARIZATION**
101 **WIND, SOLAR, THERMAL, OR FUEL-CELL SOURCE**
102 .With shuntless charging source control
103 **ONE CELL OR BATTERY CHARGES ANOTHER**
104 .Vehicle battery charging
105 ..Employing "jumper" cable
106 **MEANS TO IDENTIFY CELL OR BATTERY TYPE**
107 **CELL OR BATTERY CHARGER STRUCTURE**
108 .Charger inductively coupled to cell or battery
109 .Charging station for electrically powered vehicle
110 .For diverse sizes of cells, batteries, or battery packs
111 .Having plug for A-C receptacle
112 .For battery pack
113 ..With charger stand or base adapted to hold battery pack
114 .For handheld device
115 ..With charger stand or base
116 **SERIALLY CONNECTED BATTERIES OR CELLS**
117 .Switchable to parallel connection
118 .With discharge of cells or batteries
119 .With individual charging of plural batteries or cells
120 .Having variable number of cells or batteries in series
121 ..Switchable cells (e.g., for voltage regulation, etc.)
122 ..Bypassable battery cell
123 .With generator charging source
124 **SEQUENTIAL CHARGING OR DISCHARGING OF BATTERIES OR CELLS**
125 **DIVERSE CHARGING OR DISCHARGING RATES FOR PLURAL BATTERIES**
126 **PARALLEL CONNECTED BATTERIES**
127 **BATTERY OR CELL DISCHARGING**
128 .With charging
129 ..Pulsed discharge
130 ..Cycling (e.g., discharge/charge cycle, etc.)
131 ...Deep discharge (e.g., conditioning, etc.)
132 ...With state-of-charge detection
133 ...Time control
134 ..With battery or cell condition monitoring (e.g., for protection from overcharging, heating, etc.)
135 .Regulated discharging
136 ..With battery or cell condition monitoring (e.g., for protection from overcharging, heating, etc.)
137 **BATTERY OR CELL CHARGING**
138 .Plural charging sources
139 .Pulsed
140 ..With DC-DC converter (e.g., flyback supply, etc.)
141 ..Pulse modulation
142 ...Phase controlled
143 ....With voltage compensation
144 .....And temperature compensation
145 ...Pulse-width modulation
146 ..Hysteresis type (e.g., antichattering, etc.)
147 .Gas controlled
148 .With peak detection of current or voltage (e.g., delta-V or delta-I utilized, etc.)
149 .With detection of current or voltage integral (e.g., total charge, etc.)
150 .With thermal condition detection
151 ..Detection of current or voltage differential (e.g., slope, etc.)
152 ..Detection of current or voltage amplitude
153 ...Temperature compensation
154 ..Thermal switch (e.g., thermostat, bimetallic switch, etc.)
155 .Time control
156 ..Detection of current or voltage differential (e.g., slope, etc.)
157 ..Detection of current or voltage amplitude
158 ...Having solid-state control device
159 ....Detection of current and voltage amplitude
160 .Multi-rate charging (e.g., plural charge rates before a maintenance charge, etc.)
161 .With detection of current or voltage differential (e.g., slope, etc.)

162 .With detection of current or voltage amplitude
163 ..Having solid-state control device
164 ...Detection of current and voltage amplitude
165 .With current sensing to detect proper battery connection (e.g., polarity, ripple, reverse current, etc.)
166 **CAPACITOR CHARGING OR DISCHARGING**
167 .For large capacitance (e.g., "super" capacitor, memory backup capacitor, etc.)

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 Collections 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.

FOR 100 **CONDENSER CHARGING AND/OR DISCHARGING (320/1)**
FOR 101 **BATTERY CHARGING AND/OR DISCHARGING (320/2)**
FOR 102 .Including dry cells or primary batteries (320/3)
FOR 103 .."Recharging", depolarizing and/or reconditioning (320/4)
FOR 104 .Combined charging and discharging (320/5)
FOR 105 ..Plural, diversely treated batteries (320/6)
FOR 106 ...Series-parallel connections thereof (320/7)
FOR 107 ...Transposition between charging and discharging circuits (320/8)
FOR 108 ..Combined regulation of charging source or circuit and discharging circuit (320/9)
FOR 109 ..Charging source and/or circuit controlled by discharging circuit (320/10)
FOR 110 ...Starting and/or stopping of battery charging (320/11)
FOR 111 ...Charging generator control (320/12)
FOR 112 ..Discharging circuit regulation (320/13)
FOR 113 ..Alternately charging and discharging (320/14)
FOR 114 .Plural, diversely treated, batteries (320/15)
FOR 115 ..Series-parallel connections thereof (320/16)
FOR 116 ..Series-connected batteries (320/17)
FOR 117 ...Variable number in series (320/18)
FOR 118 ..Periodic or intermittent charging or discharging (320/19)
FOR 119 .High-rate, short-time charging systems (320/20)
FOR 120 .Periodic or intermittent charging or discharging (320/21)
FOR 121 .Plural rates of charging or discharging (320/22)
FOR 122 ..Decreasing rates of charging (320/23)
FOR 123 ...Three or more rates (320/24)
FOR 124 .With polarity control (320/25)
FOR 125 ..By means of reversing switches (320/26)
FOR 126 .Combined control of source and charging circuit (320/27)
FOR 127 ..Including charging circuit-making and/or breaking (320/28)
FOR 128 .Combined circuit regulation and circuit-making and/or breaking (320/29)
FOR 129 .Control responsive to predetermined conditions (320/30)
FOR 130 ..Plural, diverse conditions and/or with time-delay means (320/31)
FOR 131 ...Including voltage and current magnitudes (320/32)
FOR 132 ....For battery circuit-making and/or breaking (320/33)

FOR 133 ...For battery circuit-making and/or breaking (320/34)
FOR 134 ..Thermal condition (320/35)
FOR 135 ...For battery circuit-making and/or breaking (320/36)
FOR 136 ..Instant of, or period of time (320/37)
FOR 137 ...For battery circuit-making and/or breaking (320/38)
FOR 138 ..Voltage or current magnitude (320/39)
FOR 139 ...For battery circuit-making and/or breaking (320/40)
FOR 140 ..Speed or centrifugal forces (320/41)
FOR 141 ...For battery circuit-making and/or breaking (320/42)
FOR 142 ..Condition of battery charge (320/43)
FOR 143 ...Control by ampere-hour or watt-hour type of device (320/44)
FOR 144 ....For battery circuit-making and/or breaking (320/45)
FOR 145 ...Control by gas pressure-responsive means (320/46)
FOR 146 ..For battery circuit-making and/or breaking (320/47)
FOR 147 .With indicating, signaling and/or testing means (320/48)
FOR 148 .Battery circuit control (320/49)
FOR 149 ..With bucking and/or boosting e.m.f. in charging circuit (320/50)
FOR 150 ..By impedance in charging or discharging circuit (320/51)
FOR 151 ...Pressure-responsive type of impedance (320/52)
FOR 152 ..Unidirectionally conductive devices in battery circuit (320/53)
FOR 153 ..Battery circuit-making and/or breaking (320/54)
FOR 154 ...Plural circuit makers and/or breakers (320/55)
FOR 155 .Plural, diverse or diversely treated sources of supply for charging (320/56)
FOR 156 .Rectifying systems for battery charging (320/57)
FOR 157 ..Dynamoelectric-type rectifier (320/58)
FOR 158 ..Unidirectionally conductive-type rectifier (320/59)
FOR 159 ...Space-discharge devices (320/60)
FOR 160 .Generation systems for battery charging (320/61)
FOR 161 ..Physical starting and/or stopping of generator (320/62)
FOR 162 ...Generator used as starting means (320/63)
FOR 163 ..Generator field-winding circuit control (320/64)
FOR 164 ...Plural, diversely treated field windings (320/65)
FOR 165 ....Differentially related (320/66)
FOR 166 ...Auxiliary source or field circuit e.m.f. (320/67)
FOR 167 ...Field-winding circuit impedance (320/68)
FOR 168 ....Step short-circuited type (320/69)
FOR 169 ....Pressure-responsive type of impedance (320/70)
FOR 170 ..Armature or generating circuit shorted or grounded (320/71)
FOR 171 ..Generator structure control (320/72)

DIGESTS

DIG 10 **NONBATTERY LOAD CONTROLS CHARGING**
DIG 11 **PRIORITIZED SUPPLY OF POWER OR POWER SUPPLY COMPENSATION**
DIG 12 **PRECHARGING ANALYSIS (E.G., DETERMINING PRESENCE OF BATTERY, ETC.)**
DIG 13 **FAULT DETECTION**
DIG 14 **BATTERY ACTS AS BUFFER**
DIG 15 **POLARITY CONTROL**
DIG 16 **REMOVAL OF MEMORY EFFECT IN BATTERIES**
DIG 17 **SENSING OF "GASSING" VOLTAGE**
DIG 18 **INDICATOR OR DISPLAY**
DIG 19 .Charger status (e.g., voltmeter, etc.)
DIG 20 .Polarity
DIG 21 .State of charge of battery
DIG 22 **LINE IMPEDANCE (E.G., RESISTOR, ETC.)**
DIG 23 .Capacitor
DIG 24 .Inductor
DIG 25 **OPTICAL COUPLER**
DIG 26 **BUTTON OR HEARING AID TYPE**

DIG 27 **TRANSFORMERLESS**
DIG 28 **REGULATING TRANSFORMER (E.G., HIGH LEAKAGE, FERRO-RESONANT, ETC.)**
DIG 29 **TRANSFORMER HAVING PLURAL SECONDARIES**
DIG 30 **PLURAL TRANSFORMERS**
DIG 31 **PLURAL RECTIFIER SYSTEMS**
DIG 32 **VOLTAGE DIVIDER HAVING DIVERSE ELEMENTS OTHER THAN MERELY PLURAL RESISTORS**
DIG 33 **AIRCRAFT OR SPACECRAFT APPLICATION**
DIG 34 **ROBOT, HYBRID, RECREATIONAL OR EMERGENCY VEHICLE**
DIG 35 **HOME POWER STATION**
DIG 36 **DISTRIBUTION SYSTEM (E.G., RAILROAD LIGHTING, ETC.)**