1 **INPUT FROM INDEPENDENT POWER SOURCES**
2 .Condition responsive motor control
3 .Including manual input
4 ..And electric motor input
5 .Including electric motor input
6 .Plural outputs
7 .Worm gear in drive train
8 .One-way clutch or brake in drive train
9 .Bevel planet pinion in drive train
10 .Intermeshing planet pinions in drive train
11 **ROTARY PLANETATING OUTPUT**
12 **REVERSAL OF DIRECTION OF POWER FLOW CHANGES POWER TRANSMISSION TO ALTERNATE PATH**
13 .Input and output exchange functions
14 **CYCLICAL OR INTERMITTENT DRIVE**
15 .Plural outputs
16 .With means to adjust cycle or drive during operation
17 .Multilated or noncircular gear in drive train
18 **STEERING BY DRIVING**
19 .With condition responsive steer control
20 .With cooling or lubrication
21 .With infinitely variable drive
22 ..Variable drive is fluid drive
23 ...Hydrostatic type
24 ....Plural pump-motor sets
25 ..Belt type
26 ..Variable drive is friction drive
27 .Fluid steer control
28 .With plural power paths to a planetary transmission at each output
29 .With planetary reaction brake steering
30 ..And carrier input to planetary gearing
31 **FLUID DRIVE OR CONTROL OF PLANETARY GEARING**
32 .Diverse fluid drives
33 .Plural impeller-turbine type fluid circuits
34 ..Fill and empty type
35 .Single impeller-turbine type fluid circuit divides or combines plural power paths
36 ..Planetary gearing divides paths
37 ..Three fluid outputs
38 ...And stator
39 ..Two fluid outputs and stator
40 ...With variable fluid drive control
41 ...And mechanical drive path
42 ..Control of or by fluid drive
43 ..With speed or torque responsive clutch or brake control
44 ..Stator rotatable in reverse direction to provide drive
45 ...Turbine braked, stator provides reverse drive
46 ....And adds torque in forward drive
47 .Impeller-turbine type fluid circuit and mechanical path in parallel
48 ..With control of or by the fluid circuit
49 ...Gearing controlled by fluid circuit condition
50 ...Fill and empty type fluid circuit
51 ..With speed responsive control
52 ..And nonplanetary gearing
53 ..Planetary gearing divides paths
54 ..Sun, orbit and carrier braked
55 ..Sun and orbit braked
56 ..Sun and carrier braked
57 ..Orbit and carrier braked
58 ..Orbits braked
59 .Impeller-turbine type fluid circuit in series with planetary gearing
60 ..And condition responsive control
61 ...Control of or by fluid circuit
62 ....Control responsive to relative impeller and turbine speeds
63 .....System or servo fluid pressure controlled
64 ....Fluid circuit controlled
65 .....By lock-up clutch actuation
66 ..And nonplanetary gearing
67 ..With synchronizing of positive clutch or brake
68 ..With nonratio brake

69 ..Fluid circuit controlled
70 ...Pressure controlled
71 ..And differential in series
72 .Fluid pump and motor in one of plural paths to or from planetary gearing
73 ..Plural fluid power paths to planetary gearing
74 ..Plural outputs
75 ..Three pumps or motors
76 ..Speed responsive control
77 ...Constant speed output
78 ..Interrelated fluid unit and gear control
79 ...With constant speed ratio between input and one fluid unit
80 ..Plural speed ranges
81 ...With constant speed ratio between input and one fluid unit
82 ....Having single planet carrier
83 .Pump and motor in series with planetary gearing
84 .Control of differential planetary gearing
85 ..Special fluid
86 ..By fluid operated mechanical clutch
87 ...Operated by viscous drag
88 ...Operated by a pump responsive to differential action
89 ..Fluid resistance controls relative rotation of outputs
90 ...Fluid pumped by differential gears
91 .Fluid resistance inhibits relative rotation
92 ..Fluid damper for reaction element
93 ..Valve inhibits fluid flow
94 ...Speed or torque responsive valve control
95 ....Centrifugally actuated valve controls fluid clutch
96 .....Clutch connects planet pinion and carrier
97 .....With fluid brake control
98 ....Centrifugally actuated valve controls fluid brake
99 ...Interrelated valve control and mechanical clutch or brake
100 ....Valve control and mechanical clutch
101 .....Pump pressure engages mechanical clutch
102 ...Fluid brake(s) for plural planetary elements
103 ...Plural fluid clutches
104 ...Fluid brake for planetary element
105 ....And fluid clutch
106 ....Bevel gearing
107 ....Sun or orbit braked
108 ...Fluid clutch includes gear type pump
109 ...Planet clutched to carrier
110 ....With reversing means
111 ..Planet clutched to fluid flywheel
112 ..Fluid container connected to planet pinion
113 ..Impeller-turbine type fluid unit used as brake
114 .Fluid control of friction planetary gearing
115 ..Stepless ratio change controlled
116 .Fluid controlled mechanical clutch or brake
117 ..Temperature responsive control
118 ..Speed responsive control
119 ...Safety device
120 ...Pressure control
121 ...Ratio change
122 ....Speed responsive valve control
123 .....Electrical control
124 .....Centrifugal control
125 ..Torque responsive control
126 ...Responsive to torque reversal
127 ..Pressure regulation
128 ...Valving controls shift timing
129 ....With fluid accumulator
130 ...Manual regulator
131 ..Manually actuated ratio selector
132 ...Electrical
133 ...With safety valve
134 ...Plural selector valves
135 ...Rotary valve
136 ..With ancillary pump or governor drive
137 ...Plural pumps
138 ..With positive clutch or brake

139 ...And friction synchronizer
140 ..Spring engaged, fluid released clutch or brake device
141 ...Plural devices simultaneously spring engaged
142 ...Single fluid motor engages one device and releases other
143 ..Expanding fluid motor chamber mechanically contracts second motor
144 ..Fluid controlled one-way devices
145 ..Fluid motor controls device through cam or lever
146 ..Fluid motor structure
147 ...Radially expanding motor
148 ...With one-way device
149 **ELECTRIC OR MAGNETIC DRIVE OR CONTROL**
150 .Differential drive or control
151 .Plural power paths
152 ..With nonplanetary drive to electric or magnetic path
153 .With condition responsive control
154 .With electric or magnetic controlled brake
155 ..And manual speed selector
156 ..Electric or magnetic device disengages brake
157 ..Electric or magnetic engaged brake and spring engaged lockup clutch
158 **WITH INDICATOR OR ALARM**
159 **WITH LUBRICATON**
160 .For differential planetary gearing
161 **WITH TRANSMISSION COOLING OR HEATING MEANS**
162 **PLANET PERIPHERY SURROUNDS AXIS OF INTERACTING GEAR (E.G., ECCENTRICALLY DRIVEN TRANSMISSON)**
163 .Wabbler transmission
164 ..Single member has oppositely axially facing tooth sets
165 .Friction gearing
166 ..Variable speed
167 .Link chain gearing
168 .Gear teeth comprise rolling bodies
169 .Means to change speed ratio between input and output
170 ..Variable eccentricity
171 ..Plural power paths to planetary gearing
172 ..Condition responsive control
173 ..Plural planetary elements braked
174 .Plural outputs
175 .With releasable clutch or brake
176 .Gear has plural circumferential tooth sets
177 ..Internal and external tooth sets
178 .Circumferentially spaced connector pins
179 ..Roller bearing surrounds pin
180 .Particular gear tooth
181 .Particular counterweight
182 **PLANET PINION ENGAGES FLEXIBLE BELT OR CHAIN**
183 **PLANET PINION IS FRICTION GEAR**
184 .Plural outputs (e.g., differential)
185 .Variable speed ratio (without slippage)
186 ..Condition responsive ratio change
187 ..Releasably braked element
188 ...Plural elements releasably braked
189 ..Planet pinion is a ball
190 ..Planet pinion rotatable about axis at angle to axis of input or output gear
191 ...Planet pinion is member having axis fixed or adjustable to position perpendicular to axis of input or output gear
192 ....Pinion engages facing concave surfaces (e.g., mounted in torus)
193 ...Conical or frusto-conical planet pinion
194 ....Torque responsive means to increase contact pressure
195 .Torque responsive means to increase contact pressure
196 .Planet pinion is ball
197 .Planet pinion rotatable about axis at angle to axis of input or output gear
198 **VARIABLE SPEED OR DIRECTION TRANSMISSION COMBINED WITH DIFFERENTIAL**
199 .Condition responsive
200 .Differential is beneath prime mover or transmission

201 .Differential is between prime mover and transission in the path of power flow
202 .With universal joint in drive train
203 .Plural selectively driveable gears surround differential
204 .Variable speed or direction is planetary transmission
205 ..Plural planetary units combined with differential
206 .Transmission output shaft parallel to differential output shafts
207 **NONPLANETARY VARIABLE SPEED OR DIRECTION TRANSMISSION COMBINED WITH PLANETARY TRANSMISSION**
208 .Condition repsonsive
209 .Interrelated control of in series transmissions
210 .Nonplanetary transmission is belt or chain gearing
211 ..Plural power paths to planetary gearing
212 ...Nonplanetary transmission is chain gearing
213 ..Nonplanetary transmission is chain gearing
214 .Nonplanetary transmission is friction gearing
215 ..Plural power paths to planetary gearing
216 ...Friction gear engages facing concave surfaces
217 ...Nonplanetary transmission is disc and wheel
218 .Plural power paths to planetary gearing
219 .Plural planetary units
220 **DIFFERENTIAL PLANETARY GEARING**
221 .Differential or nondifferential planetary combined with differential (e.g., two differentials)
222 .With universal joint in drive train
223 .Including means to selectively apply rotational power to only one output
224 ..By braking other output
225 .With additional gearset between differential output and load
226 .Planet pinion is worm gear
227 ..And spur gear on pinion
228 .Worm drive on input shaft
229 ..And roller bearing supporting worm from casing
230 .Bevel gear differential
231 ..With means to limit overspeed of one output (e.g., lock-up clutch)
232 ...Centrifugal actuator
233 ...Lock-up clutch between pinion and pinion carrier
234 ...By axial movement of output gear
235 ....With spring bias on gear or clutch
236 ...Particular gear shape or tooth interaction limits overspeed
237 ...Manual actuator
238 ....Friction clutch
239 .....Plate clutch
240 ...Spring bias on overspeed limiting means
241 ....Helically coiled spring
242 ..Separate planet pinions or separate tooth set on same pinion for each output
243 ..Output gear rotatable relative to axial support shaft
244 ...Support shaft coupled to other output gear
245 ...With roller bearing between output gear and shaft
246 ..With roller bearing between gear and its support
247 ...Ball bearing
248 .Spur gear differential
249 ..With means to limit overspeed of one output
250 ...Manual actuator
251 ..Pinion axis at angle intersecting axis of output
252 ..Intermeshing planet pinions
253 ..With roller bearing between gear and its support
254 **CONDITION RESPONSIVE CONTROL**
255 .Eccentrically weighted planet
256 .Downshift responsive to high speed limit
257 .Speed responsive control adjusted or opposed by torque
258 .Centrifugally controlled clutch or brake
259 ..One-way clutch or brake
260 ..Centrifugal brake control
261 ..Positive clutch
262 ..Axially engaged friction clutch

263 .Overload release
264 ..Spring applied friction drive establishing means
265 ...Drive establishing means is friction brake
266 .Stepped, torque responsive ratio change
267 .With flywheel or centrifugal weight control
268 ..With planet pinion axis at angle to axis of mating gear (e.g., bevel gears)
269 **WITH MEANS TO VARY DRIVE RATIO OR DISCONNECT DRIVE (E.G., BRAKE OR CLUTCH)**
270 .Manual force provides reaction during drive
271 .Plural elements selectively braked
272 ..With preselection
273 ..Axis of planet pinion at angle to axis of mating gear (e.g., bevel gears)
274 ...And additional planetary gearset having axis of pinion parallel to axis of mating gear
275 ..Transmission includes three relatively rotatable sun gears
276 ...With brake for sun, carrier and orbit
277 ...With brake for plural sun gears
278 ....And brake for carrier
279 ...With brake for plural orbits
280 ..Brake for sun, carrier and orbit
281 ...Including one-way clutch or brake
282 ..Brake for sun and orbit
283 ...Including one-way clutch or brake
284 ..Brake for sun and carrier
285 ...Including one-way clutch or brake
286 ..Brake for orbit and carrier
287 ...Including one-way clutch or brake
288 ..Plural suns braked
289 ...Including one-way clutch or brake
290 ..Plural orbits braked
291 ...Including one-way clutch or brake
292 ..Including one-way clutch or brake
293 .Speed responsive clutch or brake
294 .Ratio shift initiated by reverse rotation of input shaft
295 .Plural outputs
296 .Plural drive ratios other than unity
297 ..Including one-way clutch or brake
298 .Gear shiftable axially to disconnect or vary ratio
299 ..Orbit shiftable relative to sun and carrier
300 ..Sun shiftable relative to orbit and carrier
301 .Brake or clutch on surface of helically coiled member
302 .Nonplanetary gearing combined with planetary
303 .With synchronizing clutch or brake
304 .Planet pinion is worm gear
305 .Including releasable clutch directly between planet pinion and carrier
306 .Brake for planetary transmission having axis of planet pinion at angle to axis of mating gear (e.g., bevel gears)
307 ..Including one-way clutch or brake
308 ..And lock-up clutch
309 ...Friction clutch
310 ....Plate clutch
311 .Sun braked
312 ..Including one-way clutch or brake
313 ..Intermeshing planet pinions on single carrier
314 ..And lock-up clutch
315 ...Friction clutch
316 ....Plate clutch
317 .Orbit braked
318 ..Including one-way clutch or brake
319 ..Intermeshing planet pinions on single carrier
320 ..And lock-up clutch
321 ...Friction clutch
322 ....Plate clutch
323 .Carrier braked
324 ..Including one-way clutch or brake

325 ..Intermeshing planet pinions on single carrier
326 ..And lock-up clutch
327 ...Friction clutch
328 ....Plate clutch
329 **PLURAL POWER PATHS TO PLANETARY GEARING**
330 .Plural planetary units
331 **PLANETARY GEARING OR ELEMENT**
332 .Plural outputs
333 .Planet pinion is worm gear
334 .Floating support annulus in rolling contact with planet pinion
335 .Toothed planet pinion has smooth bearing surface engaging raceway on sun or orbit gear
336 .Axis of planet pinion at angle intersecting rotational axis of mating gear (e.g., bevel gears)
337 .Plural planet carriers in series move at different speeds
338 .Coaxial teeth around planet pinion engage axially spaced relatively rotatable gears
339 ..Engage plural relatively rotatable sun gears
340 ...And orbit gear
341 ..Engage plural relatively rotatable orbit gears
342 ...And sun gear
343 .Nonplanetary gearing combined with planetary
344 .Particular gear tooth feature
345 ..Nonmetallic or resilient
346 .Floating or flexible coupling or support
347 ..Resilient member
348 .Planet pinion supported by roller bearings
349 .With manual input

FOREIGN ART COLLECTIONS

FOR **CLASS-RELATED FOREIGN DOCUMENTS**

CROSS-REFERENCE ART COLLECTIONS

900 **BRAKE FOR INPUT OR OUTPUT SHAFT**
901 **PARTICULAR MATERIAL**
902 .Nonmetallic
903 **STACKED PLANETARY GEARING**
904 **PARTICULAR MATHEMATICAL EQUATION**