

1	<b>CONDITION RESPONSIVE CONTROL OF PUMP DRIVE MOTOR</b>	26	.With condition responsive control of pump fluid valve
2	.Plural pumps having separate drive motors, supply sources, or delivery destinations	27	..Having independent means for delaying valve actuation
3	..Pumps in parallel flow paths with common inflow or outflow	28	..Fluid and motor controls have common sensing element
4	...Having means sensing condition in common inflow or outflow line	29	..Fluid and motor controls separately responsive to diverse conditions
5	....With control of plural pump drive motors	30	...Liquid accumulation controlled discharge valve downstream of motor controller sensing means
6	.....With additional means sensing condition of one pump or path	31	...Motor controller responsive to liquid pressure
7	.....Sequential starting or stopping of pumps	32	.Responsive to pump or pump fluid temperature
8	.....Alternating sequences	33	.Pump stop control means requiring manual reset
9	.By stopping pump in response to leakage into or from system	34	.By controlling internal combustion drive engine
10	.By controlling starter motor for internal combustion engine	35	.By controlling wind motor in response to liquid accumulation
11	.By controlling free piston internal combustion engine	36	.Responsive to accumulation of pumped liquid in receiver
12	.Having timer or delay means	37	..By movable liquid receptacle
13	.Responsive to pump lubricant, sealant, or coolant condition	38	..By liquid pressure sensor
14	.Having ambient condition responsive means	39	..With motive fluid supply communicating with liquid receiver
15	.With control of pump drive transmission	40	..By float
16	.With plural separate drive motors for single pump unit	41	...Controlling motive fluid or drive motor
17	.With plural separate drive motor controlling elements	42	.In response to pump speed
18	.Single motor control element responsive to means sensing diverse conditions	43	.Responsive to change in rate of pump fluid flow
19	..Sensing both inlet and outlet conditions	44.1	.By control of electric or magnetic drive motor
20	..One condition is rate of flow to or from pump	45	..By changing electrical characteristic of motor or motor circuit
21	..One is motive fluid condition of fluid drive motor	44.2	..Responsive to pump fluid pressure
22	..One condition is speed of pump	44.4	...Low pressure stops motor from turning on pump
23	...With common element sensing diverse condition to control motor and pump fluid valve	44.5	...Mercury switch
24	...Speed sensor comprises auxiliary pump or electric generator	44.6	...Dial-type sensor
		44.7	...Bellow-type sensor
		44.8	...Piston-type sensor
		44.9	...Diaphragm
		44.3	...Inlet pressure
25	.Relatively movable elements sensing same system pressure for single control element	44.11	..Responsive to change in electrical operating characteristic

46	.By controlling drive motor motive fluid	77	..Recirculation of separated motive fluid
47	..Rotary nonexpansible chamber-type motor	78	..Entrainment at exit of impeller
48	<b>ELECTRICAL OR GETTER TYPE</b>	79	..Jet delivers back to generating pump
49	.Ionic with gettinger	80	...Rotary nonexpansible chamber-type generating pump
50	.Electromagnetic	81	...Multiple-stage rotary pump
51	.Getter heating, vaporizing, or regeneration	82	...Changeable jet location (e.g., deep or shallow well)
52	<b>EXPANSION AND CONTRACTION OF PUMP FLUID</b>	83	...Jet within rotary pump casing
53	<b>PROCESSES</b>	84	..Rotary nonexpansible chamber-type generating pump
54	.Of pumping one fluid by contact or entrainment with another	85	.Diverse pumps
55	..Specific motive fluid	86	..Including pneumatic displacement
56	<b>DRILLED WELL FREE PISTON-TYPE PUMP</b>	87	..Including jet pump
57	.Having condition or position responsive control of pump discharge flow path	88	..Diverse pump motor exhaust is jet motive fluid
58	.Having condition or position responsive control of motive fluid supply	89	...With rotary nonexpansible chamber type
59	.Radially expansible piston portion controls pump and motor chamber intercommunication	90	..Including aerated column
60	.Mechanically actuated valve carried by piston	91	..Diverse pump motor exhaust is aeration fluid
61	<b>BUOYANTLY SUPPORTED</b>	92	.Liquid piston
62	<b>ALTERNATE SERIES OR PARALLEL OPERATION OF PLURAL PUMPS</b>	93	..Moving contracting chamber
63	<b>WITH SIGNAL, INDICATOR, OR INSPECTION MEANS</b>	94	...Helical chamber
64	<b>GAS PRESSURE EXCHANGE USING ROTARY CELLULAR CONVEYOR</b>	95	...Movement of chamber cyclically controls flow of liquid into chamber for cyclic operation
65	<b>ONE FLUID PUMPED BY CONTACT OR ENTRAINMENT WITH ANOTHER</b>	96	...Liquid supporting chambers move liquid to pump fluid
66	.Contact or entrainment within rotary impeller	97	...Relatively movable chambers
67	..Passage in impeller shaft for pumped or motive fluid	98	...Reciprocating
68	..Liquid ring	99	..Mercury piston
69	...With diverse pump	100	..Tide or wave
70	..Peripheral motive fluid inlet	101	..Piston level responsive control for cyclic operation
71	..Axial inlet for pumped fluid	102	...Plural chambers
72	...Peripheral pumped fluid outlet	103	..Plural chambers
73	.By ignition of motive fluid	104	..Momentum piston
74	..With pumped fluid condition responsive ignition means	105	.By condensation of motive fluid
75	..With fluid momentum utilizing means	106	..Plural alternating pumps
76	.Jet pump with motive fluid generating pump	107	..With condition responsive control means
		108	.Aerated column
		109	..Valved gas inlet
		110	...With pumped fluid velocity or flow responsive valve operating means
		111	...Plural serially actuated valves

112	...With flexible pressure responsive sensing element (i.e., bellows, diaphragm, etc.)	136	...With control of pumped fluid inlet
113	...Sensing element controls pilot valve	137	..Cyclic pumping
114	..With pilot valve	138	...Control by liquid level sensing means
115	..Valve member actuated responsive to absolute gaseous motive fluid pressure or flow rate	139	...Control by condition of pumped fluid
116	...Controlled by means responsive to liquid level accumulation in column	140	...Movable pumping chamber
117	...Valve biased open by static pressure of pumped fluid	141	...Responsive to flow of pumped fluid
118	..Liquid pumped by supplying or exhausting gaseous motive fluid to or from pumping chamber	142	...Responsive to pumped fluid pressure
119	..Motive fluid pumped by contact with a liquid	143	...Motive fluid supply or exhaust valve responsive to motive fluid pressure
120	..With condition responsive control of motive fluid vacuum or pressure generating means	144	...Correlated motive fluid valve and pressure or vacuum generating means
121	..Serially connected pumping chambers	145	...Correlated supply - exhaust of motive fluid or vacuum generating means
122	..Alternate pumping from plural pumping chambers	146	...With pilot valve
123	..Motive fluid in one chamber controlled by condition in second chamber	147	...Unitary supply - exhaust valve
124	...Responsive to weight of pumped fluid	148	..With vacuum generator
125	...Responsive to liquid level of pumped fluid	149	..With pressure generator
126	..With float actuated control means	150	..Gravity flow motive fluid
127	...Plural floats in single pumping chamber	151	..Jet
128	..With intermediate pilot valve	152	..Vapor condensation vacuum diffusion type
129	..With intermediate electrical actuating means	153	...With cooling or heat insulation means
130	...Control of motive fluid inlet (e.g., atmosphere, etc.)	154	...Vertical stack from generator with reverse flow nozzle
131	...With control of motive fluid outlet	155	..Flue type
132	....With control of pumped fluid outlet	156	...With spark arrester
133	....With overcenter valve actuator means	157	...Regulation
134	...Control of motive fluid outlet	158	..With motive fluid generator
135	...With control of pumped fluid outlet	159	...Internal-combustion engine motive fluid source
		160	..Cleaning by separate fluid or diverted motive fluid
		161	..Radial disc-type motive fluid jet
		162	..Interrelated overflow and motive fluid valves
		163	..Successive introduction of motive fluid
		164	...With interstage cooling
		165	...Individually controlled motive fluid flows
		166	...Sequential
		167	...Central and peripheral motive fluid supply

168	...One motive fluid flow surrounds nozzle tube of another	199.2	.Priming and venting
169	...Laterally spaced parallel motive fluid flows	200	.Priming with liquid level responsive control
170	...In-line motive fluid flows	201	.Including rotary nonexpansible chamber type
171	..Tangential motive fluid supply (i.e., vortex type)	202	..Diverse pump controlled by rotary pump condition
172	..Concentric reverse flow motive fluid and discharge conduits	203	..Preceding diverse pump
173	..With cooling	204	.Moving partition or cylinder of rotary pump forms or actuates reciprocating pump
174	..Successive entrainment of pumped fluid	205	.Series
175	..With priming or overflow removal jet	206	..Rotary expansible chamber type precedes reciprocating
176	..Parallel entrainments with separate combining tubes	207	<b>BY HEATING OF PUMPED FLUID</b>
177	..Annular motive fluid stream entrains pumped fluid outside and inside	208	.Vapor generator type
178	..Selectively usable flow confining members (e.g., nozzles, combining tubes, etc.)	209	..With inlet valve
179	..Plural motive fluid jets or sources for single entrainment	210	<b>PUMP FLUID BIASED OVERCENTER LOAD EQUALIZER</b>
180	...Individual or relative control	211	<b>INERTIA-TYPE PUMPING MEMBER OR DRIVE MEANS</b>
181	..Faucet or flexible hose attached	211.5	<b>LIQUID LEVEL RESPONSIVE CONTROL OF DISPLACEMENT, VOLUMETRIC CAPACITY, OR DRIVE TRANSMISSION</b>
182	..Regulation	212	<b>CONDITION RESPONSIVE CONTROL OF DRIVE TRANSMISSION OR PUMP DISPLACEMENT</b>
182.5	...Liquid level responsive	213	.Having condition responsive pumped fluid control
183	...By position of nozzle relative to combining tube	214	.Having means to hold or resist movement of pumping element
184	...Pressure controlled	215	.By changing phasing of plural pistons in single chamber
185	...With main line downstream control	216	.Plural pumps with individual or relative control
186	...By bypassing motive fluid from nozzle	217	.Reversible flow pump
187	...By controlling motive fluid	218	.Adjustable cam or linkage
188	...Interrelated with pumped fluid control	219	..Radially adjustable stator
189	...Pressure controlled	220	...Rotary expansible chamber pump
190	...Pumped fluid inlet valve	221	..Radial cam or eccentric
191	...Pressure controlled	222.1	..Axial cam
192	...Pressure controlled overflow	222.2	...With sump pressure actuation
193	...By movable conduit or conduit wall (e.g., combining tube)	223	.Disconnectable drive element (e.g., clutch, belt, shifter, etc.)
194	..With means to whirl pumped fluid	225	<b>INTENSIFIER</b>
195	..Specific material	226	.Ram type
196	..Expressed mathematically or dimensionally	227	..Multiple drive pipe
197	..Peripheral motive fluid supply	228	<b>WITH CONDITION RESPONSIVE CONTROL OF COOLANT OR LUBRICANT OPERATED BY ART DEVICE</b>
198	..Specific motive fluid nozzle	229	.Chair
199.1	<b>DIVERSE PUMPS</b>	230	.Vehicle mounted or attached
		231	..Scoop type
		232	

233	..Wheel or axle	266	..Three or more
234	<b>AMBULANT, BODY SUPPORTED, OR WITH CARRYING HANDLE</b>	267	..Series double acting
235	.Pump driven by traverse movement	268	..Unidirectionally acting rigidly connected pumping members
236	<b>CONVERTIBLE TO APPARATUS OF A DIFFERENT CLASS</b>	269	<b>THREE OR MORE CYLINDERS ARRANGED IN PARALLEL, RADIAL, OR CONICAL RELATIONSHIP WITH ROTARY TRANSMISSION AXIS</b>
237	.Motor and pump	270	.Condition responsive fluid control
238	<b>CHANGEABLE BY ASSEMBLY OR DISASSEMBLY</b>	271	.Motor driven
239	.For reverse drive or flow	272	.Continuous unidirectional fluid bias on reciprocating member
240	<b>INERTIA LIQUID PISTON (E.G., MOMENTUM, ETC.)</b>	273	.Radial cylinders
241	.Movable confining means	274	<b>CONDITION RESPONSIVE VARIABLE VOLUMETRIC CAPACITY EXPANSIBLE CHAMBER PUMP (I.E., CLEARANCE CONTROL)</b>
242	<b>POSITION RESPONSIVE BYPASS BETWEEN PLURAL PUMP CHAMBERS WITH INTERCOOLER</b>	275	.Valved clearance chamber
243	<b>SUCCESSIVE STAGES</b>	276	..Connectable clearance chambers of opposed pump chambers
244		277	..Plural chambers connected to single pump chamber
245	.Fluid motor for one stage supplied from another stage	278	<b>EXTERNAL CONDITION RESPONSIVE PUMPED FLUID CONTROL</b>
246	.Stages driven by relatively movable motor working members	279	<b>WITH CONDITION RESPONSIVE PUMPED FLUID CONTROL</b>
247	..Rotary	280	.Responsive to pump created drive motor condition
248	.Parallel stages to or from single stage	281	.Lubricant condition responsive
249	.Prior stage delivers to atmospheric chamber	282	.Plural separate sensing means for a single fluid controller
250	.With interstage intake or additional inlet to latter stage	283	.Bypass or relief valve controls venting by movable pump chamber part
251	.With interstage discharge or additional discharge from former stage	284	.Bypass or relief valve carried by movable pumping member
252	..Pressure responsive interstage discharge	285	.Valve passage directly connecting concurrently contracting and expanding nonrotary pump chambers
253	.Condition responsive control of fluid	286	.Plural pump units with individual or relative control
254	.Reciprocating rigid stages	287	..Diverse capacity pumps
255	..Crankcase forms stage or interstage flow path	288	..Sequentially operated separate relief or bypass passages
256	..Stages comprise oppositely moving valved pumping members	289	.Variable cutoff or pumping member controlled port
257	...Aligned	290	.Having timer or delay means for fluid controller
258	..Reciprocating cylinder and piston	291	.Reversibly driven pump having bypass active in either flow direction
259	..Including valved piston	292	.Pumped fluid temperature responsive
260	...Piston forms or carries inlet and outlet valve for one stage		
261	...Serial interstage distributors in piston		
262	...Valve in piston is first stage inlet valve		
263	...With additional pumping member in parallel flow path		
264	...Fluid motor driven		
265	..Relatively movable		

293	.Driven pump part speed responsive	322	.Magnetostrictive chamber
294	..Centrifugally actuated	323	.Pump motor or starter driven by pump fluid
295	.Inlet throttle or stop valve	324	.Pump operated as motor to start prime mover drive
296	.Bypass or relief valve part carried by or carries distributor part	325	.Reversely rotated for starting
297	.Expansible chamber pump distributor operation modified	326	.Including means for selectively varying motor speed or rotary motor direction
297.5	..Liquid level responsive	327	.Reaction motor
298	..Inlet valve	328	.Spring or weight motor
299	.Normally open bypass or relief passage closed by increased pressure or flow	329	..Fluid weight (e.g., gravity vessel)
300	.Fluid flow rate responsive	330	.Tide or wave motor
301	.Inlet pressure increase opens bypass from pump inlet to discharge	331	..Float
302	.Plural paths having individual condition responsive control means	332	...Pivoted
303	..Sequentially opened main line and bypass or relief paths	333	...Guided
304	..Plural bypass or relief paths	334	.Fluid current motor
305	.Manual actuation of condition responsive valve	335	..Including alternate drive
306	.Pump inlet or pump chamber vented to ambient (e.g., vacuum breaker)	336	..Rotary parallel axis type
307	.Pressure responsive relief or bypass valve	337	.Buoyant motor
308	..Having additional relief or bypass valve	338	.Relatively movable pumping members driven by relatively movable working members
309	..Responsive to pump inlet condition	339	..Nonrotary pumping and fluid motor working members
310	..Rotary expansible chamber pump	340	...Common expansible chamber for oppositely movable working members
311	..Adjustable spring loaded valve	341	...Mechanically interconnected
312	<b>WITH MUFFLER ACTING ON PUMP FLUID</b>	342	...Including closed fluid interconnection between working members
313	<b>COMBINED</b>	343	...Including mechanical interconnection to cause relative motion
314	<b>SINGLE ACTING CHANGEABLE TO OR FROM DOUBLE ACTING</b>	344	...Position of one working member controls motive fluid valve for another
315	<b>REVERSE FLOW WITH UNIDIRECTIONAL DRIVE OR UNIDIRECTIONAL FLOW WITH REVERSE DRIVE</b>	345	...Control by single member responsive to position of each of plural working members
316	<b>CORRELATED PUMP AND MOTOR OR CLUTCH CONTROL</b>	346	...Independently operated valve for each working member
317	.Pump distributor control	347	...Single member controls motive fluid for each working member
318	..Mechanically interconnected pump and fluid motor distributors	348	.Common rotary pumping and fluid motor working member
319	<b>INCLUDING DISENGAGEABLE ROTARY OR FRANGIBLE DRIVE CONNECTION</b>	349	.Common pump and motor chamber
320	<b>SERIALLY FORMED PUMPING CHAMBERS (E.G., ENDLESS)</b>	350	.Motor rotor intermediate coaxial pump rotors
321	<b>MOTOR DRIVEN</b>	351	.Pump rotor intermediate coaxial motor rotors
		352	.Motor within rotary pumping member

353	..Armature within pumping member	374	.Including manual, mechanical, or diverse drive
354	...Stator within armature	375	.Fluid motor
355	.Pump within rotary working member	376	..Steam motor discharge into pump fluid
356	..Pump within armature	377	..Serial flow fluid from pumping chamber through motor working chamber
357	.Pump fluid communicates with sealed chamber containing armature	378	...Pulsator type
358	.Pump - motor unit raised in vertical conduit by pressure fluid applied below unit	379	..With motive fluid generator
359	.Adjustable motor and pump rotor unit or relatively adjustable aligned pump and motor rotary shafts	380	...Internal-combustion engine
360	.Including means for facilitating assembly or disassembly of pump to or from motor or fixed support	381	...Combustion products generator for motor
361	.Pump and motor unitarily adjustable relative to fixed support	382	...Plural pumping members; one additionally supplying motive fluid for second
362	.Pump and motor interconnected by endless flexible transmission element	383	...Pulsator or fluid link
363	.Resiliently mounted pump or motor	384	...Pneumatic
364	.Internal-combustion engine	385	...With means to supply or vent pulsator fluid
365	.Axial thrust balancing means for rotary pump and motor	386	....Working member position responsive
366	.Including means utilizing pump fluid for augmenting cooling, lubricating, sealing, or cleaning of motor	387	....Pulse piston position responsive
367	..Heat exchange means between pump fluid and secondary motor contacting fluid	388	....Pressure responsive
368	..Including additional means for motivating fluid flow to or from motor (e.g., auxiliary pump, pump fluid induced flow path, etc.)	389	...Plural collapsible walls
369	..Pump fluid directed to motor via downstream branched flow path	390	...Fluid pump
370	...Recirculated through pump	391	..Motor discharge into or upstream of pumping chamber
371	..Pump fluid flows serially from motor through pump	392	..Common pumping and motor working member
372	.Interrelated or common lubricating or cooling means for pump and motor	393	..With additional unitary common pumping and motor working member
373	.With means to prevent heat transfer between pump and motor	394	...Collapsible common member
		395	...Diaphragm
		396	..Rectilinearly reciprocating motor working members coaxial with intermediate unitary pumping member
		397	..Rectilinearly reciprocating pumping members coaxial with intermediate unitary motor working member
		398	..Rectilinearly reciprocating cylinder and piston-type motor
		399	...Rectilinearly reciprocating cylinder and piston-type pump
		400	....Interconnected moving cylinder and piston
		401	....Integral pump and motor pistons
		402	....Constantly applied force in education stroke direction
		403	....Double acting motor piston

404	.....Double acting pump piston	424.2	...Motor mounted below pump
405	..Rotary motor	410.2	..Having piezoelectric driven blade
406	...Unitary pump and motor rotors	410.3	..Rotary expansible chamber pump
407	....Overhung from central support	410.4	...Interengaging rotary pumping members
408	....Axial flow motor and pump	410.5	...Helical pumping member having planetary movement (e.g., scroll)
409	....Axial flow motor and centrifugal pump	425	<b>SEPARATE MANUAL AND POWER DRIVEN PUMPING MEMBERS</b>
410.1	.Electric or magnetic motor	426	<b>PLURAL PUMPS WITH INDIVIDUAL OR RELATIVE CONTROL</b>
411	..Including electric power generating or storage means	427	.Distributor adjustment
412	..Collapsible wall pump	428	.Bypass control
413.1	...Diaphragm type	429	.Adjustment with respect to common drive
413.2	....Piezoelectric driven	430	<b>INCLUDING MEANS TO (1) AGITATE PUMP FLUID, OR (2) PREVENT FOREIGN MATERIAL SETTLING FROM PUMP FLUID</b>
413.3	....Of semiconductor material (e.g., silicon, germanium, etc.)	431	.By application of separate fluid
414	..Internal - external pressure balancer	432	<b>INCLUDING APPLICATION OF SEPARATE FLUID TO PUMP VALVE</b>
415	..Reciprocating rigid pumping member	433	.Liquid pool seal for gas pump valve
416	...Reciprocating motor	434	<b>INCLUDING SEPARATE PORT ON NONCYCLIC VALVE FOR DRAINING PUMP PORTION</b>
417	....Unitary pump and motor working member	435	<b>INCLUDING SEPARATE PORT ON NONCYCLIC VALVE FOR VENTING OR FILLING PUMP PORTION</b>
418	.....Opposed pumping member faces (e.g., double acting)	436	<b>TRANSVERSELY MOVABLE IMPELLING MEMBER (E.G., PADDLE)</b>
419	...Relatively movable pumping members	437	<b>EXPANSIBLE CHAMBER TYPE</b>
420	..Pump magnetically coupled to rotary drive	438	.Liquid coolant introduced into gas pump chamber or inlet
421	..Trapped air motor seal (i.e., diving bell type)	439	.Having additional chamber intake connection from nonpumping space
422	..Sealed service conduit	440	.Having separate noncyclic valve (e.g., bypass, etc.)
423.1	..Rotary motor and rotary nonexpansible chamber pump	441	..For serial control of pump fluid (e.g., throttle valve)
423.2	...Vacuum cleaner	442	.Selectively usable plural inlet or outlet distributors for single chamber
423.3	...Submersible type	443	.Pressure responsive distributor opened responsive to pumping member position
423.4	...Turbomolecular pump	444	..Distributor in piston
423.5	...Plural units	445	...Including means to open distributor in fixed chamber wall
423.6	...Having nonflexible means to transmit power between motor shaft and pump shaft		
423.7	...With specific motor details		
423.8	...Having additional means to remove heat from pump or motor		
423.9	...Having means to prevent debris from entering pump		
423.15	...Having means to mount pump and motor in working position		
423.11	...Having means to prevent fluid leaking between pump and motor		
423.12	...Having bearing		
423.13	....With lubricator		
423.14	...With specific housing details		
424.1	...Supported for rotation on vertical axis		

446	.Having means for holding pressure responsive distributor open	470	.Biasing means effects induction stroke of abutment driven, vacuum producing pumping member
447	.Pressure responsive distributor continuously biased open	471	.Biasing means effects eduction stroke of abutment driven, pressure producing pumping member
448	.Pump mounted in vertical tubular flow conduit removable as unit by driving rod manipulation	472	.Bellows-type chamber
449	..Removable unit having piston normally fixed in conduit	473	..Plural bellows
450	..With latching or anchoring means released by rod movement	474	.Elongated flexible chamber wall progressively deformed
451	.Valve element mounted in fixed chamber wall removable with pumping member	475	..Plural chambers
452	..By separable engageable connecting elements	476	..Deformation by rolling or sliding engagement member
453	...Threaded connecting elements	477.1	...Plural spaced engagement members or member portions
454	.Including valve assembly, disassembly, or inspection facilitating means	477.2	...Cassette
455	.Having valve parts relatively moved for nonvalving function	477.3	...Specific rollers or slides structure
456	.Relatively movable serial distributors	477.4	....Helical slide
457	..Including distributor formed by moving cylinder or liner	477.5	....Roller axes or slide contact surfaces at significant angle with drive axis
458	..Plural pressure responsive distributors	477.6	....Biased rollers or slides
459	...Located within piston (e.g., valved piston)	477.7	....Adjustable rollers or slides
460	.Moving cylinder	477.8	....Positively driven rollers
461	..Cylinder rotates or oscillates about longitudinal axis	477.9	...Specific backing member for flexible wall
462	..Unidirectionally rotating cylinder	477.11	....Adjustable backing
463	...Having second cylinder unitary with piston of first	477.12	...Specific flexible wall or interposed flexible member
464	..Cylinder oscillates about axis transverse to longitudinal axis	477.13	...Flexible tube without backing member
465	..Inlet or discharge controlled by cooperating ports in cylinder or piston and fixed member	477.14	...Endless chain or belt
466	..Inlet or discharge controlled by cooperating port in reciprocating cylinder and fixed member	478	.Inlet and discharge distributors at opposite ends of tubular flexible wall pumping chamber
467	..Relatively movable cylinders	479	.Distributor formed from integral portion of flexible wall pumping member
468	..Having integral pump piston or external pumping face	480	.Valve in collapsible wall pumping member
469	..Cylinder and piston reciprocate on common axis	481	.Oscillating pumping member
		482	..Inlet distributor in abutment wall for pumping member
		483	...Having discharge distributor in pumping member
		484	..Distributor in pumping member
		485	.Delivery to different ports on successive strokes
		486	.Plural pumping members in single pump chamber
		487	..Coaxial reciprocating pumping members

488	...Form opposite chamber walls	512	...Unitary distributor element controls inlet or discharge for plural chambers
489	..Control by withdrawal or tilting of pump piston relative to cylinder	513	...Conical engagement
490	..Pumping member position controlled port	514	..Distributor in piston
491	..Common pumping member controls inlet or discharge for plural chambers	515	..Plural pumping chambers
492	...Control by movement of pumping member about axis	516	...Common element forms inlet or discharge distributor for plural chambers
493	..Including plural controlled inlet or outlet flow paths	517	...Element forms both inlet and discharge distributor
494	...Having means to selectively effect control at different positions of pumping member stroke	518	..Common element forms inlet and discharge distributor
495	...Pumping member comprises valved piston	519	...Element moves about axis
496	..Having serial control of inlet or discharge flow path	520	..Distributor abutted by or frictionally engaged with pumping member
497	..Pumping member controlled end wall port	521	..Plural pumping chambers
498	..Longitudinally spaced inlet and discharge sidewall ports	522	..Discharge conduit for first chamber communicates with nonpumping portion or second pumping member
499	..Having means to effect control at different positions of pumping member stroke	523	..Including valved piston
500	..Control by movement of pumping member about axis	524	...Unitary or interconnected elements form inlet or discharge distributors for plural chambers
501	..Having coextensive distributor opposite pumping member end face	525	...Common piston includes valves for plural axially aligned chambers
502	..Multiple cyclic outlet paths	526	...Common inlet or discharge conduit mounted on piston
503	..Multiple cyclic inlet paths	527	...Fluid conduit for one chamber extends through portion of another
504	..Plural outlet paths to single discharge line acting under different conditions	528	...Fluid conduit for one chamber extends through portion of another
505	..Electrically or magnetically actuated distributor	529	...Parallel laterally spaced relatively movable pistons
506	..Distributor movement adjustable	530	...Including nonvalved piston
507	..Distributor moved by separate fluid responsive surface	531	..Unitary or interconnected elements form inlet or discharge distributors for plural chambers
508	..Including mechanical actuation	532	...Unitary element movable about an axis
509	..Distributor part forms traversed movable pump chamber wall portion	533	..Common discharge conduit interposed between spaced parallel chambers
510	..Mechanically actuated distributor	534	..Chambers formed at opposite ends of rectilinearly moving pumping member
511	..Piston carried distributor, one frictionally engages chamber wall, drive rod integral with other (e.g., piston driven by valve element through lost motion connection, etc.)		

- 535 ..All discharge distributors positioned laterally of pumping member path
- 536 ...Inlet and discharge distributors positioned laterally of pumping member path
- 537 ....All distributors positioned on same side of pumping chamber
- 538 ..Inlet and discharge distributors at adjacent end of aligned chambers
- 539 ..Parallel laterally spaced relatively movable pumping members
- 540 ..Having pulsation dampening fluid receiving space
- 541 ..Space formed on pumping member
- 542 ..Inlet and discharge spaces
- 543 ..Direct contact with confined compressible fluid
- 544 ..Manually operated pump
- 545 ..Valved piston
- 546 ..Piston contains inlet and outlet valves
- 547 ..Fluid conduit fixed to piston
- 548 ..Having rigidly attached imperforate wall member
- 549 ..Having separate means biasing valve closed
- 550 ..Flexible
- 551 ..Hinged
- 552 ..Reciprocating
- 553 ...Annular
- 554 ...Ball type
- 555.1 ..Fluid serially moved to opposite side of pumping member
- 555.2 ..Well swabs
- 556 ..Control by movable rigid piston side wall
- 557 ..Pump chamber in constant communication with inlet or discharge conduit
- 558 ..First distributor includes passage controlled by second distributor (i.e., inlet and outlet)
- 559 ..Having pumping chamber pressure responsive distributor
- 560 ..Single unitary element forms inlet and discharge distributor
- 561 ..Pumping member position responsive stop for distributor
- 562 ..Having means on pumping member for accommodating distributor portion
- 563 ..Similar inlet and discharge distributors of different size or material
- 564 ...Annular-type distributors
- 565 ..Hinged inlet and discharge distributors in aligned conduits
- 566 ..Nonmetallic inlet or discharge distributor
- 567 ..Inlet and discharge distributors in coaxial ports
- 568 ...Transverse to axis of pumping member
- 569 ..Distributor positioned opposite pumping member end face
- 570 ...Distributor coextensive with pumping member end face
- 571 ...Inlet and discharge distributors
- 572 **MISCELLANEOUS**
- CROSS-REFERENCE ART COLLECTIONS**
- 900 **SLURRY PUMPS (E.G., CONCRETE)**
- 901 **CRYOGENIC PUMPS**
- 902 **HERMETICALLY SEALED MOTOR PUMP UNIT**
- 903 **TREADLE OPERATED**
- 904 **WELL PUMP DRIVEN BY FLUID MOTOR MOUNTED ABOVE GROUND**
- FOREIGN ART COLLECTIONS**
- FOR **CLASS-RELATED FOREIGN DOCUMENTS**
- DIGESTS**
- DIG 1 **MATERIALS DIGEST**

