

U. S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

CLASSIFICATION ORDER 1827

NOVEMBER 4, 2003

Project No. M-6485

The following classification changes will be effected by this order:

	<u>Class</u>	<u>Subclass</u>	<u>Art Unit</u>	<u>Ex'r Search Room No.</u>
Abolished:	166	280, 308	3672	CPK5-2X14
Established:	166	280.1, 280.2, 308.1-308.6	3672	CPK5-2X14

The following classes are also impacted by this order.

Classes: NONE

This order includes the following:

- A. MANUAL OF CLASSIFICATION CHANGES,
- B. LISTING OF PRINCIPAL SOURCE OF ESTABLISHED AND DISPOSITION OF ABOLISHED SUBCLASSES,
- C. CHANGES TO THE U. S. - I. P. C. CONCORDANCE,
- D. DEFINITION CHANGES.

CLASSIFICATION ORDER 1827

NOVEMBER 4, 2003

Project No. M-6485

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335	SUBMERGED WELL	252.6	...And tracing material
336	.Testing	253.1	..Indicating the location, presence, or absence of cement
337	..For leak		
338	.Connection or disconnection of submerged members remotely controlled	254.1	..Determining position of earth zone or marker
		254.2	...Well logging
339	..With provision for removal or repositioning of member without removal of other well structure	255.1	..Determining position of object in well
		255.2	...Tool orienting
		255.3	....Using whipstock
340	..Disconnection	250.02	..Permeability determining
341	..With orienting or aligning of member for connection	250.03	..Determining fluid interface or fluid level
342	...Including removable, member mounted guide	250.04	..Plug indicating or releasing
343	...Including means to pull member into position	250.05	..Scale or corrosion determination
		250.06	..Steam quality
344	..Connection to provide fluid flow path	250.07	..Bottom hole pressure
345	...Connection of riser-and-tubing assembly to other structure	250.08	..Leak testing or locating
		250.09	..Impression means
346	...Yieldable tubing	250.1	..Fracturing characteristic
347	...Connection of lateral flow line	250.11	..Holder for coupon or sensor
348	..Connection of pipe hanging	250.12	..Tracer
349	..Connection of guide means	250.13	..Determining stuck point
350	.Submerged, buoyant wellhead or riser	250.14	..Of cementing or plugging technique
351	.Means removably connected to permanent well structure	250.15	..Automatic control for production
		250.16	..Prospecting
352	..Surface vessel	250.17	..Including testing or treating tool having at least one actuatable packer
353	...Having means to move vessel to precise location		
354	...Having means to hold vessel at given location (e.g., anchor, etc.)	256	.In situ combustion
355	...With means to compensate for vessel movement	257	..Injecting while producing by in situ combustion from same well
356	..Means to provide protective environment for operative access below surface of water	258	..Plural distinct superimposed formations
		259	..Including fracturing or attacking formation
357	..Separator	260	..Injecting specific fuel or catalyst for burning into formation
358	..Drilling means		
359	..Removable riser	261	..Injecting specific material other than oxygen into formation
360	..Well component assembly means		
361	..Pipe cutting means	262	..Solid fuel or particles in well
363	.With safety or emergency shutoff	264	.Sampling well fluid
364	.Including disaster feature	265	.Separating material entering well
365	.With provision for disassembly	266	..Injection and producing wells
366	.Multiple wells	267	..Separating outside of well
367	.Riser	268	.Distinct, separate injection and producing wells
368	.Wellhead		
244.1	PROCESSES	270	..Injecting a composition to adjust the permeability (e.g., selective plugging)
245	.Specific pattern of plural wells		
246	.Using microorganisms	270.1	..Injecting a composition including a surfactant or cosurfactant
247	.Nuclear energy or radioactivity for treating	270.2	...Nonaqueous type
248	.Electric current or electrical wave energy through earth for treating	400	..Sequentially injected separate fluids (e.g., slugs)
249	.Vibrating the earth or material in or being placed in the earth pores	401	...Injecting a gas or gas mixture
		402	....CO2 or carbonated gas
250.01	.With indicating, testing, measuring or locating	403	.....In combination with additional organic material (e.g., alkyls, carbon chains)
251.1	..Including in situ combustion		
252.1	..Including production of earth fluid by driving fluid	272.1	..Involving the step of heating
252.2	...Residual oil or oil saturation		
252.3	...Salinity or acidity		
252.4	...Flood front		
252.5	...Permeability or viscosity		

Title Change
* Newly Established Subclass

@ Indent Change
& Position Change

	PROCESSES	299	.With explosion or breaking container to implode
	.Distinct, separate injection and producing wells	300	.Chemical inter-reaction of two or more introduced materials (e.g., selective plugging or surfactant)
272.2	..Involving the step of heating	301	.Freeing stuck object, grappling or fishing in well
	...In association with fracturing or crevice forming processes	302	.Heating, cooling or insulating
272.3	...Steam as drive fluid	303	..Placing preheated fluid into formation
272.4	...In combination with alkyls or carbon chains	304	.Dissolving or preventing formation of solid oil deposit
272.5	...With override zone, diverting, or path blocking operation	305.1	.Placing fluid into the formation
272.6	...Liquid material injected	306	..Fluid enters and leaves well at spaced zones
272.7	...Horizontal well	307	..Attacking formation
271	..Including fracturing or attacking formation	* 308.1	..Fracturing
269	..Fluid injected from longitudinally spaced locations in injection well	* 308.2	...Using a chemical
275	..Injected fluid comprises water and material other than inorganic gas	* 308.3	....Water based composition with inorganic material
263	.Cyclic injection then production of a single well	* 308.4	....Oil based composition
276	.Providing porous mass of adhered filter material in well	* 308.5	....Including cross-linking agent
277	.Repairing object in well	* 308.6	....Foam
278	.Graveling or filter forming	309	.Producing foam or gas in well by foaming or gas producing material
279	.Material placed in pores of formation to treat resident fluid flowing into well	310	.Entraining or incorporating treating material in flowing earth fluid
* 280.1	.Specific propping feature	311	.Cleaning or unloading well
* 280.2	..Composition of proppant	312	..Liquid introduced from well top
281	.Separate steps of (1) cementing, plugging or consolidating and (2) fracturing or attacking formation	313	.Parallel string or multiple completion well
282	.Specific low fluid loss feature for fluid attacking formation	369	.Producing the well
283	.Specific low fluid loss feature for fracturing fluid or cement causes fracture	370	..Including varying downhole pressure
284	.Fluid flow causes pellet to block opening in wall of conduit	371	..Including non-expulsive material placed in well
285	.Cementing, plugging or consolidating	372	..By fluid lift
286	..Tamping, vibrating, exploding or using receptacle	373	.Operating valve, closure, or changeable restrictor in a well
287	..Removable molding or forming means	374	..Operated by fluid pressure controlled above ground
288	..Including heating	375	...By auxiliary fluid control line
289	..Discharging cement from casing at different levels	376	.Destroying or dissolving well part
290	..By tubing which is subsequently lifted	377	.Disassembling well part
291	..With piston separator	378	.Assembling well part
292	..Using specific materials	379	..Above ground parts
293	...Cement or consolidating material contains inorganic water settable and organic ingredients	380	..Conduit
294	...Cement or consolidating material is organic or has organic ingredient	381	.Placing or shifting well part
295	....Organic material is resin or resinous	382	..Providing support for well part (e.g., hanger or anchor)
296	.Preventing flow into strainer while lowering by blocking openings	383	..By fluid driven piston
297	.Perforating, weakening, bending or separating pipe at an unprepared point	384	..With bending of tubing
298	..Perforating, weakening or separating by mechanical means or abrasive fluid	385	..Flexible cable or wire
		386	..Fluid flow control member (e.g., plug or valve)
		387	..With sealing feature (e.g., packer)
		50	WELLS WITH LATERAL CONDUITS
		51	MEANS FOR FORMING FILTER BEDS (E.G., GRAVEL PLACING)
		52	PLURAL WELLS
		53	AUTOMATIC
		54	.Float controlled valve

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54.1	WITH MEANS FOR SEPARATELY PUMPING FROM PLURAL SOURCES IN WELL	85.1	.With assembly or disassembly means (e.g., handling, guiding, or tool feature)
54.5	MEANS FOR CUTTING CABLE OR ROPE BELOW GROUND	85.2	..Pitless well adapters
54.6	.Cutting means actuated by contacting element suspended in well by cable or rope	85.3	..Seal or bushing insertion or removal
55	MEANS FOR PERFORATING, WEAKENING, BENDING OR SEPARATING PIPE AT AN UNPREPARED POINT	85.4	..With blowout preventer
55.1	.With disparate below ground feature	85.5	..Guiding or aligning feature
55.2	.Perforating or splitting cutter	86.1	..Inner member anchor or seal with valve
55.3	..Wedge or cam actuated	86.2	..Annular sealing type valve
55.6	.Cutter rotates circumferentially of pipe	86.3	..Gate type (perpendicular to pipe) valve
55.7	..Internal	87.1	..Axially movable type valve
55.8	...Tool moved radially by fluid pressure	88.1	..Inner member anchor or seal with lateral port
56	SCREEN AND OUTSIDE CLEANING PIPE	89.1	..Plural inner pipes
57	WITH HEATING, REFRIGERATING OR HEAT INSULATING MEANS	89.2	...Parallel pipes (as opposed to concentric)
58	.Fuel supply or hot billet in well	89.3	...Having slip type hanger
59	.Burner in well	88.2	..Slip type well anchor
60	.Electrical heater in well	88.3	...Seal actuated with anchor
61	.Heater surrounding production tube	88.4	..With hydraulic conduit or line extending through outer member
62	.With eduction pump or plunger in well	78.1	.With tube rotating means (rotary tables)
63	WITH EXPLOSIVE OR GAS GENERATING MEANS IN WELL	79.1	.Cap having transporting means or ground support
64	WITH TIME OR DISTANCE MEASURING, TEMPERATURE RESPONSIVE OR COUNTING MEANS	80.1	.Having retractable pipe section to allow closing of gate type valve or flapper valve for rod or pipe
65.1	WITH ELECTRICAL MEANS	81.1	.Fluid catcher around pipe coupling
66	.Indicating	82.1	.Releasable seal or cleaner disengaged by projection on inner member
66.4	.Electrical motor (e.g., solenoid actuator)	83.1	..Latches releasable radially inward
66.5	.Magnetic	84.1	.With seal for reciprocating member
66.6	.Valve	84.2	..Cooling fluid or grease supplied to seals
66.7	..Longitudinally movable operator	84.3	..Rotary blowout preventer type
67	WITH BELOW AND ABOVE GROUND MODIFICATION	84.4	..Fluid pressure actuated seals
68	.Eduction pump or plunger in well	84.5	..Seal fixedly mounted to rod
68.5	..With above ground (1) motor carried by casing or casing support or (2) well fluid pump	90.1	.With means for inserting fluid into well
69	.With receptacle for insertion into well	75.15	.With means for injecting solid or particulate material into the well
70	.Head for tool, piston or cleaner (e.g., cement head)	91.1	.With flow restrictions (e.g., chokes or beans)
71	.With above ground casing sinking means	92.1	.Cap or head pivotably attached to tube or casing
72	.Above ground actuating means for below ground device	93.1	.Split cap or head
73	..Tubing or casing actuated	94.1	.Laterally adjustable cap or head
74	.With below ground screen	95.1	.Central valve or closure and lateral port
75.11	ABOVE GROUND APPARATUS	96.1	.External anchoring or bracing means
76.1	.Having structure for converting from one mode of operation to another; e.g., valve to packer	97.1	.With valve on cap or head
77.1	.Moving tubing or cable into an existing well	75.13	.Well caps or casing heads
77.2	..Coiled tubing	75.14	.Suspension means
77.3	...Chain injector	75.12	.Treatment of produced fluids
77.4	..Piston and cylinder	97.5	.Parallel pipes extending along distinct paths through wellhead
77.51	.With means facilitating connecting or disconnecting supported tubing or rod sections	98	GRAPPLE AND WELL ANCHORED LIFTING MEANS
77.52	..With elevator detail	99	WITH JUNK RETRIEVING MEANS
77.53	..Upper and lower slips		

Title Change
* Newly Established Subclass

@ Indent Change
& Position Change

100	LATERAL PROBE OR PORT SEALED AGAINST WELL WALL	131	..With controllable passage between central conduit and space above packer or plug
101	PACKER OR PLUG AND PUMP OR PLUNGER MEANS EXERTING OUTWARD PRESSURE	132	..Portion extends beyond end of surrounding conduit
102	CONVERTIBLE	133	..With controllable passage through packer
104	WITH MOTOR FOR ROTARY OR OSCILLATING MOTION	134	..Support and holddown expanding anchors
105	WITH EDUCTION PUMP OR PLUNGER	135	..Flow stopping type, e.g., plug
105.1	.Having sediment trap or deflector	136	..Spring set anchor
105.2	..Carried by reciprocating plunger or plunger rod	137	...Spring moves anchor slip relative to wedge or cam
105.3	..Sediment trap formed in pumping chamber	138	..Wedge or cam and friction drag
105.4	..In pump discharge flow path	139	...Threaded element rotated.
105.5	.Having liquid-gas separator	140	...Anchor above packer or plug seal
105.6	..Gas fed to entrainment type pump	141	.Sealing portion closes port between central pipe and outside space when unexpanded
106	.With packer or plug	142	.With controllable passage between central chamber and space below packer
107	.Receptacles	143	..Central conduit detachable
108	..Piston actuates foot valve	144	...Bottom supported casing or screen section
109	..Telescoping	145	..Bypass closing and passage opening to upward flow constrained to occur simultaneously
110	..Lateral port always below piston and used in well	146	..Passage connects with space below packers and continuously open passageway connects with space between packers
111	..Bail engaging piston rod	147	..Passage connects with space between packer or plug seals
112	.With leak means	148	..Upwardly biased check valve and means for opening or bypassing it
113	COMBINED (E.G., WITH NON-ELECTRICAL INDICATING)	149	..With passageway between central chamber and space above packer
114	CENTRAL MEMBER WITH PRE-SET PACKER OR PLUG IN SAME CONDUIT	150	...Passageway controllable by movement of central chamber
115	CENTRAL CHAMBER SEALED WITH RESPECT TO PREPOSITIONED MODIFIED SURROUNDING CONDUIT	151	...Passageway valve directly responsive to fluid pressure
116	..Surrounding conduit carries packer or plug	152	..Passage controllable by movement of central chamber
117	RECEPTACLE OR PART THEREOF LEFT IN WELL	180	.Adjustable over pipe or set over prepositioned pipe
117.5	MEANS FOR GUIDING INSERTABLE ELEMENT Laterally of well axis (E.G., WHIPSTOCK)	181	.With detachable setting means
117.6	..Secured in operative position by movable means engaging well conduit (e.g., anchor)	182	..Packer or plug locked expanded
117.7	MEANS ANCHORED AGAINST ROTATION IN ONE CONDUIT SECTION FOR RELATIVELY ROTATING ANOTHER SECTION	183	.With controllable bypass outside central conduit
179	PACKERS OR PLUGS	184	.With controllable passage between central conduit and space above packer or plug
118	.With expanding anchor	185	.With central conduit and fluid port to space outside
119	..Relatively movable packers or plugs	186	..Port between sealing portions and bypass around
120	..Anchor actuated by fluid pressure	187	.Expanded by confined fluid from central chamber, pump or plunger
121	...Pressure transmitted by cup type packer or plug seal	188	.Controllable passage through packer
122	...Pressure transmitted by packer or plug expanded by confined fluid from central chamber, pump, or plunger	189	.For non-concentric members
123	..With detachable setting means	191	.Spaced sealing portions
124	...Screw threaded	192	.Flow stopping type; e.g., plug
125	...Radially movable latch	193	..Free falling type (e.g., dropped ball)
126	..With controllable passage between central chamber and space below packer		
127	...Spaced packer or plug seals		
128	...Passage controllable by movement of central chamber		
129	..With controllable bypass outside central conduit		
130	...Packer expanded by upper valve		

Title Change
* Newly Established Subclass

@ Indent Change
& Position Change

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	PACKERS OR PLUGS	217	.Expansible means translated by wedge or cam
	.Flow stopping type; e.g., plug		
	..Free falling type (e.g., dropped ball)	222	WHIRLING OR LATERAL DISCHARGE OR PROJECTABLE NOZZLES
194	...With sleeve valve		
195	.Deformable portion engages conduit restriction	223	.Rotary or projectable
		316	VALVES, CLOSURES OR CHANGEABLE RESTRICTORS
196	.Central support has shoulders expanding sealing portion, or telescopes	317	.Destructible element
202	.Cup type	318	.Operated by dropped element
203	.Non-deformable type	319	.Fluid operated
153	PISTONS, FLUID DRIVEN INTO WELL (E.G., CEMENTING PLUGS)	320	..Variably opened
		321	..Fluid pressure biased to open position position
154	.Surrounding conduit valve or closure opened by piston	322	...Retrievable
155	.With downflow past piston	323	...Locked open or closed
156	.With stop	324	...With fluid pressure equalizing means
157	SCREEN WITH WASHING POINT OR SHOE	325	..One way, e.g., check valve type
158	.Detachable wash pipe	326	...Flexible valve element
162	RECEPTACLES	327	...Shoes with check valve
163	.With separate air chamber having openable passage	328	....Loose ball closure
		329	..Loose ball closure with limited reverse flow
164	.With destroyable closure and valve		
165	.With valved or closed top	330	.Rotated operator
166	.Valve control means contacting well conduit wall	331	..Lug in branched slot, e.g., "J" slot
		332.1	.Longitudinally movable operator
167	.Bottom receiving and side discharge valves	332.2	..Having rotational movement
		332.3	...Ball valve type
168	.Readily releasable bottom valve	332.4	..Operated by means inserted from the surface
169	.Lateral ports used in well		
170	BRUSHING, SCRAPING, CUTTING OR PUNCHING-TYPE CLEANERS	332.5	..Valving means inserted or retrieved to operate
		332.6	..Having a dump or discharge type means
171	.Perforation cleaners	332.7	..Having equalizing valve
172	.Bow spring type	332.8	..Flapper type
173	.On tubing or casing		
174	.Retractable on support while lowering	333.1	..Contact with bore bottom
175	.Reciprocable relative to central member extending from well top	334.1	..Vertical movement of conduit
		334.2	...And rotational movement; e.g., ball valve-type
176	.On sucker rod		
177.1	SONIC DEVICE	334.3	...Drain-type
177.2	.With specific downhole feature	334.4	...Fluid flow through lateral port to exterior
177.3	WIPER		
177.4	CEMENTING DEVICE	227	SCREENS
177.5	HYDRAULIC FRACTURING DEVICE	228	.Porous material
177.6	VIBRATOR	229	.Inserted screen plug
177.7	AGITATOR	230	.Woven mesh
178	WITH JAR MEANS FOR RELEASING STUCK PART	231	.Spiral
205	SCREEN WITH VALVE, CLOSURE, CHANGEABLE RESTRICTOR OR PORTION REMOVABLE IN WELL	232	..With spacing lug for adjacent turns
		233	..With perforated pipe
		234	.Strip or rod
206	EXPANSIBLE ANCHOR OR CASING	235	.Stacked annular sections
207	.Expansible casing	236	.Concentric pipes
208	.Liner hanger	237	DETENTS OR CLUTCHES
209	.Set by wedge or cam at any point by drop only (e.g., tubing catcher)	238	.Flow permitting means bridging fluid conduit
		239	.Operated by dropped weight
210	..With friction drag for setting by turning movement also	240	.Lug in closed branched slot
211	..With spring	241.1	GUIDE FOR DEVICE OR CONDUIT
212	.Fluid pressure actuated	241.2	.On sucker or pump rod
213	.Bowed anchor means	241.3	..Rotatable or having a rotatable element
214	.Spring set		
215	..Spring moves anchor slip relative to wedge or cam		
216	.With wedge or cam and friction drag		

Title Change
* Newly Established Subclass

@ Indent Change
& Position Change

- GUIDE FOR DEVICE OR CONDUIT
 .On sucker or pump rod
- 241.4 ..Surrounding existing rod
 241.5 .For a wireline operation
 241.6 .Surrounding existing device or tubing
 241.7 ..Removably secured by a fastener (e.g.,
 pin) parallel to tubing
- 242.1 CONDUIT WALL OR SPECIFIC CONDUIT END
 STRUCTURE
- 242.2 .Flexible tube or cable
 242.3 .Plural, parallel, nonconcentric
 conduits
- 242.4 .Corrosion prevention or deterring
 242.5 .Side entry
 242.6 .Downhole coupling or connector
 242.7 ..Telescopic
 242.8 .Shoe detail
 242.9 .Brick or cement casing liner
- 243 MISCELLANEOUS (E.G., ANCHOR PIPES)

- CROSS-REFERENCE ART COLLECTIONS

- 901 WELLS IN FROZEN TERRAIN
 902 FOR INHIBITING CORROSION OR COATING

- FOREIGN ART COLLECTION

- FOR 000 CLASS-RELATED FOREIGN DOCUMENTS

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

- * ..PROCESSES (166/244.1)
 * FOR 100 .Specific propping feature for a
 fracture (166/280)
 * FOR 101 ..Fracturing (166/308)

SOURCE CLASSIFICATION(S) OF PATENTS
IN NEWLY ESTABLISHED SUBCLASSES REPORT
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Page: 1

New Classification	Number Of ORs	Source Classification	Number Of ORs
166/280.1	121	166/280	180
166/280.2	1	166/308	195
	44	166/280	180
166/308.1	4	166/280	180
	101	166/308	195
166/308.2	3	166/280	180
	32	166/308	195
166/308.3	3	166/308	195
	4	166/280	180
166/308.4	3	166/280	180
	25	166/308	195
166/308.5	1	166/280	180
	21	166/308	195
166/308.6	12	166/308	195

DISPOSITION CLASSIFICATION(S) OF PATENTS
 FROM ABOLISHED SUBCLASSES REPORT
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Source Classification	Number Of ORs	New Classification	Number Of ORs
166/280	180	166/280.1	121
		166/280.2	44
		166/308.1	4
		166/308.2	3
		166/308.3	4
		166/308.4	3
166/308	195	166/308.5	1
		166/280.2	1
		166/308.1	101
		166/308.2	32
		166/308.3	3
		166/308.4	25
		166/308.5	21
		166/308.6	12

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C. CHANGES TO THE U. S. - I. P. C. - ECLA CONCORDANCE

<u>U. S.</u> <u>Class</u>	<u>Subclass</u>	<u>I. P. C.</u> <u>Subclass</u>	<u>Notation</u>	<u>ECLA</u> <u>Subclass</u>	<u>Notation</u>
166	280.1	E21B	43/267	E21B	43/267
	280.2	E21B	43/267	E21B	43/267B
	308.1	E21B	43/26	E21B	43/26
	308.2	E21B	43/26	E21B	43/26B
	308.3	E21B	43/26	E21B	43/26B2
	308.4	E21B	43/26	E21B	43/26B4
	308.5	E21B	43/26	E21B	43/26B6
	308.6	E21B	43/26	E21B	43/26B8

D. CHANGES TO THE DEFINITIONS (Project No. M-6485)

CLASS 166 - WELLS

Definitions Abolished:

Subclasses:

280, 308

Definitions Established:

280.1 Specific propping feature:

This subclass is indented under the subclass 244.1. A process comprising some claimed specific feature relating to placing discrete particles in a fracture in a formation to maintain the walls of the fracture spaced apart by resisting forces tending to close the fracture.

- (1) Note. For classification as an original under this definition the specific feature must be more than merely identifying the propping material as sand, or the equivalent, or merely the use of a specific fluid containing the propping material or merely the introduction of the propping material in one of a series of fracturing fluids.
- (2) Note. Placing in a fracture a slurry of cement which sets and remains in place as an adhered mass and which cement may contain hard particles dispersed therein is not considered to come within this definition. For a process involving cementing see subclasses 281, 283 and 285. This definition does include, however, a process in which discrete propping particles are adhered together after being placed and a process in which propping particles are incorporated in a carrier fluid, which may be cement (such as a gel), and the carrier fluid is changed in nature, or removed, or is of such a nature that the discrete particles themselves resist closing of the fracture rather than a mass of cement in which the particles are embedded resisting closing of the fracture.
- (3) Note. A process in which discrete particles are placed in a fracture so that the particles are crowded together or compacted to plug the fracture to impede the flow of fluid is not considered to come within this definition. See the subclasses relating to cementing or plugging, especially subclass 292 for such a process.
- (4) Note. Discrete particles in a fracture which are described merely as forming a filter will be assured also to act as props and be classifiable under this definition.

SEE OR SEARCH THIS CLASS, SUBCLASS:

281, 283 and 308, for a process involving fracturing a formation, which may include propping the formation by steps not specific enough to come within this definition.

280.2 Composition of proppant:

This subclass is indented under the subclass 280.1. Process wherein the composition of a constituent is defined.

308.1 Fracturing:

This subclass is indented under the subclass 305.1. Process wherein the earth is cracked to create a fissure therein.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 177.1, for apparatus for fracturing a formation.
- 281, for a process involving separate steps of (1) cementing, plugging or consolidating and (2) fracturing the formation.
- 283, for a process involving a specific low fluid loss feature for a fracturing fluid or a process in which a cementing, plugging or consolidating material causes a fracture.
- 299, for a process of fracturing involving use of an explosive.
- 259, for a process involving in situ combustion and fracturing a formation.
- 271, for apparatus for fracturing a formation.

SEE OR SEARCH CLASS:

- 102, Ammunition and Explosives, subclass 301 for apparatus and methods for fracturing a formation by the use of an explosive.
- 175, Boring or Penetrating the Earth, subclass 2, and appropriate subclasses, especially for initially forming or radially enlarging an elongated hole having a desired geometrical configuration, rather than forming an irregular fissure, in the earth.
- 299, Mining or In Situ Disintegration of Hard Material, subclass 13 for a process of breaking down hard material by an explosive, subclass 16 for a process of breaking down material by direct contact with fluid, and subclass 20 for expansible breaking down devices. The line between Classes 299 and 166 as to this subject matter is based on the disclosed purpose for performing the fracturing process. If the purpose is ultimately to recover fluid from the earth by a Class 166 process classification is in Class 166; if the purpose is ultimately to perform a Class 299 mining operation or to perform a mere disintegration operation (of the type classifiable in Class 299) then classification is in Class 299. See the reference to Class 299 in References to Other Classes in the class definition of Class 166 for the distinction between Class 166 and Class 299 relative to recovering fluid from the earth and mining.

308.2 Using a chemical:

This subclass is indented under the subclass 308.1. Process wherein the substance used to create the fissure has a specified molecular composition.

308.3 Water based composition with inorganic material:

This subclass is indented under the subclass 308.2. Process wherein the substance is aqueous and does not contain a hydrocarbon radical.

308.4 Oil based composition:

This subclass is indented under the subclass 308.2. Process wherein the substance substantially comprises a derivative of petroleum.

308.5 Including cross-linking agent:

This subclass is indented under the subclass 308.1. Process wherein the substance includes plural polymeric molecules covalently attached together by means of a binding molecule.

308.6 Foam:

This subclass is indented under the subclass 308.2. Process wherein the substance is in the form of a froth.

FOREIGN ART COLLECTIONS

The definitions below correspond to abolished subclasses from which these collections were formed. See the Foreign Art Collection schedule of this class for specific correspondences. [Note: The titles and definitions for *indented* art collections include all the details of the one(s) that are hierarchically superior.]

FOR 100 Specific propping feature for a fracture:

Foreign Art Collection for a process comprising some claimed specific feature relating to placing discrete particles in a fracture in a formation to maintain the walls of the fracture spaced apart by resisting forces tending to close the fracture.

- (1) Note. For classification as an original under this definition the specific feature must be more than merely identifying the propping material as sand, or the equivalent, or merely the use of a specific fluid containing the propping material or merely the introduction of the propping material in one of a series of fracturing fluids.
- (2) Note. Placing in a fracture a slurry of cement which sets and remains in place as an adhered mass and which cement may contain hard particles dispersed therein is not considered to come within this definition. For a process involving cementing see subclasses 281, 283 and 285. This definition does include, however, a process in which discrete propping particles are adhered together after being placed and a process in which propping particles are incorporated in a carrier fluid, which may be cement (such as a gel), and the carrier fluid is changed in nature, or removed, or is of such a nature that the discrete particles

themselves resist closing of the fracture rather than a mass of cement in which the particles are embedded resisting closing of the fracture.

- (3) Note. A process in which discrete particles are placed in a fracture so that the particles are crowded together or compacted to plug the fracture to impede the flow of fluid is not considered to come within this definition. See the subclasses relating to cementing or plugging, especially subclass 292 for such a process.
- (4) Note. Discrete particles in a fracture which are described merely as forming a filter will be assured also to act as props and be classifiable under this definition.

FOR 101Fracturing:

Foreign Art Collection for a process under in which the earth is cracked to create a fissure therein.