The following classification changes will be effected by this order:

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<th>Class Abolished:</th>
<th>166</th>
<th>Subclass: 280, 308</th>
<th>Art Unit: 3672</th>
<th>Ex'r Search Unit: CPK5-2X14</th>
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<td>Class Established:</td>
<td>166</td>
<td>Subclass: 280.1, 280.2, 308.1-308.6</td>
<td>Art Unit: 3672</td>
<td>Ex'r Search Unit: CPK5-2X14</td>
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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

Project Leader: Joseph Falk
Project Classifier: Joseph Falk
Examiner: Zakiya Walker
Editor: James E. Doyle, Jr.
335 SUBMERGED WELL
336 ..Testing
337 ..For leak
338 ..Connection or disconnection of
339 ..submerged members remotely
340 ..controlled
341 ..With provision for removal or
342 ..repositioning of member without
343 ..removal of other well structure
344 ..Disconnection
345 ..With orienting or aligning of member
346 ..for connection
347 ..Including removable, member mounted
348 ..guide
349 ..Including means to pull member into
350 ..position
351 ..Connection to provide fluid flow path
352 ..Yieldable tubing
353 ..Connection of lateral flow line
354 ..Connection of pipe hanging
355 ..Connection of guide means
356 ..Submerged, buoyant wellhead or riser
357 ..Means removably connected to permanent
358 ..well structure
359 ..Surface vessel
360 ..Having means to move vessel to
361 ..precise location
362 ..Having means to hold vessel at given
363 ..location (e.g., anchor, etc.)
364 ..With means to compensate for vessel
365 ..movement
366 ..Means to provide protective
367 ..environment for operative access
368 ..below surface of water
369 ..Separator
370 ..Drilling means
371 ..Removable riser
372 ..Well component assembly means
373 ..Pipe cutting means
374 ..With safety or emergency shutoff
375 ..Including disaster feature
376 ..With provision for disassembly
377 ..Multiple wells
378 ..Riser
379 ..Wellhead
380 PROCESSES
381 ..Specific pattern of plural wells
382 ..Using microorganisms
383 ..Nuclear energy or radioactivity for
384 ..treating
385 ..Electric current or electrical wave
386 ..energy through earth for treating
387 ..Vibrating the earth or material in or
388 ..being placed in the earth pores
389 ..With indicating, testing, measuring or
390 ..locating
391 ..Including in situ combustion
392 ..Residual oil or oil saturation
393 ..Salinity or acidity
394 ..Flood front
395 ..Permeability or viscosity

NOVEMBER 2003
CLASS 166 WELLS

PROCESSES
Distinct, separate injection and producing wells
..Involving the step of heating
..In association with fracturing or crevice forming processes
..Steam as drive fluid
..In combination with alkyls or carbon chains
..With override zone, diverting, or path blocking operation
..Liquid material injected
..Horizontal well
..Including fracturing or attacking formation
..Fluid injected from longitudinally spaced locations in injection well
..Injected fluid comprises water and material other than inorganic gas
..Cyclic injection then production of a single well
..Providing porous mass of adhered filter material in well
..Repairing object in well
..Graveling or filter forming
..Material placed in pores of formation to treat resident fluid flowing into well
..Specific propping feature
..Composition of propping
..Separate steps of (1) cementing, plugging or consolidating and (2) fracturing or attacking formation
..Specific low fluid loss feature for fluid attacking formation
..Specific low fluid loss feature for fracturing fluid or cement causes fracture
..Fluid flow causes pellet to block opening in wall of conduit
..Cementing, plugging or consolidating
..Tamping, vibrating, exploding or using receptacle
..Removable molding or forming means
..Including heating
..Discharging cement from casing at different levels
..By tubing which is subsequently lifted
..With piston separator
..Using specific materials
..Cement or consolidating material contains inorganic water settable and organic ingredients
..Cement or consolidating material is organic or has organic ingredient
..Organic material is resin or resins
..Preventing flow into strainer while lowering by blocking openings
..Perforating, weakening, bending or separating pipe at an unprepared point
..Perforating, weakening or separating by mechanical means or abrasive fluid

With explosion or breaking container to implode
Chemical inter-reaction of two or more introduced materials (e.g., selective plugging or surfactant)
Freeing stuck plugging or fishing in well
Heating, cooling or insulating
Placing preheated fluid into formation
Dissolving or preventing formation of solid oil deposit
Placing fluid into the formation
..Fluid enters and leaves well at spaced zones
..Attacking formation
..Fracturing
..Using a chemical
..Water based composition with inorganic material
..Oil based composition
..Including cross-linking agent
..Foam
..Producing foam or gas in well by foaming or gas producing material
..Entraining or incorporating treating material in flowing earth fluid
..Cleaning or unloading well
..Liquid introduced from well top
..Parallel string or multiple completion well
..Producing the well
..Including varying downhole pressure
..Including non-expulsive material placed in well
..By fluid lift
..Operating valve, closure, or changeable restrictor in a well
..Operated by fluid pressure controlled above ground
..By auxiliary fluid control line
..Destroying or dissolving well part
..Disassembling well part
..Assembling well part
..Above ground parts
..Conduit
..Placing or shifting well part
..Providing support for well part (e.g., hanger or anchor)
..By fluid driven piston
..With bending of tubing
..Flexible cable or wire
..Fluid flow control member (e.g., plug or valve)
..With sealing feature (e.g., packer)

WELLS WITH LATERAL CONDUITS
MEANS FOR FORMING FILTER BEDS (E.G., GRAVEL PLACING)
PLURAL WELLS
AUTOMATIC

* Newly Established Subclass
\$ Title Change
& Position Change
\$ Indent Change
CLASS 166 WELLS

54.1 WITH MEANS FOR SEPARATELY PUMPING FROM PLURAL SOURCES IN WELL

54.5 MEANS FOR CUTTING CABLE OR ROPE BELOW GROUND

54.6 Cutting means actuated by contacting element suspended in well by cable or rope

55 MEANS FOR PERFORATING, WEAKENING, BENDING OR SEPARATING PIPE AT AN UNPREPARED POINT

55.1 With disparate below ground feature

55.2 Perforating or splitting cutter

55.3 Wedge or cam actuated

55.6 Cutter rotates circumferentially of pipe

55.7 Internal

55.8 Tool moved radially by fluid pressure

56 SCREEN AND OUTSIDE CLEANING PIPE

57 WITH HEATING, REFRIGERATING OR HEAT INSULATING MEANS

58 Fuel supply or hot billet in well

59 Burner in well

60 Electrical heater in well

61 Heater surrounding production tube

62 With eduction pump or plunger in well

63 WITH EXPLOSIVE OR GAS GENERATING MEANS IN WELL

64 WITH TIME OR DISTANCE MEASURING, TEMPERATURE RESPONSIVE OR COUNTING MEANS

65.1 WITH ELECTRICAL MEANS

66 Indicating

66.4 Electrical motor (e.g., solenoid actuator)

66.5 Magnetic

66.6 Valve

66.7 Longitudinally movable operator

67 WITH BELOW AND ABOVE GROUND MODIFICATION

68 Eduction pump or plunger in well

68.5 With above ground (1) motor carried by casing or casing support or (2) well fluid pump

69 With receptacle for insertion into well

70 Head for tool, piston or cleaner (e.g., cement head)

71 With above ground casing sinking means

72 Above ground actuating means for below ground device

73 Tubing or casing actuated

74 With below ground screen

75.11 ABOVE GROUND APPARATUS

76.1 Having structure for converting from one mode of operation to another; e.g., valve to packer

77.1 Moving tubing or cable into an existing well

77.2 Coiled tubing

77.3 Chain injector

77.4 Piston and cylinder

77.51 With means facilitating connecting or disconnecting supported tubing or rod sections

77.52 With elevator detail

77.53 Upper and lower slips

54.1 .With assembly or disassembly means (e.g., handling, guiding, or tool feature)

54.2 .Fitless well adapters

54.3 .Seal or bushing insertion or removal

54.4 .With blowout preventer

54.5 .Guiding or aligning feature

54.6 .Inner member anchor or seal with valve

54.7 .Annular sealing type valve

54.8 .Gate type (perpendicular to pipe) valve

55.1 Axially movable type valve

55.2 .Inner member anchor or seal with lateral port

55.3 .Plural inner pipes

55.4 Parallel pipes (as opposed to concentric)

55.5 Having slip type hanger

55.6 Slip type well anchor

55.7 Seal actuated with anchor

55.8 With hydraulic conduit or line extending through outer member

55.9 With tube rotating means (rotary tables)

79.1 Cap having transporting means or ground support

80.1 Having retractable pipe section to allow closing of gate type valve or flapper valve for rod or pipe

80.2 Fluid catcher around pipe coupling

81.1 Releasable seal or cleaner disengaged by projection on inner member

81.2 Latches releasable radially inward

81.3 With seal for reciprocating member

81.4 .Cooling fluid or grease supplied to seals

81.5 .Rotary blowout preventer type

81.6 Fluid pressure actuated seals

81.7 Seal fixedly mounted to rod

81.8 With means for inserting fluid into well

81.9 With means for injecting solid or particulate material into the well

81.10 With flow restrictions (e.g., chokes or beans)

82.1 Cap or head pivotally attached to tube or casing

82.2 Split cap or head

82.3 Laterally adjustable cap or head

82.4 Central valve or closure and lateral port

82.5 External anchoring or bracing means

82.6 With valve on cap or head

82.7 Well caps or casing heads

82.8 Suspension means

82.9 Treatment of produced fluids

82.10 Parallel pipes extending along distinct paths through wellhead

98 GRAPPLE AND WELL ANCHORED LIFTING MEANS

99 WITH JUNK RETRIEVING MEANS

* Title Change
* Newly Established Subclass
@ Indent Change
& Position Change
LATERAL PROBE OR PORT SEALED AGAINST WELL WALL

PACKER OR PLUG AND PUMP OR PLUNGER MEANS EXERTING OUTWARD PRESSURE

CONVERTIBLE

WITH MOTOR FOR ROTARY OR OSCILLATING MOTION

WITH EDUCTION PUMP OR PLUNGER

.Having sediment trap or deflector

.Carried by reciprocating plunger or plunger rod

.Sediment trap formed in pumping chamber

.In pump discharge flow path

.Having liquid-gas separator

.Gas fed to entrainment type pump

.With packer or plug

.Receptacles

.Piston actuates foot valve

.Telescoping

.Lateral port always below piston and used in well

.Bail engaging piston rod

.With leak means

.COMBINED (E.G., WITH NON-ELECTRICAL INDICATING)

.CENTRAL MEMBER WITH PRE-SET PACKER OR PLUG IN SAME CONDUIT

.CENTRAL CHAMBER SEALED WITH RESPECT TO PRE-POSITIONED MODIFIED SURROUNDING CONDUIT

.Surrounding conduit carries packer or plug

.RECEPTACLE OR PART THEREOF LEFT IN WELL

.MEANS FOR GUIDING INSERTABLE ELEMENT LATERALLY OF WELL AXIS (E.G., WHIPSTOCK)

.Secured in operative position by movable means engaging well conduit (E.G., anchor)

.MEANS ANCHORED AGAINST ROTATION IN ONE CONDUIT SECTION FOR RELATIVELY ROTATING ANOTHER SECTION

.PACKERS OR PLUGS

.With expanding anchor

.Relatively movable packers or plugs

.Anchor actuated by fluid pressure

.Pressure transmitted by cup type packer or plug seal

.Pressure transmitted by packer or plug expanded by confined fluid from central chamber, pump, or plunger

.With detachable setting means

.Screw threaded

.Radially movable latch

.With controllable passage between central chamber and space below packer

.Spaced packer or plug seals

.Passage controllable by movement of central chamber

.With controllable bypass outside central conduit

.Packer expanded by upper valve

With controllable passage between central conduit and space above packer or plug

.Portion extends beyond end of surrounding conduit

.With controllable passage through packer

.Support and hold down expanding anchors

.Flow stopping type, E.G., plug

.Spring set anchor

.Spring moves anchor slip relative to wedge or cam

.Wedge or cam and friction drag

.Threaded element rotated

.Anchor above packer or plug seal

.Sealing portion closes port between central pipe and outside space when unexpanded

.With controllable passage between central chamber and space below packer

.Central conduit detachable

.Bottom supported casing or screen section

.Bypass closing and passage opening to upward flow constrained to occur simultaneously

.Passage connects with space below packers and continuously open passageway connects with space between packers

.Passage connects with space between packer or plug seals

.Upwardly biased check valve and means for opening or bypassing it

.With passageway between central chamber and space above packer

.Passageway controllable by movement of central chamber

.Passageway valve directly responsive to fluid pressure

.Passage controllable by movement of central chamber

.Adjustable over pipe or set over prepositioned pipe

.With detachable setting means

.Packer or plug locked expanded

.With controllable bypass outside central conduit

.With controllable passage between central conduit and space above packer or plug

.With central conduit and fluid port to space outside

.Port between sealing portions and bypass around

.Expanded by confined fluid from central chamber, pump or plunger

.Controllable passage through packer

.For non-concentric members

.Spaced sealing portions

.Flow stopping type, E.G., plug

.Free falling type (E.G., dropped ball)
WELLS

PACKERS OR PLUGS
- Flow stopping type; e.g., plug
- Free falling type (e.g., dropped ball)
- With sleeve valve
- Deformable portion engages conduit restriction
- Central support has shoulders expanding sealing portion, or telescopes
- Cup type
- Non-deformable type

PISTONS, FLUID DRIVEN INTO WELL (E.G., CEMENTING PLUGS)
- Surrounding conduit valve or closure opened by piston
- With downflow past piston
- With stop

SCREEN WITH WASHING POINT OR SHOE
- Detachable wash pipe

RECEPTACLES
- With separate air chamber having openable passage
- With destroyable closure and valve
- With valved or closed top
- Valve control means contacting well conduit wall
- Bottom receiving and side discharge valves
- Readily releasable bottom valve
- Lateral ports used in well

BRUSHING, SCRAPPING, CUTTING OR PUNCHING-TYPE CLEANERS
- Perforation cleaners
- Bow spring type
- On tubing or casing
- Retractable on support while lowering
- Reciprocable relative to central member extending from well top
- On sucker rod

SONIC DEVICE
- With specific downhole feature

WIPER

CEMENTING DEVICE

HYDRAULIC FRACTURING DEVICE

VIBRATOR

AGITATOR

WITH JAR MEANS FOR RELEASING STUCK PART

SCREEN WITH VALVE, CLOSURE, CHANGEABLE RESTRICTOR OR PORTION REMOVABLE IN WELL

EXPANSIBLE ANCHOR OR CASING
- Expandable casing
- Liner hanger
- Set by wedge or cam at any point by drop only (e.g., tubing catcher)
- With friction drag for setting by turning movement also
- With spring

Fluid pressure actuated
- Bowed anchor means
- Spring set
- Spring moves anchor slip relative to wedge or cam
- With wedge or cam and friction drag

VIBRATOR

Hydraulic Fracturing Device

Vibrator

Screen

Pipe Plug

Spiral Screen

Flow Permitting Means Bridging Fluid Conduit

Operated by dropped weight

Lug in closed branched slot

GUIDE FOR DEVICE OR CONDUIT

On sucker or pump rod

Rotatable or having a rotatable element

# Title Change
* Newly Established Subclass

NOVEMBER 2003
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

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.

* Title Change
+ Newly Established Subclass
& Indent. Change
& Position Change
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C. CHANGES TO THE U. S. - I. P. C. - ECLA CONCORDANCE

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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.