

Symbol	Typ	Titel
E	Sektion	FIXED CONSTRUCTIONS
E21	Untersektion	EARTH OR ROCK DRILLING; MINING
E21	Klasse	EARTH OR ROCK DRILLING; MINING
E21B	Unterklasse	EARTH OR ROCK DRILLING (mining, quarrying E21C; making shafts, driving galleries or tunnels E21D); OBTAINING OIL, GAS, WATER, SOLUBLE OR MELTABLE MATERIALS OR A SLURRY OF MINERALS FROM WELLS [5]
		<u>Methods or apparatus for drilling</u>
E21B 1/00	Hauptgruppe	Percussion drilling (drives used in the borehole E21B 4/00) [3]
<i>E21B 1/02</i>	<i>1-Punkt Untergruppe</i>	<i>. Surface drives for drop hammers, e.g. with a cable [1, 7]</i>
E21B 1/04	2-Punkt Untergruppe	. . Devices for reversing the movement of the rod or cable at the surface
<i>E21B 1/12</i>	<i>1-Punkt Untergruppe</i>	<i>. with a reciprocating impulse member (E21B 1/02 , E21B 1/38 take precedence) [7]</i>
<i>E21B 1/14</i>	<i>2-Punkt Untergruppe</i>	<i>. . driven by a rotating mechanism [7]</i>
<i>E21B 1/16</i>	<i>3-Punkt Untergruppe</i>	<i>. . . with spring-mounted reciprocating masses, e.g. with air cushion [7]</i>
<i>E21B 1/18</i>	<i>4-Punkt Untergruppe</i>	<i>. . . . with elastic joining of the drive to the push-rod by double buffer springs [7]</i>
<i>E21B 1/20</i>	<i>3-Punkt Untergruppe</i>	<i>. . . formed as centrifugal hammers [7]</i>
<i>E21B 1/22</i>	<i>2-Punkt Untergruppe</i>	<i>. . driven by electromagnets [7]</i>
<i>E21B 1/24</i>	<i>2-Punkt Untergruppe</i>	<i>. . the impulse member being a piston driven directly by fluid pressure [7]</i>
<i>E21B 1/26</i>	<i>3-Punkt Untergruppe</i>	<i>. . . by liquid pressure [7]</i>
<i>E21B 1/28</i>	<i>4-Punkt Untergruppe</i>	<i>. . . . working with pulses [7]</i>
<i>E21B 1/30</i>	<i>3-Punkt Untergruppe</i>	<i>. . . by air, steam or gas pressure [7]</i>
<i>E21B 1/32</i>	<i>4-Punkt Untergruppe</i>	<i>. . . . working with pulses [7]</i>
<i>E21B 1/34</i>	<i>5-Punkt Untergruppe</i>	<i>. the impulse member being a piston of an internal-combustion engine [7]</i>
<i>E21B 1/36</i>	<i>1-Punkt Untergruppe</i>	<i>. Tool-carrier piston type, i.e. in which the tool is connected to an impulse member [7]</i>
<i>E21B 1/38</i>	<i>1-Punkt Untergruppe</i>	<i>. Hammer piston type, i.e. in which the tool bit or anvil is hit by an impulse member [7]</i>
E21B 3/00	Hauptgruppe	Rotary drilling (drives used in the borehole E21B 4/00; rotary drilling machines in general B23B) [3]
E21B 3/02	1-Punkt Untergruppe	. Surface drives for rotary drilling
<i>E21B 3/025</i>	<i>2-Punkt Untergruppe</i>	<i>. . with a to-and-fro rotation of the tool [7]</i>
<i>E21B 3/03</i>	<i>2-Punkt Untergruppe</i>	<i>. . with an intermittent unidirectional rotation of the tool [7]</i>
<i>E21B 3/035</i>	<i>2-Punkt Untergruppe</i>	<i>. . with slipping or elastic transmission [7]</i>
E21B 3/04	2-Punkt Untergruppe	. . Rotary tables
E21B 3/06	3-Punkt Untergruppe	. . . Adaptation of rotary draw works to drive rotary tables (connecting or disconnecting couplings or joints E21B 19/16; rope, cable, or chain winding mechanisms, capstans B66D) [3]
E21B 4/00	Hauptgruppe	Drives used in the borehole [3]
E21B 4/02	1-Punkt Untergruppe	. Fluid rotary type drives (hydraulic turbines for drilling wells F03B 13/02) [3]

Symbol	Typ	Titel
E21B 4/04	1-Punkt Untergruppe	. Electric drives (E21B 4/12 takes precedence) [3]
E21B 4/06	1-Punkt Untergruppe	. Down-hole impacting means, e.g. hammers (percussion drill bits E21B 10/36; boring rams E21B 11/02; releasing-jars E21B 31/107) [3]
E21B 4/08	2-Punkt Untergruppe	. . impact being obtained by gravity only, e.g. with lost-motion connection [3]
E21B 4/10	2-Punkt Untergruppe	. . continuous unidirectional rotary motion of shaft or drilling pipe effecting consecutive impacts [3]
E21B 4/12	2-Punkt Untergruppe	. . Electrically operated hammers [3]
E21B 4/14	2-Punkt Untergruppe	. . Fluid operated hammers [3]
E21B 4/16	1-Punkt Untergruppe	. Plural down-hole drives, e.g. for combined percussion and rotary drilling (E21B 4/10 takes precedence); Drives for multi-bit drilling units [3]
E21B 4/18	1-Punkt Untergruppe	. Anchoring or feeding in the borehole [3, 7]
E21B 4/20	1-Punkt Untergruppe	. combined with surface drive (E21B 4/10 takes precedence) [3]
E21B 6/00	Hauptgruppe	Drives for drilling with combined rotary and percussive action (drives used in the borehole E21B 4/00; portable percussive machines with superimposed rotation B25D 16/00) [3]
E21B 6/02	1-Punkt Untergruppe	. the rotation being continuous [7]
E21B 6/04	2-Punkt Untergruppe	. . Separate drives for percussion and rotation [7]
E21B 6/06	1-Punkt Untergruppe	. the rotation being intermittent, e.g. obtained by a ratchet device [7]
E21B 6/08	2-Punkt Untergruppe	. . Separate drives for percussion and rotation [7]
E21B 7/00	Hauptgruppe	Special methods or apparatus for drilling (supports for the drilling machine, e.g. derricks or masts, E21B 15/00) [1, 7]
E21B 7/02	1-Punkt Untergruppe	. Drilling rigs characterised by means for land transport, e.g. skid mounting or wheel mounting (portable drilling rigs for use on underwater floors E21B 7/124) [1, 7]
E21B 7/04	1-Punkt Untergruppe	. Directional drilling
E21B 7/06	2-Punkt Untergruppe	. . Deflecting the direction of boreholes
E21B 7/08	3-Punkt Untergruppe	. . . Special apparatus for deflecting the boring, e.g. special drill bits, knuckle joints, whipstocks (directional window cutting E21B 29/06; deflecting the direction of fishing tools E21B 31/14)
E21B 7/10	2-Punkt Untergruppe	. . Correction of deflected boreholes
E21B 7/12	1-Punkt Untergruppe	. Underwater drilling (telescoping joints E21B 17/07; using heave compensators E21B 19/09; well heads specially adapted for underwater installations E21B 33/035) [1, 7]
E21B 7/124	2-Punkt Untergruppe	. . with underwater tool drive prime mover, e.g. portable drilling rigs for use on underwater floors [3]
E21B 7/128	2-Punkt Untergruppe	. . from floating support with independent underwater anchored guide base [3]
E21B 7/132	2-Punkt Untergruppe	. . from underwater buoyant support [3]
E21B 7/136	2-Punkt Untergruppe	. . from non-buoyant support (E21B 7/124 takes precedence) [3]
E21B 7/14	1-Punkt Untergruppe	. Drilling by use of heat, e.g. flame drilling
E21B 7/15	2-Punkt Untergruppe	. . of electrically generated heat [3]
E21B 7/16	1-Punkt Untergruppe	. Applying separate balls or pellets by the pressure of the drill, so-called shot-drilling
E21B 7/18	1-Punkt Untergruppe	. Drilling by liquid or gas jets, with or without entrained pellets (E21B 7/14 takes precedence; hydraulic monitors E21C 45/00) [5]

Symbol	Typ	Titel
E21B 7/20	1-Punkt Untergruppe	. Driving or forcing casings or pipes into boreholes, e.g. sinking; Simultaneously drilling and casing boreholes (surface means for applying to-and-fro rotation movements to the casing E21B 3/025; placing piles E02D 7/00; sinking shafts while moving the lining downwards E21D 1/08) [3]
E21B 7/22	Gelöscht	(transferred to E21B 3/025)
E21B 7/24	1-Punkt Untergruppe	. Drilling using vibrating or oscillating means, e.g. out-of-balance masses (percussion drilling E21B 1/00) [3]
E21B 7/26	1-Punkt Untergruppe	. Drilling without earth removal, e.g. with self-propelled burrowing devices (E21B 7/30 takes precedence; down-hole drives E21B 4/00) [3, 6]
E21B 7/28	1-Punkt Untergruppe	. Enlarging drilled holes, e.g. by counterboring (drill bits for enlarging the borehole E21B 10/26) [3]
E21B 7/30	2-Punkt Untergruppe	. . without earth removal [6]
<u>Drilling tools</u>		
E21B 10/00	Hauptgruppe	Drill bits (specially adapted for deflecting the direction of boring E21B 7/08; valve drill bits E21B 27/00) [3]
E21B 10/02	1-Punkt Untergruppe	. Core bits (characterised by wear resisting parts E21B 10/46; obtaining undisturbed cores E21B 25/00) [3]
E21B 10/04	2-Punkt Untergruppe	. . with core destroying means [3]
E21B 10/06	2-Punkt Untergruppe	. . Roller core bits [3]
E21B 10/08	1-Punkt Untergruppe	. Roller bits (roller core bits E21B 10/06; with leading portion E21B 10/26; characterised by wear resisting parts E21B 10/46) [3]
E21B 10/10	2-Punkt Untergruppe	. . with roller axle supported at both ends (with disc cutters E21B 10/12) [3]
E21B 10/12	2-Punkt Untergruppe	. . with disc cutters [3]
E21B 10/14	2-Punkt Untergruppe	. . combined with non-rolling cutters other than of leading-portion type [3]
E21B 10/16	2-Punkt Untergruppe	. . characterised by tooth form or arrangement [3]
E21B 10/18	2-Punkt Untergruppe	. . characterised by conduits or nozzles for drilling fluids [3]
E21B 10/20	2-Punkt Untergruppe	. . characterised by detachable or adjustable parts, e.g. legs or axles (cross axle roller bits E21B 10/10) [3]
E21B 10/22	2-Punkt Untergruppe	. . characterised by bearing or lubricating details (bearings in general F16C; lubricating in general F16N) [3]
E21B 10/24	3-Punkt Untergruppe	. . . by lubricating details [3]
E21B 10/26	1-Punkt Untergruppe	. Drill bits with leading portion, i.e. drill bits with a pilot cutter; Drill bits for enlarging the borehole, e.g. reamers (percussion drill bits with leading portion E21B 10/40; augers with leading portion E21B 10/44) [3]
E21B 10/28	2-Punkt Untergruppe	. . with non-expansible roller cutters [3]
E21B 10/30	3-Punkt Untergruppe	. . . Longitudinal axis roller reamers, e.g. reamer stabilisers [3]
E21B 10/32	2-Punkt Untergruppe	. . with expansible cutting tools [3]
E21B 10/34	3-Punkt Untergruppe	. . . of roller-cutter type [3]
E21B 10/36	1-Punkt Untergruppe	. Percussion drill bits (characterised by wear resisting parts E21B 10/46) [3]
E21B 10/38	2-Punkt Untergruppe	. . characterised by conduits or nozzles for drilling fluids [3]
E21B 10/40	2-Punkt Untergruppe	. . with leading portion [3]
E21B 10/42	1-Punkt Untergruppe	. Fork-type rotary drill bits, e.g. fish tail bits with detachable blades (augers with teeth E21B 10/44; characterised by wear resisting parts E21B 10/54) [3]

Symbol	Typ	Titel
E21B 10/44	1-Punkt Untergruppe	. Bits with helical conveying portion, e.g. screw type bits; Augers with leading portion or with detachable parts (fork-type rotary drill bits E21B 10/42; drilling rods with helical structure E21B 17/22) [3]
E21B 10/46	1-Punkt Untergruppe	. characterised by wear resisting parts, e.g. diamond inserts [3]
E21B 10/48	2-Punkt Untergruppe	. . the bit being of core type [3]
E21B 10/50	2-Punkt Untergruppe	. . the bit being of roller type [3]
E21B 10/52	3-Punkt Untergruppe	. . . with chisel- or button-type inserts [3]
E21B 10/54	2-Punkt Untergruppe	. . the bit being of fork type [3]
E21B 10/56	2-Punkt Untergruppe	. . Button-type inserts (E21B 10/52 takes precedence) [3]
E21B 10/58	2-Punkt Untergruppe	. . Chisel-type inserts (E21B 10/52 , E21B 10/54 take precedence) [3]
E21B 10/60	1-Punkt Untergruppe	. characterised by conduits or nozzles for drilling fluids (for roller bits E21B 10/18; for percussion drill bits E21B 10/38) [3]
E21B 10/62	1-Punkt Untergruppe	. characterised by parts or cutting elements which are detachable or adjustable (E21B 10/64 takes precedence; for roller bits E21B 10/20; for fork-type rotary drill bits E21B 10/42; for augers E21B 10/44) [3]
E21B 10/64	1-Punkt Untergruppe	. characterised by the whole or part thereof being insertable into or removable from the borehole without withdrawing the drilling pipe (retrievable core receivers E21B 25/02) [3]
E21B 10/66	2-Punkt Untergruppe	. . the cutting element being movable through the drilling pipe and laterally shiftable [3]
E21B 11/00	Hauptgruppe	Other drilling tools
E21B 11/02	1-Punkt Untergruppe	. Boring rams (percussion drives used in the borehole E21B 4/06; percussion drill bits E21B 10/36)
E21B 11/04	1-Punkt Untergruppe	. Boring grabs
E21B 11/06	1-Punkt Untergruppe	. with driven cutting chains or similarly-driven tools
E21B 12/00	Hauptgruppe	Accessories for drilling tools [3]
E21B 12/02	1-Punkt Untergruppe	. Wear indicators [3]
E21B 12/04	1-Punkt Untergruppe	. Drill bit protectors [3]
E21B 12/06	1-Punkt Untergruppe	. Mechanical cleaning devices [3]
		<u>Other equipment or details for drilling; Well equipment or well maintenance</u>
E21B 15/00	Hauptgruppe	<i>Supports for the drilling machine, e.g. derricks or masts [1, 7]</i>
E21B 15/02	1-Punkt Untergruppe	. specially adapted for underwater drilling (E21B 15/04 takes precedence; floating drilling platforms B63B 35/44; drilling platforms on legs E02B 17/00) [3]
E21B 15/04	1-Punkt Untergruppe	. specially adapted for directional drilling, e.g. slant hole rigs [3]
E21B 17/00	Hauptgruppe	Drilling rods or pipes; Flexible drill strings; Kellies; Drill collars; Sucker rods; Casings; Tubings (rod couplings in general F16D; tubes or tube couplings in general F16L)
E21B 17/01	1-Punkt Untergruppe	. Risers (riser connectors E21B 33/038) [3]
E21B 17/02	1-Punkt Untergruppe	. Couplings; Joints
E21B 17/03	2-Punkt Untergruppe	. . between drilling rod or pipe and drill motor, e.g. between drilling rod and hammer [7]
E21B 17/04	2-Punkt Untergruppe	. . between rod and bit, or between rod and rod
E21B 17/042	3-Punkt Untergruppe	. . . threaded
E21B 17/043	4-Punkt Untergruppe	. . . with locking means

Symbol	Typ	Titel
E21B 17/046	3-Punkt Untergruppe	. . . with ribs, pins, or jaws, and complementary grooves or the like, e.g. bayonet catches
E21B 17/05	3-Punkt Untergruppe	. . . Swivel joints
E21B 17/06	3-Punkt Untergruppe	. . . Releasing-joints, e.g. safety joints
E21B 17/07	3-Punkt Untergruppe	. . . Telescoping joints for varying drill string lengths; Shock absorbers (heave compensators in the derrick E21B 19/09; releasing-jars E21B 31/107) [3]
E21B 17/08	2-Punkt Untergruppe	. . Casing joints
E21B 17/10	1-Punkt Untergruppe	. Wear protectors; Centralising devices (drives used in the borehole with anchoring means E21B 4/18; guiding or centralising devices outside the borehole E21B 19/24)
E21B 17/12	2-Punkt Untergruppe	. . Devices for placing or drawing out wear protectors
E21B 17/14	1-Punkt Untergruppe	. Casing shoes
E21B 17/16	1-Punkt Untergruppe	. Drill collars [3]
E21B 17/18	1-Punkt Untergruppe	. Pipes provided with plural fluid passages (circulation of drilling fluid by means of such pipes E21B 21/12) [3]
E21B 17/20	1-Punkt Untergruppe	. Flexible or articulated drilling pipes [3]
E21B 17/22	1-Punkt Untergruppe	. Rods or pipes with helical structure (drill bits with helical conveying portion E21B 10/44) [3]
E21B 19/00	Hauptgruppe	Handling rods, casings, tubes or the like outside the borehole, e.g. in the derrick; Apparatus for feeding the rods or cables (surface drives E21B 1/02 , E21B 3/02)
E21B 19/02	1-Punkt Untergruppe	. Rod or cable suspensions (load-engaging elements for hoisting or lowering purposes in general B66C 1/00; crown blocks or pulley blocks B66D; cable guides B66D 1/36)
E21B 19/04	2-Punkt Untergruppe	. . Hooks
E21B 19/06	2-Punkt Untergruppe	. . Elevators, i.e. rod- or tube-gripping devices
E21B 19/07	3-Punkt Untergruppe	. . . Slip-type elevators (slips in rotary tables E21B 19/10)
<i>E21B 19/08</i>	<i>1-Punkt Untergruppe</i>	<i>. Apparatus for feeding the rods or cables (E21B 19/22 takes precedence ; automatic feed E21B 44/02 ; hoisting drums B66D) ; Apparatus for increasing or decreasing the pressure on the drilling tool ; Apparatus for counterbalancing the weight of the rods [3, 7]</i>
<i>E21B 19/081</i>	<i>2-Punkt Untergruppe</i>	<i>. . Screw-and-nut feed mechanisms [7]</i>
<i>E21B 19/083</i>	<i>2-Punkt Untergruppe</i>	<i>. . Cam, rack or like feed mechanisms [7]</i>
<i>E21B 19/084</i>	<i>2-Punkt Untergruppe</i>	<i>. . with flexible drawing means, e.g. cables [7]</i>
<i>E21B 19/086</i>	<i>2-Punkt Untergruppe</i>	<i>. . with a fluid-actuated cylinder (E21B 19/084 , E21B 19/087 , E21B 19/09 take precedence) [7]</i>
<i>E21B 19/087</i>	<i>2-Punkt Untergruppe</i>	<i>. . by means of a swinging arm [7]</i>
<i>E21B 19/089</i>	<i>2-Punkt Untergruppe</i>	<i>. . with a spring or an additional weight [7]</i>
E21B 19/09	2-Punkt Untergruppe	. . specially adapted for drilling underwater formations from a floating support using heave compensators supporting the drill string (drilling-pipe telescoping joints E21B 17/07) [3]
E21B 19/10	1-Punkt Untergruppe	. Slips; Spiders
E21B 19/12	1-Punkt Untergruppe	. Rope clamps (rope clamps in general F16G 11/00)
E21B 19/14	1-Punkt Untergruppe	. Racks, ramps, troughs or bins, for holding the lengths of rod singly or connected; Handling between storage place and borehole (E21B 19/20 , E21B 19/22 take precedence) [3]

Symbol	Typ	Titel
E21B 19/15	2-Punkt Untergruppe	. . Racking of rods in horizontal position; Handling between horizontal and vertical position [3]
E21B 19/16	1-Punkt Untergruppe	. Connecting or disconnecting pipe couplings or joints (E21B 19/20 takes precedence; pipe wrenches or the like B25B) [3]
E21B 19/18	1-Punkt Untergruppe	. Connecting or disconnecting drill bit and drilling pipe [3]
E21B 19/20	1-Punkt Untergruppe	. Combined feeding from rack and connecting, e.g. automatically [3]
E21B 19/22	1-Punkt Untergruppe	. Handling reeled pipe or rod units, e.g. flexible drilling pipes [3]
E21B 19/24	1-Punkt Untergruppe	. Guiding or centralising devices for drilling rods or pipes [7]
E21B 21/00	Hauptgruppe	Methods or apparatus for flushing boreholes, e.g. by use of exhaust air from motor (freeing objects stuck in boreholes by flushing E21B 31/03 ; well drilling compositions C09K 7/00) [2, 7]
E21B 21/01	1-Punkt Untergruppe	. Arrangements for handling drilling fluids or cuttings outside the borehole, e.g. mud boxes (arrangements for treating drilling fluids E21B 21/06) [7]
E21B 21/015	2-Punkt Untergruppe	. . Means engaging the bore entrance, e.g. hoods for collecting dust [7]
E21B 21/02	1-Punkt Untergruppe	. Swivel joints in hose lines
E21B 21/06	1-Punkt Untergruppe	. Arrangements for treating drilling fluids outside the borehole (treating steps per se, see the relevant subclasses) [3]
E21B 21/07	2-Punkt Untergruppe	. . for treating dust-laden gaseous fluids [7]
E21B 21/08	1-Punkt Untergruppe	. Controlling or monitoring pressure or flow of drilling fluid, e.g. automatic filling of boreholes, automatic control of bottom pressure (valve arrangements therefor E21B 21/10) [3]
E21B 21/10	1-Punkt Untergruppe	. Valves arrangements in drilling-fluid circulation systems (valves in general F16K) [3]
E21B 21/12	1-Punkt Untergruppe	. using drilling pipes with plural fluid passages, e.g. closed circulation systems (pipes with plural fluid passages E21B 17/18) [3]
E21B 21/14	1-Punkt Untergruppe	. using liquids and gases, e.g. foams [3]
E21B 21/16	1-Punkt Untergruppe	. using gaseous fluids (E21B 21/14 takes precedence ; arrangements for handling drilling fluids outside the borehole E21B 21/01 ; arrangements for treating drilling fluids E21B 21/06) [7]
E21B 21/18	1-Punkt Untergruppe	. Preventing exhaust air from the drill motor from blowing-off towards the working face [7]
E21B 23/00	Hauptgruppe	Apparatus for displacing, setting, locking, releasing or removing tools, packers or the like in boreholes or wells (setting of casings, screens, or liners E21B 43/10)
E21B 23/01	1-Punkt Untergruppe	. for anchoring the tools or the like (E21B 23/02 to E21B 23/06 take precedence; anchoring of drives in the borehole E21B 4/18) [6]
E21B 23/02	1-Punkt Untergruppe	. for locking the tools or the like in landing nipples or in recesses between adjacent sections of tubing (E21B 23/03 to E21B 23/06 take precedence) [3]
E21B 23/03	1-Punkt Untergruppe	. for setting the tools into, or removing the tools from, laterally offset landing nipples or pockets [3]
E21B 23/04	1-Punkt Untergruppe	. operated by fluid means, e.g. actuated by explosion (E21B 23/06 , E21B 23/08 take precedence) [3]
E21B 23/06	1-Punkt Untergruppe	. for setting packers
E21B 23/08	1-Punkt Untergruppe	. Introducing or running tools by fluid pressure, e.g. through-the-flow-line tool systems (special provisions on heads therefor E21B 33/068; cementing plugs E21B 33/16; scrapers operated by fluid pressure E21B 37/04) [3]
E21B 23/10	2-Punkt Untergruppe	. . Tools specially adapted therefor [3]
E21B 23/12	2-Punkt Untergruppe	. . Tool diverters [3]

Symbol	Typ	Titel
E21B 23/14	1-Punkt Untergruppe	. for displacing a cable or a cable-operated tool, e.g. for logging or perforating operations in deviated wells (by fluid pressure E21B 23/08; provision on well heads for introducing or removing cable-operated tools E21B 33/072 , E21B 33/076) [6]
E21B 25/00	Hauptgruppe	Apparatus for obtaining or removing undisturbed cores, e.g. core barrels, core extractors (core bits E21B 10/02; using explosives or projectiles in boreholes E21B 49/04; side-wall sampling or coring E21B 49/06)
E21B 25/02	1-Punkt Untergruppe	. the core receiver being insertable into, or removable from, the borehole without withdrawing the drilling pipe (retrievable drill bits E21B 10/64) [3]
E21B 25/04	2-Punkt Untergruppe	. . the core receiver having a core forming cutting edge or element, e.g. punch type core barrels [3]
E21B 25/06	1-Punkt Untergruppe	. the core receiver having a flexible liner or inflatable retaining means [3]
E21B 25/08	1-Punkt Untergruppe	. Coating, freezing, consolidating cores (E21B 25/06 takes precedence); Recovering uncontaminated cores or cores at formation pressure [3]
E21B 25/10	1-Punkt Untergruppe	. Formed core retaining or severing means (E21B 25/06 , E21B 25/08 take precedence) [3]
E21B 25/12	2-Punkt Untergruppe	. . of the sliding wedge type [3]
E21B 25/14	2-Punkt Untergruppe	. . mounted on pivot transverse to core axis [3]
E21B 25/16	1-Punkt Untergruppe	. for obtaining oriented cores [3]
E21B 25/18	1-Punkt Untergruppe	. the core receiver being specially adapted for operation under water [3]
E21B 27/00	Hauptgruppe	Bailers; Valve drill bits [6]
E21B 27/02	1-Punkt Untergruppe	. Dump bailers, i.e. containers for depositing substances, e.g. cement or acids, in boreholes or wells [6]
E21B 28/00	Hauptgruppe	Vibration generating arrangements for boreholes or wells, e.g. for stimulating production (for drilling E21B 7/24; for transmitting measuring-signals E21B 47/14; for geophysical measurements G01V 1/02) [6]
E21B 29/00	Hauptgruppe	Cutting or destroying pipes, packers, plugs, or wire lines, located in boreholes or wells, e.g. cutting of damaged pipes, of windows (perforators E21B 43/11); Deforming of pipes in boreholes or wells; Reconditioning of well casings while in the ground
E21B 29/02	1-Punkt Untergruppe	. by explosives or by thermal or chemical means (destroying objects in boreholes or wells by explosives E21B 31/16)
E21B 29/04	1-Punkt Untergruppe	. Cutting of wire lines or the like (E21B 29/02 takes precedence) [3]
E21B 29/06	1-Punkt Untergruppe	. Cutting windows, e.g. directional window cutters for whipstock operations (E21B 29/08 takes precedence; whipstocks E21B 7/08) [3]
E21B 29/08	1-Punkt Untergruppe	. Cutting or deforming pipes to control fluid flow (blow-out preventers E21B 33/06) [3]
E21B 29/10	1-Punkt Untergruppe	. Reconditioning of well casings, e.g. straightening [3]
E21B 29/12	1-Punkt Untergruppe	. specially adapted for underwater installations (E21B 29/08 takes precedence) [3]
E21B 31/00	Hauptgruppe	Fishing for or freeing objects in boreholes or wells (provisions on well heads for introducing or removing objects E21B 33/068; locating or determining the position of objects in boreholes or wells E21B 47/09)
E21B 31/03	1-Punkt Untergruppe	. Freeing by flushing [3]
E21B 31/06	1-Punkt Untergruppe	. using magnetic means [3]
E21B 31/08	1-Punkt Untergruppe	. using junk baskets or the like [3]
E21B 31/107	1-Punkt Untergruppe	. using impact means for releasing stuck parts, e.g. jars (telescoping joints E21B 17/07) [3]
E21B 31/113	2-Punkt Untergruppe	. . hydraulically operated [3]

Symbol	Typ	Titel
E21B 31/12	1-Punkt Untergruppe	. Grappling tools, e.g. tongs or grabs
E21B 31/14	2-Punkt Untergruppe	. . with means deflecting the direction of the tool, e.g. by use of knuckle joints (apparatus for deflecting the boring E21B 7/08) [3]
E21B 31/16	2-Punkt Untergruppe	. . combined with cutting or destroying means (cutting or destroying means per se E21B 29/00) [3]
E21B 31/18	2-Punkt Untergruppe	. . gripping externally, e.g. overshot [3]
E21B 31/20	2-Punkt Untergruppe	. . gripping internally, e.g. fishing spears [3]
E21B 33/00	Hauptgruppe	Sealing or packing boreholes or wells
E21B 33/02	1-Punkt Untergruppe	. Surface sealing or packing
E21B 33/03	2-Punkt Untergruppe	. . Well heads; Setting-up thereof (valve arrangements therefor E21B 34/02)
E21B 33/035	3-Punkt Untergruppe	. . . specially adapted for underwater installations (E21B 33/043 , E21B 33/064 , E21B 33/076 take precedence) [3]
E21B 33/037	4-Punkt Untergruppe	 Protective housings therefor [3]
E21B 33/038	4-Punkt Untergruppe	 Connectors used on well heads, e.g. for connecting blow-out preventer and riser (connecting a production flow line to an underwater well head E21B 43/013) [3]
E21B 33/04	3-Punkt Untergruppe	. . . Casing heads; Suspending casings or tubings in well heads (setting of casings in wells E21B 43/10)
E21B 33/043	4-Punkt Untergruppe	 specially adapted for underwater well heads (E21B 33/047 takes precedence) [3]
E21B 33/047	4-Punkt Untergruppe	 for plural tubing strings [3]
E21B 33/05	4-Punkt Untergruppe	 Cementing-heads, e.g. having provision for introducing cementing plugs
E21B 33/06	3-Punkt Untergruppe	. . . Blow-out preventers [3]
E21B 33/064	4-Punkt Untergruppe	 specially adapted for underwater well heads (connectors therefor E21B 33/038) [3]
E21B 33/068	3-Punkt Untergruppe	. . . having provision for introducing objects or fluids into, or removing objects from, wells (cementing-heads E21B 33/05) [3]
E21B 33/072	4-Punkt Untergruppe	 for cable-operated tools (E21B 33/076 takes precedence) [3]
E21B 33/076	4-Punkt Untergruppe	 specially adapted for underwater installations [3]
E21B 33/08	2-Punkt Untergruppe	. . Wipers; Oil savers
E21B 33/10	1-Punkt Untergruppe	. in the borehole
E21B 33/12	2-Punkt Untergruppe	. . Packers; Plugs (used for cementing E21B 33/134 , E21B 33/16)
E21B 33/122	3-Punkt Untergruppe	. . . Multiple-string packers
E21B 33/124	3-Punkt Untergruppe	. . . Units with longitudinally-spaced plugs for isolating the intermediate space
E21B 33/126	3-Punkt Untergruppe	. . . with fluid-pressure-operated elastic cup or skirt (E21B 33/122 , E21B 33/124 take precedence)
E21B 33/127	3-Punkt Untergruppe	. . . with inflatable sleeve (E21B 33/122 , E21B 33/124 take precedence)
E21B 33/128	3-Punkt Untergruppe	. . . with a member expanded radially by axial pressure (E21B 33/122 , E21B 33/124 take precedence)
E21B 33/129	3-Punkt Untergruppe	. . . with mechanical slips for hooking into the casing (E21B 33/122 , E21B 33/124 take precedence)
E21B 33/1295	4-Punkt Untergruppe	 actuated by fluid pressure [6]

Symbol	Typ	Titel
E21B 33/13	2-Punkt Untergruppe	. . Methods or devices for cementing, for plugging holes, crevices, or the like (dump bailers E21B 27/02; soil-conditioning or soil-stabilising materials C09K 17/00)
E21B 33/134	3-Punkt Untergruppe	. . . Bridging plugs
E21B 33/136	3-Punkt Untergruppe	. . . Baskets, e.g. of umbrella type
E21B 33/138	3-Punkt Untergruppe	. . . Plastering the borehole wall; Injecting into the formation
E21B 33/14	3-Punkt Untergruppe	. . . for cementing casings into boreholes
E21B 33/16	4-Punkt Untergruppe	 using plugs for isolating cement charge; Plugs therefor
E21B 34/00	Hauptgruppe	Valve arrangements for boreholes or wells (in drilling fluid circulation systems E21B 21/10; blow-out preventers E21B 33/06; oil flow regulating apparatus E21B 43/12; valves in general F16K) [3]
E21B 34/02	1-Punkt Untergruppe	. in well heads [3]
E21B 34/04	2-Punkt Untergruppe	. . in underwater well heads [3]
E21B 34/06	1-Punkt Untergruppe	. in wells [3]
E21B 34/08	2-Punkt Untergruppe	. . responsive to flow or pressure of the fluid obtained (E21B 34/10 takes precedence) [3]
E21B 34/10	2-Punkt Untergruppe	. . operated by control fluid supplied from outside the borehole (control means being outside the borehole E21B 34/16) [3]
E21B 34/12	2-Punkt Untergruppe	. . operated by movement of casings or tubings [3]
E21B 34/14	2-Punkt Untergruppe	. . operated by movement of tools, e.g. sleeve valves operated by pistons or wire line tools [3]
E21B 34/16	1-Punkt Untergruppe	. Control means therefor being outside the borehole [3]
E21B 35/00	Hauptgruppe	Methods or apparatus for preventing or extinguishing fires (cutting or deforming pipes to control fluid flow E21B 29/08; controlling flow of fluid to or in wells E21B 43/12; fire fighting in general A62C , A62D)
E21B 36/00	Hauptgruppe	Heating, cooling, or insulating arrangements for boreholes or wells, e.g. for use in permafrost zones (drilling by use of heat E21B 7/14; secondary recovery methods using heat E21B 43/24) [3]
E21B 36/02	1-Punkt Untergruppe	. using burners [3]
E21B 36/04	1-Punkt Untergruppe	. using electrical heaters [3]
E21B 37/00	Hauptgruppe	Methods or apparatus for cleaning boreholes or wells (E21B 21/00 takes precedence; cleaning pipes in general B08B 9/02)
E21B 37/02	1-Punkt Untergruppe	. Scrapers specially adapted therefor
E21B 37/04	2-Punkt Untergruppe	. . operated by fluid pressure, e.g. free-piston scrapers (operating other tools by fluid pressure E21B 23/08) [3]
E21B 37/06	1-Punkt Untergruppe	. using chemical means for preventing or limiting the deposition of paraffins or like substances [3]
E21B 37/08	1-Punkt Untergruppe	. cleaning in situ of down-hole filters, screens, or gravel packs (E21B 37/06 takes precedence) [3]
E21B 37/10	1-Punkt Untergruppe	. Well swabs [3]
E21B 40/00	Hauptgruppe	Tubing catchers, automatically arresting the fall of oil-well tubing
E21B 41/00	Hauptgruppe	Equipment or details not covered by groups E21B 15/00 to E21B 40/00
E21B 41/02	1-Punkt Untergruppe	. in situ inhibition of corrosion in boreholes or wells (dump bailers E21B 27/02; inhibiting corrosion in general C23F) [3, 6]
E21B 41/04	1-Punkt Untergruppe	. Manipulators for underwater operations, e.g. temporarily connected to well heads (manipulators in general B25J) [3]

Symbol	Typ	Titel
E21B 41/06	1-Punkt Untergruppe	. Work chambers for underwater operations, e.g. temporarily connected to well heads (in general B63C 11/00) [3]
E21B 41/08	1-Punkt Untergruppe	. Underwater guide bases, e.g. drilling templates; Levelling thereof [7]
E21B 41/10	1-Punkt Untergruppe	. Guide posts, e.g. releasable; Attaching guide lines to underwater guide bases [7]
<u>Obtaining fluids from wells [3]</u>		
E21B 43/00	Hauptgruppe	Methods or apparatus for obtaining oil, gas, water, soluble or meltable materials or a slurry of minerals from wells (applicable only to water E03B; obtaining oil-bearing deposits or soluble or meltable materials by mining techniques E21C 41/00; pumps F04)
E21B 43/01	1-Punkt Untergruppe	. specially adapted for obtaining from underwater installations (underwater well heads E21B 33/035)
E21B 43/013	2-Punkt Untergruppe	. . Connecting a production flow line to an underwater well head [3]
E21B 43/017	2-Punkt Untergruppe	. . Production satellite stations, i.e. underwater installations comprising a plurality of satellite well heads connected to a central station (underwater separating arrangements E21B 43/36) [3]
E21B 43/02	1-Punkt Untergruppe	. Subsoil filtering (E21B 43/11 takes precedence)
E21B 43/04	2-Punkt Untergruppe	. . Graveling of wells
E21B 43/08	2-Punkt Untergruppe	. . Screens or liners
E21B 43/10	2-Punkt Untergruppe	. . Setting of casings, screens or liners in wells (driving or forcing casings into boreholes, simultaneously drilling and casing boreholes E21B 7/20; setting of tools, packers or the like E21B 23/00; suspending casings in well heads E21B 33/04)
E21B 43/11	1-Punkt Untergruppe	. Perforators; Permeators
E21B 43/112	2-Punkt Untergruppe	. . Perforators with extendable perforating members, e.g. actuated by fluid means
E21B 43/114	2-Punkt Untergruppe	. . Perforators using direct fluid action, e.g. abrasive jets
E21B 43/116	2-Punkt Untergruppe	. . Gun or shaped-charge perforators
E21B 43/117	3-Punkt Untergruppe	. . . Shaped-charge perforators (E21B 43/118 takes precedence)
E21B 43/118	3-Punkt Untergruppe	. . . characterised by lowering in vertical position and subsequent tilting to operating position
E21B 43/1185	3-Punkt Untergruppe	. . . Ignition systems [3]
E21B 43/119	2-Punkt Untergruppe	. . Details, e.g. for locating perforating place or direction
E21B 43/12	1-Punkt Untergruppe	. Methods or apparatus for controlling the flow of the obtained fluid to or in wells (E21B 43/25 takes precedence; valve arrangements E21B 34/00)
E21B 43/14	1-Punkt Untergruppe	. Obtaining from a multiple-zone well
E21B 43/16	1-Punkt Untergruppe	. Enhanced recovery methods for obtaining hydrocarbons (fracturing E21B 43/26; obtaining slurry E21B 43/29; reclamation of contaminated soil in situ B09C)
E21B 43/17	2-Punkt Untergruppe	. . Interconnecting two or more wells by fracturing or otherwise attacking the formation (E21B 43/247 takes precedence) [3]
E21B 43/18	2-Punkt Untergruppe	. . Repressuring or vacuum methods
E21B 43/20	2-Punkt Untergruppe	. . Displacing by water
E21B 43/22	2-Punkt Untergruppe	. . Use of chemicals or bacterial activity (E21B 43/27 takes precedence; chemical features in extracting oils from oil sands or shales C10G)
E21B 43/24	2-Punkt Untergruppe	. . using heat, e.g. steam injection (heating, cooling or insulating wells E21B 36/00)

Symbol	Typ	Titel
E21B 43/241	3-Punkt Untergruppe	. . . combined with solution mining of non-hydrocarbon minerals, e.g. solvent pyrolysis of oil shale [5]
E21B 43/243	3-Punkt Untergruppe	. . . Combustion in situ [3]
E21B 43/247	4-Punkt Untergruppe	 In association with fracturing processes [3]
E21B 43/248	5-Punkt Untergruppe	 using explosives [5]
E21B 43/25	1-Punkt Untergruppe	. Methods for stimulating production (dump bailers E21B 27/02; vibration generating arrangements E21B 28/00)
E21B 43/26	2-Punkt Untergruppe	. . by forming crevices or fractures
E21B 43/263	3-Punkt Untergruppe	. . . using explosives [3]
E21B 43/267	3-Punkt Untergruppe	. . . reinforcing fractures by propping [3]
E21B 43/27	3-Punkt Untergruppe	. . . by use of eroding chemicals, e.g. acids
E21B 43/28	1-Punkt Untergruppe	. Dissolving minerals other than hydrocarbons, e.g. by an alkaline or acid leaching agent (E21B 43/241 takes precedence) [5]
E21B 43/285	1-Punkt Untergruppe	. Melting minerals, e.g. sulfur (E21B 43/24 takes precedence; heating, cooling or insulating arrangements for wells E21B 36/00) [5]
E21B 43/29	1-Punkt Untergruppe	. Obtaining a slurry of minerals, e.g. by using nozzles [5]
E21B 43/295	1-Punkt Untergruppe	. Gasification of minerals, e.g. for producing mixtures of combustible gases (E21B 43/243 takes precedence) [5]
E21B 43/30	1-Punkt Untergruppe	. Specific pattern of wells, e.g. optimizing the spacing of wells (production satellite stations E21B 43/017) [3]
E21B 43/32	1-Punkt Untergruppe	. Preventing gas- or water-coning phenomena, i.e. the formation of a conical column of gas or water around wells [3]
E21B 43/34	1-Punkt Untergruppe	. Arrangements for separating materials produced by the well (separating apparatus per se, see the relevant subclasses) [3]
E21B 43/36	2-Punkt Untergruppe	. . Underwater separating arrangements (E21B 43/38 takes precedence) [3]
E21B 43/38	2-Punkt Untergruppe	. . in the well [3]
E21B 43/40	2-Punkt Untergruppe	. . Separation associated with re-injection of separated materials [3]
E21B 44/00	Hauptgruppe	<u>Automatic control; Surveying or testing [3]</u> Automatic control systems specially adapted for drilling operations, i.e. self-operating systems which function to carry out or modify a drilling operation without intervention of a human operator, e.g. computer-controlled drilling systems (for non-automatic drilling control, see the operation controlled; automatic feeding from rack and connecting of drilling pipes E21B 19/20; controlling pressure or flow of drilling fluid E21B 21/08); Systems specially adapted for monitoring a plurality of drilling variables or conditions (means for transmitting measuring-signals from the well to the surface E21B 47/12) [3]
E21B 44/02	1-Punkt Untergruppe	. Automatic control of the tool feed (E21B 44/10 takes precedence) [7]
E21B 44/04	2-Punkt Untergruppe	. . in response to the torque of the drive [7]
E21B 44/06	2-Punkt Untergruppe	. . in response to the flow or pressure of the motive fluid of the drive [7]
E21B 44/08	2-Punkt Untergruppe	. . in response to the amplitude of the movement of the percussion tool, e.g. jump or recoil [7]
E21B 44/10	1-Punkt Untergruppe	. Arrangements for automatic stopping when the tool is lifted from the working face [7]
		<u>Surveying or testing</u>

Symbol	Typ	Titel
E21B 45/00	Hauptgruppe	Measuring the drilling time or rate of penetration
E21B 47/00	Hauptgruppe	Survey of boreholes or wells (monitoring pressure or flow of drilling fluid E21B 21/08; geophysical logging G01V)
E21B 47/01	1-Punkt Untergruppe	. Devices for supporting measuring instruments on a drill pipe, rod or wireline (setting or locking tools in boreholes or wells E21B 23/00); Protecting measuring instruments in boreholes against heat, shock, pressure or the like [6]
E21B 47/02	1-Punkt Untergruppe	. Determining slope or direction (clinometers or direction meters G01C)
E21B 47/022	2-Punkt Untergruppe	. . of the borehole
E21B 47/024	2-Punkt Untergruppe	. . of devices in the borehole (E21B 47/022 takes precedence)
E21B 47/026	2-Punkt Untergruppe	. . of penetrated ground layers (apparatus for obtaining oriented cores E21B 25/16; formation testing E21B 49/00)
E21B 47/04	1-Punkt Untergruppe	. Measuring depth or liquid level (measuring liquid level in general G01F)
E21B 47/06	1-Punkt Untergruppe	. Measuring temperature or pressure (measuring temperature in general G01K; measuring pressure in general G01L)
E21B 47/08	1-Punkt Untergruppe	. Measuring diameter (measuring diameter in general G01B)
E21B 47/09	1-Punkt Untergruppe	. Locating or determining the position of objects in boreholes or wells; Identifying the free or blocked portions of pipes (measuring depth E21B 47/04; measuring diameter E21B 47/08) [3]
E21B 47/10	1-Punkt Untergruppe	. Locating fluid leaks, intrusions, or movements
E21B 47/12	1-Punkt Untergruppe	. Means for transmitting measuring-signals from the well to the surface, e.g. for logging while drilling (remote signalling in general G08)
E21B 47/14	2-Punkt Untergruppe	. . using acoustic waves [6]
E21B 47/16	3-Punkt Untergruppe	. . . through the drill string or casing [6]
E21B 47/18	3-Punkt Untergruppe	. . . through the well fluid [6]
E21B 49/00	Hauptgruppe	Testing the nature of borehole walls; Formation testing; Methods or apparatus for obtaining samples of soil or well fluids, specially adapted to earth drilling or wells (sampling in general G01N 1/00)
E21B 49/02	1-Punkt Untergruppe	. by mechanically taking samples of the soil (apparatus for obtaining undisturbed cores E21B 25/00; investigation of foundation soil in situ E02D 1/00)
E21B 49/04	2-Punkt Untergruppe	. . using explosives in boreholes; using projectiles penetrating the wall [3]
E21B 49/06	2-Punkt Untergruppe	. . using side-wall drilling tools or scrapers
E21B 49/08	1-Punkt Untergruppe	. Obtaining fluid samples or testing fluids, in boreholes or wells [3]
E21B 49/10	2-Punkt Untergruppe	. . using side-wall fluid samplers or testers [3]