CPC COOPERATIVE PATENT CLASSIFICATION

D TEXTILES; PAPER

TEXTILES OR FLEXIBLE MATERIALS NOT OTHERWISE PROVIDED FOR

D07 ROPES; CABLES OTHER THAN ELECTRIC

D07B ROPES OR CABLES IN GENERAL (joining ropes or cables to one another or to other objects B65H 69/00, F16G 11/00; {mountaineering ropes A63B 29/02}; mechanical finishing or dressing of ropes D02J; {braiding D04C}; decorative ropes or cords D04D; suspension cables for bridges E01D 19/16; specially adapted for driving, or for being driven by, pulleys or other gearing elements F16G 9/00; electric cables or joints insofar as electrical aspects are essential H01B, H01R)

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

1/00 Constructional features of ropes or cables

1/005 . {Composite ropes, i.e. ropes built-up from fibrous or filamentary material and metal wires}

1/02 . Ropes built-up from fibrous or filamentary material, e.g. of vegetable origin, of animal origin, regenerated cellulose, plastics

1/025 . . {comprising high modulus, or high tenacity, polymer filaments or fibres, e.g. liquid-crystal polymers}

1/04 . . with a core of fibres or filaments arranged parallel to the centre line

1/06 . Ropes or cables built-up from metal wires, e.g. of section wires around a hemp core

1/0606 . . {Reinforcing cords for rubber or plastic articles}

1/0613 . . . {the reinforcing cords being characterised by the rope configuration}

1/062 . . . {the reinforcing cords being characterised by the strand configuration}

1/0626 . . . . {the reinforcing cords consisting of three core wires or filaments and at least one layer of outer wires or filaments, i.e. a 3+N configuration}

1/0633 . . . . {having a multiple-layer configuration}

1/064 . . . . {the reinforcing cords being twisted and with at least one wire exchanging place with another wire}

1/0646 . . . {comprising longitudinally preformed wires}

1/0653 . . . . {in the core}

1/066 . . . {the wires being made from special alloy or special steel composition}

1/0666 . . . {the wires being characterised by an anti-corrosive or adhesion promoting coating}

1/0673 . . {having a rope configuration}

1/068 . . . {characterised by the strand design}

1/0686 . . . {characterised by the core design}

1/0693 . . {having a strand configuration}

1/08 . . the layers of which are formed of profiled interlocking wires, i.e. the strands forming concentric layers {(D07B 1/0606 takes precedence)}

1/10 . . . with a core of wires arranged parallel to the centre line

1/12 . Ropes or cables with a hollow core

1/14 . Ropes or cables with incorporated auxiliary elements, e.g. for marking, extending throughout the length of the rope or cable

1/141 . . {comprising liquid, pasty or powder agents, e.g. lubricants or anti-corrosive oils or greases}

1/142 . . . {for ropes or rope components built-up from fibrous or filamentary material}

1/144 . . . {for cables or cable components built-up from metal wires}

1/145 . . {comprising elements for indicating or detecting the rope or cable status}

1/147 . . {comprising electric conductors or elements for information transfer (D07B 1/145 takes precedence)}

1/148 . . {comprising marks or luminous elements}

1/16 . Ropes or cables with an enveloping sheathing or inlays of rubber or plastics (D07B 1/04, D07B 1/10 take precedence)

1/162 . . {characterised by a plastic or rubber enveloping sheathing}

1/165 . . {characterised by a plastic or rubber inlay}

1/167 . . . {having a predetermined shape}

1/18 . Grommets {(slings B66C 1/12)}

1/185 . . {characterised by the eye construction}

1/20 . Buoyant ropes, e.g. with air-filled cellular cores; Accessories therefor

1/22 . Flat or flat-sided ropes; Sets of ropes consisting of a series of parallel ropes

Manufacture of ropes or cables

3/00 General-purpose machines or apparatus for producing twisted ropes or cables from component strands of the same or different material

3/005 . {with alternating twist directions}

3/02 . in which the supply reels rotate about the axis of the rope or cable {or in which a guide member rotates about the axis of the rope or cable to guide the component strands away from the supply reels in fixed position}
3/04 . . and are arranged in tandem along the axis of the machine {, e.g. tubular or high-speed type stranding machine}
3/045 . . . {with the reels axially aligned, their common axis coinciding with the axis of the machine}
3/06 . . and are spaced radially from the axis of the machine {, i.e. basket or planetary-type stranding machine}
3/08 . in which the take-up reel rotates about the axis of the rope or cable {or in which a guide member rotates about the axis of the rope or cable to guide the rope or cable on the take-up reel in fixed position} and the supply reels are fixed in position
3/085 . . {in which a guide member rotates about the axis of the rope or cable to guide the rope or cable on the take-up reel in fixed position}
3/10 . . with provision for imparting more than one complete twist to the ropes or cables for each revolution of the take-up reel {or of the guide member}
3/103 . . . {characterised by the bow construction}
3/106 . . . {characterised by comprising two bows, both guiding the same bundle to impart a twist}
3/12 . operating with rotating loops of filaments
3/14 . hand-operated

5/00 Making ropes or cables from special materials or of particular form

5/002 . {Making parallel wire strands}
5/005 . {characterised by their outer shape or surface properties}
5/006 . . {by the properties of an outer surface polymeric coating}
5/007 . {comprising postformed and thereby radially plastically deformed elements}
5/02 . from straw or like vegetable material
5/04 . Rope bands
5/06 . from natural or artificial staple fibres
5/08 . . agglutinated by adhesives
5/10 . from strands of non-circular cross-section
5/12 . of low twist or low tension by processes comprising setting or straightening treatments

7/00 Details of, or auxiliary devices incorporated in, rope- or cable-making machines; Auxiliary apparatus associated with such machines

7/02 . Machine details; Auxiliary devices
7/022 . . {Measuring or adjusting the lay or torque in the rope}
7/025 . . {Preforming the wires or strands prior to closing}
7/027 . . {Postforming of ropes or strands}
7/04 . . Devices for imparting reverse rotation to bobbin- or reel cages
7/06 . . Bearing supports or brakes for supply bobbins or reels
7/08 . . Alarms or stop motions responsive to exhaustion or breakage of filamentary material fed from supply reels or bobbins
7/10 . . Devices for taking-up or winding the finished rope or cable
7/12 . . for softening, lubricating or impregnating ropes, cables, or component strands thereof
7/14 . . for coating or wrapping ropes, cables, or component strands thereof (applying liquids or other fluent materials to surfaces in general B05; wrapping elongated cores in general B65H 81/06)
7/145 . . . {Coating or filling-up interstices}
7/16 . Auxiliary apparatus
7/162 . . {Vices or clamps for bending or holding the rope or cable during splicing}
7/165 . . {for making slings}
7/167 . . {for joining rope components}
7/169 . . {for interconnecting two cable or rope ends, e.g. by splicing or sewing (fixation or holding of the ends prior to or during splicing D07B 7/162; joining the rope or cable components individually or joining the rope ends by permanent means such as welding, gluing or crimp sleeve D07B 7/167; preparing the splice by opening the ends D07B 7/18)}
7/18 . . for spreading or untwisting ropes or cables into constituent parts for treatment or splicing purposes
7/182 . . . {for spreading ropes or cables by hand-operated tools for splicing purposes, e.g. needles or spikes}
7/185 . . . {for temporarily untwisting ropes or cables into constituent parts for applying a coating}
7/187 . . . {for forming bulbs in ropes or cables}

9/00 Binding or sealing ends, e.g. to prevent unravelling

2201/00 Ropes or cables

2201/10 . Rope or cable structures
2201/1004 . . General structure or appearance
2201/1008 . . . Several parallel ropes
2201/1012 . . characterised by their internal structure
2201/1014 . . . characterised by being laid or braided from several sub-ropes or sub-cables, e.g. hawsers
2201/1016 . . . characterised by the use of different strands
2201/102 . . . including a core
2201/1024 . . Structures that change the cross-sectional shape
2201/1028 . . characterised by the number of strands
2201/1032 . . . three to eight strands respectively forming a single layer
2201/1036 . . . nine or more strands respectively forming multiple layers
2201/104 . . twisted
2201/1044 . . . characterised by a value or range of the pitch parameter given
2201/1048 . . . using regular lay, i.e. the wires or filaments being parallel to rope axis
2201/1052 . . . using lang lay, i.e. the wires or filaments being inclined relative to the rope axis
2201/1056 . . . using alternate lay, i.e. the wires or filaments in the strands being oppositely inclined relative to the rope axis
2201/106 . . . Pitch changing over length
2201/1064 . . . characterised by lay direction of the strand compared to the lay direction of the wires in the strand
2201/1068 . . . . having the same lay direction

2201/1072 . . . Compact winding, i.e. S/S or Z/Z
2201/1076 . . . Open winding
2201/108 . . . . Cylinder winding, i.e. S/Z or Z/S
2201/1084 . . . . Different twist pitch
2201/1088 . . false twisted
2201/1092 . . Parallel strands
2201/1096 . . braided
2201/20 . Rope or cable components
2201/2001 . . Wires or filaments
2201/2002 . . . characterised by their cross-sectional shape
2201/2003 . . . . flat
2201/2004 . . . . triangular
2201/2005 . . . . oval
2201/2006 . . . characterised by a value or range of the dimension given
2201/2007 . . . characterised by their longitudinal shape
2201/2008 . . . . wavy or undulated
2201/2009 . . . characterised by the materials used
2201/201 . . . characterised by a coating
2201/2011 . . . . comprising metals
2201/2012 . . . . comprising polymers
2201/2013 . . . . comprising multiple layers
2201/2014 . . . Compound wires or compound filaments
2201/2015 . . Strands
2201/2016 . . . characterised by their cross-sectional shape
2201/2017 . . . . triangular
2201/2018 . . . . oval
2201/2019 . . . pressed to shape
2201/202 . . . characterised by a value or range of the dimension given
2201/2021 . . . characterised by their longitudinal shape
2201/2022 . . . coreless
2201/2023 . . . with core
2201/2024 . . . twisted
2201/2025 . . . . characterised by a value or range of the pitch parameter given
2201/2026 . . . . Pitch changing over length
2201/2027 . . . . Compact winding
2201/2028 . . . . . having the same lay direction and lay pitch
2201/2029 . . . . Open winding
2201/203 . . . . . Cylinder winding, i.e. S/Z or Z/S
2201/2031 . . . . . Different twist pitch
2201/2032 . . . . . compared with the core
2201/2033 . . . Parallel wires
2201/2034 . . . comprising crossing wires or filaments in the same layer
2201/2035 . . . false twisted
2201/2036 . . . characterised by the use of different wires or filaments
2201/2037 . . . . regarding the dimension of the wires or filaments
2201/2038 . . . characterised by the number of wires or filaments
2201/2039 . . . . three to eight wires or filaments respectively forming a single layer
2201/204 . . . . nine or more wires or filaments respectively forming multiple layers
2201/2041 . . . characterised by the materials used
2201/2042 . . . characterised by a coating
2201/2043 . . . . comprising metals
2201/2044 . . . . comprising polymers
2201/2045 . . . . comprising multiple layers
2201/2046 . . . comprising fillers
2201/2047 . . Cores
2201/2048 . . . characterised by their cross-sectional shape
2201/2049 . . . . having protrusions extending radially functioning as spacer between strands or wires
2201/2051 . . . characterised by a value or range of the dimension given
2201/2052 . . . characterised by their structure
2201/2053 . . . . being homogeneous
2201/2054 . . . . . comprising foam material
2201/2055 . . . . comprising filaments or fibers
2201/2056 . . . . . arranged parallel to the axis
2201/2057 . . . . . resulting in a twisted structure
2201/2058 . . . . . comprising fillers
2201/2059 . . . . comprising wires
2201/206 . . . . . arranged parallel to the axis
2201/2061 . . . . . resulting in a twisted structure
2201/2062 . . . . . comprising fillers
2201/2063 . . . . being hollow
2201/2064 . . . . being discontinuous in the longitudinal direction
2201/2065 . . . . comprising a coating
2201/2066 . . . characterised by the materials used
2201/2067 . . . characterised by the elongation or tension behaviour
2201/2068 . . . . having a load bearing function
2201/2069 . . . . being elastic
2201/207 . . . . being viscous
2201/2071 . . Spacers
2201/2072 . . . characterised by the materials used
2201/2073 . . . in circumferencial direction
2201/2074 . . . in radial direction
2201/2075 . . Fillers
2201/2076 . . . having a lubricant function
2201/2077 . . . having an anti-corrosive function
2201/2078 . . . having a load bearing function
2201/2079 . . . characterised by the kind or amount of filling
2201/208 . . . . having an open structure
2201/2081 . . . . having maximum filling
2201/2082 . . . characterised by the materials used
2201/2083 . . Jackets or coverings
2201/2084 . . . characterised by their shape
2201/2085 . . . . concerning the internal shape
2201/2086 . . . . concerning the external shape
2201/2087 . . . being of the coated type
2201/2088 . . . having multiple layers
2201/2089 . . . comprising wrapped structures
2201/209 . . . comprising braided structures
2201/20903 . . . comprising woven structures
2201/20907 . . . comprising knitted structures
2201/2091 . . . being movable relative to the internal structure
2201/2092 . . . characterised by the materials used
2201/2093 . . . . being translucent
2201/2094 . . . . being luminescent or reflective
2201/2095 . . Auxiliary components, e.g. electric conductors or light guides
2201/2096 . . . Light guides
2201/2097 . . . Binding wires
2201/2098 . . . . characterized by special properties or the arrangements of the binding wire

2205/00 **Rope or cable materials**
2205/10 . Natural organic materials
2205/103 . . Animal and plant materials
2205/106 . . . Manila, hemp or sisal
2205/20 . Organic high polymers
2205/2003 . . Thermoplastics
2205/2007 . . Duroplastics
2205/201 . . Polyolefins
2205/2014 . . . High performance polyolefins, e.g. Dyneema or Spectra
2205/2017 . . Polystyrenes
2205/2021 . . Polyvinyl halides
2205/2025 . . Polyvinyl acetates
2205/2028 . . Polyvinyl alcohols
2205/2032 . . Polyacrylics
2205/2035 . . Polyacetals
2205/2039 . . Polyesters
2205/2042 . . . High performance polyesters, e.g. Vectran
2205/2046 . . Polyamides, e.g. nylons
2205/205 . . . Aramides
2205/2053 . . . . Polybenzimidazol [PBI]
2205/2057 . . Phenol resins
2205/206 . . Epoxy resins
2205/2064 . . Polyurethane resins
2205/2067 . . Viscose or regenerated cellulose, e.g. Rayon
2205/2071 . . Fluor resins
2205/2075 . . Rubbers, i.e. elastomers
2205/2078 . . . being of natural origin
2205/2082 . . . being of synthetic nature, e.g. chloroprene
2205/2085 . . having particular high polymer characteristics
2205/2089 . . . showing heat contraction
2205/2092 . . . related to water solubility
2205/2096 . . Poly-p-phenylenebenzo-bisoxazole [PBO]
2205/30 . Inorganic materials
2205/3003 . . Glass
2205/3007 . . Carbon
2205/301 . . Ceramics
2205/3014 . . Asbestos
2205/3017 . . Silicon carbides
2205/3021 . . Metals
2205/3025 . . . Steel
2205/3028 . . . . Stainless steel
2205/3032 . . . . Austenite
2205/3035 . . . . Pearlite
2205/3039 . . . . Martensite
2205/3042 . . . . Ferrite
2205/3046 . . . . characterised by the carbon content
2205/305 . . . . . having a low carbon content, e.g. below 0,5 percent respectively NT wires
2205/3053 . . . . . having a medium carbon content, e.g. greater than 0,5 percent and lower than 0.8 percent respectively HT wires
2205/3057 . . . . . having a high carbon content, e.g. greater than 0,8 percent respectively SHT or UHT wires
2205/306 . . . Aluminium (Al)
2205/3064 . . . Chromium (Cr)
2205/3067 . . . Copper (Cu)
2205/3071 . . . Zinc (Zn)
2205/3075 . . . Tin (Sn)
2205/3078 . . . Lead (Pb)
2205/3082 . . . Tungsten (W)
2205/3085 . . . Alloys, i.e. non ferrous
2205/3089 . . . . Brass, i.e. copper (Cu) and zinc (Zn) alloys
2205/3092 . . . . Zinc (Zn) and tin (Sn) alloys
2205/3096 . . . Amorphous metals
2205/40 . Superconductive materials
2205/405 . . Ceramic superconductor
2205/50 . Lubricants
2205/502 . . Oils
2205/505 . . Greases
2205/507 . . Solid lubricants

2207/00 **Rope or cable making machines**
2207/20 . Type of machine
2207/201 . . Manually operated systems
2207/202 . . Double twist unwinding
2207/203 . . . comprising flyer
2207/204 . . Double twist winding
2207/205 . . . comprising flyer
2207/206 . . . with means for providing less than double twist, e.g. counter rotating means
2207/207 . . Sequential double twisting devices
2207/208 . . . characterised by at least partially unwinding the twist of the upstream double twisting step
2207/209 . . Tubular strander
2207/40 . Machine components
2207/4004 . . Unwinding devices
2207/4009 . . . over the head
2207/4013 . . . comprising flyer
2207/4018 . . Rope twisting devices
2207/4022 . . . characterised by twisting die specifics
2207/4027 . . . . including a coating die
2207/4031 . . Winding device
2207/4036 . . . comprising traversing means
2207/404 . . Heat treating devices; Corresponding methods
2207/4045 . . . to change the crystal structure of the load bearing material
2207/405 . . . to heat towards the glass transition temperature of the load bearing material
2207/4054 . . . to soften the load bearing material
2207/4059 . . . to soften the filler material
2207/4063 . . . for stress relief
2207/4068 . . . for curing
2207/4072 . . Means for mechanically reducing serpentining or mechanically killing of rope
2207/4077 . . Safety devices
2207/4081 . . . comprising means for stopping or shutting down the machine
2207/4086 . . . providing warnings
2207/409 . . Drives
2207/4095 . . . Control means therefor

2301/00 **Controls**
2301/10 . Open loop
2301/15 . Closed loop
2301/155 . . being of the extended closed loop control system type, e.g. using models or more than one signal in the feedback loop
2301/20 . Controller types
2301/201 . . proportional
2301/202 . . integrative
2301/204 . . differential
2301/205 . . Programmable controllers; Calculating or controlling methods

2301/207 . . . Fuzzy logic
2301/208 . . . using timing functions
2301/25 . System input signals, e.g. set points
2301/251 . . Twist
2301/252 . . Temperature
2301/253 . . . Temperature profile or sequence
2301/254 . . Amount of material
2301/255 . . Power consumption of drive
2301/256 . . Pressure
2301/257 . . Force
2301/258 . . Tensile stress
2301/259 . . Strain or elongation
2301/30 . Signals indicating failure or excessive conditions, e.g. overheating
2301/302 . . Temperature
2301/305 . . Wear or friction
2301/307 . . Breakage of wire or strand or rope
2301/35 . System output signals
2301/3508 . . Twist
2301/3516 . . Temperature
2301/3525 . . . Temperature profile or sequence
2301/3533 . . Amount of material
2301/3541 . . Power consumption of drive
2301/355 . . Pressure
2301/3558 . . Force
2301/3566 . . Tensile stress
2301/3575 . . Strain or elongation
2301/3583 . . Rotational speed
2301/3591 . . Linear speed
2301/40 . Feedback signal in closed loop controls
2301/4008 . . Twist
2301/4016 . . Temperature
2301/4025 . . . Temperature profile or sequence
2301/4033 . . Amount of material
2301/4041 . . Power consumption of drive
2301/405 . . Pressure
2301/4058 . . Force
2301/4066 . . Tensile stress
2301/4075 . . Strain or elongation
2301/4083 . . Rotational speed
2301/4091 . . Linear speed
2301/45 . for diagnosing (signals indicating failure or excessive conditions D07B 2301/30)
2301/50 . User Interface or value setting
2301/55 . Sensors
2301/5504 . . characterised by their arrangement
2301/5509 . . . being movable
2301/5513 . . . being of the reflective type
2301/5518 . . . . Transducers therefor
2301/5522 . . . being of the barrier type
2301/5527 . . . comprising an array or multiple sensors
2301/5531 . . using electric means or elements
2301/5536 . . . for measuring electrical current
2301/554 . . . for measuring variable resistance
2301/5545 . . . and piezoelectric phenomenons
2301/555 . . . for measuring magnetic properties
2301/5554 . . . for measuring capacitance
2301/5559 . . . for measuring inductance
2301/5563 . . . for measuring temperature, i.e. thermocouples
2301/5568 . . . acoustic or ultrasonic
2301/5572 . . . optical
2301/5577 . . . using light guides
2301/5581 . . . using cameras
2301/5586 . . . using lasers
2301/559 . . . for pressure
2301/5595 . . . for force

2401/00 Aspects related to the problem to be solved or advantage

2401/20 . related to ropes or cables
2401/2005 . . Elongation or elasticity
2401/201 . . . regarding structural elongation
2401/2015 . . Killing or avoiding twist
2401/202 . . Environmental resistance
2401/2025 . . . avoiding corrosion
2401/203 . . . Low temperature resistance
2401/2035 . . . High temperature resistance
2401/204 . . . Moisture handling
2401/2045 . . Avoiding longitudinal load for covering
2401/205 . . Avoiding relative movement of components
2401/2055 . . Improving load capacity
2401/206 . . Improving radial flexibility
2401/2065 . . Reducing wear
2401/207 . . . internally
2401/2075 . . . externally
2401/208 . . Enabling filler penetration
2401/2085 . . Adjusting or controlling final twist
2401/209 . . . comprising compensation of rope twist in strand twist
2401/2095 . . Improving filler wetting respectively or filler adhesion
2401/40 . related to rope making machines
2401/401 . . Reducing wear
2401/403 . . Reducing vibrations
2401/405 . . Addressing space constraints
2401/406 . . Increasing speed
2401/408 . . Increasing rope length, e.g. on drum

2501/00 Application field

2501/20 . related to ropes or cables
2501/2007 . . Elevators
2501/2015 . . Construction industries
2501/2023 . . . Concrete enforcements
2501/203 . . . Bridges
2501/2038 . . Agriculture, forestry and fishery
2501/2046 . . Tire cords
2501/2053 . . . for wheel rim attachment
2501/2061 . . Ship moorings
2501/2069 . . Climbing or tents
2501/2076 . . Power transmissions
2501/2084 . . Mechanical controls, e.g. door lashes
2501/2092 . . Evacuation lines or lifelines
2501/40 . related to rope or cable making machines
2501/403 . . for making belts
2501/406 . . for making electrically conductive cables

2801/00 Linked indexing codes associated with indexing codes or classes of D07B

NOTE

The following indexing codes are applied as linked indexing codes associated to other indexing codes or classes of D07B, with the following restrictions:

D07B 2801/00 (continued)

- D07B 2801/10, D07B 2801/14 -D07B 2801/22 are only to be used as linked indexing codes with D07B 2205/00 and lower hierarchy
- D07B 2801/12 and D07B 2801/24 are only to be used as linked indexing codes with D07B 2205/00 and lower hierarchy or D07B 2201/2047 and lower hierarchy
- D07B 2801/60 and D07B 2801/62 are only to be used as linked indexing codes with D07B 2207/404 and lower hierarchy
- D07B 2801/90 is only used as linked indexing code with any class or indexing code of D07B and defines that the classified feature belongs to the general knowledge.

2801/10 . Smallest filamentary entity of a rope or strand, i.e. wire, filament, fiber or yarn
2801/12 . Strand
2801/14 . Core
2801/16 . Filler
2801/18 . Coating
2801/20 . Spacer
2801/22 . Jacket or covering
2801/24 . Rope
2801/60 . Method
2801/62 . Device
2801/90 . General knowledge