

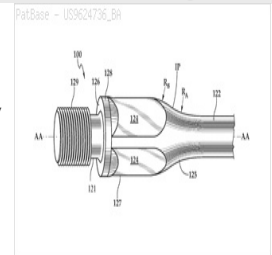
1) Family number: 65428699 (US9624736B)

SUCKER ROD END

Abstract: Source: US9624736B A sucker rod including a sucker rod body (122); a transition section (125) having an outer surface disposed circumferentially around the longitudinal axis of the transition section, the outer surface having a longitudinal profile comprising a continuous curve beginning at the cylindrical outer surface of the rod body and having a concave curved portion having a radius (RA) and a convex curved portion having a radius (RB), wherein RB is less than RA and a diameter of the transition section measured transverse to the longitudinal axis (AA) is continuously increasing with distance from the outer surface of the rod; a wrench square section (127) having at least four wrench flats (124); a pin shoulder section (128) having a pin shoulder face (126) adapted to contact an end of a coupling (117) the pin shoulder face having an outer diameter (DF); and a threaded pin connection section (129) having male threads.

Probable Assignee: TENARIS CONNECTIONS BV

Earliest Publication Date: 20170418



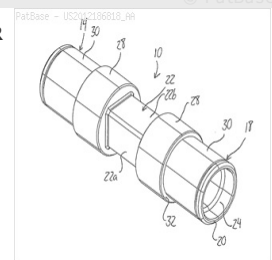
2) Family number: 48383142 (US2012186818A)

SUCKER ROD COUPLING AND METHOD OF WEAR PREVENTION IN DRIVEN ROTATION OF A SUCKER ROD STRING IN PRODUCTION TUBING

Abstract: Source: US2012186818A A sucker rod coupling features a coupler unit having internally threaded coupling sections at opposite ends for engaging sucker rod pins and one or two outer members extending about the coupler unit between the ends, each outer member being rotatable about the coupler unit and presenting contact surfaces facing outwardly at positions radially outward therefrom. Each outer member is positioned between a respective end of the coupler and a stop defining feature thereof, and a respective stop element is selectively deployable adjacent the respective end of the coupler on a side of the outer member opposite the stop-defining feature. The outer member prevents wear to the production tubing and the sucker rod string, is easily replaceable through manipulation of the stop element to allow sliding of the member off the unit and sliding of a new member thereon, and directly engages the sucker rods without needing additional threaded components.

Probable Assignee: INNOVATIVE TOOL TECHNOLOGY INC

Earliest Publication Date: 20110303



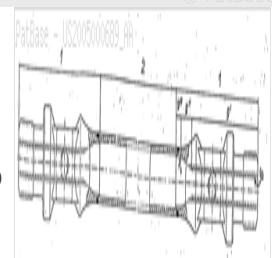
3) Family number: 28516819 (US2005000689A)

METHOD FOR CONDITIONING WELLBORE FLUIDS AND SUCKER ROD THEREFORE

Abstract: Source: US2005000689A Invention refers to a method for conditioning wellbore fluids and to a sucker rod to accomplish the method used in the field of petroleum production. The method the invention refers to involves fact that the injection of the conditioning fluids is done directly through the sucker rods, from the surface, concomitantly pumping (producing) the well, being possible that the conditioning fluid be distributed either in the producing tubing or in the wellbore, or even in the reservoir rock around the wellbore, concomitantly pumping the well. The sucker rod designed for the application of the method is made of steel and it has two sucker rod heads (1) which are tubular, welded to the ends of a tube (2) made of steel, thus forming a continuous tube through which a fluid can flow or an electric or optical cable can be pulled through, or set inside.

Probable Assignee: KAKHELE BRUNO

Earliest Publication Date: 20030501



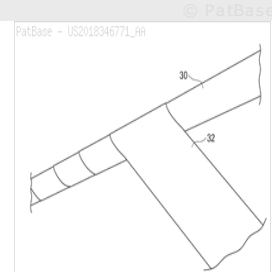
4) Family number: 72250413 (US2018346771A)

COMPOSITE COATING AND METHOD OF MANUFACTURE AND APPLICATION FOR CORROSION PROTECTION OF STEEL SUCKER RODS

Abstract: Source: US2018346771A This disclosure discloses that a composite material, and its method of manufacture, can be provided where the composite material includes a synthetic fiber veil and a thermosetting polymer adhesive as a corrosion protection coating for steel sucker rods, pony rods and continuous sucker rods.

Probable Assignee: LIFTING SOLUTIONS INC

Earliest Publication Date: 20181130



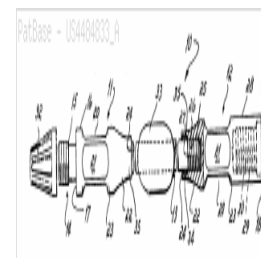
5) Family number: 4576147 (US4484833A)

SUCKER ROD

Abstract: Source: US4484833A A stronger, lighter sucker rod formed from cold-drawn medium to high carbon steel composed of three basic components which provide versatility in forming the sucker rod. A sucker rod is disclosed which is formed of machined, cold-drawn steel elements. The construction of the sucker rod significantly increases the resistance of the rod to metal fatigue and yields a rod which is smaller in diameter and lighter in weight than an equivalent strength rod made from hot rolled or heat treated steel metal stock.

Probable Assignee: CONS METAL PROD

Earliest Publication Date: 19841127



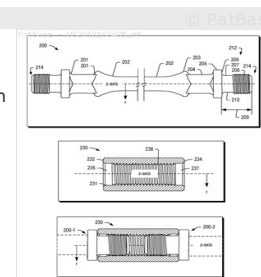
6) Family number: 70075625 (US2018163485A)

PUMP ROD CONNECTION

Abstract: Source: US2018163485A A pump rod can include a body that includes a longitudinal axis; and a pin at an end of the body where the pin includes threads where the threads include tangential elliptical roots.

Probable Assignee: SCHLUMBERGER TECHNOLOGY CORP

Earliest Publication Date: 20180614



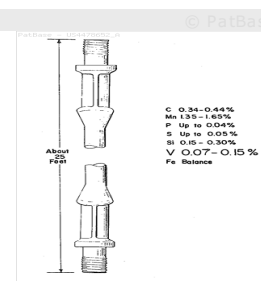
7) Family number: 4532277 (US4478652A)

CLASS D SUCKER RODS

Abstract: Source: US4478652A It has been found that API Class D sucker rods can be made inexpensively from low-alloy, low-cost steel by following a suitable induction-normalizing process and using a suitable steel to which there has been added 0.07 to 0.15 percent of vanadium.

Probable Assignee: ROBAATO TEI UDEINGUZU

Earliest Publication Date: 19840207



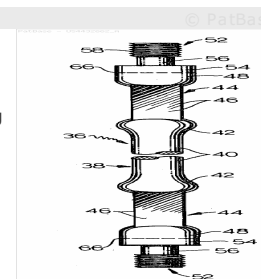
8) Family number: 4234369 (US4432662A)

COMPOSITE SUCKER ROD AND METHOD OF MANUFACTURING SAME

Abstract: Source: US4432662A A sucker rod is composed of three initially separate parts comprising a relatively long body member and duplicate relatively short pin members. Upsetting steps are performed on the relatively long body member, whereas only machining steps are employed in making the pin members. One end of each pin member is inertia welded to each end of the body member after the various ends have been cut or ground to provide relatively smooth surfaces.

Probable Assignee: RONNKVIST AKE E

Earliest Publication Date: 19840221



9) Family number: 15525 (US3489620A)

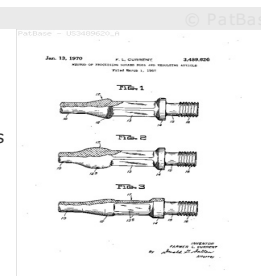
METHOD OF PROCESSING SUCKER RODS AND RESULTING ARTICLE

Abstract: Source: US3489620A ABSTRACT OF THE DISCLOSURE

A sucker rod surface is induction-hardened to provide a martensitic case. The case is further compressed as by shot-peening. The resulting rod has increased resistance against failure through fatigue, yet successfully resists loss of tensile strength through hydrogen embrittlement.

Probable Assignee: USX CORP

Earliest Publication Date: 19680701



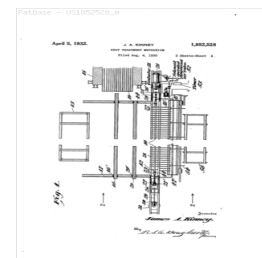
10) Family number: 20348885 (US1852528A)

HEAT TREATMENT MECHANISM

Abstract: Source: US1852528A 1. -In a mechanism for subjecting a rod to tension, a gripping member for each end of rod, yieldable restraining means attached to the gripping member at one end of the rod and means attached to the gripping member at the other end of the rod to exercise force on said rod in opposition to that exerted by said restraining means.

Probable Assignee: BETHLEHEM STEEL CORP

Earliest Publication Date: 19320405



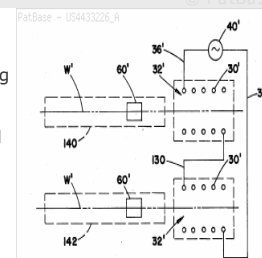
11) Family number: 4239103 (US4433226A)

METHOD AND APPARATUS FOR INDUCTION HEATING OF AN ELONGATED WORKPIECE

Abstract: Source: US4433226A A method for uniformly heating a workpiece such as a sucker rod or the like having a uniform cross-section over a major portion of its length and an enlargement adjacent each end thereof. A multi-turn inductor is coaxially disposed around an elongated workpath with the rod being longitudinally moved along the workpath at some preselected rate of travel toward the inductor entrance end. The inductor is normally at one level of energization adapted to inductively heat the enlargement adjacent the rod leading end to some predetermined temperature as it passes through the inductor. After a first predetermined time interval triggered by the rod as it travels along the workpath, the inductor is automatically placed at another, lower level of energization for inductively heating the elongated major portion to the same predetermined temperature. The inductor then automatically returns to the normal level of energization for inductively heating the enlargement adjacent the rod trailing end to the predetermined temperature. The inductor energization levels are adjustable to accommodate different rod and feed characteristics. Also, a plurality of like inductors may be electrically interconnected to facilitate the simultaneous heating of a plurality of the rods.

Probable Assignee: PARK OHIO IND INC

Earliest Publication Date: 19840221



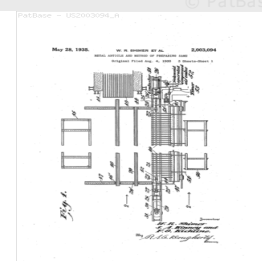
12) Family number: 22406648 (US2003094A)

METAL ARTICLE AND METHOD OF PREPARING SAME

Abstract: Source: US2003094A 1. In a process of the class described, the steps of upsetting the end of a rod, heating the entire rod above the critical range, subjecting such rod to sufficient tension to straighten, quenching the entire rod in a quenching medium, drawing such quenched end by means of the residual heat in the rod and allowing the rod to cool in the air.

Probable Assignee: BETHLEHEM STEEL CORP

Earliest Publication Date: 19350528



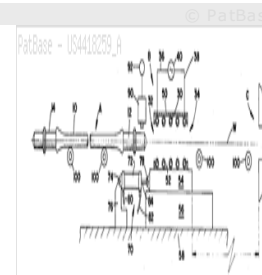
13) Family number: 2387094 (US4418259A)

METHOD AND APPARATUS OF UNIFORM INDUCTION HEATING OF AN ELONGATED WORKPIECE

Abstract: Source: US4418259A A method for uniformly heating an elongated workpiece having a first portion with uniform cross-section over a major portion of the workpiece length and a second portion having a larger cross-section than the first portion. A multi-turn inductor is operatively mounted on a carriage or the like and is coaxially disposed about an elongated workpath. The carriage is selectively movable axially of the workpath from a first or home position. As the workpiece first portion is fed along the workpath at some preselected rate of travel into and through the inductor, it is heated to a desired temperature over the length thereof. The inductor carriage is energized as the enlarged workpiece second portion enters the inductor so that the inductor will travel along the workpath with the workpiece. Such travel increases the heating time for the second portion so that it too is heated to the desired temperature. After a predetermined time interval, the carriage movement is reversed back toward the first or home position. The method is adapted to use with workpieces having plural enlarged areas spaced therealong and is adaptable to simultaneous heating of a plurality of workpieces with plural inductors.

Probable Assignee: PARK OHIO IND INC

Earliest Publication Date: 19830302



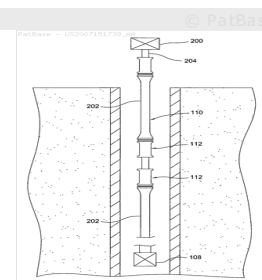
14) Family number: 34709570 (US2007151739A)

CONNECTOR FOR USE IN A WELLBORE

Abstract: Source: US2007151739A A method and apparatus for connecting a component to a rod for use in downhole operations. Wherein the method and apparatus is design to reduce stress and the risk of failures in the connection during downhole operations. The method and apparatus having a connector assembly that is designed with only two wrench flats in order to minimize stress concentrations during operation. The method and apparatus having an optional intermediate alloy metallurgy.

Probable Assignee: WEATHERFORD LAMB INC

Earliest Publication Date: 20070703



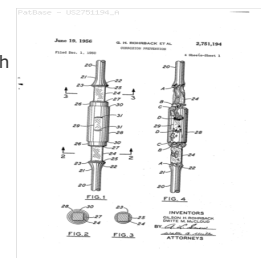
15) Family number: 21655156 (US2751194A)

CORROSION PREVENTION

Abstract: Source: US2751194A (Claim 1) 1. A sucker rod having a cylindrical body, a diametrically enlarged portion of circular cross section on one end of said body, a pin protruding from the end of said enlarged portion and in axial alignment with said body, the said enlarged portion gradually decreasing in diameter until it merges with said body, and a member of circular cross section connected to said pin and having one end thereof abutting said enlarged portion, the abutting end of said member having an external diameter coextensive with the adjacent end of said enlarged portion, the external surface of said member gradually increasing in diameter from the external diameter of said abutting end to its maximum diameter.

Probable Assignee: CALIFORNIA RESEARCH CORP

Earliest Publication Date: 19560619



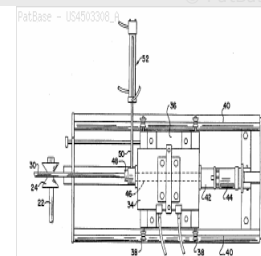
16) Family number: 4685692 (US4503308A)

APPARATUS FOR PREPARING ROD STOCK FOR FORGING IN MANUFACTURE OF SUCKER RODS

Abstract: Source: US4503308A Straightened rods are withdrawn singly from a table by a carousel apparatus and advanced against a stop which is then withdrawn. Solenoid-coil induction-heating apparatus then raises the end of the rod to forging temperature and retains it at such temperature until the forge operator is ready to use it. Apparatus then operates to deliver the rod with heated end to the operator, and to deliver another single rod to the induction-heating apparatus.

Probable Assignee: WOODINGS ROBERT T

Earliest Publication Date: 19850305



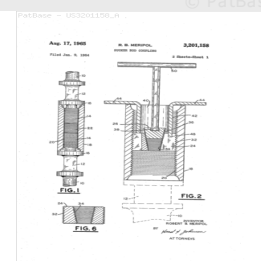
17) Family number: 22790075 (US3201158A)

SUCKER ROD COUPLING

Abstract: Source: US3201158A (Claim 1) 1. A sucker rod coupling having improved tension distortion resistance comprising: a body member of tubular configuration having continuous internal threads substantially the full length of the internal wall thereof, with unthreaded portions at each end, the body member having parallel planar opposed ends; an externally threaded tubular member threadably positioned within the tubular body member intermediate the ends thereof, the tubular member being of short axial length relative to the body member leaving sucker rod receiving body threads to either side thereof, the tubular member having at least one slit in the wall thereof whereby the tubular member is radially externally expandable; and an expander member of length substantially equal the length of the tubular member, the expander member forceably positionable in the tubular member to radially expand the tubular member against the internal wall of the body member to reinforce the deformation resistance of the intermediate portion of the body member.

Probable Assignee: LIBERTY MFG CO OF TEXAS

Earliest Publication Date: 19650817



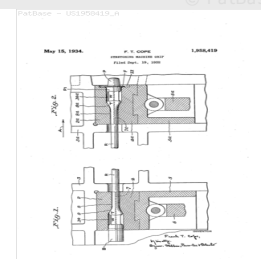
18) Family number: 19465553 (US1958419A)

STRETCHING MACHINE GRIP

Abstract: Source: US1958419A 1. A grip for an object having a body, an enlarged end and an intermediate shouldered portion, comprising a gripping jaw having

Probable Assignee: ELECTRIC FURNACE CO

Earliest Publication Date: 19340515



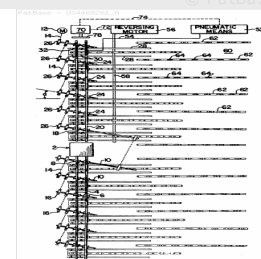
19) Family number: 4474353 (US4468261A)

METHOD OF NORMALIZING SUCKER RODS USING A NORMALIZING UNLOADER

Abstract: Source: US4468261A An apparatus and method are provided for receiving sucker rods as they emerge from an electric-induction normalizing furnace and conveying them to a cooling bed while both suitably supporting and suitably rotating them to prevent warpage.

Probable Assignee: WOODINGS ROBERT T

Earliest Publication Date: 19840828



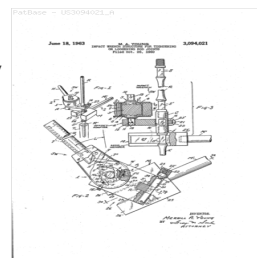
20) Family number: 22254778 (US3094021A)

IMPACT WRENCH STRUCTURE FOR TIGHTENING OR LOOSENING ROD JOINTS

Abstract: Source: US3094021A (Claim 1) 1. In impact wrenching apparatus for a_pplcation to threa,d-connected elongated members in a series of string, a m_anually operated impact wrench unit having a rotary ,tool head and cooperating mechanism capable of imparting a succession of torsional impacts to the tool head on its rotational axis, a rigid -output or extension mem,ber connected to turn with the tool head and extendin,g laterally of said rotational axis and having jaw faces remotely of said _axis for wrenching engagement with,one of two thread-connected members, and a rigid anvil member of substantial mass having jaw faces adapted fDr twist-resisting engagement with the other of such two thread-connected members.

Probable Assignee: CURTISS WRIGHT CORP

Earliest Publication Date: 19630618



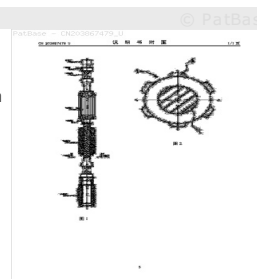
21) Family number: 57546172 (CN203867479U)

ANTI-ATTRITION RIGHTING SUCKER ROD

Abstract: Source: CN203867479U The utility model discloses an anti-attrition righting sucker rod which comprises a rod body and rod heads at the two ends of the rod body. The external section of each rod head is provided with external threads, a wrench square hole is formed in the internal section of each rod head, the external section of the rod head of one end of the rod body is provided with an anti-attrition righting coupling through the external threads, a nylon righting sleeve is formed on the outer wall of the rod body in an injection molding mode, the outer diameter of the nylon righting sleeve is slightly smaller than the inner diameter of a matched oil pipe, and oil outlet channels are formed in the circumferential wall of the nylon righting sleeve in the axial direction of the rod body at intervals. Due to the fact that the nylon righting sleeve has good elasticity, toughness and anti-attrition characteristics, when the sucker rod moves up and down repeatedly, the nylon righting sleeve makes contact with the inner wall of the oil pipe, mechanical attrition generated by direct contact of the rod body and the inner wall of the oil pipe is avoided, the sucker rod and the oil pipe cannot be damaged in a long-term using process, the oil outlet channels are formed in the circumferential wall of the nylon righting sleeve, crude oil can be pumped and extracted to the ground through the oil outlet channels effectively, and pumping and extraction of the crude oil cannot be influenced due to the fact that the clearance between the sucker rod and the oil pipe is reduced by adding the nylon righting sleeve.

Probable Assignee: TIELING YIDA PETROLEUM MACHINERY MFG CO LTD

Earliest Publication Date: 20141008



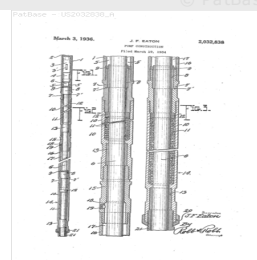
22) Family number: 22615766 (US2032838A)

PUMP CONSTRUCTION

Abstract: Source: US2032838A 1. In a pump construction of the elses described, the combination with a tube, a barrel, and B. plunger, of e, plurality 01 independent stuttlng box units arranged Ln. the tube line and ennh eo]:npr'leing s. tubular body screw tln'es.ded. at both ends and ha.v:Ing_ e. pecking chamber _extending the major portion _of its length of lslbstentlelly larger diameter than the plunger and termirintins' at its lower end in a pecking sent, compressible Decking in said chamber, a movable packing follower at the top ot the chamber seated on the packing end 'subject to the fluid. _pressure _ in said tube above the unit to compress the packing in the chamber, the lower end or the unit having therein a rod.busE1Ing seated beneath and against the packing seat and adsipted to be held sented therehm by the end of the next' succeeding unit of the tube, the upper of said stuiling box units being threedably connected to the tube and the lower stuiling' box unit being threedably connected to the barrel and means threadahly couneutlnethestumngbox units together, said plunger passing through the stuffing boxes and rod hushings und each stuifug box beingvadapted to Bug.. tain the fluid pressure in the tube until substantially Wom. ' ' ' _

Probable Assignee: ENGINEERING CO

Earliest Publication Date: 19360303



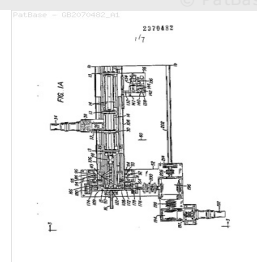
23) Family number: 1497364 (GB2070482A)

APPARATUS FOR HANDLING AN ELONGATE WORKPIECE

Abstract: Source: GB2070482A An apparatus for handling an elongate workpiece includes a cradle for supporting the workpiece longitudinally in a horizontal attitude, and a table having a fixed base 52 and three vertically stacked members 54, 56, 58 each movable in one of three mutually orthogonal directions. The cradle has rotatable discs 13 with slots 15 for receiving the workpiece and is mounted on the uppermost 54 of the movable table members. The apparatus is particularly applicable to handling of long rods, such as oilwell sucker rods, during forging in a multiple station press.

Probable Assignee: USS ENG AND CONSULT

Earliest Publication Date: 19810827



24) Family number: 72556919 (CN208280907U)

ONE KIND OF ROPE SUCKER ROD (MACHINE TRANSLATION)

Abstract: Source: CN208280907U The utility model relates to oil and gas development with the sucker rod, and more particularly, relates to a rope sucker rod. Including steel rod body and crimp crimping process in the rope at both ends of the connection head, the connection head from outside to inside in turn provided with a threaded section, a ring stress unloading slot, externally threaded engagement shoulder section and the annular groove-shaped wrench square section, said threaded section provided with an external thread threaded outer end provided with a conical chamfer. The utility model adopts flexibility stronger rope rod, short manufacturing cycle, low cost, transportation not only convenient, but also oil piston effect is small, partial wear low, help to improve the efficiency of the workover, guarantee the normal oil production.

Probable Assignee: SHANDONG PLATEAU SAINT LONG ROD LTD

Earliest Publication Date: 20181225

