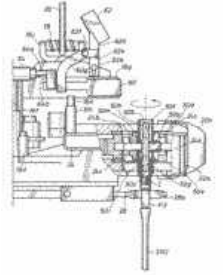
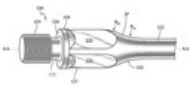
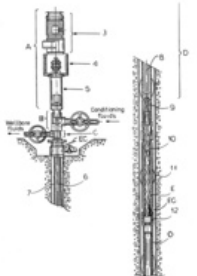
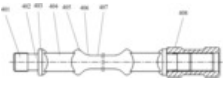
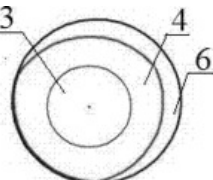
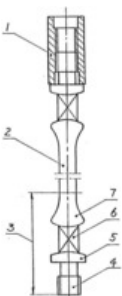
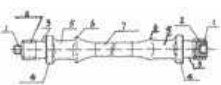
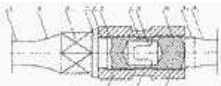
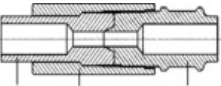
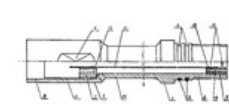
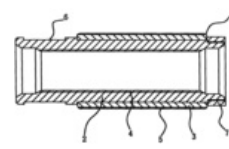
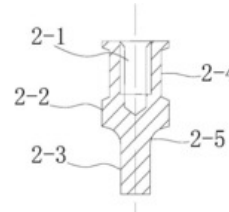
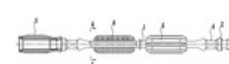
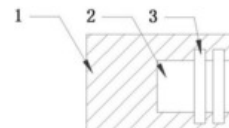
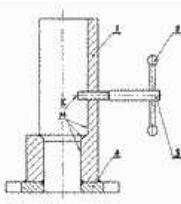
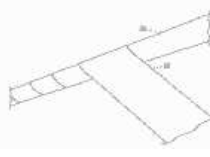
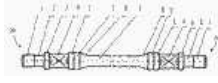
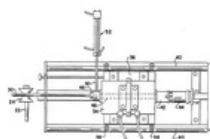
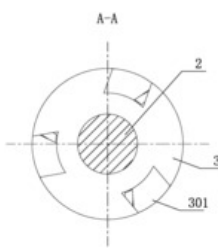


84 results for ((sucker and rod and end and (wrench 1w square)))/TI/AB/IW/CLMS/DESC/ODES/OBJ/ADB/ICLM/KEYW/TX - Collection: FAMPAT

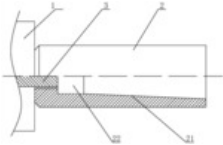
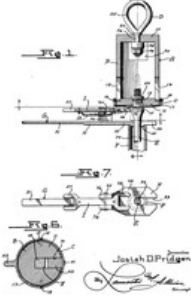
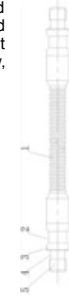
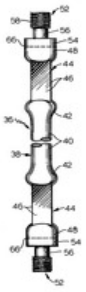
#	Title	Publication number	1st app. date	Applicant/Assignee	
1.	Rod and hoop integrated sucker rod	CN2769490	2004-07-23	SHANDONG NINE RING PETROLEUM MACHINERY*	100 %
The utility model relates to a novel rod and hoop integrated type sucker rod, which comprises a rod hoop, a rod body and a rod head. One end of the sucker rod is provided with the rod hoop with an internal thread, the other end is provided with the rod head with an external thread, a rod string is formed by making use of the self-owned internal and external threads which are connected, the trouble of needing to use a coupling individually when the existing sucker rod is connected is omitted, the thread connecting points are reduced to one half, when well sinking operation is conducted, the connecting pretightening force of the threads is more easily controlled, tripping accidents can also be reduced 50%, the coupling can not be lost likewise when transportation and well lifting operation are conducted, the utility model facilitates the operation and construction, and the oil production cost is reduced. 					
2.	Sucker rod coupling extractor	US20080185154	2008-01-24	MW HOLLIDAY	93 %
A prior art sucker rod tong is improved to remove a coupling completely from a sucker rod assembly comprising sucker rods joined end to end by couplings. The improvement comprises a coupling extractor for unscrewing the coupling from the rod so that the coupling can be replaced. The coupling extractor fits within the rotating jaw assembly and comprises a shaft having an extractor at both ends to engage the inside wall of the coupling, and a shield surrounding each extractor. The improvement preferably further comprises an upper backup wrench movably connected to the sucker rod tong for holding the sucker rod when the sucker rod is above the coupling. 					
3.	Steel sucker rod, sucker rod group and pipe pliers	CN201963212	2011-03-24	ZHEJIANG INDUSTRY & TRADE VOCATIONAL COLLEGE*	92 %
The utility model discloses a steel sucker rod, which comprises a rod head, wherein a spanner surface of the rod head comprises a cylindrical surface and at least two spanner retaining bars which are distributed on the cylindrical surface. The utility model further provides a sucker rod group using the steel sucker rod and dedicated pipe pliers which are matched with the steel sucker rod. The uniform transition of the rod head in the rod length direction improves the strength and the anti-fatigue performance of the rod head, and further leads the motion resistance of the sucker rod to be reduced when the sucker rod is used for pumping oil up and down in a pumping pipe. 					
4.	Sucker rod end	US9624736	2016-03-04	TENARIS*	91 %
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. 					
5.	Anticorrosion abrasion-resisting sucker rod	CN203685056	2014-02-18	WU JILIN	91 %
The utility model discloses an anticorrosion abrasion-resisting sucker rod consisting of a sucker rod coupling, a sucker rod body and a sucker rod protecting body. The sucker rod protecting body adopts a low-density light abrasion-resisting anticorrosion material to wrap the sucker rod body in a fused mode, so that the sucker rod protecting body and the sucker rod body can form a whole. By adopting the integral wrapping-fusing mode, on the one hand, contact of the sucker rod body and well liquid is completely eradicated, and corrosion is prevented; and on the other hand, the sucker rod protecting body enable abrasion between the sucker rod body and the inner wall of an oil pipe to be reduced, and meanwhile the strength of the sucker rod body is improved. A sucker rod head except an outer threaded connector is covered by an anticorrosion abrasion-resisting protective layer, and a protective sleeve is added at the neck position of a wrench. A surface layer of the sucker rod coupling is covered by the anticorrosion abrasion-resisting protective layer. When the anticorrosion abrasion-resisting sucker rod is used, two anticorrosion abrasion-resisting sucker rods are connected and fastened in a butt-joint mode and then are sequentially connected to descend into a well. 					
6.	Method for conditioning wellbore fluids and sucker rod therefor	WO03036016	2002-05-08	KACHELE BRUNO;KACHELE BRUNO;PELEANU ION;PELJANU JON	91 %
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 production 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. 					
7.	Sucker rod	CN204371111	2014-09-12	PETROCHINA*	90 %
The utility model provides a sucker rod. The sucker rod comprises a sucker rod body and rod heads arranged at the two ends of the sucker rod body. The rod heads are provided with external threads used for being connected with internal threads arranged on a coupling. The diameter of the sucker rod body is larger than 28.58 mm. Due to the fact that the size of the diameter of the sucker rod body is larger than that of the diameter of an existing sucker rod, the largest load borne by the sucker rod body is increased, lifting tension is increased, the service life of the sucker rod is prolonged, and the process requirement for oil well ultra-deep exploitation is met. 					

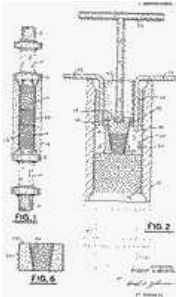
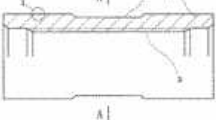
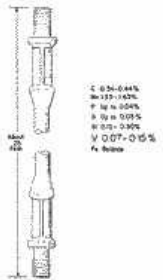
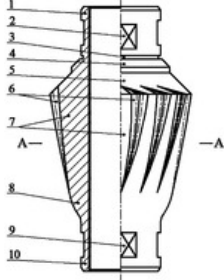
8.	Anti-abrasion, anticorrosion, wax-preventing and scale-preventing sucker rod and method	CN108590545	2018-05-30	PETROCHINA*	90 %	
The invention provides an anti-abrasion, anticorrosion, wax-preventing and scale-preventing sucker rod and method. The anti-abrasion, anticorrosion, wax-preventing and scale-preventing sucker rod comprises a rod body , wrench square timbers are arranged at the two ends of the rod body correspondingly, and the wrench square timbers at the two ends are connected with a male thread joint and a femalethread joint correspondingly. A macromolecular polyethylene layer is fixedly arranged outside the rod body , and the outer surfaces of the wrench square timbers, the male thread joint and the female thread joint are coated with protective layers correspondingly. According to the anti-abrasion, anticorrosion, wax-preventing and scale-preventing sucker rod , the rod body of the sucker rod is wrapped with the layer of macromolecular polyethylene, and thus rigid contact of a sucker pipe and the sucker rod in the oil well production process is changed into toughness composite contact among the suckerpipe, the macromolecular polyethylene layer and the sucker rod ; and owing to the anti-abrasion property of a macromolecular polyethylene material and through the physical properties that the surfaceof a macromolecular polyethylene material coating layer is smooth and poor in adhesive capacity, the anticorrosion, wax-preventing and scale-preventing effects are achieved while abrasion prevention of the sucker rod is achieved.						
9.	Anti-corrosion, anti-scale and wear resistant sucker rod	CN202990887	2012-10-16	JIYUAN PETROLEUM MACHINERY*	89 %	
The utility model discloses an anti-corrosion, anti-scale and wear resistant sucker rod in the technical field of oil field machinery to solve the problems that the sucker rod in the prior art is short in service life and low in work efficiency caused by that the sucker rod is easily corroded and abraded. The anti-corrosion, anti-scale and wear resistant sucker rod comprises a sucker rod body which is arranged in a sucker rod tubular column. Two ends of the sucker rod body are in an arc shape. The two ends of the sucker rod body are respectively provided with a spanner square diameter. The spanner square diameter is connected with an outer threaded connector through a pushing and bearing surface shoulder. The outer surface of the sucker rod body is provided with a nonmetal anti-corrosion layer. Due to the adoption of the technical scheme, the anti-corrosion, anti-scale and wear resistant sucker rod has the advantage of being simple in structure. Due to the fact that nonmetal anti-scale and anti-corrosion materials are arranged on the sucker rod body, the anti-corrosion, anti-scale and wear resistant sucker rod is capable of effectively preventing the sucker rod from scaling and being corroded, prolonging service life, and is especially suitable for an oil well which severely scales and is severely corroded.						
10.	Sucker rod multifunctional protection mechanism	CN109209256	2018-11-16	HUBEI GENGLIAN WEAR RESISTANT MATERIALS TECHNOLOGY*	88 %	
A method for production of oil with petroleum retaining the wear protection mechanism according to the sucker rod coupling rod , with the inner opening tab, where the sheath and inner circle pin is threaded through the open joint connected to form, with an abrasion resistant material making, on the lower sucker rod are attached to the sucker rod joints and the collar upper, does not disrupt the continuity of the column structure former bar, connected to two of the sucker rod joints and collars can be wrapped around and secured therein, cannot be unscrewed sucker rod connector threads constraint, protecting the sucker rod joints and collars of the tubing is no direct friction, in turn come-off preventing both wear, are effective to reduce pumping rod off DE, significantly improved sucker rod useful life.						
11.	Forward-backward anti-drop sucker rod	CN2895700	2006-04-21	PETROCHINA*	87 %	
A forward-backward sucker rod against dropping required for rod pumping oil production in the process of oil field development, comprising a rotary stop threaded rod (1), a drive threaded rod (2), a stress groove (3), a drive threaded rod joint shoulder (4), a wrench square neck (5), a flange (6) and a pumping rod body (7), whose two ends are connected with the flange (6) that is more than the outer diameter of the rod body (7), the rotary stop threaded rod (1) is connected with the drive threaded rod (2), between which and the drive threaded rod joint shoulder (4) is provided with the stress groove (3), the drive threaded rod joint shoulder (4) is connected with the flange (6) through the wrench square neck (5), based on the use of different rotary directions of thread, so as to achieve the purpose of interlocking, thereby stopping the sucker rod from relatively moving and realizing the purpose of against dropping. In order to achieves the sucker rods in all shafts are not loosed, so required to improve the plunger, the connecting rod as well as ancillary equipment components of the sucker rod accordingly until the forward-backward sucker rod against dropping is used matched with them.						
12.	Sucker rod and oil pumping system	CN207568503	2017-11-10	PETROCHINA*	86 %	
The utility model provides a sucker rod and oil pumping system, including both ends open -ended sleeve pipe, spring and two connecting pieces, two the connecting piece is located respectively the sleeve pipe both sides, the first end of connecting piece is used for connecting with adjacent sucker rod , the second of connecting piece end with sheathed tube opening threaded connection, the spring sets up the cover is intraductal, just the both ends of spring are respectively with two the second end butt of connecting piece. Behind this sucker rod plastic deformation or the fracture failure, casing replacing has more only reduced a cost of more renewing, has avoided the wasting of resources.						
13.	Upsetting anti-tripping solid sucker rod	CN2565968	2002-08-09	LONGYUAN OIL PRODUCTION ELECTROMECHANICAL EQUIPMENT*	86 %	
The utility model discloses an upsetting anti-tripping solid sucker rod . The utility model comprises a sucker rod and a coupling which is connected with the sucker rod and is provided with inner screw threads, wherein, the coupling forms a pipe shape, and the middle of the outer wall is provided with spanner planes which are parallel. The sucker rod successively comprises a left fork, a left male thread joint, a compensating groove, a circular bead, a spanner holding part, a left transition region, a rod body, a right transition region, a transition step, a right male thread joint and a right fork, wherein, the left fork and the right fork respectively form a pipe shape, and the pipe wall is provided with a tooth and a gap which are mutually matched. When the utility model is used, the left fork of one sucker rod and the tooth of the right fork of the other sucker rod are respectively inserted into the mutual gaps, and the coupling is made to be connected with the left male thread joint of one sucker rod and the right male thread joint of the other sucker rod . The sucker rod has higher integral anti-fatigue performance; the joints of the sucker rods transmit torque through the teeth which are mutually matched and inserted, and the utility model has better torque resistant property and anti-fastener tripping performance.						
14.	Anti-torque anti-releasing hollow sucker rod post	CN203978306	2014-06-04	CHINA PETROLEUM & CHEMICAL* SINOPEC*	86 %	
The utility model discloses an anti-torque anti-releasing hollow sucker rod post. The anti-torque anti-releasing hollow sucker rod post can be used for surface driven single-screw pump oil production wells and oil wells which use hollow sucker rod posts, such as thermal production wells. The anti-torque anti-releasing hollow sucker rod post comprises a hollow sucker rod and a coupling, the hollow sucker rod is provided with a wrench , one end of the rod body of the hollow sucker rod is provided with a concave joint while the other end is provided with a convex joint, the concave joint is arranged in the coupling in a sleeve mode, the convex joint is in threaded connection with the coupling, and the concave joint is matched with the convex joint to generate an inverse torque to counteract a reversal releasing torque. The anti-torque anti-releasing hollow sucker rod post is capable of effectively avoiding the oil well repairing due to sucker rod post releasing, is capable of effectively prolonging the oil well production period and lowering the production cost, and has high use value and good use effect. The anti-torque anti-releasing hollow sucker rod post is easy to manufacture, low in manufacturing cost, convenient to use, and economical and practical.						
15.	Corrosion-resistant and huge-load sucker rod	CN203161102	2013-04-08	SHENGLI OIL FIELD FURUI TE PETROLEUM EQUIPMENT*	84 %	
The utility model discloses a corrosion-resistant and huge-load sucker rod which is applied to a well using the sucker rod in an oilfield. The sucker rod comprises a rod head and a rod body, wherein the rod head is provided with a large excircle and a wrench square ; a straight section cylinder is arranged between the large excircle and the rod body, and a large excircle transition arc and a small excircle transition arc are arranged between the straight section cylinder and the large excircle and between the straight section cylinder and the rod body respectively; and the wrench square is arranged on the straight section cylinder and adopts an oblate square . Compared with the conventional sucker rod , the corrosion-resistant and huge-load sucker rod has the advantages that huge change of shapes and sizes in positions between the wrench square and the large excircle and between the wrench square and a mushroom head is eliminated, metallic deflection during forging of the sucker rod is reduced greatly, defects such as forging cracks and the like are reduced, corrosion of a well liquid to the forging cracks of the sucker rod can be reduced effectively, and accordingly, the integral corrosion resistance of the sucker rod can be improved. The structure and shape of the rod head can meet requirements for tensile strength of an H-level sucker rod and for anticorrosion performance of a K-level sucker rod .						

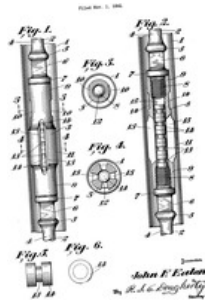
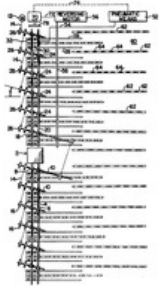
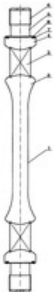
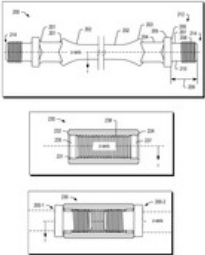
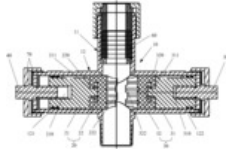
16.	Pumping rod fishing device	CN207513575	2017-11-28	CHINA PETROLEUM & CHEMICAL*	83 %
The utility model discloses a pumping rod fishing device, salvage a section of thick bamboo including oil pipe and coupling, the coupling is salvaged the first end of a section of thick bamboo and is connected with oil pipe's one end, and the coupling that is used for blocking the sucker rod of treating the salvage is held to a section of thick bamboo was salvaged to the coupling second, and wherein, oil pipe's internal diameter is greater than removing of the sucker rod of treating the salvage the maximum diameter of part outside the coupling to make on the sucker rod that the fracture pot head of the sucker rod that oil pipe can wait to salvage certainly goes into to wait to salvage, and it is smooth extremely to make the coupling salvage a section of thick bamboo on the coupling. The utility model provides a pumping rod fishing device can realize the successful salvage to the sucker rod of the top of fish of any shape in the oil pipe to that has avoided leading to because can't salvage the sucker rod compelledly examines the pump operation. To heavy oil pump's characteristic, environmental pollution that effectual salvage sucker rod had caused in the time of can having avoided oil pipe. Simultaneously, also reduce the workover expense.					
					
17.	Hollow sucker rod	CN2553092	2002-05-23	FAN ZHENMING	83 %
The utility model discloses a hollow sucker rod, a coaxial hollow inner rod is arranged in the cavity that a hollow sucker rod is used as an outer rod; a support flange is arranged between the inner rod and the outer rod, the flange is arranged at two ends of the inner rod; the flange is provided with an axial hole, the internal and external channels of the sucker rod can transport different fluid medium; closed circulation channels can also be formed. During oil exploitation, the heat medium is outputted to the exploitation layer through the inner layer, after high pourpoint heavy oil is heated, the heat medium is drawn back from the outer layer pipe again, thereby reducing the waste resulted by that the heat medium is directly poured into the oil layer and the pollution resulted from the crude oil.					
					
18.	Columnar coupler composite sucker rod centralizer	CN201705237	2010-06-02	TIELING MILER OIL NEW MATERIAL*	83 %
A columnar coupler composite sucker rod centralizer comprises a mandrel and a slide sleeve sleeved on the mandrel. The columnar coupler composite sucker rod centralizer is characterized in that the mandrel is a hollow cylinder with an axial through hole at the center, internal thread matching with external thread of a sucker rod is arranged in the through hole, and the slide sleeve comprises a steel body and a self-lubricated alloy coating layer arranged on the surface of the body. The columnar coupler composite sucker rod centralizer has high corrosion and abrasion resistance, is simple in structure, reasonable in design, safe in fixation and convenient in installation, and can centralize the sucker rod and an oil pipe for a long time and reduce abrasion on the oil pipe.					
					
19.	Sucker rod fatigue anchor clamps for performance test	CN206020000	2016-08-17	TECHNICAL MONITORING CENTER OF CHANGQING PETROLEUM EXPLORATION BUREAU*	82 %
The utility model discloses a sucker rod fatigue anchor clamps for performance test, including the gripper unit who is used for centre gripping sucker rod sample tip, gripper unit includes sample centre gripping section and voussoir linkage segment, the voussoir linkage segment has the plane with the contact of voussoir face, sample centre gripping section has the threaded connection hole. When these anchor clamps can avoid adopting current tired performance testing device test, experimental miss the test times condition under, lead to the phenomenon that tired performance test can't go on because of voussoir and the serious crack of coupling contact surface appearance.					
					
20.	Anti-attribution righting sucker rod	CN203867479	2014-03-17	TIELING YIDA PETROLEUM MACHINERY MANUFACTURING*	82 %
The utility model discloses an anti-attribution 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-attribution 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-attribution 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.					
					
21.	Coated wear resistance and corrosion resistance sucker rod	CN104653118	2013-11-21	YIN QIANG;ZHANG HONGCAI;ZHANG ZUOJIN	81 %
The invention discloses a coated wear resistance and corrosion resistance sucker rod, which comprises a main body and special-shaped parts at two ends. Wear resistance and corrosion resistance material layers are coated on the main body and the special-shaped parts at the two ends, and are made of modified PA6 with better modified thermoplasticity; the modified PA6 consists of 63-70% of nylon, 27-33% of glass fibers, and 0.7-1.3% of antioxidant BHT and antistatic agent SH-105 in percentage by mass; the ratio of the antioxidant BHT to the antistatic agent SH-105 is 1: 1; the wear resistance and corrosion resistance material layers are coated on the main body and the special-shaped parts at the two ends by the following technological process: the stirring, the drying, the loading, the die assembly, the injection, the pressure maintenance, the cooling, the mold opening, product taking and check are performed for raw materials; and finished products are warehoused when being qualified, and are crushed and pelletized to return to the raw materials for repeating the process when being not qualified. The coated wear resistance and corrosion resistance sucker rod has the advantages of convenience for use, wear and corrosion resistance, prevention of repeated operation caused by the wear of an oil pipe by the sucker rod, saving of well holding time and production cost, prolonging of the service life of the oil pipe and the sucker rod and prolonging the production period of an inclined well and a horizontal well, and is widely applied to stratum output liquid containing various acids, salts and such corrosives as corrosive gas and to the oil production technology of the inclined well and the horizontal well.					
					
22.	Sucker rod device with rfid (radio frequency identification) label	CN105672905	2016-03-28	SHI YONGSHENG	81 %
The invention provides a sucker rod device with an RFID (radio frequency identification) label. According to the technical scheme of the sucker rod device, a blind hole (2) is formed at the end face center of a screwed joint (1); an inner slot (3) is formed at in the head end of the blind hole (2); an RFID label (4) is placed in the blind hole (2) and is mounted at the bottom of the blind hole (2); a snap spring (5) is snapped in the inner slot (3); an encapsulation body (6) is fixed in the blind hole (23); a colloidal material (7) is filled in the blind hole (2) and the inner slot (3). The sucker rod device with the RFID label disclosed by the invention has the beneficial effects that a sucker rod is managed precisely; one rod has a unique code; the problems that sucker rods are not managed precisely at present and degrees of automation and informatization are low are solved. The occurrence probability of an accident that the sucker rod is broken off is reduced; a target object is automatically identified by radio frequency signals and the relevant data is are obtained; the identification work does not need manual intervention; the sucker rod device can work in various poor environments and is fast and convenient to operate.					
					
23.	Anticorrosion wear-resistant sucker rod	CN203891783	2014-04-14	TIELING YIDA PETROLEUM MACHINERY MANUFACTURING*	81 %
The utility model discloses an anticorrosion wear-resistant sucker rod, and the sucker rod is provided with a rod body. Two ends of the sucker rod are respectively provided with a jumping-up flange, and the outer side of each flange of two ends of the rod body is provided with a wrench site, a big shoulder, and a rolling connecting thread. The connecting thread of one end of the rod body is provided with an oil rod connection hoop. The rod body, the flanges at two ends of the rod body, the wrench sites, the big shoulders, and the outer surfaces of the rolling connecting threads are provided with a nitrided layer, wherein the wrench site, the big shoulder, and the rolling connecting thread are disposed at outer sides of the two ends of the rod body, and the thickness of the nitrided layer is greater than 0.25mm. The sucker rod employing the above structure is good in wear-resistant and anti-corrosion performances on the whole because the nitrided layer is higher in hardness and is better in wear-resistant and anti-corrosion performances. The sucker rod prolongs the service life, and reduces the cost in frequently changing the sucker rod. An experiment indicates that the sucker rod is good in wear-resistant and anti-corrosion performances if the thickness of the nitrided layer is greater than 0.25mm.					
					

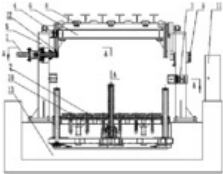
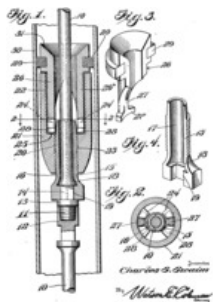
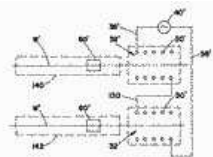
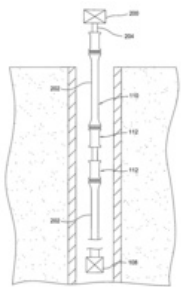
24.	Wrench square processing clamp for a pumping rod end	CN201249356	2008-06-13	LIAOHE OIL EXPLORATION CNPC*	81 %
The utility model relates to the mechanical processing tool, and in particular to a wrench square processing clamp for a pumping rod end, which consists of a clamp fixed base and a rod end fixed sleeve that is vertically welded on the clamp fixed base; the rod end fixed sleeve is of a cylindrical shape, and a round passage with different diameters is arranged inside the rod end fixed sleeve, and a transitional arc M is arranged at the intersection of the large diameter and the small diameter of the rod end fixed sleeve, and four small holes are arranged on the wall, which is arranged at the large diameter part, of the end rod fixed sleeve, and a tightening bolt passes through the small holes, and one end surface, which passes into the rod end fixed sleeve, of the tightening bolt is a plane K, and the other end f the tightening bolt is provided with a screwing handle. One side of the wrench square clamp is provided with an L surface, and the clamp fixed base is provided with four grooves N, and the angle is 90 degrees, and the distance from the L surface of the improved clamp to the center of the clamp is half of the thickness of the wrench. The wrench processing clamp can improve the working efficiency of the wrench for the pumping rod end, and can ensure the processing quality of the product. 					
25.	Composite coating and method of manufacture and application for corrosion protection of steel sucker rods	CA3006828	2018-05-31	LIFTING SOLUTIONS*	81 %
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. 					
26.	Friction welding sucker rod	CN2656602	2003-10-23	WU XUEGUANG;ZHANG WEILIANG;ZHANG WENSEN	81 %
The utility model relates to a friction welding sucker rod, which comprises a body of rod and two rod heads; wherein, the body of rod is cylindrical with thick points at both ends respectively and a boss and a knuckle arc is arranged at each of the points; a boss welded together with the ends of the body of rod is positioned on the two rod heads respectively. Due to arrangement of the weld seam on the contact surface between the boss on the rod head and the boss on the body of rod, the cross-sectional area of the weld seam is 2.5 to 3 times larger than that of the body of rod and the working stress is 2.5 to 3 times less than that of the body of rod; As the working stress at the welding position is far less than that of the body of rod, the integral fatigue strength of the welding position is not less than that of the body of rod although the fatigue strength of the welding heat affecting zone after friction welding process and integral heat treatment is somehow less than that of the body of rod. The utility model of a friction welding sucker rod has a high fatigue strength and minor piston effect between the sucker rod head and internal diameter of the oil pipe. 					
27.	Steel continuous oil sucking rod	CN2557682	2002-02-07	ENGINEERING MACHINERY PLANT SHENGLI PETROLEUM ADMINISTRATION*	79 %
Disclosed is a steel continuous sucker rod which can be used in oil sucking in oil field exploitation, comprising a feed rod tie-in, a continuous sucker rod and an oil well pump tie-in. The utility model is characterized in that the steel continuous sucker rod is oval and a plurality of sucker rods with different specification and different thickness are arranged in the whole body of the oval steel continuous sucker rod; the sucker rods with different specification and different thickness are inter-welded and are welded with the feed rod tie-in arranged at the upper end and with the oil well pump tie-in at the lower end. The welding lines are arranged at the smooth transition parts between two same or different sucker rods. The ratio of the maximum diameter and the minimum diameter of the steel continuous sucker rods I is 1.2-2.5, the semi-diameter R is 50-88.9mm and the section area S is 285-642 square millimeters; both the upper end of the feed rod tie-in and the lower end of the sucker rod tie-in are provided with pin threads; rectangular edge or square edge of a block wrench are respectively arranged at the upper part or the lower part of the pin threads. 					
28.	Apparatus for preparing rod stock for forging in manufacture of sucker rods	US4503308	1982-04-29	WOODINGS ROBERT T	79 %
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. 					
29.	Autogyration helps takes out centralizer	CN205172461	2015-11-30	JIYUAN PETROLEUM MACHINERY*	79 %
The utility model discloses an autogyration helps takes out centralizer in the pumping unit technical field, including the minor axis pole, the short pole upper end thread connection that takes out there is the coupling, leave the internal thread that links to each other with the rod string upper segment on the coupling, pole lower extreme thread connection is taken out to the weak point has the rod string hypomere, the weak point is taken out pole lower extreme external screw thread upside and is equipped with radial bellied circular bead, the cover is equipped with and sets upright or straight the body and set upright or straight the seat between circular bead and the coupling, right the position in righting the seat top, right the body and right a surface and seted up the helicia flute, it is equipped with along the bellied dogtooth of axial on the terminal surface down to set upright or straight the body, when the helicia flute on righting the seat is gone into to the dogtooth card, the helicia flute of righting the body and righting a surface staggers each other, and simultaneously, the terminal surface in opposite directions of setting upright or straight the body and setting upright or straight the seat combines together and seal the continuous passageway of setting upright or straight the body and setting upright or straight a last helicia flute just. The utility model discloses when can reduce the rod string wearing and tearing, it is even to make it self wear and tear through the rotation of setting upright or straight the body, can lengthen the sucker rod life -span. 					
30.	Repair of pumping rod	CN204200103	2014-11-15	LI YONGXIANG*	78 %

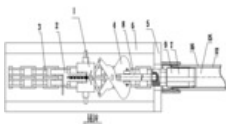
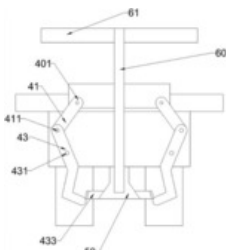
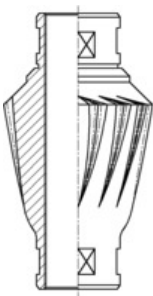
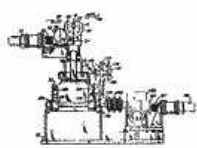
31.	Two-way protective sucker-rod connected hoop	CN2844393	2005-03-23	BEIJING ANDONGAO ER ENGINEERING TECHN*	78 %
A two-way protective sucker-rod connected hoop belongs to the field of processing of oil equipment. The body (1) of said hoop is a hollow cylinder, and inner cavities of left and right ends are equipped with internal threads (4); the surface of the middle part is a spanner square neck plane (3); the external surface (2) of the connected hoop body is painted by an alloy powder coat which is wear-resistant and erosion-resistant and the thickness of which is 0.25 - 0.6mm. The features of the hoop are that the connecting position of an outer circle surface of the sucker-rod connected hoop and an end surface is a chamfering slope between 14 degrees < alpha <30 degrees; the joint of the outer circular surface and the chamfering slope is a circular arc chamfering whose radius is less than 1.67mm; The component formula of adopted coat greatly avoids the scraping destructive effect and disadvantages such as abrasion, erosion and damage to the inner wall of the oil conduit caused by the joint of the outer circle surface of the connected hoop and the end surface, so as to greatly prolong the service life of the connected hoop and the oil conduit and reduce operational cost of oil field, and the oil production is increased.					
32.	Hollow sucker rod	CN201078195	2007-09-20	FAN ZHENMING	78 %
The utility model pertains to the technical field of oil production pipelines, and particularly relates to a hollow sucker rod . The main technical feature is: the hollow sucker rod comprises an inner tube and an outer tube arranged coaxially, wherein, a ring flange with an axial through hole is arranged on each end of the inner tube, the circumference of the ring flange is connected to the inner wall of the outer tube, and a thermal insulating layer is wrapped on the outer wall of the inner tube. The utility model overcomes the drawback of severe thermal loss and poor oil layer heating effect found on existing hollow sucker rods , and can be widely used in a variety of oil wells.					
33.	Cladding type corrosion-resistant sucker rod that wear-resistant	CN206722771	2017-05-24	SHAANXI SHENGDA DRILLING TECHNOLOGY*	78 %
Cladding type corrosion-resistant sucker rod that wear-resistant, including the body of rod , the screw hole is seted up to the one end of the body of rod , the other end of the body of rod is equipped with the four bank or ridge in proper order, boss and spiral shell rasp bar, the equal cladding of periphery of the body of rod corrosion-resistant material layer of wear-resistant, the screw nose end and the threaded rod end of two bodies of rod pass through bushing, comprises a pole body, the thread head can with screw hole screw-thread fit, sheathed tube other end fit in installation slip post, the thread head screw is seted up to the outer end of slip post, the thread head screw can with thread head screw-thread fit, pass through spring coupling between slip post inner and the sheathed tube blind end , it is intraductal that the four bank or ridge lies in the cover, four counter bores are seted up to the lateral part of sheathed tube open end . The utility model discloses an it protects the outside of sucker rod to wear-resistant the corrosion-resistant material layer, can be effectual anticorrosive to improve the lubricity, make the utility model discloses the surface is smooth, and the while can effectively be prevented the scale deposit and slowed down the emergence of wax deposition phenomenon.					
34.	Method of processing sucker rods and resulting article	BE711435	1967-03-01	NATIONAL OILWELL VARCO* US STEEL USX*	78 %
1,198,533. Rod joints . UNITED STATES STEEL CORP. 19 Feb., 1968 [1 March, 1967], No. 8038/68. Heading F2G. [Also in Division B3] A steel sucker rod having improved corrosion and fatigue properties is formed by induction hardening the rod , apart from threaded pins 16 at each end of the rod , to produce a substantially martensitic case having a depth of 3-15% of the rod diameter and a hardness of 400-800 Brinell, and further compressing the case to produce a stress of from at least 40,000 p.s.i. up to the elastic limit. The case 17 may terminate at a button 12 but may extend into a wrench square section 13 and pin shoulder 14. The case is further compressed by shot peening, preferably at 300< F. After the rod has been forged to shape, it may be quenched and its ends tempered during the induction hardening step. The rods are connected end to end by internally threaded couplings. (From GB1198533 A)					
35.	Sucker rod	US4484833	1981-09-30	CONSOLIDATED METAL PRODUCTS*	77 %
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.					
36.	Adaptor connector for sucker rods	CN202338215	2011-10-17	PETROCHINA*	76 %
Disclosed is an adaptor connector for sucker rods , which is used for threaded connection of two sucker rods with different diameters in an oil field oil-well pump rod assembly. The body of the adaptor connector is cylindrical, a conical platform is arranged at one end of the body, the diameter of the big end of the conical platform is the same with the outer diameter of the body, and the body and the conical platform are integrated as a whole; large diameter inner threads are arranged in the body, and small diameter inner threads are arranged in the conical platform; the central line of the large diameter inner threads and the central line of the small diameter inner threads are in the same straight line; the nominal diameter of the large diameter inner threads is in a range of 26.9-38mm; and the nominal diameter of the small diameter inner threads is in a range of 23.8-34.9mm. The adaptor connector for sucker rods has the advantages of being capable of enabling the two sucker rods with different diameters to be in the threaded connection, reducing material costs, mitigating the risk that the manual pipe vice makeup torque does not reach the standard, identifying specifications of sucker rods which can be connected through surfaces, accelerating construction, and reducing labor intensity.					
37.	Sucker polish rod manufacturing process	CN1470735	2002-07-26	SHENGLI OIL FIELD FURUITE PETROLEUM EQUIPMENT*	75 %
The manufacture process of sucker slick rod is characterized by that it selects and uses 20 CrMoA round bar and adopting the following procedures: using cold-drawing equipment to make cold-drawing and straightening for three times, using hammer equipment to hot-upset rod head of its one end , using heat-treatment equipment to make high-temp. quenching and tempering, then making three-wheel rotatating radical cold-extruding to one-step form screw thread on rod head, using polishing equipment to make polishing treatment or forming screw threads on two- end rod heads, then making hyperacoustic surface quenching and surface polishing.					
38.	Fin-type self-rotating anti-eccentric sucker rod	CN103821461	2014-03-19	CHINA UNIVERSITY OF PETROLEUM EAST CHINA*	74 %
The invention provides a fin-type self-rotating anti-eccentric sucker rod capable of preventing abrasion to a rod and a pipe and pump clamping and prolonging the maintenance-free period of an oil and gas well. A three body and one rod structure is adopted for the first time, an oval spherical face is adopted for a rectifying body, and well liquid on the rod body can be rectified; a thrust body and the lower end step face of a turbine body form four oil wedges, and the oil wedges make friction with the well liquid to generate dynamic pressure thrust so that a fin type impeller gear can be driven to perform autorotation; converging type oil wedges are formed between the shaft body of a base rod and an oil pipe column, between the oval spherical face of the rectifying body and the oil pipe column, between the thrust body and the oil pipe column, between the conical surface of the turbine body and the oil pipe column and between a conical gear sleeve and the oil pipe column, dynamic pressure liquid films are generated, and it is guaranteed that the rod and the pipe are totally separated; the dynamic pressure liquid films on the inner layer and the outer layer of the conical gear sleeve of the turbine body form two layers of liquid films, separation between the rod and the pipe is facilitated further, and abrasion is avoided; a rod slips and a slips have the self-lubricating function, meanwhile, the liquid films generated between a slips liner and the oil wedges of the base rod can separate the turbine body and the base rod , and thus abrasion is avoided; the thrust body is rotated to stir well liquid, the flowing speed of the well liquid is increased in combination with the supercharging turbine body, and pump burying and pump blocking caused by sedimentation of sand particles can be prevented.					
39.	Fin type self-rotation anti-eccentric-wear sucker rod	CN203891782	2014-03-19	CHINA UNIVERSITY OF PETROLEUM EAST CHINA*	74 %
The utility model provides a fin type self-rotation anti-eccentric-wear sucker rod which can be used for preventing a rod pipe from being worn, preventing a pump from being stuck and prolonging the repair-free period of an oil and gas well. A three-body one- rod structure is used for the first time, wherein a rectification body adopts an oval spherical surface to realize rectification on well liquid on a rod body; step planes of the lower ends of a thrust body and a turbine body form four oil wedges which generate dynamic pressure thrust via friction with the well liquid and push fin type impeller teeth to self-rotate; convergent oil wedges are formed and dynamic pressure liquid films are generated between the shaft body of a base rod , the oval spherical surface of the rectification body as well as the thrust body, and the conical surface of the turbine body, a taper gear sleeve as well as an tubing string, and the complete separation of the rod pipe is ensured; the inner-layer and outer-layer dynamic pressure liquid films of the turbine body and the taper gear sleeve form a double-layer liquid film, thus facilitating the further separation of the rod pipe and avoiding wear; a rod tile and a slip have self-lubrication functions, and meanwhile liquid film generated by an oil wedge between each slip liner and the base rod can separate the turbine body from the base rod , thus preventing wear; the thrust body is rotated to stir the well liquid, and the turbine body is pressurized to increase the flow rate of the well liquid, so the condition that the pump is buried and stuck due to sand settling can be prevented.					

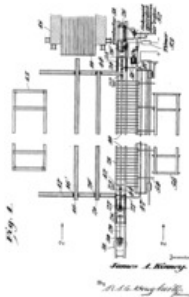
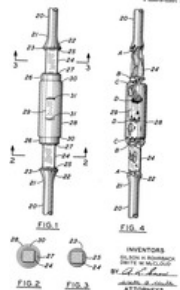
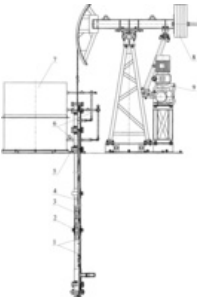
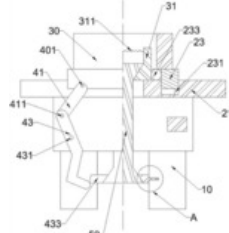
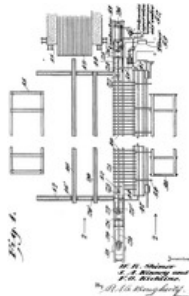
40.	Heavy oil thermal recovery wellhead gas injection blowout preventer	CN104499981	2014-11-26	WUXI SLFH PETROCHEMICAL EQUIPMENT TECHNOLOGY*	73 %	
The invention disclose a heavy oil thermal recovery wellhead gas injection blowout preventer which comprises a wellhead, a packing box and oil pumping rods. The packing box is mounted in an inlet. A screw is disposed at the lower end of the packing box. A seal sleeve is connected to the screw. The packing box is welded with a sealing sleeve in a sealed manner. The oil pumping rod at the upmost end and the oil pumping rod at the lower end of the oil pumping rod at the upmost end are connected through an oil pumping rod connector. The upper half section of the oil pumping rod connector is provided with an outer conical face. An inner conical face which is connected with the outer conical face in a matched and clamped manner is disposed inside the seal sleeve. An accommodating cavity for accommodating the big ends of the oil pumping rods is further formed in the seal sleeve. Due to the fact that the seal sleeve welded with the lower end of the packing box in a sealed manner is connected with the oil pumping rod connector in a matched and clamped manner, the packing box is completely sealed, and wellhead gas blowout during gas injection is avoided.						
41.	Safety sucker rod elevator	US1592706	1925-02-17	THOMAS DAVID KNIGHT	73 %	
No abstract available						
42.	Clad layer anti-corrosive oil pumping lever	CN208280908	2018-03-15	SHANDONG HIGHLAND SHENGLONG SUCKER ROD*	73 %	
The present utility model relates to a sucker rod for oil and gas exploration, in particular, relates to a cladding layer anti-corrosive sucker rod. Includes a pump rod body, each end of the pump rod is provided with a threaded section in this order from outside to inside, annular stress relief groove, shoulder section and the wrench-side external thread segment; threaded at both ends of the segments are provided with external threads, the threads of the outer end is provided with a tapered chamfer; externally threaded shoulder section and the wrench to converge inwardly tapered transition section between the side sections, side section and the pump rod wrench of an endless elliptic arc between the transition section; external threads at both ends of shoulder section, a tapered transition section, a wrench square section, an elliptic arc transition segment and are provided with anti-corrosive coating layer outside of the pump rod. The overall structure of the present utility model is more reasonable, much more versatile, anti-corrosive properties and abrasion resistance are significantly enhanced, not only can effectively prolong the service life of the sucker rod, and more convenient for paraffin operation, greatly reducing the labor intensity.						
43.	Continuous sucker belt and joint in oil well	CN2561911	2002-03-05	SHENGLI OIL FIELD CHANGLONG RUBBER & PLASTIC*	70 %	
The utility model is a continuous oil pumping belt and connectors for oil wells, which belong to the field of oil pumping rod and connectors used for oil mining in the wells. The oil pumping belt is long flat, the section plane thereof is rectangular, the width is from 30 to 40 mm, the thickness is 3.5 to 5.0 mm, and the continuous length is several hundred meters to several thousand meters. The connector comprises a sleeve, a connecting head, a push fixing block, a clip block, as well as a positioning pin. The connecting head is arranged in upper part of the inner cavity of the sleeve, the clip block is arranged in lower part of the inner cavity of the sleeve, and the push fixing block is arranged in the middle part. Each oil well only uses one oil pumping belt, the upper and the lower ends of the oil pumping belt are separately arranged with connectors without the middle connector. Compared with the steel oil pumping rod, the utility model has the advantages of uneasy break, no dampening effect, light dead weight, small elastic deformation, small pumping unit energy consumption, high pump efficiency, little downhole operation procedure, so as to save time; Compared with other oil pumping rods with non-metal materials, the utility model has higher abrasive resistance and anti-fatigue strength, long service life, better flexibility, so as to be coiled on the cylinder with the diameter of 0.6 mm. The utility model can be widely used for sucker rod pumping wells to extract oil.						
44.	Steel cord pumping lever	CN208280907	2018-03-15	SHANDONG HIGHLAND SHENGLONG SUCKER ROD*	68 %	
The present utility model relates to a sucker rod for oil and gas exploration, in particular, relates to a wire rope sucker rod. Includes a steel wire rod is pressed against the steel wire rod body and the use of pressure bonding two ends of the connector processes, provided in this order from outside to the connector has a threaded portion, an annular stress relief groove, shoulder section and an annular groove-like wrench square section outer threads, the threaded section is provided with external threads, the threads of the outer end is provided with a conical chamfer. The present utility model a stronger steel wire rod employ a flexible body, not only the manufacture period is short, low cost, convenient transportation, but also production piston effects are small, low yaw, improves the work efficiency, guarantee normal production of oil fields.						
45.	Composite sucker rod and method of manufacturing same	US4432662	1981-08-13	RONNKVIST AKE E	66 %	
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.						

46.	Sucker rod coupling	US3201158	1964-01-09	LIBERTY MANUFACTURING*	65 %	
No abstract available						
47.	Anti-corrosive pump rod joint of tungsten alloy	CN201190542	2007-12-20	TIELING MACHINERY & EQUIPMENT MANUFACTURING*	64 %	
The utility model relates to a tungsten alloy corrosion resistant pumping rod joint hoop which is provided with a circular pipe joint hoop body. The middle section of the external circumference of a circular pipe of the joint hoop body is provided with a wrench square, the circular pipe joint hoop body is provided with inside threads which are matched with outside threads of rod heads at the both ends of a pumping rod, and the outer surface of the circular pipe joint hoop body is compounded with a tungsten based amorphous alloy plating which is compounded by the nano film tungsten alloy electroplating art. The nano film tungsten alloy electroplating art is formed by adopting the special plating art and reasonable plating alloy, thereby the alloy plating is enabled to have the advantages of high hardness, favorable wear resistance, strong corrosion resistance, favorable binding force with a base, and the like., and products used by the nano film tungsten alloy electroplating art have series plating kinds. The utility model uses the nano film tungsten alloy electroplating art to compound the tungsten based amorphous alloy plating on the outer surface of the pumping rod joint hoop, therefore, the outer surface of the pumping rod joint hoop has the advantages of high hardness, favorable wear resistance and favorable corrosion resistance, the manufactured pumping rod joint hoop has favorable corrosion resistance and wear resistance as well as long service life.						
48.	Fluid injection device for ternary compound oil displacement well	CN104563988	2014-12-31	SHANDONG NINE RING PETROLEUM MACHINERY*	62 %	
The invention discloses a fluid injection device for a ternary compound oil displacement well. Liquid for removing scale can be quickly and effectively filled into an oil well to remove scale from the inner wall of an oil pipe so as to guarantee the successful oil extraction work. The fluid injection device for the ternary compound oil displacement well comprises a smooth sucker rod, a tee, a pump barrel, a plunger, a short rod and a plug, one end of the pump barrel is connected with the tee while the other end is connected with the plug, and the smooth sucker rod, plunger and short rod are arranged in the pump barrel in sequence from the top to bottom; a vertical through medicine injection flow passage is arranged in each of the tee, pump barrel, plunger and short rod.						
49.	Method of making class d sucker rods	JPS5923850	1982-07-09	ROBAATO TEI UDEINGUZU;WOODINGS ROBERT T	62 %	
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.						
50.	Helical tooth v-shaped anti-eccentric-wear coupling	CN203742471	2014-03-19	CHINA UNIVERSITY OF PETROLEUM EAST CHINA*	62 %	
The utility model provides a helical tooth V-shaped anti-eccentric-wear coupling which can prevent abrasion caused due to contact between a tubing string and the coupling and prolong repair exemption of an oil-gas well. The coupling mainly comprises an upper inner thread connector, a lower inner thread connector, an upper wrench square diameter, a lower wrench square diameter, a shoulder, a rear cone, helical teeth, main cone bodies and a front ball. The rear cone is manufactured through a 90-degree taper to prevent a matrix section and rigidity from changing rapidly. The unique V-shaped structure of the main cone bodies forms a convergent wedge-shaped gap to form a dynamic pressure liquid film so that the anti-eccentric-wear coupling can be separated from the wall of an oil tube. The special structure of the surfaces of the helical teeth is combined with a V-shaped helical tooth sleeve to form a continuous and stable dynamic pressure liquid film, a dynamic pressure liquid film already formed on the taper surfaces of the main cone bodies is thickened, and accordingly the tubing string and the coupling are completely separated and eccentric wear is eliminated. The V-shaped helical structure of the helical tooth sleeve continuously stirs well fluid in tubing annulus, and sand can be smoothly discharged from a well. The spherical structure of the front ball guarantees that the well fluid forms continuous and stable flow and protects the dynamic pressure liquid film on the taper surfaces of the main cone bodies.						
51.	Fluid injection device for ternary compound oil displacement well	CN204436356	2014-12-31	SHANDONG NINE RING PETROLEUM MACHINERY*	60 %	
The utility model provides a fluid injection device for a ternary compound oil displacement well. The fluid injection device can rapidly and effectively inject chemical fluid for removing scale into an oil well to remove scale on the inner wall of an oil pipe, and smooth oil extraction operation is guaranteed. The fluid injection device for the ternary compound oil displacement well comprises a smooth sucker rod, a tee joint, a pump barrel, a plunger, a short bar and a plug, the two ends of the pump barrel are connected with the tee joint and the plug respectively, and the smooth sucker rod, the plunger and the short bar are sequentially arranged in the pump barrel from top to bottom. A vertical through chemical injection channel is formed in the tee joint, the pump barrel, the plunger and the short bar.						

52.	Sucker rod coupling with zinc inserts	US2392033	1941-11-01	BETHLEHEM STEEL*	56 %	
53.	Method of normalizing sucker rods using a normalizing unloader	US4468261	1982-04-26	WOODINGS ROBERT T	56 %	
54.	It rubs to fall hinders immersion and aggravates to adopt and gather pump	CN204591647	2014-12-30	NINE RING MACHINERY SHARE HOLDING*	55 %	
55.	Special-shaped sucker rod pup joint	CN2934550	2006-08-16	PETROCHINA*	54 %	
56.	Pump rod connection	US20180163485	2016-12-09	SCHLUMBERGER* SCHLUMBERGER SERVICES PETROLIERS* SCHLUMBERGER TECHNOLOGIES*	52 %	
57.	Oil well sealing device	CN205025405	2015-09-18	PETROCHINA*	50 %	

58.	H-shaped steel overturning and welding device	CN204366330	2014-12-31	JINNAN TIANCHEN ALUMINUM MACHINE*	48 %	
The utility model relates to an H-shaped steel overturning and welding device. The device comprises a stand column, a rotary frame, a positioning and locking device, a lifting device and a limiting device, wherein the positioning and locking device comprises a locking mechanism arranged on the stand column and a frame positioning rack fixedly connected to the rotary frame and matched with the locking mechanism, a height adjusting device is connected to the lower portion of the lifting device and can be used for adjusting the vertical movement ranges of a heel slab and an upper ejector plate, and then the length range of positioned structural steel is wider. The method that a piston rod of a cylinder pushes a positioning shaft is adopted for the positioning and locking device, and compared with the manual method, the method has the advantage that an operator only needs to conduct operation through a control switch so that operation can be more convenient. An electromagnetic sucker and a limiting plate are used in cooperation for the limiting device, both the limiting function and positioning function are realized, and when positioning is inaccurate, the exact position can be found by adjusting an adjusting screw, so that the problem that deviation adjustment is inconvenient after positioning and installation are achieved by means of a positioning hole is solved.						
59.	Relief valve for deep wells	US1573021	1925-06-30	SWAIM CHARLES S	48 %	
No abstract available						
60.	Method and apparatus for induction heating of an elongated workpiece	US4433226	1981-11-12	AJAX MANUFACTURING* AJAX TOCCO MAGNETHERMIC* ATBD* BLUE FALCON TRAVEL* C T MANUFACTURING* CLANCY BING* COLUMBIA NUT & BOLT* CONTROL TRANSFORMER* FECO* FORGING PARTS & MACHINING* GATEWAY INDUSTRIAL SUPPLY* GENERAL ALUMINUM MANUFACTURING* ILS TECHNOLOGY* INDUCTION MANAGEMENT SERVICES* INTEGRATED HOLDING* INTEGRATED LOGISTICS HOLDING* INTEGRATED LOGISTICS SOLUTIONS* LALLEGRO* LEWIS & PARK SCREW & BOLT* P O REALTY* PARK OHIO FORGED & MACHINED PRODUCTS* PARK OHIO INDUSTRIES* PARK OHIO PRODUCTS* PHARMACEUTICAL LOGISTICS* PHARMACY WHOLESALE LOGISTICS* POVI* PRECISION MACHINING CONNECTION* RB & W* RB & W MANUFACTURING* RED BIRD* SNOW DRAGON* SOUTHWEST STEEL PROCESSING* ST HOLDING* STMX* SUMMERSPACE* SUPPLY TECHNOLOGIES* TOCCO* WB & R ACQUISITION*	45 %	
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.						
61.	Connector for use in a wellbore	CA2570700	2006-01-03	WEATHERFORD LAMB*	44 %	
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.						

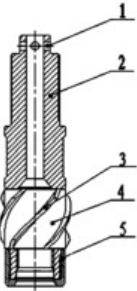
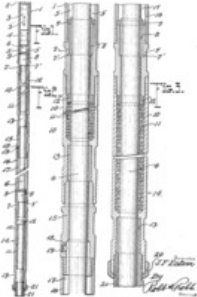
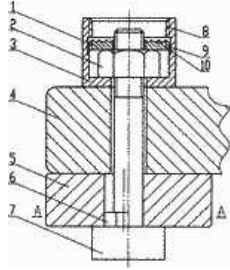
62.	Flush round rod	CA2111766	1993-12-17	GIBBONS JOHN R	42 %
A one piece, flush round rod is disclosed. The rod is used for reciprocal action in a well casing in pumping fluids from a production well. The rod has two connectors, a female threaded socket at one end and a male threaded pin on the other end for facilitating the axial connection of a series of rods. The outside diameter of the connectable ends is no greater than the maximum diameter of the rod itself.					
63.	Lining taking-out device of macromolecular pe (poly ethylene) lining oil tube	CN204450400	2015-01-21	NINGXIA HENGHUI OIL SERVICE GAS TECHNOLOGY*	40 %
The utility model relates to a lining taking-out device of a macromolecular PE (poly ethylene) lining oil tube. The lining taking-out device comprises a drawing machine, a drawer and a lining oil tube; the lining oil tube comprises a base pipe and a lining pipe; the drawing machine is connected with the lining pipe through the drawer, and the drawer is in threaded connection with a pulling rod into one through a screwing guide device; the screwing guide device is composed of a guide positioning mechanism, a spiral cutting mechanism, a connecting locking mechanism, a spanner square mechanism and a pulling rod connector; one side of the pulling rod connector is connected with the pulling rod through threads. The lining taking-out device has the following beneficial effects: through a mechanical method, the lining pipe can be taken out; thus the lining taking-out device can effectively avoid the environmental pollution for taking out the lining by means of burning carbon in the traditional technique; meanwhile, the lining pipe after taking out can be recycled, thus the production cost is greatly reduced, and the lining taking-out device has high practicability and economical value.					
64.	Cutting machining device	CN108581530	2018-04-28	CHONGQING DINGHAN MACHINERY*	40 %
The invention relates to the field of part machining equipment, in particular to a cutting machining device. The cutting machining device comprises a machine frame, the machine frame is provided with a base used for containing parts, a cutting knife is arranged above the base, the cutting knife is connected to the machine frame, wherein, the base comprises a sliding part and a fixing part, the fixing part is fixed on the machine frame, mounting grooves are formed in the fixing part, the sliding part is slidably connected in the mounting grooves, and first elastic parts are arranged between the lower surface of the sliding part and the bottoms of the mounting grooves; a center hole is formed in the center of the fixing part, and a driving rod is arranged in the center hole; and the cutting knife is arranged on a cutting knife holder, a clamping groove is vertically formed in the fixing part, the cutting knife holder is slidably connected in the clamping groove, the lower end of the driving rod is connected with the cutting knife holder through a connecting piece, the cutting knife holder can be driven to descend when the lower end of the driving rod moves downwards, and when the lower end of the driving rod moves upwards, the cutting knife holder can be driven to ascend.					
65.	Spiral tooth v-shaped anti-bias grinding joint hoop	CN103850656	2014-03-19	CHINA UNIVERSITY OF PETROLEUM EAST CHINA*	37 %
The invention provides a spiral tooth V-shaped anti-bias grinding joint hoop, which can prevent the abrasion between an oil tubing string and a joint hoop and can be used for prolonging the maintenance-free period of an oil gas well. The spiral tooth V-shaped anti-bias grinding joint hoop mainly comprises an upper internal thread joint, a lower internal thread joint, a table shoulder, a rear cone, spiral teeth, a main cone body and a front sphere; the rear cone adopts a 90-degree conical structure and avoids the rapid change of the section and rigidity of a base body; the unique V-shaped structure of the main cone body forms a converged wedge-shaped gap to generate a dynamic pressure liquid film and enable the anti-bias grinding joint hoop to be separated from an oil pipe wall; the special structure of the tooth surfaces of the spiral tooth and a V-shaped spiral tooth sleeve are combined to form the continuous stable dynamic pressure liquid film again, so the dynamic pressure liquid film formed at the conical surface of the main cone is thickened, the oil tubing string and the joint hoop are completely separated and bias grinding is eliminated; well fluid in the annular space of the rod pipe is continuously stirred by the V-shaped spiral structure of the spiral tooth sleeve, so sand particles are favorably discharged out of the well; the well fluid is enabled to form the continuous stable flows and the dynamic pressure liquid film at the conical surface of the main cone is protected due to the spherical structure of the front sphere.					
66.	Antiseptic wear-resistant polished rod	CN108798537	2017-04-27	KENLI COUNTY JINXIU PETROLEUM MACHINERY*	36 %
The present invention discloses an anti-corrosive wear-resistant polished rod, including the body, both ends of the rod are respectively provided with a male connection and the 2nd 1st externally threaded joint, anti-corrosive wear-resistant alloy coating is provided outside of the shank, the shank of a threaded joint is provided close to the 2nd non-obscure cathodic protection anti-corrosive alloy outside coating. The present invention is carried out on the polished rod body portion and a self-fluxing alloy powder and the flame spray welding nickel upset the remelting, ensure that the rod surface to form a high corrosion resistant alloy wear resistant coating, after remelting the alloy coating bonding to the matrix strength of metallurgical-grade, high strength high toughness is required that the polished rod is solved, in turn requiring corrosion protection and wear resistant modern oil recovery processing difficulties.					
67.	Compound displacement of reservoir oil well of ternary is with keeping off dirt, storing dirty device	CN204591239	2014-12-31	NINE RING MACHINERY SHARE HOLDING*	36 %
The utility model provides a compound displacement of reservoir oil well of ternary is with keeping off dirt, storing dirty device prevents effectively that dirty matter from getting into the oil-well pump, and the emergence of the in-process holddown phenomenon of avoiding pumping reduces the maintenance and the maintenance cost of oil production equipment, the going on smoothly of favourable guarantee oil recovery operation. Compound displacement of reservoir oil well of ternary is with keeping off dirt, storing dirty device including thick wall coupling I, add thick oil pipe, hollow slide bar, fender dirt cover, nipple joint, thick wall coupling II, adds thick oil pipe upper end and connects that thick wall coupling II is connected to thick wall coupling I, lower extreme, inside sets up hollow slide bar, and its characterized in that connects the nipple joint in the upper end of thick wall coupling II, and nipple joint upper end opening seals to be equipped with and keeps off the dirt cover, keeps off dirty envelope of hood dress on the hollow slide bar body of rod, nipple joint, thick wall coupling II and add thick oil pipe and form the annular and store dirty cavity.					
68.	Apparatus for handling a long pieces	IT8167283	1981-02-24	UEC TECHNOLOGIES*	33 %
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. <IMAGE> (From GB2070482 A)					

69.	Heat treatment mechanism	US1852528	1930-08-04	BETHLEHEM STEEL*	33 %	
No abstract available						
70.	Corrosion prevention	US2751194	1950-12-01	CALIFORNIA RESEARCH*	31 %	
No abstract available						
71.	Water drainage and gas production simulated experimental device	CN101806202	2010-03-31	CHINA UNIVERSITY OF PETROLEUM EAST CHINA*	30 %	
The invention provides a water drainage and gas production simulated experimental device, which is used for simulating the water drainage and gas production of coal bed gas wells or other water producing gas wells. The water drainage and gas production simulated experimental device consists of a speed reducer, a water pump, a wellhead device, a water storage device, a detection device, a casing string, a water pipe column, a drainage and mining roofbolt and a drainage and mining pump, wherein the drainage and mining roofbolt, the water pipe column and the casing string form two annular spaces; a water jacket performs deflation in the annular space while the rod and the pipe perform drainage in the annular space; physical distribution in the annular space of the water jacket realizes the study of the separation condition of two-phase flow gases; the speed reducer integrates a power machine and a transmission system and realizes the large transmission ratio and the continuous adjustment of stroke frequency and arbitrary adjustment of which the liquor drainage volume is between 3 and 30m³/d and the submergence depth is between 0 and 20 meters; the detection device realizes the real-time monitoring of the liquor drainage volume, a movable liquid level, the pressure, well liquor components and the stress of rod pieces; a walking beam counterweight adopts a split structure, and the position of a crank counterweight can be adjusted continuously, so that the good balance of the water pump is realized; and a structure of a single crank, a single connecting rod and a sliding bearing is adopted to reduce the size of a complete machine.						
72.	Positioning device for part machining	CN108296506	2018-04-28	CHONGQING DINGHAN MACHINERY*	29 %	
The invention relates to the field of part machining devices, in particular to a positioning device for part machining. The positioning device comprises a machine frame and a base. The base comprises a sliding part and a fixed part. The sliding part is slidably connected to the fixed part. A vertical driving rod is arranged at the center of the fixed part. A linkage mechanism is hinged to the machine frame in a left-right symmetry mode. When the upper end of the linkage mechanism moves down or moves up, the lower end of the linkage mechanism moves up or moves down. The upper end of the linkage mechanism is hinged to the outer wall of the sliding part. The lower end of the machine frame is slidably connected with movable blocks. When the lower end of the linkage mechanism rises, the two movable blocks are driven to move towards each other in the horizontal direction, and the driving rod can move down when the two movable blocks move towards each other in the horizontal direction. The upper surface of the fixed part is slidably connected with two same supporting blocks. The two supporting blocks are arranged on the two sides of a central hole in a left-right symmetry mode. The driving rod can drive the two supporting blocks to move away from each other in the horizontal direction when moving down.						
73.	Metal article and method of preparing same	US2003094	1930-08-04	BETHLEHEM STEEL*	27 %	
No abstract available						

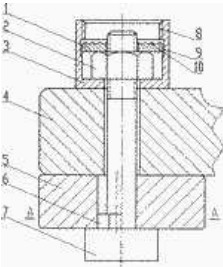
A method for uniformly heating an elongated workpiece having a first portion with uniform cross-section over a major portion of the workpiece length and a second portion having a larger cross-section than the first portion. A multi-turn inductor is operatively mounted on a carriage or the like and is 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.

(From US4418259 A)



78.	Compound displacement of reservoir oil well of ternary is with scraping dirty device	CN204591217	2014-12-31	NINE RING MACHINERY SHARE HOLDING*	20 %
The utility model provides a compound displacement of reservoir oil well of ternary is with scraping dirty device effectively gets rid of oil pipe inner wall dirt matter, reduces the maintenance and the maintenance cost of oil production equipment, the going on smoothly of favourable guarantee oil recovery operation. Scraping dirty device and including that the disk seat connects, stop nut, the disk seat connects the lower part and is provided with the impeller, and rotating impeller installs on the disk seat connects, and the impeller outer fringe is equipped with helical blade, and adjacent helical blade's clearance forms spiral flowing channel, still is equipped with below the impeller to connect the fixed stop nut of tip with the disk seat, is equipped with in the middle of the impeller to connect the complex through-hole with the disk seat. At rod string's up-and-down motion in-process, the impeller rotates along with the impact of the fluid that flows, can effectively strike off the dirty matter of oil pipe inner wall.					
					
79.	Pump construction	US2032838	1934-03-19	SCS ENGINEERING*	18 %
No abstract available					
					
80.	Hollow anti-scale oil pump	CN104564650	2014-12-31	SHANDONG NINE RING PETROLEUM MACHINERY*	16 %
The invention provides a hollow anti-scale oil pump which can effectively prevent scale deposition as well as preventing pumping from being blocked during pumping oil, so as to decrease the repair and maintenance cost of an oil production device as well as ensuring smooth oil production work. The hollow anti-scale oil pump comprises a pump barrel assembly, a long plunger piston assembly and a fixing valve assembly; the pump barrel assembly comprises an oil pipe coupling, an upper lengthening pumping barrel, a pump barrel coupling, a short pump barrel, and a lower lengthening pump barrel on the lower surface of the short pump barrel; the long plunger piston assembly comprises a hollow short rod, an upper reducing coupling, an upper one-way valve device, an one-way valve bus, an upper valve seat connector, a pulling rod bus, a hollow pulling rod, an oil outlet cover, a plunger piston, a floating valve seat, a floating valve ball, a lower reducing coupling, a lower one-way valve device and a piston block; the upper one-way valve device and the lower one-way valve device both comprise connectors, valve balls arranged in the connectors, and valve seats; the fixing valve assembly comprises a pump barrel valve cover, a fixing valve ball, a fixing valve seat and a pump barrel valve cover reducing connector.					
					
81.	Hollow anti-scale oil well pump	CN204436777	2014-12-31	SHANDONG NINE RING PETROLEUM MACHINERY*	15 %
The utility model provides a hollow anti-scale oil well pump which effectively prevents scale deposition, avoids the holddown phenomenon in the oil pumping process, reduces overhauling and maintenance cost of oil production equipment and is beneficial for guaranteeing smooth proceeding of oil production operation. The hollow anti-scale oil well pump comprises a pump barrel assembly, a long plunger assembly and a fixed valve assembly. The pump barrel assembly comprises an oil pipe coupling, an upper lengthened pump barrel, a pump barrel coupling, a short pump barrel and a lower lengthened pump barrel below the short pump barrel. The long plunger assembly comprises a hollow short rod, an upper reducing coupling, an upper one-way valve device, a one-way valve standby nut, an upper valve base connector, a pull rod standby nut, a hollow pull rod, an oil discharge cover, a plunger, a traveling valve base, a traveling valve ball, a lower reducing coupling, a lower one-way valve device and a plug. The upper one-way valve device and the lower one-way valve device each comprise a connector, a valve ball and a valve base, wherein each valve ball and the corresponding valve base are located in the corresponding connector. The fixed valve assembly comprises a pump barrel valve cover, a fixed valve ball, a fixed valve base and a pump barrel valve cover reducing joint.					
					
82.	Anti-theft bolt set for motor of oil pumping unit	CN102777474	2012-07-23	FENG XINYONG	11 %
The invention discloses an anti-theft bolt set for a motor of an oil pumping unit. The motor is located on a motor track; a bolt threads upwards through the motor track and the motor and then stretches into an anti-tamper hood; a nut is connected to the bolt, with the lower end face located on the inner underside of the anti-tamper hood; a lug boss is arranged at the bottom of the bolt and is located inside a bolt hole of the motor track; the axis of the bolt hole of the motor track does not coincide with the axis of the bolt; internal screw threads are arranged at the upper end of the anti-tamper hood; external screw threads matching with the internal screw threads at the upper end of the anti-tamper hood are arranged on a retainer cover; the retainer cover is installed on the nut through the internal screw threads on the upper end of the anti-tamper hood; convex teeth are arranged on the upper end face of the retainer cover; and square edges used for mounting a spanner are unnecessary to be arranged at the lower part of the bolt. The nut is located inside the anti-tamper hood and the retainer cover is arranged at the upper end of the nut, so a thief can not disassemble the bolt and the nut through general tools. Therefore, the anti-theft bolt set can prevent the thief from knocking down the bolt set and stealing the motor and the component parts of the oil pumping unit and thereby can avoid the economic losses caused by the fact that the motor of the oil pumping unit is stolen.					
					

83.	Anti-theft bolt group of pumping-unit motor	CN202690697	2012-07-23	FENG XINYONG	11 %
The utility model discloses an anti-theft bolt group of a pumping-unit motor. A motor is seated on a motor rail; a bolt extends into an anti-tamper hood from bottom to top by virtue of a motor rail and the motor; a nut is connected to the bolt; the lower end face of the nut is seated on the inner bottom surface of the anti-tamper hood; a lug boss is arranged at the bottom part of the bolt; the lug boss is arranged inside a bolt hole of the motor rail, so that an axis of the bolt hole of the motor rail does not overlap with the axis of the bolt; an inner thread is arranged at the upper end of the anti-tamper hood; an outer thread is arranged on a baffle cover; an outer thread on the baffle cover is matched with an inner thread at the upper end of the anti-tamper hood; the baffle cover is arranged on the nut by virtue of the inner thread at the upper end of the anti-tamper hood; convex teeth are arranged at the upper end face of the baffle cover; a square edge for installing a spanner does not need to be arranged at the lower part of the bolt; and the nut is arranged inside the anti-tamper hood, and the baffle cover is arranged at the upper end of the nut. The bolt and the nut cannot be dismantled by a theft by virtue of a common tool; and the motor and pumping unit parts can be prevented from being stolen by the theft after the bolt group is dismantled, so that various economic benefits caused by stealing of the pumping-unit motor can be avoided.					



84.	Disk-shaped thin-walled type of parts of the clamp	CN208067347	2018-01-19	JIASHAN AIXIANG METAL PRODUCTS*	8 %
The present utility model discloses a disk-shaped thin-walled type of parts and is especially directed to a jig of the jigs, solves the problem of poor stability. The essential technical proposal is to include a chuck body, for clamping the jaws of the chuck body sliding connection parts, urge the jaws of the chuck body is provided with a sliding drive mechanism, the catch slide connected with a movable seat, a sliding direction of sliding of the movable seat is perpendicular to the jaws, the movable seat is provided with a gripper bar engaging part, a drive unit driving the movable base is provided with dog teeth. Through the driving part drives the movable holder toward moving down, causing the jaws to move downwardly to follow the movable seat towards the parts clamp, and can effectively improve the stability of the part, the effect of providing high stability is achieved.					

