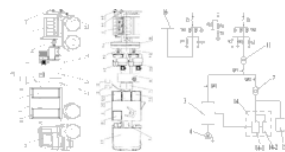


Electrically-driven fracturing pump truck

Abstract

The invention discloses an electrically-driven fracturing pump truck, which comprises a truck chassis with a cab. A lubricating and cooling system, a fracturing pump, a suction manifold, an exhaust manifold, an electrically-driven system and a control system, the suction manifold and the exhaust manifold are connected with the fracturing pump, the electrically-driven system comprises a motor and a motor-driven device, the motor is used for driving the fracturing pump to run, the control system comprises a main power control system and an auxiliary power control system, the main power control system is used for controlling the motor-driven device, the auxiliary power control system is used for controlling the lubricating and cooling system, and the motor-driven device, the main power control system and the auxiliary power control system are powered by an external power source. The electrically-driven fracturing pump truck is simple in structure, reasonable in design, convenient in matching, low in manufacture cost, high in work efficiency and reliability, convenient in energy supply, fine in emission reducing effect, easy in maintenance, capable of overcoming defects and shortcomings of high fuel consumption, difficulty in matching of an engine and a torque converter and the like of a fracturing pump truck in the prior art, and convenient in popularization and use.

Images (3)



Landscapes

Control Of Positive-Displacement Pumps

Details Of Reciprocating Pumps

Show more

Claims (4)

Hide Dependent ^

1. an electric drive pressure break pump truck, comprise the truck chassis (1) of band driver's cabin (1-1), lubricating and cooling system (8) and fracturing pump (5) are installed on described truck chassis (1), and the suction manifold (6-1) and the exhaust manifold (6-2) that are connected with fracturing pump (5), it is characterized in that: the electric drive trains control system of unifying is also installed on described truck chassis (1), described power drive system comprises motor (4) and the motor drive (3) for driving fracturing pump (5) running, described control system comprises active force control system (14) for controlling motor drive (3) and for controlling the auxiliary power control system (15) of lubricating and cooling system (8), described motor drive (3), active force control system (14) and auxiliary power control system (15) are all passed through external power source, described motor (4) is one, and described motor (4) is connected with described fracturing pump (5) by the first shaft coupling (9-1), or described motor (4) is two and is respectively the first motor (4-1) and the second motor (4-2), described motor drive (3) is two and is respectively the first motor drive (3-1) being connected with the first motor (4-1) and the second motor drive (3-2) being connected with the second motor (4-2), described power drive system also comprises gearbox (10), described the first motor (4-1) is connected with gearbox (10) by the second shaft coupling (9-2), described the second motor (4-2) is connected with gearbox (10) by the 3rd shaft coupling (9-3), described gearbox (10) is connected with fracturing pump (5) by tetrad axial organ (9-4), the human-computer interaction device (14-2) that described active force control system (14) comprises controller (14-1) and joins with controller (14-1), described motor drive (3) joins with described controller (14-1), described active force control system (14) is arranged in main control cabinet (13-1), described auxiliary power control system (15) is arranged in auxiliary switch board (13-2), described motor drive (3), main control cabinet (13-1) and auxiliary switch board (13-2) are all arranged in electric-controlled house (2), and described electric-controlled house (2) is arranged on described truck chassis (1), described motor (4) is ac motor or dc motor, and described motor drive (3) is AC motor driving apparatus or the DC motor drive device supporting with motor (4), described AC motor driving apparatus is frequency converter, and described DC motor drive device is controllable silicon.

2. according to electric drive pressure break pump truck claimed in claim 1, it is characterized in that: described external power source comprises well site electrical network (16), the main transformer (11) being connected with well site electrical network (16) and the auxiliary transformer (7) being connected with described main transformer (11), described auxiliary transformer (7) is arranged on described truck chassis (1), described motor drive (3) is connected with described main transformer (11), and described active force control system (14) is all connected with described auxiliary transformer (7) with auxiliary power control system (15).

3. according to electric drive pressure break pump truck claimed in claim 1, it is characterized in that: described external power source comprises generating set (12) and the auxiliary transformer (7) being connected with described generating set (12), described auxiliary transformer (7) is arranged on described truck chassis (1), described motor drive (3) is connected with described generating set (12), and described active force control system (14) is all connected with described auxiliary transformer (7) with auxiliary power control system (15).

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4. according to electric drive pressure break pump truck claimed in claim 3, it is characterized in that: the quantity of described generating set (12) is one or more, and many described generating sets (12) are parallel with one another.

Description

Electric drive pressure break pump truck

Technical field

The invention belongs to technical field of petroleum extraction, relate to a kind of oil exploitation mechanical work equipment, especially relate to a kind of electric drive pressure break pump truck.

Background technology

Pressure break is the important technical of producing in oil gas field increasing the storage, need to first formation fracture be pressed off by high-pressure fluid, then toward filling fracturing sand in crack, strengthen in-place permeability, improves oil and gas production. In pressing crack construction, fracturing unit performance quality determines the realization that fracturing technique improves. Superior pressure break equipment is the technical support of pressing crack construction indispensability. China's oil-gas field fracturing construction operation total amount is every year with 10% ~ 20% speed increment, and along with the exploitation of deep-well and difficult well, pressing crack construction scale increases gradually. The domestic fracturing unit having far can not meet pressing crack construction increased requirement.

High-power Frac unit is high technology content petroleum equipment, American-European countries, the particularly U.S. research and development production and the applying history of existing 80 years in this field. In a quite long period, the approach that China obtains advanced pressure break equipment is exactly import. Pressure break equipment particularly high-power pressure break is equipped " seizing by the throat " equipment that was once becoming China's production of hydrocarbons field.

Pressure break pump truck is that pumping equipment is arranged on self-propelled truck chassis, is used for carrying out the job that requires special skills equipment of the wellfracturing stimulation work of high pressure, large discharge capacity. This device is comprised of for two parts chassis and upper installing. Chassis is mainly car load movement function is provided, in addition for the accessory system of upper dress part (ride) provides power; Upper dress part is the working portion of pressure break pump truck, mainly dynamical system, transmission system, fracturing pump and manifold system etc., consists of. The power being produced by dynamical system, is delivered to power end of fracturing pump by transmission system, drives fracturing pump to carry out work.

In prior art, no matter be imported product, or domestically-made vehicle, its pressure break pump truck all adopts the power transmission solution of " diesel engine-fluid torque-converter-power transmission shaft-fracturing pump ". The power scheme that this arrangement is is prime mover based on motor. The subject matter existing is: 1, when the single-machine capacity of pressure break pump truck reaches more than 1500kW, motor cost rises rapidly, type selecting difficulty; 2, due to high-power diesel engine and gearbox dimensional weight large, be unfavorable for the design of vehicle-mounted scheme and the exploitation of more high-power pump truck, Diesel Driven scheme becomes the bottleneck of the novel pressure break pump truck of restriction exploitation; 3, the Component selection narrow range such as supporting torque-converters, price is high; Critical elements (motor, torque-converters, torque converter etc.) all needs import, not only causes complete machine with high costs, has also hindered the exploitation with independent intellectual property right equipment; When 4, high-power pressure break pump truck is grouped in field operation, fuel consume is large, and POL supply cost is high, raises overall operation cost; 5, diesel engine power output is when non-economy traffic coverage, and fuel consume is large, to the bad adaptability of different work condition. 6, high-power diesel engine noise large, discharge highly, workman's operating condition is poor.

Summary of the invention

Technical problem to be solved by this invention is for above-mentioned deficiency of the prior art, and a kind of electric drive pressure break pump truck is provided, and it is simple in structure, rationally novel in design, supporting convenience, cost is low, and automatic control level is high, operating efficiency is high, energy supply is convenient, and effects of energy saving and emission reduction is good, is easy to safeguard, functional reliability is high, is convenient to promote the use of.

For solving the problems of the technologies described above, the technical solution used in the present invention is: a kind of electric drive pressure break pump truck, comprise the truck chassis with driver's cabin, lubricating and cooling system and fracturing pump are installed on described truck chassis, and the suction manifold and the exhaust manifold that are connected with fracturing pump, it is characterized in that: the electric drive trains control system of unifying is also installed on described truck chassis, described power drive system comprises motor and the motor drive for driving fracturing pump running, described control system comprises active force control system for controlling motor drive and for controlling the auxiliary power control system of lubricating and cooling system, described motor drive, active force control system and auxiliary power control system are all passed through external power source.

Above-mentioned electric drive pressure break pump truck, is characterized in that: described motor is one, and described motor is connected with described fracturing pump by the first shaft coupling.

Above-mentioned electric drive pressure break pump truck, it is characterized in that: described motor is two and is respectively the first motor and the second motor, described motor drive is two and is respectively the first motor drive being connected with the first motor and the second motor drive being connected with the second motor, described power drive system also comprises gearbox, described the first motor is connected with gearbox by the second shaft coupling, described the second motor is connected with gearbox by the 3rd shaft coupling, and described gearbox is connected with fracturing pump by tetrad axial organ.

Above-mentioned electric drive pressure break pump truck, it is characterized in that: described external power source comprises well site electrical network, the main transformer being connected with well site electrical network and the auxiliary transformer being connected with described main transformer, described auxiliary transformer is arranged on described truck chassis, described motor drive is connected with described main transformer, and described active force control system is all connected with described auxiliary transformer with auxiliary power control system.

Above-mentioned electric drive pressure break pump truck, it is characterized in that: described external power source comprises generating set and the auxiliary transformer being connected with described generating set, described auxiliary transformer is arranged on described truck chassis, described motor drive is connected with described generating set, and described active force control system is all connected with described auxiliary transformer with auxiliary power control system.

Above-mentioned electric drive pressure break pump truck, is characterized in that: the quantity of described generating set is one or more, and many described generating sets are parallel with one another.

Above-mentioned electric drive pressure break pump truck, is characterized in that: the human-computer interaction device that described active force control system comprises controller and joins with controller, described motor drive and described controller join.

Above-mentioned electric drive pressure break pump truck, it is characterized in that: described active force control system is arranged in main control cabinet, described auxiliary power control system is arranged in auxiliary switch board, described motor drive, main control cabinet and auxiliary switch board are all arranged in electric-controlled house, and described electric-controlled house is arranged on described truck chassis.

Above-mentioned electric drive pressure break pump truck, is characterized in that: described motor is ac motor or dc motor, and described motor drive is AC motor driving apparatus or the DC motor drive device supporting with motor.

Above-mentioned electric drive pressure break pump truck, is characterized in that: described AC motor driving apparatus is frequency converter, and described DC motor drive device is controllable silicon.

The present invention compared with prior art has the following advantages:

1, of the present invention simple in structure, rationally novel in design.

2, supporting convenience: in the present invention, motor and corresponding frequency converter, controllable silicon all have ripe product at home and abroad, the supporting convenience of type selecting.

3, cost is low: the present invention is using motor as prime mover driven fracturing pump, can, according to the power of driven fracturing pump, select the quantity of motor, the motor cost of mid power is low, during with motor drive drive motor, overall cost is lower than motor scheme.

4, automatic control level is high, improved operating efficiency: under motor drive drives, motor can keep best energy utilization rate under different capacity output, make operation energy consumption reach minimum, effects of energy saving and emission reduction is good, can realize the various coupling way of outputs of moment of torsion, rotating speed, be easy to improve the gentle efficiency of Automated water of fracturing work simultaneously.

5, energy supply is convenient: the present invention adopts driven by power mode, can directly utilize well site mains supply, has saved petroleum transported.

6, be easy to safeguard: the present invention adopts the running of Motor Drive fracturing pump, and compared with high-power diesel engine, the maintenance of this electric drive scheme is very simple, controls index few, has greatly reduced line service amount and cost.

7, functional reliability is high: the reliability of electric motor system is far above diesel engine system, ac motor can realize 20 years non-maintaining, no matter motor drive is to adopt frequency converter or controllable silicon, all can keep long-term uninterrupted operation, in the situation that adopting many diesel generator unit power supplies, the reliability of many unit parallel connections is higher than the reliability of separate unit high-power diesel engine, and wherein a unit goes wrong, system can be fallen power and be continued operation, does not affect fracturing work.

8, result of use of the present invention is good, is convenient to promote the use of.

In sum, the present invention is simple in structure, rationally novel in design, supporting convenience, cost is low, and automatic control level is high, and operating efficiency is high, energy supply is convenient, effects of energy saving and emission reduction is good, is easy to safeguard, functional reliability is high, defect and the deficiency such as solved that the fuel consume that in prior art, pressure break pump truck power drive system exists is large, oil consumption is large when motor and torque-converters supporting difficulty, unit low power run, operating condition is poor, is convenient to promote the use of.

Below by drawings and Examples, technical scheme of the present invention is described in further detail.

Accompanying drawing explanation

Fig. 1 is the structural representation of the embodiment of the present invention 1.

Fig. 2 is the structural representation of the embodiment of the present invention 2.

Fig. 3 is the top view of Fig. 2.

Fig. 4 is the confession electrical connection schematic diagram of the embodiment of the present invention 1.

Fig. 5 is the confession electrical connection schematic diagram of the embodiment of the present invention 2.

Description of reference numerals:

1-truck chassis; 1-1-driver's cabin; 2-electric-controlled house;

3-motor drive; 3-1-the first motor drive;

3-2-the second motor drive; 4-motor;

4-1-the first motor; 4-2-the second motor; 5-fracturing pump;

6-1-suction manifold; 6-2-exhaust manifold; 7-auxiliary transformer;

8-lubricating and cooling system; 9-1-the first shaft coupling; 9-2-the second shaft coupling;

9-3-the 3rd shaft coupling; 9-4-tetrad axial organ; 10-gearbox;

11-main transformer; 12-generating set; 12-1-the first generating set;

12-1-the second generating set; 13-1-main control cabinet; 13-2-assists switch board;

14-active force control system; 14-1-controller; 14-2-human-computer interaction device;

15-auxiliary power control system; 16-well site electrical network.

The specific embodiment

Embodiment 1

As shown in Figure 1, the present invention includes the truck chassis 1 with driver's cabin 1-1, lubricating and cooling system 8 and fracturing pump 5 are installed on described truck chassis 1, and the suction manifold 6-1 and the exhaust manifold 6-2 that are connected with fracturing pump 5, the electric drive trains control system of unifying is also installed on described truck chassis 1, described power drive system comprises motor 4 and the motor drive 3 for driving fracturing pump 5 to turn round, described control system comprises active force control system 14 for controlling motor drive 3 and for controlling the auxiliary power control system 15 of lubricating and cooling system 8, described motor drive 3, active force control system 14 and auxiliary power control system 15 are all passed through external power source.

In the present embodiment, described motor 4 is one, and described motor 4 is connected with described fracturing pump 5 by the first shaft coupling 9-1. For example, when fracturing pump 5 input powers need hour (being less than 900kw), just can directly drive fracturing pump 5 with separate unit high power motor 4.

In the present embodiment, described external power source comprises well site electrical network 16, the main transformer 11 being connected with well site electrical network 16 and the auxiliary transformer 7 being connected with described main transformer 11, described auxiliary transformer 7 is arranged on described truck chassis 1, described motor drive 3 is connected with described main transformer 11, and described active force control system 14 is all connected with described auxiliary transformer 7 with auxiliary power control system 15; This power supply plan is car load cost and the minimum scheme of running cost. Particularly, as shown in Figure 4, the first siding ring of described main transformer 11 is connected with well site electrical network 16 with vacuum circuit breaker Z2 by cable and the vacuum circuit breaker Z1 that is connected on cable, on cable between described vacuum circuit breaker Z1 and well site electrical network 16, be connected with current transformer TA1, arrester F1 and charged indicator lamp L1, on described current transformer TA1, be connected with ammeter A1, described vacuum circuit breaker Z1 and vacuum circuit breaker Z2 between cable on be connected with arrester F2 and be connected with the fuse FU and the potential transformer TV that are in series, on described potential transformer TV, be connected with voltmeter V, on cable between described vacuum circuit breaker Z2 and the first siding ring of main transformer 11, be connected with current transformer TA2, arrester F3, earthing switch K and charged indicator lamp L2, on described current transformer TA2, be connected with ammeter A2, the first siding ring of described auxiliary transformer 7 is connected with the second siding ring of main transformer 11 with circuit breaker Q F2 by circuit breaker Q F1.

In the present embodiment, the human-computer interaction device 14-2 that described active force control system 14 comprises controller 14-1 and joins with controller 14-1, described motor drive 3 joins with described controller 14-1. Particularly, described active force control system 14 also comprises lead-in circuit breaker, voltage detecting circuit, current detection circuit etc., all adopts custom circuit of the prior art to connect; The power end of described motor drive 3 is connected with the second siding ring of main transformer 11 with circuit breaker Q F1 by lead-in circuit breaker QF3; The power end of described controller 14-1 and human-computer interaction device 14-2 is all connected with the second siding ring of auxiliary transformer 7; The power inlet terminal of described auxiliary power control system 15 is connected with the second siding ring of auxiliary transformer 7. The parameter arranging by human-computer interaction device 14-2 comprises that the startup of motor drive 3 stops, the startup of lubricating and cooling system 8 stops, the startup of motor 4 stops, the pressure of the rotating speed of motor 4 and fracturing pump 5, the parameter showing by human-computer interaction device 14-2 comprises: the running status (comprising start and stop state and rotating speed) of motor drive 3, the output pressure of fracturing pump 5 and output discharge capacity, fracturing pump 5 lubricating oil pressures and temperature, and the electric current in circuit and voltage, the parameter more than showing is all detected and is obtained and be transferred to controller 14-1 by conventional detection means of the prior art, controller 14-1 controls human-computer interaction device 14-2 again and shows. Described auxiliary power control system 15 is mainly the control loop of lubricating and cooling system 8, includes the components and parts such as line breaker, contactor, thermal relay and control relay, all adopts custom circuit of the prior art to connect.

In the present embodiment, described active force control system 14 is arranged in main control cabinet 13-1, described auxiliary power control system 15 is arranged in auxiliary switch board 13-2, described motor drive 3, main control cabinet 13-1 and auxiliary switch board 13-2 are all arranged in electric-controlled house 2, and described electric-controlled house 2 is arranged on described truck chassis 1. Particularly, the body of wall of described electric-controlled house 2 can form by Plate Welding, in order to make electric-controlled house 2 there is heat insulation function, to guarantee that the equipment in electric-controlled house 2 can work at suitable temperature, can by the body of wall of electric-controlled house 2 be set to double-decker and in the body of wall of electric-controlled house 2 filling fire resisting material realize; In addition, can also on the body of wall of electric-controlled house 2, dodge gate be installed, at the interior seat 2-1 that arranges of electric-controlled house 2, handled easily personnel pass in and out and the equipment being arranged in electric-controlled house are controlled.

In the present embodiment, described motor 4 is ac motor or dc motor, and described motor drive 3 is AC motor driving apparatus or the DC motor drive device supporting with motor 4. Particularly, described AC motor driving apparatus is frequency converter, described DC motor drive device is controllable silicon, when motor 4 adopts ac motor, motor drive 3 adopts frequency converter to realize, when motor 4 adopts dc motor, motor drive 3 adopts controllable silicon to realize, and two kinds of drive schemes all have energy-conservation, emission reduction effect significantly.

Embodiment 2

As shown in Figures 2 and 3, the present embodiment is as different from Example 1: described motor 4 is two and is respectively the first motor 4-1 and the second motor 4-2, described motor drive 3 is two and is respectively the first motor drive 3-1 being connected with the first motor 4-1 and the second motor drive 3-2 being connected with the second motor 4-2, described power drive system also comprises gearbox 10, described the first motor 4-1 is connected with gearbox 10 by the second shaft coupling 9-2, described the second motor 4-2 is connected with gearbox 10 by the 3rd shaft coupling 9-3, described gearbox 10 is connected with fracturing pump 5 by tetrad axial organ 9-4. Described external power source comprises generating set 12 and the auxiliary transformer 7 being connected with described generating set 12, described auxiliary transformer 7 is arranged on described truck chassis 1, described motor drive 3 is connected with described generating set 12, and described active force control system 14 is all connected with described auxiliary transformer 7 with auxiliary power control system 15. Particularly, the quantity of described generating set 12 is one or more, and many described generating sets 12 are parallel with one another. All the other structures are all identical with embodiment 1.

Particularly, described generating set 12 is diesel generating set or fuel gas generation unit. In the present embodiment, described generating set 12 is two and is respectively the first generating set 12-1 and the second generating set 12-2. As shown in Figure 5, the first generating set 12-1 and the second generating set 12-2 are parallel with one another, the first siding ring of described auxiliary transformer 7 is connected with the output of the first generating set 12-1 with circuit breaker Q F8 by circuit breaker Q F4 and is connected with the output of the second generating set 12-2 by circuit breaker Q F5 and circuit breaker Q F8, the power end of the first motor drive 3-1 is connected with the output of the first generating set 12-1 with circuit breaker Q F4 by lead-in circuit breaker QF6 and is connected with the output of the second generating set 12-2 by lead-in circuit breaker QF6 and circuit breaker Q F5, the power end of the second motor drive 3-2 is connected with the output of the first generating set 12-1 with circuit breaker Q F4 by lead-in circuit breaker QF7 and is connected with the output of the second generating set 12-2 by lead-in circuit breaker QF7 and circuit breaker Q F5, the power end of described controller 14-1 and human-computer interaction device 14-2 is all connected with the second siding ring of auxiliary transformer 7, the power inlet terminal of described auxiliary power control system 15 is connected with the second siding ring of auxiliary transformer 7.

When fracturing pump 5 input powers need large and single motor 4 to be not enough to drive fracturing pump 5, by two motors 4 by the common fracturing pump 5 that drives gearbox 10. When driving more powerful fracturing pump 5, can also adopt multiple motors 4 to connect or drive fracturing pump 5 by the mode of transfer case parallel connection.

Use generating set 12 power supply parallel with one another of many smaller powers, compared with 12 power supplies of separate unit Electricity Generation unit, in cost and operational reliability, more have superiority. Adopt electric set electric supply according to power demand select arbitrarily the to generate electricity by way of merging two or more grid systems quantity of unit 12, to contribute to save fuel oil.

In the present invention, active force control system 14 is responsible for the control that whole electric drive fracturing pump turner is done, can pass through human-computer interaction device 14-2 input control parameter, can also show by human-computer interaction device 14-2 the real-time status of electric drive pressure break pump truck, improve control accuracy and the level of informatization of whole pressure break pump truck. By the controller 14-1 in active force control system 14,

regulate the output of motor drive 3, can realize the stepless continuous speed governing of motor 4, meet the need of work of fracturing pump 5, can drive fracturing pump 5 to export the highly pressurised liquid of different pressures and flow, be easy to realize more, more complicated control function.

In addition, in the present invention, described power drive system, lubricating and cooling system 8 and control system can also all be passed through powered battery.Main control cabinet 13-1 and auxiliary switch board 13-3 are bolted on the interior ground of electric-controlled house 2 or wall, to adapt to long-distance transport.Electric-controlled house 2 has the functions such as sound insulation, waterproof, insulation, and applicable operating personnel control operation for a long time.

In sum, the shortcoming such as the present invention is directed to that the fuel consume that existing pressure break pump truck power drive system exists is large, oil consumption is large when motor and the supporting difficulty of torque-converters, unit low power run, operating condition is poor, has proposed the pressure break pump truck scheme using motor 4 as prime mover, simple in structure, rationally novel in design, supporting convenience, cost is low, automatic control level is high, and operating efficiency is high, and energy supply is convenient, be easy to safeguard, functional reliability is high, and result of use is good, is convenient to promote the use of.

The above; it is only preferred embodiment of the present invention; not the present invention is imposed any restrictions, every any simple modification of above embodiment being done according to the technology of the present invention essence, change and equivalent structure change, and all still belong in the protection domain of technical solution of the present invention.

Patent Citations (9)

Publication number	Priority date	Publication date	Assignee	Title
Family To Family Citations				
US3773438A *	1971-04-29	1973-11-20	Kelsey Hayes Co	Well stimulation apparatus and method
US4557325A *	1984-02-23	1985-12-10	Mcjunkin Corporation	Remote control fracture valve
US6193402B1 *	1998-03-06	2001-02-27	Kristian E. Grimland	Multiple tub mobile blender
US20070125544A1 *	2005-12-01	2007-06-07	Halliburton Energy Services, Inc.	Method and apparatus for providing pressure for well treatment operations
CA2634860C *	2008-06-11	2011-05-17	Hitman Holdings Ltd.	Combined ftc support system
CN201461380U *	2009-08-21	2010-05-12	石家庄强大机电设备制造有限公司	Intelligent lubricating and cooling system of large-size bearing for sludge pump
CN102094611B *	2011-03-07	2013-06-05	杜劫	Coal mine under-well fracturing complete equipment
CN102354141B *	2011-07-12	2013-01-23	宝鸡航天动力泵业有限公司	Mining remote control system for coal bed fracturing
CN202463670U *	2012-03-19	2012-10-03	西安邦普工业自动化有限公司	Electrically-driven compression fracture pump truck

* Cited by examiner, † Cited by third party

Cited By (66)

Publication number	Priority date	Publication date	Assignee	Title
US11815076B2	2018-08-06	2023-11-14	Typhon Technology Solutions (U.S.), Llc	Engagement and disengagement with external gear box style pumps
US11851998B2	2011-04-07	2023-12-26	Typhon Technology Solutions (U.S.), Llc	Dual pump VFD controlled motor electric fracturing system
US11850563B2	2012-11-16	2023-12-26	U.S. Well Services, LLC	Independent control of auger and hopper assembly in electric blender system
Family To Family Citations				
US11255173B2	2011-04-07	2022-02-22	Typhon Technology Solutions, Llc	Mobile, modular, electrically powered system for use in fracturing underground formations using liquid petroleum gas
US9140110B2 *	2012-10-05	2015-09-22	Evolution Well Services, Llc	Mobile, modular, electrically powered system for use in fracturing underground formations using liquid petroleum gas
US9970278B2	2012-11-16	2018-05-15	U.S. Well Services, LLC	System for centralized monitoring and control of electric powered hydraulic fracturing fleet
US11449018B2	2012-11-16	2022-09-20	U.S. Well Services, LLC	System and method for parallel power and blackout protection for electric powered hydraulic fracturing
US11476781B2	2012-11-16	2022-10-18	U.S. Well Services, LLC	Wireline power supply during electric powered fracturing operations
US9745840B2	2012-11-16	2017-08-29	Us Well Services Llc	Electric powered pump down
US10036238B2	2012-11-16	2018-07-31	U.S. Well Services, LLC	Cable management of electric powered hydraulic fracturing pump unit

US10407990B2	2012-11-16	2019-09-10	U.S. Well Services, LLC	Slide out pump stand for hydraulic fracturing equipment
US10254732B2	2012-11-16	2019-04-09	U.S. Well Services, Inc.	Monitoring and control of proppant storage from a datavan
US9650879B2	2012-11-16	2017-05-16	Us Well Services Llc	Torsional coupling for electric hydraulic fracturing fluid pumps
US9995218B2	2012-11-16	2018-06-12	U.S. Well Services, LLC	Turbine chilling for oil field power generation
US10119381B2	2012-11-16	2018-11-06	U.S. Well Services, LLC	System for reducing vibrations in a pressure pumping fleet
US10526882B2	2012-11-16	2020-01-07	U.S. Well Services, LLC	Modular remote power generation and transmission for hydraulic fracturing system
US11959371B2	2012-11-16	2024-04-16	Us Well Services, Llc	Suction and discharge lines for a dual hydraulic fracturing unit
US9410410B2	2012-11-16	2016-08-09	Us Well Services Llc	System for pumping hydraulic fracturing fluid using electric pumps
US9893500B2	2012-11-16	2018-02-13	U.S. Well Services, LLC	Switchgear load sharing for oil field equipment
US10020711B2	2012-11-16	2018-07-10	U.S. Well Services, LLC	System for fueling electric powered hydraulic fracturing equipment with multiple fuel sources
CN103089226B *	2013-01-24	2016-04-20	成都宏天电传工程有限公司	A kind of oilfield exploitation Frac unit
CN103410490A *	2013-06-29	2013-11-27	成都宏天电传工程有限公司	Network type measuring truck
JP2017500462A *	2013-10-10	2017-01-05	プロスティ ム ラプス, エルエル シー-Prostim Labs, Llc	Well breaking system and method
CN103758499A *	2013-12-30	2014-04-30	三一重型能源装备有限公司	Fracturing truck and fracturing equipment set
CA2936060A1 *	2014-01-06	2015-07-09	Lime Instruments Llc	Hydraulic fracturing system
CN103912259A *	2014-04-04	2014-07-09	四机赛瓦石油钻采设备有限公司	Electric drive sand mixing truck
CN104100251B *	2014-07-10	2017-07-25	中国石油集团川庆钻探工程有限公司长庆井下技术作业公司	It is a kind of to realize the pressure break pump truck of self-suction discharge
CN104369687B *	2014-08-28	2017-05-17	烟台杰瑞石油装备技术有限公司	Online fracturing test vehicle
CA2908276C	2014-10-14	2022-11-01	Us Well Services Llc	Parallel power and blackout protection for electric hydraulic fracturing
WO2016141205A2	2015-03-04	2016-09-09	Stewart & Stevenson, LLC	Well fracturing systems with electrical motors and methods of use
CN105065224A *	2015-08-10	2015-11-18	三一重型能源装备有限公司	Fracturing pump transmission system and electric fracturing pry
US12078110B2	2015-11-20	2024-09-03	Us Well Services, Llc	System for gas compression on electric hydraulic fracturing fleets
US11421673B2	2016-09-02	2022-08-23	Halliburton Energy Services, Inc.	Hybrid drive systems for well stimulation operations
US11181107B2	2016-12-02	2021-11-23	U.S. Well Services, LLC	Constant voltage power distribution system for use with an electric hydraulic fracturing system
CN106678013B *	2017-03-13	2019-07-19	中石化四机石油机械有限公司	High-power modular hydraulic drive reciprocating pump system
WO2019060922A1	2017-09-25	2019-03-28	St9 Gas And Oil, Llc	Electric drive pump for well stimulation
CA3078509A1	2017-10-05	2019-04-11	U.S. Well Services, LLC	Instrumented fracturing slurry flow system and method
WO2019075475A1	2017-10-13	2019-04-18	U.S. Well Services, LLC	Automatic fracturing system and method
US10655435B2	2017-10-25	2020-05-19	U.S. Well Services, LLC	Smart fracturing system and method
WO2019113147A1	2017-12-05	2019-06-13	U.S. Well Services, Inc.	Multi-plunger pumps and associated drive systems
CA3084607A1	2017-12-05	2019-06-13	U.S. Well Services, LLC	High horsepower pumping configuration for an electric hydraulic fracturing system
AR114091A1	2018-02-05	2020-07-22	Us Well Services Inc	ELECTRICAL CHARGE MANAGEMENT IN MICROGRID
CA3097051A1	2018-04-16	2019-10-24	U.S. Well Services, LLC	Hybrid hydraulic fracturing fleet
WO2019204323A1	2018-04-16	2019-10-24	St9 Gas And Oil, Llc	Electric drive pump for well stimulation
WO2020219091A1 *	2019-04-26	2020-10-29	Siemens Energy, Inc.	System for hydraulic fracturing including mobile power-generating subsystem with direct-coupled electromotive machine integrated with electrical energy storage

US12173594B2	2019-06-13	2024-12-24	Yantai Jereh Petroleum Equipment & Technologies Co., Ltd.	Fracturing system
US11680474B2	2019-06-13	2023-06-20	Yantai Jereh Petroleum Equipment & Technologies Co., Ltd.	Fracturing apparatus and control method thereof, fracturing system
US11746636B2	2019-10-30	2023-09-05	Yantai Jereh Petroleum Equipment & Technologies Co., Ltd.	Fracturing apparatus and control method thereof, fracturing system
WO2021056174A1	2019-09-24	2021-04-01	烟台杰瑞石油装备技术有限公司	Electrically-driven fracturing well site system
CN116480547A *	2019-10-30	2023-07-25	烟台杰瑞石油装备技术有限公司	Piston pump and electric drive fracturing semi-trailer
CN110608030A *	2019-10-30	2019-12-24	烟台杰瑞石油装备技术有限公司	An electric drive fracturing semi-trailer with frequency conversion integrated machine
CA3159593A1 *	2019-10-30	2021-05-06	Yantai Jereh Petroleum Equipment & Technologies Co., Ltd.	Single-motor, single-pump electric drive fracturing semi-trailer
CN110821464A *	2019-12-03	2020-02-21	烟台杰瑞石油装备技术有限公司	A well site layout system for fracturing
CN113550725B *	2020-04-26	2024-04-09	四川宏华石油设备有限公司	Electric fracturing operation system
CN111911123A *	2020-07-14	2020-11-10	青岛中加特电气股份有限公司	Skid-mounted equipment for fracturing
CN112943873A *	2021-02-01	2021-06-11	徐州佑学矿业科技有限公司	Impulse frequency and pressure adjustable pulse pump
CN113315111B	2021-04-26	2023-01-24	烟台杰瑞石油装备技术有限公司	Power supply method and power supply system
CN215719294U	2021-09-22	2022-02-01	烟台杰瑞石油装备技术有限公司	Electrically driven fracturing system
CN113978337A *	2021-10-09	2022-01-28	烟台杰瑞石油装备技术有限公司	Electric drive well cementing truck
CN215870792U	2021-10-12	2022-02-18	烟台杰瑞石油装备技术有限公司	Power supply system for wellsite electric drive equipment
CA3179258A1	2021-10-14	2023-04-14	Yantai Jereh Petroleum Equipment & Technologies Co., Ltd.	A fracturing device driven by a variable-frequency adjustable-speed integrated machine and a well site layout
WO2023082249A1 *	2021-11-15	2023-05-19	烟台杰瑞石油装备技术有限公司	Electrically-driven fracturing device
CA3159026A1	2022-02-16	2023-08-16	Jifeng ZHONG	Electric drive fracturing system
US11746635B1	2022-03-11	2023-09-05	Caterpillar Inc.	Optimizing operations of a hydraulic fracturing system
US11955782B1	2022-11-01	2024-04-09	Typhon Technology Solutions (U.S.), Llc	System and method for fracturing of underground formations using electric grid power
CN219638990U *	2023-05-24	2023-09-05	烟台杰瑞石油装备技术有限公司	Electric drive fracturing equipment

* Cited by examiner, † Cited by third party, ‡ Family to family citation

Similar Documents

Publication	Publication Date	Title
CN102602322B	2014-04-30	Electrically-driven fracturing pump truck
CN202463670U	2012-10-03	Electrically-driven compression fracture pump truck
CN215719294U	2022-02-01	Electrically driven fracturing system
CN212671744U	2021-03-09	Electric fracturing operation system
CN208337176U	2019-01-04	A kind of dynamic fracturing pump electric control gear of energy-saving electrical
CN2938567Y	2007-08-22	Explosive-proof compatible safe four-quadrant frequency converter speed regulation system of digital mine hoist
WO2022251290A1	2022-12-01	Electric hydraulic fracturing with battery power as primary source
CN202450561U	2012-09-26	Electric hydraulic excavator
CN113550725B	2024-04-09	Electric fracturing operation system
CN209873925U	2019-12-31	Mobile power supply electric hydraulic excavator

CN114439448B	2023-03-03	Electrically driven fracturing device
CN204253300U	2015-04-08	The Vehicular concrete pump of the mixed power plant of a kind of oil electricity and application thereof
CN202754113U	2013-02-27	Petrol pump ship with wind diesel complementary power supply system
CN201388066Y	2010-01-20	Paralleling control device of low-power diesel generator unit
CN102433902B	2013-10-30	Electric hydraulic excavator
CN201952112U	2011-08-31	Hybrid power device of frequency conversion type fully hydraulic crane
CN209024088U	2019-06-25	Electronic-hydraulic crane of hydraulic swivel joint is replaced with the hydraulic fast slotting plug of two-way
CN103836343A	2014-06-04	Electrically-driven heat recovery type liquid nitrogen pump device with large discharge capacity
CN203580673U	2014-05-07	Novel hydraulic fixed-frequency vehicle-mounted frequency conversion alternating-current electricity self-generating system
CN103594944B	2015-12-09	Combined outdoor electric supply installation
CN203771034U	2014-08-13	Electrically driven large-displacement heat recovery type liquid nitrogen pump device
CN202488401U	2012-10-10	Oil drilling rig grid power drag energy-saving device
CN203822197U	2014-09-10	Electric energy accumulator energy storage electric workover rig
CN208806649U	2019-04-30	A kind of refrigerator car and its power supply unit, place power supply system
CN208561499U	2019-03-01	The electro-hydraulic crane of swivel joint is replaced with multipath electric plug

Priority And Related Applications

Priority Applications (1)

Application	Priority date	Filing date	Title
CN201210072596.7A	2012-03-19	2012-03-19	Electrically-driven fracturing pump truck

Applications Claiming Priority (1)

Application	Filing date	Title
CN201210072596.7A	2012-03-19	Electrically-driven fracturing pump truck

Legal Events

Date	Code	Title	Description
2012-07-25	C06	Publication	
2012-07-25	PB01	Publication	
2012-09-26	C10	Entry into substantive examination	
2012-09-26	SE01	Entry into force of request for substantive examination	
2014-04-30	C14	Grant of patent or utility model	
2014-04-30	GR01	Patent grant	
2018-02-27	CB03	Change of inventor or designer information	
2018-02-27	CB03	Change of inventor or designer information	Inventor after: Li Xianchao Inventor after: Song Yao Inventor after: Wang Zhenya Inventor after: Zhang Shuyuan Inventor after: Liu Dongxue Inventor after: Gao Fenggang Inventor after: Wang Cunhe Inventor before: Li Xianchao Inventor before: Zhang Shuyuan

			Inventor before: Liu Dongxue
			Inventor before: Gao Fenggang
2022-03-11	CF01	Termination of patent right due to non-payment of annual fee	
2022-03-11	CF01	Termination of patent right due to non-payment of annual fee	Granted publication date: 20140430
			Termination date: 20210319

Concepts

machine-extracted

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■ cooling	claims,abstract,description	12			0.000	
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■ coupling	claims,description	13			0.000	
■ coupling process	claims,description	13			0.000	
■ coupling reaction	claims,description	13			0.000	
■ interaction	claims,description	11			0.000	
■ silicon	claims,description	6			0.000	
■ silicon	claims,description	6			0.000	
■ organ	claims,description	4			0.000	
■ design	abstract,description	6			0.000	
■ fuel	abstract,description	5			0.000	
■ manufacturing process	abstract,description	4			0.000	
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