

Fracturing pump and fracturing unit truck

Abstract

The utility model discloses a fracturing pump, including fluid end and power end, the power end is connected with the fluid end, and the power end includes casing and first bent axle, and first bent axle is installed in the casing, installs gear wheel and at least one gear shaft in the casing, installs at least one hydraulic motor on the casing, and hydraulic motor is connected with the gear shaft, first bent axle and large gear wheel connected, gear wheel and gear shaft meshing. The utility model also discloses a fracturing unit truck. The utility model discloses a realize fracturing pump infinitely variable, fracturing pump heavy pressure, big discharge capacity, high -power, with low costs, compact structure, fault rate are few.

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Claims (7)

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1. a fracturing pump, comprise fluid end (2) and power end (1), power end (1) is connected with fluid end (2), power end (1) comprises housing (11) and the first bent axle (7), first bent axle (7) is arranged in housing (11), it is characterized in that, gearwheel (5) and at least one gear shaft (4) are installed in housing (11), housing (11) is provided with at least one oil hydraulic motor (3), oil hydraulic motor (3) is connected with gear shaft (4), first bent axle (7) is connected with gearwheel (5), gearwheel (5) engages with gear shaft (4).
2. fracturing pump according to claim 1, it is characterized in that, second bent axle (10) is installed in housing (11), second bent axle (10) is connected with gearwheel (5), and the first bent axle (7) and the second bent axle (10) lay respectively at gearwheel (5) left and right sides.
3. fracturing pump according to claim 2, is characterized in that, rooted tooth wheel shaft (4) left and right sides is all connected with an oil hydraulic motor (3).
4. fracturing pump according to claim 3, it is characterized in that, gear shaft (4) comprises 8, oil hydraulic motor (3) comprises 16, 8 rooted tooth wheel shafts (4) engage with gearwheel (5) respectively, and 16 oil hydraulic motors (3) are connected with 8 rooted tooth wheel shafts (4) respectively.
5. the fracturing pump according to claim 2 to 4 any one, it is characterized in that, supporting frame (8) is installed in housing (11), supporting frame (8) is connected with housing (11), supporting frame (8) is arranged on bearing (9), and gearwheel (5) is enclosed within bearing (9).
6. fracturing pump according to claim 5, it is characterized in that, comprise spline housing (6), the end of the first bent axle (7) and the second bent axle (10) is provided with external splines, gearwheel (5) is provided with internal spline, spline housing (6) is enclosed within external splines, and the inner spline housing (6) of gearwheel (5) is on spline housing (6).
7. a fracturing unit truck, is characterized in that, comprise vehicle chassis and the fracturing pump as described in claim 1 to 6 any one, fracturing pump is arranged on vehicle chassis.

Description

A kind of fracturing pump and fracturing unit truck

Technical field

The utility model relates to oil-gas mining equipment field, particularly a kind of fracturing pump and fracturing unit truck.

Background technique

In oil-gas mining, if the hole between You Qi Bowl and oil-gas layer is undeveloped or blocked, the output of You Qi Bowl can be had a strong impact on. Fracturing technique is the important measures improving oil and gas production and recoverable reserve. So-called pressure break (also known as oil formation hydraulic fracturing), hydraulic action is utilized to make oil reservoir form a kind of method in crack exactly, its basic craft course is: with fracturing unit truck, high pressure, huge discharge and the fracturing fluid with certain viscosity are clamp-oned oil reservoir, after oil reservoir is pressed off many cracks, place proppant (silica sand etc.) filling crack again, to improve the penetrating power of oil reservoir, increase water injection rate or oil output.

Implementing the overall of the equipment of fracturing technology makes pressure break equip, and the pressure break equipment used at present is primarily of compositions such as main process equipment fracturing unit truck and supplementary equipment fracturing blender truck, measuring truck, dumper, manifold trucks. The function of each several part is respectively: (1) main process equipment fracturing unit truck injects the fracturing fluid of high pressure, huge discharge in Bowl, is pressed off on stratum, and proppant is clamp-oned crack. (2) supplementary equipment fracturing blender truck is in accurate ratio and certain program mulling, and mulling liquid supply fracturing unit truck. (3) effect of measuring truck is at pressing crack construction long-distance remote control fracturing unit truck and fracturing blender truck, gathers and display construction parameter. (4) material such as various proppants, fracturing fluid, additive required for fracturing work is transported to job site by dumper. (5) effect of manifold truck is transport manifold.

Fracturing unit truck is the main process equipment of pressure break equipment, and it is primarily of vehicle chassis, diesel engine, transmission case, the large part composition of fracturing pump four. Fracturing pump comprises power end and fluid end, and power end provides power to fluid end, and power end comprises bent axle. Diesel engine is rotated by gearbox driving crank, and then bent axle is by transmission of power to fluid end, the fracturing fluid of certain viscosity under normal pressure is converted into the liquid discharge of high pressure, huge discharge, is used as the medium of extruding oil reservoir and supporting crack. Because existing gearbox can only realize step change, stepless change cannot be realized, gearbox is short of power, in addition, need outfit gearbox, transmission shaft, a gear shaft and a pair gearwheel, complex structure, cost is high, especially, under the increasingly competitive situation of existing market, this shortcoming is particularly outstanding.

Model utility content

In view of this, the utility model proposes a kind of fracturing pump and fracturing unit truck, realize stepless change, fracturing pump high pressure, huge discharge, high-power, cost is low, compact structure, rate of fault are few.

On the one hand, the utility model provides a kind of fracturing pump, comprise fluid end and power end, power end is connected with fluid end, and power end comprises housing and the first bent axle, first crankshaft installed is in housing, in housing, be provided with gearwheel and at least one gear shaft, housing is provided with at least one oil hydraulic motor, and oil hydraulic motor is connected with gear shaft, first bent axle is connected with gearwheel, and gearwheel engages with gear shaft.

In order to realize dynamical balancing, reducing the impact force that the plunger in fluid end produces the first bent axle and the second bent axle at reciprocatory movement, reducing the noise of the first bent axle and the generation of the second crankshaft vibration, make fracturing pump good stability. In further technological scheme, be provided with the second bent axle in housing, the second bent axle is connected with gearwheel, and the first bent axle and the second bent axle lay respectively at the gearwheel left and right sides.

In order to improve dynamical balancing further, in further technological scheme, a rooted tooth wheel shaft left and right sides is all connected with an oil hydraulic motor.

In order to improve dynamical balancing further, in further technological scheme, gear shaft comprises 8, and oil hydraulic motor comprises 16, and 8 rooted tooth wheel shafts engage with gearwheel respectively, and 16 oil hydraulic motors are connected with 8 rooted tooth wheel shafts respectively.

Further, in housing, be provided with supporting frame, supporting frame is connected with housing, and supporting frame is arranged on bearing, and gearwheel is enclosed within bearing.

Further, comprise spline housing, the end of the first bent axle and the second bent axle is provided with external splines, gearwheel is provided with internal spline, spline housing is enclosed within external splines, and the inner spline housing of gearwheel is on spline housing.

The utility model additionally provides a kind of fracturing unit truck, and comprise vehicle chassis and above-mentioned fracturing pump, fracturing pump is arranged on vehicle chassis.

The fracturing pump that the utility model provides and fracturing unit truck, adopt hydraulic pump drive first crankshaft rotating, makes that fracturing pump low cost of manufacture, compact structure, rate of fault are few, high pressure, huge discharge, high-power, makes fracturing pump achieve stepless change.

In further technological scheme, gearwheel and oil hydraulic motor mid-, the first bent axle and the second bent axle lay respectively at the gearwheel left and right sides. Thus realize dynamical balancing, reduce the impact force that the plunger in fluid end produces the first bent axle and the second bent axle at reciprocatory movement, reduce the noise of the first bent axle and the generation of the second crankshaft vibration, make fracturing pump good stability.

In further technological scheme, in housing, be provided with supporting frame, gearwheel is supported by supporting frame, and the first bent axle and the second bent axle do not bear gearwheel support loads, improve the stressed of the first bent axle and the second bent axle, improve the first bent axle and second bent axle working life.

Accompanying drawing explanation

The accompanying drawing forming a part of the present utility model is used to provide further understanding of the present utility model, and schematic description and description of the present utility model, for explaining the utility model, is not formed improper restriction of the present utility model. In the accompanying drawings:

Fig. 1 is fracturing pump three-dimensional view of the present utility model;

Fig. 2 is the sectional view of Fig. 1.

Embodiment

It should be noted that, when not conflicting, the embodiment in the utility model and the feature in embodiment can combine mutually. Below with reference to the accompanying drawings and describe the utility model in detail in conjunction with the embodiments.

Below in conjunction with Fig. 1, preferred embodiment of the present utility model is described in further detail,

As shown in Figure 1, the fracturing pump of preferred the first embodiment of the utility model: comprise fluid end 2 and power end 1, power end 1 is connected with fluid end 2, is provided with plunger and suction valve and expulsion valve in fluid end 2. Power end 1 comprises housing 11 and the first bent axle 7 and the second bent axle 10, first bent axle 7 and the second bent axle 10 flat arrangement, oil hydraulic motor 3 drives the first bent axle 7 and the second bent axle 10 to rotate, first bent axle 7 and the second bent axle 10 are connected with connecting rod, connecting rod drive plunger back and forth moves up and down, suction valve and expulsion

valve are opened and closed, the fracturing fluid of certain viscosity under normal pressure is converted into the liquid discharge of high pressure, huge discharge, is used as the medium of extruding oil reservoir and supporting crack.

The utility model adopts hydraulic pump drive first bent axle 7 and the second bent axle 10 to rotate, and makes that fracturing pump low cost of manufacture, compact structure, rate of fault are few, high pressure, huge discharge, high-power, makes fracturing pump achieve stepless change.

In order to realize dynamical balancing, reducing the impact force that the plunger in fluid end 2 produces the first bent axle 7 and the second bent axle 10 at reciprocatory movement, reducing the noise of the first bent axle 7 and the second bent axle 10 vibration generation, making fracturing pump good stability.In housing 11, be provided with gearwheel 5 and 8 gear shafts 4, in the middle part of housing 11, be symmetrically installed with 16 oil hydraulic motor 3,8 rooted tooth wheel shafts 4 engage with gearwheel 5 respectively, 16 oil hydraulic motors 3 are connected with 8 rooted tooth wheel shafts 4 respectively.One rooted tooth wheel shaft 4 left and right sides is all connected with an oil hydraulic motor 3.Gearwheel 5 is positioned at middle part, and gearwheel 5 is connected with the first bent axle 7 and the second bent axle 10, and gearwheel 5 engages with gear shaft 4.First bent axle 7 and the second bent axle 10 lay respectively at gearwheel 5 left and right sides.

Gearwheel 5 and 16 oil hydraulic motor 3 and 8 rooted tooth wheel shafts 4 mid-, the first bent axle 7 and the second bent axle 10 lay respectively at gearwheel 5 left and right sides.Thus realize dynamical balancing, reduce the impact force that the plunger in fluid end 2 produces the first bent axle 7 and the second bent axle 10 at reciprocatory movement, reduce the noise of the first bent axle 7 and the second bent axle 10 vibration generation, make fracturing pump good stability.Make that fracturing pump low cost of manufacture, compact structure, rate of fault are few, high pressure, huge discharge, high-power.Fracturing pump is made to achieve stepless change.

In order to realize dynamical balancing, reduce the first bent axle 7 and the second bent axle 10 stressed, reduce the first bent axle 7 and the second bent axle 10 vibration produce noise, make fracturing pump good stability.In technological scheme further, in housing 11, be provided with supporting frame 8, supporting frame 8 is connected with housing 11, and supporting frame 8 is arranged on bearing 9, and gearwheel 5 is enclosed within bearing 9.The end of the first bent axle 7 and the second bent axle 10 is provided with external splines, and gearwheel 5 is provided with internal spline, and spline housing 6 is enclosed within external splines, and the inner spline housing 6 of gearwheel 5 is on spline housing 6.This structure first bent axle 7 and the second bent axle 10 do not bear gearwheel 5 support loads, improve the stressed of the first bent axle 7 and the second bent axle 10, improve the first bent axle 7 and second bent axle 10 working life.

The utility model additionally provides a kind of fracturing unit truck, and comprise vehicle chassis and above-mentioned fracturing pump, fracturing pump is arranged on vehicle chassis.

The foregoing is only preferred embodiment of the present utility model; not in order to limit the utility model; all within spirit of the present utility model and principle, any amendment done, equivalent replacement, improvement etc., all should be included within protection domain of the present utility model.

Cited By (2)

Publication number	Priority date	Publication date	Assignee	Title
CN114810529A *	2022-04-18	2022-07-29	北京天玛智控科技股份有限公司	Fracturing pump and fracturing truck
WO2023093288A1 *	2021-11-25	2023-06-01	三一石油智能装备有限公司	Hydraulic fracturing pump system and fracturing device
Family To Family Citations				

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Similar Documents

Publication	Publication Date	Title
CN204738958U	2015-11-04	Fracturing pump and fracturing unit truck
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CN206681923U	2017-11-28	A kind of hydraulic double-acting fracturing pump sledge

Priority And Related Applications

Priority Applications (1)

Application	Priority date	Filing date	Title
CN201520764021.0U	2015-09-29	2015-09-29	Fracturing pump and fracturing unit truck

Applications Claiming Priority (1)

Application	Filing date	Title
CN201520764021.0U	2015-09-29	Fracturing pump and fracturing unit truck

Legal Events

Date	Code	Title	Description
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2016-02-10	GR01	Patent grant	
2017-02-01	C41	Transfer of patent application or patent right or utility model	
2017-02-01	TR01	Transfer of patent right	Effective date of registration: 20170109 Address after: 102206 South Beijing city of Changping District science and Technology Park 31 manufacturing center of Beijing Liu Lu Li Patentee after: 31 petroleum Intelligent Equipment Co., Ltd. Address before: 102206 Changping District City, North Road, Beijing, the 31 Industrial Park Patentee before: SANY HEAVY ENERGY EQUIPMENT CO., LTD.

Concepts

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