

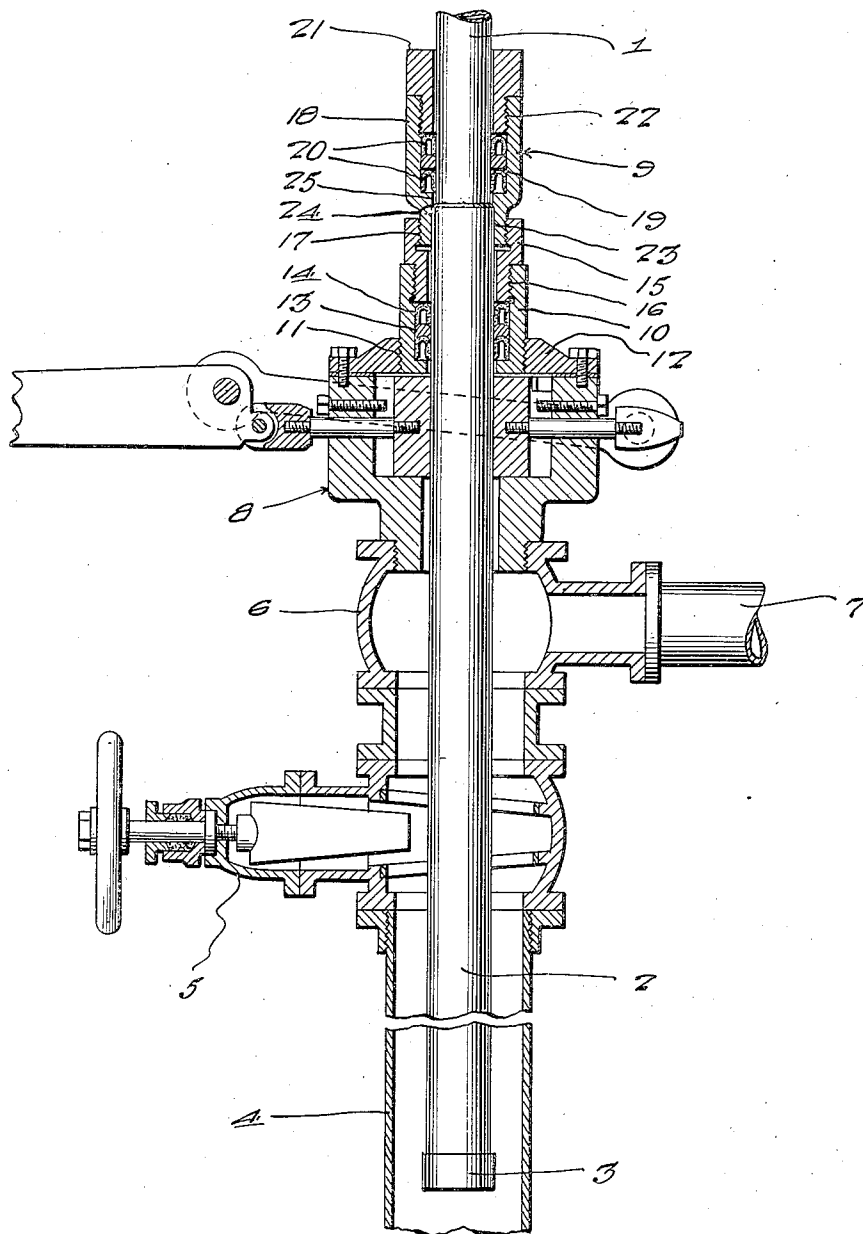
July 21, 1925.

1,546,467

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OIL OR GAS DRILLING MECHANISM

Original Filed Jan. 9, 1924



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Patented July 21, 1925.

1,546,467

UNITED STATES PATENT OFFICE.

JOSEPH F. BENNETT, OF CANUTILLA, TEXAS.

OIL OR GAS DRILLING MECHANISM.

Application filed January 9, 1924, Serial No. 685,181. Renewed January 23, 1925.

To all whom it may concern:

Be it known that I, JOSEPH F. BENNETT, a citizen of the United States, residing at Canutilla, in the county of El Paso and State of Texas, have invented certain new and useful Improvements in Oil or Gas Drilling Mechanism, of which the following is a full, clear, and exact specification.

My invention relates to oil or gas drilling mechanism.

An object of my invention is to provide an improved mechanism and more particularly an improved mechanism adapted to drills of the core type. Another object of my invention is to provide an improved mechanism for drills of the oil or gas well type whereby the drill rods and cutting mechanism may be removed while subject to pressure and while maintaining the desired seal. A further object of my invention is to provide an improved mechanism especially adapted for core drills of the oil or gas well type whereby the drill rods, core barrel, and drill bits may be removed while subject to well pressure and irrespective of the length of the core barrel, with rapidity and facility while maintaining the well sealed. These and other objects and advantages of my invention will hereinafter more fully appear.

In the accompanying drawings I have shown for purposes of illustration one form which my invention may assume in practice.

In these drawings:—

The figure shows a sectional view through the clamping and gate valve mechanism of a core drill of the oil or gas well type in which an illustrative form of my invention is incorporated.

In this illustrative construction I have shown a hollow drill rod line 1, which in a core drill is in the form of internally connected sections of tubing of uniform small diameter driven by suitable rotating and feeding mechanism. To this rod line is connected a core barrel 2, of slightly larger external diameter than the rod line, to which a core drill bit 3 of the rotating diamond type is suitably attached. These drill rods pass through a casing 4 at the top of the well and flow controlling or gate valve 5 therein of any usual construction which is suitably secured to the top of the well casing and connected through a T 6 with a well discharge pipe line 7. The rod line also passes through a suitable controlling or ad-

justable clamping mechanism 8 of any suitable type adapted to engage the rods and a compound stuffing box, generally designated 9, of improved form, hereinafter more fully described.

In core drills of the oil or gas well type, it is highly desirable, when high gas or oil pressure is encountered, to remove the drill rods, core barrel, and drill bit from the well while maintaining the latter sealed, but this has heretofore been impossible without sinking the gate valve to an impractical depth, when long core barrels extending from the oil saver below the gate valve have been used. To overcome this difficulty, I have provided a stuffing box casing 10 which is provided with threads 11 which engage threads formed in the cover 12 suitably secured to the top of the clamping mechanism 8. This casing is provided with an internal bore 13 in which a plurality of closely packed packings 14 are inserted. Pressure is applied to these packings by means of a packing nut 15 preferably of slightly less internal diameter than the packings and suitably externally threaded at its lower end, as at 16, in the top of the stuffing box casing 10. This nut is in turn internally threaded as at 17 and receives a second stuffing box casing 18 of generally similar construction to the stuffing box casing 10. This member 18 is likewise internally bored as at 19 to receive a plurality of packings 20 similar to the packings 14 but of slightly smaller internal diameter. These packings are held tightly in place by means of an adjustable nut 21 threaded, as at 22, in the top of the casing 18 and of substantially the same internal diameter as the packings 20. Herein it will also be noted that the lower end of this member 18 is bored as at 23 to receive the end of the core barrel, and provided with a barrel abutment 24 and a bore 25 above the same of larger diameter though smaller than the bore 19.

In the operation of my improved mechanism, it will be noted that when high oil or gas pressure is encountered in drilling, the drill rods are forced upwardly from the well by pressure under control of the clamping mechanism 8, the smaller packings 14 engaging the drill rods 1 and thereby preventing leakage of oil or gas from the well. The rods are so raised until the top of core barrel 2 engages the abutment 24

formed in the stuffing box casing 18, the clamping mechanism 8 being so adjusted as to prevent further movement and the larger packings 14 engaging the core barrel 2 at this time and thereby preventing the breakage of the well seal. The upper stuffing box is then removed and the core barrel again permitted to move upwardly under pressure through the lower stuffing box until the drill bit 3 is above the gate valve 5. The gate valve is then closed cutting off the well flow and sealing the well, the clamp opened wide and the lower stuffing box is removed permitting the removal of the core barrel and drill bit entirely from the well.

As a result of my improvement, it will be observed that it is made possible to use core barrels of any desired length and remove the same while maintaining a seal while retaining the gate valve in proximity to the top of the casing. It will also be noted that the drill rods, core barrel, and drill bit may be entirely removed from the oil or gas well under pressure with rapidity and facility while maintaining the well sealed and at the same time permitting the well flow, thereby preventing an uncontrolled gushing of the well and the consequent damage to the drilling apparatus and loss of gas, and oil.

While I have in this application specifically described one form which my invention may assume in practice, it will be understood that this form of the same is shown for purposes of illustration and that the invention may be modified and embodied in various other forms without departing from its spirit or the scope of the appended claim.

What I claim as new and desire to secure by Letters Patent is:

In combination, a well casing, a gate valve closable transversely of the well casing, a core barrel movable in the casing and through the gate valve, a rod line attached to the core barrel, said rod line being of a smaller diameter than said core barrel so as to form a shoulder therebetween, said rod line being detachably connected with the core barrel, and packing formed in sections, the lower section being detachably fixed to the valve and tightly receiving the core barrel, the other section of the packing being detachably fixed to the first section and receiving tightly the rod line, the second section being provided with a shoulder abutable by the shoulder disposed between the rod line and the core barrel.

In testimony whereof I affix my signature.

JOSEPH F. BENNETT: