J. L. BEARD.

OIL SAVER FOR OIL PRODUCING WELLS.

APPLICATION FILED AUG. 20, 1920.

1,418,612.

Patented June 6, 1922.

2 SHEETS—SHEET 1.

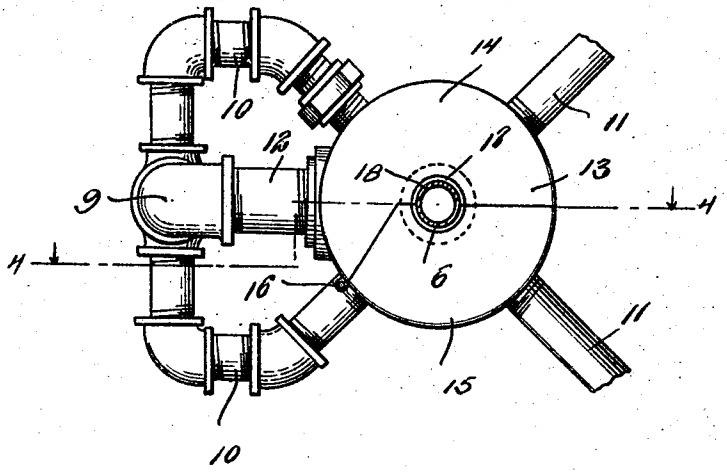


Fig. 1.

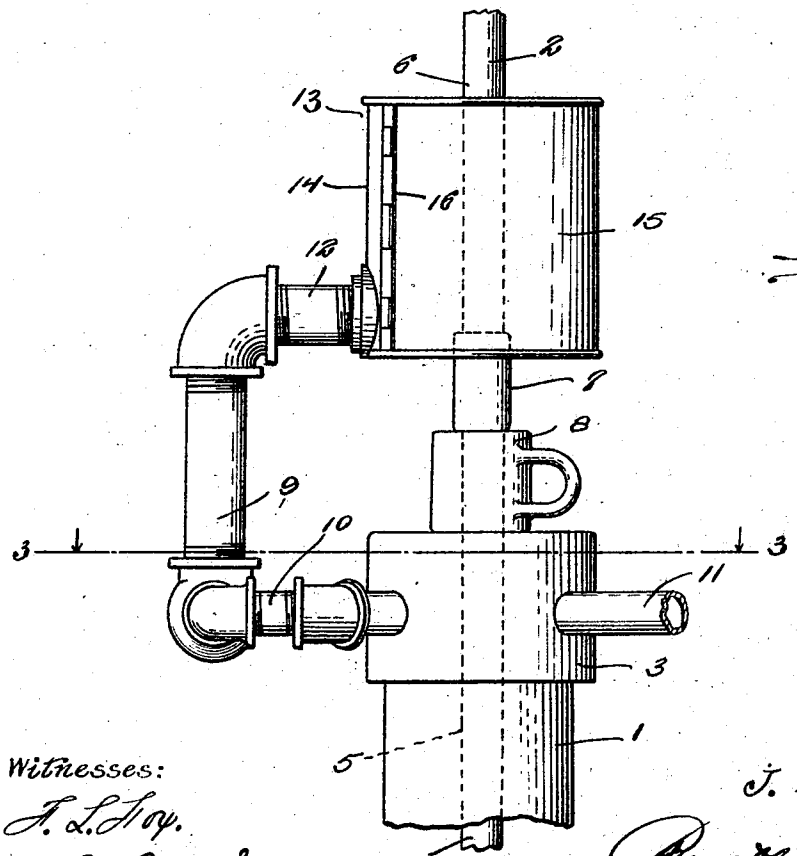


Fig. 2.

Witnesses:

F. L. Foy.

A. E. Brashears.

Inventor:

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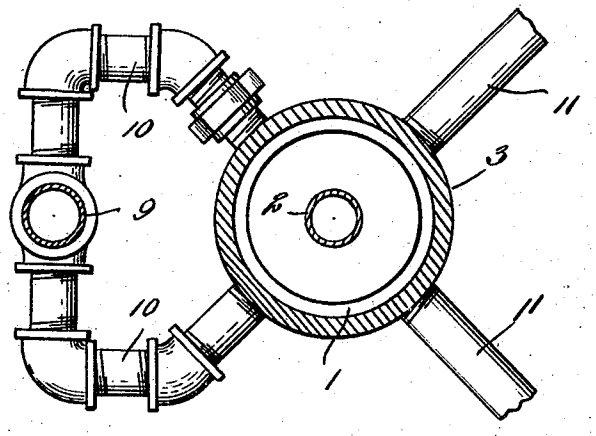


Fig. 3.

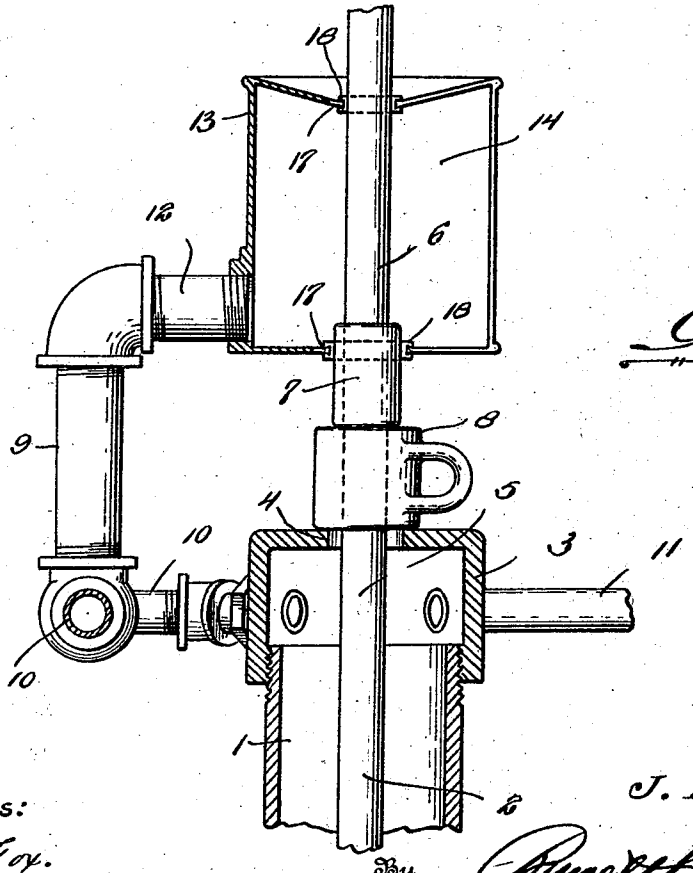


Fig. 4.

Witnesses:
F. L. Fox.
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UNITED STATES PATENT OFFICE.

JERRY L. BEARD, OF TULSA, OKLAHOMA, ASSIGNOR OF ONE-HALF TO RICHARD J. FLOOD, OF TULSA, OKLAHOMA.

OIL SAVER FOR OIL-PRODUCING WELLS.

1,418,612. Specification of Letters Patent. **Patented June 6, 1922.**

Application filed August 20, 1920. Serial No. 404,719.

To all whom it may concern:

Be it known that I, JERRY L. BEARD, a citizen of the United States, residing at Tulsa, in the county of Tulsa and State of Oklahoma, have invented new and useful Improvements in Oil Savers for Oil-Producing Wells, of which the following is a specification.

This invention relates to an oil saver for oil producing wells.

In oil wells that produce oil by pumping the sucker rods and tubing must be frequently pulled out of the well for repairs or other purposes, the sucker rods being first pulled out and the tubing next pulled out. Ordinarily the tubing is composed of pipe sections of convenient length which are united at their adjacent ends by couplings. In extracting the tubing it is intermittently raised and usually two joints or sections are uncoupled at each operation and laid down upon the derrick floor. As the stand valve is closed, this tubing is full of oil and as commonly practiced when the sections of tubing are unscrewed the oil therein runs out on the derrick floor and becomes lost.

The object of my invention is to provide simple and effective means for catching and recovering this oil as the tube sections are detached, thus preventing such customary waste of oil.

The invention consists of the features of construction, combination and arrangement of parts, hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a top plan view of the oil saver as applied to a well casing and tubing, the last-named appearing in section.

Figure 2 is a view in side elevation of the same.

Figure 3 is a horizontal section on line 3—3 of Figure 2.

Figure 4 is a vertical section on line 4—4 of Figure 1.

Referring to the drawings, 1 designates the upper end of the well casing and 2 the well tubing disposed therein, said casing 1 being provided at its upper end with the casing head 3 having in its crown wall an opening 4 through which the tubing 2 extends. The tubing 2 is constructed as usual of pipe sections of convenient length, coupled together at their adjacent ends, two of such pipe sections 5 and 6 being shown in the present instance united by the threaded coupling member or sleeve 7. 8 designates the usual elevator or lifter of any preferred construction, employed to hold the tubing while being pulled out of the well. This elevator is clamped to the tubing, and as shown in the present instance is arranged between the casing head 3 and coupling 7 of the elevated tubing and resting upon said casing head to hold the tubing elevated while the tubing section 6 is being unscrewed from the said coupling 7 to disconnect the upper sections of the tubing from the portion of the tubing still contained in the well casing.

In the operation of pulling a well tubing, after the sucker rods are lifted out, the tubing is progressively elevated at intermittent periods sufficiently to expose two sections of tubing which are disconnected by unscrewing them from the associated coupling 7 of the next adjoining underlying tube section, the removed sections of the tubing being then laid upon the derrick floor. In this operation, as the tubing is full of oil, the amount of oil contained within the detached tubing section runs out upon the derrick floor and is lost. My invention provides means whereby in the operation of removing the tubing sections, the oil contained therein will be caught and saved instead of being wasted.

In carrying my invention into practice I provide a by-pass or drain pipe 9 which is vertically disposed and arranged in proximity to the upper end of the casing and is connected at its lower end by one or more conducting branches with the interior of the casing head 3, from which lead one or more outlet or overflow pipes 11 for the discharge of the surplus oil from the casing should the well flow. The pipe 9 is provided at its upper end with a lateral inlet 12 communicating with a catch basin or receptacle 13. This catch basin or receptacle is divided vertically on irregular lines to provide a relatively fixed section 14 and a movable section 15, said movable section being hinged or pivoted at one of its side edges to the adjacent side edge of the fixed section, as indicated at 16. The sections of the basin or receptacle 13 are adapted to close about the elevated section 6 of the tubing, and are formed in the mating edges of their horizontal top and bottom walls with mating

semi-circular recesses 17 providing openings of sufficiently large diameter in said walls to respectively receive the pipe section 6 and the upper end of the coupling member 7 connecting the pipe sections 5 and 6 together. These recesses 17 are provided with liners 18 of rubber, leather or other suitable elastic material, which form gaskets or packing rings to snugly embrace the pipe section 6 and coupling 7 to prevent any leakage of oil from the receptacle 13 when the receptacle sections are closed. The receptacle 13 is provided for receiving the oil draining from the section 6 and superposed section of the well tubing when said sections are detached from the coupling 7, the oil thus being recovered and falling by gravity from the receptacle 13 through the by-pass 9 into the casing head and back into the well. The movable receptacle section 15 may be held closed against the fixed receptacle section 14 and the tubing by a tight fitting connection between said receptacle sections or any suitable type of fastening may be employed to secure the free edges of the receptacle sections 14 and 15 together.

In the operation of the device, assuming that the oil saver is mounted in proper position for use, the cover section 15 of the oil receptacle is swung open, the tubing pulled up and the elevators and coupling tongs applied, and the cover section 15 of the receptacle 13 swung to closed position about the upper adjacent tubing section 6 and upper end of the properly positioned coupling collar 7 uniting the same to the underlying tubing section 5. The tubing section 6 and the superposed tubing section remaining coupled thereto are then unscrewed from the coupling 7 and drawn upward through the top of the receptacle 13, the oil contained therein thereby flowing into the receptacle 13. This oil discharges through the by-pass, as previously described, and upon the completion of this operation the casing section 15 is again swung open, the tubing again elevated to bring more sections into position for uncoupling and the oil saving operation, and this action is continued until the entire tubing is removed and all the oil contained therein saved. It will thus be seen that my invention provides a means whereby the oil contained within the detached tubing sections may be caught and saved instead of being allowed to go to waste as it does under ordinary conditions.

While I have, in the present instance, shown the oil discharge or by-pass pipe 9 connected with the casing head 3 for draining the oil from the disconnected tubing back into the well casing, it is to be understood that, while this construction is preferred under some conditions, it is not absolutely essential to the invention. I may, for instance, and if desired, provide any suitable means for the discharge of the oil from the pipe 9 into a storage receptacle separate from and independent of the well casing, either through the casing head 3 and pipe or pipes 11 or through other suitable conductors, and therefore it is to be understood that my invention broadly comprehends the use of any suitable outflow connection from the catch basin or receptacle to a storage tank or receptacle in which the oil from the disconnected sections of the tubing is conducted.

Having thus fully described my invention, I claim:

In an attachment for oil wells, a cap provided in its sides with a plurality of openings, pipes secured in said openings, the said pipes being in communication with each other, a receptacle having its axis in alinement with the axis of said cap, rigid tubing connected with the lower end of said receptacle and communicating with the said pipes, the said cap being adapted to be engaged upon the casing of an oil well and the said container to be engaged about the oil well tubing.

In testimony whereof I affix my signature.

JERRY L. BEARD.