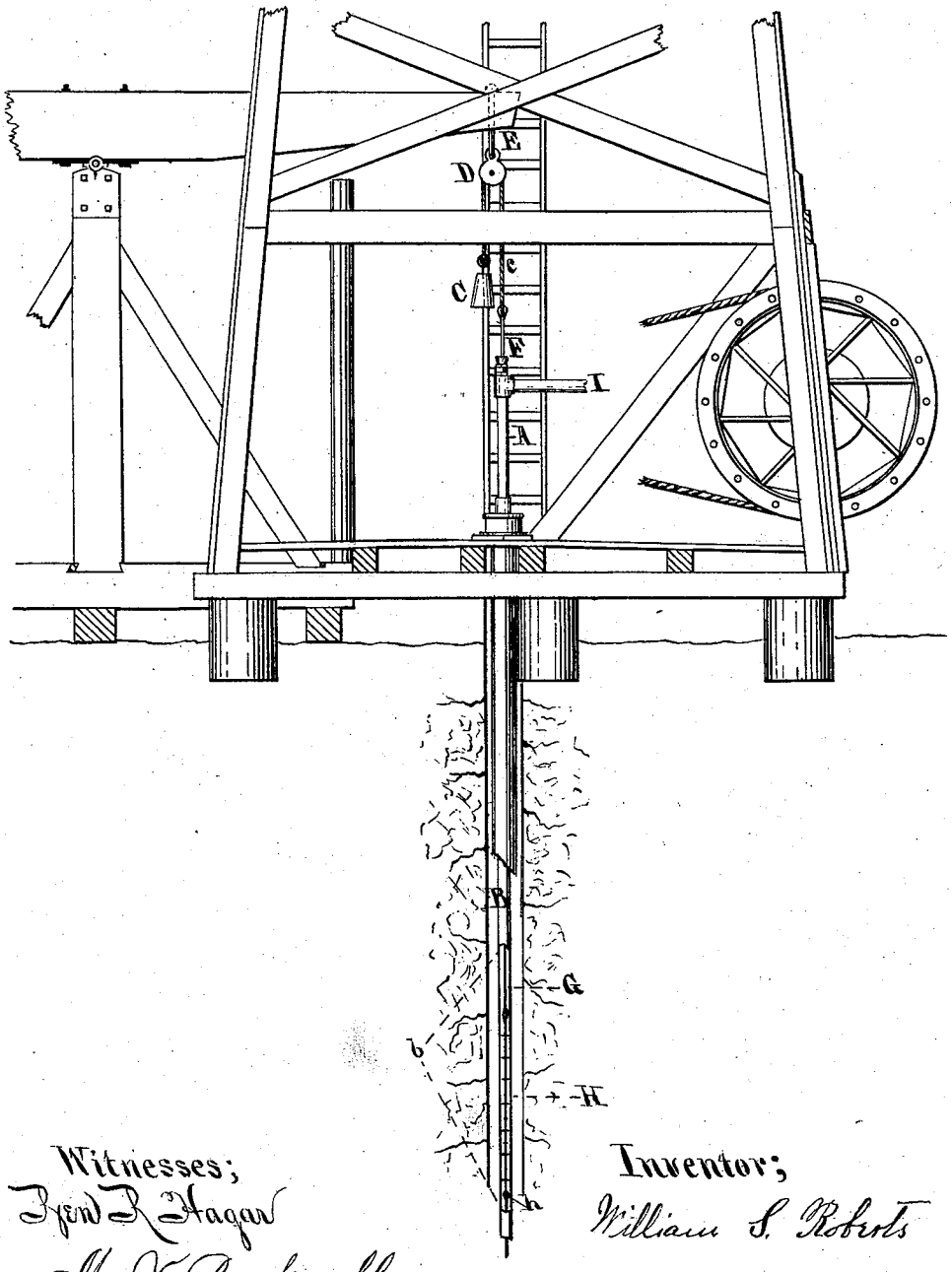
(No Model.) 2 Sheets—Sheet 1.

W. S. ROBERTS.

AUTOMATIC AGITATOR AND PARAFFINE CLEANER FOR OIL WELLS.

No. 260,501. Patented July 4, 1882.

Fig 1



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M. V. Rockwell

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(No Model.) 2 Sheets—Sheet 2.

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Fig 2

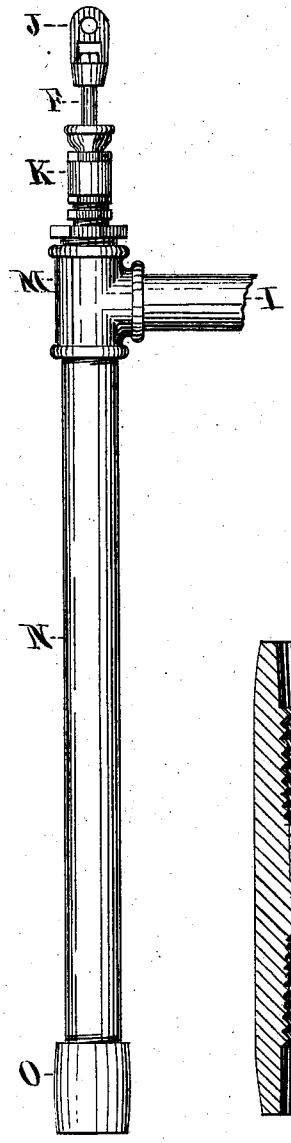


Fig 3

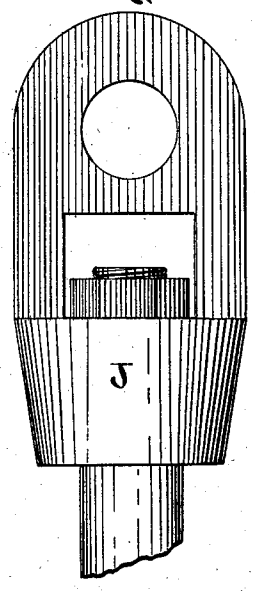


Fig 4

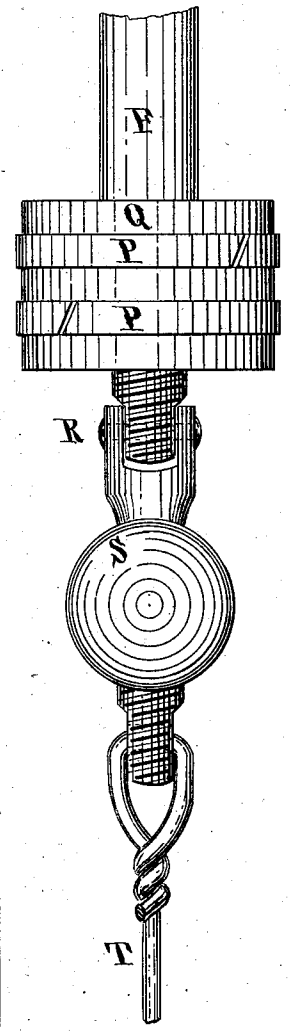
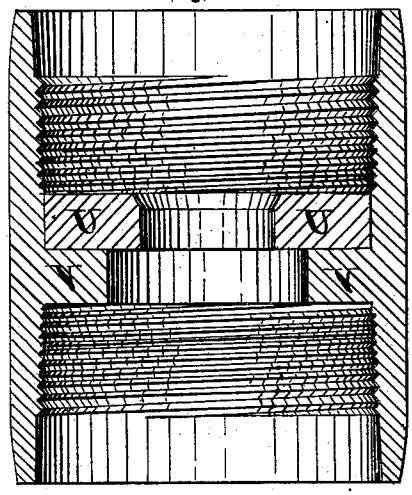


Fig 5



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UNITED STATES PATENT OFFICE.

WILLIAM S. ROBERTS, OF BRADFORD, PENNSYLVANIA, ASSIGNOR TO SHERMAN E. BRAINARD, OF SAME PLACE.

AUTOMATIC AGITATOR AND PARAFFINE-CLEANER FOR OIL-WELLS.

SPECIFICATION forming part of Letters Patent No. 260,501, dated July 4, 1882.

Application filed March 8, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. ROBERTS, of the city of Bradford, in the county of McKean and State of Pennsylvania, have invented a new and useful Improvement in an Automatic Agitator and Paraffine-Cleaner for Oil-Wells, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

The object of my invention is to prevent the formation of paraffine in the tubing of oil-wells, and by a constant agitation in the said tubing by the upward and downward movement of the agitating-line to induce an increased production of oil.

Figure 1 is the lower part of an oil-well derrick and part of the rig and the agitator and paraffine-cleaner in place ready for use. Fig. 2 shows the cylinder and standing boxes complete. Fig. 3 is a section of the piston-rod and swivel-joint complete. Fig. 4 is a section of the piston-rod, the piston-head, the swinging joint, and the ball-valve, also section of the agitating-line. Fig. 5 is a cross-section of the standing box at bottom of cylinder and the valve-seat.

C represents a weight attached to the piston-rod F by the line *c*, which passes over the pulley D, said pulley being fastened to the drilling-hook E or any other convenient place.

b represents a cross-section of the tubing B, made in order to show the agitating-line G, to which is connected the barbed wire H, and the rod or weight *h*, which is fastened to the bottom end of the barbed wire or the agitating-line.

Fig. 2 represents the working barrel or cylinder N, with a standing box, O. On the top of said barrel is placed the T M, for the purpose of connecting with the lead pipe I, through which the oil is discharged from the tubing into the tank. On the top of the T M is placed the stuffing-box K, for the purpose of packing the piston rod F, thereby preventing the escape of oil and gas. In the cylinder N is placed a piston-head, Q, (made as represented by Fig. 4,) connecting to the piston-rod F, at the top of which is a swivel-joint, J, which is represented by Fig. 3.

Fig. 4 represents a section of the piston-rod F with the piston-head Q attached. On said piston-head are placed two or more metallic expansion-rings, P P. To the lower end of the piston-rod is attached (with a swinging joint, as seen at R, Fig. 4) the valve S. To the lower part of the valve S is fastened the wire T.

Fig. 5 represents a cross-section of the standing box O, with a metallic valve-seat, U, resting on the shoulder V.

It is a well-known fact that one of the most annoying occurrences to the oil-producer is the formation of paraffine in the tubing of flowing oil-wells, particularly those wells that are tubed with less than two-inch pipe. By the use of my agitator this annoyance is overcome. For the benefit of those who may wish to use the same I will explain the working thereof.

The working-barrel is placed on the top of the tubing with any desired weight suspended, as illustrated in Fig. 1. The object of this weight is to regulate the pressure of gas and to counterbalance the weight of the agitating-line.

To the wire T is fastened the agitating-line G. This wire should be at least the length of the cylinder N, so that it will play freely through the valve-seat U as the piston moves up and down. The paraffine generally collects a few hundred feet from the bottom of the well. The line should extend that distance, and sufficient barbed wire added to extend down below the paraffine formation.

The valve S, fitting neatly in the valve-seat U, confines the gas in the well until a sufficient force is gathered to raise the piston-head Q above the T M, thereby allowing the discharge of oil through the lead pipe I. The agitating-line G, being attached to the said piston, moves with it, cutting its way through what paraffine may have formed in the tubing, and by the continued action of the said piston prevents the further formation of the said paraffine.

The object of the rod *h* is to keep the line taut and assist the valve S to resume its seat.

I claim as my invention—

The working barrel N, the standing box O, the valve-seat U, the valve S, the piston-rod F, with the piston-head Q, the swivel-joint J, the weight C, connected to the piston F by the line *c* passing over the pulley D, the agitating-line G, attached to the valve S, the barbed wire H, and rod or weight *h*, all in connection with the tubing, substantially as described.

WILLIAM S. ROBERTS.

Witnesses:
F. D. REEVES,
F. M. COLE.