(No Model.)

J. P. FIRTH.

APPARATUS FOR REMOVING GUMMY MATTER FROM OIL WELLS.

No. 403,183. Patented May 14, 1889.

Fig. 1.

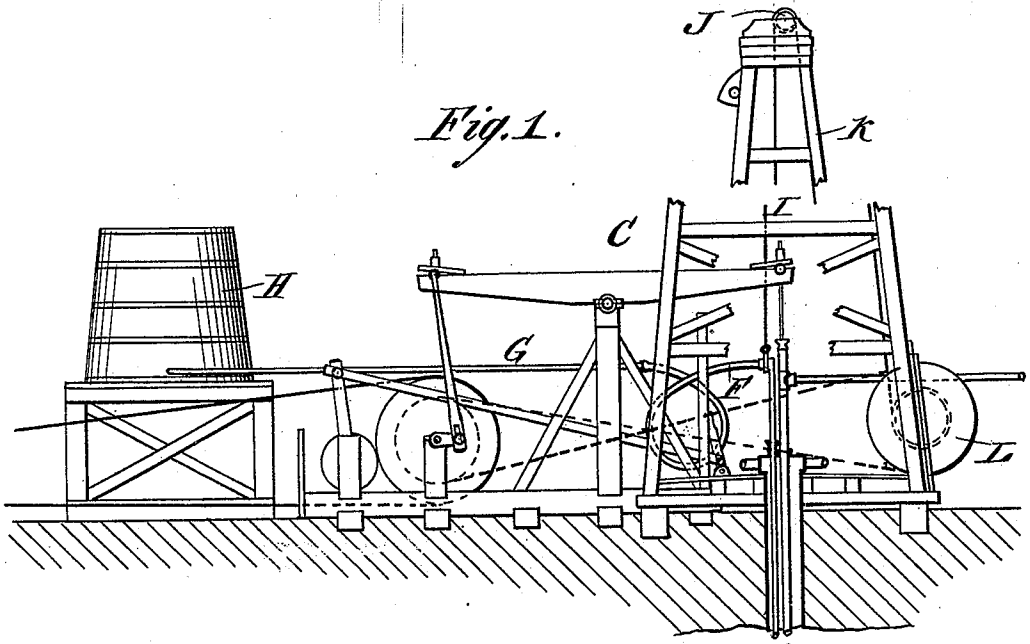


Fig. 2.

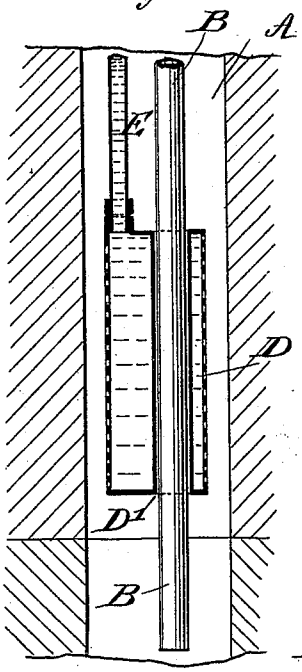
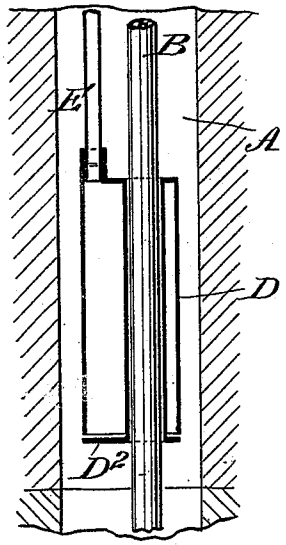


Fig. 5.



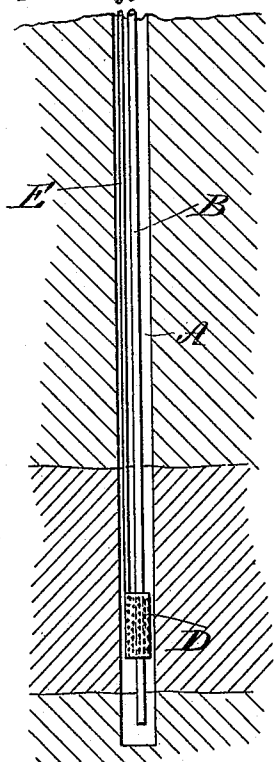


Fig. 3.

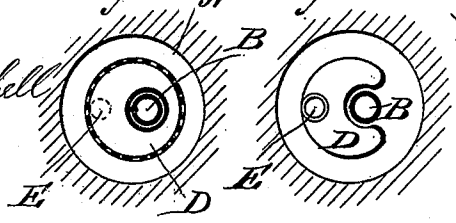


Fig. 4.

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JOHN P. FIRTH, OF TITUSVILLE, PENNSYLVANIA.

APPARATUS FOR REMOVING GUMMY MATTER FROM OIL-WELLS.

SPECIFICATION forming part of Letters Patent No. 403,183, dated May 14, 1889.

Application filed October 22, 1888. Serial No. 288,763. (No model.)

To all whom it may concern:

Be it known that I, JOHN P. FIRTH, of Titusville, in the county of Crawford and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Removing Gummy Matter from Oil-Wells, of which the following is a full, clear, and exact description.

The object of the invention is to provide new and improved methods and means for effectively removing the gummy matter and other substances accumulating on oil-rock, thereby permitting a free flow of oil from the rock, and consequently increasing the production of the well.

The invention consists of a receptacle having openings and held to slide in the rock, being connected by a conducting-pipe with a steam or other supply, so as to discharge the steam, &c., on the oil-rock.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improved means as applied. Fig. 2 is an enlarged sectional side elevation of the receptacle and its connections. Fig. 3 is a sectional plan view of the same. Fig. 4 is a like view of the same in a modified form, and Fig. 5 is an enlarged sectional side elevation of another modified form of the same.

In the oil-well A is held the usual tubing, B, connected at its upper end with the pumping mechanism C, of any approved construction, and serving to pump the oil from the bottom of the oil-well A to a convenient tank. On the tubing B in the oil-rock strata is held to slide vertically a receptacle, D, connected by an upwardly-extending pipe, E, with a flexible tube, F, connected by a pipe, G, with a tank, H, containing benzine or other fluid, or the said pipe G may be connected with a steam-boiler.

The receptacle D may be made of various shapes and forms, as illustrated in Figs. 2, 3, 4, and 5. I prefer, however, the construction shown in Figs. 2 and 3, in which the exterior shell of the receptacle D is perforated, and a pipe, D′, passes vertically through the receptacle and is secured to the top and bottom of the said receptacle and forms a bearing for the tubing B, which passes through the said pipe D′.

In the modification shown in Fig. 4 the receptacle D is of half-moon shape and the tubing B fits into the inner surface of the half-moon, so as to hold the receptacle D loosely on the tubing B.

In the modification shown in Fig. 5 the exterior cylindrical shell of the receptacle is not perforated; but the bottom D^2 of the receptacle is somewhat lower than the lower edge of the shell, so as to form an opening through which the fluid can be discharged from the receptacle.

The upper end of the supply-pipe E is connected with a suitable mechanism for raising and lowering said pipe E. I prefer the construction shown in Fig. 1, in which the upper end of the pipe E is connected with one end of a rope, I, extending upward and passing over a pulley, J, mounted to rotate at the top of the usual derrick, K, erected over the oil-well A. The rope I then extends downward from the pulley J to the drum of the windlass L, which serves to raise or lower the pipe E and the receptacle D in the oil-rock strata.

When the flow of the oil-well A decreases, the oil-bearing rock is clogged up at the entrance to the well A by gummy matter or other substance, and in order to remove this gummy matter I charge the receptacle D with steam, benzine, or other fluid at the top of the latter from the tank H or from a steam-boiler, so that the steam, benzine, or other substance passes through openings in the receptacle D onto the oil-bearing rock with considerable force, thereby removing the accumulated gummy matter from the rock. As the oil-bearing strata is usually from ten to fifty feet in height, I move the receptacle D up and down the entire height of the oil-bearing strata, so that the steam or oil is thrown on all parts of the oil-rock strata in the well A. For this purpose I may employ any desired means, but prefer the construction shown and described.

In order to move the receptacle D up and down, I set the windlass in motion forward and backward, so that the rope I raises and lowers the supply-pipe E, supporting at its

lower end the receptacle D. The flexible tube F permits this up-and-down movement of the pipe E without interrupting the supply of steam or other fluid from the tank H or boiler.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. An apparatus for removing gummy matter from oil-wells, comprising a receptacle to enter the bore of the well and having a lateral discharge, and a vertically-movable pipe on the lower end of which said receptacle is suspended in the well, substantially as set forth.

2. In an oil-well, the combination, with the tubing, of a receptacle having openings and held to slide vertically on the said tubing, a supply-pipe supporting the said receptacle, and a tank or boiler for supplying said receptacle with steam, benzine, or other substances, substantially as shown and described.

JOHN P. FIRTH.

Witnesses:
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GEO. P. BROCKWAY.