E. REW.

Oil-Pump.

No. 213,346. Patented Mar. 18, 1879.

Fig. 1.

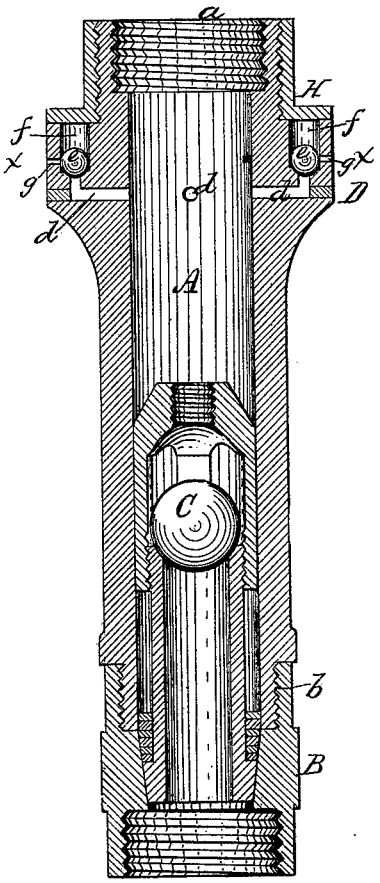


Fig. 3.

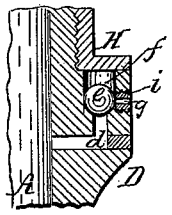
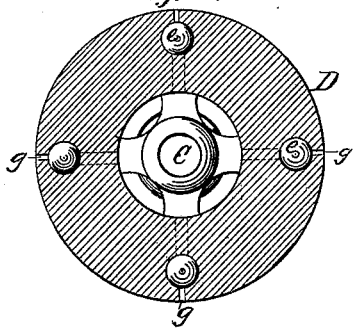


Fig. 2.



W. H. Sheridan

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Witnesses.

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UNITED STATES PATENT OFFICE.

EUGENE REW, OF FRIENDSHIP, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO JUSTICE A. REW, OF SAME PLACE.

IMPROVEMENT IN OIL-PUMPS.

Specification forming part of Letters Patent No. **213,346**, dated March 18, 1879; application filed July 2, 1878.

To all whom it may concern:

Be it known that I, EUGENE REW, of Friendship, in the county of Allegany and State of New York, have invented new and useful Improvements in Oil-Pumps, of which the following is a specification, reference being had to the accompanying drawings.

My improvement relates to an oil-pump in which, at the downward stroke of the piston or plunger, a portion of the oil raised above the standing valve is forced in fine streams against the surrounding sand or rock, for the purpose of preventing the oil-yielding crevices of the latter from gumming up with paraffine and other solid matter.

The object of my invention is to produce a simple and efficient device which is readily applied to ordinary oil-pumps, and which does not interfere with the ordinary use of the standing valve.

My invention consists of the particular construction of the ejection apparatus, as will be hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a vertical section of the part of an oil-pump to which my invention relates. Fig. 2 is a horizontal section in line *x x*, Fig. 1. Fig. 3 is a fragmentary sectional view, on an enlarged scale, of one of the discharge-orifices.

Like letters of reference designate like parts in each of the figures.

A represents a piece or section of tubing, arranged between the lower end of the working-barrel of the pump and the upper end of the anchor-tubing, and provided with screw-threads *a* and *b* at its upper and lower ends, for connecting with the pump-barrel and the coupling B of the anchor-tubing, respectively. C is the standing or suction valve, arranged in the lower part of the straight bore of the tube-section A, so that it can be raised out of the pump when required. D is an annular enlargement or ring formed on the outside of the tube-section A, above the standing valve C. *d* represents narrow lateral bores or channels formed in the enlargement D, so that their inner ends open into the bore of the tube-section A, while their outer ends are turned upward and provided with a valve-seat, upon which rests a ball-valve, *e*. The latter is arranged in a cavity, *f*, formed in the enlargement D, and provided with a lateral discharge-orifice, *g*.

H is a screw ring or collar secured to the upper portion of the enlargement D, so as to close all of the valve-cavities *f;* but, if preferred, each of these cavities may be closed separately by a screw-plug. *i* is a removable screw-sleeve secured in the discharge-orifice *g*, so that the size of the latter can be regulated by inserting therein a sleeve of greater or less bore, as may be desired.

The channels *d* are preferably formed by boring into the enlargement D from the outside, and closing the outer portion of the bore, beyond the seat of the ball-valve, by means of a rivet or plug driven into the bore, as shown in the drawings.

The pump is placed in the well in the usual manner, with the anchor-pipe perforated at any desired point and the discharge-orifices *g* opposite the oil-yielding rock. At the upward stroke of the piston the valve C rises and permits the influx of the oil into the tube-section A and the working-barrel above the same. At the downward stroke of the piston the valve C closes, and the greater portion of the oil above the standing valve passes through the valve in the piston into the space of the working-barrel above the piston. At the same time the valves *e* are raised by the pressure of the descending piston, and a small portion of the oil is forced in fine streams through the orifices *g* against the surrounding rock or sand, whereby the walls of the well are washed, and the clogging up of the oil-yielding crevices by an accumulation of paraffine is in a large degree prevented. Upon the upward stroke of the pump the valves *e* close, and the oil again enters the tube-section A through the anchor-tubing, as hereinbefore described.

The inner bore of the tube-section A being perfectly straight, the standing valve C and its seat and cage can be withdrawn from the pump whenever it becomes necessary with the same facility as in ordinary pumps.

The ejecting mechanism is cheaply constructed and not liable to get out of order, as each ejection-orifice is controlled by a separate valve, and therefore not affected by the clogging of any other valve.

My improved ejection mechanism is readily applied to ordinary pumps now in use without requiring any alterations of the pumps.

I claim as my invention and desire to secure by Letters Patent—

1. The tube-section A, adapted to be arranged between the working-barrel and the anchor-tubing, and provided with a straight bore, and having a number of lateral channels, *d*, arranged above the standing valve, each provided with a separate valve, *e*, and ejection-orifice *g*, so that the standing valve can be readily withdrawn from the pump without disturbing the surrounding parts, substantially as set forth.

2. The tube-section A, provided with annular enlargement D, channels *d*, valves *e*, ejection-orifices *g*, and screw-collar H, substantially as and for the purpose set forth.

In witness whereof I have hereunto set my hand this 7th day of June, 1878.

EUGENE REW.

Witnesses:
EDWARD WILHELM,
JNO. J. BONNER.