

J. J. G. Collins,

Oil Pump

No 51,148.

Patented Nov 28, 1865.

Fig. 2.

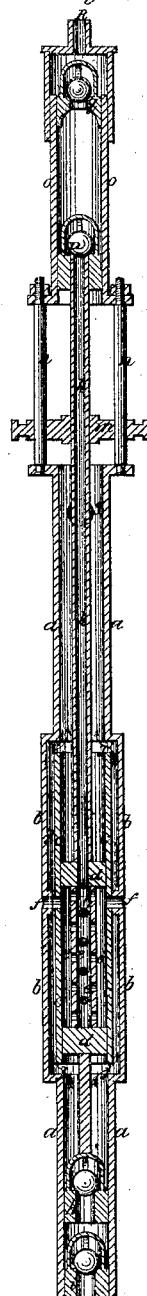


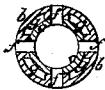
Fig. 1.



Fig. 3.



Fig. 4.



Witnesses.

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## IMPROVEMENT IN DEEP-WELL PUMPS.

Specification forming part of Letters Patent No. 51,148, dated November 28, 1865.

*To all whom it may concern:*

Be it known that I, JOHN J. G. COLLINS, of the city of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in a Combined Oil and Gas Pump; and I do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents an external view of the combined pump. Fig. 2 represents a vertical section through the same, in the line of its length; and Figs. 3 and 4 represent transverse sections through the pump.

Similar letters of reference, where they occur in the separate figures, denote like parts of the pump in all the drawings.

My invention consists in so combining, in a pump, inlet, through and exit passages for oil and gas as that the operation of pumping shall raise and escape these two substances at different points, and without allowing them to commingle at any part of their passage through the pump.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

*a* represent a pump tube or pipe in which the pump bucket or plunger *h* works at its lower end or portion, the extreme lower end of the pump being furnished with a foot-valve, *i*.

The pump-tube is enlarged, as at *b*, and within this enlargement is placed a working barrel or cylinder, *c*, so as to leave a space between the enlargement and the working-barrel for the oil to pass through as it is raised by the action of the pump.

Within the working-cylinder *c* are two pistons, *d d*, made to fit and work snugly, but tight enough to prevent any leakage from above or below the pistons into the space between them.

Between the two pistons *d d*, and connecting them together there is a perforated tube, *e*, and openings *f*, from the outside of the pump-pipe, lead into and communicate with the interior of the working-cylinder *c*, and pass through the annular space between *b* without communicating with said annular space. The pump-bucket *h* is connected to the lower piston, *d*, by means of the rod *l*, so that they all

work together by the simple working of the pump-rod.

*o* represent a cylinder in which works a piston or plunger, *P*, at its lower end, while at its upper end is placed a discharge-valve, *q*.

*m* is a cross-head for working the pump. It is attached or connected with the ho'low pump-rod *k*, through which the gas is pumped up, while said rod also carries or operates the other valve-pistons or plungers of the pump. The cross-head moves on and is guided by the guide-rods *n*, and these guide-rods also support the upper pump-cylinder, *o o*.

*R* is an escape-valve, where the gas may escape into the air or from whence it may be taken to a furnace and burned.

This embraces the general construction of the pump. Its operation is as follows: The pump-rod being set in motion, the oil is drawn through the foot-valve *i* by the bucket *h*, and thence it passes up between the working-cylinder *c* and the enlargement *b* of the pump-tube, as shown at *j g j'*; thence up between the ho'low pump-rod *k* and the pump-tube *a* to the opening at *S*, whence it passes out to any receiver. While the oil is being thus received the gas is drawn in through the openings or tubes *f* into the space between the pistons *d d*, occupied by the perforated tube *e*, and through the perforations of said tube it is drawn into the ho'low pump-rod *k*, and thence up through the bucket *P*, chamber *o*, valve *q*, and escape-passage *R*, where it may be wasted or consumed, as above stated.

The gas may be taken into the pump at any point or points above the deposit of the oil, where it will always rise, owing to its very light property.

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

In combination with a ho'low pump-rod for operating valves or plungers for raising oil, as herein represented, the openings from the exterior of the pump-tube to said ho'low pump-rod, and through it to the exterior of the pump, for the purpose of, also, by the same operation, pumping out the gas from the well, substantially as described.

JOHN J. G. COLLINS.

Witnesses:

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