C. F. & S. RIGBY, 3d.

Pumps.

No. 206,970. Patented Aug. 13, 1878.

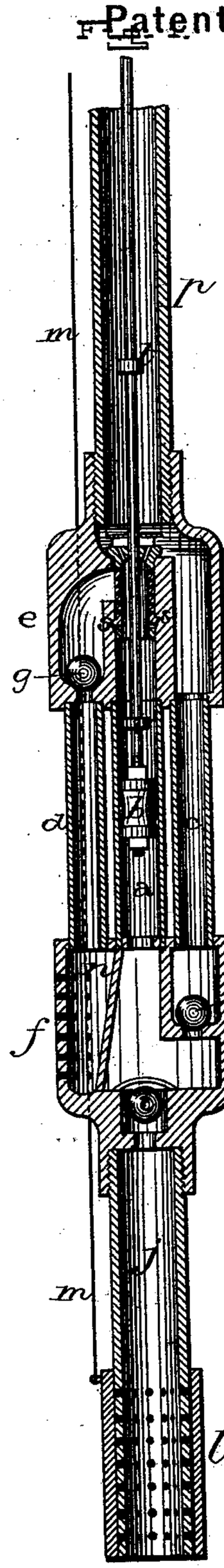


FIG. 2.

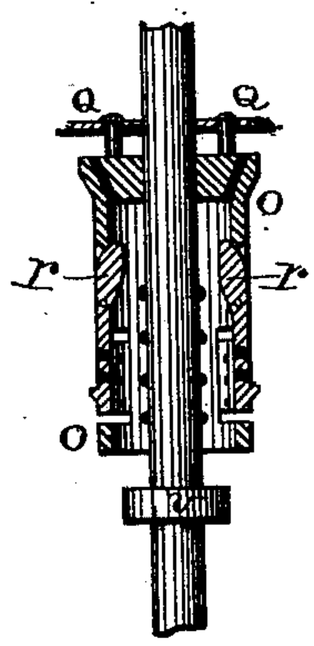
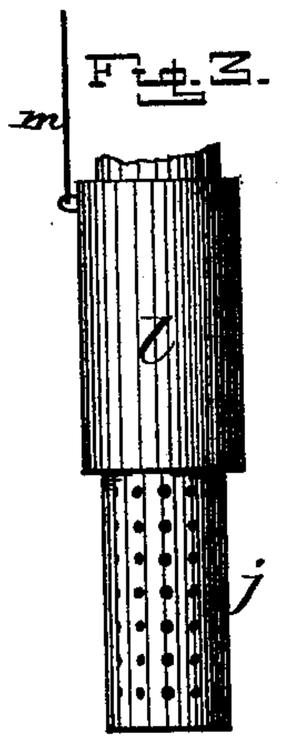


FIG. 3.



Witnesses:

J. W. Garner

R. M. Barr.

Inventors:

C. F. Rigby,

Seth Rigby, 3rd

per

O. A. Lehmann,

Atty.

UNITED STATES PATENT OFFICE.

CLARK F. RIGBY AND SETH RIGBY, 3D, OF SUMMIT CITY, PENNSYLVANIA.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **206,970,** dated August 13, 1878; application filed June 21, 1878.

To all whom it may concern:

Be it known that we, CLARK FREE RIGBY and SETH RIGBY, 3d, of Summit City, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Pumps; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

Our invention relates to an improvement in pumps for oil-wells; and it consists in the arrangement and combination of parts that will be more fully described hereinafter, whereby a cheap and effective pump is produced for deep wells of all kinds.

Figure 1 is a vertical section of our invention. Figs. 2 and 3 are detail views of the same.

a represents the cylinder, in which the piston *b* works, and *d c* are the two water-passages, up through which the water or oil is forced toward the top of the earth. The cylinder and the two water-passages are made of common gas-pipe, and have their ends securely fastened in the two heads or chambers, *e f*, which heads are securely connected together by rods or bolts, or by any other suitable devices. By making these parts of gas-pipe the construction of the pump is simplified and greatly cheapened.

In the upper head or chamber, *e*, at the top of the passage *d*, is placed the ball-valve *g*, and in the lower head, *f*, at the bottom of the chamber *e*, is placed a second one, *h*, while in the bottom of the head itself, just over the top of the perforated induction-pipe *j*, is placed the third valve, *i*. All of these valves are made of lead and covered with rubber, which makes them sufficiently heavy to at once sink back into position again after being raised by the upward flow of water, and yet soft enough to conform accurately to their seats under all circumstances.

The inlet-pipe *j* is quite short, and is perforated at its lower end, as shown, and over this pipe is passed the sleeve *l*, which has the wire *m* attached to it, so that it can be adjusted up and down at will. By allowing this sleeve to cover a portion or all of the perforations, the inflow of oil through the pump is retarded proportionately, so that it will be pumped from the well only about as fast as it flows in. As the wire reaches up to the top of the well, the rapidity with which the oil is pumped can be nicely regulated.

At the bottom of the passage *d* there is formed a separate chamber, *n*, in the lower head, *f*, and the outer side of this chamber is full of small perforations, through which the water or oil is drawn up into the passage *d* as the piston descends in the cylinder. By this construction it will be seen that water or oil is taken into the pump at two places, one for each water-passage, thereby increasing the quantity that is forced upward at each movement of the piston.

Passed over the piston-rod, and resting in the top entrance to the cylinder in the head *e*, is the removable valve-seat *o*, upon the top of which seat is placed the valve *q*. This valve rises and falls vertically, is composed of a sheet of rubber and a metal plate, and serves to prevent the water or oil from passing from the stand-pipe *p* down into the cylinder. Pivoted in the sides of this seat *o*, which is perforated all around, so as to let the water pass freely through, are the two catches *r*, which, as the seat settles into place, catch under the shoulders *s*, so as to prevent the seat from being displaced. Fastened to the piston-rod, above and below this seat, are the collars, projections, or other suitable devices, *t v*, by means of which this is operated.

When the piston-rod having piston *b*, of any suitable construction, on its lower end, is lowered into the pump, the seat is guided into position by the rod, and then the collar *t* forces it home. When it is desired to withdraw the piston for the purpose of cleaning the pump, the piston-rod is drawn upward, when the lower collar, *v*, at a suitable distance above the piston, enters the seat, strikes against the upper projecting ends of the catches, and thus loosens the lower ends from under the shoulders *s*, when the valve-seat can be raised up with the piston. As the piston descends, when the pump is in operation, it forms a vacuum in the chamber *d* and the cylinder *a*, which causes them to fill with water, and when it ascends it forces all the water or oil above valve *g* up into the stand-pipe, at the same time that it draws

water through the inlet-pipe into the lower part of the cylinder. When it descends again it forces all the water that was drawn in through the inlet-pipe up above the valve *h* into the stand-pipe.

Having thus described our invention, we claim—

1. In a pump having the cylinder *a* and two water-passages, *c d*, the perforated chamber *n*, located at the bottom of one of the water-passages, substantially as shown.

2. The combination of the removable valve-seat, passed over the piston-rod, and provided with catches for catching under the shoulders *s*, with the collars *t r*, substantially as set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 13th day of May, 1878.

CLARK FREE RIGBY.
SETH RIGBY, 3D.

Witnesses:
HOMER STEVENSON,
JOHN STOOPS.