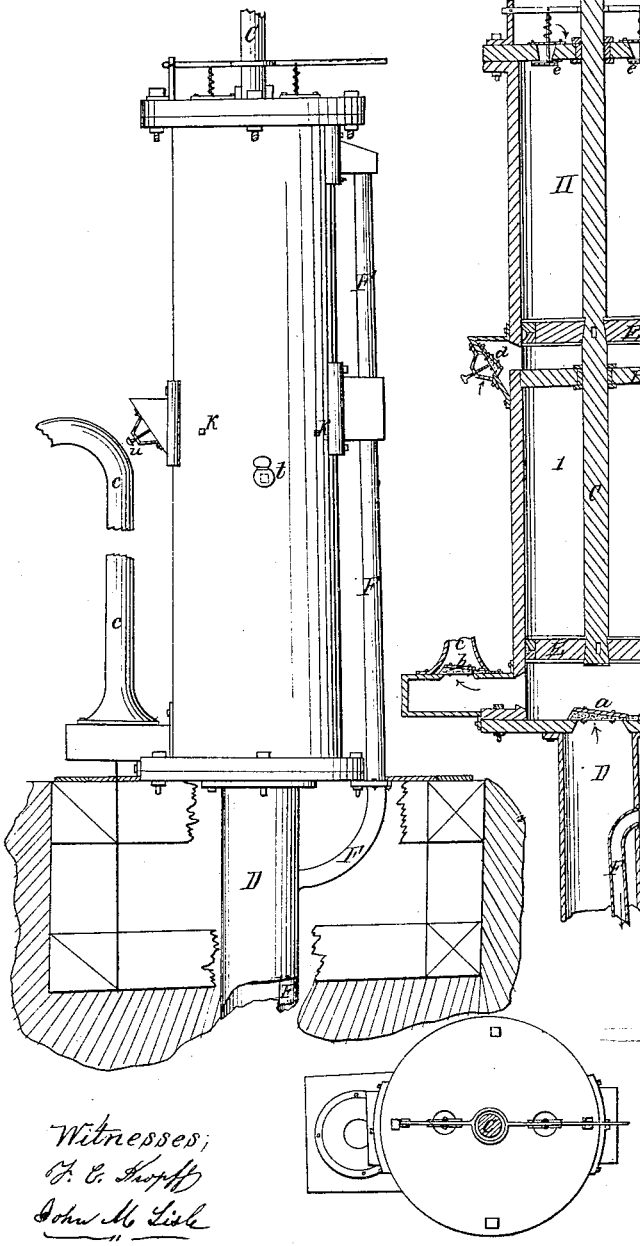
J. A. BLOOM.

PUMP FOR DEEP WELLS.

No. 52,019. Patented Jan. 16, 1866.

Fig: 1



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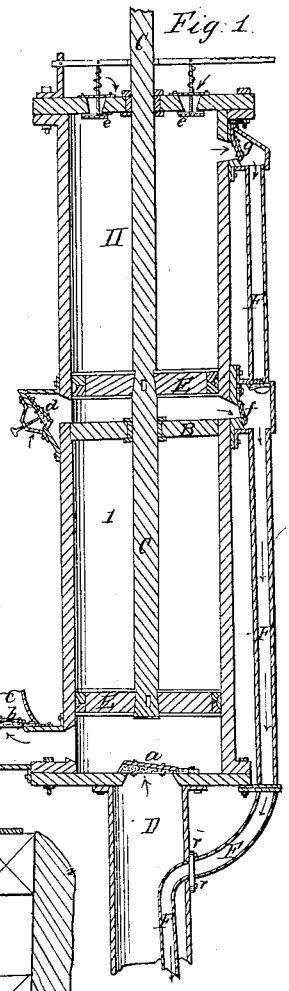

Fig: 2.

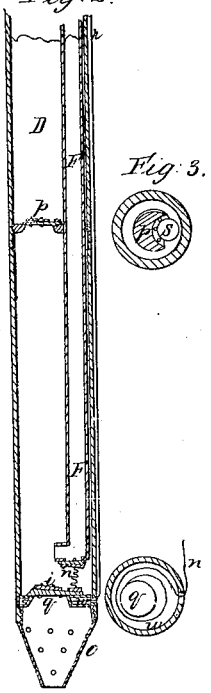

Fig: 3.

Witnesses;

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UNITED STATES PATENT OFFICE.

JOS. ALEXANDER BLOOM, OF PHILADELPHIA. PENNSYLVANIA

IMPROVEMENT IN PUMPS FOR DEEP WELLS.

Specification forming part of Letters Patent No. **52,019**, dated January 16, 1866.

To all whom it may concern:

Be it known that I, JOS. ALEXANDER BLOOM, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Pumps for the Use of Oil-Wells and Mines; and I do hereby declare that the following is a full, clear, and exact description of the apparatus, and of its functionary parts, as represented by the sectional drawings making a part of the specification.

The machine or apparatus consists of a smooth-bored cylinder, Figure 1, which is divided by the plate B into two apartments, (marked I and II.) Through this plate passes the piston-rod C, air-tight.

The apartment I acts as a draw and force pump, and connects with the well-tubing D, through which the liquid is to be pumped up to the surface, entering by the valve *a* on the upward movement of the piston-head E, and on its downward movement is forced through valve *b*, and through the tube *c*, to the surface.

The apartment II acts as a double or single pneumatic pump, as may be desired, forcing the atmospheric air admitted by the valves *d* and *e* through the valves *f* and *g* into the pipe F. This pipe descends outside along the cylinder and enters the well-tubing D at a convenient point, suppose at *r*, and leads the air inside of the well-tubing to near the bottom of the well, and there discharges through the valve *h*, either immediately above the bottom valve, *i*, into the well-tubing, or some five or ten feet above said valve, and immediately over the lowermost partition-plate, *k*. These partition or check plates are inserted in the well-tubing at distances from twenty to twenty-five feet apart, according to the length of one tubing-link. They are provided with an upward-opening valve, *p*, for the ascension of the oil, &c., and with an opening, *s*, for the passage of the air-conducting pipe F, as represented in Figs. 2 and 3.

In the lower end of the well-tubing is a hollow metal ring or hollow metal chamber, *w*, inserted. Upon it rests the bottom valve, *i*. A wire, *n*, from a galvanic battery, V, on the surface, leads to this hollow metal chamber, Fig. 4, through a non-conductor, and coils in said chamber.

At the end of the well-tubing is the bottom piece, *o*, of the well-tubing D attached, perforated by holes similar like the so-called "snorer" on pump-pipes.

By means of the galvanic battery sufficient caloric is imparted to the bottom valve, *i*, and to the bottom piece, *o*, of the well-tubing D, to prevent the adhesion of or clogging by paraffine, and to prevent ignition of inflammable gases, &c.

The whole pumping apparatus, in all its parts except the valves, is made of iron.

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

1. The construction and arrangement of the hydraulic and pneumatic pump-chambers I and II in one cylinder, by means of the division-plate B, affording a steady guide to both pistons E and E, in combination with the air-conducting pipe F and well-tubing D, as shown, and substantially as described, together with system of valves.

2. The construction and arrangement of the hollow metal chamber *w* on top of the bottom piece, *o*, inclosing hermetically a wire coil connected with any galvanic apparatus on the surface, for the purpose and substantially as described.

JOSEPH ALEXANDER BLOOM.

Witnesses:
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F. C. KROPFF.