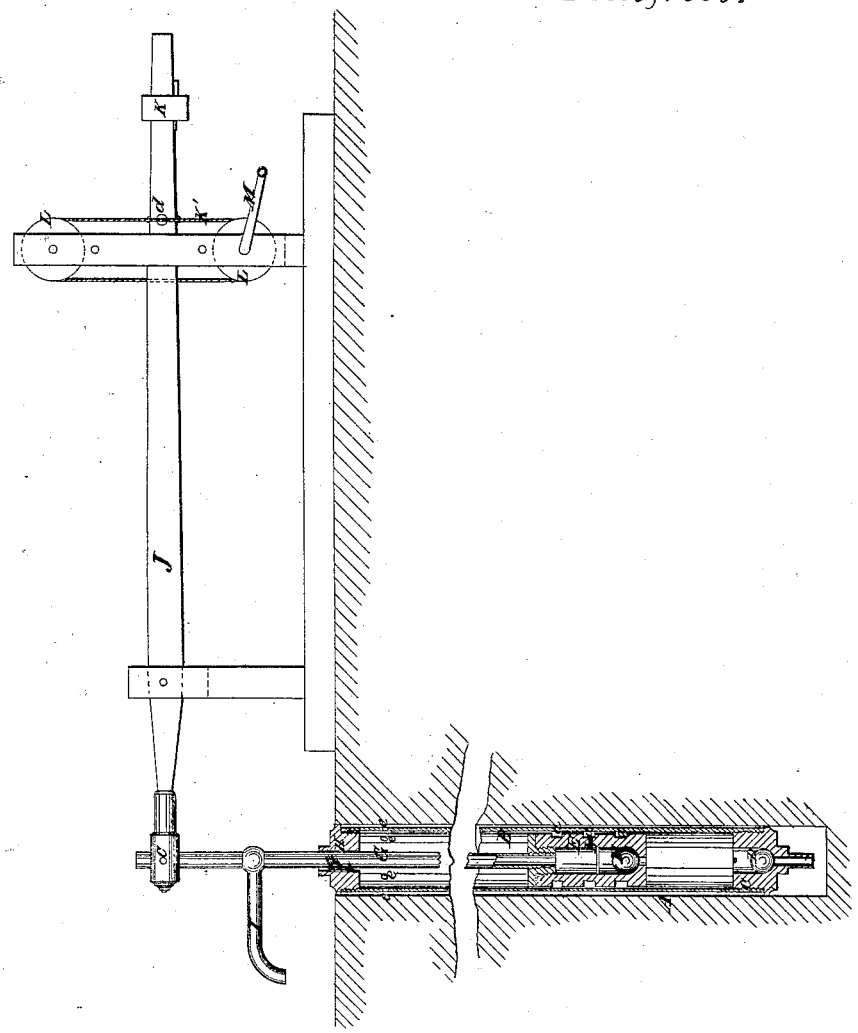
B. Frazee,

Oil Pump.

No. 51,302. Patented Dec. 5, 1865.



Witnesses.
Wm. Irwin
Geo. Fusch

Inventor
Benj. Frazee

UNITED STATES PATENT OFFICE.

BENJN. FRAZEE, OF BELLEVILLE, NEW JERSEY.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **51,302**, dated December 5, 1865.

To all whom it may concern:

Be it known that I, BENJAMIN FRAZEE, of Belleville, in the county of Bergen and State of New Jersey, have invented a new and Improved Pump; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a new and useful improvement in the ordinary lift-pump, designed more especially for oil-wells, and has for its object economy in the construction and the application of the pump to its work, and, also, economy in the power for operating the same, as hereinafter fully shown and described.

A represents an oil-well, and B a metal tube fitted therein, and having a cap, C, screwed with its lower end, in which a ball or other valve, D, is fitted, opening upward.

E represents a tubular piston which works within the tube B, and also has a ball or other valve, F, at its lower end, opening upward. The exterior of the piston E has a series of grooves, *a*, made circumferentially in it, with one of which (the central one being preferable) the interior of the piston communicates by means of a passage, *b*.

G is the piston-rod, which is tubular, and is connected to the upper end of the piston E, and extends up through a stuffing-box, H, at the top of the tube B. This tubular piston-rod, at a suitable distance above the well, is provided with a discharge spout or nozzle, I, and the upper end of said rod is connected by a joint, *c*, with one end of a lever, J, the opposite end of which has a sliding or adjustable weight, K, upon it to serve as a counterpoise. This lever J may be operated in various ways. The plan in the present instance consists of a rope, belt, or chain, K, passing around two pulleys, L L, and connected to the rope, belt, or chain, as shown at *d*, the axis of the lower pulley, L, having a crank, M, to which the power is applied.

At the commencement of the operation the weight K is so adjusted as to nearly counterpoise the piston E, a slight preponderance being allowed the latter to admit of its descending in the tube B by gravity. The lever J is then operated (vibrated or moved up and down) by moving the crank M first in one direction and then in the other, and a reciprocating motion is consequently communicated to the piston E in the tube B. As the piston ascends a vacuum is produced in the tube B below the piston, and the valve D in the bottom of B opens, and the tube below the pistons becomes filled with oil. As the piston descends the valve D closes, of course, and the valve F at the bottom of the piston opens, the oil passing therein and filling the piston. As the piston again ascends the valve F closes and oil again drawn into the lower part of the tube B. At each descent of the piston oil passes into it, and consequently will be raised and discharged through the spout or nozzle I. Apertures *e* are made in the upper part of the tube B to admit of the escape of air. By this arrangement the oil may be raised by a very slight expenditure of power, as the piston is counterpoised, or nearly so, and but little friction is to be overcome, as the piston is kept well lubricated in consequence of oil passing through the opening *b* into the central groove *a*, from which it finds its way into the other grooves *a*, where it lodges and keeps the piston well lubricated.

It is believed that one horse-power applied to a pump of this kind will raise a large quantity of oil within a given time.

I claim as new and desire to secure by Letters Patent—

1. The hollow or tubular piston E within the cylinder B, and provided with a tubular piston-rod G, and having a valve F in its lower end opening upward, the said cylinder B being provided with a valve D at its lower end, all arranged to operate in the manner substantially as set forth.

2. The series of grooves *a*, made circumferentially in the exterior of the piston, and communicating with the interior of the piston by one or more openings, *b*, substantially as described.

BENJ. FRAZEE.

Witnesses:

M. M. LIVINGSTON,

C. L. TOPLIFF.