

UNITED STATES PATENT OFFICE.

MONTROSE GOTHAM, OF CENTREVILLE, PENNSYLVANIA.

MODE OF OPERATING OIL-WELLS.

SPECIFICATION forming part of Letters Patent No. 344,266, dated June 22, 1886.

Application filed April 6, 1886. Serial No. 198,005. (No specimens.)

To all whom it may concern:

Be it known that I, MONTROSE GOTHAM, of Centreville, Pennsylvania, have invented a certain new and useful Improvement in the
5 Mode of Operating Oil-Wells, of which the following is a specification.

My invention has reference to the art or mode of operating that class of oil-wells which may be termed "non-flowing" wells, or wells
10 which require the use of some extraneous mechanism or instrumentality for the purpose of ejecting, lifting, or forcing the liquid therefrom. In such wells the lifting or ejecting of the oil has been effected hitherto, so far as I
15 am informed, by means either of a lifting-pump or of air or other gaseous fluid forced into the well under high pressure through the instrumentality of a suitable air-pump or ejector worked by an engine and acting to
20 drive the liquid out from the well. In all cases of which I have knowledge the lifting or ejecting instrumentality, in order to operate, has required to be actuated by some prime mover, necessitating the employment of a steam boiler
25 and engine, or their equivalent.

The object I have in view is to avoid the use of boiler and engine or other machines and apparatus of a similar character for the purpose above named, with a view to both
30 economy, simplicity, and ease of operation.

In lieu of relying upon artificial power or upon compressing agencies actuated by engines or machinery driven by power, I make use of natural gas, such as is now found at
35 many points in the oil regions, taken at the pressure at which it issues from the earth, (which pressure in many instances is six-hundred pounds to the square inch and upward,) and supplied to the oil-well which it is desired
40 to "flow" through piping which discharges the gas into the well at the point deemed most suitable or desirable for the purpose of effecting the lifting or ejecting of the oil. The natural pressure of the gas suffices for the purpose. All that is needed is to connect the gas-
45 well with the oil-well by piping, (controlled of course by suitable throttle,) through which the gas under its natural pressure is discharged into the oil-well at the oil-bearing point or at
50 any other suitable point where it will act to force or carry the oil up through the "flowing-tube" and discharge it from the well. In this way I avoid the expense and trouble of all machinery such as has heretofore been em-

ployed in this connection for lifting, compress- 55
ing, and ejecting purposes, and I furnish to the oil-well that natural agent at natural pressure which converts the well into a flowing-well.

In carrying out my invention no special 60
change in the construction of the oil-well itself is required. That well may consist, as heretofore, of a casing and a central flowing-tube, and also a packing or "packer" between the
65 two, if desired. The supply-pipe leading from the natural-gas well may open upwardly into the lower end of the tube, something after the fashion of an injector or ejector nozzle, so as to discharge the gas upwardly through the tube,
70 with the effect of lifting and ejecting a stream of mingled gas and oil; or the gas may be introduced into the casing below the packer, or the packer may be dispensed with. A tight casing-head may be provided, and the
75 gas-pipe may open into the casing itself, so that the gas by its pressure shall force the oil down the casing and thence up through the central flowing-pipe; or, in lieu of conducting the natural gas directly to the well to be flowed,
80 I can interpose between the two wells—the gas and the oil well—one or more gasometers, connected on the one hand with the gas-well and on the other hand with the oil well or wells. These are but few of the many arrangements
85 that may be employed. I do not of course restrict myself to any special one of them, believing myself to be the first to have artificially introduced natural gas under its natural pressure into an oil-well, and there used it as the
90 agent whereby the oil is expelled or ejected from said well.

What, therefore, I claim as new and of my own invention is—

The mode herein described of operating oil-wells, the same consisting in connecting the 95
oil-well with a natural-gas well by means of piping, through which the gas from the gas-well, under its natural head or pressure, is supplied and introduced into the oil-well at the point appropriate to effect the lifting, forcing, or ejecting therefrom of the liquid, sub-
100 stantially as hereinbefore set forth.

In testimony whereof I have hereunto set my hand this 5th day of April, 1886.

MONTROSE GOTHAM.

Witnesses:

MARVIN A. CUSTIS,
MARCELLUS BAILEY.