No. 649,326. Patented May 8, 1900.

L. LOSURE.

MEANS FOR EXPELLING FLUIDS FROM GAS OR OIL WELLS.

(Application filed Aug. 7, 1899.)

(No Model.)

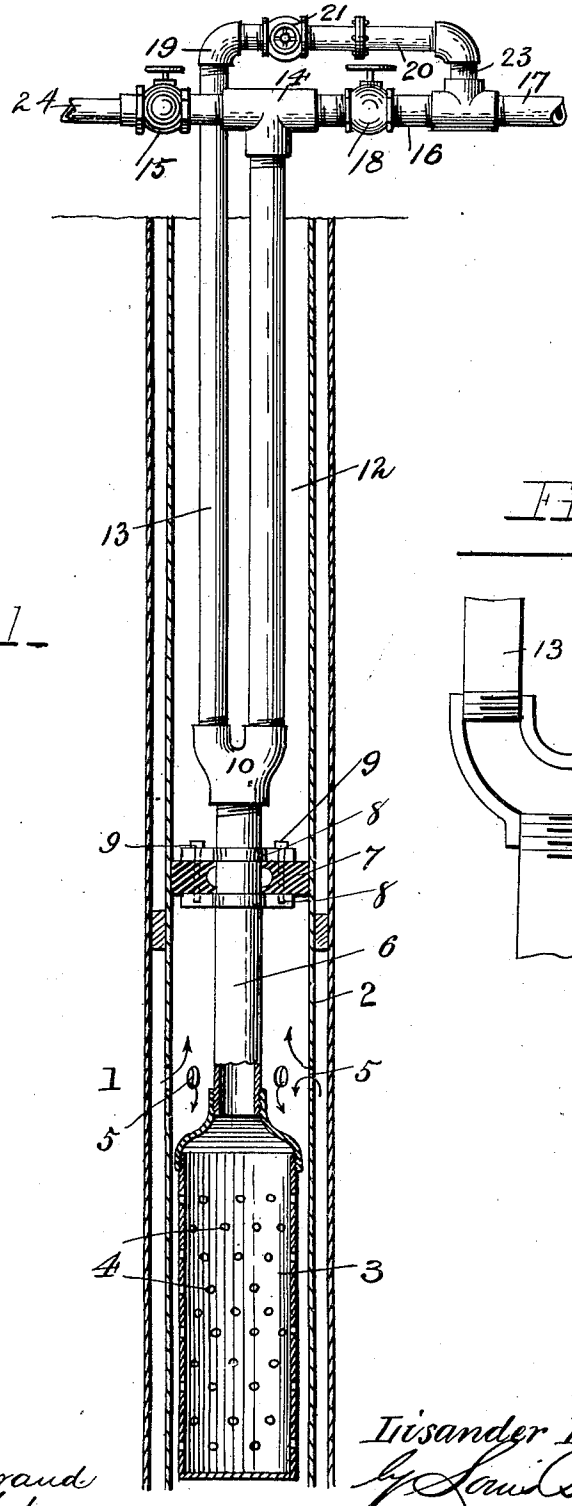
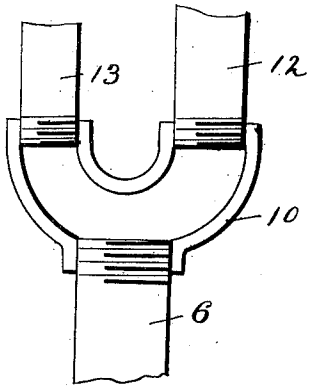


Fig. 1.

Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

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MEANS FOR EXPELLING FLUIDS FROM GAS OR OIL WELLS.

SPECIFICATION forming part of Letters Patent No. 649,326, dated May 8, 1900.

Application filed August 7, 1899. Serial No. 726,436. (No model.)

To all whom it may concern:

Be it known that I, LISANDER LOSURE, a citizen of the United States, residing at Van Buren, in the county of Grant and State of Indiana, have invented new and useful Improvements in Means for Expelling Fluids from Gas or Oil Wells, of which the following is a specification.

My invention relates to means for expelling fluids from gas and oil wells. To those familiar with the art to which the invention pertains it is well known that frequently fluid accumulates in the wells in such quantities that the gas-pressure is not sufficient to expel the same, thus rendering the well useless as a gas or oil producer.

The object of my invention is to provide improved means by which should too much fluid accumulate or the gas-pressure be so reduced as not to be able to expel the fluid the pressure can be increased or the amount of water to be expelled be reduced, so that the well will be kept in working order.

The invention consists in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 represents a central longitudinal section of a gas or oil well provided with my improvements. Fig. 2 is a central vertical section through the three-way coupling.

In the said drawings the reference-numeral 1 designates an ordinary oil or gas well, located in which is the vertical outer or well tube 2. Located in this tube at the lower end thereof or at the gas or oil bearing strata is a screen 3, closed at the bottom and formed with a number of perforations 4. The said tube 2 is also provided with perforations 5, which communicate with the space between the tube and the side of the well. Connected with said screen is a vertical pipe 6, provided near the upper end with a packing 7, consisting of a rubber disk interposed between the said pipe and the pipe 2. The inner side of this disk is concaved and at each end is a collar 8, connected with the disk by screw-bolts 9, which pass through the upper collar and engage with screw-threaded holes in the lower collar. These bolts hold the collar and disks in place in placing in and taking out of the well, and the holes through which they pass are a fraction larger than the bolts, so as to allow the disk to expand and make a tight joint. Secured to the upper end of the pipe 6 is a T-coupling 10, which serves as a deflector and to which are secured two vertical pipes 12 and 13, which extend up above the top of the well. One of these pipes, 12, should be somewhat larger in diameter than the pipe 13 and at its upper end is provided with a T-coupling 14, open at one end and provided with a gate or valve 15 and the other end connected by a pipe 16 with a delivery-pipe 17. This pipe is provided with a gate or valve 18 for opening and closing communication with the delivery-pipe. At the upper end of pipe 13 is an L-coupling 19, with which is connected a pipe 20, provided with a gate or valve 21, which latter pipe is connected by a pipe 23 with said delivery-pipe.

The operation is as follows: In case the pressure in the well is sufficient to overcome the weight of the water or other fluid therein then the two gates or valves will be opened and the fluid will be expelled through both pipes 12 and 13 to the delivery-pipe; but should the pressure be so reduced that it is insufficient to expel the fluid through both pipes then the gate or valve 18 is closed, so that the fluid will be expelled through pipe 13, as there will be a smaller volume of fluid to be raised or elevated than when both gates or valves are opened, thus concentrating, as it were, the full gas-pressure on the pipe 13. Should the pressure in the well be still further reduced, so that it will not expel the fluid from said pipe 13, then air or other pressure is forced through the open end of pipe 12, which will force the fluid in the well up through said pipe 13, and thus relieve the screen from the weight thereof and allow the well-pressure to expel what fluid is not expelled by the artificial pressure. The revival of the gas-pressure may thus become sufficient to expel all the fluid without artificial pressure. The valve 15 is always closed except when expelling the fluid by the artificial pressure.

In cases where there is but a slight pressure of gas in the well and where the water is of sufficient depth to interfere with the exit of the gas I lower my apparatus in the well and the water will rise in the pipes 12 and 13 and around these pipes in the casing. Now artificial pressure is applied through pipe 25 to pipe 12, and when the pressure reaches the water in said pipe it forces it down through coupling 10 and deflects it up pipe 13 and out through delivery-pipe 16, valve 15 being closed. When pipes 12 and 13 have been cleared of water, the agitation of the water and the suction created through pipe 13 are sufficient to relieve the pressure of the gas below the packing and cause it to continue to flow out of pipe 13, and if sufficient head or pressure has been established the artificial pressure may be discontinued, valve 15 may be opened, and the gas will flow out through both pipes 12 and 13. It will be understood that the artificial pressure applied through pipe 12 is deflected in the coupling 10 up the pipe 13, and when the water is started up said pipe the action of both an ejector and a suction-pump is established, and thus is continued until either the gas-pressure is sufficient or the quantity of water in the well has been reduced, so as not to materially interfere with the exit of the gas.

Having thus fully described my invention, what I claim is—

The combination with a gas or oil well, of the outer tube having a series of perforations near the lower end, the screen located in said tube and also formed with perforations, the vertical pipe connected with said screen provided with a packing having a concave inner side and top and bottom collars, the deflector-coupling at the upper end of said vertical pipe, the vertical pipes connected therewith, one of which is provided with a T-coupling having a gate or valve at one end and the other end provided with a pipe connected with a delivery-pipe, and provided with a gate or valve, and the other vertical pipe provided with an L-coupling and connected with said delivery-pipe, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

LISANDER LOSURE.

Witnesses:
V. C. QUICK,
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