J. D. DINSMOOR.

METHOD AND APPARATUS FOR PUMPING OIL WELLS.

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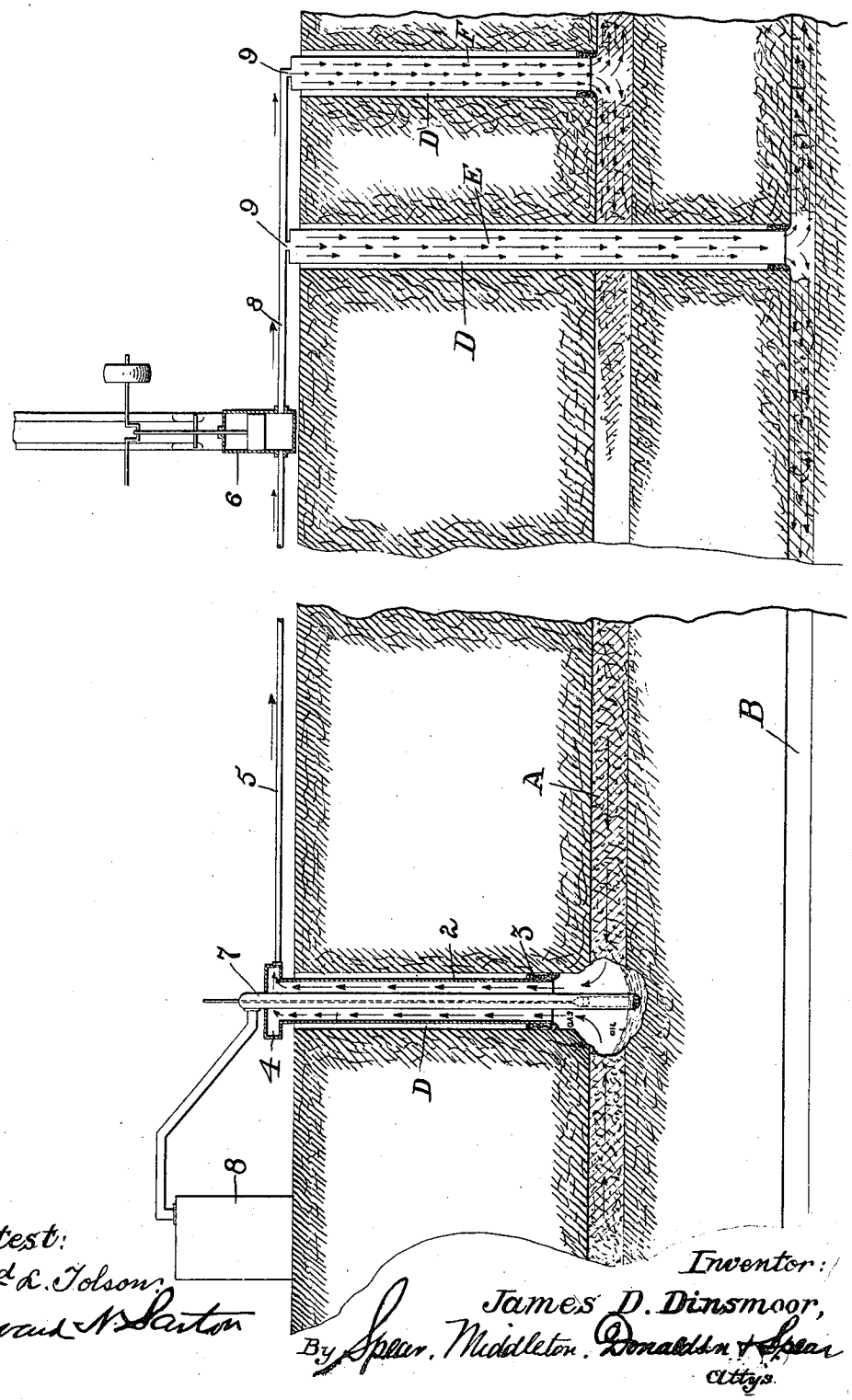
962,009. **Patented June 21, 1910.**



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UNITED STATES PATENT OFFICE.

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METHOD AND APPARATUS FOR PUMPING OIL-WELLS.

962,009. Specification of Letters Patent. Patented June 21, 1910.

Application filed July 23, 1909. Serial No. 509,089.

To all whom it may concern:

Be it known that I, JAMES D. DINSMOOR, a citizen of the United States, residing at St. Marys, West Virginia, have invented certain new and useful Improvements in Methods and Apparatus for Pumping Oil-Wells, of which the following is a specification.

My invention relates to the extraction of oil and other products, from oil wells, and the conservation of the vapors and gases, which are found with the oil, and is an improvement in the art and apparatus therefor.

It is known that the vapors and gases, which are found with the oil tend, to a greater extent in the deeper wells, to obstruct the flow of the oil, unless these vapors and gases are permitted freely to escape. This escape, however, involves a loss of the vapors and gases.

The object of my invention is first to remove the vapors and gases, so that the oil may be freely and fully pumped; and in the second place, to conserve the vapors and gases, so that they may be utilized; and finally and coincidentally with the securing of the second object, I save other elements of the oil left in the pumping, in the stratum from which the oil is drawn.

While I do not confine myself to any special form of apparatus, I have shown, in the accompanying drawing, in diagrammatic form, an apparatus in place, well adapted to carry out my methods, which constitute the main part of my invention.

In this drawing, A represents an upper, and B a lower stratum of oil bearing material, such as sand rock or shale. The boring or well is indicated at D. In this is placed a large pipe 2, extending near to the bottom of the well, and having a gastight packing 3 at its lower end on the outside, so that the gases or vapors, rising from the stratum (A for example) into which the well opens, will all be directed into the large pipe 2. The upper end of this pipe opens into a gastight box 4, from which extends a pipe 5, to a pump 6, whereby the gases and vapors are exhausted from the well, and the oil, having been freed from the obstruction of the column of such gases and vapors, is freely pumped by means of any ordinary pump 7 to its tank 8, the pump 7 passing centrally with gastight joints through the box and large pipe 2.

It will be observed that the pipe of the pump 7 extends into the cavity below the mouth of the gas pipe D, so that the oil, by its greater specific gravity, is below the gas exit, and free therefrom. The oil pump and the gas and vapor pump work independently and draw from different points, the one from the point of communication with the vapors and gases, and the other from that of the oil.

It is also known that many wells in the same neighborhood, are exhausted, while others continue to flow. These empty wells, and the strata with which they communicate, I utilize for the conservation of the gases pumped from flowing wells. Such empty wells are shown at E and F, one in stratum A, and the other in stratum B. In these I place respectively, the large gas pipes such as that shown at 2, constructed and packed in place in the way above described. To these pipes are extended from the forcing side of the pump, a pipe 8, with branches 9, whereby the gases or vapors, drawn from the active well, are forced into the stratum or strata, which had been exhausted, and thus, without material expense, these gases and vapors, are conserved, and may be retained indefinitely, for subsequent use. I find also, that the gases and vapors, thus forced into the exhausted well, and its connected stratum, find therein residue such as benzin, naphtha, and gasolene, and these the vapor or gas takes up, so that upon pumping them out these residual elements are saved, since they may be thus easily recovered.

I claim:—

The apparatus herein described consisting of a gas or vapor pipe in connection with the oil and gas strata, an oil pipe extending below the end of the gas pipe, a pumping device for the oil, a gas discharging pipe leading to an independent exhausted oil or gas strata, and an intermediate pipe line between the gas pipe of the active well and the discharge pipe of the abandoned well, with means for forcing the gas into the abandoned well, substantially as described.

In testimony whereof, I affix my signature in presence of two witnesses.

JAMES D. DINSMOOR.

Witnesses:
HENRY E. COOPER,
WALTER DONALDSON.