

UNITED STATES PATENT OFFICE.

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PROCESS OF INCREASING THE QUALITY AND VOLUME OF OIL IN WELLS AND REMOVING THE OIL THEREFROM.

1,415,552.

Specification of Letters Patent.

Patented May 9, 1922.

No Drawing.

Application filed March 10, 1922. Serial No. 542,789.

To all whom it may concern:

Be it known that I, ELMER C. HALLMARK, a citizen of the United States, residing at Mission, in the county of Hidalgo, and State of Texas, have invented certain new and useful Improvements in Processes of Increasing the Quality and Volume of Oil in Wells and Removing the Oil Therefrom, of which the following is a specification.

This invention relates to means for delivering oil from wells and more especially it has particular reference to a method or process for the production of a higher grade of oil from a well than is possible by the usual pumping methods.

The process has for its object to so combine the gas produced by the well with the oil therein as to produce a better quality of oil, such combining or blending process at the same time elevating the oil to the surface of the well.

To place this invention in practical and efficient operating service, information is first obtained relative to the characteristics of the oil well, viz: its depth; flow, or deep-well pump production, or height oil stands in well if not producing; gas pressure at closed casing head; specific gravity of oil; volume and character of gas produced, such information being readily obtainable by common field methods.

After the well characteristics are obtained the gas in the well is trapped and utilized by means of a device forming a separate invention and filed of even date herewith No. 542,778 and wherein the gas is allowed to accumulate to obtain pressure and then compelled by such pressure to blend with and be absorbed by the oil while being elevated to the top of the well. During this process the oil occludes or absorbs a part of the gas because the chemical composition of each is the same as the other, and the resulting oil product is of superior quality. The gas being in the same chemical series as the oil will blend and combine with it and produce a superior grade of oil dependent upon the grade of oil already in the well, and the possible variations of the apparatus to meet the requirements of the well. These varia-

tions include changing the size or number of the ports through which the gas passes for the purpose of effecting contact of the proper volume of gas with the amount of oil entering into the well, and by regulating the pressure of the gas, the speed of travel of the mixture of gas and oil to the delivery point may be governed so as to maintain the gas and oil in contact throughout the necessary period of time to allow absorption of the gasoline content of the gas by the oil which the initial analysis determines as to the grade of the oil and the gasoline content of the gas.

In the actual working of the process a constant and uniformly continuous flow of the gas and oil from the well is obtained, thus securing a grade of oil which is uniform both as to gravity and marketability, as distinguished from those instances in which the oil is produced by inconstant flow or as more generally termed "heads", which latter instances have been found to completely destroy the uniformity of both the flow and the grade of oil produced.

Briefly, it may be said that the process is that of absorbing the light members of the paraffine series of hydrocarbons by the heavier members, with resulting improvements in quality of the heavier, and at the same time elevating the oil in its improved condition out of the well.

What is claimed is—

A process for improving the quality and grade of oil prior to the final delivery thereof from the well, which consists in first mixing at the initial point of contact between the oil and gas the proper proportions of each and in such manner so as to cause the oil to absorb a portion of the gasoline contained in the gas, then in conveying the gas and oil while confined in contact to the point of final delivery from the well at a predetermined speed of travel of the gas and oil to said delivery point in accordance with the grade of the oil and the gasoline content of the gas.

In testimony whereof I have signed my name to this specification.

ELMER C. HALLMARK.