

UNITED STATES PATENT OFFICE.

BEN K. STROUD, OF LOS ANGELES, CALIFORNIA.

APPLICATION OF MUD-LADEN FLUIDS TO OIL OR GAS WELLS.

No Drawing. Application filed April 6, 1923, Serial No. 630,399. Renewed December 16, 1925.

To all whom it may concern:

Be it known that I, BEN K. STROUD, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in an Application of Mud-Laden Fluids to Oil or Gas Wells, of which the following is a specification.

This invention relates to oil, gas and water wells and the primary object of the invention is the provision of means for controlling the flow of gas, oil and water under pressure from the well and for sealing up the interstices in the sides of a well.

Heretofore muds made from the shales and clays encountered in drilling have been used for the above purpose, but these muds have been found ineffective due to their light specific gravity and thus the same have not sufficient body to resist pressure placed upon the same and will not penetrate or control heavy flows of oil, water or gas.

Further, such muds or fluids are usually mixed to a thick consistency as possible in order to have a maximum weight in column for the better control of the oil, gas or water flow. Now by reason of such lack of weight as well as because thickness of such oil filled mud, the same becomes gas cut i. e. the gas becomes intimately mixed with the fluid with the result that the mud or fluid column in the well is dispelled and the flow of gas becomes uncontrollable. Uncontrolled or wild wells are wasteful and dangerous to both life and property and it is therefore the prime object of the invention to provide a fluid which will have sufficient body for effectively filling up the interstices in a well and for effectively controlling the flow of gas and oil in a well.

It is another prime object of the invention to provide an improved compound consisting of iron oxide, barium sulphate, lead concentrate and mercury or quick silver for effectively controlling the flow of oil and gas in a well and which will penetrate and seal dangerous flows of liquid, particularly when the same is accompanied by quantities of gas in the sides of the well without interfering with the drilling process.

A further object of the invention is to provide an improved mud laden fluid formed of the above materials which will penetrate and seal up porous formations commonly

encountered in the drilling of oil, gas or water wells in such a manner as to prevent their caving in or obstructing the passage of the drilling tools, the compound being of such specific gravity and fineness as to withstand all internal pressure and eliminate the inconveniences caused by all known mud laden fluids.

With these and other objects in view, the invention consists in the provision of the improved compound consisting of iron oxide, barium sulphate, lead concentrate and mercury mixed in the desired proportion and quantities according to the character of the well being bored. Iron oxide is especially suitable because it has a high specific gravity; accordingly by forming a mud of this material a mud-laden fluid of a specific gravity considerably in excess of that of ordinary mud-laden fluids can readily be obtained, while the viscosity can still be kept low enough to permit it to be readily employed in the well and without becoming gas-cut. The specific gravity of ordinary mud-laden fluid can also be increased by the addition of iron oxide thereto and a mud-laden fluid can be obtained whose viscosity is as required; the iron oxide is accordingly suspended in the earthy suspension.

The employment of barium sulphate or barytes as a base of a mud-laden fluid is not claimed herein but is claimed in my application Serial Number 756,624, filed December 17, 1924 in which the subject-matter disclosed herein is also broadly claimed.

The improved compound is introduced into the well casing and circulated through the well in the ordinary manner as in the usual practice of forcing water and the ordinary muds through the well, and the compound will effectively seal up the sides of the well as heretofore brought out and effectively prevent the blowing out of the oil or gas.

Changes in details may be made without departing from the spirit or the scope of this invention.

What I claim as new is:

1. The method of solidifying soil in oil wells and other shafts consisting of introducing a mud laden fluid containing mercury into the well or shaft.
2. The method of solidifying soil in oil wells and for preventing the blowing out of

gas and oil in wells consisting of introducing a column of liquid containing mercury and lead concentrate in the well.

3. The method of solidifying soil in an oil well and for preventing the blowing out of gas and oil from the well consisting of introducing a fluid formed of barium sulphate, iron oxide, lead concentrate and mercury into the well.

4. A compound adapted for use in oil wells comprising iron oxide, barium sulphate, lead concentrates and mercury.

5. A mud laden fluid for oil or gas wells comprising iron oxide in suspension.

6. In the art of boring or controlling oil

or gas wells, the process comprising introducing into the well iron oxide in suspension.

7. A mud-laden fluid for oil or gas wells comprising iron oxide suspended in an earthy suspensoid.

8. In the art of boring or controlling oil or gas wells, the process comprising introducing into the well a mud-laden fluid and controlling the density of the fluid by the addition of iron oxide.

In testimony whereof I affix my signature.

BEN K. STROUD.

Certificate of Correction.

It is hereby certified that Letters Patent No. 1,575,944, granted March 9, 1926, upon the application of Ben K. Stroud, of Los Angeles, California, for an improvement in "Application of Mud-Laden Fluids to Oil or Gas Wells," were erroneously issued to the inventor, said "Stroud," whereas said Letters Patent should have been issued to *National Pigments & Chemical Company, of St. Louis, Missouri, a corporation of Missouri*, said corporation, being assignee of the entire interest in said invention, as shown by the records of assignments in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 13th day of April, A. D. 1926.

[SEAL.]

M. J. MOORE,
Acting Commissioner of Patents.