

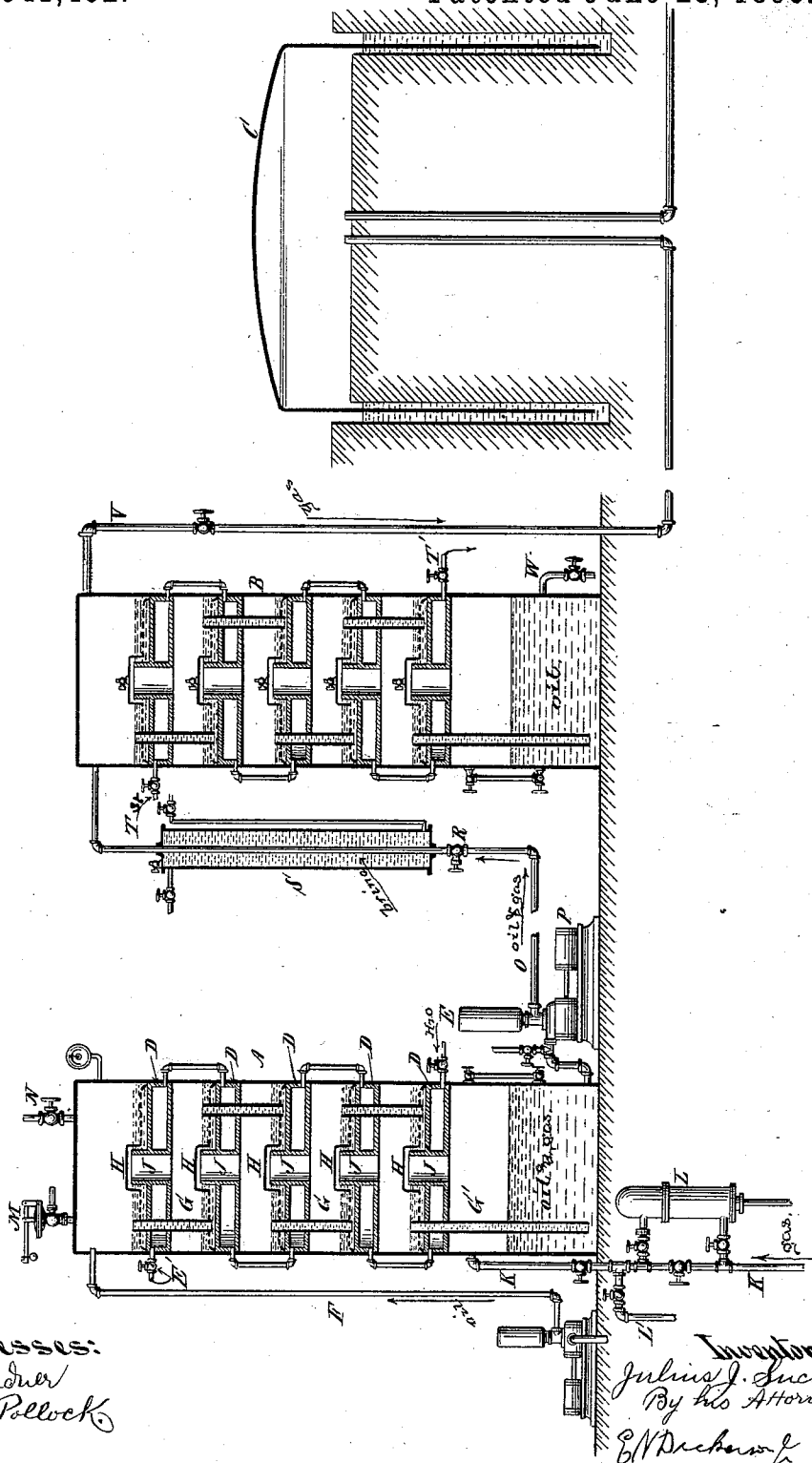
(No Model.)

J. J. SUCKERT.

PROCESS OF SIMULTANEOUSLY TRANSMITTING OIL AND GAS.

No. 541,462.

Patented June 25, 1895.



THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JULIUS J. SUCKERT, OF RIDGEWOOD, NEW JERSEY, ASSIGNOR TO HIMSELF,
AND EDWARD N. DICKERSON, JR., OF NEW YORK, N. Y.

PROCESS OF SIMULTANEOUSLY TRANSMITTING OIL AND GAS.

SPECIFICATION forming part of Letters Patent No. 541,462, dated June 25, 1895.

Application filed March 31, 1888. Serial No. 269,169. (No specimens.)

To all whom it may concern:

Be it known that I, JULIUS J. SUCKERT, of Ridgewood, Bergen county, New Jersey, have invented a new and useful Process of Simultaneously Transmitting Oil and a Combustible Gas from Place to Place, of which the following is a full, true, and exact description, reference being had to the accompanying drawing.

My invention is designed to transfer the combustible gas and oil from the gas and oil fields to the centers of consumption, utilizing therefor the present pipe lines.

In carrying out my invention I make use of two laws of nature, the first of which is that liquids absorb and carry considerable volumes of gas without materially increasing the cubic contents of the liquid; and the second is that the amount of gas which can be occluded or dissolved in a liquid depends upon the heat and pressure. It is likewise generally true that when a gas has been generated from or in connection with a liquid, such liquid possesses the capacity of occluding exceptionally large volumes of gas. For instance, petroleum has a capacity of occluding many volumes of such natural gas as is found in conjunction with petroleum. The present pipe lines, it is well known, are operated under great pressure,—at times as much as fifteen hundred pounds to the square inch, and are generally constructed to stand high pressures, and are therefore peculiarly adapted to the practice of my invention.

In a general way my invention consists in mechanically occluding a gas within petroleum oil preferably by the aid of artificial pressure and cold, in transmitting the liquid in conjunction with the gas through a pipe under pressure, and in separating the gas from the liquid at the point of use by releasing the pressure, and preferably by the aid of heat.

It is obvious that my invention can be carried out by many apparatuses, but I have shown one applicable to the purpose I have in view and which is simple and easily managed.

My drawing represents a view mostly in section of a transmitting and a receiving end of my system and part of the intermediate pipe connection. At the transmitting end I ar-

range what I call my occluder A, which consists of a cylinder preferably of considerable height, through which the gas and oil are to pass together and to be simultaneously cooled. The occluder A is provided with a number of hollow shelves D, fed preferably with cold water through the pipe E delivering at the pipe E'. Upon these cooled shelves the oil temporarily rests as it passes downward through the occluder. The oil is fed to the top of the occluder through a pipe F by a pump or similar mechanism. It falls upon the top shelf and there rises to the height of the over-flow G which delivers upon the next shelf below. Upon the top of each shelf is the cap H which is pierced with holes over the shelf, as shown. Through each shelf passes the opening J delivering beneath the cap H. The lowest over-flow G' delivers near the bottom of the occluder. The gas to be occluded enters through the pipe K and is preferably pumped in by the pump L at the required pressure. Under some circumstances the pressure of the natural gas may be sufficient without a pump, when suitable connections shown at L' may be employed. Passing into the apparatus through K the gas passes upward through the pipes J beneath the caps H, and thence through the perforations and through the oil lying upon the shelves. The pressure both of the oil as it is forced in by its pump and of the gas should be as great as or greater than the pressure to be carried in the pipe line. The gas as it passes through the cooled oil upward is gradually absorbed. Should any remain unabsorbed at the top of the apparatus it will pass off through the automatic release valve M. The blow off N is provided for freeing the apparatus of air in starting the operation. The oil at the bottom of the apparatus charged with its quota of gas is forced through the pipe line O by a pump or series of pumps P to the separating station B. Arriving at the reducing valve R its pressure is reduced. Thereby the gas escapes from the oil and produces cold. This cold may be utilized by causing the pipe carrying the expanding gas to pass through a brine vessel shown at S, or through other suitable mechanism. The partly separated gas and oil arrive then at the separator B which is substantially identical in construction with

the occluder A. In this apparatus, however, the shelves are heated, preferably by steam entering through the pipe T and passing out by the pipe T'. As the pressure is reduced 5 and the oil is warmed, the gas leaves it and passes upward aiding in warming the incoming oil, escaping finally at the top of the apparatus through the pipe V, and thence to the gas holder C. The oil itself is withdrawn 10 through the pipe W.

Suitable liquid and pressure gages are provided which need not be described in detail.

What I claim as my invention, and desire to secure by Letters Patent, is—

15 1. The process herein described which consists in forcing petroleum and combustible gas into a cooled chamber, in pumping the petroleum and occluded gas through a pipe to a separating chamber, in reducing the pressure at said separating chamber, and in separately withdrawing the petroleum and gas 20 therefrom, substantially as described.

2. The process herein described which consists in forcing petroleum and combustible 25 gas into a cooled chamber, in pumping the petroleum and occluded gas through a pipe

to a separating chamber, in reducing the pressure at said separating chamber which is artificially heated, and in separately withdrawing the petroleum and gas therefrom, substantially as described. 30

3. The process herein described which consists in forcing together, under pressure, combustible gas and petroleum in a mingling chamber, in forcing the petroleum and occluded gas through a pipe, reducing the pressure of the petroleum and gas, whereby the subsequent separation of the gas and petroleum is facilitated, and the cold thereby produced may be utilized for refrigerating purposes, delivering the petroleum and gas into a separating chamber, and in separately withdrawing the petroleum and gas therefrom, substantially as described. 35 40

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 45

JULIUS J. SUCKERT.

Witnesses:

ANTHONY GREF,
H. COUTANT.