No. 809,806. PATENTED JAN. 9, 1906.

R. J. HOFFMAN.

METHOD OF PRODUCING OIL FROM OIL WELLS.

APPLICATION FILED APR. 17, 1905.

Fig. 1

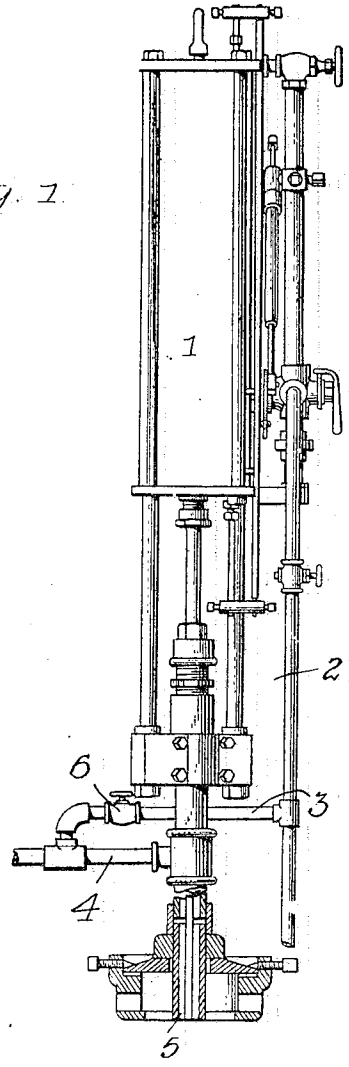
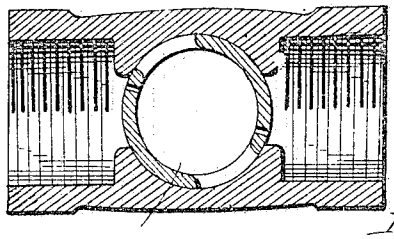


Fig 2



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METHOD OF PRODUCING OIL FROM OIL-WELLS.

No. 809,806. Specification of Letters Patent. Patented Jan. 9, 1906.

Application filed April 17, 1905. Serial No. 256,148.

To all whom it may concern:

Be it known that I, Ross J. HOFFMAN, a citizen of the United States, residing at Bradford, Pennsylvania, have invented certain new and useful Improvements in Methods of Producing Oil from Oil-Wells, of which the following is a specification.

My invention relates to the production of oil from oil-wells, and particularly to a method for preventing the escape of gas through the pipes as the oil is delivered or from the tank or other holder.

It is the object of my invention to condense this gas, preferably before it reaches the tank or place of delivery, and thus avoid the waste and loss now attending the operation of oil-wells, the condensation of the gas resulting in a greater yield of oil.

I have found that in pumping oil-wells a large amount of gas passes off with the oil and that it is possible to liquefy this gas, and thus recover the same in the form of oil.

I have shown my method as carried out in the best way now known to me; but I do not wish to limit myself to the specific features of my method except as hereinafter made clear by the claims appended hereto.

The invention consists in the features hereinafter described, and particularly pointed out in the claims.

For carrying out my method I employ compressed air, and in order to apply this certain mechanical appliances are necessary in carrying out my method.

The accompanying drawings show in Figure 1 an oil-pump in the position assumed by it when connected with a well and in operation. Fig. 2 is a sectional view of the valve.

The form of pump which I have shown for convenience is the same as that described in Letters Patent of the United States No. 773,501, granted October 25, 1904, to myself and E. H. Hollingshead. This pump 1 is arranged axially over the well and supported on the stand-pipe thereof. It is operated by compressed air, which is delivered thereto through a pipe 2, the pump being double-acting, and therefore being operated in both directions positively by means of the compressed air.

As before stated, a large quantity of gas is pumped off from the well, which, being allowed heretofore to escape, resulted in a great loss. I have discovered that by the aid of compressed air suitably applied this gas can be condensed, and thus recovered in the form of oil, and in applying this compressed air I find it most convenient to tap the same supply which furnishes power to the pump for driving the same. In the drawings I show a branch pipe 3, leading from the compressed-air pipe 2 to the pipe 4, which connects with the stand-pipe 5 and serves to convey the oil to the point of delivery. The introduction of the compressed air causes a lowering of the temperature in the discharge-pipe, due to the expansion of the air, the pressure within the pipe being less than the pressure of the air introduced from the compressed-air pipe. The effect of the compressed air, therefore, is, by reducing the temperature, to cause a condensation of the gas passing off with the oil, so that the yield of oil will be materially increased. In order to control the inlet of the compressed air to the oil-delivery pipe, a cock is used at 6 in the branch pipe. This cock is of ordinary form, having a rotary plug. This plug has formed therethrough a small aperture adapted in size to allow only the proper volume of compressed air to pass into the oil-delivery pipe to effect the liquefaction of the gases within the oil-pipe. The plug may be turned to cut off the compressed air completely or to allow a greater volume of air into the oil-pipe for cleaning it out.

I claim—

1. The herein-described method consisting in introducing compressed air into the oil from the well to thereby condense the gas associated with said oil, substantially as described.

2. The herein-described process of recovering oil from the gas associated with oil discharged from gas-wells consisting in introducing compressed air into the said oil, substantially as described.

3. The herein-described process consisting

in introducing compressed air into the oil-delivery pipe leading from the gas-well, substantially as described.

4. The herein-described process consisting in pumping the oil-well by a compressed-air-driven pump and introducing a part of the compressed-air supply into the oil-delivery pipe, substantially as described.

5. The herein-described method, consisting in pumping the oil from the well and introducing compressed air into the pumped oil to condense the gases, substantially as described.

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

ROSS J. HOFFMAN.

Witnesses:

EDWIN E. TAIT,

KATHARINE BURKE.