No. 626,949. Patented June 13, 1899.

J. B. WHEELER.

DEVICE FOR INCREASING FLOW IN OIL WELLS.

(Application filed Feb. 27, 1899.)

(No Model.)

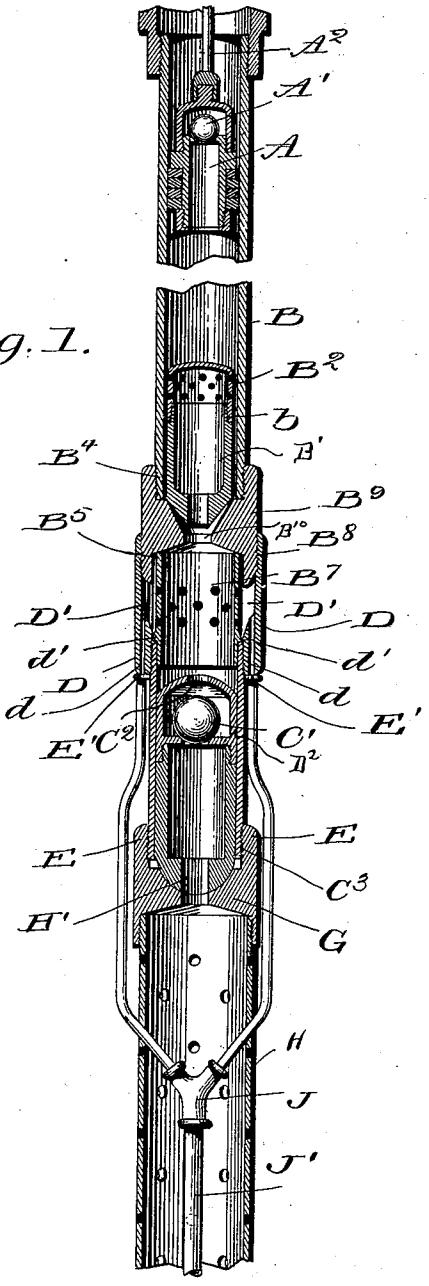


Fig. 1.

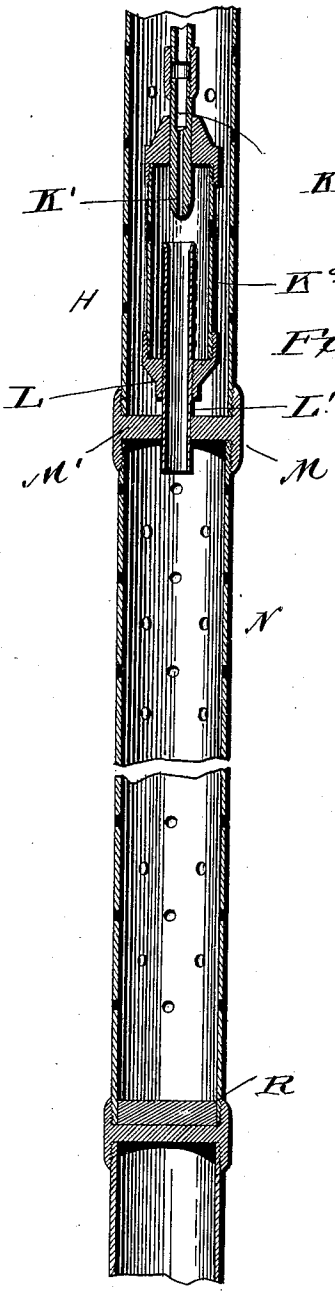


Fig. 2.

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UNITED STATES PATENT OFFICE.

JUDSON BENJIMAN WHEELER, OF MANNINGTON, WEST VIRGINIA.

DEVICE FOR INCREASING FLOW IN OIL-WELLS.

SPECIFICATION forming part of Letters Patent No. 626,949, dated June 13, 1899.

Application filed February 27, 1899. Serial No. 707,062. (No model.)

To all whom it may concern:

Be it known that I, JUDSON BENJIMAN WHEELER, a citizen of the United States, residing at Mannington, in the county of Marion and State of West Virginia, have invented certain new and useful Improvements in Devices for Increasing the Flow in Oil-Wells; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in oil-well apparatus, and especially to means whereby an agitation of oil is caused in the pumping operation, whereby a portion of the oil which is drawn up under the suction of the pump is forced back through leader-pipes and forcibly ejected through the perforated sides of the cylinder and against the wall of the well, whereby the paraffin deposited is washed from the oil-bearing rock, thus clearing the way for the ready flowing of the oil from the strata.

More specifically, the present invention resides in the provision of an apparatus of this nature which has a suction-valve in the barrel, through which the oil is drawn, and the provision of external leader-pipes which allow a portion of the oil to be drawn up by the vacuum formed in the operation of the valve, said leader-pipes conveying the oil around the seated valve in the oil-chamber and coming together and entering the perforated portion of the oil-chamber through a jet, from which the oil is forced out through the perforated lower portion of the spraying-nipple.

To these ends and to such others as the invention may pertain, the same consists, further, in the novel construction, arrangement, and adaptation of parts, as will be hereinafter more fully described and then specifically defined in the appended claims.

My invention is clearly illustrated in the accompanying drawings, in which I have shown, in—

Figure 1, a vertical central section through the upper half of the apparatus, and in Fig. 2 a similar view of the lower section.

Reference now being had to the details of the drawings by letter, A designates the working valve, with suitable ball-valve A′ therein, said valve being connected to the plunger-rod A^2. Said valve works in the barrel B, which has a strainer B^2 fitted over the shouldered portion *b* near the upper end of the member B′. The outer circumference of said barrel B is screw-threaded and engages with the internal threads B^4 of the union B^9, the lower end of said member being tapered and seated on a correspondingly-beveled portion of said union, as illustrated in the drawings. The lower end of said union B^9 is internally threaded to receive the upper threaded end of the cylindrical strainer-tube B^7, while the outer circumference of the lower end of said union B^9 is externally threaded, as at B^8, which latter threaded portion is designed to engage with the internal threads of the union or collar D, thus leaving a space D′ outside of the circumference of said strainer B^7 and between the latter and the inner walls of the union D. The lower end of said strainer-tube B^7 is fitted into the tube D^2, suitable shoulders *d′* being provided on the circumference of the said strainer-tube in order to hold the latter securely in place on the shouldered portion of the tube D^2. Communication is had between the barrel B and the interior of the tube B^7 through the contracted passage-way B^{10}, as clearly illustrated in the drawings. On either side of the lower end of said strainer-tube B^7 are apertures *d* through the solid portion of the collar D, and connected to the lower ends of these apertures on diametrically opposite sides of the strainer-tube are the leader-tubes E, the connections of said leader-tubes to the apertured portion of the collar D being shown at E′. Connected to the lower end of said tube D^2 is the standing valve-chamber C, made up of two portions threaded together and between which is contained the ball-valve C′, seated over an aperture, as shown, the upper portion of said chamber having an aperture C^2 above the ball-valve and through which oil is allowed to pass to the strainer-tube above. The lower end of the under section of the valve-cham-

ber C is externally threaded, as at C^3, and the threads are engaged by the threads of the union G, which has internal threads to engage with the threads of said valve-chamber, and the said valve-chamber communicates with the perforated barrel H through a contracted orifice H′ in the union G, said barrel H being connected to the union G by means of threaded connections, as shown. At any suitable location below the connection between the barrel H and valve-chamber C the two leader-pipes E come together in the Y-shaped union J, each of said leaders passing through the walls of the perforated barrel and merging into the central and downwardly-projecting pipe J′, which has a jet K at its lower end, said jet having shouldered portions in its interior wall and a contracted outlet K′. Surrounding this jet is a cylinder K^2, which has threaded connection with a union carried about the jet, and through this cylinder are perforations. The lower end of said cylinder K^2 has threaded connection with a union or collar L, which carries in its central aperture an open-ended cylinder L′, the upper open end of which cylinder is located, preferably, a slight distance below the lower end of the jet K′, as shown in the drawings. M is a union which is screw-threaded at M′ and connected to the barrel H, and in the apertured solid portion of said union is supported the lower end of said cylinder L′, and to the internal threads at the lower end of said union M is connected a perforated barrel N of similar construction as said barrel H, and at the lower end of said barrel N is a plug R, which is provided to cause the oil which is utilized for the purpose of agitation to be forcibly ejected through the circumferential apertures in said barrel N.

In operation when the valve A is drawn up the suction formed below the said valve will cause the oil to enter the barrel H, through the circumferential apertures therein, and pass up through the valve-chamber C, through the cylindrical strainer, and to follow up through the barrel B. On the downward throw of said valve a large proportion of the oil that has been drawn up by the suction described will pass through the valve A and upward, while a portion of the oil which has passed through the perforations in the circumference of the strainer B^7 will be forced through the leader-tubes E, which pass outside of the valve-chamber C, and the streams of oil passing through the leaders will come together at the union J and be forced downward through the pipe J′, leading to the jet K′, from which the oil is forcibly ejected through into the combining-tube or open-ended cylinder L′ and be forcibly ejected through the apertures in the circumference of the barrel N and against the walls of the oil-bearing rock, which contain the paraffin which is designed to be washed off by the forcible contact of the oil against the same, as will be readily understood.

Having thus described my invention, what I desire to secure by Letters Patent is—

1. In a device for clearing oil-wells, the combination with the barrel and reciprocating valve therein, a cylindrical open-ended strainer, a collar connecting the latter with the lower end of said barrel, a communicating aperture between said barrel and strainer, a union having connection with the lower end of said strainer, and threaded connections with the union connecting the upper end of the strainer with said barrel, a standing valve-chamber connected to the lower end of said strainer, a perforated barrel connected to the lower end of said standing valve-chamber, and communicating therewith, the external leader-pipes having communication between the space D′ about the circumference of said strainer B^7 and the interior of said perforated barrel H, and the said tube with which said pipe connects and the jet-pipe connected thereto and leading to the perforated barrel below, substantially as shown and described.

2. A device for clearing paraffin from oil-producing strata in oil-wells, comprising in combination with the barrel B, the perforated tube B^7, the union D and connections between the latter and barrel B, the valve-chamber within said tube B^7, the perforated cylinder H and union connecting the latter with said valve-chamber, the leader-pipes communicating with ducts in the union D and passing through apertures in the wall of the perforated cylinder, the union connected to the lower ends of the leader-pipes and the pipe J′, the jet-pipe K secured to the union connected to the leader-pipes, the perforated cylinder N and union M connecting same with cylinder H, the open-ended tube L′ mounted in an aperture in the union M, the cylinder K^2 having connections with the jet-pipe and said open-ended tube, and the plug R at the lower end of said cylinder N, as set forth.

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

JUDSON BENJIMAN WHEELER.

Witnesses:
ROY E. LEONARD,
GEORGE TRACH.