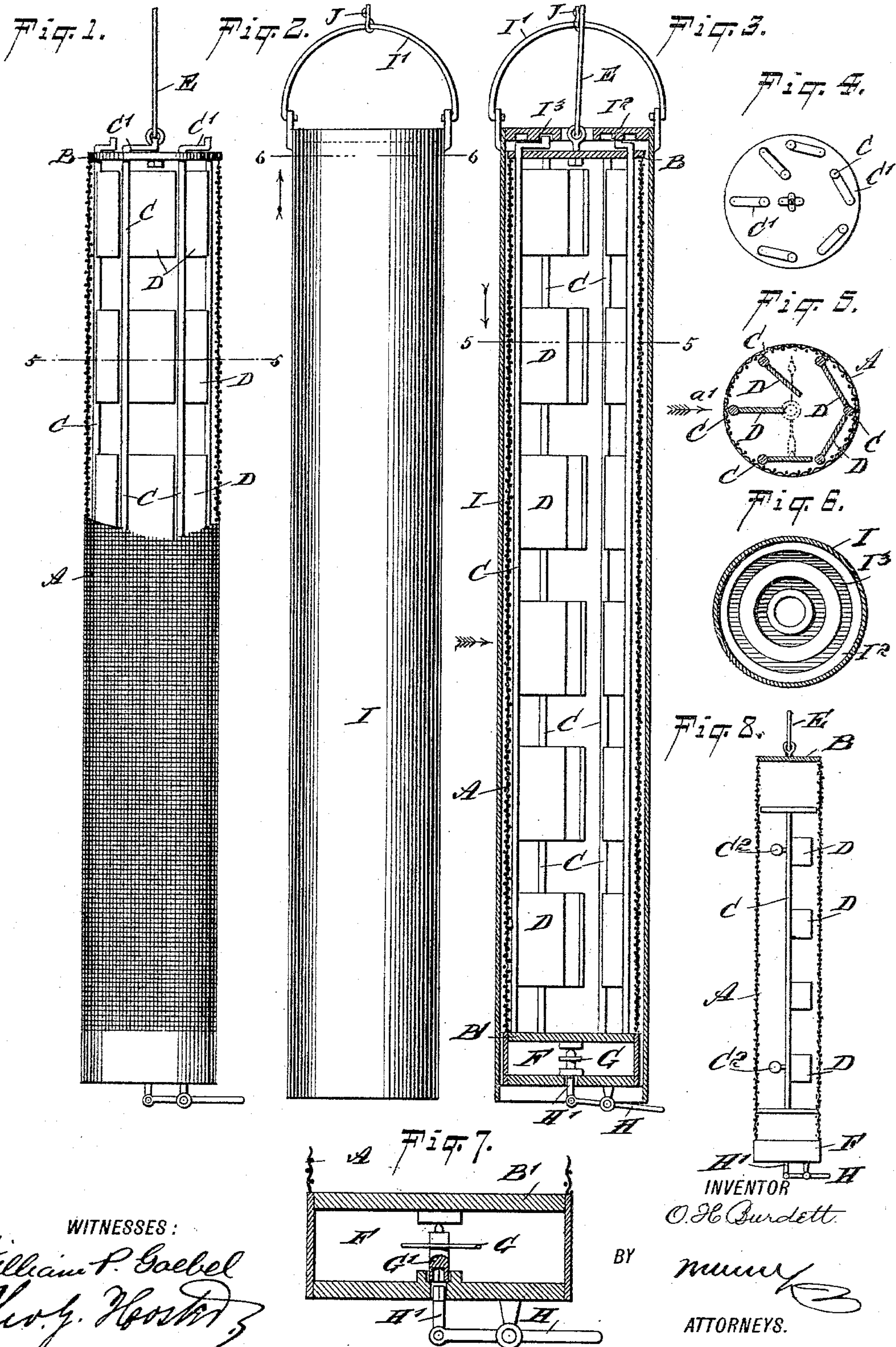


(No Model.)

O. H. BURDETT.  
INDICATOR FOR OIL WELLS.

No. 597,572.

Patented Jan. 18, 1898.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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WILLIAM F. OKEY AND FRANK MOONEY, OF WOODSFIELD, OHIO.

## INDICATOR FOR OIL-WELLS.

SPECIFICATION forming part of Letters Patent No. 597,572, dated January 18, 1898.

Application filed February 6, 1897. Serial No. 622,326. (No model.)

*To all whom it may concern:*

Be it known that I, OLIVER H. BURDETT, of New Athens, in the county of Harrison and State of Ohio, have invented a new and Improved Indicator for Oil-Wells, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved indicator for use in weak oil-wells, and more especially designed to indicate the direction of the oil-pool from the well to enable the operator to drill a second well with great accuracy directly down into the oil-pool.

The invention consists principally of an indicator adapted to be let into and removed from the well and provided with devices for indicating the direction of the flow of the oil to the well.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement with parts in section and the covering-shell removed. Fig. 2 is a side elevation of the covering-shell. Fig. 3 is a sectional side elevation of the improvement with the covering-shell in position. Fig. 4 is a plan view of the indicator. Fig. 5 is a sectional plan view of the same on the line 5 5 of Fig. 1. Fig. 6 is an inverted sectional plan view of the covering-shell on the line 6 6 of Fig. 2. Fig. 7 is an enlarged sectional side elevation of the compass, and Fig. 8 is a reduced sectional side elevation of a modified form of the improvement.

Weak oil-wells—that is, wells that are to one side of the subterranean oil-pool—derive their supply slowly from the said pool by the oil percolating through the sandstone or oil-rock to the well. As the operator has no visible means for locating the direction of the pool from a weak well, it is frequently necessary for him to drill a large number of wells in the field surrounding the weak well before the oil-pool is struck.

Now in order to enable the operator to at once determine in which direction the oil-pool is located from the weak or first well I provide an indicator adapted to be let into the well and provided with a compass adapted to be locked in place and with devices to indicate the direction of the flow of the oil, the compass and said devices plainly and positively indicating the direction of the flow of the oil on withdrawing the indicator from the well.

The indicator is shown in detail in the drawings and is constructed as follows: In a permeable frame, preferably in the form of a perforated cylindrical casing A, of wire-netting or the like, and having heads B and B', as shown, are journaled vertically-disposed shafts C, preferably arranged in a circle, as indicated in Fig. 4, and each provided at its upper end with an arm C', extending over the top of the head B. On each of the shafts C within the casing A are arranged vanes D, the vanes on each shaft extending in the same direction, and the said vanes are placed a suitable distance apart, as plainly indicated in Figs. 1 and 3.

By "permeable frame" I mean any open or skeleton frame which will permit the oil entering the well to pass to and act upon the vanes carried by said frame.

Now it is evident that when the casing A is in the well the flow of the oil to the well and through the perforated casing acts on the vanes D, so as to set the same according to the direction of the flow—that is, the vanes nearest the side on which the oil enters the well move into alinement with the flow of the oil, while those on the opposite side are moved into a closed position, as indicated in Fig. 5, it being understood that the direction of the flow is assumed to be in the direction of the arrow *a'*.

In order to let the device down into the well, I provide the head B with a suitable rope E or a like device, as shown in the drawings. Below the bottom B' of the casing A is arranged a closed chamber or compartment F, containing a compass provided with a needle G, having its spindle G' journaled in suitable bearings in the said compartment. The spindle is adapted to be engaged by an



arm H', carried on a lever H, fulcrumed on the under side of the compartment F, so that when the free end of the lever H is pressed on the arm H' moves upward in engagement with the spindle G' to press the same into its bearings and lock it in place in the position it had at the time the lever H was pressed.

The casing A is adapted to be inclosed in a shell I, preferably made of sheet metal, and provided at its upper end with a bail I', on which is secured a rope or a like device J independent of the rope E. The lower open end of this shell I is adapted to engage and press the free end of the lever H, so as to lock the needle of the compass G in place, as previously described. The upper end of the shell I is provided with a head I<sup>2</sup>, formed at its middle with an opening for the passage of the rope E, the said head being also provided on its under side with recesses I<sup>3</sup> for engaging the arms C' of the vane-shaft C to lock the latter in place when the shell I has passed over the casing A and its head I<sup>2</sup> rests on the said arms C' and the lever H. If desired, only a single shaft C may be employed with a number of vanes D, as illustrated in Fig. 8; but in this case the shaft is journaled in the middle of the casing A and is provided with counterweights C<sup>2</sup> to hold the vanes in the position they assume when acted on by the flow of the oil.

The operation is as follows: The shell I is placed over the casing A and the entire device is let down into the well to the depth of the flow of the oil from the oil-pool. When this place has been reached, the cord or rope E is secured in place to suspend the casing A opposite the point where the oil enters the well. The operator now pulls on the rope J, so as to lift the shell I upward off the casing A to permit the oil to flow through the perforations in the casing and act on the vanes D of the shaft or shafts C, so as to set the vanes to indicate the direction of the flow of the oil. As previously explained, when the shell I is lifted the lever H releases the needle G of the compass, and the said needle now sets itself to the north and south, as well understood. After the casing A has been exposed a desired length of time to the flow of the oil the operator again lowers the shell I, so as to lock the needle of the compass, as well as shaft or shafts C, in place in order to retain the position of the compass-needle in the well and the position of the vanes at the same time. The entire apparatus is now lifted by the operator pulling on the rope or cord E and is finally brought to the top of the well.

Now it is evident that by comparing the position of the compass-needle with the position of the vanes D the operator is enabled to accurately determine the direction of the pool from the well, assuming that the flow of oil to the well is in an approximately direct path leading from the pool to the well.

I do not limit myself to the particular description of the indicator above described,

and shown in the drawings, as it is evident that various other suitable means may be employed to accomplish the same purpose.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. An indicator for oil-wells, comprising a permeable supporting-framework adapted to be lowered into a well, and an indicating device carried by the support and adapted to be acted upon by the oil entering the well and passing through said support to cause the device to indicate the direction of flow of oil to the well, substantially as described.

2. A device of the class described, comprising a support adapted to be lowered into a well, an indicator carried by the support for indicating the direction of flow of oil to the well, a compass also carried by the support for determining the direction of the flow, and means for locking the indicator and compass, substantially as described.

3. A device of the class described, comprising a support adapted to be lowered into a well, an indicating device carried by the support for indicating the direction of flow of oil to the well, and a locking device for the indicating device, substantially as described.

4. A device of the class described, comprising a perforated casing, and an indicating device mounted in the casing for indicating the direction of flow of oil into the said casing, substantially as described.

5. An indicator for oil-wells, comprising a support adapted to be lowered into a well, and pivoted wings or vanes carried by the support and adapted to be acted upon by the oil entering the well to set the wings or vanes according to the direction of flow of the oil into the well, substantially as described.

6. A device of the class described, comprising a perforated casing, one or more vanes in the casing and adapted to be acted upon by the oil flowing into the casing to set the vanes according to the direction of flow, and means for locking the vanes in position, substantially as described.

7. An indicator comprising a perforated casing, one or more vanes arranged in the casing and adapted to be acted on by the flow of the oil, to set the vanes according to the direction of the flow, a compass held on the said casing, and means for locking the vanes and the needle of the compass in position, substantially as shown and described.

8. An indicator comprising a perforated casing, one or more vanes arranged in the casing and adapted to be acted on by the flow of the oil, to set the vanes according to the direction of the flow, a compass held on the said casing, and a shell adapted to inclose the said casing and arranged to lock and unlock the said vanes and the said compass, substantially as shown and described.

9. An indicator for oil-wells, comprising a permeable frame, a plurality of shafts mounted in the frame and each provided with one



5 or more vanes adapted to be acted upon by the oil entering the well to set them according to the direction of flow of the oil to the well, and a shell adapted to fit over the frame and engage the shafts and lock them, substantially as described.

10. An indicator for the purpose set forth, consisting of a perforated casing, vertical shafts mounted in the casing and provided  
10 with vanes within the casing and with arms on their upper ends outside of the casing, a

compass on the lower end of the casing and having its spindle engaged by an arm of a lever, and a shell adapted to fit over the casing and operate said lever, said shell being provided with a head having recess on its under  
15 side to receive the arms of the vane-shafts, substantially as herein shown and described.

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Witnesses:

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