

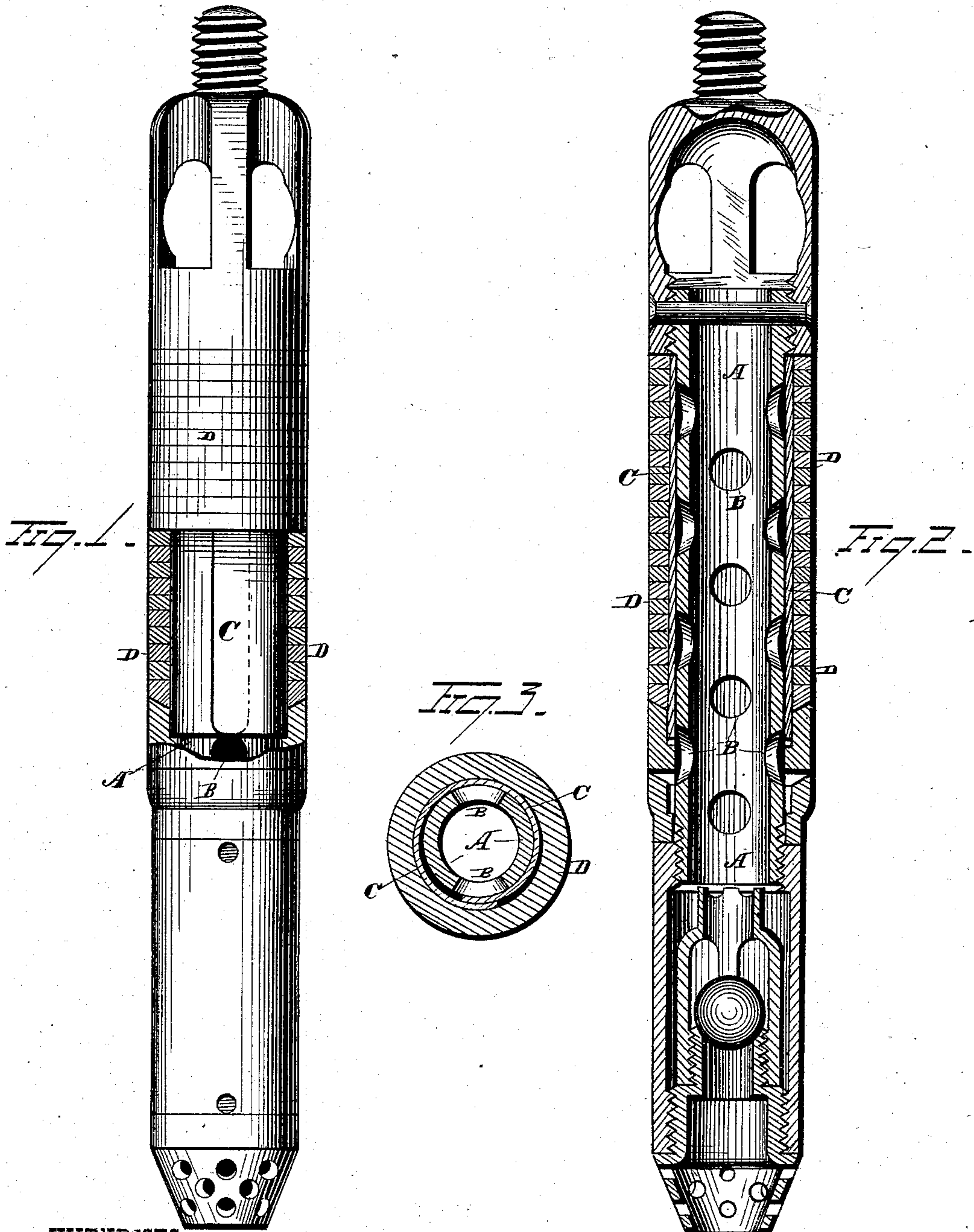
(Model.)

A. J. LEWIS.

VALVE FOR OIL AND WATER WELLS.

No. 255,522.

Patented Mar. 28, 1882.



WITNESSES

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VALVE FOR OIL AND WATER WELLS.

SPECIFICATION forming part of Letters Patent No. 255,522, dated March 28, 1882.

Application filed July 6, 1881. (Model.)

To all whom it may concern:

Be it known that I, ALDEN J. LEWIS, of Bradford, in the county of McKean and State of Pennsylvania, have invented certain new and useful Improvements in Valves for Oil and Water Wells; and I do hereby 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in working-valves for oil and water wells; and it consists in certain features of construction and combination of parts, as will hereinafter be described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view, partly in elevation and partly in section, of a valve constructed in accordance with my invention. Fig. 2 is a view thereof in vertical central section, and Fig. 3 is a view in cross-section.

The principle upon which my improved valve is constructed is the expansion of an elastic solid by virtue of the pressure exerted upon and from within it by a superincumbent column of fluid, the application of this principle consisting in inclosing a perforated pipe located in the valve, the position of which is at or near the bottom of the bore with a flexible tube, around which the packing is placed.

The upper and lower extremities of the valve shown in the drawings are of ordinary construction and need no description. The pipe A connecting them is provided with a number of perforations, B, which permit the pressure of the whole column of oil above the valve to be exerted on an unclosed metallic tube, C, the ends of which overlap each other and which encircles the tube A. Leather gaskets D inclose the tube C and expand as it is expanded by the pressure of the oil above, as described. Instead of the unclosed metallic tube C, a tube of any elastic material may be employed, and it may be closed or unclosed as found most desirable. Also, in lieu of the leather gaskets D, any equivalent packing material—as rubber, rope, or rawhide—may be employed. It need not necessarily assume the form of gaskets or rings, but may, if desired, be wound around or otherwise attached to the tube C. By the expansion of the tube C and the consequent expansion of the packing material the latter is kept in constant contact with the walls of

the barrel in which the valve is located, that portion of the packing which is worn away by friction caused by its constant reciprocation in the said barrel being replaced as fast as worn by the next adjoining portion which is forced out by the pressure of the oil. This action of the packing insures a constant and perfect suction, sand is prevented from working between the barrel and packing and damaging or destroying both, and the time and labor expended in raising the valves and replacing their worn non-expansible packing are saved.

I am aware that pistons have been constructed with perforated heads secured to the opposite ends of a solid cylinder, the latter being provided with annular grooves, in which are placed expansible sheet-metal tubes and the latter encircled by suitable packing. Also, I am aware that a piston has been constructed of two cross-heads having interposed between them a series of packing-rings, an expansible sheet-metal tube located within the packing-rings, and a leather tube placed within the sheet-metal tube; and hence I make no claim to such forms of construction. In my improved valve a pipe or tube provided with a series of perforations constitutes the body of the valve and forms the conduit for the upward flow of the water. Encircling the perforated tube or pipe is an expansible sheet-metal tube, which latter is encircled by packing. This construction and arrangement of parts is essentially different from anything of the kind heretofore produced, and constitutes the subject-matter of my claims, as will hereinafter appear.

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

In a valve, the combination, with a pipe or tube having a series of perforations in its sides and arranged to constitute the body of the valve and the conduit for the upward flow of water, of an expansible tube encircling the perforated tube or pipe, and packing material encircling the expansible tube, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 1st day of July, 1881.

ALDEN J. LEWIS.

Witnesses:

WM. L. CURTIS,
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