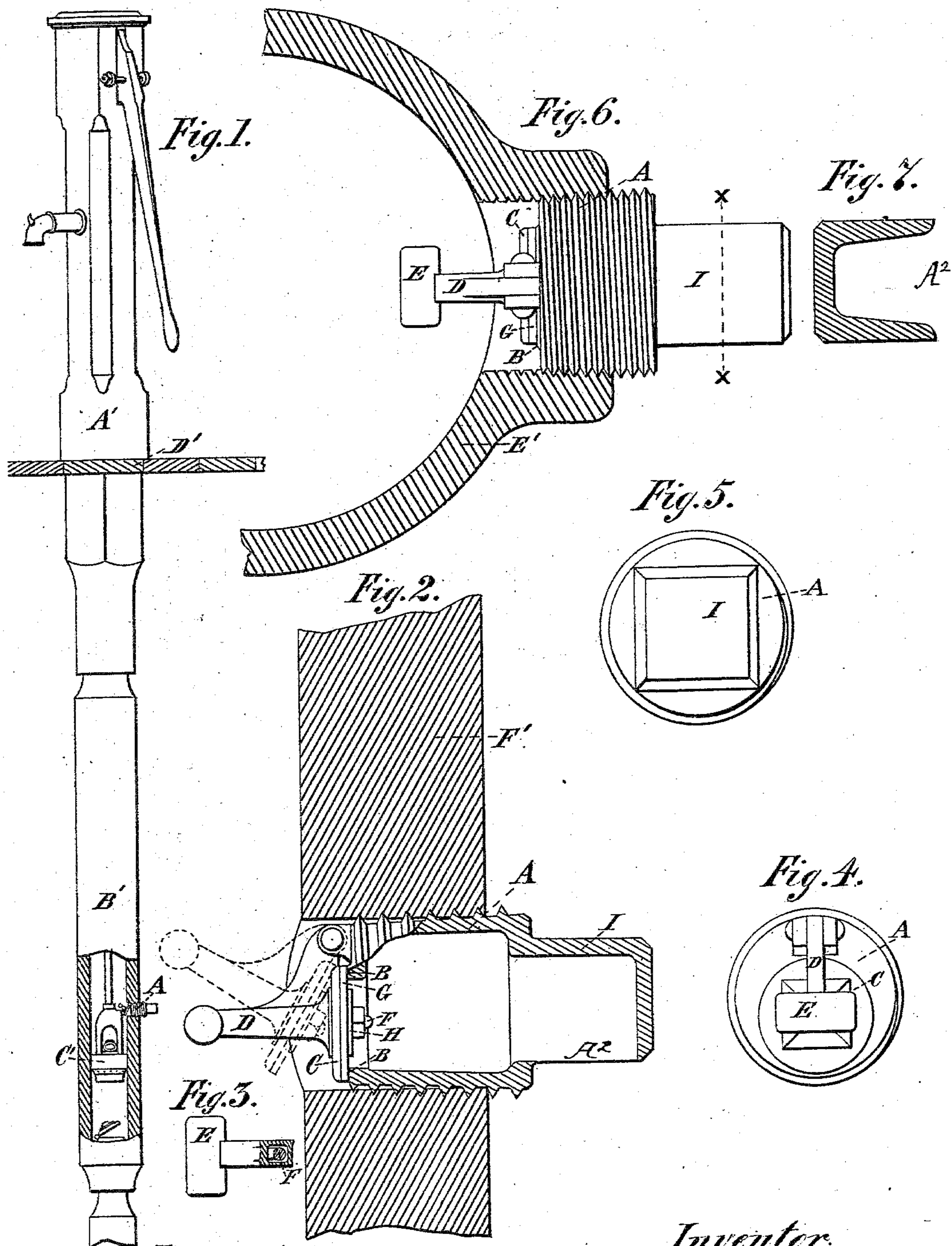


(No Model.)

J. WATSON.  
AUTOMATIC LEAK VALVE FOR PUMPS.

No. 288,283.

Patented Nov. 13, 1883.



Witnesses:  
Amos Holgate.  
George Clark.

Inventor:  
James Watson.

# UNITED STATES PATENT OFFICE.

JAMES WATSON, OF MARINETTE, WISCONSIN.

## AUTOMATIC LEAK-VALVE FOR PUMPS.

SPECIFICATION forming part of Letters Patent No. 288,283, dated November 13, 1883.

Application filed March 8, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES WATSON, a citizen of the United States, residing at Marinette, in the county of Marinette and State of Wisconsin, have invented a new and useful Automatic Leak-Valve for Pumps, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to improvements in pumps, more particularly to relieving the same from water contained above the bucket during severe cold weather, and for displacing the water in the suction-pipe below the bucket previous to obtaining a supply from the well, reservoir, or river for domestic purposes. A screw-valve is inserted in the cylinder of the pump, working in conjunction with the pump bucket or rod; and the object of my improvement is, first, to provide a ready means for removing the stale water remaining in the pump below the pump-bucket without the necessity of passing it through the spout of the pump; secondly, to afford facilities without extra labor for removing instantly the water from the body of the pump above the bucket at the conclusion of pumping, thereby preserving the pump from the damaging influence of frost, and maintaining it in working order. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a part elevation and section of a wooden pump, showing the body and valve in place, and the pump-bucket in the act of lifting the gate of the valve, the handle of the pump being nearly at the extreme of its downward stroke. Fig. 2 is a part full-sized section and elevation of the apparatus complete in a section of a wood pump, showing by dotted lines the valve-gate raised from the seat. Fig. 3 is a plan of the weighted end and cross-piece of the projecting arm of the gate. Fig. 4 is an end view showing the valve-gate hinged to the valve-seat end of the body. Fig. 5 is an end view showing the square forming an outlet for the water. Fig. 6 is a part section of a cast-iron pump-cylinder and an elevation of the body and valve screwed into its place. Fig. 7 is a section through the line *xx*, Fig. 6, of the square outlet portion attached to the body.

Similar letters refer to similar parts throughout the several views.

A' represents the pump. B' is the cylinder of the pump; C', the pump-bucket; D', the ground-line; E', a section of an iron pump, and F' is a portion of the cylinder of a wooden pump.

A valve-seat provided with a hollow screw-threaded body, a gate hinged thereto, and an outlet formed at the outer or opposite end to the gate constitute the device.

The hollow body A has formed upon its periphery a thread suitable for either wood or iron, and at the small end is constructed a seat, B, around a suitable orifice situated as near to the lower side of the body A as the seat B will permit.

The gate C is hinged to the same end of the body A as the valve-seat is, and in a position to cover the orifice and the valve-seat B when the gate C is closed.

Projecting from the gate is a weighted arm, D, of the required length to suit the pump to which it is proposed to attach the valve.

To the end of the arm D is fixed the cross-piece E by means of the bolt F, which is made to pass through the arm D and the packing-washer G. The bolt, packing washer, and weight E are held firmly in position by the washer and nut H. The cross-piece E may be formed solid with the arm D, and the packing-washer G may be held in position by any other convenient means.

There is connected to the body A a hollow portion or chamber, I, provided with an outlet, A<sup>2</sup>, in its under side, and by means of which the body is placed in and removed from position by simply engaging a wrench with its angular exterior surface, as shown in the drawings.

The operation of my invention will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed. The valve is fixed to the cylinder of any wood or iron pump, remote from the influence of frost, and in such a position that at the termination of the downward stroke of the pump-handle and the upward stroke of the bucket the arm D is raised and the gate C, attached to the said arm, is opened, as shown in Figs. 1 and 2, thereby permitting any water remaining above the bucket to escape, leaving the pump dry at the conclusion of pumping. Ordinarily, the extreme stroke of

the pump-handle is not made when in the act of pumping, therefore the valve is not brought into operation. However, should the bucket be raised to its utmost height during the afore-said pumping, the opening and closing of the gate C would be instantaneous, and could not interfere with the utility of the pump. The valve is retained in its place by the screw-threads provided on the periphery of the body A, corresponding with screw-threads in the cylinder of the pump.

In many cases it is not desirable to use for domestic purposes the water contained in the suction-pipe attached to the pump, particularly if it has been held there any length of time. For the purpose of obtaining fresh water through the agency of the valve, I propose to pump the stale water out of the suction-pipe, and by opening the gate in connection with the valve, in the manner before described, allow the water to escape through the valve and body before finding an exit by way of the pump-spout.

I am aware that leak-valves have been heretofore secured in the side of the pump-cylinder, and provided with inward projections or arms adapted to be engaged by a nib or projection on the pump-rod, to automatically operate said valve. I therefore do not broadly claim this.

I claim as my invention and desire to secure by Letters Patent of the United States—

1. In a leak-valve, a valve-seat comprising a screw-threaded body, provided at one end with a hollow extension-chamber, having an angular exterior surface, adapted to be engaged by a wrench or similar instrument, and formed with an outlet-opening in its under side, as and for the purpose set forth.

2. The herein-described leak-valve, comprising a screw-threaded body, having the

orifice at its inner end, and the hollow-chamber portion, projecting from its outer end and formed with the angular exterior surface, and provided with the outlet-opening in its under side, and a gate, hinged at its inner end so as to close the orifice, which latter is formed down near the bottom of the inner end of the body, as set forth.

3. The combination, with the valve-seat, adapted to be placed in the side of a pump-cylinder, and having an outlet-opening in its outer end and in its under side, and provided with an orifice near its bottom in its inner end, of a gate hinged to the said inner end so as to close the orifice, and having a projecting weighted arm that is operated by the bucket or rod of the pump to open and automatically close by reason of its weight, as and for the purpose set forth.

4. The combination of the hollow screw-threaded body, adapted to be placed horizontally in the side of the cylinder, and having the orifice at its inner end and the hollow-chamber portion projecting from its outer end, and formed with the opening in its under side, a valve-seat arranged around the said inner orifice, a gate hinged to the body above the orifice, so as to close the same, the integral arm projecting from the said gate, the cross-piece arranged at the end of said arm, the bolt passing through the arm and serving to secure the cross-piece in position, and the nut on the end of the bolt, as and for the purpose set forth.

In testimony that I claim the foregoing I have hereto subscribed my name in the presence of two witnesses.

JAMES WATSON.

Witnesses:

AMOS HOLGATE,  
GEORGE CLARK.