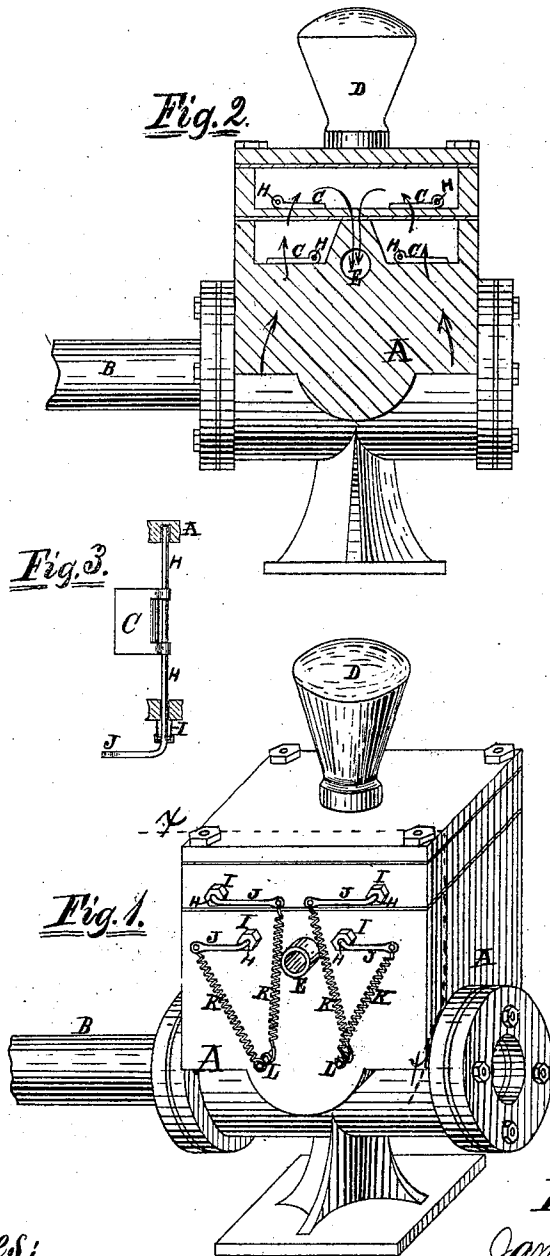


J. V. PANGBURN.

Improvement in Steam-Pumps.

No. 132,735.

Patented Nov. 5, 1872.



Witnesses:
Clatt R. Richards
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Inventor:
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Att'y

UNITED STATES PATENT OFFICE.

JAMES V. PANGBURN, OF GALESBURG, ILLINOIS, ASSIGNOR OF ONE-HALF
HIS RIGHT TO JAMES T. CLARK, OF SAME PLACE.

IMPROVEMENT IN STEAM-PUMPS.

Specification forming part of Letters Patent No. 132,735, dated November 5, 1872.

To all whom it may concern:

Be it known that I, JAMES V. PANGBURN, of Galesburg, county of Knox, and State of Illinois, have invented certain Improvements in Independent Steam-Pumps, of which the following is a specification:

My invention relates to improvements in that class of pumps known as independent direct-acting steam-pumps; and the invention consists in the manner of arranging the pump-cylinder valve-springs on the outside of the cylinder, by which they are made more accessible for repairs or for examination. The valve-spindles being extended outward through the walls of the cylinder to adapt them to the use of the outer springs, and being provided with crank ends, may be operated by hand to charge or "prime" the pump, all as hereinafter fully described.

Description of the Accompanying Drawing.

Figure 1 is a perspective view of the pump-cylinder of an ordinary steam-pump, showing my improvement on its front side; Fig. 2 is a sectional view of Fig. 1 on the plane of the line *xx*; and Fig. 3 is a top or plan view of one of the valves.

General Description.

A represents that part of an ordinary steam-pump known as the pump or water cylinder, and is provided with the usual piston, (not shown,) piston-rod B, valves C C C C, air-dome D, and water-discharge pipe E. The pump-cylinder shown contains four valves, C C C C, arranged above the piston, and the direction of the water, when the pump is in operation, is shown by the arrows at Fig. 2. The valves C are of the clapper variety, as shown at Figs. 2 and 3, and are attached at one side to spindles H H H H. Each of the spindles H has a bearing for one of its ends extending partly through the case A, and a bearing for its other end in a stuffing-box, I, in the other side of the case A, as shown at Fig. 3. The outer ends of the spindles H are bent to form a crank, J, on each. K K K K are spiral

springs, connecting the free ends of the cranks J with pins or projecting lugs L L from the side of the cylinder A. The springs K are adjusted to hold the valves C to their seats with the desired pressure.

It will be plainly seen that the springs K are, with this improvement, accessible for repairs, for adjustment, &c., without the trouble of opening the case A, thereby saving much time, and frequently at a time when it is momentous, and further, that in the event, as often happens, of the pump losing its priming, it may be readily and almost immediately again started by raising the valves C C by hand by means of their respective cranks, and thereby allowing the water above them to flow back and fill the suction-pipe.

With steam fire-engines and other pumps, where delay in adjusting the valves may result in great loss of life and property, the advantage of my arrangement of the springs and valve-spindles is obvious.

I do not mean to limit myself to this particular arrangement of the springs with the cranks, as other methods of applying the springs to the projecting ends of the valve-spindles will readily suggest themselves to any mechanic; such, for instance, as a volute spring wound round or encircling the spindle, and secured at its inner end to the spindle and at its outer end to the case; but

What I mean to secure by Letters Patent are the following claims:

1. The springs K, when arranged to operate with the projecting ends of the valve-spindles H, substantially as described, and for the purpose specified.

2. The spindles H, when constructed as described, with cranks J on their outer ends, and arranged to operate with the valves C and springs K, substantially as described, and for the purpose specified.

JAMES V. PANGBURN.

Witnesses:

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