

(No Model.)

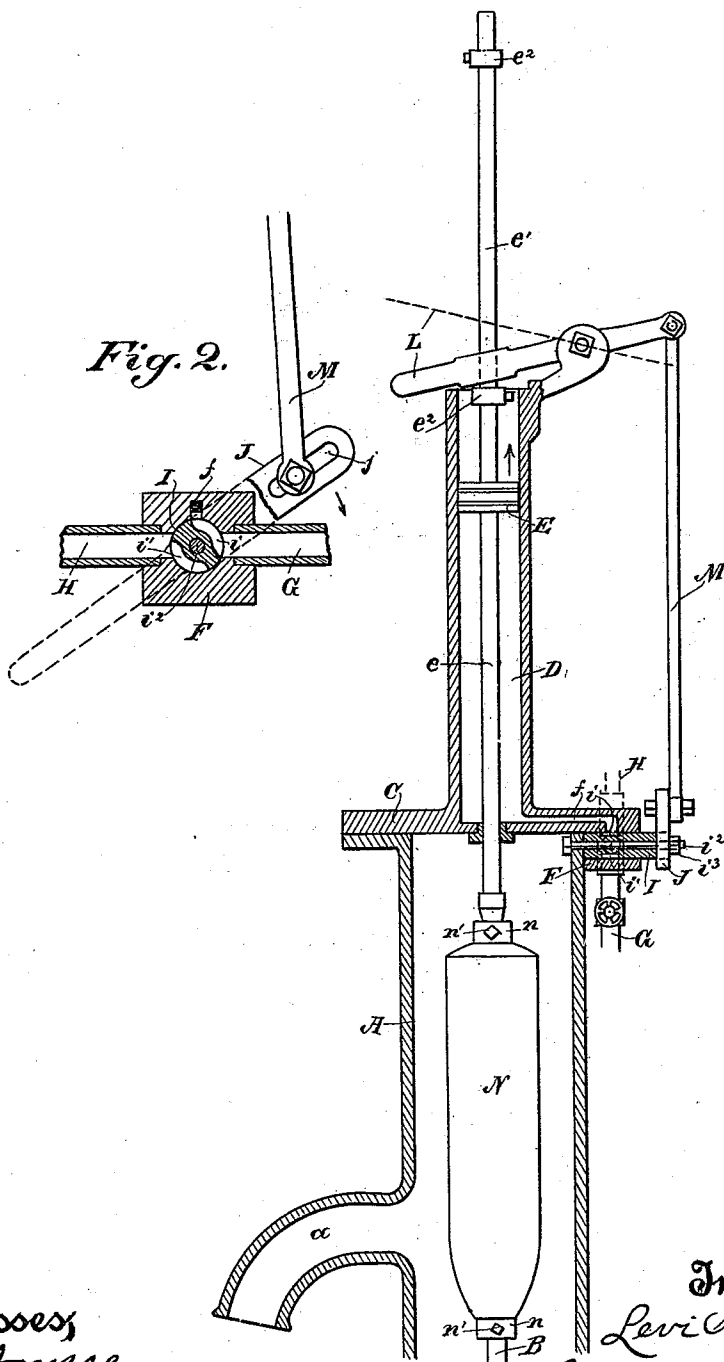
L. HOLBEN.
PUMP ENGINE.

No. 511,426.

Patented Dec. 26, 1893.

Fig. 1.

Fig. 2.



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UNITED STATES PATENT OFFICE.

LEVI HOLBEN, OF SACRAMENTO, CALIFORNIA.

PUMP-ENGINE.

SPECIFICATION forming part of Letters Patent No. 511,426, dated December 26, 1893.

Application filed May 13, 1893, Serial No. 474,105. (No model.)

To all whom it may concern:

Be it known that I, LEVI HOLBEN, a citizen of the United States, residing at Sacramento, Sacramento county, State of California, have
5 invented an Improvement in Pump-Engines; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of engines especially adapted for operating pumps.
10 It consists in a steam cylinder, the piston rod of which is directly connected with the pump rod, a valve seat with inlet and exhaust, a valve controlling the inlet and exhaust and connections from the upper end of
15 the piston rod to the valve for automatically operating it, all of which, together with a novel displacer on the piston rod, I shall hereinafter fully describe and specifically claim.

The object of my invention is to provide a
20 simple, compact and effective engine attachment for a pump, and also to provide for a constant and equal flow of water.

Referring to the accompanying drawings for a more complete explanation of my invention,—Figure 1 is a vertical section of my
25 pump engine. Fig. 2 is a section through the controlling valve.

A is a pump pipe having the spout *a*. In the lower end of the pipe may be supposed
30 to be the plunger and valves of an ordinary pump unnecessary herein to show.

B is the pump rod.

C is a base-plate, or cylinder head, with which is formed an upright cylinder D. With-
35 in this, is a piston E, having a rod *e* which passes down to and is connected with the pump rod B.

F is a valve seat in the base-plate or cylinder head, having a passage *f* communicating
40 with the cylinder D. It has also a steam inlet G and an exhaust H. Within this seat is fitted an oscillating valve I, having a port *i* on one side which controls both the steam inlet and the passage to the cylinder, and a port
45 *i'* on the other side which controls said passage and the exhaust. To the head of the valve is connected a lever J. The valve is fitted upon an axis *i*² having a nut *i*³ whereby the valve may be removed at any time for
50 inspection.

The piston E has an upwardly extending rod *e'* upon which are adjustably fitted the

separated collars *e*². Upon this rod and between the collars is seated a lever L against which the collars are adapted to come suc-
55 cessively in contact. The outer end of lever L is connected by a link M with the valve lever J, the connection being an adjustable one by means of a slot *j* in lever J, whereby
60 the throw of the valve may be regulated, said adjustment being made either way and jerking prevented. Upon the lower piston rod *e*
is seated a displacer N, made of wood, which
65 plays freely in the upper end of the pump pipe A, and is sufficiently smaller than said pipe to not interfere with the flow of the water, while still displacing a portion of it. It
is fitted to rod *e* by means of a collar *n* and
70 set screw *n'* at each end whereby it can be properly adjusted.

The operation is as follows:—When the piston E is at the lower limit, steam is admitted
75 through valves I into the cylinder under the piston. The latter rises and water is drawn or lifted up in pipe A. When the piston has
reached nearly its upper limit, the lower collar *e*² comes in contact with the lever L, which,
80 through the link M, will oscillate valve I and shut off the steam, and open the exhaust. The steam will thereupon escape from the cylinder and the weight of the parts will carry
85 them down again. As the displacer enters the top of the pump pipe, it will force the water out, thereby giving a constant flow, both on the up and on the down stroke.
90 When the limit of the down stroke is nearly reached, the upper collar *e*² will strike the lever L, and this will again oscillate the valve I whereby the exhaust will be shut and the inlet will be opened for a repetition of the up
95 stroke. The stroke can be regulated by moving the lower collar *e*² up or down.

There is only one stuffing-box in the device, namely, at the base of the cylinder.

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

1. An engine attachment for pumps, consisting of a cylinder having a piston with a
rod extending from one side and connected
100 directly with the pump rod, and having a second rod extending from its opposite side through the upper end of the cylinder and provided with separated adjustable collars,

said cylinder having a valve seat with an opening leading to the cylinder on one side of the piston, and inlet and exhaust passages; a valve adapted to oscillate in said seat with
 5 ports controlling said passage and inlet and exhaust, a lever on the stem of the valve, a second lever fulcrumed on the cylinder and having its inner end mounted on the upper
 10 extending rod between the collars so as to be actuated successively by the latter during the movements of the piston, and a link connection between the outer end of the fulcrumed lever and the valve lever whereby
 15 the valve is oscillated, substantially as herein described.

2. An engine attachment for pumps consisting of a cylinder having a piston rod extending from one side and connected directly
 20 with the pump rod, and having a second rod extending from its opposite side through the upper end of the cylinder, a valve seat hav-

ing a passage communicating with the cylinder on one side of the piston and an inlet and exhaust, an oscillating valve with ports controlling said inlet and exhaust, a lever on the
 25 valve and a second lever fulcrumed on the cylinder and having the rod from the piston passing through its inner end, adjustably secured collars on said upper rod above and below said inner end of the lever for actuat-
 30 ing the same, a link connecting the outer end of the lever with the valve lever, and a displacer on the piston rod operating freely in the upper end of the pump pipe, substantially
 35 as herein described.

In witness whereof I have hereunto set my hand.

LEVI HOLBEN.

Witnesses:

A. L. FROST,

JOHN E. BERG.