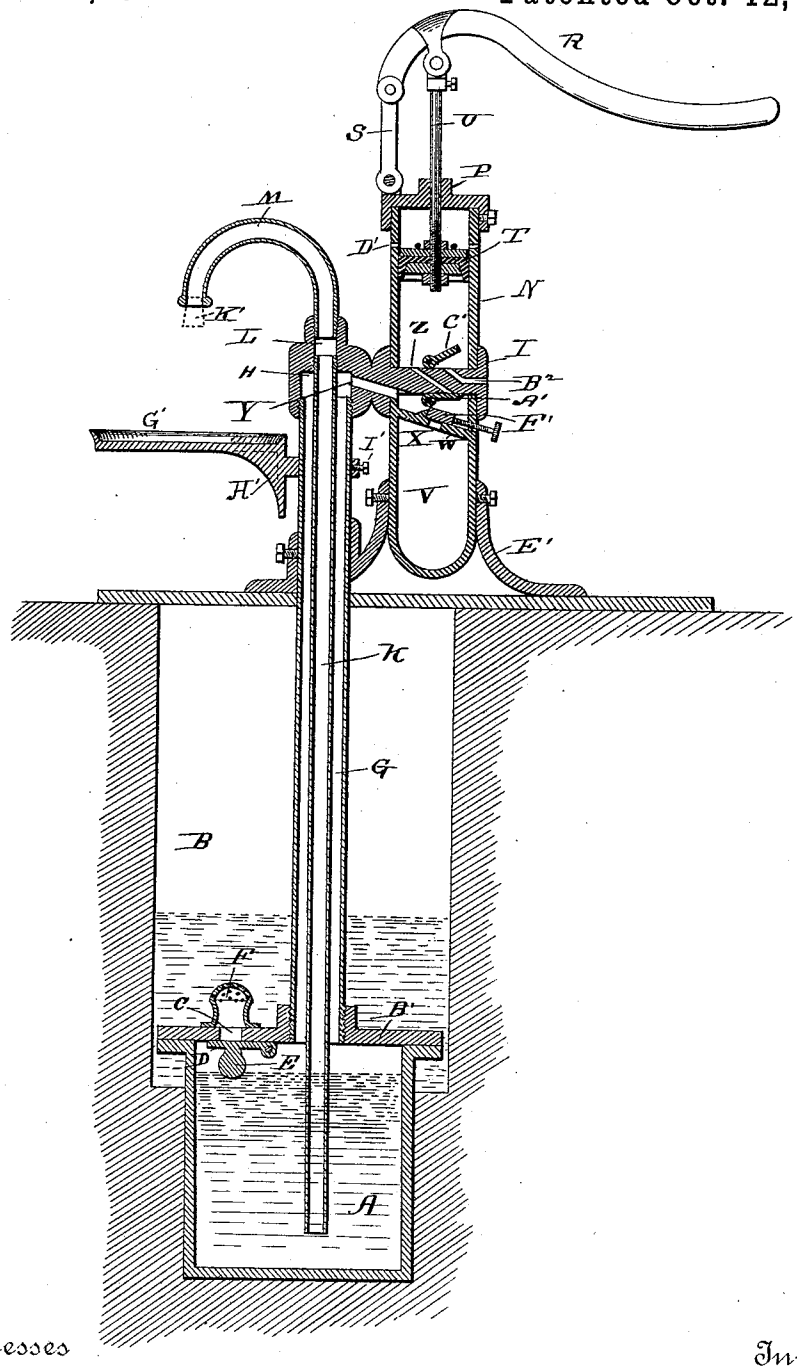
(No Model.)

E. NEFF.

PUMP.

No. 350,761. Patented Oct. 12, 1886.



Witnesses
C. D. Davis
W. D. Alexander

Inventor
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By his Attorney
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UNITED STATES PATENT OFFICE.

ELIJAH NEFF, OF ROCHESTER, ASSIGNOR TO WORTHIE SHIPLEY, OF CLAYPOOL, INDIANA.

PUMP.

SPECIFICATION forming part of Letters Patent No. 350,761, dated October 12, 1886.

Application filed July 21, 1886. Serial No. 208,601. (No model.)

To all whom it may concern:

Be it known that I, ELIJAH NEFF, a citizen of the United States, residing at Rochester, in the county of Fulton and State of Indiana, have invented certain new and useful Improvements in Pumps, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to certain improvements in pumps; and it has for its object to provide for forcing water from a well to the surface of the earth above by means of a body of compressed air, as more fully hereinafter described, so as to discharge it in a uniform and continuous stream. This object I attain by the means illustrated in the accompanying drawing, in which is represented a sectional view of a well, and a similar view of my improved pump applied thereto.

The letter A indicates a metallic vessel which is sunk in the bottom of the well B, and B′ a closely-fitting cover secured to said vessel in any convenient manner. The said cover is provided with an opening, C, and with a hinged valve, D, below, the said valve being provided with a float, E, by means of which it is held normally to its seat. Above the opening and extending into the well is a perforated strainer or filter, F, through which the water passes from the well to the vessel A.

G indicates a tube extending from the vessel A up out of the well, through the covering of the same, its upper end being connected with a space, H, in a metallic section, I, for the purpose hereinafter explained.

K indicates a smaller tube extending from near the bottom of the well up through the tube G, and connecting with a passage, L, in the section I, from which passage extends the curved discharge-pipe M. To the upper part of the said section I is secured the vertical pump-cylinder N, the said cylinder having a head, P, to which the pump-handle R is attached by means of a link, S, so that the handle may oscillate freely.

T indicates the piston, and U the piston-rod, which works through a central opening in the head of the cylinder, and is pivoted to the handle at its upper end.

V indicates an air-cylinder having an inclined diaphragm or partition, W, with an opening, X, at its center, for the purpose hereinafter described.

Y indicates an inclined passage in the section I, leading from the space H into the space between the diaphragm W and the section I. From the space between the diaphragm and section extends an inclined passage, Z, into the lower part of the pump-cylinder, and below said passage is arranged a valve, A′, which is adapted to open and close it.

B^2 indicates a passage through the section I leading from the cylinder to the open air. Above said passage in the cylinder is arranged a valve, C′, for the purpose hereinafter described.

D′ indicates a series of openings connecting the upper part of the cylinder with the open air.

E′ indicates a series of curved standards secured to the air-cylinder, supporting the same and the pump.

F′ indicates a slide-valve for closing the opening in the diaphragm, for the purpose hereinafter explained.

G′ indicates an adjustable shelf secured to a sliding bracket, H′, on the tube, and I′ a set-screw by means of which it may be adjusted.

The piston is provided with an expanding packing, by means of which it may be made to work air-tight in the pump-cylinder.

The operation of my invention is as follows: The piston being elevated takes in air through the passage B^2, lifting the valve C′. When descending, the said valve is closed, forcing air through the passage Z into the space between the section, compressing it in the air-cylinder, and by means of the pipe G and passage Y into the vessel A. The pressure tightens the valve D against its seat, and the pressure of the air forces the water up through the pipe K into and out of the discharge-pipe. The air-cylinder serves to equalize the pressure, so as to obtain a uniform flow of water, and also as a reservoir for holding a supply of air under pressure, which is pumped in, the discharge-pipe being temporarily stopped by means of a screw cap or plug, K′, or otherwise, for the purpose, and when charged the valve is closed, confining the air, to be let out from time to time to discharge

the water, as required, without working the pump.

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

1. The combination, with the air and water tubes, of the section I, having passages Y, Z, and B^2, and the valves A′ and C′, and the pump-cylinder N and its piston, piston-rod, and handle, the whole arranged to operate substantially as specified.

2. The combination of the vessel A, air-tube G, section I and its passages and valves, with the pump-cylinder, air-cylinder, and inclined perforated diaphragm and slide-valve, the whole arranged to operate substantially in the manner specified.

In testimony whereof I affix my signature in presence of two witnesses.

ELIJAH NEFF.

Witnesses:
S. B. FRASIER,
P. PARKS WHITE.