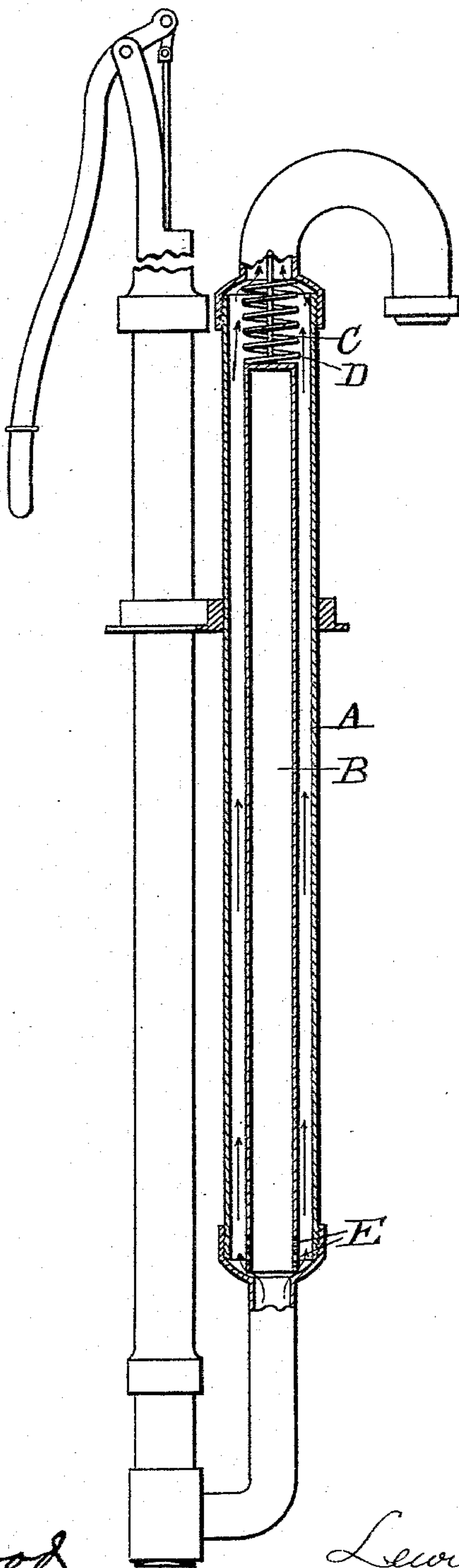


(No Model.)

L. L. ULLRICH.  
PUMP.

No. 494,970.

Patented Apr. 4, 1893.



Witnesses  
*Josh Blackwood*  
*Albert B. Blackwood*

Inventor  
*Lewis L. Ullrich*  
by *W. A. Dootie*  
Attorney

# UNITED STATES PATENT OFFICE.

LEWIS L. ULLRICH, OF GETTYSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO JOHN A. LIVERS, OF SAME PLACE.

## PUMP.

SPECIFICATION forming part of Letters Patent No. 494,970, dated April 4, 1893.

Application filed November 7, 1892. Serial No. 451,254. (No model.)

*To all whom it may concern:*

Be it known that I, LEWIS L. ULLRICH, a citizen of the United States, residing at Gettysburg, in the county of Adams and State of Pennsylvania, have invented certain new and useful Improvements in Pumps; 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 appertains to make and use the same.

My invention relates to single force pumps, and consists in an improvement in the construction of the air chamber for use in lift, force and other pumps.

My invention consists in making the chamber open at the bottom, and resting it loosely upon a seat in the discharge pipe, placing a spring loosely on top of the chamber around a stem that fits loosely in the neck of the discharge pipe, so that in the most simple and effective manner the air chamber will act to cause an even and steady flow of the water, and so that the parts can be most easily taken apart for repair or substitution of new parts for those worn or injured.

My invention is illustrated in the accompanying drawing in which

The figure illustrates a side view in elevation of a single force pump and the discharge pipe with its outer casting broken away to show my invention applied thereto.

Referring to the drawing, A, represents a discharge pipe of a pump provided with a spout, the water ascending in the direction of the arrows.

B, is a central air chamber closed at the top and open at the bottom, and extending

nearly the entire length of the discharge pipe, except a few inches at the top. The top of the air chamber is provided with a stem, C, which extends only a little way into the neck of the spout. Around this stem is placed loosely a spiral spring, D. Near its bottom the air chamber is provided with holes, E, (preferably four in number two on each side) to permit the water to run out, as soon as it enters the said chamber. The chamber rests upon the curved walls of the lower end of the pipe where it is narrowed to connect with a smaller pipe. When the water forces the air chamber up the spring is forced against the upper end of the pipe, so as to relieve the pressure on the air chamber, thus making the pressure steady and uniform.

Having thus described my invention, what I claim is—

The combination with the discharge pipe of a pump of an air chamber placed within said pipe, extending nearly its entire length, said chamber open at the bottom and closed at the top provided with a stem at the top and a spiral spring around said stem also entirely within said pipe, whereby the said chamber is free to move within said pipe, and its pressure controlled by the pressure of said spring against the upper end of the discharge pipe, substantially as described.

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

LEWIS L. ULLRICH.

Witnesses:

JAS. H. BLACKWOOD,  
R. F. HECK.