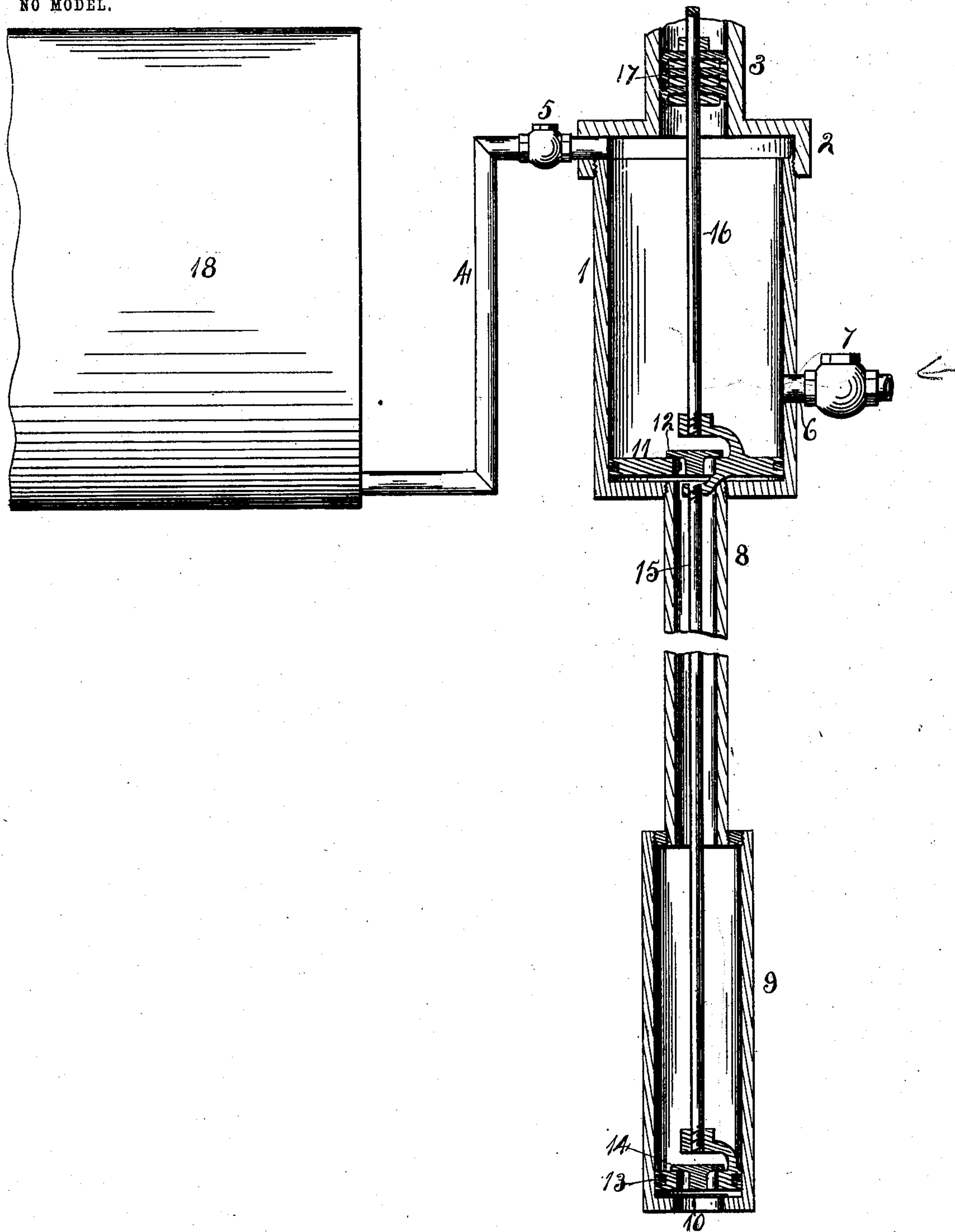


No. 741,634.

PATENTED OCT. 20, 1903.

C. L. CUSHING.
PUMPING APPARATUS.
APPLICATION FILED SEPT. 3, 1901.

NO MODEL.



Witnesses:
E. Belhel.
C. B. Clark.

Inventor:
Charles L. Cushing.
By A. O. Belhel
Atty.

UNITED STATES PATENT OFFICE.

CHARLES L. CUSHING, OF NEW PAYNESVILLE, MINNESOTA.

PUMPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 741,634, dated October 20, 1903.

Application filed September 3, 1901. Serial No. 74,184. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. CUSHING, a citizen of the United States, residing at New Paynesville, in the county of Stearns and State of Minnesota, have invented certain new and useful Improvements in Pumping Apparatus, of which the following is a specification.

The object of this invention is to pump water and air with the same pump and forcing the same through a single pipe into a suitable receptacle.

In the accompanying drawing I have shown a sectional view of my improved pumping apparatus.

It is intended to operate the pistons of the water and air cylinders from a wind-engine or gasolene-engine, but have not shown either, as they form no part of my invention.

The cylinder 1 is provided with a cap 2, having a tubular extension 3, a discharge-pipe 4, and check-valve 5. An air-inlet pipe 6 has a connection with the cylinder and has a check-valve 7. To the lower end of this cylinder is connected a pipe 8, and to the lower end of this pipe is connected a cylinder 9, having its lower end open and provided with a valve 10.

Within the cylinder 1 is located a piston 11, provided with a valve 12, and within the cylinder 9 is located a piston 13, provided with a valve 14. A piston-rod 15 connects the two pistons, and a pumping-rod 16 is connected with the piston 11 and extends upward through the tubular extension 3 and supports packing-rings 17. This rod 16 is intended to be reciprocated by some motive power—for instance, a wind-engine or a gasolene-engine—and the pistons of both cylinders will be reciprocated together, and as the cylinder 1 is located too great a distance from the water-supply, consequently, it will not draw water, and the piston of the cylinder 9, being located near the water-supply, will pump the water and force it up through the pipe 8 into the cylinder 1. The relative diameters of the cyl-

inders are such that the space between the bottom of the upper cylinder and air-inlet 6 is equal to the water capacity of the lower cylinder 9. As the pistons move upwardly, by the time the piston 11 has reached the air-inlet 6 the lower piston will have moved a corresponding distance, which will partially fill the space below the piston 11 with water, and when the piston 11 passes the air-inlet opening 6 it will draw in air, and by the time the pistons have completed their upward movement the space below the air-inlet 6 will be filled with water and the space between the water and under side of the piston will be filled with air. The downward movement of the pistons will move them into their lowest positions, and the space between the pistons will be filled with water, and the space above the piston 11 will contain water and air. The next upward movement of the pistons will fill the space between the pistons with water and air, and the water and air which was above the piston 11 will be forced out through the outlet-pipe 4, the check-valve 5 preventing the water and air running back into the cylinder. This outlet-pipe 4 extends to a tank or receptacle 18. By this arrangement I force air and water through the same pipe into the receptacle and by the same pistons. The water serves to keep the check-valves cool, which are heated by the passage of air, and it is not difficult to maintain close-fitting check-valves for water.

I claim as my invention—

The combination of a closed receptacle, two pumping cylinders and pistons, the upper cylinder of larger diameter than the lower cylinder, the cylinders having a pipe connection and the upper cylinder having an air-inlet intermediate its ends and a common discharge for the water and air at its upper end.

CHARLES L. CUSHING.

Witnesses:

R. F. HAYES,
BEN. MILLER.