

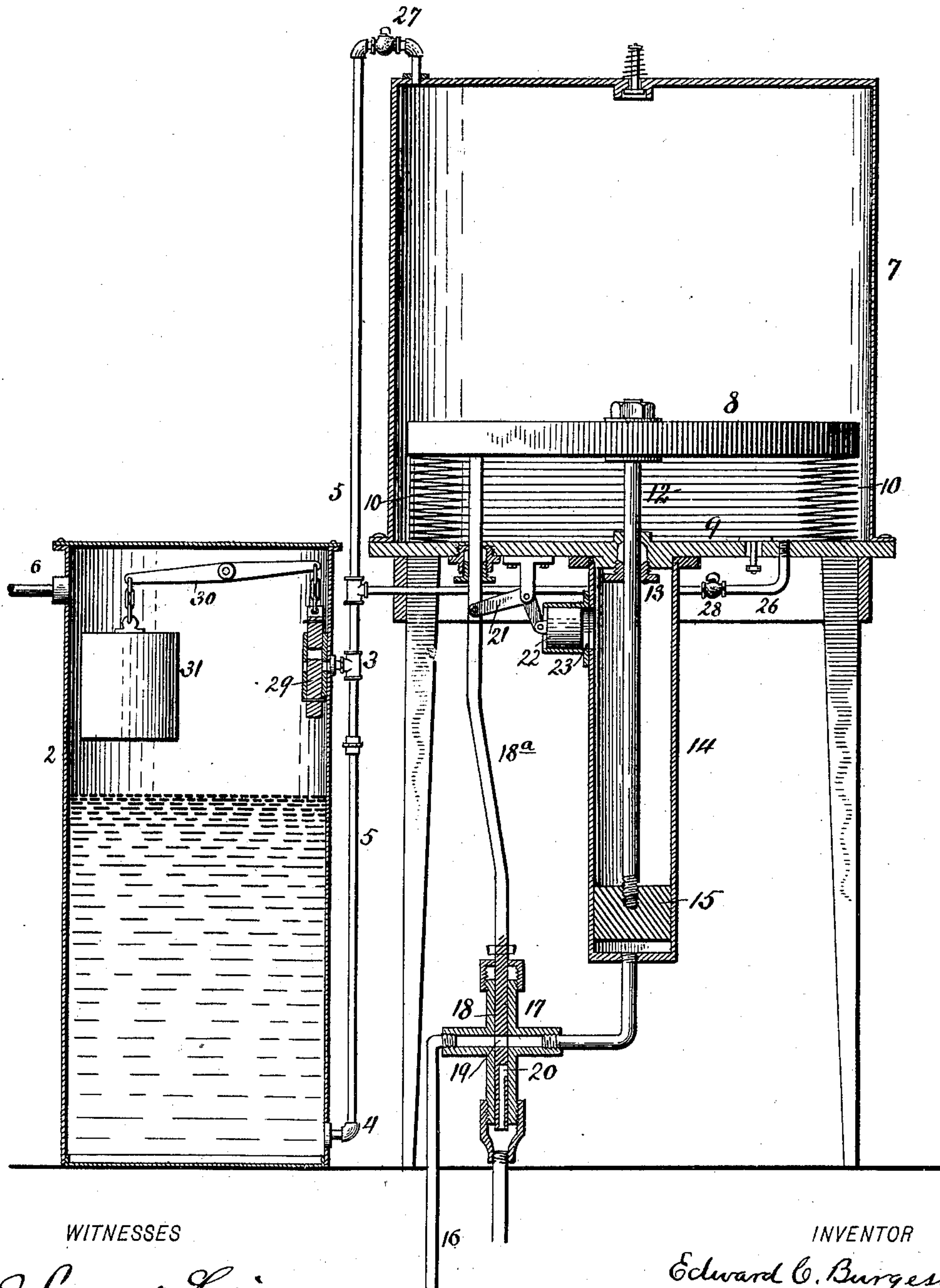
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Patented Jan. 15, 1901.

E. C. BURGESS.
AIR PUMP FOR CARBURETERS.

(Application filed Dec. 8, 1899.)

(No Model.)



WITNESSES

Samuel Lapping
A. T. Sargent

INVENTOR

Edward C. Burgess

BY

H. A. West

ATTORNEY

UNITED STATES PATENT OFFICE.

EDWARD C. BURGESS, OF NEW YORK, N. Y.

AIR-PUMP FOR CARBURETERS.

SPECIFICATION forming part of Letters Patent No. 665,992, dated January 15, 1901.

Application filed December 8, 1899. Serial No. 739,660. (No model.)

To all whom it may concern:

Be it known that I, EDWARD C. BURGESS, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Air-Compressors for Carbureters, of which the following is a specification.

My invention relates to a new and improved air-compressor for carbureters for supplying gas for isolated lighting and for fuel and heating purposes, my main object being to provide an apparatus of this character which shall be automatic in operation and capable of being kept in continuous action by an intermittent and small flow of water.

In the accompanying drawing, to which reference is made and which forms a part of this specification, the figure is a sectional elevation of my new and improved air-compressor for carbureters, the parts thereof being shown in the position they assume at the time water enters the water-chamber.

In the drawing, 2 is a tank for gasoline or other light hydrocarbon oil. This tank has two connections 3 and 4 with the pipe 5 and is provided with a service-pipe 6 for supplying the gas for consumption.

7 represents an air-pressure chamber from which air under sufficient pressure is forced through the pipe 5 and thence into the tank 2, at or near the bottom thereof, so that the air in rising up through the hydrocarbon will become sufficiently carbureted for illuminating and heating purposes. In the chamber 7 is placed a heavy plate 8, preferably of metal of sufficient thickness for the purpose or of sheet metal or other suitable material properly weighted, so that by gravity it will drive with sufficient pressure the air beneath it to the carbureter and maintain a pressure therein to insure the delivery of the gas with sufficient force. The plate 8 forms the top of a bellows, the bottom 9 being formed by the bottom of the air-pressure chamber 7, the parts 10 representing the flexible air-tight walls, which extend and collapse with the up and down movement of the plate 8. At its center, as here shown, the plate 8 is provided with a rod 12, which passes through a stuffing-box 13 and reaches into the water-chamber 14, where it is provided with a piston-head 15.

Water under pressure is supplied to the bottom of the water-chamber 14 through a pipe 15^a, another main pipe 16, and a valve or four-way coupling 17. 18 represents the water-valve. It is fitted in the four-way coupling 17, as shown, is formed with an inlet-port 19 and outlet or waste port 20, and is operated in one direction for permitting the outflow of water from the water-chamber 14 by the bell-crank lever 21, one arm of which is pivoted to the lateral piston 22, fitted in a side chamber 23, formed in the water-chamber 14. The opposite movement of the water-valve 18 to allow water to enter the water-chamber 14 is produced by the lowering of the plate 8 upon the upper end of the rod 18^a, of which the valve, as here shown, is made a part.

When water under pressure enters the water-chamber 14, it lifts the piston 15, rod 12, and plate 8, causing a displacement of air and forcing it through pipe 5. This lifting of the plate 8 will continue until the bottom of the piston 15 passes the lower edge of the side chamber 23, whereupon water will enter said side chamber and press the lateral piston 22 outward, causing the bell-crank lever to lift the valve 18 to position where it cuts off the inflow of water and opens the outflow for the water. In being thus lifted the plate 8 causes air to be taken in beneath it through air-valve 25, and as soon as water begins to flow out from the water-chamber 14 the weight of the plate 8 exerts a pressure on the inclosed air and forces it through the branch pipe 26 and main pipe 5 to the gasoline-tank 2.

Backflow of gas is prevented by check-valves 27 and 28, fitted in the pipe 5 and branch pipe 26, respectively.

29 represents a valve for the purpose of diluting with an inflow of air the gas in the gasoline-tank 2 in case it becomes too rich in carbon. This valve is complementary to the coupling or connection 3 with the pipe 5 and normally closes said connection, so that no appreciable amount of air enters through that connection. It is connected or suspended from one end of a pivoted bar 30. The opposite end of said bar 30 is provided with a light and hollow balance 31, which in gas of proper richness will overweight the valve 29 and hold it in closed position; but as soon as the density of the gas increases beyond the de-

sired degree of richness the valve will overweight the hollow balance and fall to open position, thus allowing air to enter the gasoline-tank above the gasoline, thus automatically insuring the production of gas of uniform richness.

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

10 A water-chamber, connected to a water-supply, a valve in said water-supply and a rod connected to said valve, a piston-head in said water-chamber, an air-pressure chamber,

a plate in said air-pressure chamber, a rod connecting said piston with said plate, a lateral chamber in said water-chamber, a piston in said lateral chamber and a bell-crank lever connecting said lateral piston with the said valve-rod, the said valve-rod arranged to be operated in one direction by the said plate, substantially as and for the purposes described.

EDWARD C. BURGESS.

Witnesses:

H. A. WEST,

SAMUEL LAPPIN.