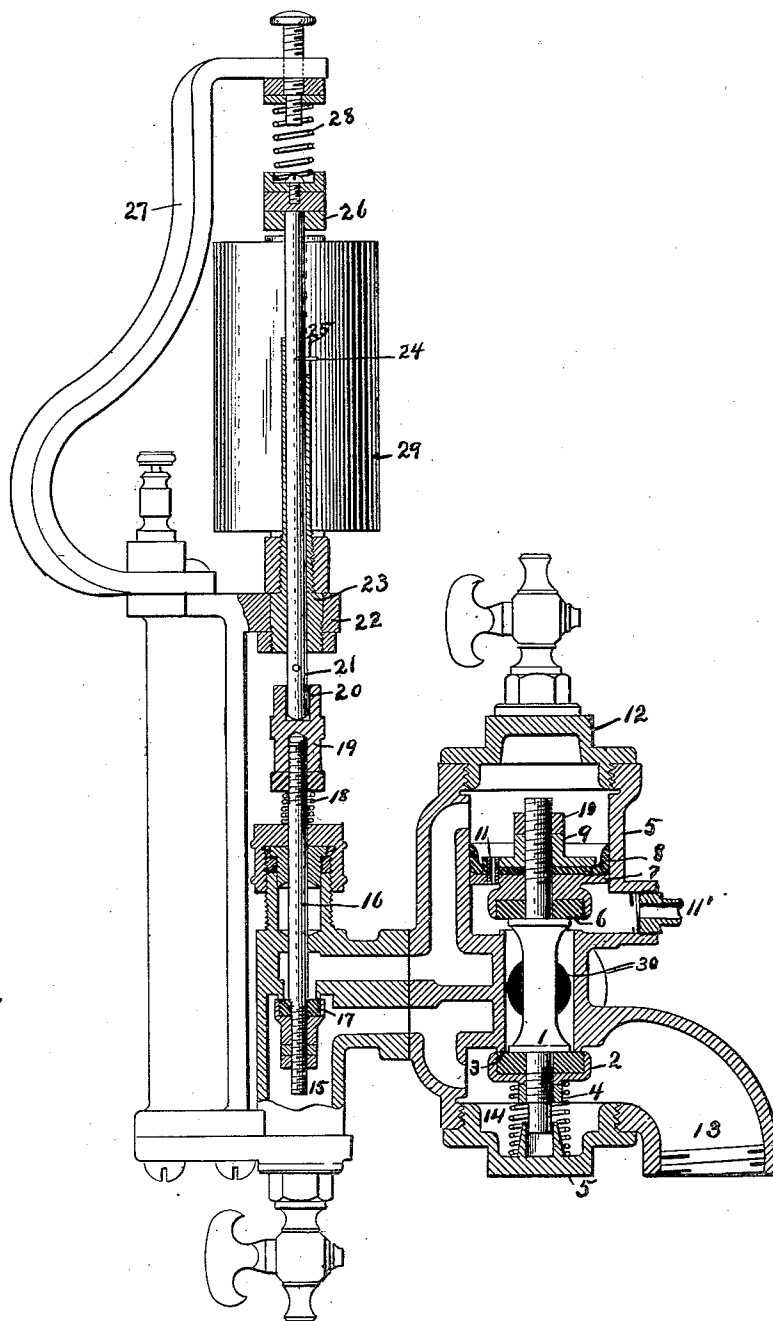


(No Model.)

C. E. ONGLEY.
ELECTRIC VALVE CONTROLLER.

No. 443,789.

Patented Dec. 30, 1890.



Witnesses
Horris A. Clark
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UNITED STATES PATENT OFFICE.

CHARLES E. ONGLEY, OF NEW YORK, N. Y.

ELECTRIC VALVE-CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 443,789, dated December 30, 1890.

Application filed April 4, 1890. Serial No. 346,619. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. ONGLEY, a citizen of the United States, residing at New York city, in the county and State of New York, have invented an Improvement in Electrical Valve-Controllers, of which the following is a specification.

The object of my invention is to control a comparatively large valve which is moved by fluid-pressure through the agency of a second valve, which is moved by the power of a magnet in a suitable electric circuit; and the invention consists in certain arrangements and combinations hereinafter described and claimed.

The accompanying drawing is a central section through the apparatus.

1 is the main valve, and consists of a central stem provided at each end with a screw-threaded extension. On the lower extension is a cup-shaped piece 2, carrying a suitable packing, which when the valve is closed rests against the valve-seat 3. The cup, and hence the packing, is of greater diameter than the valve-seat, so that the packing rests squarely and firmly thereon. The extension also carries a lock-nut 4. Around a socket in the cap 5, into which the extension projects, and pressing up against the cup 2, is a coiled spring. On the upper extension of the valve is a second cup-shaped piece, which is preferably larger than 2, and which fits as a piston into the tube 5. This cup is provided with a packing 6. Over the piston-head 7 is a washer or packing 8, preferably of leather, and over this a retaining-nut 9 and lock-nut 10. Through 7, 8, and 9 are holes placed in line and preferably provided with a hollow screw-threaded bushing 11, which serves as a permanent exhaust for the purpose hereinafter described. A branch pipe 11' is attached to the chamber under the piston and conducts the escaping water. The upper end of the tube 5 is closed by a nut-cap 12, which may have a cock attachment, as also may the tube below the second valve. The valve is normally held up against the seat 3 by the spring.

13 is the water-inlet. When the valve mechanism is attached to a water-supply, water flows into the space 14 below the main valve and into the space 15 below the second valve.

The water-pressure then combines with the spring to hold the main valve closed.

The second valve in the preferred form consists of a stem 16, which passes through a packing to the outside of the valve-chamber. At the inner end of the stem is a cup-shaped nut with a packing 17 and with locking-nuts. This valve is held closed by spring 18, and when there is water in the space 15 by water-pressure. Stem 16 carries a nut 19, having on its upper side a socket 20, into which socket passes loosely a rod 21, which is supported in a bearing 22 and bushing 23. A pin 24 rides in a slot 25 in the upper end of the bushing as the rod moves up and down. This serves to prevent the rod from turning, and thus keeps the armature 26 carried thereby in line with the magnet-poles.

27 is an arm or bracket having at its upper end an adjusting-screw, and between a nut thereon and the armature is a spring 28, the tension of which is opposed to that of spring 18 and the water-pressure, but is insufficient to overcome the latter. The magnet 29, only one limb of which is shown in the drawing, may be in any desired circuit. If, for example, the outlet-pipe 30 leads to the normally-empty house-pipes in a fire-extinguishing system, the circuit might run through and to the thermostat of such a system, or it might run to the office or other point where an alarm would be received and where the person in charge could operate a circuit-controller manually, if he found it necessary; but I do not claim, specifically, these uses of the valve, and I do not limit myself to such uses.

The operation of the apparatus is as follows: When the valve mechanism is in place, water under the desired pressure occupies the space below the valves, and when the circuit of the magnet is closed or varied by a thermostat, by hand, or otherwise the armature, co-operating with spring 28, opens the second valve, admitting water to the space above the piston-head of the main valve. This head being larger than the opposite one the valve is moved, thus allowing water to pass from the inlet-pipe directly to the outlet-pipe 30 and to the place of use. The main valve will be held in this position as long as the circuit

is maintained in operative condition. From the space above the main valve water escapes through the hollow bushing 11, but not with sufficient rapidity to prevent the water-pressure from moving the valve. The object of this escape is to relieve the pressure above the valve after closure of the second valve, so that the main valve may be returned to its normal position by the spring and water-pressure.

- 10 It sometimes happens that an impediment becomes lodged between the second valve and its seat, so that said valve cannot be closed, and in order to remove such impediment it is necessary to relieve the pressure thereon by a further downward movement of the valve, and to provide for this movement is the object of making the valve-stem and the armature-carrying rod in two parts connected loosely at the socket 20. In order to get the desired power from the magnet to operate the valve, the armature is placed quite near to the poles and when attracted is brought against the poles. Notwithstanding this fact, the valve can be still farther moved by hand or otherwise, owing to the loose connection described.

It will be clear that the arm 27 and spring 28 may be omitted, provided a magnet of sufficient strength is employed. Certain other of the features described may be varied without departing from my invention.

Having thus described my invention, what I claim is—

1. The combination, with a main valve operated by fluid-pressure and controlling the passage between an inlet and outlet pipe, of a second valve controlling a passage leading from the inlet-pipe to a space above the main valve to open it, a magnet, an armature for the magnet, to which is connected a rod, and a valve-rod for the second valve meeting the armature-rod, but having no positive connection therewith, whereby the valve and rod may be moved by the armature or independently thereof, substantially as described.

2. The combination, with a valve held closed by fluid-pressure and a co-operating spring, of a magnet and co-operating spring for opening the valve and a loose connection between the valve-stem and the armature-rod, substantially as described.

3. The combination of a valve and stem, a spring holding said valve closed, a rod loosely connected to the stem, movable in a bearing, and carrying an armature, a magnet, a bracket, one end of which terminates adjacent to the armature, and a spring between the bracket and armature and co-operating with the magnet, substantially as described.

This specification signed and witnessed this 31st day of March, 1890.

CHARLES E. ONGLEY.

Witnesses:

CHARLES M. CATLIN,
D. H. DRISCOLL.

Correction in Letters Patent No. 443,789.

It is hereby certified that Letters Patent No. 443,789, granted December 30, 1890, upon the application of Charles E. Ongley, of New York, N. Y., for an improvement in "Electric Valve-Controllers," were erroneously issued to said Ongley as sole owner of the invention; that said Letters Patent should have been issued to said *Charles E. Ongley and Thomas W. Robertson, jointly*, each being owner of one-half interest, as shown by the record of assignments in this office; and that said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 24th day of March, A. D. 1891.

[SEAL.]

Countersigned:

C. E. MITCHELL,

Commissioner of Patents.

CYRUS BUSSEY,

Assistant Secretary of the Interior.