(No Model.)

J. B. ODELL.

VALVE CONTROLLER.

No. 426,466. Patented Apr. 29, 1890.

Fig. 1.

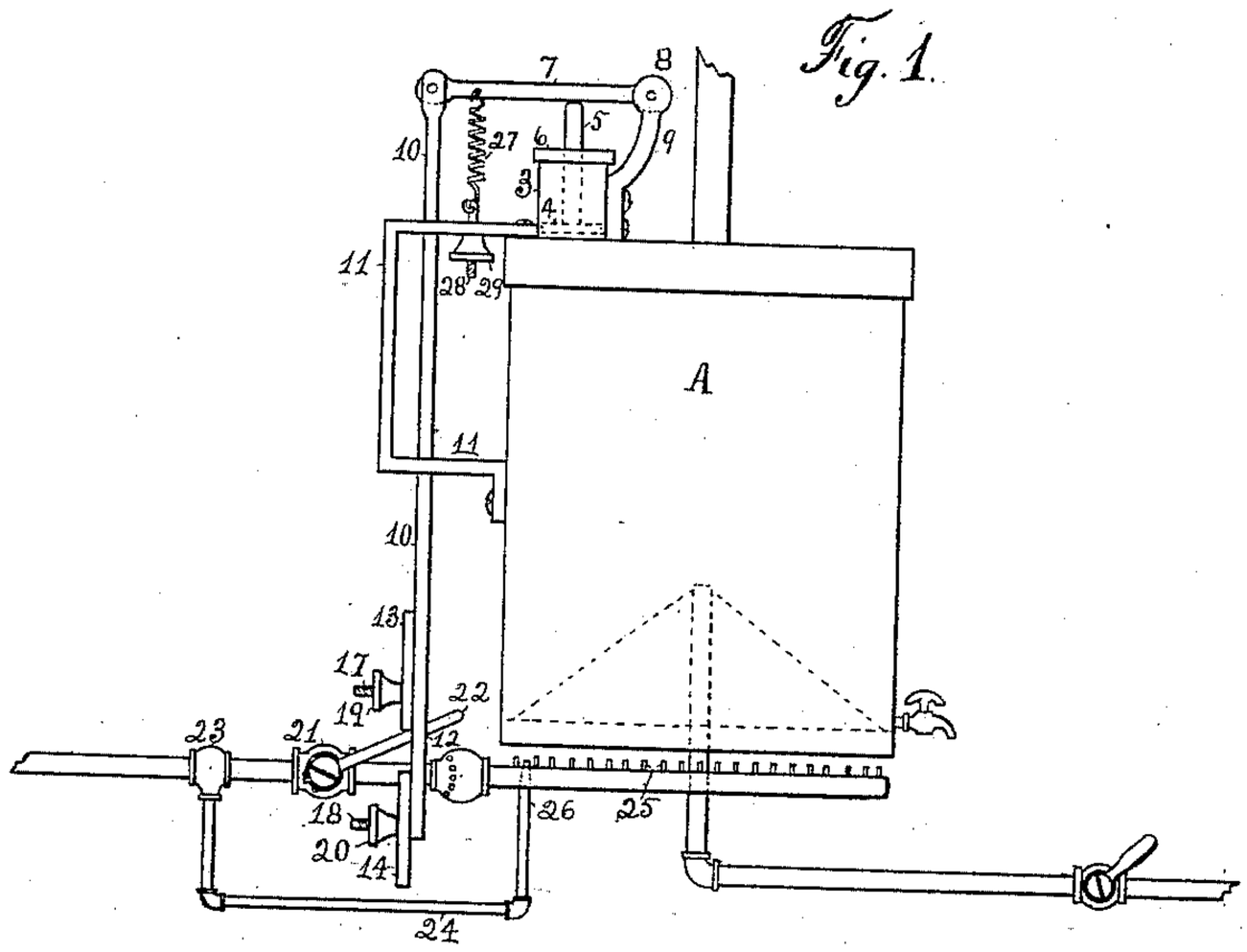


Fig. 2.

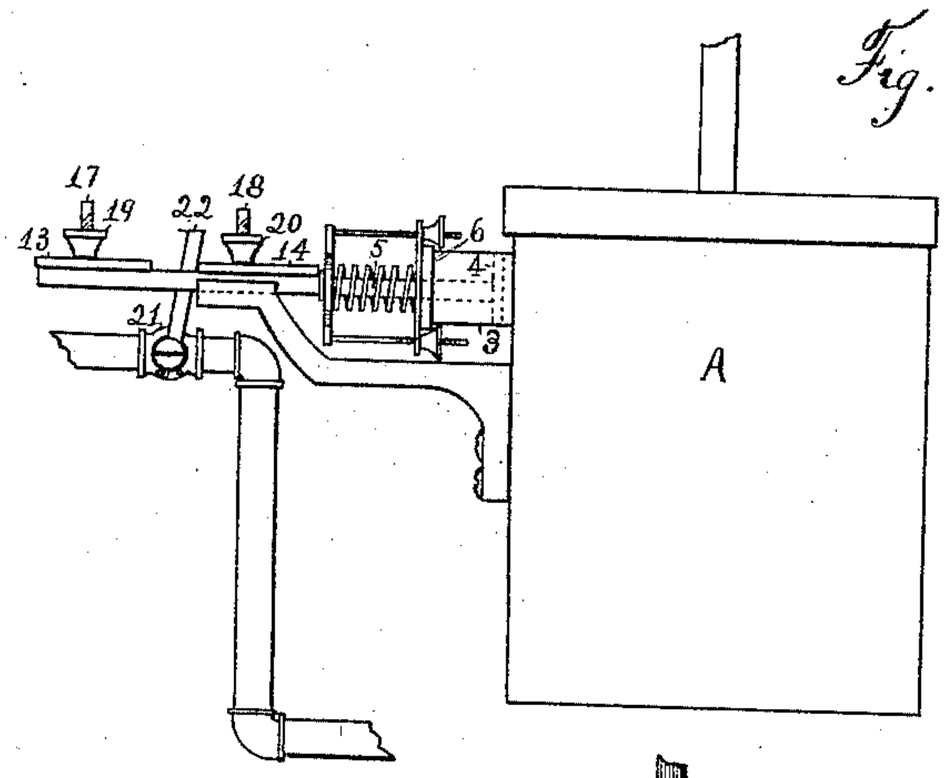
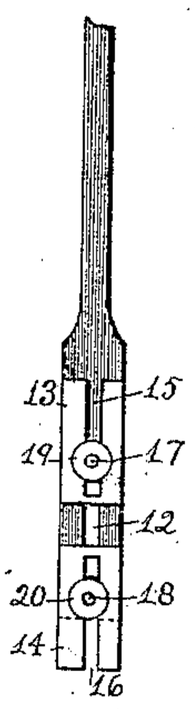


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN B. ODELL, OF CHICAGO, ILLINOIS.

VALVE-CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 426,466, dated April 29, 1890.

Application filed July 19, 1889. Serial No. 318,064. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. ODELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Valve-Controllers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form part of this specification.

The primary object of my invention is to provide an improved valve-controller that will serve more especially to effect an economical saving of gas when used for generating steam, the steam-pressure being employed to turn off the gas at any desired pressure, and to turn it on at a greatly-reduced pressure, if so desired.

I am aware that valve-regulators have been heretofore used that turn on and off the gas by the pressure generated by the flame at a given point of pressure; but as soon as such pressure is released the gas is immediately turned on, thereby effecting the saving of no great amount of gas.

In the accompanying drawings my present invention is shown in connection with a steam-generator, of which my previous application for improvement in steam-heating apparatus, filed February 25, 1889, Serial No. 301,126 is a sample.

Referring to the accompanying drawings, Figure 1 is a side elevation. Fig. 2 is a side elevation of a modified form of the invention. Fig. 3 is a detail view of the adjustment-rod.

3 is a cylinder screwed to the top of the generator A, having a piston-head 4 playing therein. The piston-rod 5 passes through the cylinder-head 6 and rests against an arm 7, one end of which is pivotally held at 8 by the frame 9, secured to the side of the cylinder. To the other end of arm 7 is pivoted a rod 10, which passes through guides 11, fastened to the generator to keep it in line.

In the lower end of rod 10 is a slot 12, that may be partially covered by movable plates 13 and 14. Plates 13 and 14 also have slots 15 and 16, through which pass stems 17 and 18, securely fastened to the rod 10, having adjustable thumb-screws 19 and 20 working on their free ends for the purpose of holding the plates to the rod 10 at any point within their travel.

21 is an ordinary gas-cock in the supply-pipe, its stem 22 passing through the slot 12, so as to be moved by the upward and downward movement of rod 10.

23 is an ordinary T-coupling, having a reduced branch 24 leading around the cock 21 to the burners 25, for the purpose of lighting the heating-burners whenever the gas is turned on; the small burner 26 always being kept lit.

27 is an adjustable spring, having one end fastened to arm 7, the other end being fastened to the stem 28, that passes through the guide-frame 11, which carries a thumb-screw 29, that is held against the guide 11 by the tension of the spring, for the purpose of adjusting the tension given to arm 7.

To illustrate the manner of first adjusting the valve-controller, we will assume that it is desired to turn off the gas at a pressure of ten pounds in the generator and to turn it on at a pressure of five pounds in the generator. The gas being lighted, the steam generated in the generator raises the piston, forcing the arm 7 and rod 10 upward. When the pressure is at the desired point, the adjustable plate 14 is moved up on the rod 10 until it strikes the stem 22 of the gas-cock 21 and raises it far enough to cut off the gas. It is now tightened by the thumb-screw 20 at this point. The tension on the spring 24 is put on to counterbalance the inside pressure of the generator.

The gas being turned off allows the pressure to decrease and the arm 7 and rod 10 to descend. When it has reached the point where five pounds pressure is indicated, the plate 13 is placed and tightened by its thumb-screw 19, where it will shove the stem of the gas-cock downward and turn on the gas, the gas again being ignited by the small branch burner left burning. It is plain that the valve-controller will now operate to turn on and off the gas automatically between these two points until they are changed. I prefer to use the small branch burner to relight the heating-burners, as this arrangement would be the most economical; but it may be dispensed with, if desired, and the downward movement of the regulating-rod stopped be-

fore entirely turning off the gas supplying the heaters.

While I have shown in Fig. 1 the cylinder 3 screwed into the top of the generator, it may be screwed into the side at a right angle to the generator, as shown in Fig. 2, and the piston-rod extended to carry the adjustable plates 13 and 14, as is there shown. In this modified form of my invention the rod 10 will be practically connected with or part of the piston-stem, so as to be positively moved thereby. It will be seen that by my present invention a lost-motion connection is afforded between the piston-rod and the stem of the gas-cock, so that the operation of the cock is not affected by the movement of the piston-stem, or the variation of steam within the cylinder except at the extremes of movement, as hereinbefore mentioned. By thus providing a lost-motion connection between the gas-cock and the stem of the piston the gas is allowed to burn at a uniform rate until it is cut off, and when cut off the steam within the generator is utilized while the gas remains cut off until the steam falls below the point where the inward movement of the piston-head will cause the gas-cock to be again opened to restore the temperature within the generator.

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

1. A valve-controller comprising a steam-cylinder, a piston-head for said cylinder, a stem for said piston-head, a gas-cock, and a lost-motion connection between said gas-cock and the piston-head, whereby the gas-cock will be operated at the extremes of movement of the piston-head, but may remain unmoved at other times, substantially as set forth.

2. A gas-controller comprising a steam-cylinder, a piston-head in said cylinder, a stem for said piston-head, a gas-cock, and a lost-motion connection between said gas-cock and said piston-head, consisting of adjustable devices, said adjustable devices to be adjusted at a distance from each other sufficiently great to insure the non-action of the gas-cock until a predetermined pressure is reached, substantially as described.

3. A valve-controller comprising a steam-cylinder, a piston head therein, a stem for said piston-head, a gas-cock, and a lost-motion connection between said gas-cock and the piston-stem, consisting of a slotted rod having adjustable plates for determining the movement of the gas-cock, substantially as described.

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