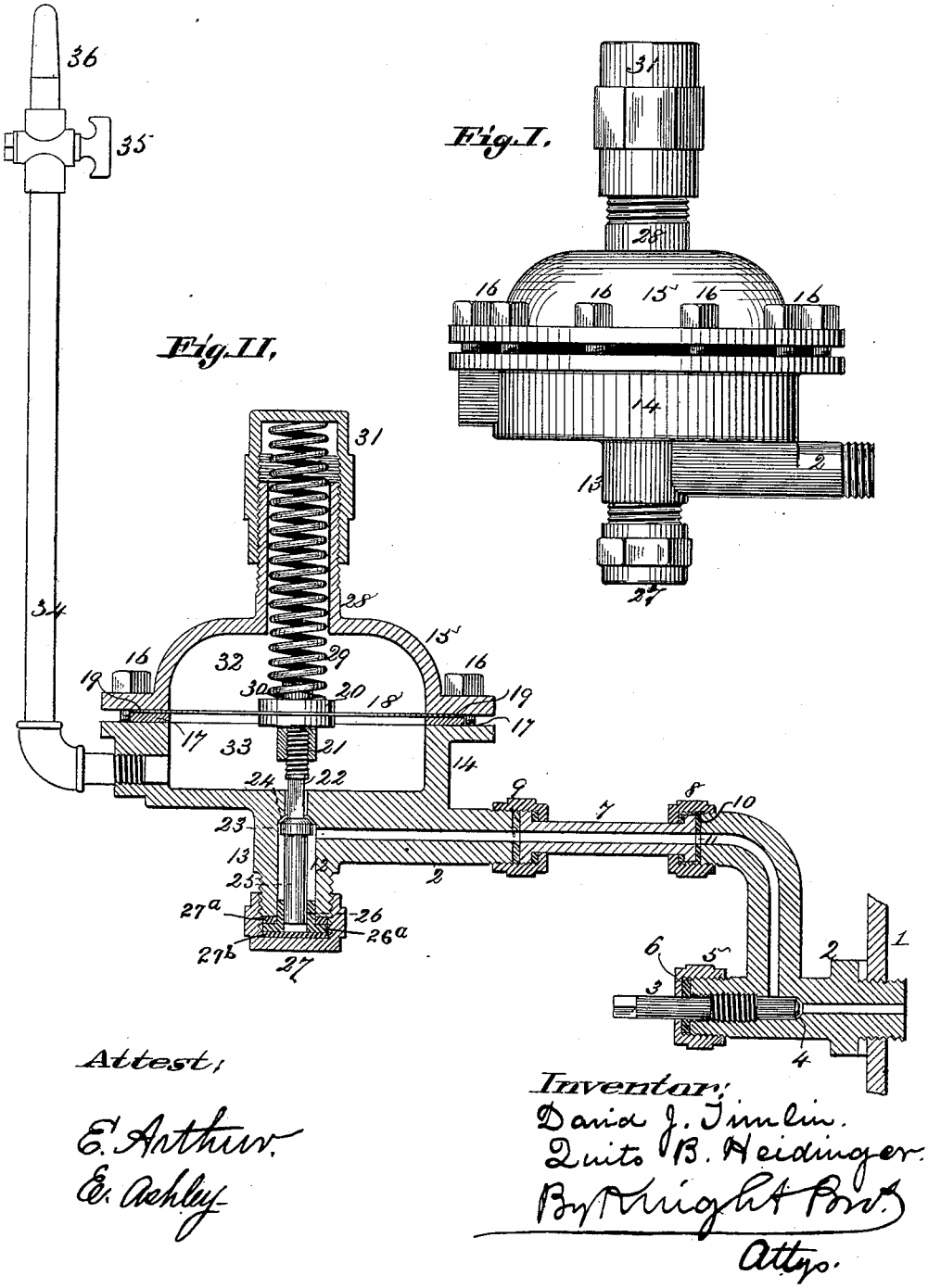
(No Model.)

D. J. TIMLIN & Q. B. HEIDINGER.

AUTOMATIC VALVE.

No. 386,043. Patented July 10, 1888.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC VALVE.

SPECIFICATION forming part of Letters Patent No. 386,043, dated July 10, 1888.

Application filed December 8, 1887. Serial No. 257,333. (No model.)

To all whom it may concern:

Be it known that we, DAVID J. TIMLIN and QUITO B. HEIDINGER, citizens of the United States, residing at Belleville, in the county of St. Clair and State of Illinois, have invented a certain new and useful Improvement in Gas-Regulators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This is a valve which is automatically regulated by the pressure upon a diaphragm forming the top of a chamber, into which the valve-port discharges. The mean pressure in this chamber is regulated by a spring which rests upon the diaphragm and whose tension is regulated by a screw-cap.

Figure I is a side view of the device. Fig. II is a central vertical section of the device, showing some of its accessories.

At 1 is shown part of the wall of a tank or reservoir containing material under pressure.

2 is a pipe in communication at its inner end with the tank or reservoir.

3 is a valve acting upon a seat, 4, to close or partly close the pipe 2. This valve has a screw-cap and packing, 5 6.

7 is a section of the pipe, secured by union couplings 8 and 9.

10 is a perforated plate inserted in the coupling 8. The area of the orifice 11 in this plate may be made smaller or larger, as may be required, and gives a ready means for limiting the size of the passage through the pipe.

The pipe 2 discharges into a valve-chamber, 12, in the extension 13 of the base 14 of the diaphragm-case, said case having a cap, 15, secured to the base by a flange-joint with screws 16 and gasket 17. The edge 19 of the diaphragm 18 is confined in the joint, as seen in Fig. II.

20 is a boss at the center of the diaphragm, having at bottom a screw-threaded socket, 21, in which screws the upper end of the valve-stem 22.

23 is the valve, and 24 is its seat. The valve has a guide-rod, 25, working in a socket, 26, the latter being formed of a perpendicular sleeve or collar, which receives the guide, having at its lower end a horizontal flange, 26^a, as shown, which flange rests between a packing-ring, 27^a, and a packing-disk, 27^b, arranged above and below the flange, respectively, and 27 is a screw-threaded cap, which is screwed upon the lower end of the extension 13 and holds the packings and the adjacent parts firmly together, and thus produces a tight joint, whereby all leakage of gas from the chamber 12 is prevented. The cap 15 has a neck, 28, through which passes a spiral spring, 29, whose lower end embraces a knob, 30, upon the boss 20, and whose upper end rests in a cap, 31, which screws upon the neck 28. By screwing the cap down on the neck the force of the spring is increased. The chamber 32 above the diaphragm is closed. The material passing through the port of the valve 23 enters the chamber 33 beneath the diaphragm, and escapes through an eduction-pipe, 34.

35 is a cock in the pipe 34, and 36 represents a gas burner.

The operation of the device is as follows: The spring 29 is so adjusted as to hold the valve 23 open the required distance to keep the desired pressure within the chamber 33. If from an increase of pressure in the reservoir a larger amount of gas or other fluid passes through the port of the valve 23, the pressure upon the under side of the diaghragm carries the valve upward and partly closes the valve-port, thus lessening the amount of the fluid passing through and decreasing the pressure in the chamber 33. If a greater pressure is desired, the cap 31 is turned down, so as to increase the force of the spring 29. The closing of the cock 35 is immediately followed by the closing of the valve 23, owing to the increase of pressure in the chamber 33.

We claim as our invention—

The combination, with the chamber 33, having an eduction-port, the diaphragm 18, closing one side of said chamber, a screw-threaded socket on said diaphragm, the extension 13, having a chamber, 12, therein provided with an induction-port and with an eduction-port leading to the chamber 33, and the valve-seat 24, of a screw-threaded valve-stem screwed into said socket 21 and projecting into said

chamber 12, a valve on said stem adapted to rest upon the seat 24, a guide-rod projecting from said valve, a removable socket, 26, in said chamber 12, for receiving the end of said guide-rod, a flange, 26^a, on said socket, packing arranged above and below said flange, and a cap screwed upon the end of the extension 13 over said packing, as shown, and for the purposes set forth.

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In presence of—
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