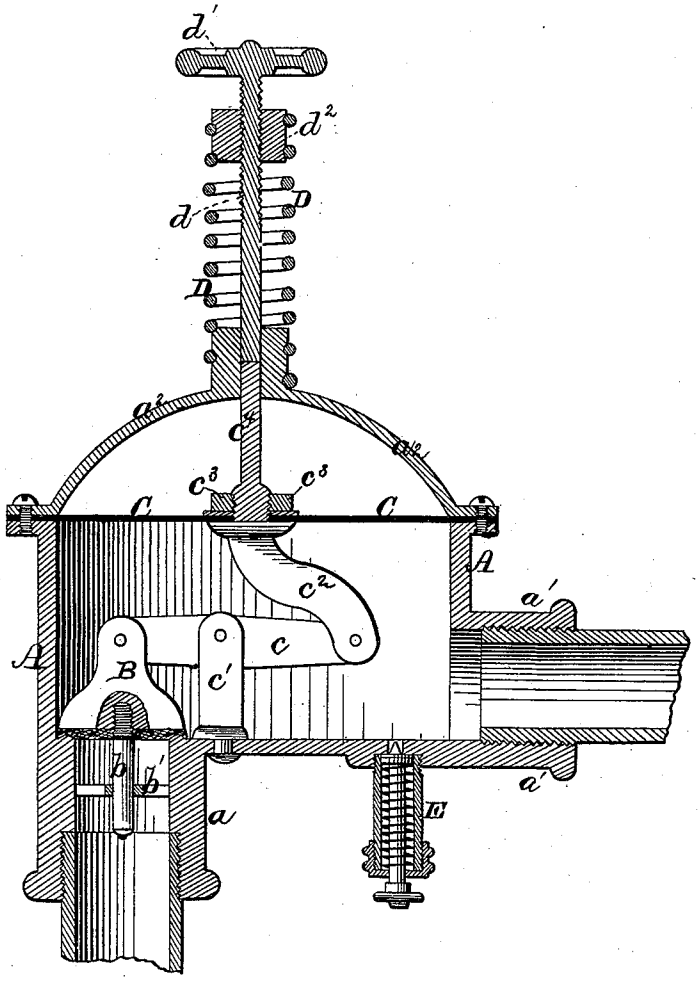
G. H. WOOD.

PRESSURE-REGULATOR.

No. 193,629. Patented July 31, 1877.



WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE H. WOOD, OF PORT HURON, MICHIGAN, ASSIGNOR OF ONE-HALF HIS RIGHT TO PETER B. SANBORN, EZRA C. CARLTON, AND WILLIAM STEWART, OF SAME PLACE.

IMPROVEMENT IN PRESSURE-REGULATORS.

Specification forming part of Letters Patent No. **193,629**, dated July 31, 1877; application filed June 12, 1877.

To all whom it may concern:

Be it known that I, GEORGE H. WOOD, of Port Huron, in the county of St. Clair and State of Michigan, have invented certain new and useful Improvements in Pressure-Regulators; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification, and in which the figure illustrates a vertical section of my improved pressure-regulator.

This invention relates to a certain improvement in that class of devices termed "pressure-regulators," designed for use in regulating the pressure of liquids or fluids; and it consists, principally, of a case or bulb having an inlet and outlet, and provided in its inlet with a valve suitably connected to a flexible or yielding diaphragm having a tension or pressure-regulating device, substantially as hereinafter more fully set forth.

In the annexed drawing, A refers to a case or bulb, of any preferred form, having an inlet, *a*, provided with a nozzle for its attachment to a pipe or other passage—a water or gas main, for instance—the pressure of which liquid or fluid, being conducted from the water-reservoir or gasometer, it is desired to regulate. This case or bulb is provided with an outlet, a^1, having a nozzle, to permit of the attachment thereto of a discharging pipe or conduit.

B is a valve, seated upon the inner end of the inlet-pipe *a*, and having a stem, *b*, depending from it, provided with a cross-piece or guide, *b'*, to keep the valve centrally over the said inlet when open. This valve is connected to a diaphragm or partition, C, made from some yielding or flexible material, and fastened down within the case or bulb A, between the securing-flanges and screws of its cap or dome a^2. The connection between the said valve and diaphragm consists, preferably, of a lever, *c*, fulcrumed upon a short post or stud, c^1, suitably bolted or otherwise fastened within the case A. One arm of this lever is connected to the valve, and the other arm to a pendant, c^2, of the flexible or yielding diaphragm or partition, preferably threaded, and passing through the said partition or diaphragm to receive a nut, c^3, upon the opposite or upper side of the diaphragm, to secure it (the pendant) thereto. The upper end of this pendant is still farther extended, or provided with a stem or bar, c^4, entering an aperture in the center of the dome or cap a^2. Resting or bearing upon the upper end of the said stem or bar c^4, and having its lower end confined in the said aperture, is a screw, *d*, having a hand-wheel, d^1, or its equivalent, for rotating said screw, and a nut, d^2, to which is rigidly fastened the upper end of a spring, D, bearing upon the apex of the dome or cap a^2, to which it may be also secured. E is a safety-valve in the bottom of the bulb or case.

The operation of my regulator is as follows: The cock of the discharging-pipe is opened, when the flowing liquid or fluid from the chamber or case A will thus disturb the equilibrium of pressure upon the upper and lower sides of the valve, the pressure below the valve, of course, predominating, causing it (the valve) to open and permit of the ingress of the liquid or fluid, which will continue to flow until the supply becomes greater than the discharge. In that event, it will be observed that the excess of pressure upon the diaphragm or partition C will flex or bow it upwardly, which will elevate its arm of the lever *c*, and depress that arm thereof attached to, and close the valve until the excess of flow or pressure is stayed, when the valve will resume its open position and again allow the ingress of the liquid or fluid, thus automatically regulating the pressure.

It will be seen that by turning the hand wheel or lever d^1 the screw *d* will be rotated, and its nut d^2 raised or lowered, according to the direction given the wheel or lever, when the spring D will be distended or compressed, the effect of which, of course, will be to vary the tension of the diaphragm or partition,

causing it to bear with greater or less pressure, through its connection, upon the valve B.

It will also be seen that in the event the flexible diaphragm becomes distended or too yielding by constant use, &c., the slack or irregularity thus produced can also be remedied by the pressure-regulating device.

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

In a pressure-regulator, the case A, having the flexible or yielding partition or diaphragm C, in combination with the valve B, lever-connection c c^2, screw d, having a nut, d^2, and spring D, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

GEORGE H. WOOD.

Witnesses:
WILL. E. STEWART,
CHAS. F. STEWART.