

No. 613,623.

Patented Nov. 1, 1898.

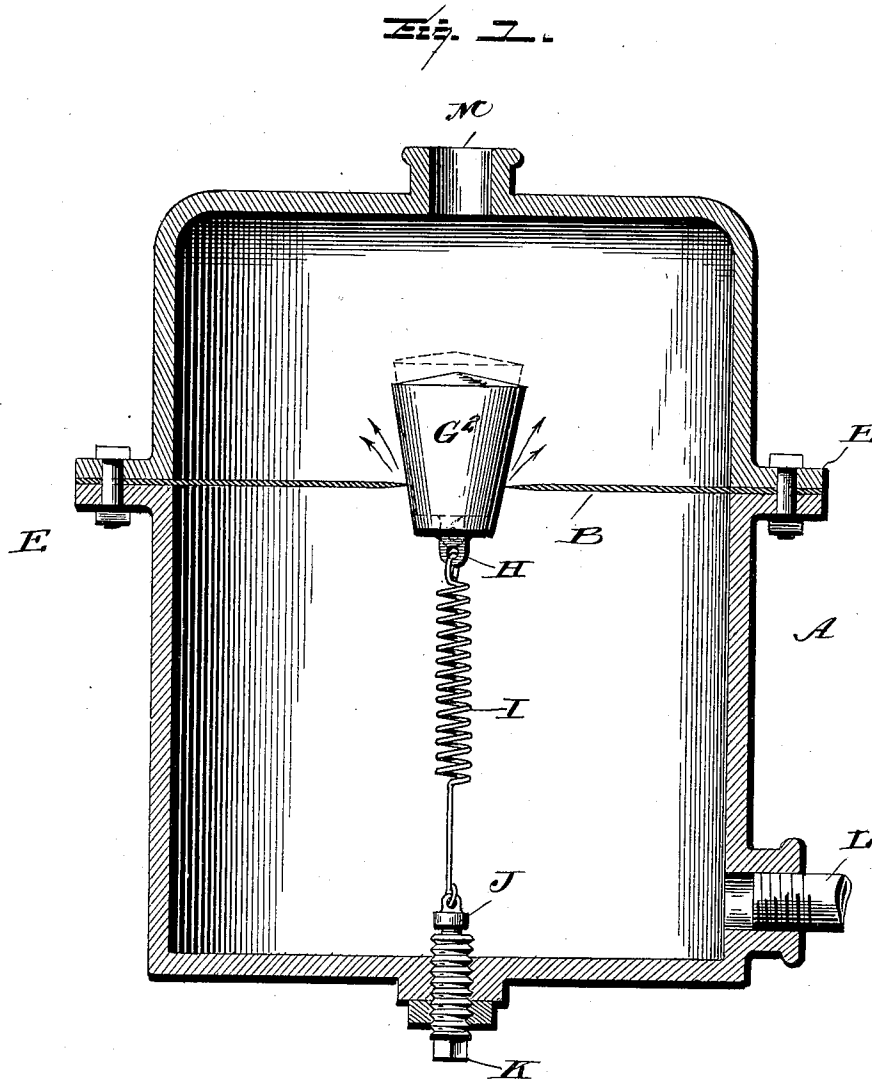
E. J. DOLAN.

VALVE.

(Application filed Mar. 22, 1897.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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A. L. Hough

Inventor:

Edward J. Dolan,
by Franklin H. Hough
Atty.

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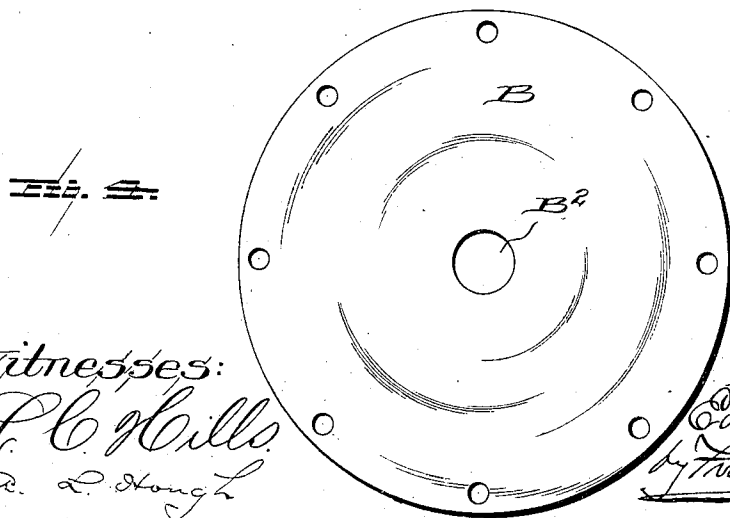
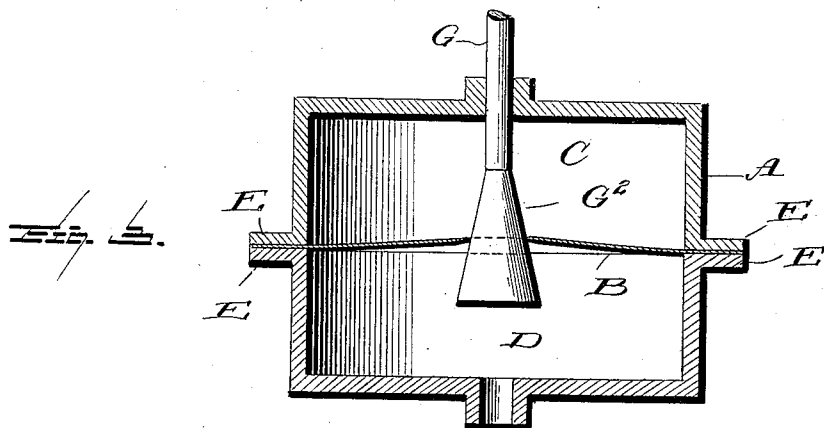
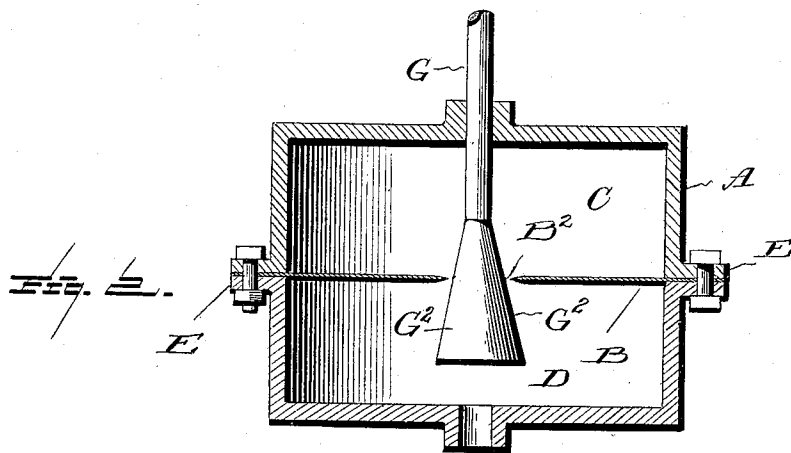
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2 Sheets—Sheet 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

EDWARD J. DOLAN, OF PHILADELPHIA, PENNSYLVANIA.

VALVE.

SPECIFICATION forming part of Letters Patent No. 613,623, dated November 1, 1898.

Application filed March 22, 1897. Serial No. 628,756. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. DOLAN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Valves; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in valves, and it relates more particularly to valves which are especially designed for use in connection with acetylene gas, although valves constructed in accordance with my invention will be found to be adapted for use as water, steam, air, &c.

The invention has for its object the provision of a valve, preferably conical in form, in connection with a thin and flexible metallic valve-seat, the valve-seat being preferably of hardened steel, and the relation between the valve and its seat being such as to cause the thin edges of the valve-seat when brought into contact with the valve to effectually scrape off or cut away any corrosion that may form upon the surface of the valve, and thus serve to at all times keep the face of the valve free from obstructions and permit the seating of the valve.

To these ends and to such others as the invention may pertain the same consists in the peculiar construction of the valve and its seat, all as more fully hereinafter described, shown in the accompanying drawings, and then specifically defined in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, like letters of reference indicating the same parts throughout the several views, and in which drawings—

Figure 1 is a vertical central section through an acetylene-gas chamber equipped with an automatically-operated valve embodying my invention. Fig. 2 is a like view showing a slightly-modified form of valve, the valve be-

ing shown as open. Fig. 3 is a like view of the construction shown in Fig. 2 with the valve shown as closed. Fig. 4 is a top plan view of the disk or valve-seat.

Reference now being had to the details of the drawings by letter, A designates a gas-chamber made of cast metal and composed of two sections, an upper and lower, the meeting edges of the sections being provided with outwardly-extending lips or flanges E, between which are clamped the outer edges of a thin and flexible disk or plate B, preferably of hardened steel. This disk B serves to divide the gas-chamber into two compartments, one above the other, as shown. At the center of the disk is provided a valve-opening B², within which is seated a conical valve or plug G², and, as will be observed upon reference to the drawings, the portion of the disk B in the immediate vicinity of the central valve-opening is made thinner than is the body portion of the disk, thus presenting to the face of the valve a thin and knife-like edge.

The gas-chamber in Fig. 1 of the drawings is shown as provided with a gas-inlet pipe L near the bottom of the chamber and with an outlet M communicating with the upper compartment. The valve or plug G² is placed within the valve-opening in the valve-seat or disk B, as shown in Fig. 1 of the drawings, having the larger end of the plug upward, and the lower end of the plug is connected by means of a spiral spring I with the upper end of a screw-threaded plug J at the lower end or bottom of the lower compartment of the gas-chamber. The lower end of the screw-threaded plug K projects for a distance beyond the bottom of the case and is squared to admit of its being readily grasped by a wrench when it may be desired to turn the plug.

The operation of the valve will be at once understood from the foregoing description. The valve having been set or adjusted by turning the plug K so as to adjust the tension of the spring I, the gas is permitted to enter the lower compartment beneath the disk or valve-seat B. When the pressure of the gas within the compartment exceeds the tension of the spring I, it will unseat and open the valve-plug G², and a sufficient

amount of gas is permitted to escape through the outlet M to reduce the pressure to a point below the tension of the spring I, when the spring serves to again seat the valve. As
 5 the valve is seated the sharp edges of the flexible seat serve to effectually cut or scrape from the face of the valve any impurities which may adhere to the same.

The flexible character of the disk forming
 10 the valve-seat serves to cause the seat to bind more closely against the face of the valve than would be the case if a rigid and unyielding valve-seat were employed.

In Figs. 2 and 3 of the drawings I have
 15 shown the valve-plug as inverted and held in position permanently, and with this construction the flexible valve-seat would be forced from contact with the valve-plug, thus permitting the gas to escape around the plug.

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

1. The combination with a flexible disk or plate of metal formed with an opening and a
 25 conical valve adapted to be projected through said opening and to bear directly upon the edge thereof, substantially as described.

2. A valve-seat consisting of a flexible disk or plate of metal, having a valve-opening and
 30 having that portion of the disk or plate thin-

ner in the vicinity of the valve-opening than at other portions of the disk or plate, substantially as described.

3. The combination with a flexible disk or plate, having an opening constituting a valve-
 35 seat, the said seat being formed with a scraping edge, of a conical valve adapted to project through the opening of the disk and bear directly upon the scraping edge thereof, substantially as described.

4. The combination with a flexible metallic disk or plate having a valve-opening therein, the portion of the disk or plate in the vicinity of the valve-opening being thinner than the
 40 body portion, a conical valve or plug seated in the valve-opening, and adjustable spring-actuated connection with the valve or plug whereby the valve is held normally in a position closing the valve-opening, substantially
 45 as described.

5. The combination with a valve-seat having a scraping edge, of a conical valve and a spring for normally maintaining the valve
 50 to the seat, substantially as described.

In testimony whereof I affix my signature
 55 in presence of two witnesses.

EDWARD J. DOLAN.

Witnesses:

ALICE TRACY,
 KATIE A. DOLAN.