June 23, 1925.

1,543,264

P. A. MORGAN

VACUUM CONTROLLED REGULATOR

Filed Sept. 21, 1923

2 Sheets-Sheet 1

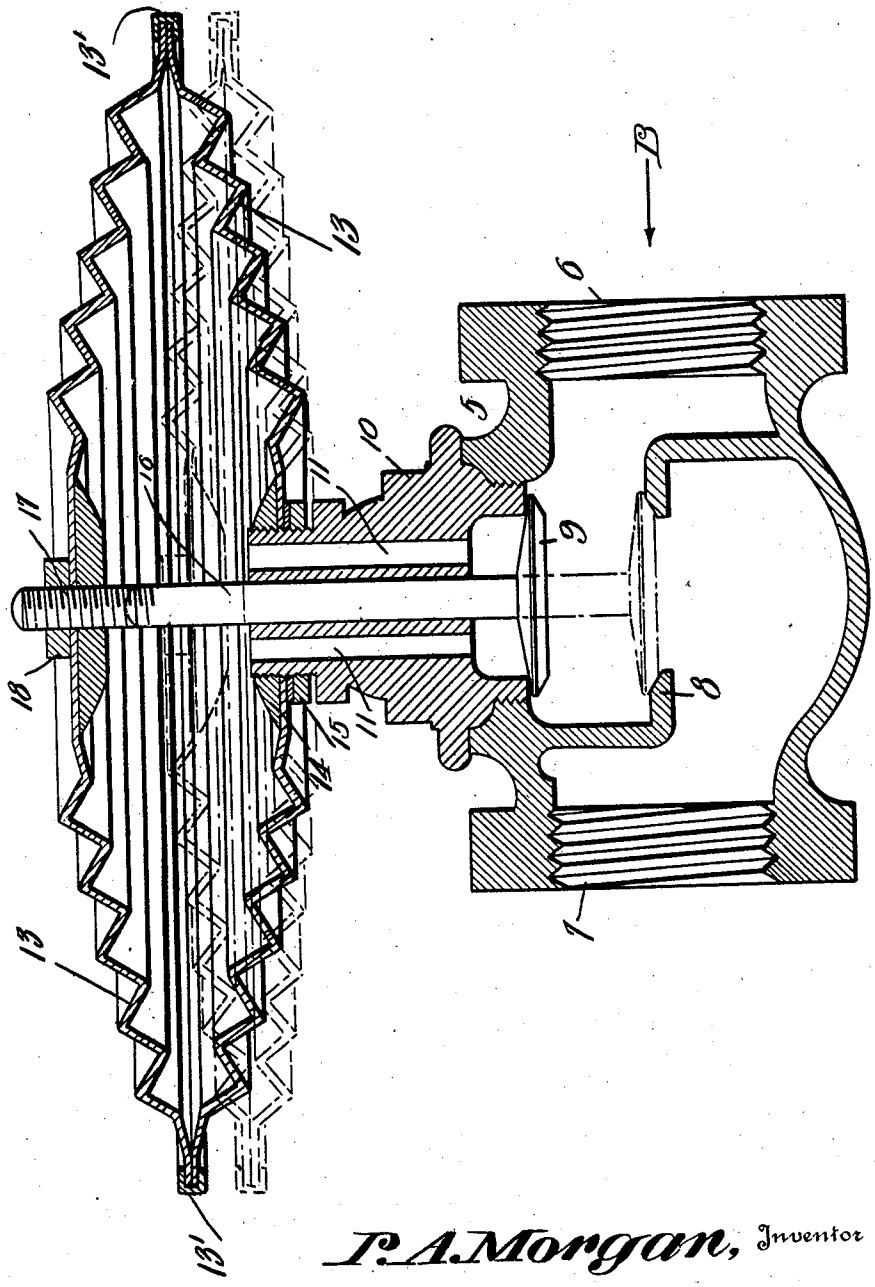


Fig. 1.

P. A. Morgan, Inventor

By C. A. Snow & Co.

Attorneys

June 23, 1925.

1,543,264

P. A. MORGAN

VACUUM CONTROLLED REGULATOR

Filed Sept. 21, 1923

2 Sheets-Sheet 2

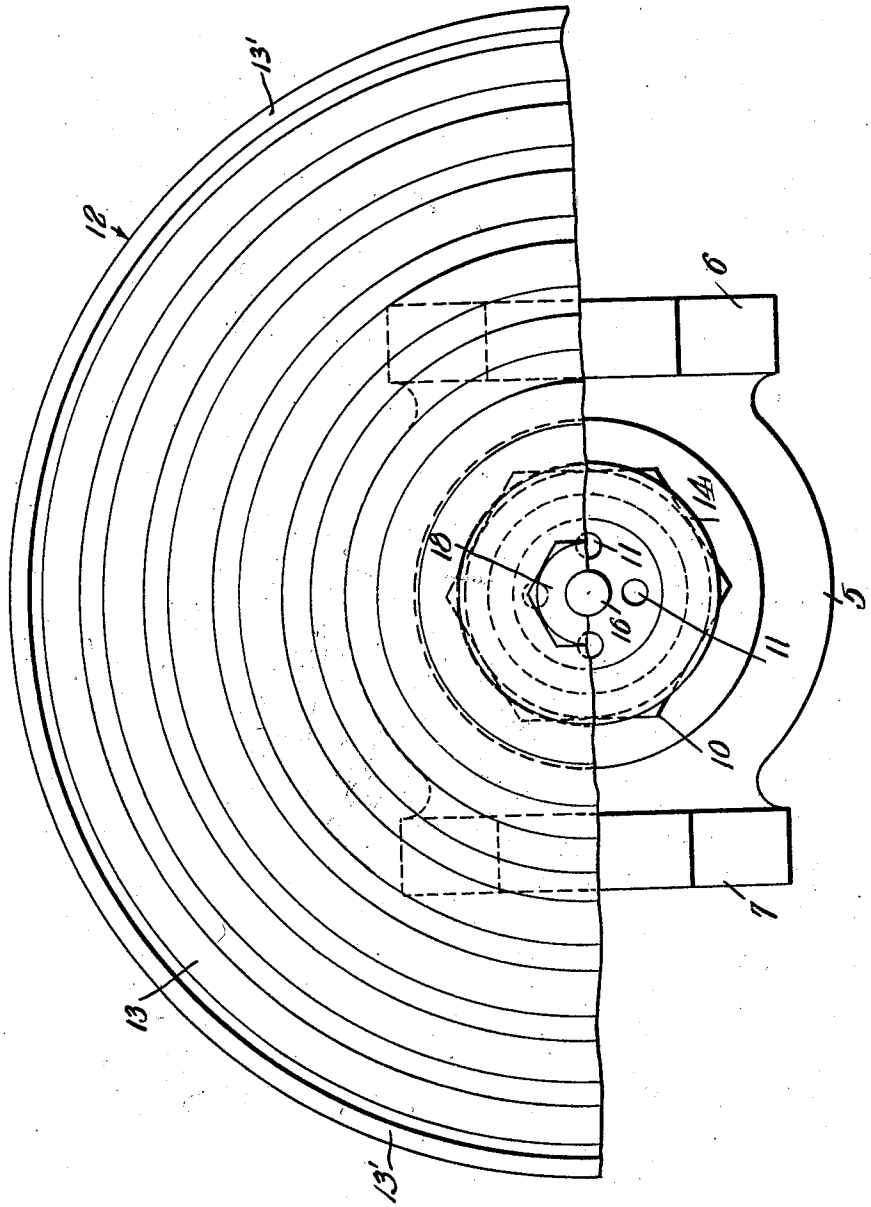


Fig. 2.

P. A. Morgan, Inventor

By C. A. Snow & Co.

Attorney

Patented June 23, 1925. 1,543,264

UNITED STATES PATENT OFFICE.

PORTER A. MORGAN, OF BARTLESVILLE, OKLAHOMA.

VACUUM-CONTROLLED REGULATOR.

Application filed September 21, 1923. Serial No. 664,062.

To all whom it may concern:

Be it known that I, PORTER A. MORGAN, a citizen of the United States, residing at Bartlesville, in the county of Washington and State of Oklahoma, have invented a new and useful Vacuum-Controlled Regulator, of which the following is a specification.

This invention has reference to a regulator for relieving excessive vacuum in pipe lines leading from supply tanks to insure against the vacuum in the pipe line springing the seams of the tank, or otherwise rendering the tank inoperative.

A further object of the invention is to provide a device of this character which may be readily and easily positioned in the pipe line, eliminating the necessity of making extensive alterations in the usual construction to install the device.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

Referring to the drawings:

Figure 1 is a sectional view through a device constructed in accordance with the invention.

Figure 2 is a plan view disclosing the diaphragm and partly broken away.

Referring to the drawings in detail, the reference character 5 designates the body portion of the valve which includes an inlet port 6 and an outlet port 7, the port 6 being connected with a suitable pipe not shown, leading from a gas supply tank not shown, while the port 7 is threaded to receive one end of an exhaust pipe through which the gas passes from the valve body 5.

Forming a part of the valve body is a valve seat 8 which is disposed intermediate the height of the valve body, where the same receives the valve member 9 that moves within the valve body and controls the passage of gas therethrough.

The upper portion of the valve body 5 is threaded to receive the plug 10 formed with a plurality of openings 11 that establish communication between the valve body and vacuum chamber 12 that includes upper and lower walls 13 which are in the form of diaphragms, are corrugated and constructed to flex to positions as shown in dotted lines in Figure 1 of the drawings.

The walls 13 are connected at their edges by the flanged member 13′ that is shown as embracing portions of the walls 13.

This vacuum chamber is positioned on the upper extremity of the plug 10 and is held thereon by means of the threaded member 14 which clamps one wall of the vacuum chamber to the washer 15 that is also supported on the upper end of the plug 10. The valve 9 is mounted on the lower end of the valve stem 16 which is formed with a threaded extremity 17 that passes through suitable openings in the upper wall of the vacuum chamber, there being provided a nut 18 operating on the threaded portion to hold the valve rod and valve supported thereby in various positions of adjustment, causing the valve 9 to seat under various drops in pressure.

In the operation of the device it might be stated that the vacuum machine which is in the pipe line and connects with the port 7 of the valve body, draws gas through the valve body 5 in the direction of the arrow B as shown by Figure 1 of the drawings. When the vacuum becomes so great as to impair the efficiency of the tank, which is in communication with the body 5 through the port 6, the vacuum will act on the valve member 9 drawing the same downwardly and cutting off the supply of gas through the valve body, the upper wall of the vacuum chamber moving to allow such movement of the valve.

When the valve member 9 is in a position as shown in dotted lines in Figure 1 of the drawings, the gas pressure collects behind the valve and passes through the openings 11 and into the vacuum chamber forcing the walls of the vacuum chamber apart and returning the valve 9 to its normal position to allow the vacuum to again act on the gas passing into the valve body.

I claim:—

1. A vacuum controlled valve including a body portion having a valve seat therein and having an upper threaded opening, a plug positioned in the threaded opening, a pressure controlled diaphragm mounted on the plug, said plug having openings providing communication between the valve body and the diaphragm, a valve having connec-

tion with the diaphragm and adapted to normally close the openings in the plug, and said valve adapted to move to engage the valve seat and cut off the vacuum in the valve body, and said openings adapted to admit fluid to the diaphragm.

2. A vacuum controlled valve including a body portion having a valve seat, a plug in the valve body and having openings, a diaphragm supported by the valve body, a valve in the valve body and having connection with the diaphragm, and adapted to seat on the valve seat to restrict the passage of fluid through the valve body, and said valve adapted to normally close the openings in the plug.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

PORTER A. MORGAN.

Witnesses:
W. L. WOODROOF,
H. B. WILKINS.