

No. 753,110.

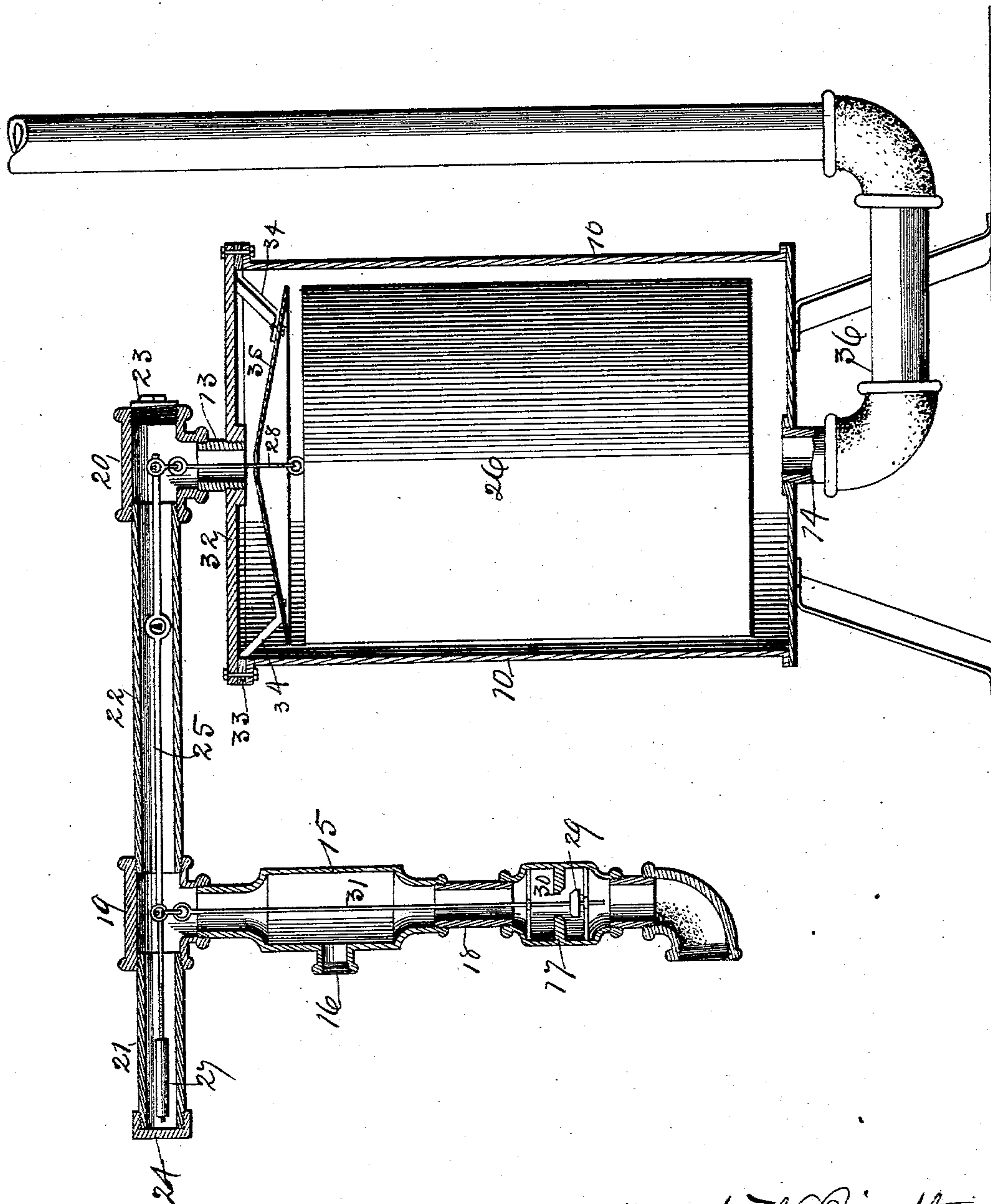
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AUTOMATIC GAS REGULATOR.

APPLICATION FILED MAY 18, 1903.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

FRANK W. PRIESTLEY, JAMES KEPHART, AND FRANK M. MERCHANT,
OF WEBSTER CITY, IOWA, ASSIGNORS TO THE IOWA GAS PLANT
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AUTOMATIC GAS-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 753,110, dated February 23, 1904.

Application filed May 18, 1903. Serial No. 157,745. (No model.)

To all whom it may concern:

Be it known that we, FRANK W. PRIESTLEY, JAMES KEPHART, and FRANK M. MERCHANT, citizens of the United States, residing at Webster City, in the county of Hamilton and State of Iowa, have invented a new and useful Automatic Gas-Regulator, of which the following is a specification.

Our object is to provide an automatic regulator for maintaining a uniform quality of gas as it is delivered from the carbureter to a main for distribution to burners.

Heretofore a cylindrical mixing-chamber has been provided with automatic mechanism for admitting air at its bottom when the degree of saturation of gasolene-vapor makes the gas too heavy and too rich, causes smoke in burning it, and a reduction of its illuminating power; but to admit air at the bottom of the mixing-cylinder through the same pipe that supplies gas to such a cylinder is objectionable in view of the fact that the gas being heaviest in the bottom of the cylinder, where the gas is introduced, there is resistance to the introduction and mixing of air with the gas and to the raising of a float in the cylinder for operating an air-inlet valve promptly. To overcome such difficulty and delay in effecting the quick action of automatic mechanism for operating an air-inlet whenever the gas is too heavy and rich, we feed gas and air into the top of the mixing-cylinder to maintain the desired uniform quality and discharge it from the bottom of the cylinder.

Our invention consists in the construction, arrangement, and combination of operative elements with a mixing-chamber, as hereinafter set forth, pointed out in our claims, and illustrated in the accompanying drawing, in which the different parts are distinguished by numerals.

The numeral 10 designates an air-tight mixing-chamber, preferably cylindrical in form. It has screw-threaded apertures at the center of its top and bottom, in which are fitted short tubes 13 and 14.

A minor mixing-chamber 15 has a branch 16,

adapting it to be connected with a carbureter, has a valve-chamber 17 connected with its bottom by means of a short pipe-section 18, and an extension at the bottom of the valve-chamber to be connected with a source of supply of air under pressure for conveying air from the said source of supply into the valve-chamber whenever the gas in the chamber 10 is dense enough to lift the float.

An elongated chamber for inclosing a lever and conveying gas from the minor mixing-chamber 15 into the main mixing-chamber 10 is composed of a T 19, fixed to the top of the chamber 15 and a second T 20, fixed to the tube 13 at the top of the main chamber 10, and tubes 21 and 22, as shown, or in any suitable way. A plug 23 closes one end of the elongated chamber and a cap 24 the other end.

A lever 25 is fulcrumed in the elongated chamber, and an air-tight float 26 in the chamber 10 is suspended from the short arm of the lever. On the end of the long arm of the lever is an adjustable weight 27 for counterbalancing the float suspended from the short arm by means of a link 28, and a valve 29, fitted to the valve-seat 30 in the chamber 17, has a stem 31 connected with the long arm of the lever.

Under the removable head 32 of the chamber 10 is a ring 33, that has inward and downwardly inclining projections 34, to which is fixed a cone-shaped deflector 35, that directs gas into the annular space between the float 26 and the wall of the chamber 10 and into the bottom of said chamber, from whence it is conveyed through a pipe 36 to be distributed to burners.

In the practical operation of our invention the suspended and balanced float will be very sensitive to any change in the quality of gas that surrounds it, and the instant too much gasolene-vapor is manifest in the gas the density thereof will lift the float, and by means of the weighted lever the valve in the valve-chamber will be automatically opened to admit air to pass up from a source of supply under pressure into the minor mixing-chamber and from thence into the main chamber, as

required, to restore the gas to the particular degree of richness that is to be maintained. The instant enough air has been thus admitted and mixed with the carbureted air in the 5 main chamber the float will descend and close the air inlet or valve below the minor mixing-chamber.

Having thus described the purpose of our invention and its construction and operation, 10 the utility thereof will be readily understood by persons familiar with the art to which it pertains, and what we claim as new, and desire to secure by Letters Patent, is—

1. In a gas-regulator, a main mixing-chamber, 15 a removable head, a ring fixed under the head and a cone-shaped deflector connected with the ring and an air-tight float suspended under the head, a tube fixed in the top and center of the head and an elongated chamber extended horizontally from the top of said tube, 20 a lever fulcrumed in said elongated chamber and its short arm connected with said float, and an adjustable weight on the end of its long arm for operating a valve, arranged and combined to operate in the manner set forth for 25 the purposes stated.

2. In a gas-regulator, a main mixing-chamber, a removable head, a ring fixed under the head and a cone-shaped deflector connected 30 with the ring and an air-tight float suspended under the head, an elongated chamber extended horizontally from the center of the head, a lever fulcrumed in said elongated chamber and its short arm connected with said float, 35 an adjustable weight on the end of its long arm for operating a valve, a minor mixing-

chamber connected with the said elongated chamber and adapted to be connected with a carbureter, a valve-chamber at the bottom of said minor mixing-chamber, a valve fitted to a 40 valve-seat in said valve-chamber and a valve-stem fixed to the valve and connected with the long arm of the lever, arranged and combined to operate in the manner set forth for the purposes stated.

3. In a gas-regulator, a main mixing-chamber, a removable head, a ring fixed under the head and a cone-shaped deflector connected with the ring and an air-tight float suspended 45 under the head, an elongated chamber extended horizontally from the center of the head, a lever fulcrumed in said elongated chamber and its short arm connected with said float, an adjustable weight on the end of its long 50 arm for operating a valve, a minor mixing-chamber connected with the said elongated chamber and adapted to be connected with a carbureter, a valve-chamber at the bottom of said minor mixing-chamber, a valve fitted to 55 a valve-seat in said valve-chamber and a valve-stem fixed to the valve and connected with the long arm of the lever and a discharge-pipe at the bottom of the main mixing-chamber, arranged and combined to operate in the manner 60 set forth for the purposes stated.

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