No. 676,271. Patented June 11, 1901.

G. OFELDT.

VAPORIZER AND FUEL REGULATOR.

(Application filed Oct. 23, 1900.)

(No Model.) 2 Sheets—Sheet 1.

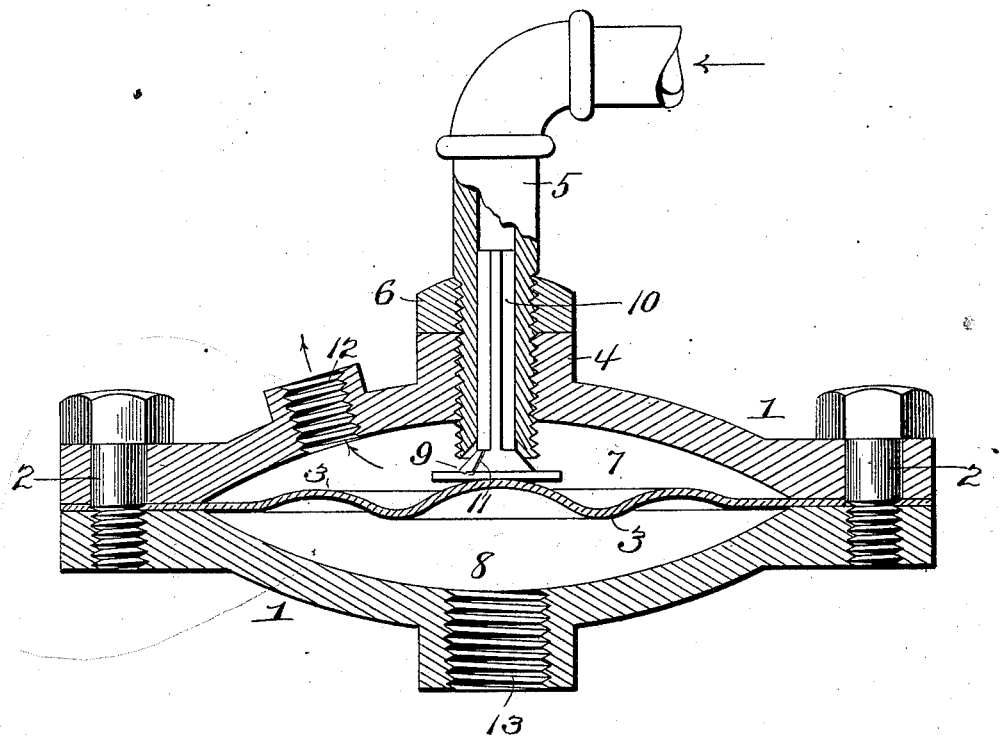

Fig. 1.

WITNESSES
E. J. Nottingham
G. F. Downing.

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By H. A. Seymour
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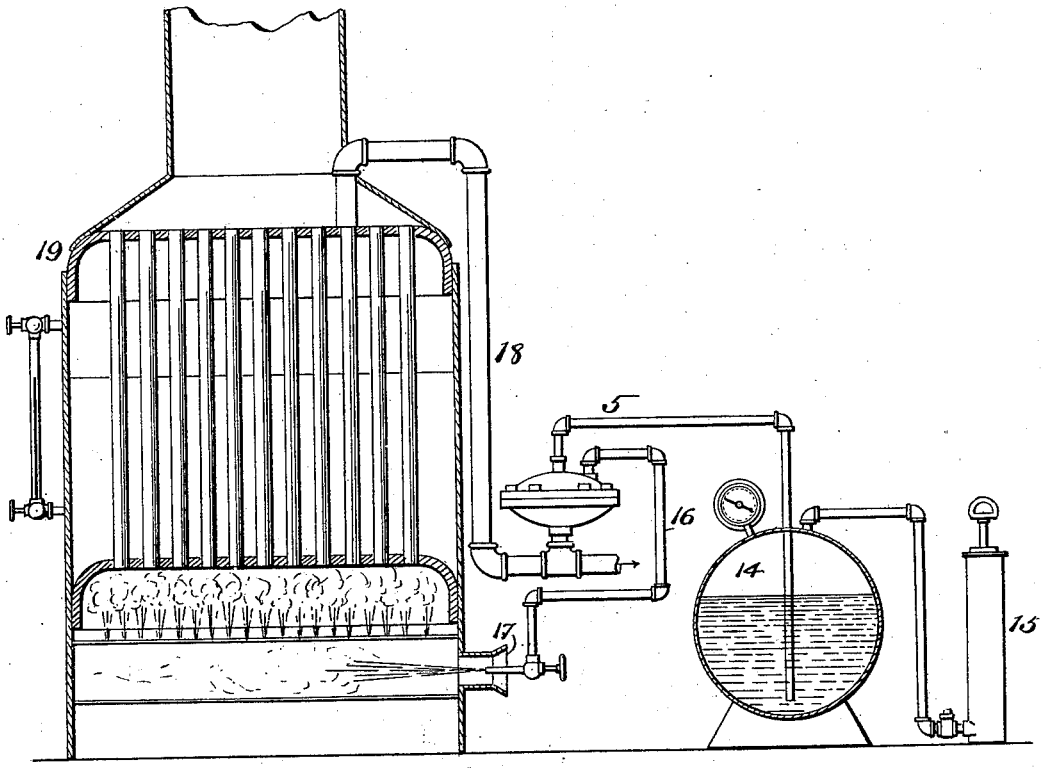

Fig. 2.

WITNESSES
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UNITED STATES PATENT OFFICE.

GEORGE OFELDT, OF BROOKLYN, NEW YORK.

VAPORIZER AND FUEL-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 676,271, dated June 11, 1901.

Application filed October 23, 1900. Serial No. 34,071. (No model.)

To all whom it may concern:

Be it known that I, GEORGE OFELDT, a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Vaporizers and Fuel-Regulators; and I do hereby 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.

My invention relates to an improved vaporizer and fuel-regulator, the object of the invention being to provide a device of this character which will be extremely simple in construction, cheap to manufacture, and which will be entirely automatic in operation.

With this object in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in section, illustrating my improvements. Fig. 2 is a view showing the adaptation of my invention.

1 1 represent two conical disks secured together at their edges by means of bolts or screws 2, which latter also secure between the disks a corrugated diaphragm 3, dividing the casing formed by the disks into two chambers, an upper one, 7, above the diaphragm for vaporizing the hydrocarbon and a chamber 8 below the diaphragm for steam.

The upper disk 1 is provided centrally with an internally-screw-threaded enlargement 4 for the reception of an externally-screw-threaded hydrocarbon-supply pipe 5, on which latter a jam-nut 6 is located to secure the pipe against accidental displacement. The pipe 5 communicates with a hydrocarbon-supply tank 14, and with the latter a pump 15 may be connected. The lower end of pipe 5, which projects into vaporizing-chamber 7, is internally beveled to form a seat for a conical valve 9, which latter is supported by diaphragm 3 and provided with a webbed stem 10, projecting up into pipe 5, and a slight groove or scratch 11 is made in valve 9 to permit a small amount of hydrocarbon to ooze past the valve into chamber 7 when the valve is held against its seat, and hence prevent the burner from becoming entirely extinguished. The upper disk is made with a screw-threaded hole 12 for the reception of a vapor-pipe 16 to convey the vapor to the injector-burner 17, and the lower disk is made with a screw-threaded hole 13 for the reception of a steam-pipe 18, adapted to connect chamber 8 with the boiler 19 of the engine.

The operation of my improvements is as follows: Steam from the boiler enters chamber 8 below the diaphragm 3, and the heat of the steam vaporizes the hydrocarbon entering chamber 7 through pipe 5, and as the pressure of steam in the boiler increases a like increase of pressure takes place in chamber 8, and the diaphragm 3 is raised and forces valve 9 against its seat, practically cutting off the supply of hydrocarbon to chamber 7 with the exception of the slight amount which will escape through the groove 11, the vaporization of which will be sufficient to keep the burner lighted, but their heating capacity will be so materially diminished as to lessen the steam-pressure in the boiler, and as the pressure diminishes the diaphragm 3 will move downward and permit valve 9 to open, when the supply of hydrocarbon to chamber 7 will be resumed.

It will be seen that the nearer the end of pipe 5 is to the diaphragm 3 the less movement of the latter is necessary to force valve 9 on its seat, and hence by screwing the pipe 5 up or down in the enlargement 4 the maximum pressure of the steam in the boiler can be regulated, the jam-nut 6 serving to lock the pipe in any position to which it may be moved, as has heretofore been explained.

Various slight changes might be resorted to in the general form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I would have it understood that I do not wish to limit myself to the precise details set forth, but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. In a vaporizer and fuel-regulator, the combination of a casing divided by a diaphragm into two chambers, a hydrocarbon-

supply pipe and vapor-outlet in one of said chambers, a steam-inlet in the other chamber and a valve for said hydrocarbon-supply pipe operated by the steam-pressure on the diaphragm.

2. In a vaporizer and fuel-regulator, the combination of a casing divided by a diaphragm into a vaporizing-chamber and a steam-chamber, means connecting the latter chamber with a steam-boiler, means connecting the vaporizing-chamber with a burner for heating the boiler, a hydrocarbon-supply pipe projecting into the vaporizing-chamber, a valve adapted to close said supply-pipe and operated by the steam-pressure on the diaphragm, and a stem on said valve projecting into the supply-pipe.

3. In a vaporizer and fuel-regulator, the combination of two concave disks secured together, a diaphragm secured between said disks dividing them into two chambers, means for supplying hydrocarbon to one of said chambers, means for supplying steam to the other, a valve for shutting off the supply of hydrocarbon operated by the diaphragm, and said valve made with a small groove or scratch to permit a small amount of hydrocarbon to ooze past the valve when on its seat.

4. In a vaporizer and fuel-regulator, the combination of a casing, a diaphragm dividing the casing into a vaporizing-chamber and a steam-chamber, a hydrocarbon-supply pipe adjustably screwed into the vaporizing-chamber and having a valve-seat at its end, a valve adapted to be operated by the diaphragm to open and close the outlet of said pipe and means on the pipe for locking it in any position to which it may be adjusted.

5. In a vaporizer and fuel-regulator, the combination with two horizontal concave disks, a corrugated diaphragm, and bolts securing said disks together and the diaphragm between them, of means for admitting steam to the chamber below the diaphragm, means for permitting the escape of vapor from above the diaphragm, a hydrocarbon-supply pipe screwed into the upper disk and having a valve-seat at its lower end, a valve resting on the diaphragm for closing the outlet of said pipe and a webbed stem on the valve projecting up into the pipe.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GEORGE OFELDT.

Witnesses:
ERNEST OFELDT,
FRANK W. OFELDT.