

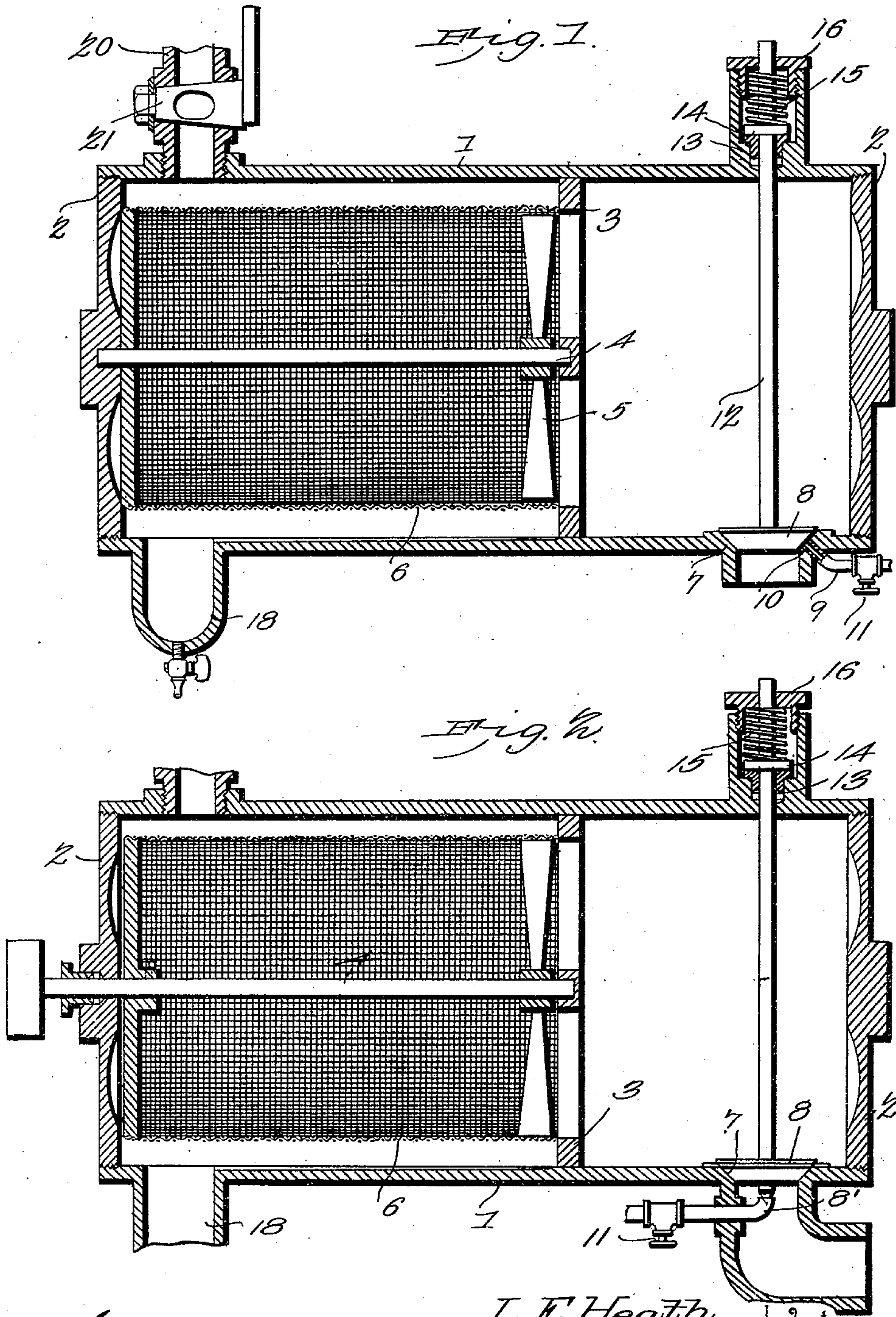
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Patented Nov. 18, 1902.

L. E. HEATH.
CARBURETER FOR EXPLOSIVE ENGINES.

(Application filed Feb. 24, 1902.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

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CARBURETER FOR EXPLOSIVE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 713,983, dated November 18, 1902.

Application filed February 24, 1902. Serial No. 95,402. (No model.)

To all whom it may concern:

Be it known that I, LESTER E. HEATH, a citizen of the United States, residing at Saratoga Springs, in the county of Saratoga and State of New York, have invented a new and useful Carbureting Device for Explosive-Engines, of which the following is a specification.

My invention relates to certain improvements in devices of that class employed for carbureting air or for increasing the percentage of carbon in a gas or vapor, and has for its principal object to provide a device in which the hydrocarbon may be more uniformly and thoroughly mingled with the air or gas, so as to insure a more thorough and uniform saturation than can be attained by the employment of the apparatus in ordinary use.

A further and important object of the invention is to so construct the carbureter that it will be operative only when a supply of gas is required and to effect the entrance of the hydrocarbon and air and the admixture of the two by the partial vacuum created on the suction-stroke of an explosive-engine.

With these and other objects in view the invention consists in the novel construction and combination of parts hereinafter described, and shown in the accompanying drawings.

In the drawings, Figure 1 is a sectional elevation of a carbureter constructed in accordance with my invention. Fig. 2 is a similar view illustrating certain modifications of the device.

1 designates a cylindrical casing having removable heads 2, which may be screwed or otherwise secured in place and readily removable for purposes of repair. At a suitable point within the casing is a standard 3, which may extend completely across the casing and may take the form of a spider provided with a central hub for the reception of an arbor or spindle 4, the opposite end of which is adapted to a bearing in one of the heads 2. On the arbor is mounted a fan 5 and a screen 6, formed of foraminated sheet metal or wire-gauze, the fan and screen serving to effect a more thorough and intimate mixture of the carbureted air before the discharge to the motor. At one end of the casing is arranged a valve-seat 7 for the recep-

tion of a valve 8, which serves to control a supply of air and the supply of hydrocarbon, the latter being admitted from any suitable source of supply through a pipe 9, which is tapped into the casing and communicates with a port 10, disposed in the valve-seat, so that when the valve is open both hydrocarbon and air will be admitted to the carbureter. To control the supply of hydrocarbon and to regulate the degree of saturation, the supply-pipe 9 is preferably provided with a valve 11. The stem 12 of the valve 8 extends through a suitable stuffing-box 13 at the side of the casing opposite to that in which the valve-seat is located and near its outer end is provided with a collar 14, on which bears a compression-spring 15, the tension of which may be regulated by a nut 16, adapted to a threaded boss on the exterior of the casing, or the periphery of the stuffing-box may be threaded for the purpose, as shown in the drawings.

At the end of the cylinder in which the revolving screen is located is a drip-chamber 18, provided with a suitable petcock for draining the carbureter and withdrawing any uncombined hydrocarbon. At a suitable point on the casing is a gas-outlet pipe 20, leading to an explosive-engine or to such other point as may be required, the pipe being provided with a suitable controlling-valve 21, of any desired character.

The device is principally intended for use in connection with explosive-engines, and especially for automobiles, launches, and the like, where it is not desirable to store a quantity of gas and where in the ordinary operation of the engine the gas is drawn directly from the carbureter. When gas is used in the engine, immediately after its formation there is always a lack of uniformity in the percentage of hydrocarbon and in the explosive quality of the charge. To remedy this and to provide for the more thorough and intimate admixture of the hydrocarbon and air, I employ the revolving fan and screen, both of which are actuated by the partial vacuum created in the cylinder on the suction-stroke of the engine, the valve 8 being raised from its seat and permitting the entrance of air and at the same time opening the port which

communicates with the supply of hydrocarbon. The entering air meeting with the liquid hydrocarbon will carry the latter into the carbureter and will then under the suction at the delivery end of the carbureter revolve the carbureter and cause the intimate mixture of the gasoline or other hydrocarbon and the air, causing a more intimate and uniform admixture of the vapor and by causing the vapor to pass through the revolving screen preventing the passage of liquid hydrocarbon to the cylinder of the engine. The excess of liquid hydrocarbon will accumulate in the drip-chamber and may be drawn off as may from time to time become necessary. The speed of the engine may be regulated by the gas-valve 21 and may be further regulated by increasing or decreasing the tension of the spring which controls the valve 8.

The structure may be modified in a variety of ways, and the mixing of the vapor may be accomplished by revolving the fan and the screen from an auxiliary source of power other than that created by the suction-stroke of the engine—as, for instance, by extending the end of the fan arbor or spindle out through one of the carbureter-heads and supplying the arbor with a belt-wheel to which power may be communicated by a suitable belt in order to keep the fan revolving continuously. A construction of this character is illustrated in Fig. 2, and this figure of the drawings also illustrates an auxiliary valve 8' for controlling the supply of gasoline.

In some cases the fan alone may revolve and the screen be stationary, and while the construction herein described is the preferred form of the device it is obvious that various other changes in the form and in the proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of my invention.

Having thus described my invention, what I claim is—

1. In a device of the class specified, a box or casing having suction inlet-valves for air and hydrocarbon and an outlet for the gas, a

revoluble screen open at one end to permit the entrance thereto of the mingled air and hydrocarbon, the gas-outlet communicating with the space outside the screen, and a fan carried by and revoluble with said screen, substantially as specified.

2. The combination in a carbureter, of the casing having suction inlet-valves for controlling the admission of air and hydrocarbon, a revoluble screen open at one end and closed at the opposite end and serving to receive all of the mingled air and hydrocarbon, a gas-outlet in communication with the space outside of the screen, and a fan secured to and revoluble with said screen, substantially as specified.

3. The combination in a carbureter, of the casing divided into two main portions by a revoluble screen, suction inlet-valves for controlling the admission of air and hydrocarbon to the chamber leading within the screen, a gas-outlet leading from the chamber outside the screen, and a fan secured to and revoluble with said screen, said fan being operable by the current of air passing through the carbureter, substantially as specified.

4. The combination in a carbureter of the casing 1, a spider 3 arranged therein and having a central hub, the rim of the spider serving as a partial division-plate in the casing, a shaft having one end supported by said hub and the opposite end by the end portion of the casing, a revoluble screen having an open end adjacent to the spider-rim and a closed end adjacent to the end of the casing, a fan secured to the shaft and to the screen, suction inlet-valves for controlling the admission of air and hydrocarbon to the interior of the casing, and a gas-outlet leading from that portion of the casing outside the screen, substantially as specified.

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

LESTER E. HEATH.

Witnesses:

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L. M. HASKINS.