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Patented Aug. 20, 1901.

H. H. BUFFUM.
CARBURETER FOR EXPLOSIVE ENGINES.

(Application filed Mar. 8, 1901.)

(No Model.)

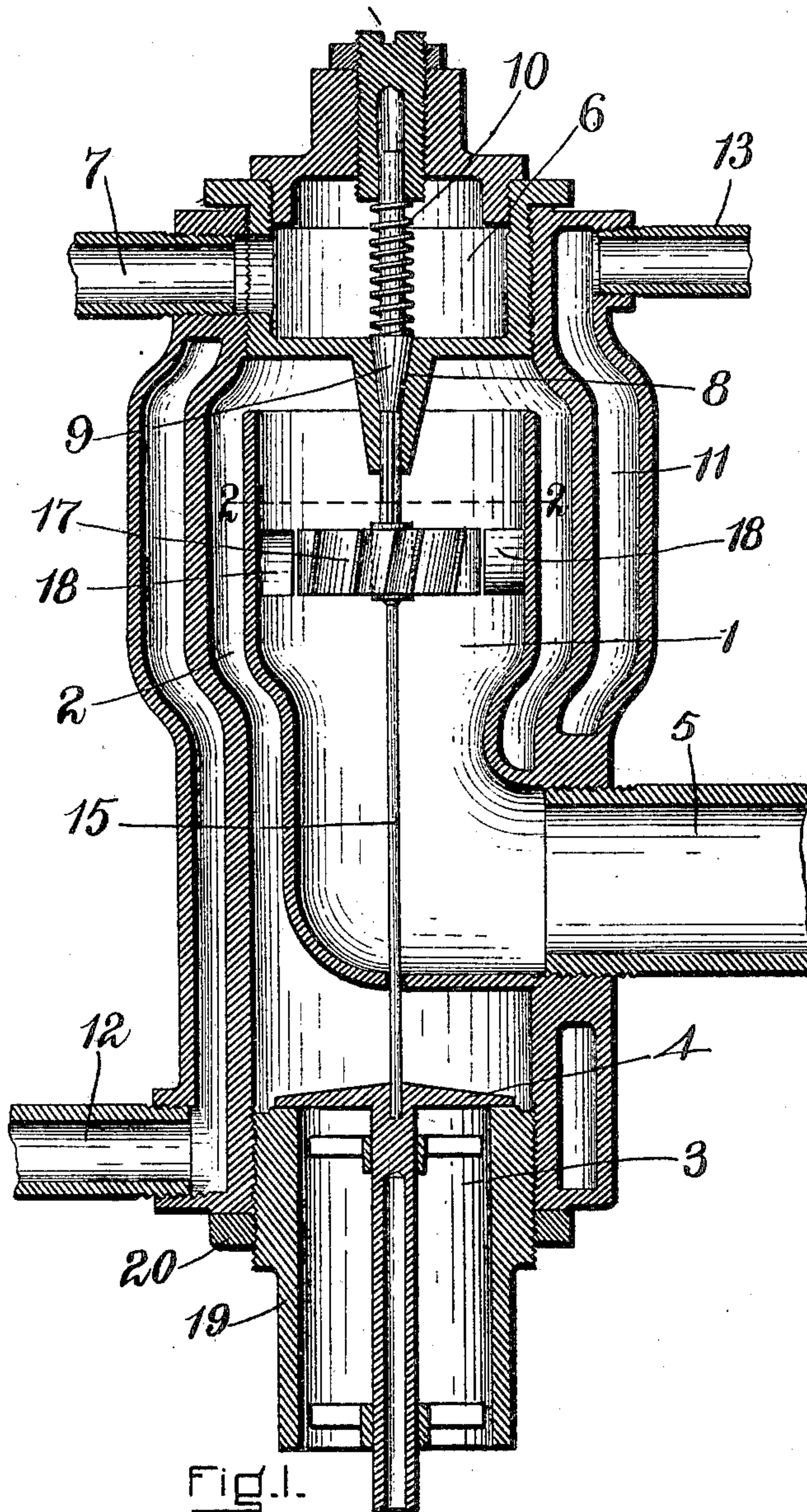


Fig. 1.

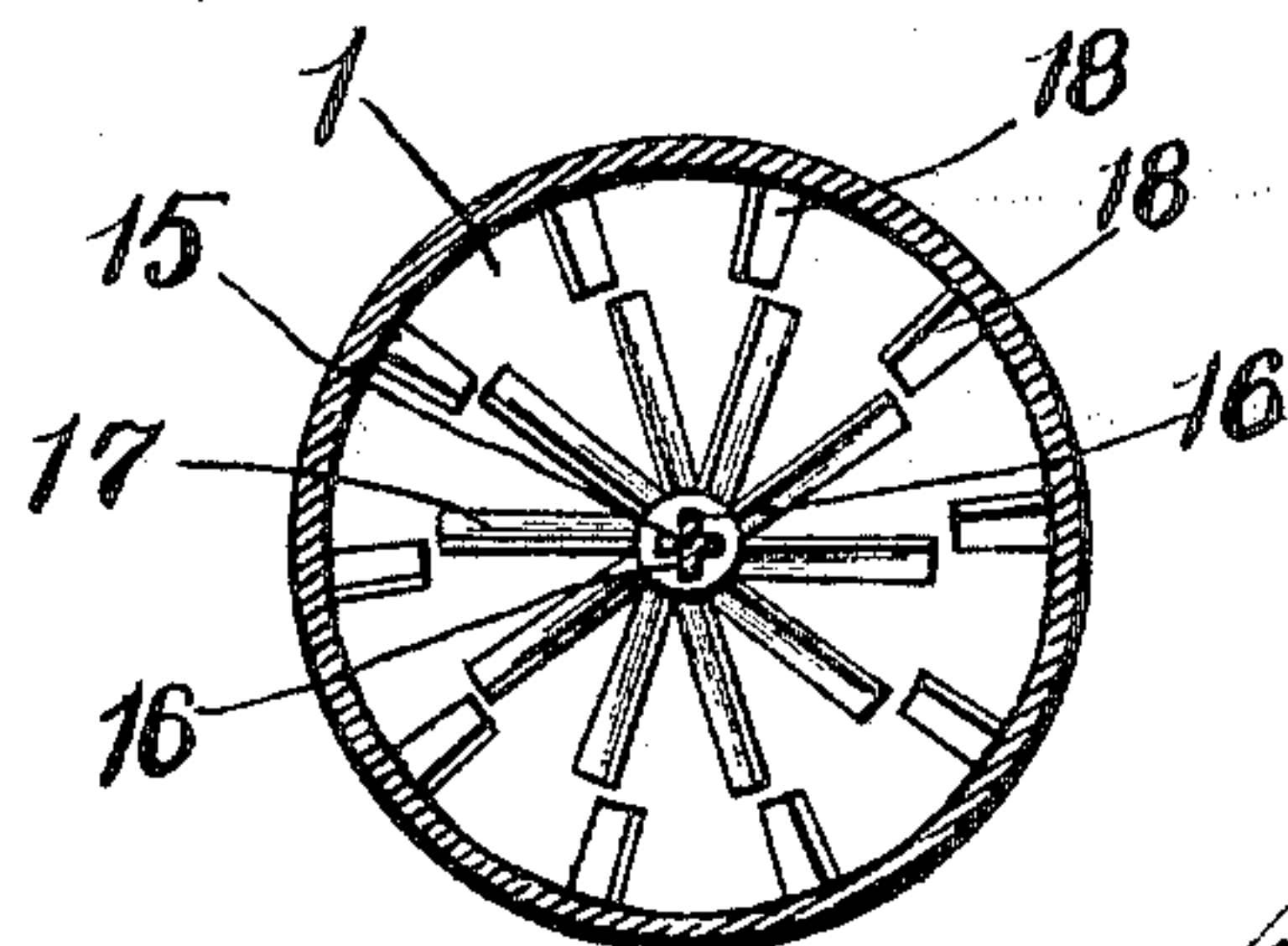


Fig. 2.

WITNESSES:

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HERBERT H. BUFFUM, OF ABINGTON, MASSACHUSETTS.

CARBURETER FOR EXPLOSIVE-ENGINES.

SPECIFICATION forming part of Letters Patent No. 680,961, dated August 20, 1901.

Application filed March 8, 1901. Serial No. 50,283. (No model.)

To all whom it may concern:

Be it known that I, HERBERT H. BUFFUM, of Abington, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Carbureters, of which the following is a specification.

This invention relates to carbureters for explosive-engines in which the air and fuel are drawn into a mixing-chamber by the suction of the engine.

The principal object of the invention is to more thoroughly mix the air and fuel than heretofore, and to this end I provide in the mixing-chamber a novel arrangement of fan-blades, as hereinafter specified.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a vertical section of a carbureter constructed in accordance with my invention. Fig. 2 represents a section on the line 2 2 of Fig. 1.

The same reference characters indicate the same parts in both figures.

Referring to the drawings, 1 represents a mixing-chamber surrounded by an air-passage 2, which communicates at its upper end with the mixing-chamber 1 and has an air-inlet 3 at its lower end controlled by a valve 4. An outlet-passage 5 leads from the mixing-chamber 1 to the engine. Above the mixing-chamber is a chamber 6 for liquid hydrocarbon fuel, said chamber being fed by a pipe 7 and communicating with the mixing-chamber 1 through a fuel-inlet 8, controlled by a valve 9, which is normally seated by a spring 10.

11 is a jacket surrounding the chambers of the carbureter and having inlet and outlet pipes 12 13, through which a suitable heating medium, such as the exhaust from the engine, is supplied for the purpose of heating the contents of the carbureter and aiding in the vaporization of the fuel.

On each suction-stroke of the engine the contents of the mixing-chamber are drawn out through the pipe 5 and air is drawn into the mixing-chamber to fill the void, the valve 4 being automatically lifted by the indraft of air.

15 is a stem interposed between the air-valve 4 and the fuel-valve 9 and forming a

connection which causes the fuel-valve to be lifted by the opening of the air-valve and to admit the hydrocarbon fuel to the mixing-chamber 1. The upper end of the fuel-inlet passage 8 is conical to form a seat for the conical valve 9, and the lower part is cylindrical to journal the upper end of the stem 15. Said stem is shown as channeled on its sides at 16 16, Fig. 2, to form ducts through which the liquid fuel escaping past the valve 9 may reach the mixing-chamber. Mounted on the stem 15 within the mixing-chamber 1 is a fan 17, adapted to turn freely and having inclined blades which cause it to be rapidly rotated by the downdraft of air through the mixing-chamber 1 at each suction-stroke of the engine. When the fuel-valve 9 is raised to admit fuel to the mixing-chamber, the channeled upper end of stem 15 conducts said fuel to the hub or center of the fan 17, and as said fan is in a state of rotation the liquid is thrown out by centrifugal force toward the outer ends of the fan-blades and is hence retarded and spread over a large area, so that it is the more readily taken up by the air passing through the mixing-chamber. The oil which is thrown from the periphery of the fan by centrifugal force strikes against the walls of the mixing-chamber 1 and is thereby still further retarded and spread out and mixed with the air.

To further enhance the retarding and distributing action of the fan 17 upon the liquid fuel and to thoroughly break up and mix the fuel with the air, I surround the fan 17 with an annular series of stationary blades 18 18, inclined in the same direction as the blades of the fan and presenting free inner ends to the free outer ends of the fan-blades. The blades 18 form a kind of grid, which arrests and spreads out the spray of fuel thrown from the periphery of the fan. This spray is thrown off from the fan-blades in a direction more or less tangent to the periphery of the fan, and the upwardly-inclined stationary blades 18 have a tendency to throw it back against the oncoming current of air, which action greatly promotes the thorough and uniform mixture of the oil spray or vapor with the air. Simplicity and positive working are characteristic features of my im-

proved carbureter. The stem 15 acts as a positive connection between the air-valve 4 and the fuel-valve 9, insuring opening of the latter whenever the air-valve is lifted, and
5 said stem further affords a convenient support and journal for the fan 17. The guide 19 for the air-valve 4 is made in the form of a screw-plug, screwing into the lower end of the carbureter-casing and locked by a nut 20.
10 By screwing said guide in or out the fuel-valve 9 may be adjusted to a larger or smaller opening when lifted by the air-valve.

I claim—

1. In a carbureter, a mixing-chamber, an
15 air-inlet and a fuel-inlet thereto, a draft-rotated fan in said chamber, and a station-

ary annular grid adjacent to the periphery of the fan.

2. In a carbureter, a mixing-chamber, an air-inlet and a fuel-inlet thereto, a draft-ro- 20 tated fan in said chamber, having inclined blades, and a stationary annular grid surrounding the fan and composed of blades inclined in the same direction as the blades of the fan, the fan and grid presenting free 25 blade ends to each other.

In testimony whereof I have affixed my signature in presence of two witnesses.

HERBERT H. BUFFUM.

Witnesses:

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C. F. BROWN.