

No. 688,931.

Patented Dec. 17, 1901.

R. F. CARTER & R. W. ZIERLEIN.

CARBURETER.

(Application filed July 18, 1901.)

(No Model.)

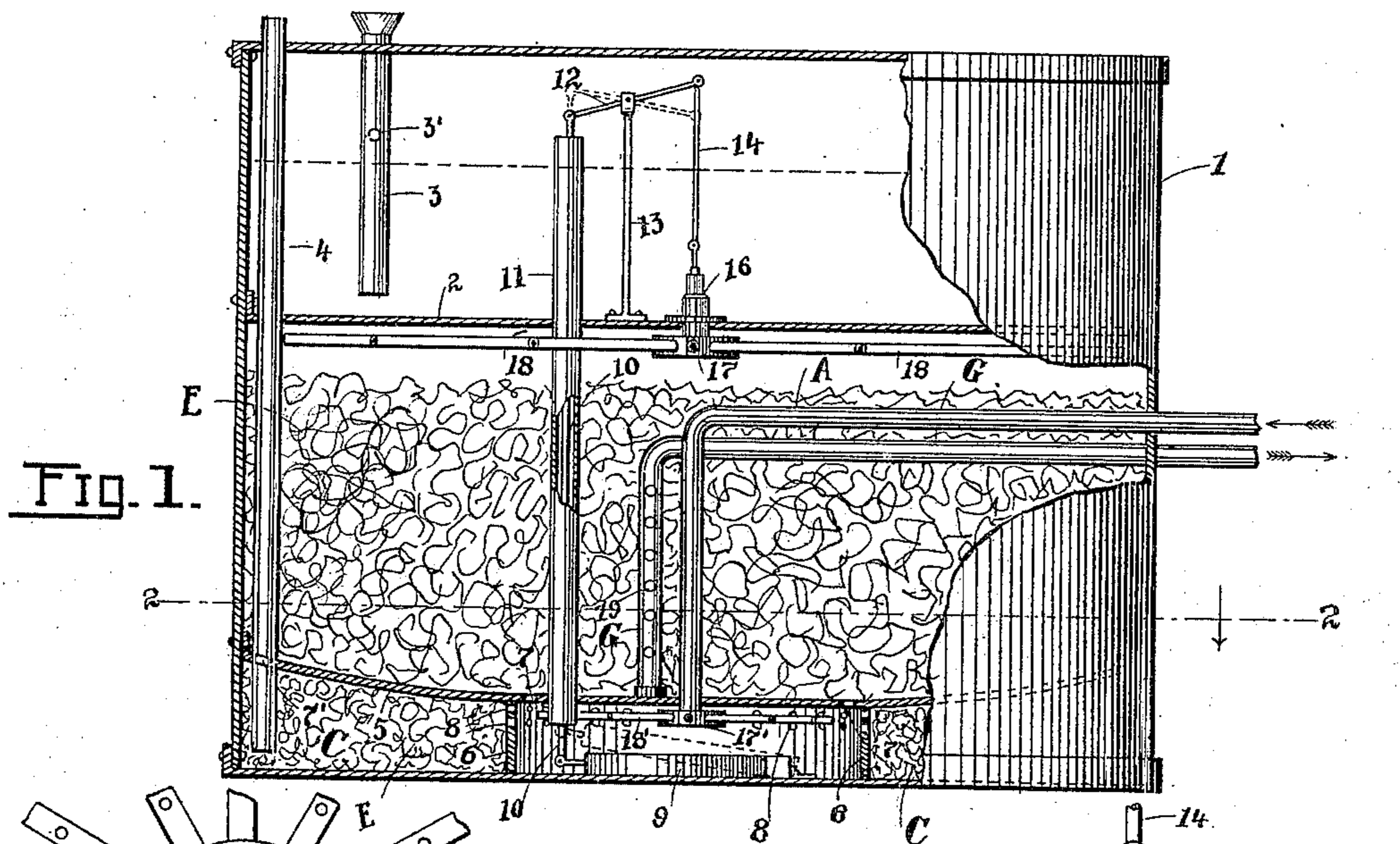


Fig. 1.

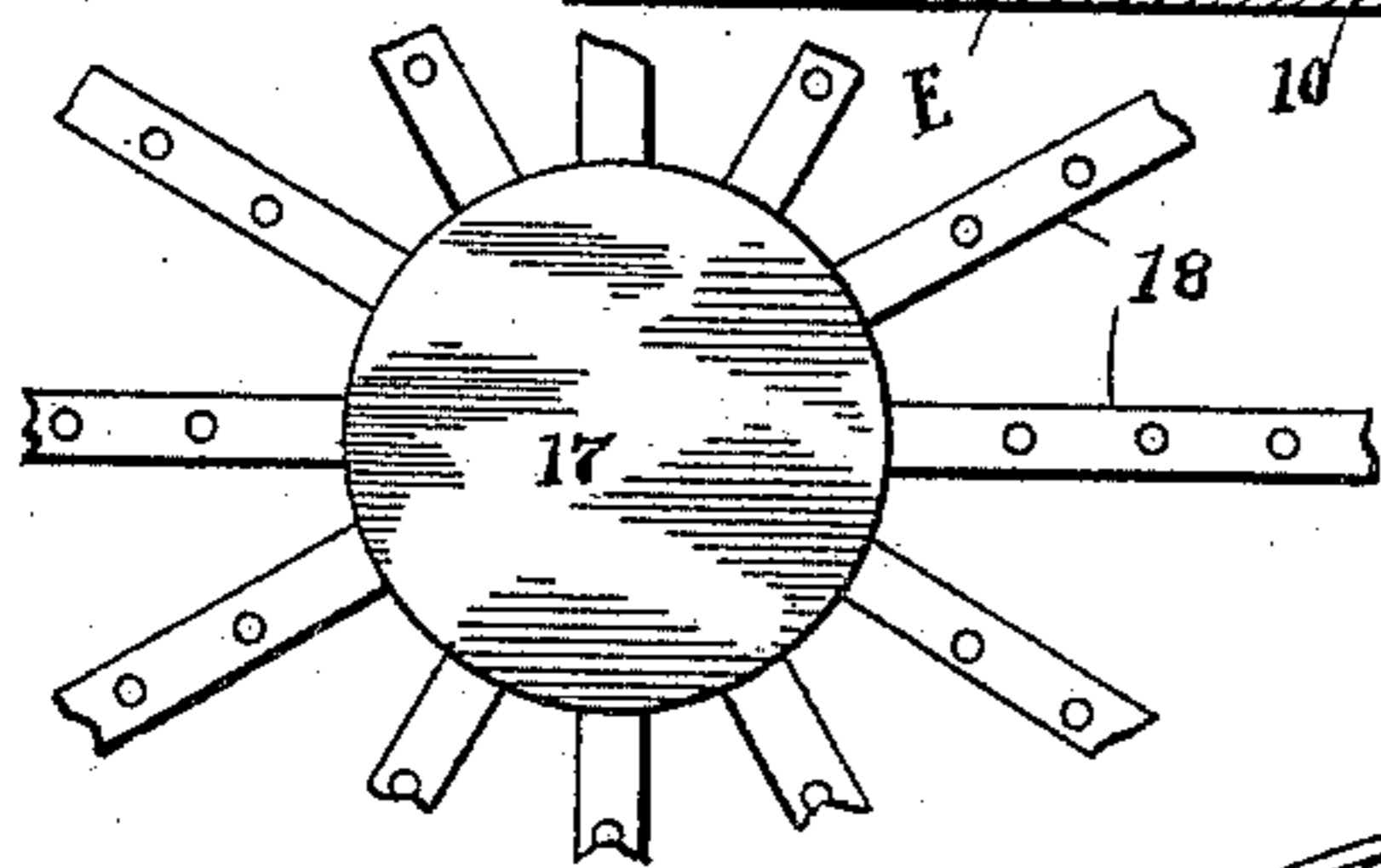


Fig. 3.

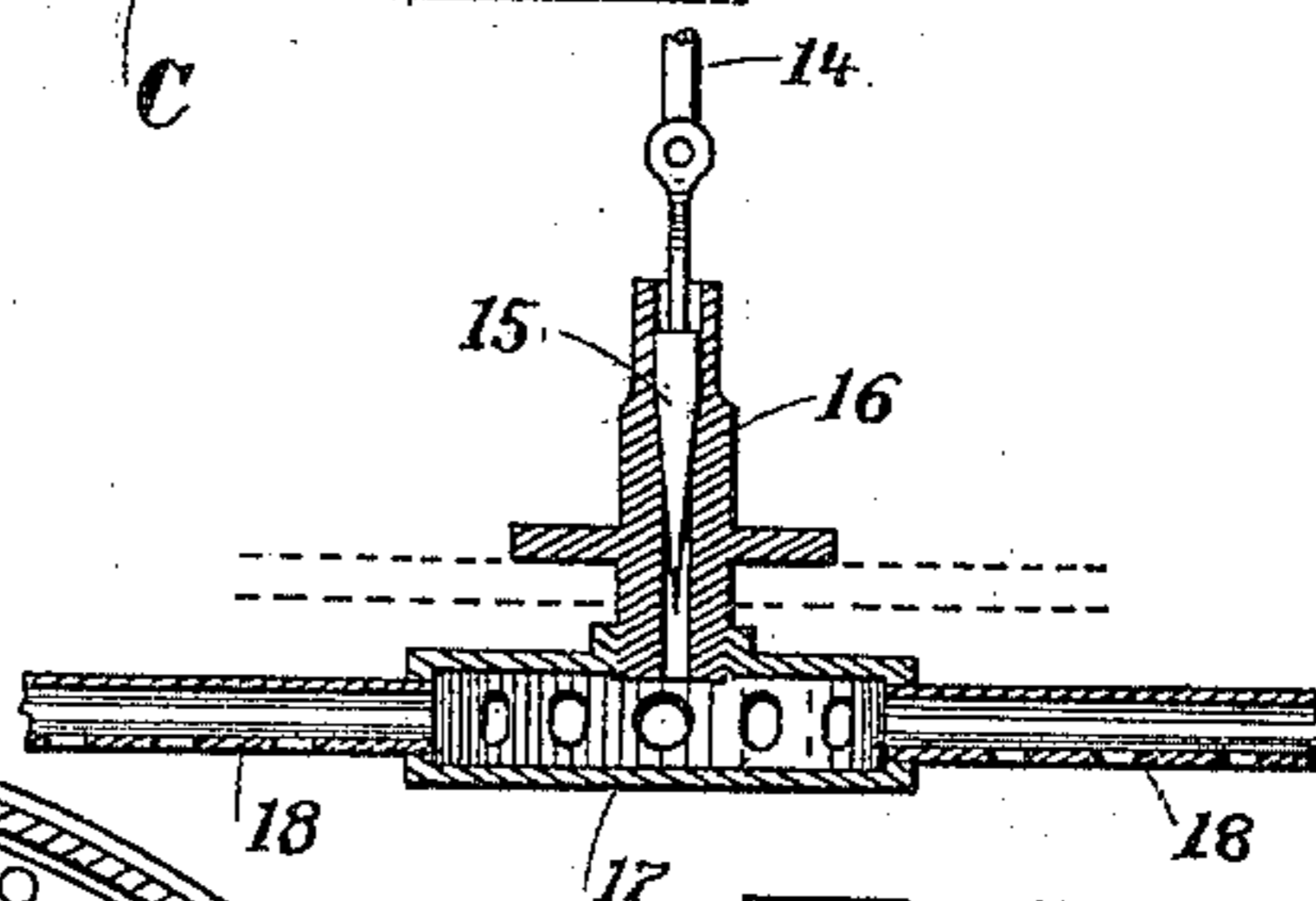


Fig.4.

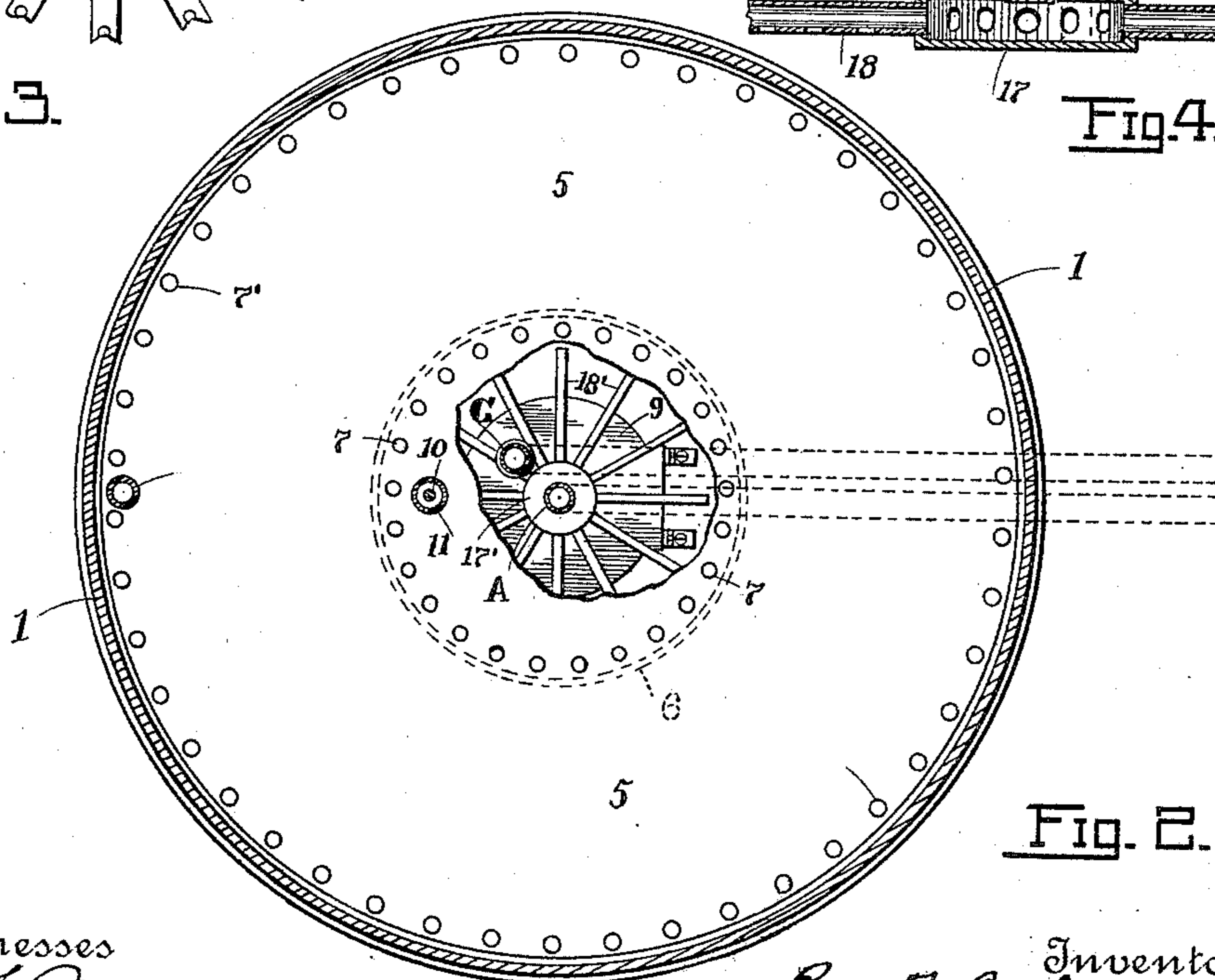


Fig. 2.

Witnesses
Phil J. Nawn
G. L. Belfry

Inventors
Roy F. Carter and
Richard W. Jirleim
By their Attorney
Ernie Bearek

UNITED STATES PATENT OFFICE.

ROY F. CARTER AND RICHARD W. ZIERLEIN, OF ST. LOUIS, MISSOURI, ASSIGNORS TO HOME COMFORT GAS MACHINE COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

CARBURETER.

SPECIFICATION forming part of Letters Patent No. 688,931, dated December 17, 1901.

Application filed July 18, 1901. Serial No. 68,800. (No model.)

To all whom it may concern:

Be it known that we, ROY F. CARTER and RICHARD W. ZIERLEIN, citizens of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Carbureters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

Our invention has relation to improvements in carbureters; and it consists in the novel construction and arrangement of parts more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a combined section and vertical elevation of the device. Fig. 2 is a horizontal section on line 2 2 of Fig. 1. Fig. 3 is a bottom plan of the spray device located at the top of the middle compartment of the main tank, and Fig. 4 is a sectional detail of the valve leading to said spray device.

The object of our invention is to construct an apparatus for carbureting air with volatile liquid hydrocarbons, the device being designed with the special view of insuring uniform results in the matter of the generation of the vapor or air gas irrespective of the quantity of hydrocarbon contained in the main compartment of the tank.

A further object is to construct a carbureter which shall be simple, cheap, durable, and readily cleaned and reliable.

It consists of further and other advantages better apparent from a detailed description of the invention, which is as follows:

Referring to the drawings, 1 represents a closed tank or generator provided with an upper horizontal division-wall 2, dividing the tank into two main compartments, the upper one of which is filled with liquid hydrocarbon through a filling-tube 3, having an air vent 3', a clean-out tube 4 being disposed to full depth of the tank and serving as a means for the insertion of a siphon-leg, (not shown,) whereby the bottom of the tank may be drained and cleaned out from time to time, as occasion may require. Disposed at a suitable distance above the bottom of the tank is a lower division-wall 5, dishing toward

the center, leaving a compartment C, filled with excelsior E, between it and the bottom of the tank. Below the wall 5 and occupying a central position at the bottom of the tank is a receptacle 6, with which communication is established from the middle compartment through the annular series of perforations or openings 7, formed in the wall 5, the upper portion of the peripheral walls of the receptacle 6 having openings 8, leading to the compartment C. At the bottom of the receptacle 6 is a hinged float 9, whose free end is pivotally connected with the lower end of the vertical rod 10, inclosed in an equalizing-tube 11, the upper end of the rod being pivotally connected to one end of a lever 12, pivoted on a bracket or arm 13, carried by the wall 2, the opposite end of the lever 12 being pivotally coupled to an arm 14, carrying at its lower end a needle-valve 15. The casing 16 of said valve terminates at a point below the wall 2 in a hollow ring 17, from which radiate a series of spray-pipes 18, which serve to deliver the hydrocarbon from the upper compartment to the middle compartment of the tank.

Passing through the peripheral wall of the tank is an air-pipe A, whose lower end projects through the wall 5, terminating in a ring 17', from which radiate a series of spray-pipes 18', within the receptacle 6, at a suitable point above the float 9. Leading from the middle compartment, which, by the way, is filled with excelsior E or other equivalent absorbent or distributor, is the gas-delivery pipe G, the vertical leg thereof being provided with openings 19. Communication between the compartment C and the middle compartment is established through the annular series of openings 7', formed along the outer edge of the wall 5.

In the operation of the carbureter liquid hydrocarbon is first introduced into the upper compartment through the tube 3, as already indicated. The oil thence passes by the valve 15 into the ring 17 and out through the perforated spray-pipes 18, distributing itself throughout the body of the excelsior E in the intermediate or middle compartment. It then runs through the perforations 7 into the receptacle 6, and when a sufficient quantity of

the oil has accumulated in said receptacle it raises the float 9, (see dotted position in Fig. 1,) the latter raising the rod 10, as is obvious, this action in turn depressing the end of the lever 12, to which the arm 14 is suspended, and closing the valve 15. Upon introducing air-pressure from an air-pump or other equivalent source (not shown) into the pipe A the air will be delivered in fine jets into the receptacle 6, through the pipes 18', said jets mechanically disintegrating the oil confined within the receptacle, the mixture of air and oil particles being under the pressure behind them forced through the openings 8 into the compartment C, thence through the openings 7' through the body of excelsior, the current gradually working toward the center into the openings 19 of the gas-delivery pipe G, and thence through the latter to any suitable point of consumption. The moment that the quantity of oil in the receptacle 6 is insufficient to raise the float 9 the latter in descending to its lowest position draws the rod 10 down after it, the valve 15 again opening and allowing more oil to percolate into the central compartment. In this way a uniform delivery of oil is insured and a uniform quantity of product results, it being understood that the mechanical disintegration and evaporation to which the hydrocarbon is subjected under the action of air under pressure results in an intimate mixture of air and hydrocarbon suitable for heating or illuminating purposes.

Of course a portion of the air which is delivered under pressure into the receptacle 6 will find its way through the tube 11 (open at both ends) into the upper or oil compartment, this action equalizing the pressure above and below the tube, permitting the oil to gravitate freely into the middle compartment the moment the valve 15 opens; hence the designation "equalizing-tube" as applied to the tube 11 in the foregoing description.

It is to be understood, of course, that we do not limit ourselves to the precise details here shown, as these may in a measure be departed from without affecting the spirit of the invention.

Having described our invention, what we claim is—

1. In a carbureter, a suitable closed tank or generator, having an upper oil-compartment, a bottom compartment, and an intermediate compartment, a float-receptacle and a float in the bottom compartment, an equalizing-tube extending from the bottom to the upper compartment through the intermediate compartment, a valve establishing communication between the oil-compartment and the intermediate compartment, intermediate connections between the float and valve, means for admitting the oil from the intermediate to the bottom compartment and to the float-receptacle, an air-pipe leading to the float-

receptacle, and a gas-delivery pipe leading from the intermediate compartment out of the tank, the peripheral walls of the gas-pipe being perforated for a portion of the length of the pipe within the intermediate compartment, substantially as set forth.

2. A carbureter comprising a closed tank or generator having an upper oil-compartment, a bottom compartment, and an intermediate compartment, all separated by suitable division-walls, a receptacle in the bottom compartment communicating with the latter and with the intermediate compartment, a float in said receptacle, an equalizing-tube open at both ends, establishing communication between the bottom compartment and oil-compartment, a rod in said tube pivotally coupled at the bottom to said float, a lever pivoted in the upper compartment and having an end pivotally secured to said rod, an arm pivotally depending from the opposite end of said lever, a valve at the lower end of said arm, a casing for said valve, a series of spray-pipes leading from the casing and disposed at the upper end of the intermediate compartment, an air-pipe leading to the float-receptacle, a series of openings formed in the division-wall between the intermediate and bottom compartments, and a gas-delivery pipe leading from the intermediate compartment, the latter being provided with suitable oil-distributing material, the parts operating substantially as, and for the purpose set forth.

3. A carbureter comprising a closed tank or generator having an upper or oil compartment, a bottom compartment, and an intermediate compartment, a valve for admitting oil from the upper to the intermediate compartment, a central float-receptacle in the bottom compartment, a series of openings formed in the division-wall between the bottom compartment and intermediate compartment for admitting oil into the float-receptacle, the latter having a series of openings in the wall thereof communicating with the bottom compartment, a series of openings formed along the outer edge of the wall separating the intermediate from the bottom compartment, an air-pipe passing through the intermediate compartment for forcing the oil from the float-receptacle through and out of the intermediate compartment, and a gas-delivery pipe leading from the intermediate compartment for collecting and delivering the mixture of gas and air from the center of the intermediate compartment, the inner end of the gas-pipe being peripherally perforated, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

ROY F. CARTER.

RICHARD W. ZIERLEIN.

Witnesses:

EMIL STAREK,

G. L. BELFRY.