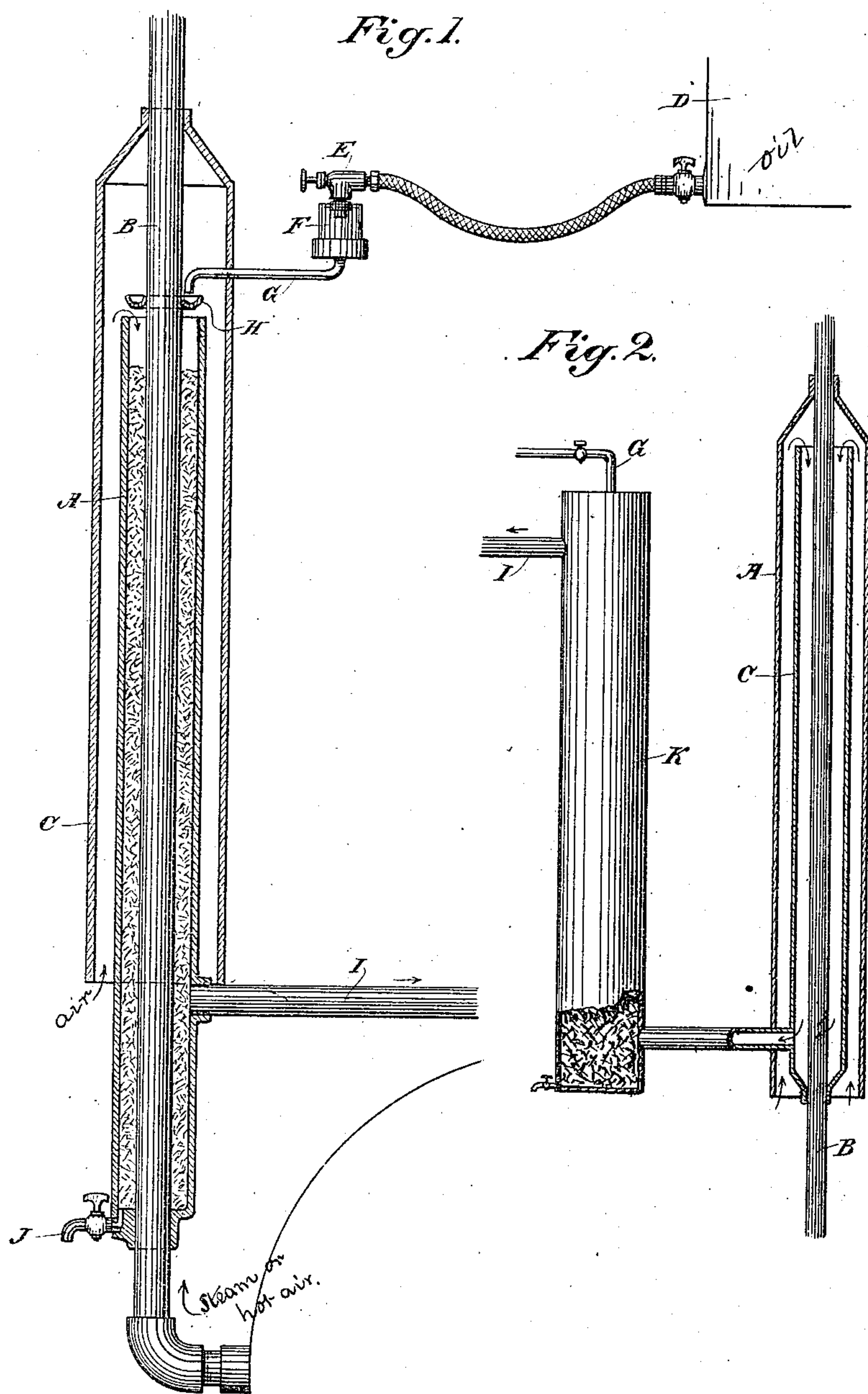


(No Model.)

D. BEST.
CARBURETOR.

No. 485,526.

Patented Nov. 1, 1892.



Witnesses,
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UNITED STATES PATENT OFFICE.

DANIEL BEST, OF SAN LEANDRO, CALIFORNIA.

CARBURETOR.

SPECIFICATION forming part of Letters Patent No. 485,526, dated November 1, 1892.

Application filed April 25, 1892. Serial No. 430,602. (No model.)

To all whom it may concern:

Be it known that I, DANIEL BEST, a citizen of the United States, residing at San Leandro, Alameda county, State of California, have invented an Improvement in Carburetors; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a novel device for supplying gas-engines with explosive vapor. It consists in certain details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a vertical cross-section through the carburetor. Fig. 2 is a modification.

The object of my invention is to provide an apparatus by which I am enabled to employ oils of a heavier grade than can be ordinarily used for the supply of gas-engines and other purposes.

In the usual methods of carbureting air it is customary to pass the air through or over the surface of a body of hydrocarbon oil contained in a suitable vessel, and in this manner the lighter vapor passes off first until the gravity of the remainder is so reduced that it is of no further value as a vapor-producer.

In my apparatus I pass the liquid in small quantities over or through a mass of material, by which it is further subdivided, and expose it in this condition to a current of air which is passed through it.

I further increase the efficiency of the process by raising the temperature of the chamber, so that a larger proportion of vapor is obtained, and the vapor so obtained is especially valuable for use in gas-engines, because it has a greater expansive force than that obtained from the lighter oils.

In carrying out my invention I employ a chamber A, of any suitable dimensions, which is filled with chips, shavings, or coarse iron turnings or borings. The oil is delivered into the upper part of the chamber through a pipe G from a reservoir D, either directly or through an intermediate receiver F and a cock E. If the oil used is of a sufficiently-high "gravity," as it is termed, a current of ordinary air is passed through the chamber A and becomes charged with the vapor; but if a heavy oil is used it is desirable to heat the air before it enters by contact with some heated surface, which assists in the release of the va-

por and has the additional advantage that it counteracts the tendency of rapid evaporation to produce a low temperature of the vapor. Various devices may be employed for this purpose, either exhaust-steam, hot water from the jacket of a gas-engine cylinder, the heat of lamps, or the exhaust from the cylinder.

In Fig. 1 I have shown the following construction:

A is a tube of considerable length, which I have here shown set in a vertical position open at the top and closed at the bottom. Through this tube passes a smaller tube B, and the bottom of the tube A is fitted tight around the tube B where the latter passes through it. The upper end of the tube A is open, and it is filled with any loose heat-conducting medium, such as chips or coarse iron turnings from lathes or any similar suitable material. Surrounding the tube A is a third tube C of considerably-larger diameter open at the lower end and fitting closely around the tube B at the top.

D is a tank or reservoir containing hydrocarbon oil, which may be of considerably-heavier gravity than is ordinarily employed for gas-engines. This tank is situated at any suitable or convenient distance from the engine and is connected by a pipe with a feed-cock E, through which the oil is dropped as rapidly as may be desired into the chamber F and is conveyed therefrom by pipe G, which delivers it by means of a distributor H into the upper part of the tube A. The oil thus delivered trickles down through the material contained in the tube and sufficient heat is passed through the tube B to vaporize the oil as it passes downward.

I is the feed-pipe, leading from the lower part of the tube A and delivering through the valve to the engine-cylinder, which, as is usual with this class of engines, acts as a pump during one portion of its stroke and draws the vapor through the pipe A and into the engine-cylinder. This action of the engine draws in a quantity of air through the lower part of the pipe C, which, passing up alongside the pipe A, enters at the top and passes downward with the vapor of the oil, mixing with it and passing out through the feed-pipe I in the form of an explosive vapor, such as is

used in gas-engines. That portion of the pipe A which extends below the feed-pipe I will collect any heavy unvaporized oil, and by means of a faucet J at the lower end this may be drawn off from time to time. By means of this apparatus I am enabled to employ a class of cheap heavy oil which could not otherwise be used in gas-engines, and by thus heating the oil I vaporize a very much larger portion and have correspondingly less waste in the generator. The interior pipe B, from which the chamber A is heated, may be supplied with steam, hot air, or heat by any suitable means for the purpose. When used in conjunction with gas-engines, a sufficient amount of heat is supplied by using the pipe B as an exhaust-pipe for the engine.

In Fig. 2 I have shown the pipes A and C, through which the air passes to be heated by the pipe B, and it is led thence to a separate vaporizing-chamber K, from which the gas is delivered by the pipe I, as previously described.

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

1. In a carburetor, the combination of vertically-disposed concentric tubes, the inner one of which forms a support for the outer and middle tubes, said inner tube connecting with a source of heat and said outer tube having its upper end tightly fitted to the inner

tube and having its lower end open and said middle tube having its lower end tightly fitted to the inner tube with its upper end open and entering the outer tube, a metallic packing within the middle tube and surrounding the inner tube to conduct heat therefrom, a means for supplying hydrocarbon to the open end of the middle tube, so that it shall pass through the said packing to be subdivided and subjected to the action of the heat therein contained, and a discharge-pipe for the carburated air, substantially as herein described.

2. In a carburetor, the combination of the concentric vertically-disposed tubes, the outer and intermediate tubes being supported by the inner tube, said outer tube being open at the bottom and said intermediate tube having a packing of metallic fragments which surrounds the inner tube, a distributor contiguous to the upper open end of the middle tube, means for supplying hydrocarbon thereto, a draw-off cock at the bottom of the said middle tube, and a discharge-pipe leading from said tube at a point above its bottom, substantially as herein described.

In witness whereof I have hereunto set my hand.

DANIEL BEST.

Witnesses:

C. H. GRAY,
N. HENRIKSEN.