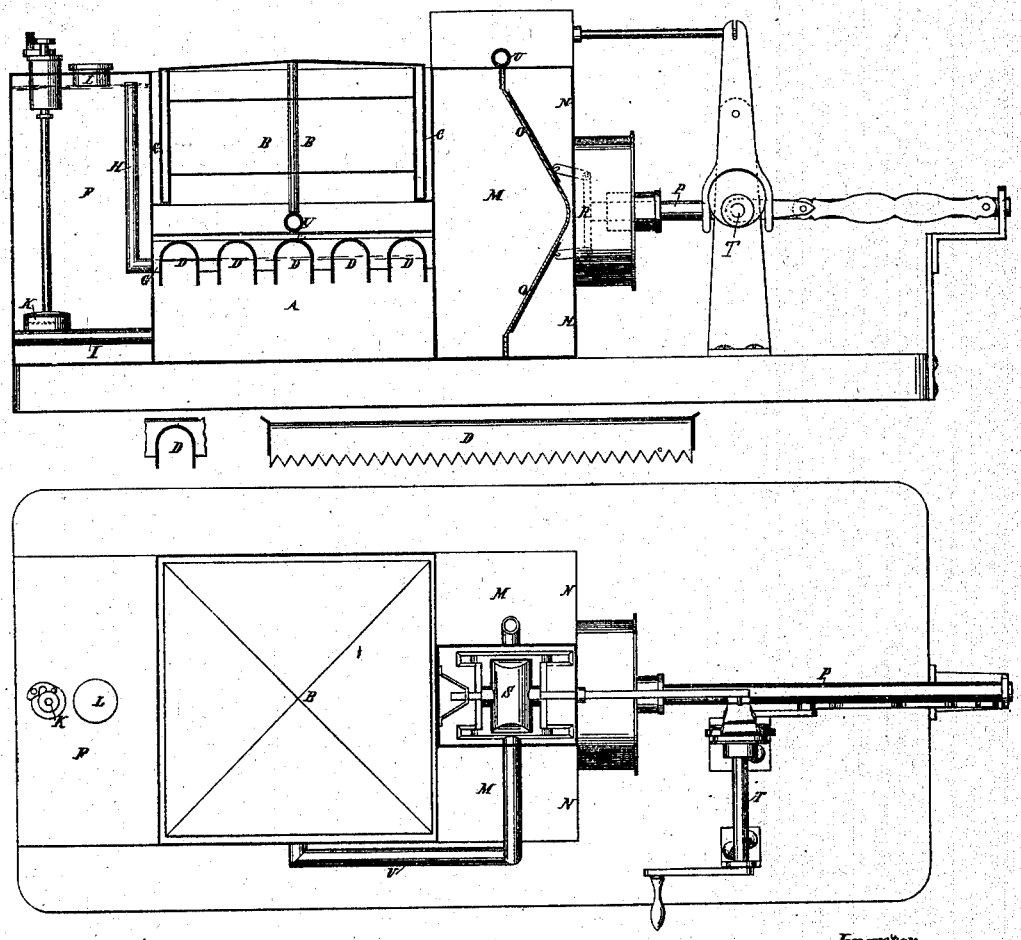
J. A. BASSETT.

APPARATUS FOR CARBURETING AIR.

No. 47,272. Patented Apr. 18, 1865.



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JOHN A BASSETT, OF SALEM, MASSACHUSETTS.

IMPROVED APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. **47,272**, dated April 18, 1865.

To all whom it may concern:

Be it known that I, JOHN A. BASSETT, of Salem, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Apparatus for Vaporizing and Aerating Liquid Hydrocarbons; and I hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, of which—

Figure 1 is a sectional view. Fig. 2 is a plan, and Fig. 3 section of carbureting-tubes.

The nature of my invention consists in carbureting air by bubbling it through benzine under partially-submerged horizontal tubes, the lower part of which are open, and the edges of which are serrated, placed in a chamber or vessel, which is connected with a reservoir of hydrocarbon liquid arranged so as to maintain a constant level in the evaporating-chamber and a proper submersion of the tubes; and it further consists in combining with this arrangement a pump or power meter having a single diaphragm and producing a continuous current of air.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same.

I construct the chamber or vessel A of any suitable material, galvanized iron being preferred, and provide it with a holder, B, working in the seal C, for the purpose of securing a steady flow of gas to the burners. In the lower part of the chamber A, within a few inches of the bottom, I place parallel rows of tubes D, about three-fourths of an inch apart. These tubes are more properly half-cylinders, with the open part under the level of the benzine. The length of the tubes on both sides is serrated or cut like saw-teeth, and the level of the benzine should be adjusted to the top of one-half the height of the tubes. The air enters these cylinders at one end of the vessel A, and, passing under the hood E, into which all the tubes are soldered, goes simultaneously through all the tubes and bubbles out at the sides through the benzine, the object of the teeth or serrations being to distribute the air and cause it to separate into fine bubbles, which carburets it thoroughly by mixing it intimately with the benzine. The benzine is to be kept at the proper level in the chamber A by a continuous flow from the reservoir F when the evaporation is going on. The reservoir F is placed at the side of the chamber A. At the level at which it is desired to keep the benzine, an opening, G, is made in the partition which separates the reservoir from the chamber. This opening communicates by a tube, H, above the level of the benzine in the reservoir. Another opening, I, is made below the level of the benzine, through which it passes into the chamber. When the opening of the tube H is covered with benzine, no air can get into the reservoir, but when it is uncovered air will pass up the tube, and thus allow a sufficient quantity of benzine to pass into the chamber A to maintain the level. The opening I is controlled by the valve K, which is to be closed when the reservoir is to be filled. The reservoir may be filled through the opening L, which should be closed by a tight screw-cap. A continuous current of air is forced into the chamber A by the power-meter M. This is made by inclosing in a sheet-iron case, N, a single flexible diaphragm, O, of leather or rubber, and covering it with quarter-shields of metal, to which the shaft P is secured by the cross R. On the top of the case are valve-seat openings, which communicate with the space on each side of the diaphragm. The seopenings are covered by the valve S. This valve is connected by levers and eccentric to and is actuated from the shaft T. The shaft P is connected by a crank or cam to the shaft T, so that by the rotary motion of the shaft T a reciprocating motion is communicated to the diaphragm and a continuous current of air is forced into the carburetor through the pipe U. The valve S is covered by a case, and the admission of the air is controlled by a valve which is put in motion by the rise and fall of the holder acting through levers. This valve regulates the admission of the air so as to keep the holder full and no more than full. The shaft T is a portion of a train of wheel-work which is put in motion by a weight, and which may be wound up so as to run for several hours. I prefer to use a hydrocarbon which is entirely evaporable; but if any is used which is liable to leave a residium which cannot be aerated, it may be drawn off by a siphon connected with a reservoir.

The several parts of this apparatus are sim-

ple, durable, not expensive, and not liable to get out of order. It is combined in such a way as to be very compact, and in its working produces a very continuous carburation of the air by bubbling through the benzine in fine particles, and the air is also partially carbureted by passing over the surface of the benzine in the tubes before it escapes. A constant level of benzine is maintained.

The pump is very cheaply made, and is somewhat similar in its construction to a dry meter, except that it has but one diaphragm. This reduces the expense of manufacture and simplifies the machine.

The proportion of carbureting-tubes may be increased or diminished easily, and affords a ready means of determining the power of the apparatus.

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

1. The general arrangement and construction of the apparatus, as shown and described.

2. The carburation of air or gases by the submerged serrated tubes, in combination with the reservoir, substantially in the manner described.

3. The combination of a power-meter, constructed substantially as described, with an apparatus used to aerate and vaporize liquid hydrocarbons, the whole operating together in the manner and for the purpose substantially as set forth.

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Witnesses:
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