

J. CHASE.

Carbureter.

No. 50,905.

Patented Nov. 14, 1865.

Fig. 1.

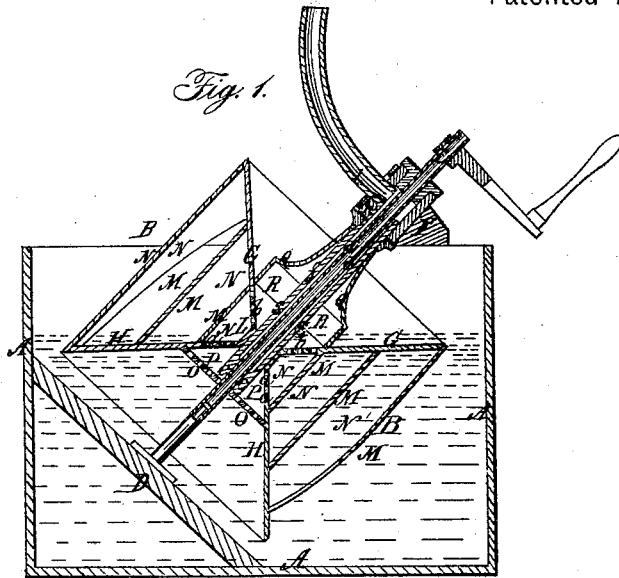


Fig. 2.

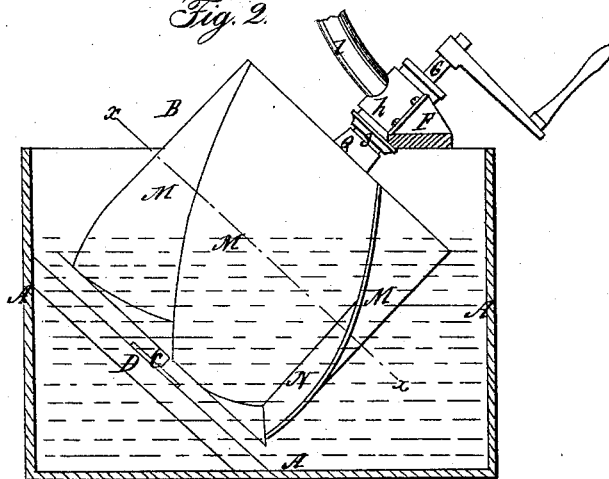
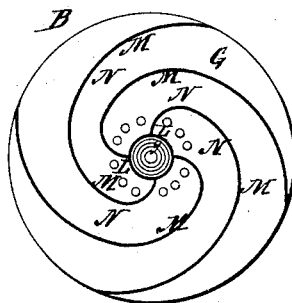


Fig. 3.



Witnesses:

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Inventor:

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*By M. M. & Co. atty*

# UNITED STATES PATENT OFFICE.

JOHN CHASE, OF WINDSOR LOCKS, CONNECTICUT.

## IMPROVED APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. **50,905**, dated November 14, 1865.

*To all whom it may concern:*

Be it known that I, JOHN CHASE, of Windsor Locks, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Apparatus for Carbureting Air; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to an apparatus especially adapted to the manufacture of illuminating-gas from naphtha by passing atmospheric air through it; and it consists in a novel and peculiarly-constructed wheel divided into a series of separate and similar-shaped compartments or chambers extending its whole length, open at the periphery of the wheel and communicating at their inner ends, at one end or head plate of the wheel, with any suitable conducting-pipe for the gas formed by it, which wheel is so arranged and hung within the receptacle containing the naphtha that, as it is revolved in any proper manner and the open ends of the chambers at the periphery of the wheel are passing through the naphtha, the air contained in said chambers will be forced out thereof into the conducting-pipe for the gaseous vapors so formed, the communicating ports of the chambers therewith then being above the naphtha, while, when the open outer ends of the chambers are passing through that portion of their plane of revolution above or outside of the naphtha, the said ports communicating with the conducting-pipe are closed by the naphtha liquid itself, which naphtha, through suitable ports at the opposite end of the wheel to the conducting-pipe, has free access at all times to the interior of those chambers below the naphtha at their inner ends. By this construction of the chambered wheel and its arrangement within the naphtha-vessel a constant flow of gas to the conducting-pipe is obtained and the raising or lifting of the naphtha by the "buckets" as the wheel revolves avoided, thus enabling the wheel to be driven with less expenditure of power than with the bucket-wheels as heretofore constructed and arranged.

In accompanying plate of drawings my improvement is illustrated, Figure 1 being a central vertical section of the chambered wheel and

the naphtha-vessel, taken in the direction of its length; Fig. 2, a section through the naphtha-reservoir, showing the chambered wheel in side elevation; and Fig. 3, a transverse section through the chambered wheel, taken in the plane of the line *x x*, Fig. 2.

A A in the drawings represent the naphtha vessel or reservoir, which may be made of any suitable size, shape, and material. In this reservoir is hung, in an inclined or angular direction thereto—say about forty-five degrees—a chambered wheel, B, turning by its shaft C in bearings at each end of the inclined side piece, D, and cross-bar F of the reservoir A. The construction of this wheel B is as follows: G and H are the two head-plates, each made of the shape of a cone, placed with their apices toward each other, where they are joined together by a short tube, L. In the space between these two head-plates G and H are arranged the partition-plates dividing the same into a series of chambers, N, which plates extend from the outer edges of the conical heads to the central and connecting tube thereof, and are secured to the surfaces of the heads by soldering, or in any other proper manner, the direction of the outer edge of each of these plates being at an angle to the length of the space between the heads and running through a quarter part, or nearly so, of the periphery of the larger base of the heads, as shown in Fig. 2. These plates are bent around the central axis of the heads through one-half part, or nearly so, of its periphery, or, in other words, so that their inner ends shall be opposite, or nearly so, to their outer ends, as shown in Fig. 3. Across the open space between the inner surfaces of the cone-head H, and a short distance from its apex, is fixed a perforated plate, O, forming a chamber, P, between it and the tube, communication with which and the inner ends of the chambers is had through apertures *a a* of the head-plate H thereat.

Upon the outside face of the head-plate G, at and about its apex, is secured, by soldering or in any other proper manner, a conical or bell-shaped cap, Q, forming a chamber, R, communication with which is had by the several chambers of the wheel through apertures *b b* in the said head-plate. This cap is open at its outer end, and through such opening and the hollow central tube of the head-plates passes the shaft C of the wheel, fastened at and in

the perforated plate of the head H. Over this shaft C is placed a concentric sleeve or tube, S, closing, fitting above, and tightly packed about the same at its inner end, *c*, near the perforated plate, but of a little larger internal diameter for the rest of its length than the shaft, forming an annular chamber or space, *d*, about the shaft, with which space and the bell-chamber R communication is established through apertures *ffff* in the sleeve S. This sleeve is suitably and tightly packed about the aperture of the bell-cap, and has screwed on its outer end, *g*, a T-shaped connection, *h*, to which is secured the gas supply or conducting pipe *l*. This T-connection is packed about the shaft so as to prevent all escape of gas through its joint therewith, and the same may be remarked of all the joints, the shaft turning in them as it is revolved, carrying with it the wheel.

The height to which the vessel or reservoir A is filled with naphtha is represented by red lines in the drawings, and it should be of sufficient height as to have one-half, or nearly so, of the wheel immersed therein, consequently covering the whole of the lower head. As the wheel is revolved the air contained in each of its chambers, as their open ends at its periphery in turn, pass below the surface of and through the naphtha, is compressed by the naphtha and forced into the bell-cap R, the ports of such chambers communicating with which are then above the level of the naphtha, from whence it passes to the conducting-pipe, in which it can be conveyed to any desired lo-

cality for illuminating or other purposes, the said ports being immersed in the naphtha, and consequently closed thereby, when the open ends of the chambers have issued from the naphtha and are passing around and above the same. This result is secured by the peculiar shape of the chambers and the manner in which the wheel is hung in the naphtha-vessel, and, as communication is always open between the several chambers of the wheel and the naphtha at the head-plate H through the apertures, it is obvious that no lifting of the naphtha by the buckets occurs, as with bucket-wheels as heretofore constructed and arranged, the importance of which, in the economy of power necessary to drive the wheel, is obvious to all.

It may be here remarked, in conclusion, that any or all of the several improvements embraced in a previous application for Letters Patent on an air-carbureting apparatus made by me, and now on file in the United States Patent Office, may be used in connection with the chambered wheel herein described.

I claim as new and desire to secure by Letters patent—

The chambered wheel B, constructed, arranged, and operating substantially as described, for the purpose specified.

The above specification of my invention signed by me this 4th day of October, 1865.

JOHN CHASE.

Witnesses:

ALBERT W. BROWN,

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