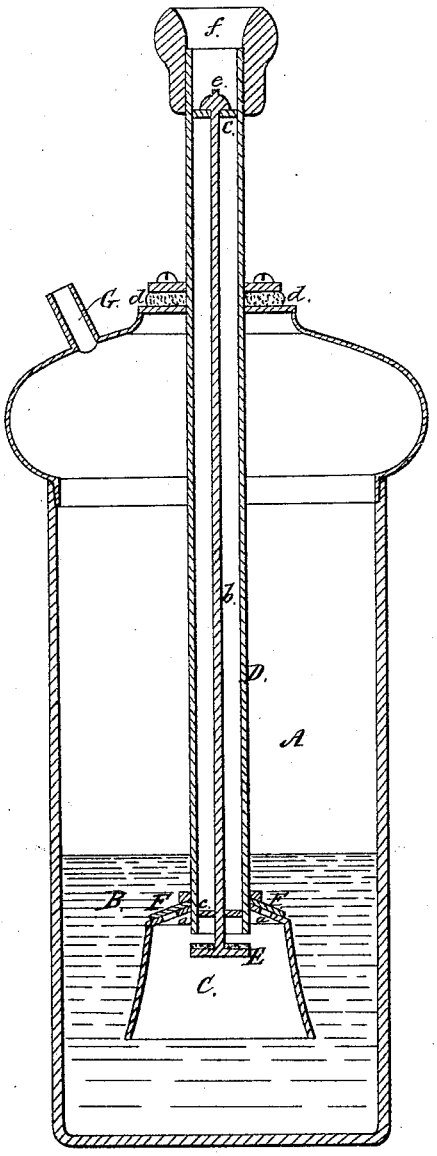
D. BICKFORD.

Carbureter.

No. 51,128. Patented Nov. 28, 1865.



Witnesses:

F. P. Hale Jr

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UNITED STATES PATENT OFFICE.

DANA BICKFORD, OF BOSTON, MASSACHUSETTS.

IMPROVED APPARATUS FOR CARBURETING AIR.

Specification forming part of Letters Patent No. **51,128**, dated November 28, 1865.

To all whom it may concern:

Be it known that I, DANA BICKFORD, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Air-Forcing Pump; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, which denotes a vertical section of such pump.

In the said drawing, A denotes a closed vessel containing a mass of oil or liquid, B, which about half fills it.

Within the vessel A there is a bell or cup, C, which opens downward, and is affixed to a tube, D, which extends out of the upper end of the vessel A and through a stuffing-box, *d d*, applied to such vessel.

On the lower end of the tube D, which projects somewhat into the bell C, is a valve, E, whose stem *b* extends upward within the tube, and is supported within it by two bars, *c c*, carried across and fixed to the bore of the tube. The stem slides freely through such bars, and has a head, *e*, fixed on its upper end, such head being for the purpose of supporting the rod of the valve by the upper cross-bar *c* when the valve is off the lower end of the tube.

Through the upper part of the bell C are one or more holes, *a a*, provided with a valve, F, arranged on the top of the bell and applied thereto so as to be capable of opening upward. A conduit, G, leads out of the upper part of the vessel B.

By taking hold of the knob or head *f* formed on the upper part of the tube D and quickly moving the tube and bell up and down within the vessel A, so as to move the bell into and out of the liquid, air will be drawn through the tube D and into the bell and be expelled therefrom through the openings *a a*, and be condensed in the space above the liquid, from whence it may be drawn by the conduit G, which may lead to any place or article where it may be desirable for such condensed air to be employed.

By using for the liquid in the vessel A a liquid hydrocarbon, such as gasoline, the apparatus may be used for carbureting the air which may be forced through such liquid.

I do not claim any of the air-carbureting apparatus as described in the United States Patents Nos. 46,302 and 38,017. My invention differs materially therefrom, inasmuch as it has a close vessel, C, surrounding the bell or inverted cup, and such vessel is provided with an educt, G, and a stuffing-box, *d;* and, furthermore, the bell has a tubular stem, D, to serve as an induct and to work through the stuffing-box and carry the induction-valve stem. Furthermore, valves for discharge of air are placed on top of the vessel C, and not within it, whereby the air discharged from such vessel is forced directly through the mass of liquid surrounding it, whereas nothing of this kind takes place in the operation of either of the apparatus described in such patents.

I claim—

My improved air-forcing apparatus as composed not only of the close vessel A, provided with a cover, G, and a stuffing-box, *d*, but of the bell-shaped vessel or cup C, its tube D, and valves E and F, arranged in manner and so as to operate as specified.

DANA BICKFORD.

Witnesses:

R. H. EDDY,

F. P. HALE, Jr.