

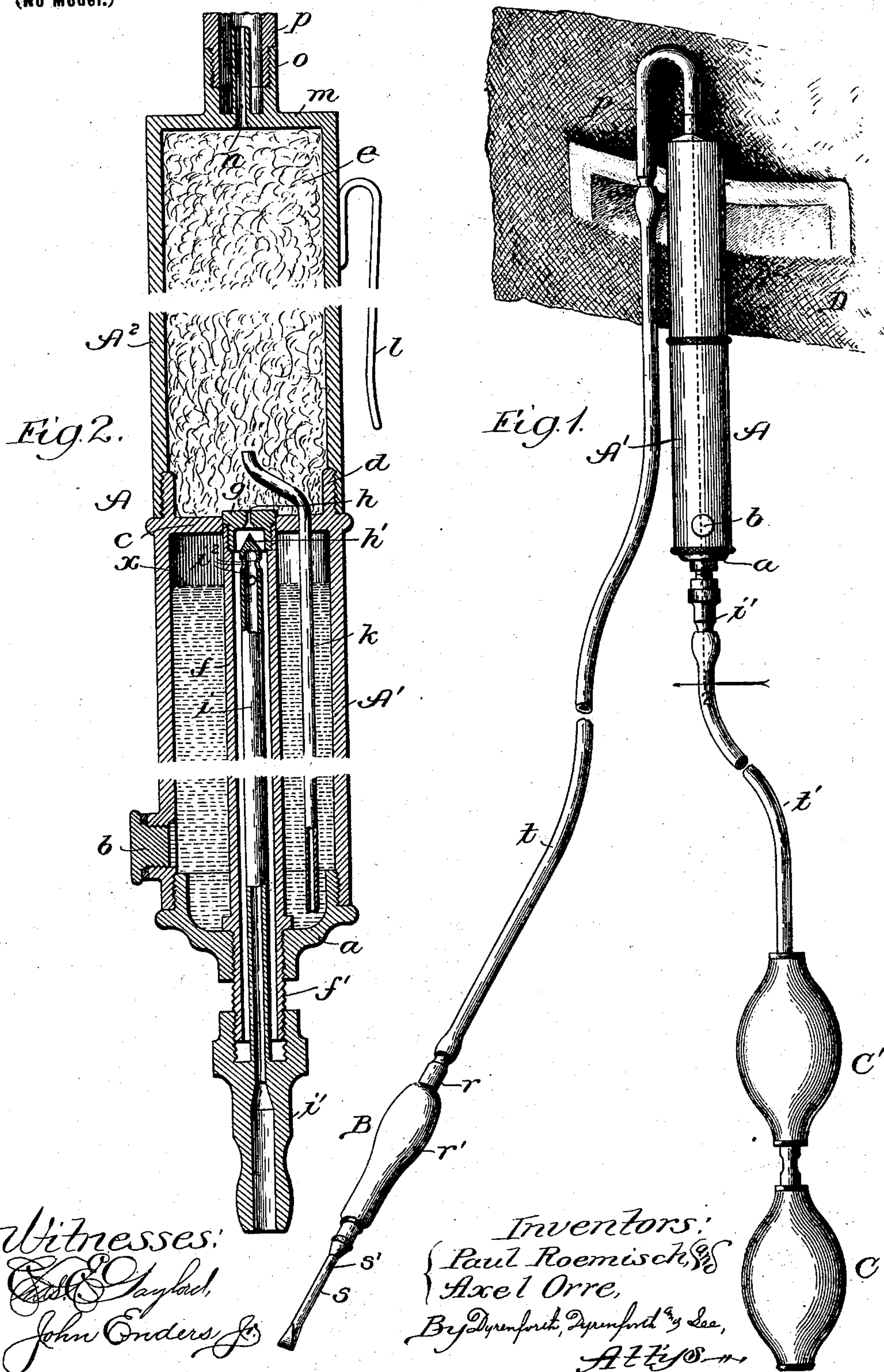
No. 702,378.

Patented June 10, 1902.

P. ROEMISCH & A. ORRE.
CARBURETER.

(Application filed Apr. 25, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

PAUL ROEMISCH AND AXEL ORRE, OF CHICAGO, ILLINOIS; SAID ROEMISCH
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CARBURETER.

SPECIFICATION forming part of Letters Patent No. 702,378, dated June 10, 1902.

Application filed April 25, 1901. Serial No. 57,462. (No model.)

To all whom it may concern:

Be it known that we, PAUL ROEMISCH and AXEL ORRE, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Gas-Generators for Pyrographical and other Tools, of which the following is a specification.

Our invention relates to improvements in the class of gas-generators used more particularly with pyrographical or "poker-work" tools, but also with soldering and thermocauterizing tools for gasifying or vaporizing with air-pressure the liquid fuel employed, as liquid hydrocarbon (preferably benzin) or alcohol, the better to adapt it for combustion to obtain the heat for heating the working end of the tool.

Having more especially devised our invention for use with pyrographical tools, and particularly in that use as an improvement upon the bottle form of generator hitherto commonly employed with such tools, the description of our invention hereinafter contained is mainly confined to its use in connection with a pyrographical tool, though we desire to be understood as intending to include its application to other tools, such as those hereinbefore specified, as also to lamps and blow-torches.

Our object is to provide a generally-improved construction of generator in the class referred to that shall be adapted to vaporize alcohol, naphtha, gasolene, benzin, or any suitable light oil or liquid and produce therefrom by a slow and easy air-forcing operation a comparatively large quantity of gas or vapor and a proportionately small quantity of air mixed with it, thereby to furnish an ample supply of the gaseous fuel to the tool, for regulating which conveniently accessible and effective means are provided.

With reference to the use of our improvement with a pyrographical tool our further and more particular objects are to adapt it to be supported by being hooked on a convenient pocket, as an upper vest-pocket, of the operator, and thus leave his hands free for pumping the air and guiding the tool while at work on a step-ladder, scaffold, or the like, thereby providing as advantages, especially

over the bottle form of generator referred to, against the liability of capsizing or of shaking the benzin when the bottle is carried, with the attendant danger of explosion or that of forcing the benzin into the rubber tubing of the tool, with the effect of extinguishing the flame in the tool-point. Moreover, as another defect of the aforesaid bottle form of generator which is overcome by our improvement the air forced into the bottle takes the fumes of the benzin out of the bottle into the tool-point and produces a mixture of a greater proportion of air and a lesser proportion of vapor, thereby rendering troublesome and wasteful of time the matter of ignition for heating the tool-point.

Referring to the accompanying drawings, Figure 1 shows our improved generator by a view in elevation in connection with a pyrographical tool and supported by being hooked on the vest-pocket of an operator; and Fig. 2 is an enlarged view, in longitudinal sectional elevation, of the generator, the section being taken at the line 2 on Fig. 1 and viewed in the direction of the arrow.

A is the generator, which is best formed of tubular metal and preferably in two cylindrical sections A' and A², separably coupled endwise together. The section A' forms the reservoir or holder for the liquid fuel, the level of which is indicated at *x* and is closed by a flanged screw-head *a* at one end, adjacent to which, at one side, is the filling-opening closed by a screw-plug *b*, and the opposite end of the reservoir is closed by a diaphragm *c*, from which projects an annular externally-threaded flange *d*. On this flange *d* is screwed one end of the section A², which forms the mixing-chamber and contains a filling *e* of porous material, such as cotton. A tube *f* for holding the compressed-air supply extends centrally through the reservoir A', being screwed at one end into the head *a*, beyond which its externally-threaded portion *f'* protrudes for a purpose hereinafter described, the opposite end of the tube *f* being screwed upon a nipple *g*, let into the diaphragm *c* and containing a minute central discharge-opening *h*, tapering outward from its reservoir end. On the protruding threaded

end of the tube *f* is screwed a hollow nipple *i'*, carrying, to extend longitudinally through the tube *f*, an air-supply tube *i*, terminating at its outer end coincident with the opening *h* in the nipple *g* in a needle-point *h'*, adjacent to which small openings *i*² are provided in the tube *i*. A fine-bore tube *k* for conducting the liquid fuel extends through the diaphragm *c* into the section *A'*, preferably far into the latter, as shown, being supported in the diaphragm, and where it protrudes into the mixing-chamber it is shown to be deflected to project its extremity forward in alinement with the minute nipple-opening *h*.

The mixing-chamber section *A*² is provided on the outer surface of its wall with a hanger (shown as a suspension-hook *l*) and in the head *m*, which closes its outer end, with a gas-outlet opening *n*, surrounded by a nipple *o*, into which is screwed a tubular gooseneck *p*.

The pyrographical tool *B*, in connection with which our improved generator is shown in the drawings, may comprise any known or suitable construction, that illustrated involving, generally stated, a tube *r*, passing through a handle portion *r'* of material non-conductive of heat, such as cork or wood, the tube carrying at its outer end the hollow needle or point *s* to be rendered hot by the heat of the burning gaseous fuel within it for charring the wood to be ornamented. In the point *s*, near its base, is shown an opening *s'* for the escape of products of combustion, though a point adapted for merely scorching the surface of such wood has the extremity of its flattened end open for the emergence of the hot products of combustion, which are directed against the surface to be scorched by manipulating the tool *B* over it like a paint-brush, or by "brushing," as this operation is termed. The tool is flexibly connected with the generator by rubber tubing *t*, coupled at one end to the rear extremity of the tube *r* and at its opposite end to the gooseneck *p*, the bent form of which prevents the rubber tubing from becoming kinked or flattened, as it might without such gooseneck attachment, with the effect of shutting off the gas-supply from the generator to the tool.

The air-pressure supply to the generator is provided through a suitable air-pumping medium, that shown being the connected rubber bulbs *C* and *C'* commonly provided for the purpose and flexibly connected with the generator *A* at the nipple *i'* by rubber tubing *l'*.

To use the generator in the described connection, the operator hangs it at the hook *l*, preferably over the edge of an upper pocket in his vest, (represented at *D* in Fig. 1,) thereby leaving one hand free to hold and work the bulb *C* and his other hand to hold and guide the tool over the surface to be burned. By working the bulb air is forced under pressure through the tube *i* and its apertures *i*² into the air-pressure holder *f*, whence it discharges into the mixing-chamber formed

by the section *A*² in quantity regulable by turning the nipple *i'* to vary according to desire the outlet at *h* by advancing toward or retracting from it the point *h'*, which thus, with the opening *h*, forms a needle-valve. The bulb *C* need only be worked with sufficient frequency to maintain the bulb *C'* more or less inflated. While the air under pressure is discharging from the opening *h*, liquid fuel enters through the tube *k* from the reservoir *A'* into the chamber *A*² and therein mixes with the air and vaporizes, and vapor and gasification of the latter being enhanced in the progress of the mixture through the porous filling *e*, so that it forms a readily inflammable and combustible gas when it leaves the mixing-chamber at the discharge-opening *n* to pass through the gooseneck *p* and tubing *t* into the tool *B*, where it is ignited through the opening in the point *s*.

As will be seen, the described construction of our improved generator greatly enhances the convenience and facilitates the use of the tool with which it is employed and enables the supply by a slow, regular, and easy air-pumping operation of a sufficient quantity of compressed air to keep the supply-holder *f* therefor replenished and to provide a steady current of the air for gasifying the liquid fuel, the compressed-air supply to the mixing-chamber being conveniently regulable by turning the nipple *i'* to open more or less the needle-valve device.

What we claim as new, and desire to secure by Letters Patent, is—

1. In a gas-generator of the character described, the combination of a reservoir and a mixing-chamber connected therewith and provided with a gas-discharge opening, a compressed-air holder opening into said mixing-chamber, an air-tube within and discharging into said holder and adapted to be connected with an air-compressor, and a supply-tube for liquid fuel leading from said reservoir into the mixing-chamber.

2. In a gas-generator of the character described, the combination of a reservoir for liquid fuel and a mixing-chamber connected therewith and provided with a gas-outlet adapted to be connected with a pyrographical or other hand tool, a compressed-air holder in said reservoir, discharging into said mixing-chamber, an air-tube adjustably confined in said holder and forming with its discharge-opening a valve device, said tube being adapted to be connected with an air-compressor, and a supply-tube for liquid fuel leading from said reservoir into the mixing-chamber.

3. A gas-generator of the character described, formed of tubular sections coupled endwise together, one section forming a reservoir for liquid fuel and being closed at its opposite ends, and the other section forming a mixing-chamber closed at its opposite ends, an air-pipe passing through said reservoir and opening into said mixing-chamber and adapted to be connected at one end with an air-

compressor, a supply-tube for the liquid fuel leading from said reservoir into said mixing-chamber and open therein to the compressed air discharged from said air-tube, and a gas-discharge opening in the mixing-chamber adapted to be connected with a pyrographical or other tool.

4. A gas-generator of the character described, formed of tubular sections coupled endwise together, one section forming a reservoir for liquid fuel and being closed at its opposite ends, and the other section forming a mixing-chamber closed at its opposite ends and provided at its outer end with a gas-discharge opening having a gooseneck extension for a rubber-tube connection with a pyrographical or other tool, an air-pipe passing through said reservoir and opening into said mixing-chamber and adapted to be connected at one end with an air-compressor, and a supply-tube for the liquid fuel leading from said reservoir into said mixing-chamber and open therein to the compressed air discharged from said air-tube.

5. A gas-generator of the character described, comprising sections A' and A^2 coupled endwise together and forming, respectively, a reservoir for liquid fuel and a mixing-chamber, an air-pipe passing through said reservoir and opening into said mixing-chamber and adapted to be connected at one end with an air-compressor, a needle-valve device in said air-pipe at its communication with said mixing-chamber, and a supply-tube for the liquid fuel leading from said reservoir into said mixing-chamber.

6. A gas-generator of the character de-

scribed, comprising sections A' and A^2 coupled together and forming, respectively, a reservoir for liquid fuel and a mixing-chamber, an air-pipe f passing through said reservoir and terminating at its inner end in a minute opening h leading into the base of the mixing-chamber, an air-pipe i extending through and adjustably connected with said air-pipe f and terminating at its inner end in a needle-valve point to form with said opening a needle-valve, said air-pipe i having one or more openings i^2 , a tube k leading from said reservoir into said mixing-chamber, and a gas-discharge opening in the outer end of said mixing-chamber.

7. A gas-generator of the character described, comprising sections A' and A^2 coupled together and forming, respectively, a reservoir for liquid fuel and a mixing-chamber, an air-pipe f passing through said reservoir and terminating at its inner end in a minute opening h leading into the base of the mixing-chamber, said pipe being threaded about its protruding end, a hollow nipple i' screwed upon the protruding end of said pipe and carrying therein an air-pipe i terminating at its inner end in a needle-valve point h' and provided with one or more openings i^2 , a tube k leading from said reservoir into said mixing-chamber, and a gas-discharge opening n in the outer end of said mixing-chamber.

PAUL ROEMISCH.
AXEL ORRE.

In presence of—

M. S. MACKENZIE,
ALBERT D. BACCI.

Corre

It is hereby certified that the name of the assignee in Letters Patent No. 702,378, granted June 10, 1902, upon the application of Paul Roemisch and Axel Orre, of Chicago, Illinois, for an improvement in "Carbureters," was erroneously written and printed "Bertha E. Ranzel," whereas said name should have been written and printed *Bertha E. Runzel*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 17th day of June, A. D., 1902.

[SEAL.]

F. I. ALLEN,
Commissioner of Patents.