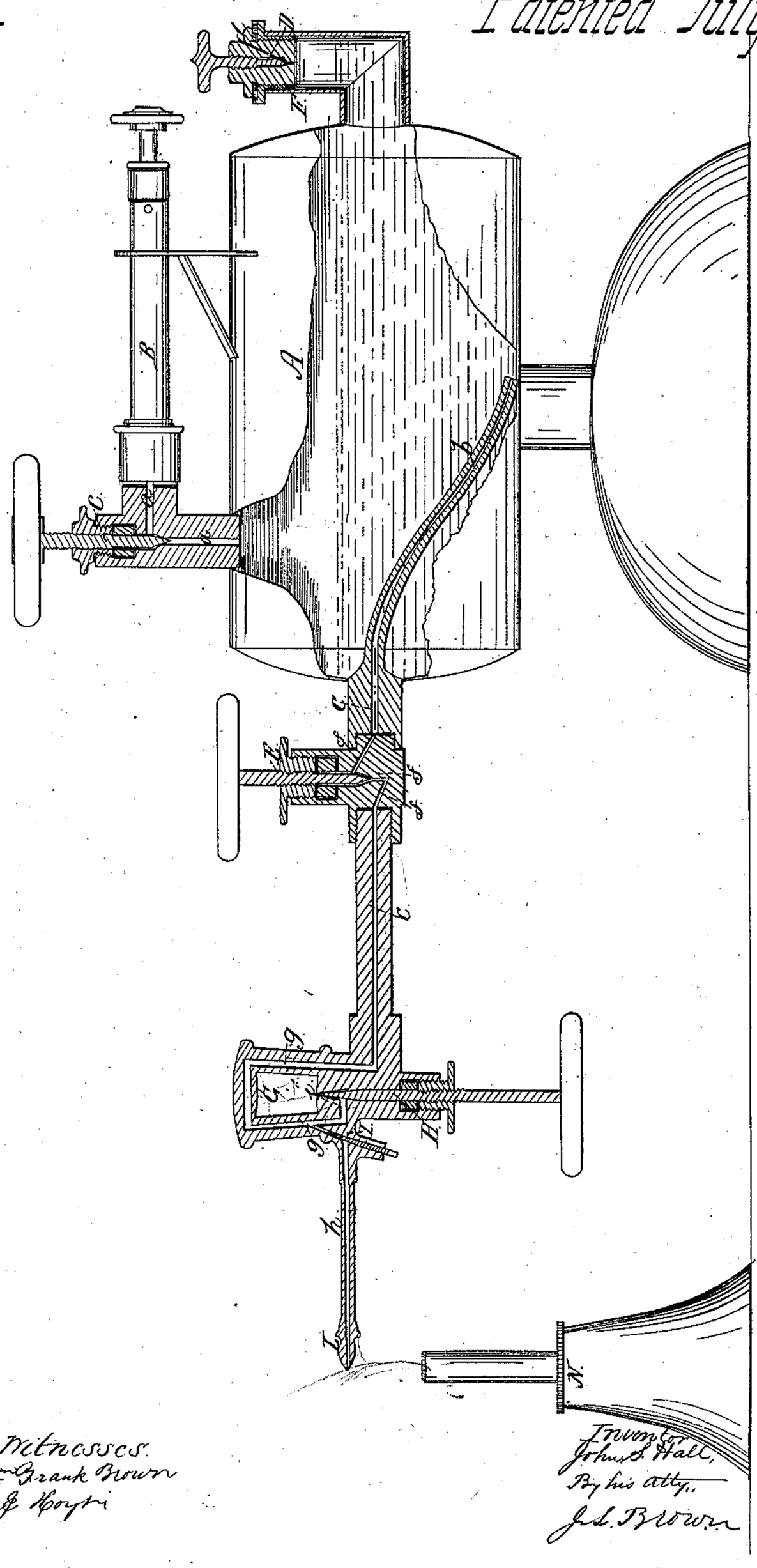
J. S. Hull,

Blow Pipe,

No. 56,051. Patented July 3, 1866.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN S. HULL, OF CINCINNATI, OHIO.

IMPROVED SOLDERING-LAMP AND BLOW-PIPE.

Specification forming part of Letters Patent No. **56,051**, dated July 3, 1866.

To all whom it may concern:

Be it known that I, JOHN S. HULL, of Cincinnati, in the county of Hamilton and State of Ohio, have invented an Improved Soldering-Lamp and Blow-Pipe; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing, making part of this specification, and representing, mostly, a central longitudinal vertical section of the apparatus, but a portion thereof in elevation.

I employ petroleum, naphtha, or other hydrocarbon fluid for producing a gas-jet, and I force the fluid to the gas-generator by atmospheric pressure acting on the surface of the fluid in the reservoir A. The fluid is introduced into the reservoir A through a tube which is ordinarily kept closed by an air-tight stopper, F, and there is provided in this stopper an outlet-passage, *d*, closed by a conical valve, D, which can be opened to let out the condensed air when the use of the lamp is discontinued at any time.

The first feature of my invention consists in locating the condensing-pump B outside of the reservoir A, it being at the same time permanently attached thereto and connected therewith by a suitable induction-passage, *a*. The advantages of this arrangement over placing the pump inside of the reservoir, as heretofore used, lie in the readier means of getting at the pump for repairs or other purposes, and dispensing with some adjuncts which are necessary when the pump is located inside. The construction is, in general terms, simpler and cheaper than by the former arrangement.

The next feature of my invention consists in the employment of a cut-off or stop valve, C, between the pump B and reservoir A, so arranged as to entirely close the passage *a*, between the said pump and reservoir, after the air is condensed in the reservoir, and to prevent the escape of air back through the pump in case its valve leaks. This stop-valve, not being liable to get out of order, and being much less used at all times than the pump-valve, is much more secure than the same to retain the pressure, and is therefore quite important in its use.

Another feature of my invention consists in locating a regulating-valve, E, between the reservoir A and the gas-generator G, to regulate or entirely cut off the flow of oil to the gas-generator. It is conveniently applied by varying the direction of the passage *c*, somewhat in the way represented at *f f f*, so that a conical point of the valve E may be screwed down to partially or entirely close the passage.

The retort G, for the generation of the gas from the oil or other hydrocarbon fluid, has its oil-passage *g* led up, around, and down through it substantially as shown; and from it branches the jet-passage *h*, to conduct the generating gas to the jet-orifice L, where the compound blow-pipe flame is produced by the issuing stream of gas in connection with the flame of a lamp, M, underneath. Another passage, *i*, branches from the retort-passage *g*, and leads to an orifice centrally under the retort, where a jet of flame is produced for gasifying the fluid in the retort. In this way the gas-generator furnishes its own generating-flame, whereby the employment of an additional separate lamp or burner for that purpose is dispensed with, so that the instrument is cheaper, more economical, more compact, and more readily managed than where a separate gas-generating lamp is employed. The gas-generating jet is regulated by a pointed set-valve, H, substantially in the manner represented.

An additional improvement consists in the employment of a jet-regulating valve, I, between the gas-generator and the jet-orifice L, for regulating the flame independently of the generation of the gas or the amount of oil supplied to the gas-generator.

The flame-jet may be stopped entirely by the jet-regulator I, by the set-valve H, by closing the regulating-valve E, or by opening the valve D, so as to let off the pressure of atmosphere in the reservoir.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The arrangement of the condensing-pump on the outside of the reservoir, substantially as and for the purpose herein specified.

2. The employment of a cut-off valve, *c*, between the pump and the reservoir, for the purpose set forth.

3. The employment of a regulating and cut-off valve, E, between the reservoir and the gas-generator, as described.

4. A regulating-valve, I, between the gas-generator G and the jet-orifice L, as herein set forth.

5. The employment of a gas-generating burner supplied by gas produced by the gas-generator itself, together with the main supply, substantially as and for the purpose herein specified.

JOHN S. HULL.

Witnesses:
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