(No Model.)

J. S. WOOD.

STREET LAMP AND BURNER.

No. 435,551. Patented Sept. 2, 1890.

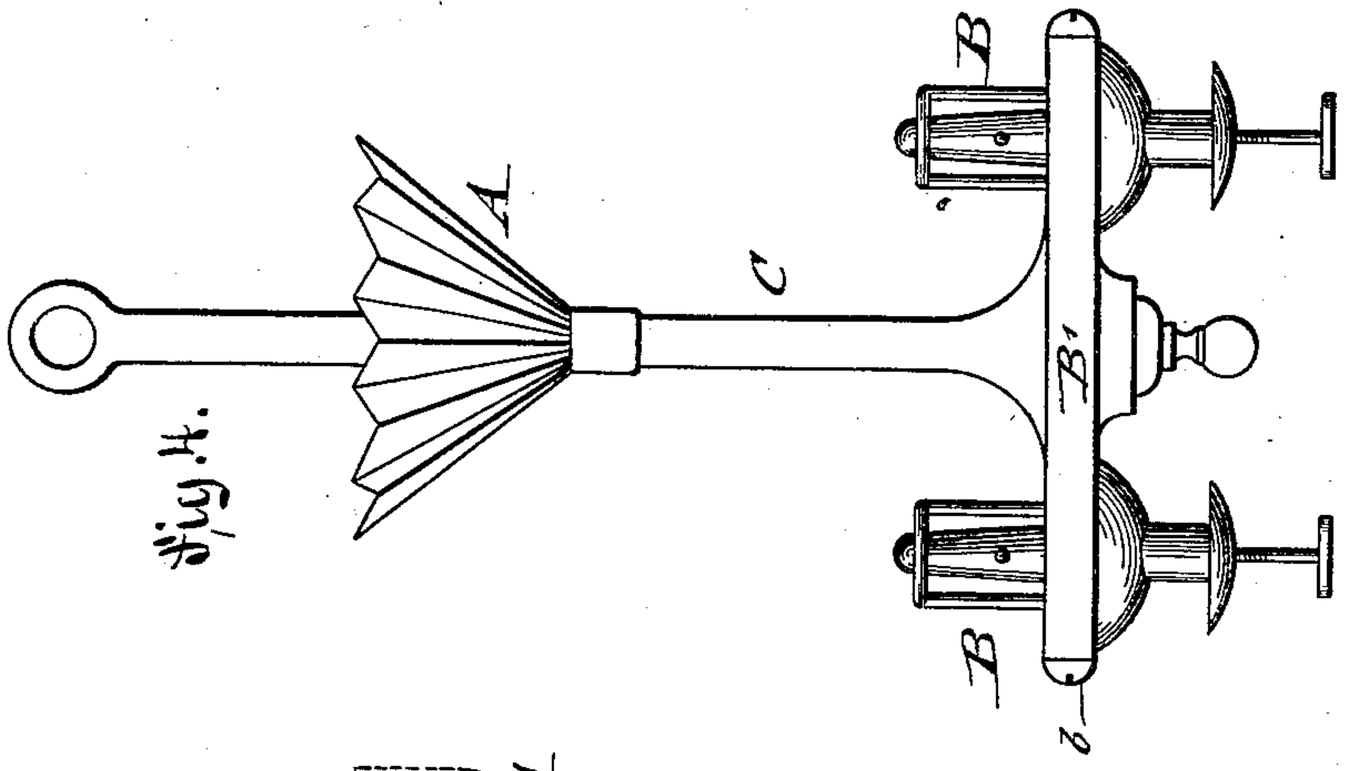

Fig. 4.

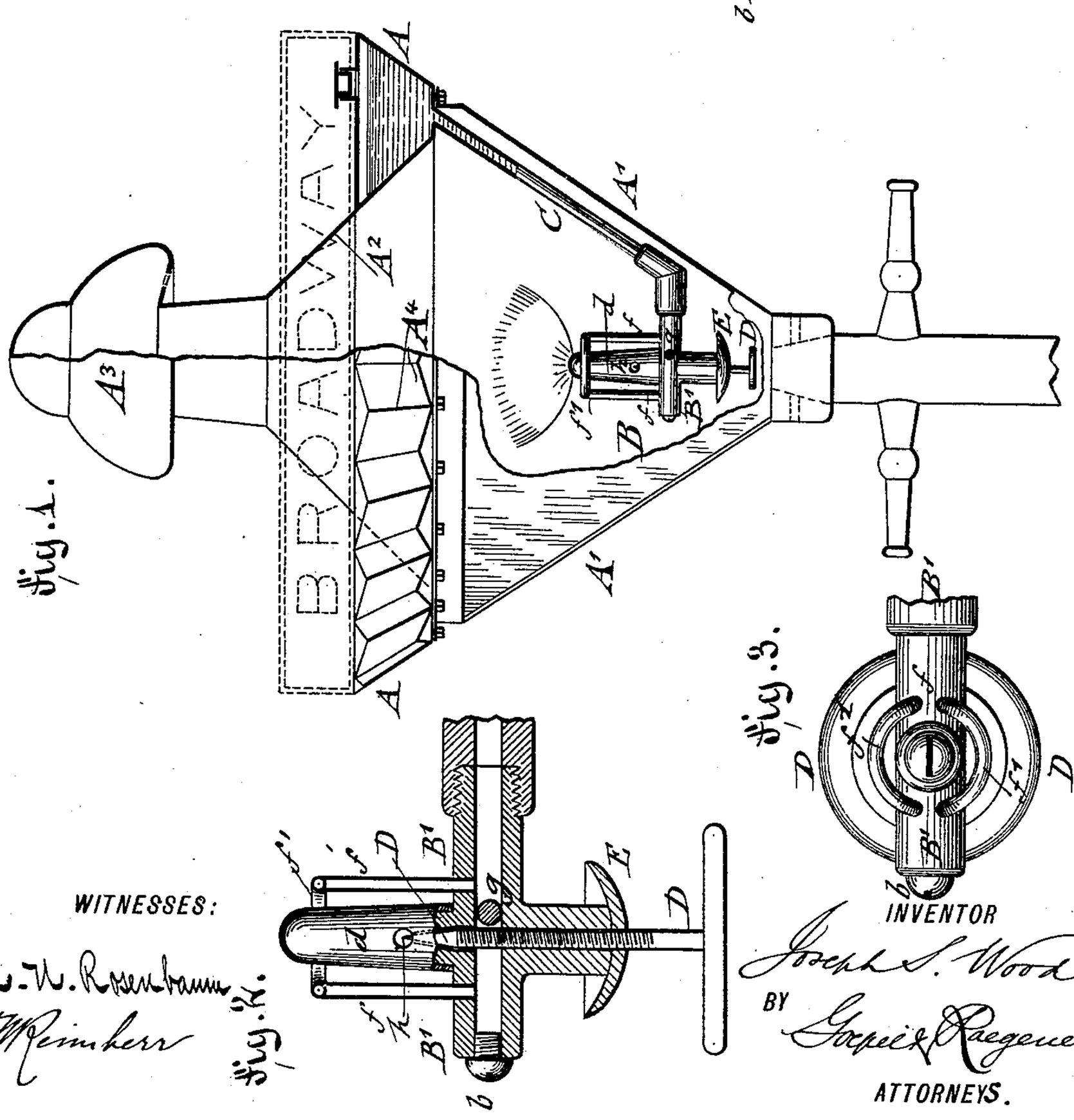

Fig. 1.

Fig. 3.

Fig. 2.

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STREET-LAMP AND BURNER.

SPECIFICATION forming part of Letters Patent No. 435,551, dated September 2, 1890.

Application filed May 12, 1890. Serial No. 351,389. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH S. WOOD, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Street-Lamps and Burners, of which the following is a specification.

This invention relates to an improved street-lamp and burner of that class in which the gas is generated by the burner itself, to which a suitable hydrocarbon oil is supplied under pressure from a reservoir at the upper part of the lamp, the burner being so constructed as to be in itself a small generator of gas, which can be readily started and lighted and in which the size of the flame is regulated by means of a needle-valve that opens or closes the supply-orifice of the burner; and the invention consists in the construction and combination of parts and details, as will be fully described and set forth hereinafter, and then pointed out in the claim.

In the accompanying drawings, Figure 1 represents a side elevation, partly in section, of a street-lamp with my improved gas-generating burner. Fig. 2 is a vertical central section of my improved burner, drawn on a larger scale. Fig. 3 is a plan view of the same, and Fig. 4 shows a chandelier constructed on the same principle as the street-lamp.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the reservoir, and A′ the supporting-frame, of a street-lamp. The reservoir A is arranged at the top of the same and open at the middle part, so that the products of combustion can pass through a dome-shaped portion A^2, having a hood-shaped portion A^3, covering the outside of the lamp. The reservoir A is provided with inclined or outwardly-flaring side walls, which can be used as reflecting-surfaces for throwing the light to the ground. The reservoir A is supported on inclined corner rods or stays, which connect the same with the base of the lamp, as shown clearly in Fig. 1. To the side walls of the reservoir A may be applied metallic corrugated panels A^4, which serve as more effective reflectors or panels having the names of the streets on the same, as desired. The name-panels may, however, also be arranged above the reflecting-sides and attached to the top part of the reservoir B, as shown in dotted lines in Fig. 1.

The reservoir A is provided with a supply-opening for the oil, which opening is closed by a suitable screw-cap in the usual manner. The burner B is located in the lower central part of the lamp-frame A′ and supported at the lower end of an inclined supply-pipe C, which extends alongside of one of the inclined corner-supporting rods or stays of the lamp-frame and connects the burner with the reservoir A. The horizontal main tube B′ of the burner extends from the lower end of the supply-tube C toward the middle part of the lamp and supports the gas-generating devices of the burner. The burner-tube *d* is attached to a boss at the top part of the main tube B′, while a needle-valve D passes through a boss at the under side at right angles to the main tube B′, said needle-valve being provided with a suitable handle for adjusting the same higher or lower. The tapering point of the needle-valve D passes into the correspondingly-tapering portion of the supply-orifice at the base of the burner-tube, so as to partly or entirely close the same. The outer end of the main tube B′ is closed by a screw-plug *b*. An alcohol-cup E is attached to the lower end of the boss at the under side of the main tube, said alcohol-cup serving in the usual manner for the purpose of starting the gas-generating burner.

At each side of the burner-tube *d* is arranged a yoke-shaped tube *f*, through which the oil is conducted. The upper horizontal ends of the tubes are bent around and on a level, or nearly so, with the tip into semicircular portions *f′*, which nearly encircle the tip of the burner. A stop-cock *g* extends transversely across the main tube B′ at a point intermediately between the needle-valve D and the upwardly-extending portion of the tubes *f*, so as to compel the oil to pass into the upwardly-extending portions *f* and prevent it from passing into the remaining portion of the main tube B′. The oil is volatilized by the heat of the flame as it passes through the bent portions *f′*, which latter form the retort in which the oil is changed

into vapors. The vapors are conducted from the bent portions f' through the downward portions of the tubes f into the space formed in the main tube B′ between the stop-cock g and the end plug b. The vapors are forced through the tapering supply-orifice into the burner-tube d, said orifice acting in the nature of an air-ejector. The burner-tube d is provided above the supply-orifice with an air-hole h, through which the air that is to be mixed with the vapors is drawn in. By the suction of the vapors emitted through the supply-orifice around the needle-valve the air is drawn in, so that the intimate mixing of the air and vapors takes place in the lower part of the burner-tube. The gas thus formed is emitted through the slit of the burner-tip, so as to form a flame when lighted. By opening the needle-valve more or less a greater or smaller flame is produced.

For lighting the burner, the alcohol-cup E is filled with alcohol, which is lighted. The heat of the alcohol-flame heats up the main tube B′ and the upwardly-extending portions of the tubes f, and produces the vaporizing of the oil in the same, so that the burner is started into action. As the oil is supplied under pressure from the reservoir, the generation of gas will be automatically kept up and the flames fed with gas as long as oil is supplied. After the burner is once started, it is not necessary to extinguish the flame entirely; but a small generating-flame is kept up by screwing in the needle-valve, and reducing thereby the size of the supply-orifice. This keeps the generating portions of the burner warm during the time when no light is required and facilitates the quick generating of gas, when the needle-valve is screwed down again and the supply-orifice opened in the evening when the street-lamp is to be lighted. In this manner the lamp can be kept burning for a considerable length of time when care is taken that the reservoir is refilled from time to time, and that the parts of the burner are kept clean, which is necessary from time to time. For cleaning, the flame is extinguished entirely, and the needle-valve and closing-plug of the main tube B′ removed, whereby all the parts can be readily cleaned.

My improved street-lamp and gas-generating burner is specially adapted for such places where no gas or electricity is available, as it combines a number of advantages, such as a large flame, which is produced by the gas generated in the burner, a simple and effective construction of the generator, which is not apt to get out of order, and the facility by which the burner can be cleaned and repaired. The burner is also adapted for use with chandeliers, (shown in Fig. 3,) in which case the reservoir is arranged around the central hanger-tube of the chandelier, while the burners are supported on arms radiating from said central tube and connected with said hanger-tube by suitable oil-supply tubes.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

A gas-generating burner composed of a horizontal supply-tube, a needle-valve extending at right angles through the same, a stop-cock extending transversely through the main tube, a burner-tube provided with a supply-orifice, and an air-opening and yoke-shaped tubes extending from the main tube in upward direction, one at each side of the burner, said tubes having bent top portions forming retorts concentric to the tip of the burner, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JOSEPH S. WOOD.

Witnesses:
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W. REIMHERR.