

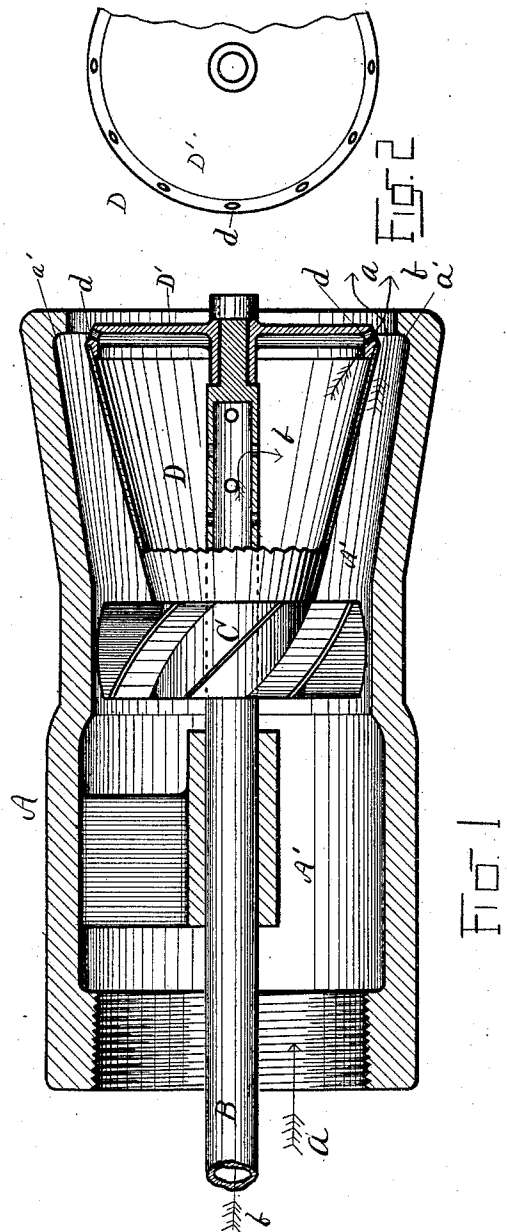
(No Model.)

2 Sheets—Sheet 1.

J. S. KLEIN.
ATOMIZER.

No. 473,759.

Patented Apr. 26, 1892.



Witnesses
Will Marks.
E. F. Spaulding

Inventor
John S. Klein
By his Attorneys
Harlock & Harlock

(No Model.)

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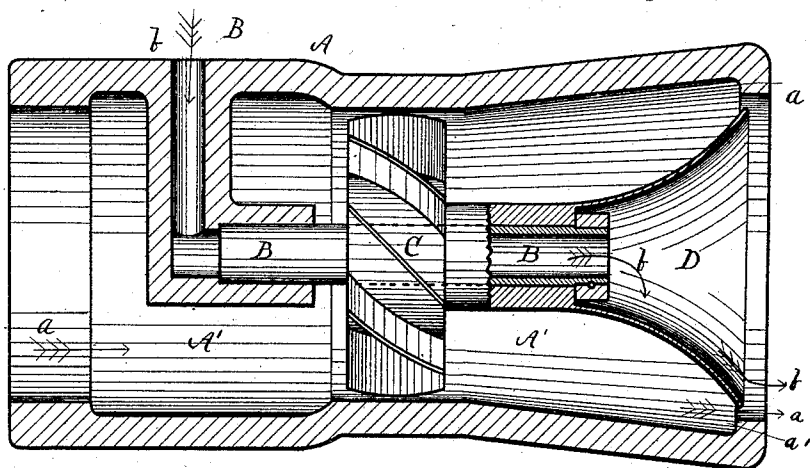


FIG. 3

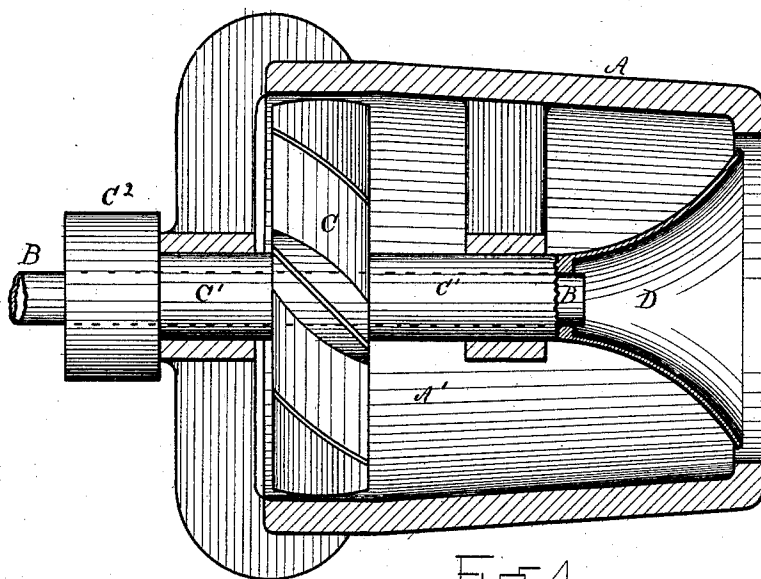


FIG. 4

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UNITED STATES PATENT OFFICE.

JOHN S. KLEIN, OF OIL CITY, PENNSYLVANIA.

ATOMIZER.

SPECIFICATION forming part of Letters Patent No. 473,759, dated April 26, 1892.

Application filed October 9, 1890. Serial No. 367,487. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. KLEIN, a citizen of the United States, residing at Oil City, in the county of Venango and State of Pennsylvania, have invented certain new and useful Improvements in Atomizers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to atomizers; and it consists in certain improvements in the construction thereof, as will be hereinafter fully set forth, and pointed out in the claims.

The invention is particularly applicable to hydrocarbon-burners; but it is not at all restricted to such use.

The invention is illustrated in the accompanying drawings, as follows:

Figure 1 is a longitudinal sectional view of the device with the inner parts in elevation. Fig. 2 is an end view of the part D, as shown in Fig. 1. Fig. 3 is a like view to Fig. 1, showing a modification in the construction. Fig. 4 is a like view to Fig. 1, showing another modification.

The construction and operation are as follows:

A is the body or shell of the atomizer, and A' is the air passage or chamber formed within the body A.

Arrows marked *a* show the direction of air-currents.

B is the passage for the oil or other fluid to be atomized, and arrows marked *b* show the course of this fluid.

C is a wind-wheel. In the construction shown in Figs. 1 and 3 the wind-wheel C is acted upon by the current of air which passes through the chamber A' and propels the centrifugal distributor D. In the construction shown in Fig. 4 the air-wheel C and the centrifugal distributor D are propelled by a motor which is belted to the pulley C², which is connected with the air-wheel and distributor by the sleeve C', and hence the air-wheel serves to propel the air through the chamber A'. In every case the oil-duct passes through the shaft of the wind-wheel and distributor and the oil falls upon the inner wall of the distributor. When the air propels the wheel C, as in Figs. 1 and 3, it is forced through the

chamber A' by some compressing or forcing device at a distance; but when the wind-wheel C propels the air, as in Fig. 4, the air is supplied from the surrounding atmosphere.

The centrifugal distributor D is shown as conical or bell-formed. In Fig. 1 it is shown as closed at the end by the disk D', which has perforations *d* in its periphery; and in Figs. 3 and 4 it is shown as an open-mouthed bell or cone. The distributor D will be propelled with great rapidity and the oil or other fluid to be atomized will be thrown from its mouth in a line at or about right angles to its axis and would impinge against the walls of the nozzle of the shell A were it not met by a counteracting current of air rushing through said nozzle, which deflects the oil, and the two fluids become thoroughly mixed. The air as it passes out of the nozzle impinges on the lip *a'* and is thrown toward the distributor, so it will be seen that the air-current meets the centrifugally-thrown oil almost squarely and the commingling of the two fluids must be perfect. The centrifugal action of the distributor is so great that the fluid thrown from it is very thoroughly atomized and, being thrown as it is with great force so directly against a current of compressed air just released and under rapid expansion, the particles of oil or other fluid are thoroughly separated.

What I claim as my invention is—

1. In an atomizer, the combination, substantially as set forth, of the nozzle A, having an air-passage A' and an inwardly-projecting lip *a'* at its mouth, a concentrically-contained oil-duct B, and a centrifugal distributor D, mounted concentrically on said oil-duct and having its point of centrifugal distribution opposite said lip *a*, whereby the centrifugally-discharged oil will be thrown against the outgoing air-current at the point where it is deflected inwardly by said lip.

2. In an atomizer, the combination, substantially as set forth, of a nozzle A, having an air-passage A' and an inwardly-projecting lip or deflector *a'* at its mouth, a concentrically-journalled conical distributor arranged with its base in the mouth of said nozzle and its apex back of said mouth, and an oil-duct B through the axis of said distributor with openings *b* within the distributor, so that the

inflowing oil will fall upon the inner walls of the distributor.

3. In an atomizer, the combination of a nozzle, an oil-duct concentrically placed within
5 said nozzle, and a distributor mounted to revolve on said oil-duct and having a hollow discharging-cone at its outer end and a propeller-wheel at its inner end, substantially as shown.

4. In an atomizer, the combination of a nozzle,
10 said oil-duct concentrically placed within said nozzle, a distributor mounted to revolve

on said oil-duct and having a hollow discharging-cone at its outer end, which receives the oil from the duct on its inner wall and discharges it from the periphery of its base, and
15 means for rotating said distributor.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN S. KLEIN.

Witnesses:

JNO. K. HALLOCK,
WM. P. HAYES.