

No. 622,525.

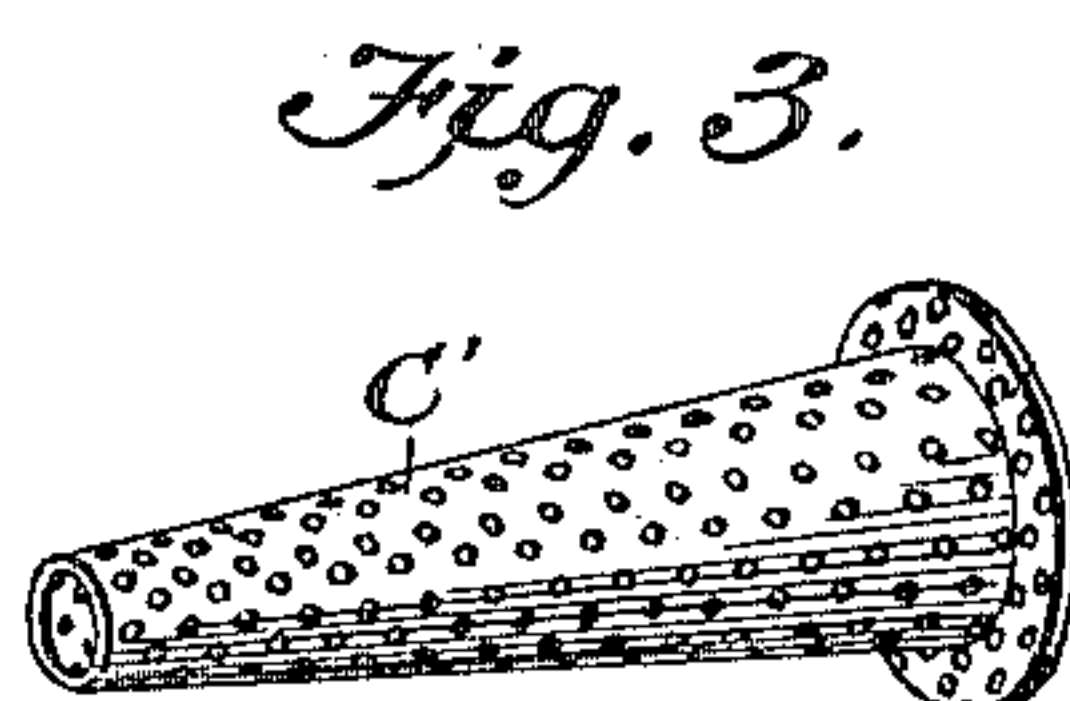
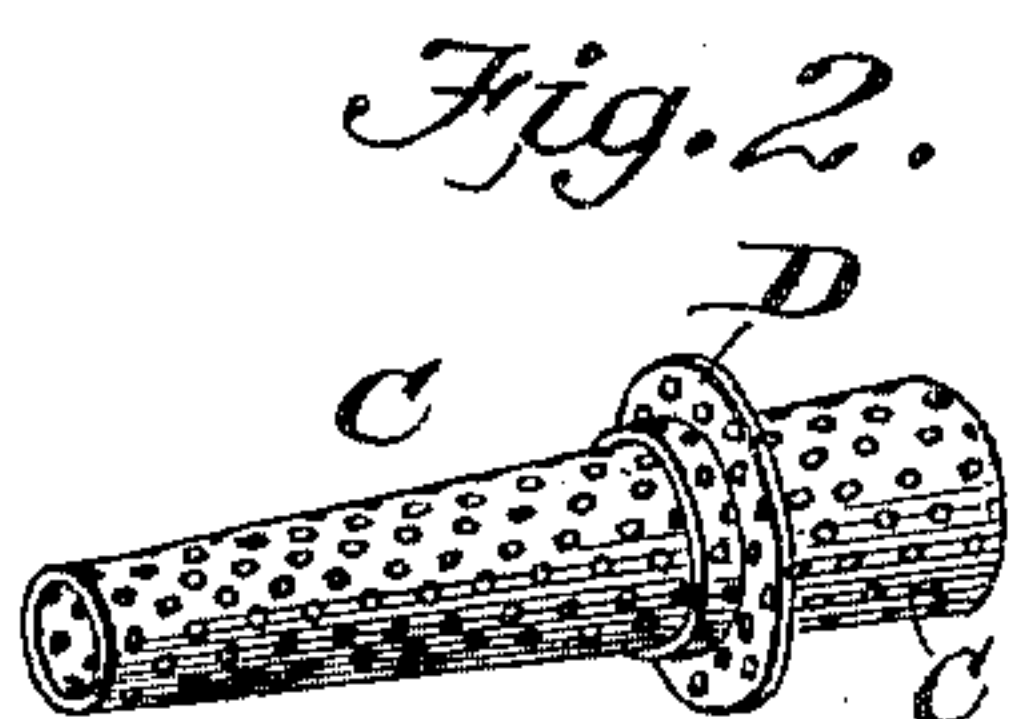
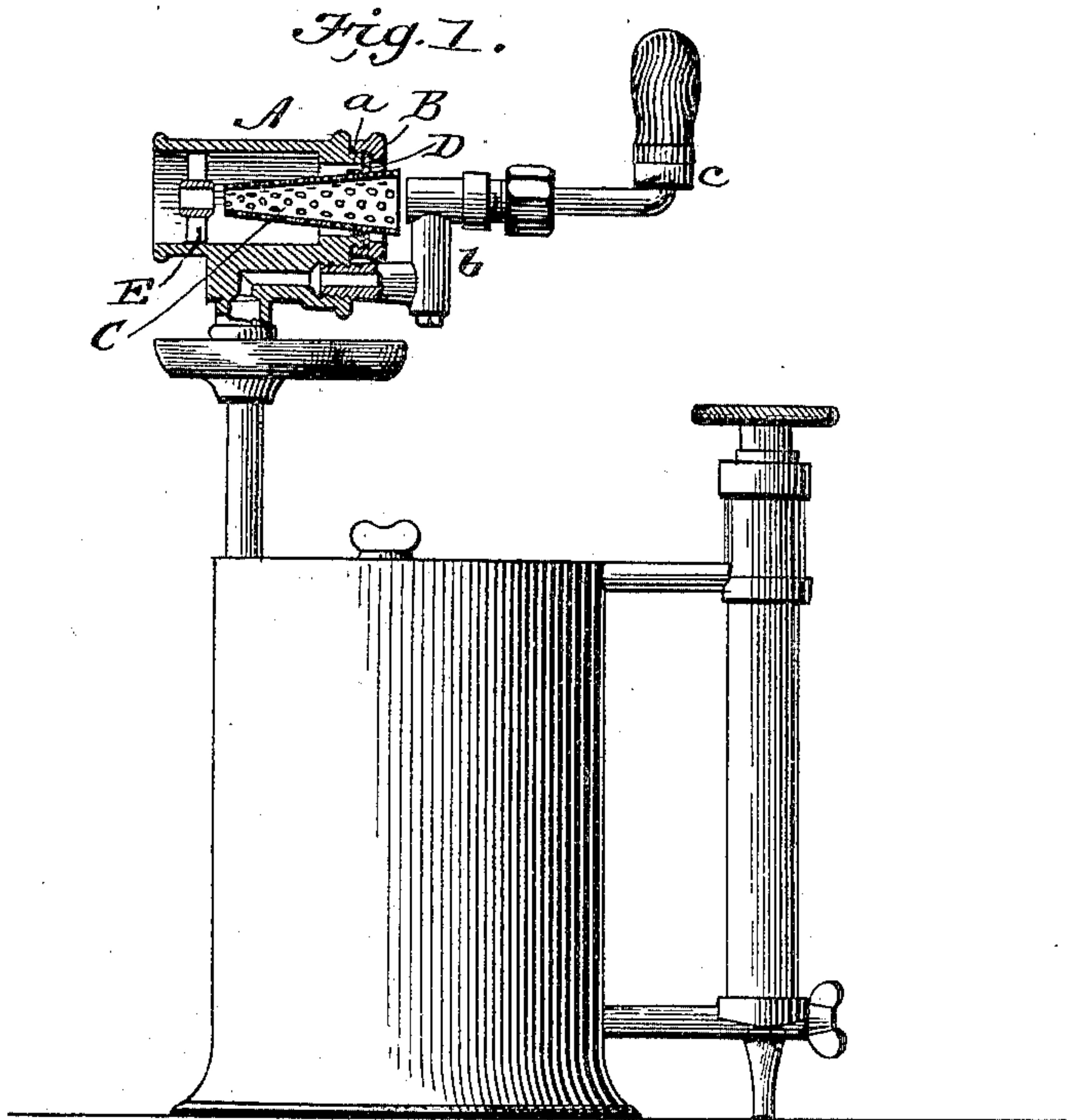
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W. A. NICHOLAS & G. BURKHARDT.

TORCH BURNER.

(Application filed Apr. 14, 1897.)

(No Model.)

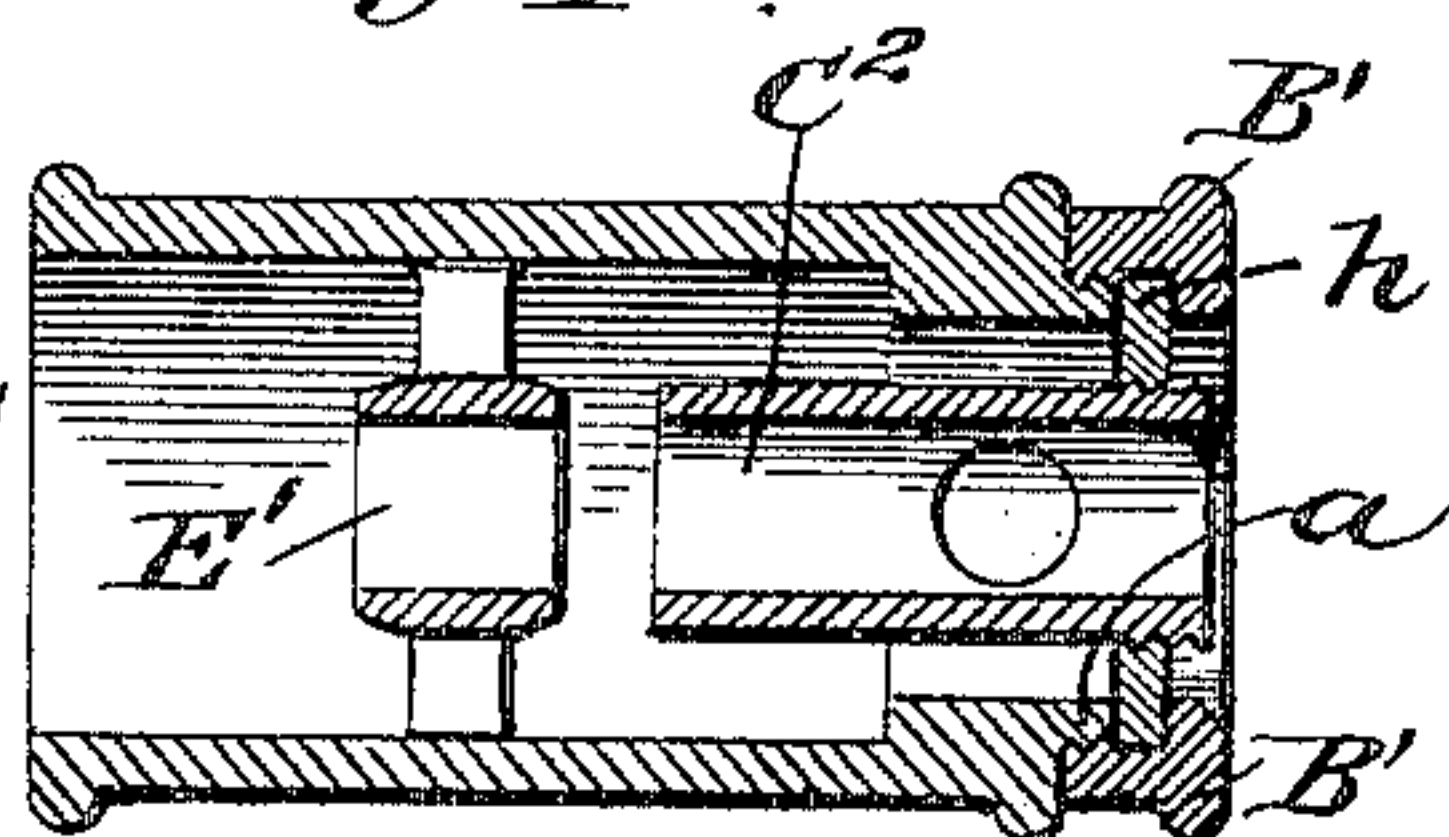


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Fig. 4.



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WILLIAM A. NICHOLAS AND GUSTAVE BURKHARDT, OF CHICAGO, ILLINOIS.

TORCH-BURNER.

SPECIFICATION forming part of Letters Patent No. 622,525, dated April 4, 1899.

Application filed April 14, 1897. Serial No. 632,089. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM A. NICHOLAS and GUSTAVE BURKHARDT, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Torch-Burners, of which the following is a specification.

Our invention is an improvement in torch-burners, particularly for such torches as are used for brazing bicycle-frames and by jewelers and electricians; and it consists in the novel constructions and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a side view, part in section, of a torch provided with our improvements. Fig. 2 is a perspective view of one form of tapered and perforated nozzle. Fig. 3 is a similar view of a modified form of nozzle. Fig. 4 is a longitudinal section of a burner or torch specially adapted to produce a large or broad flame, and hence particularly useful as a paint-burner.

We will first describe the form of our invention illustrated by Figs. 1 and 2.

The cast-metal body A of the burner is a hollow cylinder entirely open at one end and having a reduced axial opening or bore at the rear end, while the base or under portion of such cylinder is thickened and provided with an angular passage for volatile liquid from the gasoline-tank, to which the invention is detachably secured. The nozzle C is a tapered and perforated tube open at each end and having a radial circumferential flange D, which is also perforated transversely, as shown. This nozzle is applied to the body A of the burner by inserting its smaller end through the reduced opening in said body and clamping its flange D against the same by means of an annular rabbeted nut B, that screws on the threaded portion of part A. It will be seen that, the body of the nozzle C being considerably smaller than the opening in A, a free annular space is left between them for passage of air, which is admitted by the perforations in the flange D. The main or longer front portion of the nozzle C projects well into cylinder A, while the shorter and larger rear portion projects from the cylinder and into close proximity to the jet-tube b, con-

taining the needle or other form of valve, which is operated by the crank c.

When the base portion of cylinder A is heated, the gasoline that has been previously forced up by air-pressure into the tube b is vaporized and air is drawn in by induction and mingled with the vapor, thus forming an inflammable mixture that burns within and at the mouth of the cylinder A. In further explanation we will state that the jet of vapor from tube b enters the nozzle C and draws air through the perforations in the same and also through the radial flange D. The enlarged outer part of the nozzle C prevents a strong natural current or blast of air from disturbing the vapor-jet, so that the apparatus may be used in outdoor work with nearly the same facility as if used indoors. Hence this form of apparatus is particularly applicable in electric-light and telephone work, also on steamboats and ships and by plumbers for thawing out hydrants, &c.

In front of and in line with the nozzle C' is arranged a ring E, which is held in place adjustably by friction of its radial arms or lugs with the inner side of the cylinder-body or cylinder A. Thus the device E may be adjusted nearer to or farther from the nozzle C, or it may be removed altogether, according to the work to be done. The function of said device E is to interrupt or spread the vapor-jet issuing from the nozzle C, so that an intimate admixture of vapor and air is produced.

The nozzle C' shown in Fig. 3 is practically the same as that shown in Fig. 2, with the rear part removed. This form is particularly adapted for use by electricians and jewelers, since it gives a fine needle-pointed flame of great relative intensity. It may also be used for outside as well as inside work.

Fig. 4 shows a cylinder A', such as before described, having a cylindrical perforated nozzle C² arranged within it and held by a detachable radial flange h, that is screwed on the same and clamped by a ring B', as in the case first described.

The air drawn in by the vapor-jet passes in part straight through the nozzle C² and in part laterally through its perforations, and the two divided currents are confused or broken up by the tubular interrupter E'. This form of

burner is especially adapted for use on large surfaces for removing paint and on other work where a large divergent flame is required. By dispensing with the interrupter E' the vapor-jet and flame will be more concentrated.

We do not restrict ourselves to the precise form of the body A, since it may be changed within certain limits without departing from the broad idea of our invention, which is the conjunction of the perforated vapor-nozzle and a tubular open-end part within which it is arranged.

What we claim is—

1. The combination, with the casing, made open at each end, and having a cylindrical bore, of a nozzle which is also open at each end, and provided with lateral perforations, and the flange, or flat ring, in which said nozzle is fixed centrally with its longitudinal axis coincident with that of the casing and at a right angle to the flange, and the device for securing the said flange detachably to the end of the casing, as shown and described.

2. The combination with the casing A, open at both ends, of an open-ended perforated nozzle

situated centrally within the casing, and a perforated flange rigidly supporting and centering the nozzle, and a tubular interrupter or spreader arranged in front of and in line with said nozzle, as shown and described.

3. The improved burner comprising the tubular body open at each end, a vapor-nozzle having lateral perforations and arranged in the rear opening of said body, the interrupter or spreader arranged in the cylinder in line with said nozzle, and adapted for adjustment longitudinally thereof, as stated and described.

4. The combination, with the casing A, open at both ends, of an open-ended perforated nozzle, situated centrally within the casing, and a perforated flange centering the nozzle within the casing, said flange being situated within the inlet of the casing, substantially as shown and described.

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