C. A. SEVERS.

BURNER.

APPLICATION FILED SEPT. 30, 1914.

1,199,716.

Patented Sept. 26, 1916.

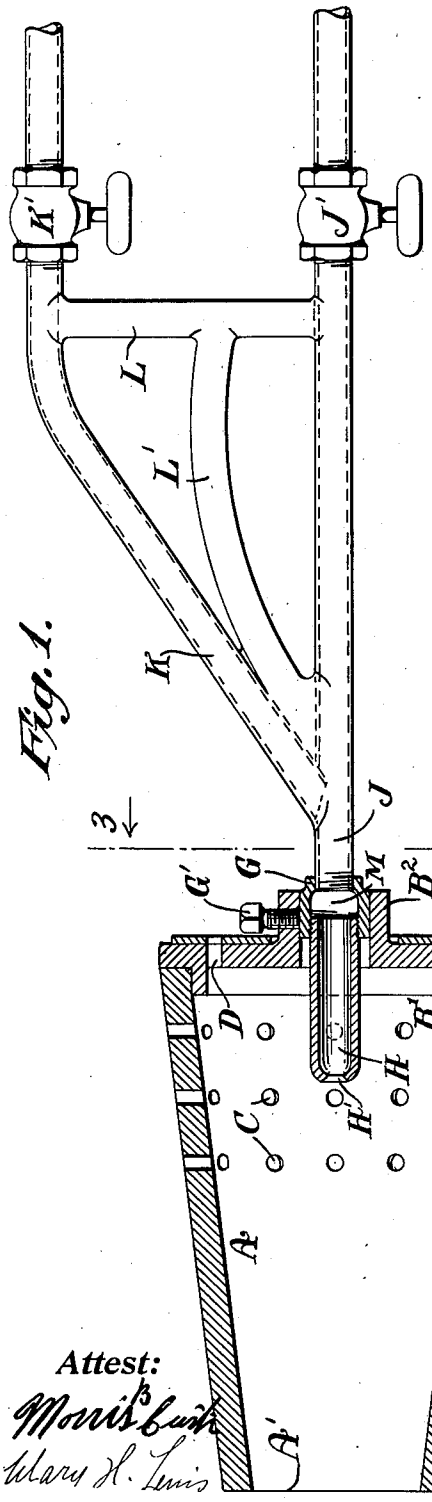


Fig. 1.

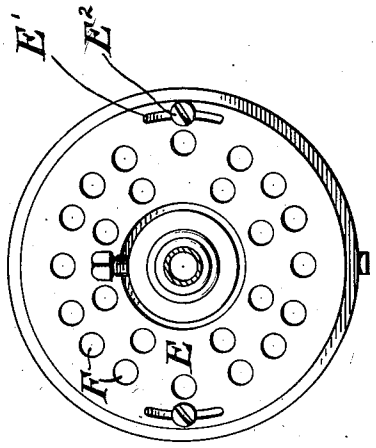


Fig. 3.

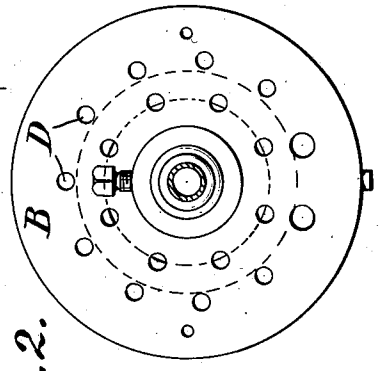


Fig. 2.

Attest:

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UNITED STATES PATENT OFFICE.

CHARLES A. SEVERS, OF ELIZABETH, NEW JERSEY.

BURNER.

1,199,716. Specification of Letters Patent. Patented Sept. 26, 1916.

Application filed September 30, 1914. Serial No. 864,194.

To all whom it may concern:

Be it known that I, CHARLES A. SEVERS, a citizen of the United States, and a resident of the city of Elizabeth, in the county of Union, State of New Jersey, have invented certain new and useful Improvements in Burners, of which the following is a specification.

The improvements relate to burners adapted to use a liquid hydro-carbon fuel, and their objects are, among others, to produce a burner of this class in which heavy hydro-carbons, such as crude petroleum may be used to advantage, and without the undesirable results caused by the incomplete combustion of such fuel, and to so construct and arrange the burner that it may be held in various positions in use and manipulated freely without affecting its operation and efficiency.

The invention consists in the construction, combination and arrangement of parts hereinafter described and claimed and illustrated in the accompanying drawings.

In the said drawings, Figure 1 is a side elevation of a burner and its connected parts, with the burner proper shown in vertical cross-section. Fig. 2 is a plan of the base of the burner and the fuel supply pipe, the latter being shown in cross-section on the line 3—3 of Fig. 1, and the damper controlling the openings in the base being removed. Fig. 3 is a similar view with the damper in position.

The hood A of the burner is made in the form of a truncated cone and has an open mouth A′ at its outer end. The base B has an annular flange B′ overlapped by the rear edges of the hood which is secured thereto by means of set screws A^2. The hood for a part of its length, beginning near the base is provided with a series of apertures C, and the base has a series of similar apertures D which are regulated, opened and closed by a damper or shutter E provided with corresponding apertures F. The damper is held in position on the outside of the base by means of screws E^2 which pass through slots E′ therein and are threaded into place, a limited rotary movement of the damper being thus provided.

The base B has a central hollow boss or collar B^2 projecting outwardly therefrom and adapted to receive the union G which is held securely therein by means of the set screw G′ passing through the collar and pressing against the union. Threaded into this union at one end and extending into the hood is the nozzle H, while into the other end of the union the fuel supply pipe J is threaded. Oil is supplied to this pipe J, while air under pressure is supplied to it through the branch pipe K, both of which are controlled by valves J′ and K″ respectively. The pipes J and K are joined and braced by the connecting tube L and the handle L′, which affords a convenient grip for the fingers of the operator.

The air and fuel mingle at the junction of the two pipes J and K and pass into the mixing chamber M, formed by the bore of the union G and the nozzle H, and of greater diameter than the supply tube. From this chamber the mixture escapes through the orifice H′ of the nozzle, which has outwardly flared walls and a sharp inner edge, producing a spray of air and oil which may be ignited in any desired manner and will burn with an intense heat issuing from the mouth A′. In this operation air is supplied for the purpose of combustion through the openings C and D, and by regulating the lighter adjustments may be made for various conditions in the fuel supply and the conditions of use.

I am aware that burners resembling the burner herein described and shown in general construction have been devised, but so far as I am aware none of them has been successfully operated with the heavier hydro-carbons. The reason for this is that the essential features of the present improvements have not been embodied. These essential features are set forth in the following claims, which are not, however, intended to limit the invention to the details of construction, since it is obvious that various modifications may be made without departing from the spirit of the invention.

What I claim is:

1. In a burner of the character described, the combination of a conduit for supplying liquid fuel, a conduit communicating therewith for supplying air under pressure, valves controlling the said conduits, a mixing chamber or retort with which one of said conduits communicates, of greater diameter than the said conduit at the point where it communicates therewith for receiving the said liquid fuel and air and permitting the same to mix therein, said chamber

having an orifice of smaller diameter than the said conduit provided with outwardly flaring walls and a sharp inner edge, through which the mixed air and liquid fuel issue, a hood surrounding the said chamber and orifice, and provided with openings for the admission of air adjacent thereto.

2. The combination of a tube, means for supplying air under pressure and liquid fuel to the said tube, a mixing chamber or retort with which said tube communicates and into which it discharges air and liquid fuel, said chamber being of greater internal diameter than the internal diameter of said tube, and provided with an opening for the discharge of air and liquid fuel for combustion of lesser normal diameter than the internal diameter of the said tube, the edges of said orifice being beveled so as to present a sharp edge in the path of the fuel as it passes from the retort.

3. In a burner of the character described, the combination of a conduit for supplying liquid fuel, a conduit communicating therewith for supplying air under pressure, valves controlling the said conduits, one of said conduits communicating with a retort, a chamber or retort of greater diameter than the said conduit at the point where it communicates therewith, said chamber having an inlet receiving the said liquid fuel and air and permitting the same to mix therein, said chamber having an orifice through which the mixed air and liquid fuel issue smaller than its inlet, a hood surrounding the said chamber and orifice, said hood provided with openings for the admission of air.

Witness my hand this 15th day of July, 1914, at the city of New York, in the county and State of New York.

CHARLES A. SEVERS.

Witnesses:
MORRIS B. CURTIS,
S. J. COX.