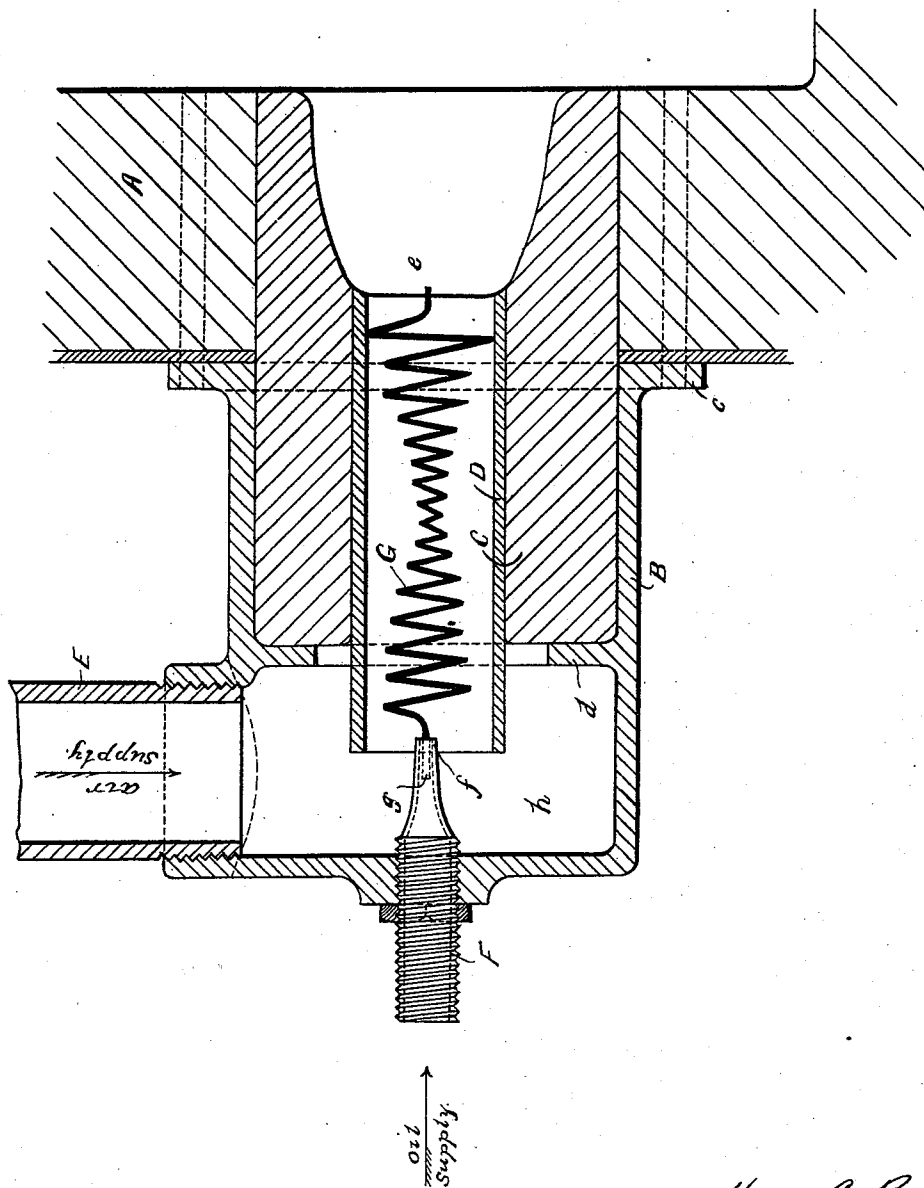


(No Model.)

H. C. BRILL.
HYDROCARBON BURNER.

No. 429,414.

Patented June 3, 1890.



WITNESSES
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HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 429,414, dated June 3, 1890.

Application filed July 23, 1889. Serial No. 318,436. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. BRILL, a citizen of the United States, residing at Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Hydrocarbon-Burners; and I do 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, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to a burner for liquid fuels which require to be converted into spray or vapor to insure satisfactory combustion.

The object is to thoroughly atomize the oil in a novel and simple manner; and the invention consists in the means employed to control the passage of the oil from the oil-pipe nozzle to the point of combustion, during which passage it is atomized by an air-blast. The invention is fully described herein, and specifically pointed out in the claims.

The drawing shows a burner involving my invention in a horizontal section, it being represented as attached to an ordinary heating-furnace.

A represents a wall of the furnace through which passes one end of a fire-proof tube C, the opposite end of which extends into a casing B, and is stopped against an interior collar *d*. This casing is secured to the furnace by means of a bolting-flange *c*, and is formed with a chamber *h*, provided with an air-inlet pipe E and also an oil-inlet pipe F, both of which may be provided with any suitable means for regulating the supply of air and oil, respectively. The nozzle *f* of the oil-pipe enters the open end of a burner-tube D, which practically forms part of the tube C when secured in position in the latter, as shown. A coiled wire G, represented in the form of a double helical spring, has one end *g* loosely entered in the nozzle *f* of the oil-pipe and, extending through the burner-tube, terminates at the mouth *e*, where combustion takes place.

The operation is as follows: The oil, pass-

ing through the nozzle *f* around the end *g* of the conically-coiled conducting-wire G, is acted upon by the blast of air entering the open end of tube D, which air tends to carry the oil outward through said tube. The natural tendency of the oil, however, is to adhere to and follow the course of the wire, and this is counteracted by the tendency of the air-blast to tear it from the rounds of the coil and carry it straight onward. The successive increase and decrease in the diameter of the coil, which may be carried to any desired extent, has the advantage of causing the oil as it is torn away from one round by the air to be caught upon another, thus subjecting it to repeated atomizing action until it arrives at the combustion-point *e*. It is evident, also, that the heat of combustion is conveyed to the tube D and chamber *h*, and thus assists in the atomizing of the oil, and also effects the heating of the gas before ignition in the combustion-chamber.

I am aware that it is old to place conducting-wires in the mixing-chambers of hydrocarbon-burners, and I do not therefore broadly claim such a construction, my invention consisting, essentially, in the special arrangement of the conducting-wire, whereby the oil is led in a circuitous path, thus subjecting it more thoroughly to the action of the air-blast, as above described.

Having thus fully explained my invention and described an effective means of applying it, what I claim is—

1. In a hydrocarbon-burner, the combination, with a tube connected with an air-supply, of an oil-pipe leading into the inlet end of said tube and a coiled conducting-wire having one end connected with said oil-pipe and extending forward within said tube to the mouth of the same, substantially as set forth.

2. In a hydrocarbon-burner having a casing provided with air and oil supply pipes, a conically-coiled conducting-wire connected with said oil-pipe and inclosed by a tube communicating with said air-supply and also with a combustion-chamber, substantially as set forth.

3. In a hydrocarbon-burner having a casing provided with air and oil supply pipes, a con-

ducting-wire connected with said oil-tube, coiled to form a succession of conical spirals, and inclosed by a tube communicating with said air-supply and also with a combustion-
5 chamber, substantially as set forth.

4. A hydrocarbon-burner comprising a casing provided with an air-supply, an open tube connecting said casing with the point of combustion, an oil-supply pipe leading into the
10 casing, end of said tube, and a conically-

coiled conducting-wire located within said tube and having an end loosely entered in the nozzle of said oil-pipe, substantially as set forth.

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

HENRY C. BRILL.

Witnesses:

P. H. STERNBERGH,

H. M. M. RICHARDS.