(No Model.)

W. L. MILLER.

HYDROCARBON BURNER.

No. 493,555. Patented Mar. 14, 1893.

FIG. 1.

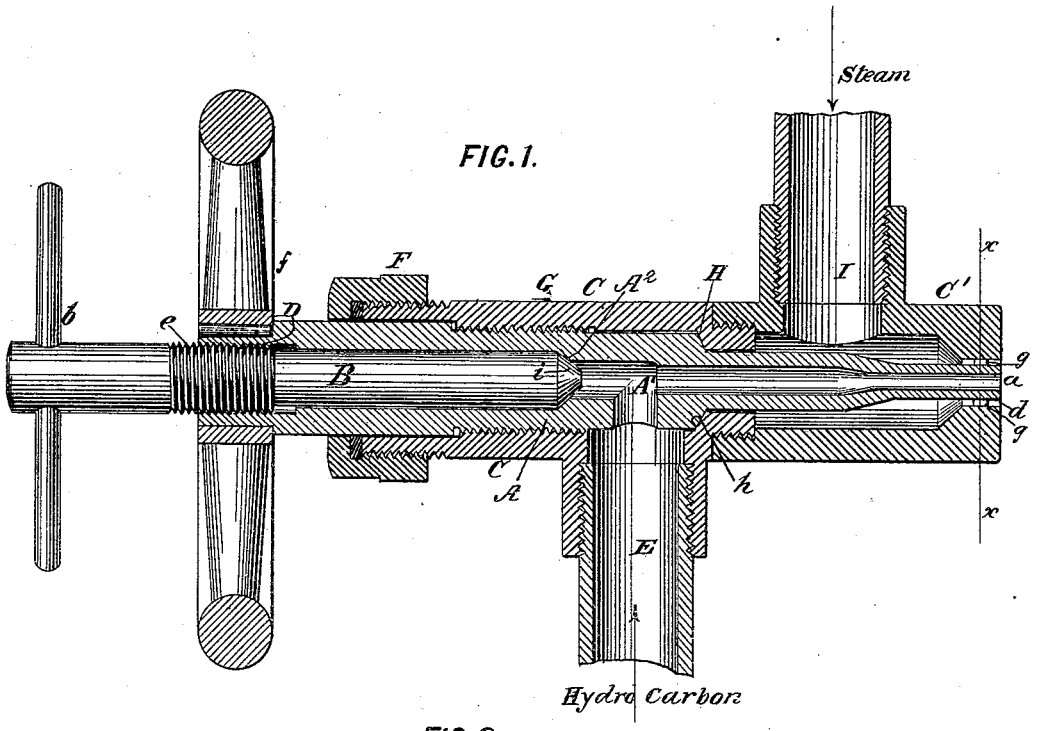
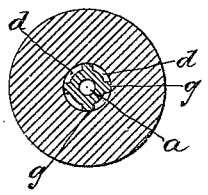


FIG. 2.



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HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 493,555, dated March 14, 1893.

Application filed August 8, 1890. Serial No. 361,495. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. MILLER, of the city, county, and State of New York, have invented certain new and useful Improvements in Hydrocarbon-Burners, of which the following is a full, clear, and exact specification.

It is well known that hydrocarbon burners, heretofore used, especially when the lower grades of oil are employed in the production of the vapor, invariably become clogged at times with solid matter either existing in the oil itself, and not reducible by steam or caused by the action of steam upon impure oil, and which clogging may exist in any part of the burner, and flame tip or orifice, or may be confined to the oil pipes leading to the burner and materially lowers the heat power of the flame.

The object of my invention is to provide a novel, simple, and economical construction, whereby the flame orifice of the burner and the interior parts of the latter can be quickly cleaned and freed from all extraneous substances either existing in the oil itself, or produced in the evolution of the vapor.

To accomplish this object my invention involves the features of construction and the combination or arrangement of parts hereinafter described and claimed, reference being made to the accompanying drawings, in which

Figure 1 is a longitudinal sectional view of a hydrocarbon burner constructed in accordance with my invention, and Fig. 2, is a transverse sectional view taken on the line *x*—*x* Fig. 1.

In order to enable those skilled in the art to make and use my invention I will now describe the same in detail, referring to the drawings wherein

The letter C indicates a metallic casing or cylinder having a screw threaded projecting part at its front end which engages a supplemental cylinder or casing C′, having a steam inlet pipe connection I. The supplemental casing or cylinder is countersunk at the inside of its front end and this front end is formed with a circular flame orifice *d*.

The main casing or cylinder C is externally screw threaded at its rear end to receive a metallic cap F which is packed with asphaltum or other material to prevent the escape of oil, and said main cylinder is also provided with a feed pipe connection E for communicating with a supply of oil or hydrocarbon. The main casing or cylinder is formed interiorly with an annular valve seat or shoulder H located directly in front of the communicating orifice between said casing or cylinder and the oil or hydrocarbon feed pipe E. The casing or cylinder C is also provided with an internal screw thread to engage an external screw thread on an oil or hydrocarbon tube A of metal, which is formed with a longitudinal bore and with a lateral inlet orifice A′ which normally stands opposite and in communication with the oil feed pipe E. The oil tube A is provided in front of the lateral inlet orifice A′ with an annular valve or shoulder *h* adapted to seat against the valve seat or shoulder H of the main casing or cylinder C and said oil tube is reduced at its front extremity to form a long contracted neck *a* which is cylindrical and of a uniform diameter for a definite distance so that such neck can be moved entirely through the flame orifice in the front end of the supplemental casing or cylinder C′.

The interior of the oil tube A is formed with a reduced portion to provide an annular shoulder A^2 located between the lateral inlet orifice A′ and the rear extremity of the said oil tube A. The rear end of the oil tube is provided with a hand wheel *f* and interiorly the rear extremity of this tube is constructed with a screw thread D to engage the external screw thread *e* of a plug B having a conical end *i* adapted to seat against the shoulder A^2 for closing the oil tube at a point in rear of the lateral inlet orifice A′.

The main body of the plug B is of a less diameter than the screw threaded portion *e*, and the rear end of the plug is provided with a handle *b*, in such manner that this plug can be entirely removed from the oil tube A for the purpose of introducing a wire or other suitable instrument through the entire oil tube to effectually clean the latter.

The contracted neck *a* of the oil tube A can be moved back and forth through the flame orifice *d* by rotating the handle or hand wheel *f* for the purpose of cleaning the flame orifice. The contracted neck *a* is provided with a series of radial wings or ribs *g* which are

susceptible of scraping the wall of the flame orifice when the oil tube is rotated through the medium of the handle or hand-wheel *f*. Another purpose, however, of these radial wings or ribs is to guide the front end portion of the oil tube and properly center it in the flame orifice, thereby insuring the proper atomizing of the oil.

The oil tube A does not closely fit the interior of the main casing or cylinder C between the internally screw threaded part of said cylinder and the front extremity thereof so that sufficient space is provided for the passage of a certain amount of steam around the oil tube when occasion demands. A large space, however, is provided in the supplemental casing or cylinder C′ to constitute a steam chamber around the forward end portion of the oil tube.

If the flame orifice *d* becomes clogged, the handle or hand wheel *f* may be reversed to bring the contracted neck of the oil tube farther into the steam chamber in the supplemental casing or cylinder C′, thereby permitting a full head of steam to pass through and remove all obstructions. The rotation of the oil tube causes the radial ribs *g* to loosen up any matter adhering to the wall of the flame orifice *d*. By entirely removing the plug B from the oil tube A, a wire or other instrument can be conveniently worked back and forth in the oil tube to effectually free the latter from deposits, and by reversing the hand wheel to remove the annular valve or shoulder *h* from the annular valve seat or shoulder H, the steam will drive all extraneous matter back through the oil feed pipe E into the oil tank.

In the practical use of my improved burner, the short end of the contracted neck *a* lies in the flame orifice *d* and consequently if the pressure of steam in the supplemental casing or cylinder C′ exceeds the pressure of the oil in the oil pipe A, there is no danger whatever of the steam driving the oil back through the oil tube A and thus destroying the efficiency of the burner.

In many burners having the delivery end of the oil tube of the burner exposed to the direct pressure of the steam in the burner, if the pressure of the steam exceeds the pressure of the oil, the latter will be forced back through the oil tube in the burner and the burner is in many cases rendered inefficient.

Having thus described my invention, what I claim is—

In a hydrocarbon burner, the combination with a casing having an oil feed pipe connection E, a steam pipe connection I, an internal valve seat or shoulder H between the oil feed pipe connection and the steam feed pipe connection, and a flame orifice in its front end portion, of an oil tube movable lengthwise in the said casing or cylinder and having a contracted neck *a* movable through the flame orifice, a valve seat or shoulder *h*, a lateral oil inlet orifice A′, and a contracted internal shoulder A^2 between said lateral oil inlet orifice and the rear end of the said oil tube, and a screw threaded plug B removable from the oil tube and having its body portion of a less diameter than its screw threaded portion and bearing at its front end against the internal shoulder in rear of the lateral inlet orifice of the oil tube, substantially as and for the purpose described.

In testimony whereof I have signed this specification in the presence of two witnesses.

WM. L. MILLER.

Witnesses:
W. GRIGG,
E. LOORAIN.