A. C. WILLIAMS.

HYDROCARBON BURNER.

APPLICATION FILED MAR. 10, 1909.

963,969.

Patented July 12, 1910.

FIG. 1

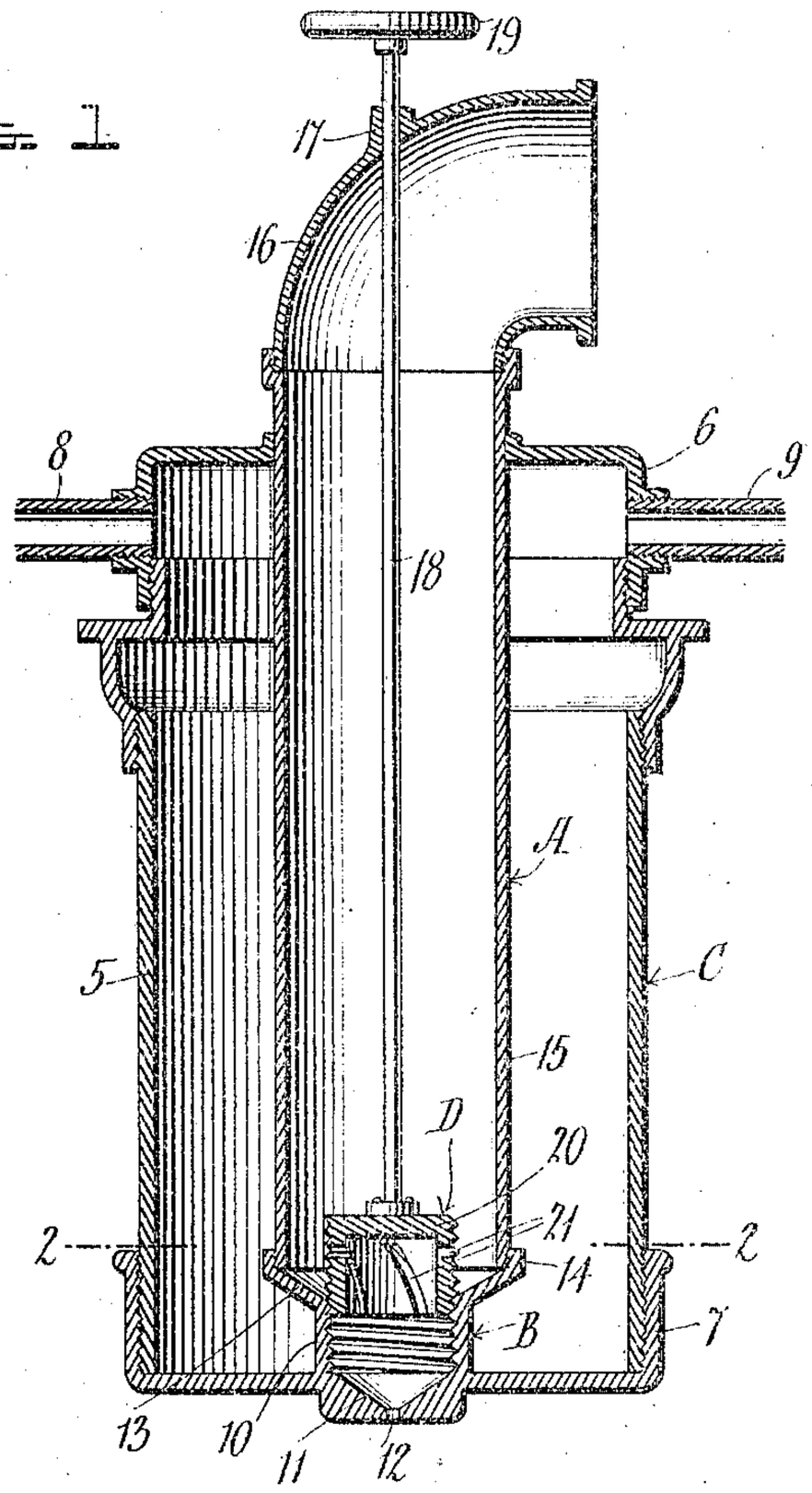
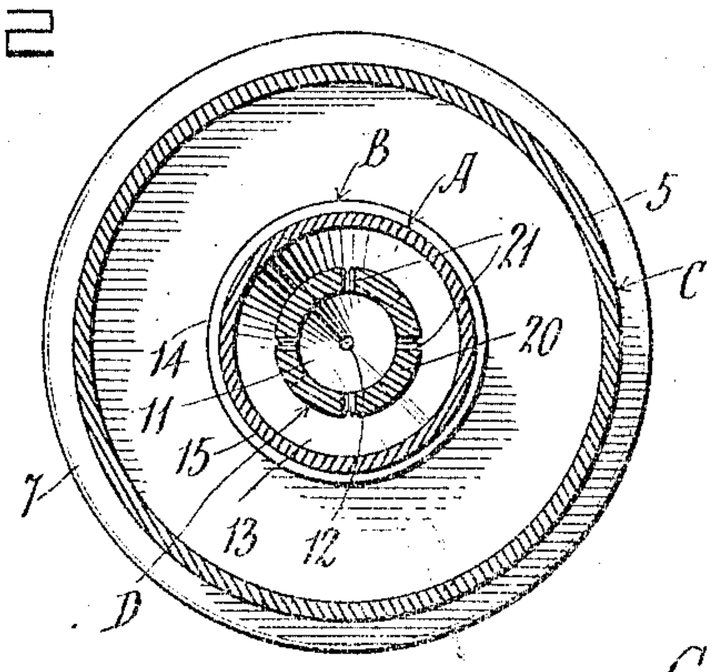


FIG. 2



Witnesses

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UNITED STATES PATENT OFFICE.

AUGUSTUS C. WILLIAMS, OF BROOKFIELD, MISSOURI.

HYDROCARBON-BURNER.

963,969. Specification of Letters Patent. Patented July 12, 1910.

Application filed March 10, 1909. Serial No. 482,594.

To all whom it may concern:

Be it known that I, AUGUSTUS C. WILLIAMS, a citizen of the United States, residing at Brookfield, in the county of Linn, State of Missouri, have invented certain new and useful Improvements in Hydrocarbon-Burners; 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.

The present invention relates to improvements in hydrocarbon burners, and it has for its general object the production of an extremely simple and inexpensive device of the type specified, constructed in such a manner as to permit the supply of hydrocarbon fed through the nozzle to be regulated at will, and to prevent the nozzle from becoming overheated.

With the above-mentioned and other ends in view, the invention resides, first: In employing a cup-shaped regulating valve which is threaded in the nozzle and is arranged for movement within the same, the peripheral wall of the valve being formed with a series of vertical slots whose working length is increased or decreased according as the valve stem is turned in one direction or the other; and second: in surrounding the hydrocarbon supply pipe and the nozzle by a jacket through which a continuous stream of cooling fluid is passed.

The preferred embodiment of the invention is illustrated in the accompanying drawings wherein,

Figure 1 is a longitudinal sectional view of the complete invention, and Fig. 2 is a transverse sectional view taken on the line 2—2 of Fig. 1.

Reference being had to the drawings, and the designating characters thereon, A indicates in a general manner, the supply pipe for the oil or other suitable hydrocarbon fluid, B the nozzle thereof, C the water jacket, and D the regulating valve.

The water jacket which surrounds the supply pipe comprises a body portion 5, and upper and lower caps 6 and 7 threaded upon the ends thereof, the upper cap being formed, in turn, with threaded openings in which are fitted the ends of the water inlet and outlet pipes 8 and 9.

The nozzle B is formed integral with the lower cap and includes a tubular body portion 10 and a nozzle proper 11, the latter having an outlet opening 12. The upper portion of the valve body is inclined outwardly or flared, as indicated by the numeral 13, the upper edge of this flared portion being provided with an upstanding circumferential flange 14 whose inner wall is threaded, as shown, and receives the threaded lower end of the vertical body portion 15 of the supply pipe A. The upper end of the pipe body projects through an axial opening formed in the cap 6 and has joined thereto an elbow 16, which latter is formed with a bushing 17. Through this bushing extends the vertical stem 18 of the regulating valve D, the exposed upper end of said stem having a handwheel 19 secured thereto. The valve proper 20, which is fastened to the lower end of the stem is in the form of an inverted cup. This portion of the valve has its peripheral wall externally threaded and is designed to be screwed into the tubular body portion 10 of the nozzle, the inner wall of said body portion having threads cut therein, as shown. The above-mentioned wall of the valve cup has cut therein a series of four inclined feed slots 21, which are arranged at equal distances apart from each other and terminate short of the upper edge of said wall.

By reason of this construction, it will be apparent that when the handwheel 19 is turned in one direction the valve cup will be caused to advance toward the nozzle proper 11, and when the wheel is turned in the opposite direction said cup will retreat therefrom. In the first instance the exposed or effective length of the four slots will be gradually diminished, and hence, the quantity of oil which passes through said slots to the outlet 12 will be proportionately decreased; in the second instance, the effective length of the slots and, in consequence, the quantity of oil fed therethrough will be gradually increased.

It will be seen from an inspection of the drawings that the supply pipe, as well as the body portion of the nozzle is completely inclosed within the jacket A. Hence these elements of the device as entirely surrounded by the water, or other cooling fluid, which passes in a continuous stream through the jacket. There is for this reason no danger of the nozzle becoming overheated, since the water is in direct contact at all times with the major or body portion thereof, the only exposed portion of the nozzle being that in

which the opening 12 is formed, and the thickness of the latter portion is greater than that of the remaining portion of the cap, as shown in Fig. 1.

The invention is thought to be apparent from the foregoing, and further description thereof is accordingly omitted.

What is claimed, is:—

1. In a hydrocarbon burner, the combination of a water jacket, a nozzle having its body portion located within the jacket, a supply pipe located within said jacket and having its lower end engaged with said nozzle, and means located within said pipe for regulating the supply of hydrocarbon delivered to the nozzle.

2. In a hydrocarbon burner, the combination of a water jacket, a nozzle having the body portion thereof located within the jacket, a supply pipe located within said jacket and having its lower end engaged with said nozzle, means located within said pipe for regulating the supply of hydrocarbon delivered to the nozzle, and means for passing a continuous stream of cooling fluid through said jacket.

3. In a hydrocarbon burner, the combination of a nozzle formed with an internally threaded stem and an enlarged upper end, a supply pipe having its end fitted in the enlarged upper end of the nozzle, a cup valve provided with a series of feed openings and arranged for threaded engagement with the internally threaded stem of the nozzle, and means for rotating said valve to cause same to advance into and retreat from said nozzle to vary the effective area of said openings to control the quantity of gas passing through the nozzle.

4. In a hydrocarbon burner, the combination of a water jacket comprising a body portion and upper and lower caps fitted upon the ends thereof; a nozzle provided upon the lower cap and having the body portion thereof located within the jacket; a supply pipe located within said jacket and having its lower end engaged with said nozzle; and means located within said pipe for regulating the supply of hydrocarbon delivered to the nozzle.

5. In a hydrocarbon burner, the combination of a jacket comprising a body portion and upper and lower caps fitted upon the ends thereof; a nozzle provided upon the lower cap and having the body portion thereof located within the jacket; a supply pipe located within said jacket and having its lower end engaged with said nozzle; means located within said pipe for regulating the supply of hydrocarbon delivered to the nozzle; and means carried by the upper cap for passing a continuous stream of cooling fluid through said jacket.

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

GUSS C. WILLIAMS.

Witnesses:
J. W. Moore,
Ed. Schehrer.