W. T. WALL.

HYDROCARBON BURNER.

APPLICATION FILED NOV. 15, 1912.

1,075,678.

Patented Oct. 14, 1913.

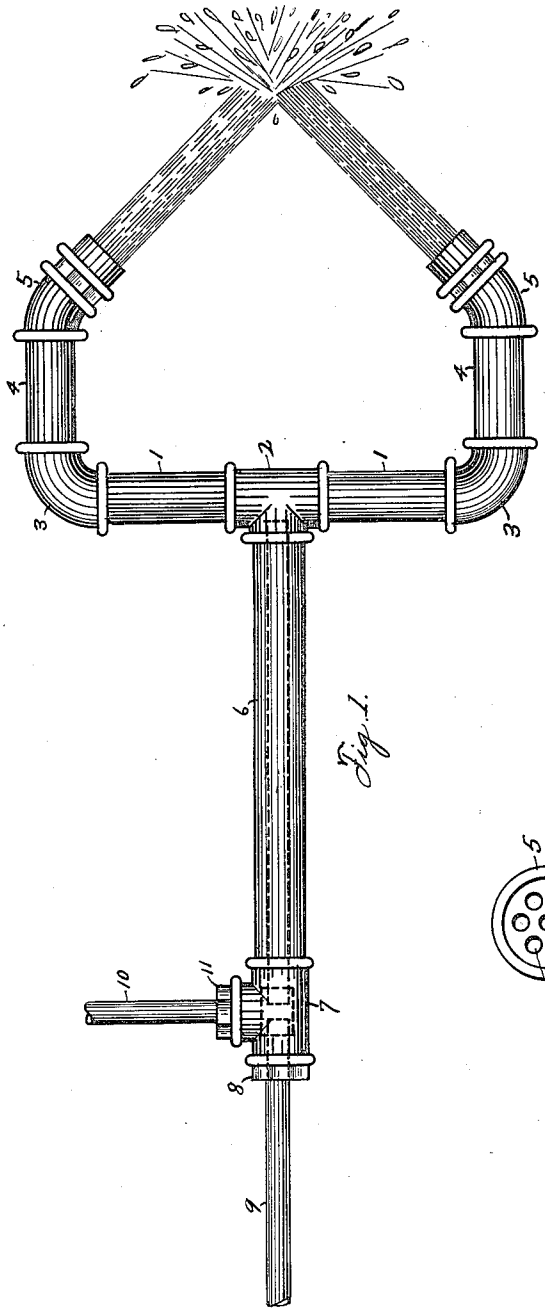


Fig. 1.

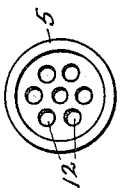


Fig. 2.

WITNESSES:

Baylor Hurt

A. C. Springfield.

INVENTOR

William T. Wall

BY

Hardway & Cathey

ATTORNEYS.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM T. WALL, OF HOUSTON, TEXAS.

HYDROCARBON-BURNER.

1,075,678. Specification of Letters Patent. Patented Oct. 14, 1913.

Application filed November 15, 1912. Serial No. 731,509.

To all whom it may concern:

Be it known that I, WILLIAM T. WALL, a citizen of the United States, residing at Houston, in the county of Harris and State of Texas, have invented certain new and useful Improvements in Hydrocarbon-Burners, of which the following is a specification.

My invention relates to new and useful improvements in hydrocarbon burners.

The object of my invention is to provide a device of the character described having a plurality of nozzles from which the liquid hydrocarbon is discharged by steam pressure, said nozzles converging toward a common point where the streams of fluid delivered from the nozzles meet and are atomized before combustion. The fuel oil and steam are introduced into the device in such a manner as to be mixed and mingled therein and driven, by the steam pressure through the nozzles, and the steam heats the fuel and assists in the atomization thereof.

This burner is especially adapted to be used in furnaces of locomotives or stationary boilers and for like purposes. As is well known, it is customary to use, in connection with hydrocarbon burners, where used for the purposes above set forth, a wall or partition against which the fuel is thrown before combustion takes place; but with the use of a burner of the character herein described no combustion wall is necessary, in as much as, when the converging streams of fuel oil meet at the common point complete atomization takes place and the fuel is in ready condition for combustion.

With the above and other objects in view the invention has particular relation to certain novel features of construction, and arrangement of parts, an example of which is given in this specification and illustrated in the accompanying drawings wherein:—

Figure 1 is a plan view of the complete device, and, Fig. 2 is an end view of one of the nozzles.

Referring now more particularly to the drawings, wherein like numerals of reference designate similar parts in each of the figures; the numerals 1, 1 refer to pipe sections connected by a T joint 2, the outer ends of said sections 1, 1 carrying elbow joints 3, 3 which carry pipe sections 4, 4, the free end of each of which carries a discharge nozzle 5, 5.

United to the T joint 2 is a steam pipe whose outer end carries a T joint 7. Into the free end of the T joint 7 is screwed a bushing 8 through which extends an oil supply pipe 9, said supply pipe being formed in two sections united by a collar, shown in dotted lines, and arranged concentrically in the steam pipe 6, the inner end of the pipe 9 being free and extending through the steam pipe into T joint 2, thus providing a cylindrical steam chamber within the steam pipe 6 and around the oil supply pipe 9. A steam supply pipe 10 is provided which communicates with this steam chamber and is held in position by the bushing 11, which is screwed into the T joint 7. The discharge nozzles 5, 5 have a plurality of discharge openings 12 which separate the streams of fuel into a number of small streams and, as hereinbefore stated these nozzles converge and direct the stream of fuel delivered through them toward a common point.

In order to obtain the best results the steam should be hot and under great pressure so that the liquid fuel will be heated and more easily atomized and so that the streams of fuel delivered from the nozzles will meet each other with great force and completely atomize the fuel before combustion takes place.

The fuel is delivered through supply pipe 9 and the steam is delivered through steam pipe 10 and passes into the steam chamber within the pipe 6. The steam separates into two parts, an equal amount passing through each of the discharge nozzles 5, 5 and the stream of steam picks up the fuel from the inner end of the pipe 9 and carries it along and delivers the same through the nozzles in the manner hereinbefore set forth.

While I have shown one form of my device and specifically described the same it is to be noted that I do not desire to confine myself to the specific construction shown and claimed but hereby reserve the right to carry the form thereof so long as I do not depart from the invention as set forth in the appended claims.

What I claim is:—

1. A device of the character described including a fluid pipe and a fuel pipe arranged concentrically within same, said pipes communicating at a common point with a common conducting pipe the dis-

charge end of the fuel pipe projecting into the conducting pipe and being free, and a plurality of discharge nozzles carried by said common conducting pipe, said nozzles converging toward a common point and having a plurality of openings therein.

2. A device of the character described including a mixing chamber, a fluid conductor communicating therewith, a fuel conductor arranged concentrically with respect to said fluid conductor and within the same and being of approximately the same length, the inner end of said fuel conductor being free and projecting within said mixing chamber, a plurality of discharge nozzles carried by the mixing chamber and converging to a common point.

3. A device of the character described composed of a mixing chamber, a plurality of discharge nozzles carried by the mixing chamber and converging toward a common point, said nozzles having a plurality of openings therein a steam pipe communicating with said mixing chamber, a fuel pipe arranged concentrically within the steam pipe and having its inner end free, said free end projecting into the mixing chamber, and means securing the steam pipe and fuel pipe in a fixed position relative to each other.

4. A device of the character described, composed of a mixing chamber, a plurality of discharge outlets carried by the mixing chamber and converging to a common point, a discharge nozzle secured upon the free end of each outlet, each nozzle having a plurality of discharge openings, a steam pipe communicating with the mixing chamber, a fuel pipe arranged concentrically within the steam pipe and having its inner end free, said free end projecting into the mixing chamber, and a bushing in the steam pipe through which said fuel pipe extends and by means of which it is secured in place relative to the steam pipe.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM T. WALL.

Witnesses:

A. C. SPRINGFIELD,

E. C. RENHARD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."