M. BRUSSARD.

HYDROCARBON BURNER.

APPLICATION FILED SEPT. 6, 1917. RENEWED MAR. 26, 1919.

1,303,252. Patented May 13, 1919.

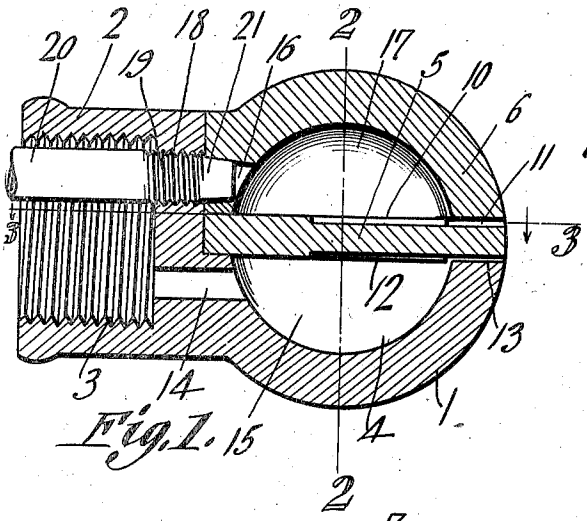


Fig. 1.

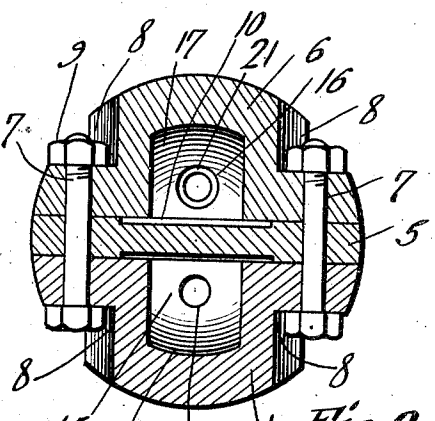


Fig. 2.

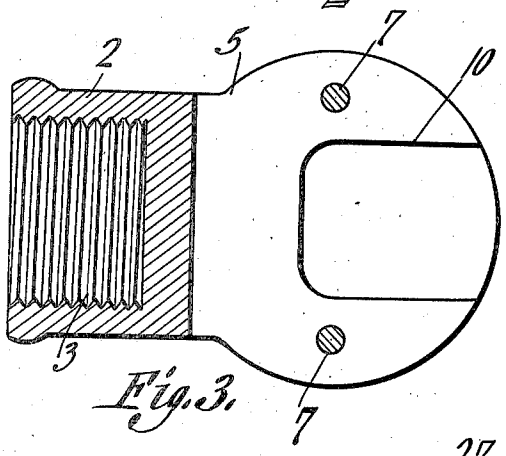


Fig. 3.

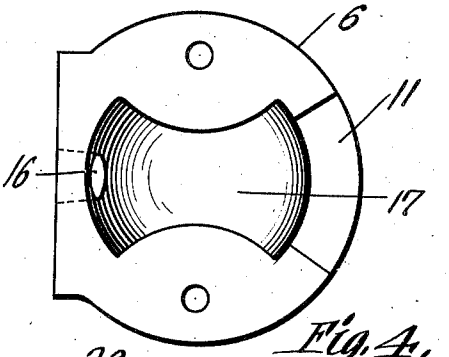


Fig. 4.

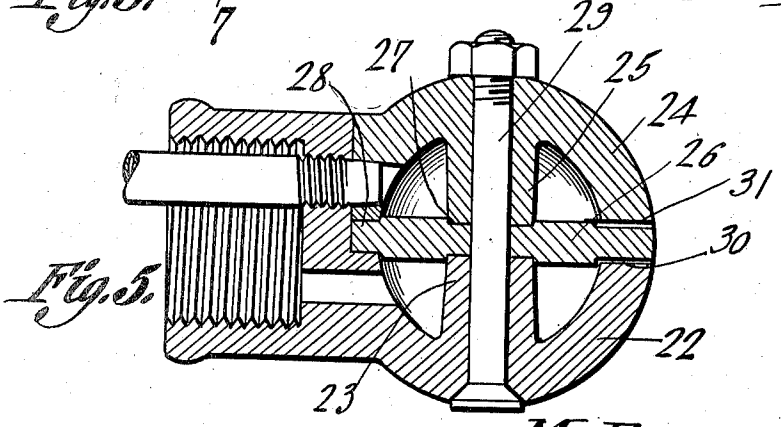


Fig. 5.

Witnesses

J. R. Tomlin

R. L. Parker

M. Brussard

Inventor

by C. A. Snow & Co.

Attorneys

UNITED STATES PATENT OFFICE.

MARTIN BRUSSARD, OF LOS ANGELES, CALIFORNIA.

HYDROCARBON-BURNER.

1,303,252. Specification of Letters Patent. Patented May 13, 1919.

Application filed September 6, 1917, Serial No. 190,001. Renewed March 26, 1919. Serial No. 285,384.

To all whom it may concern:

Be it known that I, MARTIN BRUSSARD, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Hydrocarbon-Burner, of which the following is a specification.

This invention relates to hydrocarbon burners for use in connection with fuel made up of a mixture of hydrocarbon oil and steam.

One of the objects of the invention is to provide a simple and compact burner having a novel arrangement of parts whereby steam and oil supplied thereto will mix at the point of discharge, the two fluids being discharged in broad sheets so located as to insure a complete mixing of the fluids and the production of an intense flame.

Another object is to provide a burner which can be cheaply manufactured, and the parts of which can be readily separated for the purpose of cleaning the same.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings the preferred forms of the invention have been shown.

In said drawings:—

Figure 1 is a central vertical longitudinal section through a burner embodying the present improvements.

Fig. 2 is a section on line 2—2 Fig. 1.

Fig. 3 is a section on line 3—3 Fig. 1.

Fig. 4 is a bottom plan view of the cap of the burner.

Fig. 5 is a view similar to Fig. 1 but showing a modified form of burner.

Referring to the figures by characters of reference 1 designates the main section of the burner, the same being substantially semi-spherical and projecting from an arm 2 formed with a recess 3 the wall of which is screw threaded as shown. The member 1 of the burner has a recess 4 and the flat face of this member constitutes a seat for a disk 5 which fits snugly against the arm 2 and has its periphery flush with the exterior surface of the member 1. A substantially semi-spherical cap 6 rests on the marginal portion of the disk 5 and, with the peripheral portion of said disk and with the member 1, completes a substantially ball-shaped nozzle. The cap is held in position preferably by bolts 7 extending through the cap, disk and member 1 at diametrically opposed points, recesses 8 being preferably provided in the member 1 and cap 6 for the reception of the heads of the bolts and the nuts 9 engaging said bolts. This arrangement of parts is shown clearly in Fig. 2.

A recess 10 is formed in that face of the disk 5 engaged by the cap 6, this recess extending from a point adjacent the center of the disk to the periphery thereof, thus forming an outlet slit 11 bridged over by a portion of the periphery of the cap 6. A corresponding recess 12 is formed in the other face of the disk 5 and extends to the periphery of the disk where it is bridged by the periphery of the member 1, thus forming an outlet slit 13. The recess 12 is not as deep as the recess 10 and, consequently, the slit 13 is not as broad as the slit 11.

A port 14 extends through the arm 2 and into the compartment 15 provided between the disk 5 and the bottom of the member 1. Another port 16 opens into the other compartment 17 in the burner and is preferably tapered as shown, this port 16 communicating with a threaded opening 18 formed in the arm 2. Said opening is adapted to receive the threaded portion 19 of a feed pipe 20, said pipe being preferably formed with a tapered portion 21 adapted to become wedged within the tapered port 16.

Pipe 20 is designed to feed hydrocarbon fuel to the compartment 17 while the arm 2 is adapted to be coupled to a steam pipe which will supply steam, through port 14, to the compartment 15.

Fuel will be discharged in a thin sheet through the slit 11 while steam will discharge in another thin sheet through the slit 13, the two sheets mixing outside of the burner to form a highly combustible fuel.

It has been found that a burner such as described can be used in connection with oil of very low gravity and the oil will atomize with a steam pressure as low as ten pounds. It will operate efficiently with a wide variation of steam and oil pressures and will effect a considerable saving of steam and oil. The construction of the burner is such that

it is able to withstand very rough usage and will require practically no repairs. The burner can be cleaned easily by removing the bolts 9 and lifting the cap 6 from position. The disk 5 can likewise be removed.

Instead of providing the burner with two diametrically opposed fastening bolts, the device can be constructed as shown in Fig. 5. In this construction the base member 22 has a central boss 23 and the cap 24 also has a central boss 25. The interposed disk 26 has a recess 27 at the center of each face thereof and each face of the disk is reduced at its periphery as shown at 28. Thus when the parts are assembled the reduced marginal portions of the disk will fit snugly between the base member 22 and the cap 24 while the inner ends of the bosses 23 and 25 will rest within the recesses 27. A single bolt 29 can be extended through the bosses as shown. Instead of providing channels or recesses extending outwardly between the base member and the cap, said base member and cap are each formed with a recess 30 and 31 respectively through which fluid will flow in sheets.

What is claimed is:—

1. A hydrocarbon burner including an arm for engagement with a steam supply pipe, a substantially semi-spherical base member extending from the arm and having a port communicating with the interior of the arm, that portion of the arm above the base member constituting an abutment and having an opening therein, a substantially semi-spherical cap mounted at its periphery above the base, a disk interposed between and gripped by the marginal portions of the base member and cap and dividing the interior of the burner into separate compartments, means extending through the cap, disk and base member for holding them together, there being depressions in opposed faces of the disk and between the margins of the base member and cap and forming outlets, and a fuel conducting pipe extending through the abutment on the arm and into the cap.

2. A hydrocarbon burner including an arm for engagement with a steam supply pipe, a substantially semi-spherical base member extending from the arm and having a port communicating with the interior of the arm, a substantially semi-spherical cap having a flat face adapted to bear against one end of the arm to hold the cap against rotation, a disk interposed between the marginal portions of the base member and the cap and having depressions in opposed faces and between the cap and base member to form outlets, bosses extending inwardly from the base member and cap, there being recesses in the disk for the reception of the ends of the bosses, means extending through the bosses and disk for clamping the base member and cap upon the disk, and an oil supply pipe extending from the arm and into the cap.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

MARTIN BRUSSARD.

Witnesses:
FANNIE E. HALL,
MILDRED A. EVANS.