

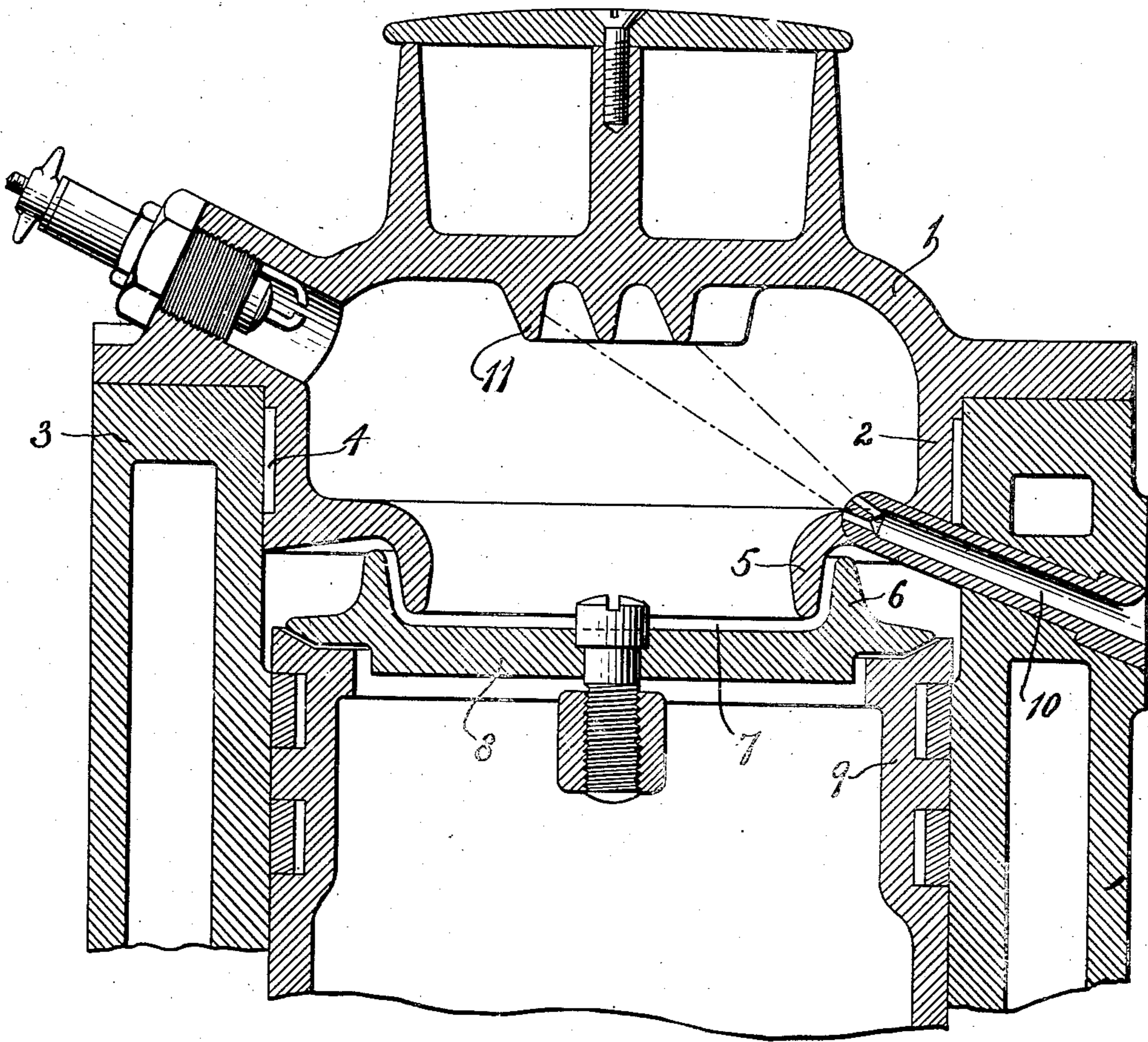
F. L. NICHOLS.

COMBUSTION HEAD FOR HYDROCARBON ENGINES.

APPLICATION FILED NOV. 23, 1906. RENEWED JUNE 17, 1908.

910,220.

Patented Jan. 19, 1909.



Witnesses:

A. L. Stachenberg.
Henry Thieme.

Inventor:

Frank L. Nichols
by attorneys
Brown & Sward

UNITED STATES PATENT OFFICE.

FRANK L. NICHOLS, OF STAMFORD, CONNECTICUT, ASSIGNOR TO NICHOLS QUADRUPLE TRACTION VEHICLE AND POWER COMPANY, OF MOUNT VERNON, NEW YORK, A CORPORATION OF NEW YORK.

COMBUSTION-HEAD FOR HYDROCARBON-ENGINES.

No. 910,220.

Specification of Letters Patent.

Patented Jan. 19, 1909.

Application filed November 23, 1906, Serial No. 344,720. Renewed June 17, 1908. Serial No. 439,041.

To all whom it may concern:

Be it known that I, FRANK L. NICHOLS, a citizen of the United States, and resident of Stamford, in the county of Fairfield and State of Connecticut, have invented a new and useful Improvement in Combustion-Heads for Hydrocarbon-Engines, of which the following is a specification.

My invention relates to a combustion head for hydrocarbon engines and is particularly well adapted for use in connection with an engine where kerosene oil is relied upon as the motive fluid.

The object is to provide a construction which will prevent the vaporized oil from coming in contact with the water cooled surface, thus preventing condensation on this surface or these surfaces and hence perfecting the combustion and increasing the fuel economy.

The accompanying drawing shows in longitudinal section the head and a portion of the cylinder to which the head is attached.

The combustion head, denoted by 1, has a depending flange 2 which extends into the end of the cylinder 3, but is spaced a little distance from the interior surface of the cylinder throughout the greater extent of the flange leaving an annular space 4 between the cylinder and flange. The flange 2 is provided with an inwardly extending contracted neck 5 which projects within the annular wall 6 of a cup 7, formed on the outer face of the piston head 8. The neck 5 is spaced a little distance from the inner face of the wall 6 of the piston head and the latter is preferably spaced from the cylindrical walls 9 of the piston proper by some suitable non-heat-conducting material, not shown.

The combustion head 1 with its flange 2 and contracted neck 5 forms the top and side wall of the combustion chamber and receives through its wall the nozzle 10, for projecting the mixed oil and air in the direction shown by dotted lines against the

vaporizing flanges 11 which depend from the top of the combustion chamber.

The annular space 4 between the flange 2 and the water cooler cylinder 3 is made just sufficient to maintain the wall of the combustion chamber at a temperature high enough to prevent condensation but at the same time prevent the wall of the chamber from becoming excessively heated.

The contracted neck of the combustion chamber coacts with the cup in the end of the piston to hold the charge in the combustion chamber until after the ignition takes place.

The structure has been found in practice to be eminently efficient and is free from any complications.

What I claim is:—

1. A combustion chamber for hydrocarbon engines in combination with a cylinder and piston, the wall of the combustion chamber extending within and spaced from the wall of the cylinder, the inner end of the wall of the combustion chamber being developed into a contracted neck and the piston being provided with a cup for the reception of said neck.

2. A combustion chamber for hydrocarbon engines in combination with a fluid cooled cylinder, and a piston, the wall of the combustion chamber extending within and spaced a little distance from the wall of the cylinder, the inner end of the wall of the combustion chamber being developed into a contracted neck and the piston being provided with a cup at its end to receive the said contracted neck.

3. A combustion chamber for hydrocarbon engines in combination with a cylinder and a piston having a cup formed on its head, the wall of the combustion chamber extending within the cylinder and being provided with a contracted neck extending within the said cup on the piston.

4. A combustion head provided with a flange adapted to extend within a cylinder, the inner end of the flange being extended

in the form of a contracted neck, the said
head being further provided with atomizing
flanges extending inwardly from its top, an
atomizing nozzle located at the side of the
5 head in position to direct the air and vapor
against the flanges and the cylinder and the
piston arranged to coact with the head.

In testimony, that I claim the foregoing

as my invention, I have signed my name in
presence of two witnesses, this 31st day of
October 1906.

FRANK L. NICHOLS.

Witnesses:

THOMAS HOYT,
HERBERT S. MILLER.