To all whom it may concern:

Be it known that I, Benjamin F. Runyan, 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 Combustion-Gas and Crude-Oil Burners, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to burners, and has for its object to provide a device of this character capable of using either gas or oil.

Another object of the invention is to provide a device of this character capable of using both gas and oil, and including a novel combustion chamber into which gas and oil are admitted and burned at the same time.

A further object of the invention is to provide a device of this character, including a combustion chamber having atomizing apertures through which pressure fluid, such as steam is admitted into the chamber, to cause the mixture to burn in a spray.

These objects are attained by the mechanism shown in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of the burner.

Figure 2 is a transverse sectional view showing the perforated plate.

Referring to the drawings, 5 designates a casing having a closed end 6 and a partially closed end 7. The end 7 is partially closed by means of a plate 8 having a central opening 9. Extending from the casing adjacent its lower end 6 and communicating therewith is an inlet 10, which is connected to a source of pressure fluid, such as steam, the steam being permitted to accumulate in the casing.

Disposed within the casing 5 is a combustion chamber 11, which is connected to the plate 8 and has an opening which registers with the opening 9. The sides of the chamber have a plurality of inclined atomizing apertures, through which the steam accumulated in the casing passes, and is sprayed into the combustion chamber. The lower portion of the combustion chamber 11 is formed into a gas chamber 12, a perforated plate 12' being disposed between the combustion chamber and the gas chamber, the gas passing through the perforations into the combustion chamber. Extending from the gas chamber, through the casing 55 is a gas inlet 13, which is connected to a source of gas. Carried by the lower portion of the casing 5 is an oil nozzle 14, which extends through the gas chamber and discharges the oil into the combustion chamber. 60

The lower end of the nozzle 14 is provided with a T 15, to which an oil inlet 16 is connected. The oil inlet extends through the casing and is connected to a source of oil. The remaining branch of the T is provided with an outlet member 17, which extends through the end 6 of the casing and is closed by a cap 18. This outlet 17 permits the nozzle 14 to be cleaned when necessary, without disassembling the burner.

In operation, either gas or oil may be used, or if desired, both gas and oil may be burned at the same time. The gas is admitted into the gas chamber 12 and passes through the perforations of the plate 12' into the combustion chamber 11. The oil passes through the nozzle 14 and is discharged into the combustion chamber. At the same time, pressure is admitted into the casing, passes through the atomizing perforations in the combustion chamber and not only mixes the gas and oil, but causes the same to burn in a spray.

From the foregoing description, it will be readily seen that this novel burner produces a very hot fire by the use of the combined fuel. In addition to this, its utility is unlimited.

What is claimed is:

A burner comprising a pressure fluid casing open at one end, a combustion casing being disposed within the fluid pressure casing and connected at its open end to the fluid pressure casing, the remainder of the combustion casing being spaced from the inner walls and end of the pressure fluid casing, a pressure fluid inlet member communicating with the pressure fluid casing adjacent its closed end, an oil inlet member extending through the pressure fluid casing di-
ametrically opposite the pressure fluid inlet a nozzle carried by said oil inlet member, said nozzle extending through the end of the combustion casing, a perforated plate surrounding the nozzle within the combustion chamber adjacent the closed end thereof, said plate cooperating with said closed end to form a gas chamber, and a gas inlet extending through said pressure fluid casing and into the gas chamber.

In testimony whereof I hereunto affix my signature.

BENJAMIN F. RUNYAN.