

No. 753,023.

PATENTED FEB. 23, 1904.

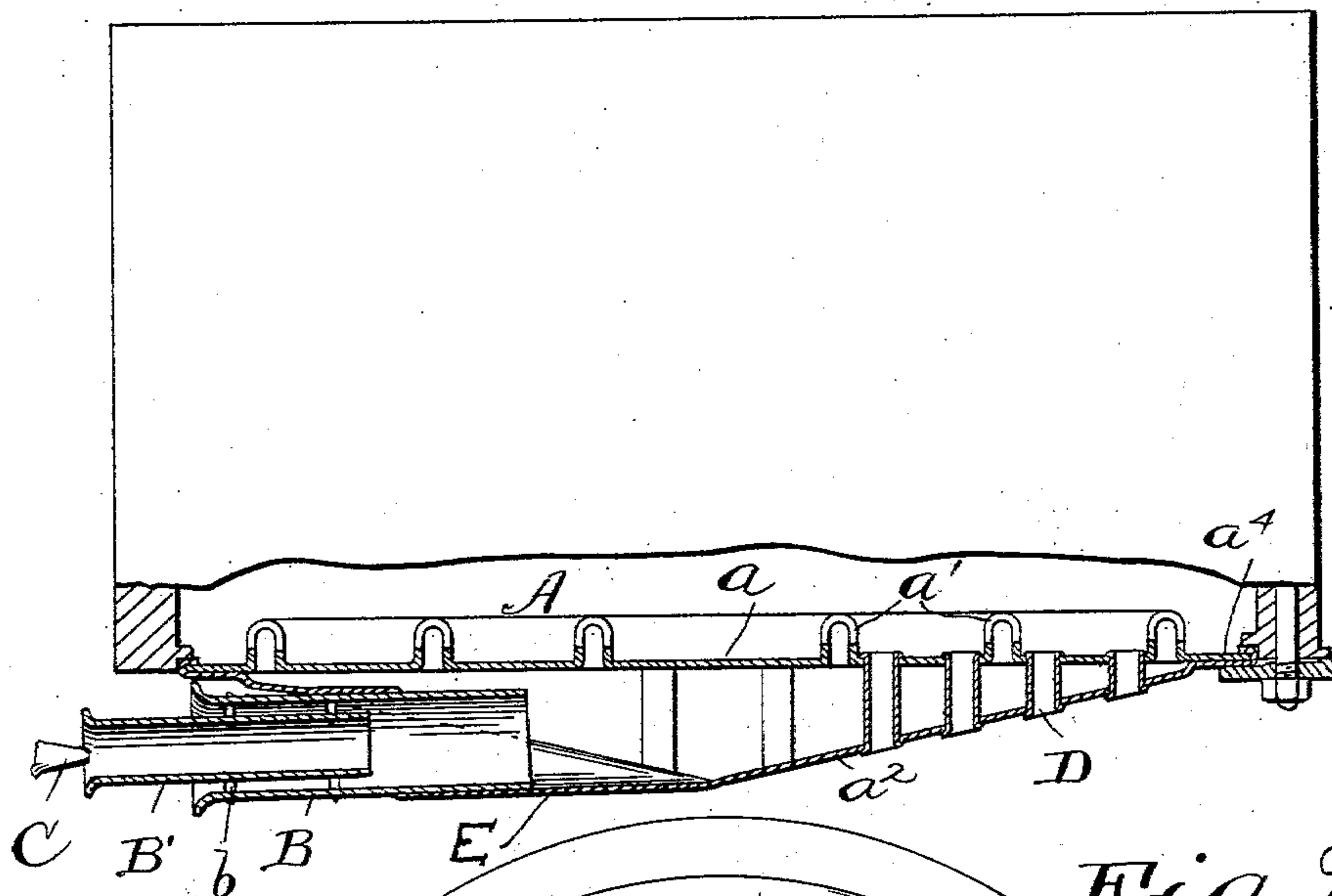
R. H. WHITE.

HEATING BURNER FOR STEAM GENERATORS OR THE LIKE.

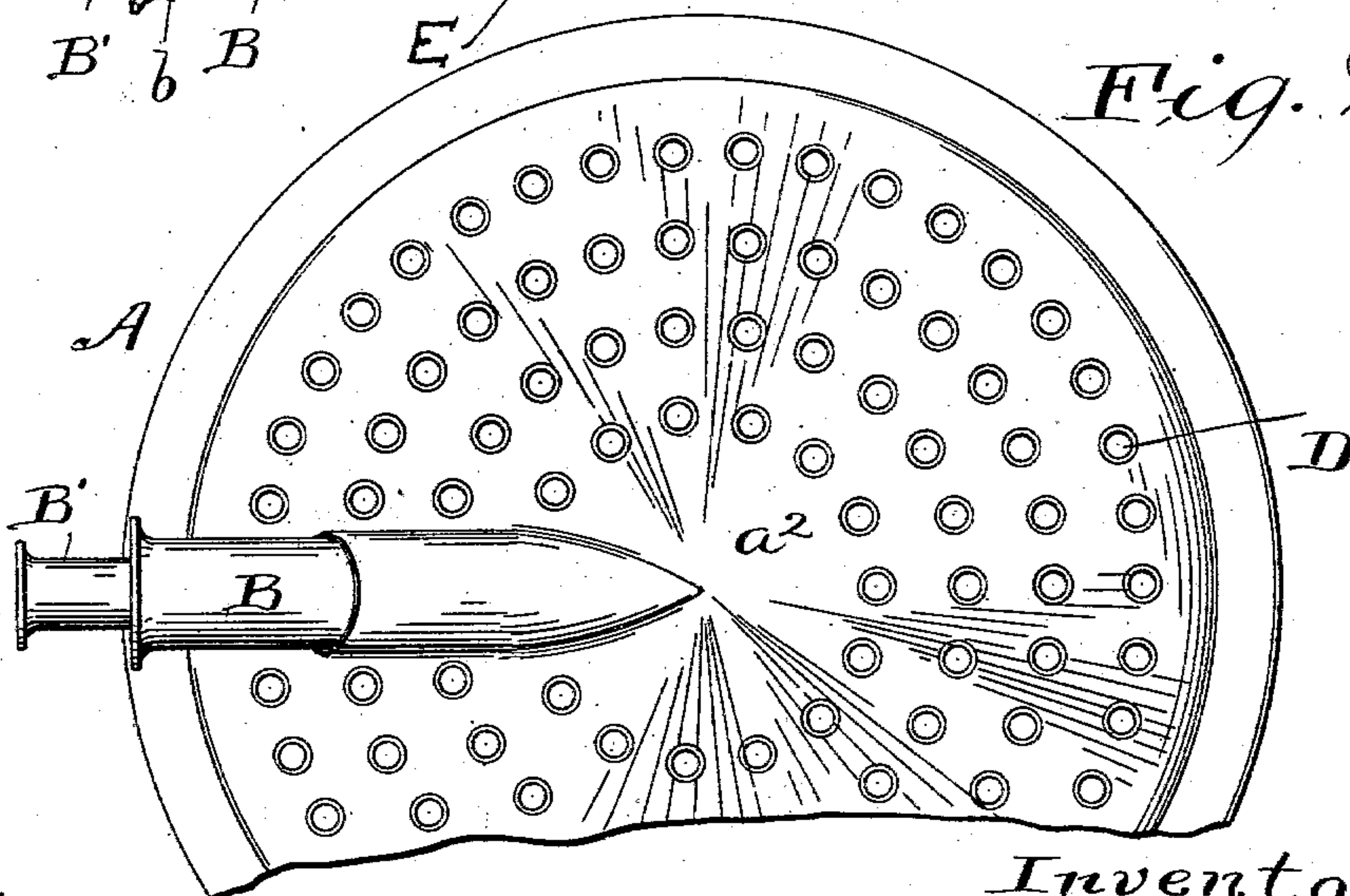
APPLICATION FILED FEB. 24, 1903.

NO MODEL.

*Fig. 1.*



*Fig. 2.*



Witnesses:  
E. B. Gilchrist  
N. L. Freeman

Inventor:  
Rollin H. White  
By Thurston Bates  
his attorney



# UNITED STATES PATENT OFFICE.

ROLLIN H. WHITE, OF CLEVELAND, OHIO, ASSIGNOR TO THE WHITE SEWING MACHINE COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

## HEATING-BURNER FOR STEAM-GENERATORS OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 753,023, dated February 23, 1904.

Application filed February 24, 1903. Serial No. 144,556. (No model.)

*To all whom it may concern:*

Be it known that I, ROLLIN H. WHITE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Heating-Burners for Steam-Generators or the Like, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

My invention relates to burners which are intended to burn a mixture of air and a gas produced by vaporizing a fluid fuel, such as gasolene, kerosene, or alcohol. Such burners are largely used to heat steam-generators on automobiles, launches, and the like. It sometimes happens that the fluid fuel flowing toward the burner is not vaporized completely or sometimes is not vaporized at all as it flows through the vaporizer. As a result the liquid is discharged into the burner, which becomes more or less completely flooded thereby. This is an exceedingly dangerous condition, which usually results in a conflagration or an explosion, or both. It is to prevent the flooding of the burner and, consequently disaster, that the present invention is designed.

The invention consists in a hollow burner having in its top side the usual discharge-openings and having a dish-shaped bottom and a normally open discharge-tube connected with said bottom at or near the lowest point thereof.

It also consists in a burner having the characteristics stated when the mixing-tube is so connected with the burner that its bottom is in or near the plane of the lowest point of the burner bottom-plate, whereby this mixing-tube also serves as a drainage-tube, and in other characteristics of the construction shown, as defined by the claims.

In the drawings, Figure 1 is a central vertical sectional view of a burner embodying my invention. Fig. 2 is a bottom plan view.

The burner A is in the form of a hollow casing having in its top plate  $a$  a large number of slots or holes  $a'$ , from which the vapor is intended to escape and be burned. The

bottom plate  $a^2$  of the burner is dish-shaped, as shown. It is preferably made of sheet metal, whose edge is turned over onto a flange  $a^4$  of the top plate. The bottom plate is provided with a sleeve portion E, extending outwardly and inclining slightly downwardly from the lowest portion thereof. A mixing-tube B, which may be of the ordinary construction, is provided and connected with the burner through the sleeve portion E, fitting the same closely, so that its lower wall is at or near the lowest point of the dish-shaped bottom, and preferably said mixing-tube has a downward inclination toward its outer end.

C represents the nozzle through which the fuel, which should be in gaseous form, but sometimes is in liquid condition, is blown through the mixing-tube and into the burner-casing. If the fuel be in the fluid condition, it will run down the inclined surface of the bottom plate to the lowest point thereof and thence out through the mixing-tube, which at such times serves as a drainage-tube.

With the construction described it is impossible to flood the burner or to retain therein any considerable volume of the liquid fuel, since the drainage-tube is very much larger than the nozzle from which said fluid flows into the burner.

It has not been thought necessary to show the vaporizer, because any suitable vaporizer may be employed, and it may be located at any convenient point. The usual position for a vaporizer associated with this class of a burner is directly over the burner, so as to be heated thereby.

The draft-tubes D, which pass through the burner to supply additional oxygen for the flame are of well-known construction.

The mixing-tube B is, as shown, associated with a supplemental mixing-tube B', which projects centrally into the tube B, where it is held by pins  $b$ , which project from the tube B' into contact with tube B. In this construction the liquid fuel will drain out through the tube B and will not be opposed by the inflowing jet from the nozzle, which discharges directly into the tube B'.



Having described my invention, I claim—

1. In a burner for automobiles, the combination of a burner-casing having a bottom of inverted conical or dish shape, of a mixing-tube open at both ends and extending through the inclined wall of the bottom with the inner portion of its lower wall in substantially the plane of the lowest point of said bottom, the outer portion of the lower wall of said mixing-tube being on a level at least as low as that of the inner end of said wall whereby said mixing-tube also constitutes a drainage-outlet for the burner, substantially as described.

2. In a burner for automobiles, the combination of a burner-casing having a top plate, a bottom plate inclining inwardly and downwardly, of a mixing-tube open at both ends and extending through the inclined wall of the bottom plate, with the inner portion of its lower wall in substantially the plane of the lowest point of said bottom, said tube inclining downwardly from its inner to its outer end whereby it also constitutes a drainage-outlet for the burner, substantially as described.

3. In a burner for automobiles, the combination of a burner-casing having a bottom of inverted conical or dish shape, said bottom being provided with a sleeve portion extending outwardly from the lowest point thereof, and a mixing-tube open at both ends and fitting in said sleeve portion, with the outer portion of its lower wall at a level at least as low as that of the inner portion of said wall whereby said mixing-tube also constitutes a drainage-outlet for the burner, substantially as described.

4. In a burner for automobiles, the combination of a burner-casing having a top plate, a bottom plate inclining inwardly and downwardly, said bottom plate being provided with a sleeve portion extending outwardly and inclining downwardly from the lowest point thereof, and a mixing-tube open at both ends

fitting in said sleeve portion, with the outer end of its lower wall at a lower level than the inner end of said wall whereby said tube also constitutes a drainage-outlet for the burner, substantially as described.

5. In a burner for automobiles, the combination of a burner-casing having a dish-shape bottom plate, a mixing-tube open at both ends connected with said burner at or near the lowest point of said bottom plate, with the outer end of its bottom wall at a level at least as low as that of the inner portion of said wall, a supplemental mixing-tube projecting centrally into the first-mentioned mixing-tube and spaced therefrom, and a nozzle discharging into the supplemental tube, whereby the burner may be drained through the first-mentioned tube without obstruction by the jet projected into the supplemental tube, substantially as described.

6. In a burner for automobiles, the combination of a burner-casing having a top plate and a bottom plate, said bottom plate being inclined inwardly and downwardly and provided with a sleeve portion extending outwardly and inclined downwardly from the lowest portion of said bottom, a mixing-tube open at both ends fitting said sleeve, with the outer end of its lower wall at a lower level than the inner end of said wall, a supplemental mixing-tube projecting into and spaced from said first-mentioned mixing-tube, and a nozzle discharging into the supplemental tube whereby the burner may be drained through the first-mentioned tube without obstruction by the jet projecting into the supplemental tube, substantially as described.

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

ROLLIN H. WHITE.

Witnesses:

E. L. THURSTON,  
E. B. GILCHRIST.