

No. 641,369.

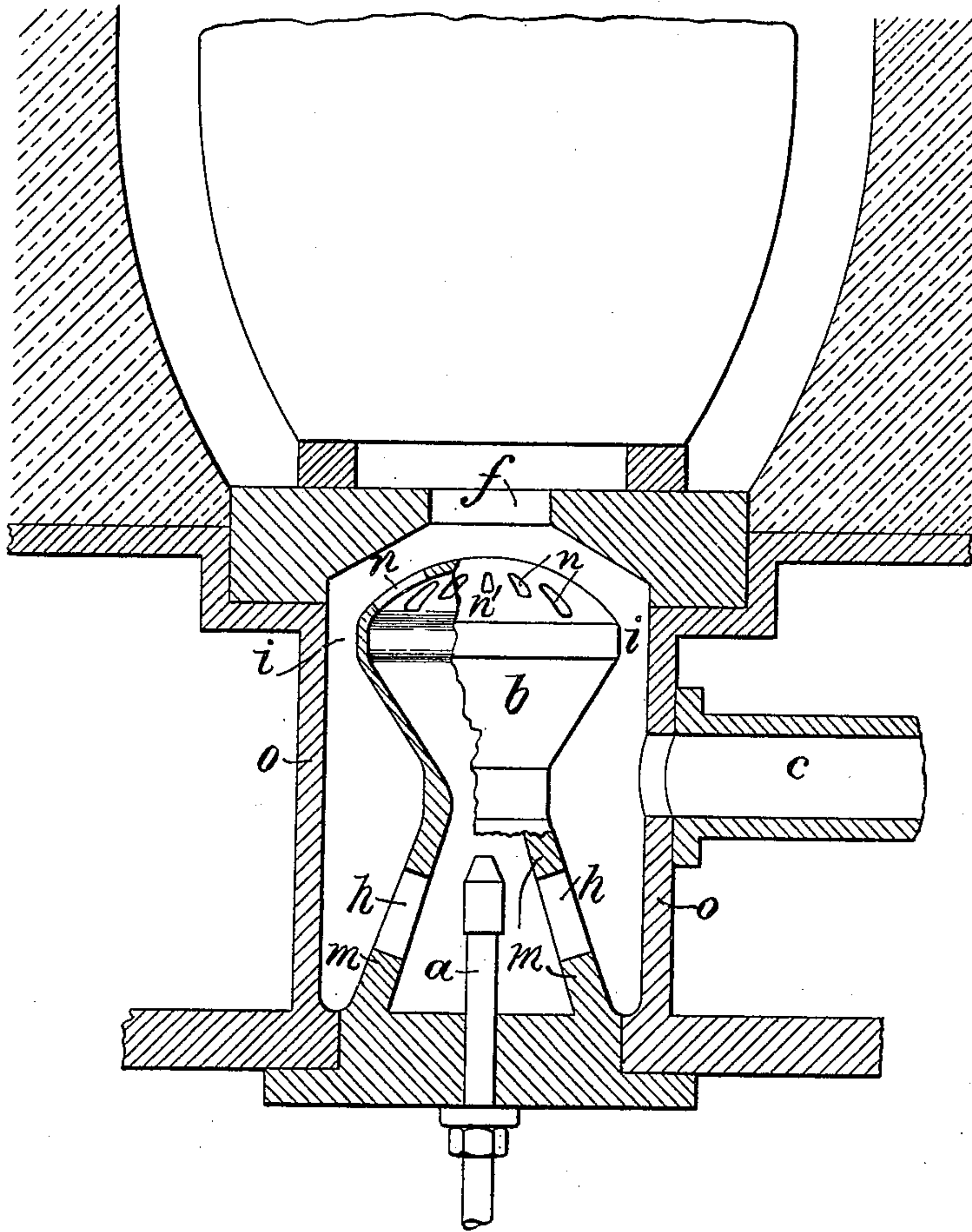
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O. BRÜNLER.

BURNER WITH VAPORIZER FOR LIQUID FUEL.

(Application filed Nov. 15, 1898.)

(No Model.)



Witnesses:  
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# UNITED STATES PATENT OFFICE.

OSCAR BRÜNLER, OF EILENBURG, GERMANY.

## BURNER WITH VAPORIZER FOR LIQUID FUEL.

SPECIFICATION forming part of Letters Patent No. 641,369, dated January 16, 1900.

Application filed November 15, 1898. Serial No. 696,574. (No model.)

*To all whom it may concern:*

Be it known that I, OSCAR BRÜNLER, a subject of the Emperor of Germany, residing at Eilenburg, in the Province of Saxony, German Empire, have invented new and useful Improvements in Burners with Vaporizers for Liquid Fuel, of which the following is a specification.

The present invention has reference to improvements in burners for liquid fuel; and it relates more especially to that class of burners in which the liquid fuel is sprayed upon a heated surface, where it is vaporized and ignited. A great drawback connected with the employment of this kind of burner is that the vaporizing surface or surfaces are heated to a very high degree, in consequence of which they very soon suffer and become useless by being melted or cracked. The cracking is brought about by the comparatively cool spray of the fuel striking the heated surface, especially when the latter consists of apyrous mineral bodies.

The object of this invention is to do away with this disadvantage and to construct a burner in which the highest temperature is attained at a point far enough above the vaporizer as to insure the keeping of the latter.

According to my invention I arrange the air-introduction pipe in such a way that the air enters partly below the vaporizer and partly above the vaporizing-surface and regulates the amount of air passing in from below, so that it just suffices for causing an imperfect combustion upon the air and the spray of fuel striking the vaporizer. The slow-burning gases are then conducted through apertures in the vaporizer into the burner-head proper, into which an amount of air is introduced necessary to now bring about the perfect combustion. The highest temperature, therefore, is attained at the mouth of the burner above the vaporizing-chamber, and the latter will in no way be injured. I shall now describe my invention with reference to the accompanying drawing, which shows a burner embodying the spirit of my invention.

The drawing represents a vertical sectional view of a burner in connection with a crucible or smelting-pot, part of the burner being represented in section and part in elevation.

The introduction-pipe *a* for the liquid fuel is surrounded by the conical mantle *m*, hav-

ing elongated slots *h*. Upon this conical mantle and communicating with it the hollow vaporizer *b* is arranged, the outwardly-dished cover-plate *n'* of which is provided with a number of apertures or slots *n*. The mantle *m* and the vaporizer are surrounded by a mantle *o* at some distance, thus leaving an annular space *i* between the vaporizer at its greatest diameter and the mantle *o*. The air-introduction pipe *c* opens into the space between the mantle *o*, the vaporizer, and the conical mantle *m*. A part of the air entering through the pipe *c* passes through the slots *h* into the interior of the conical mantle *m*, where it is mixed with the fuel sprayed upward out of the supply-pipe *a*. The combustible mixture thus formed impinges upon the inner surface of the hollow vaporizer, which, as customary, has been given an initial heating in any desirable manner, where it is vaporized and incompletely ignited. The slow-burning gases now pass upward through the slots *n* in the cover-plate *n'* and receive the additional amount of air necessary for perfect combustion, this air having taken its course out of pipe *c*, around the vaporizer, and through the annular passage *i*. The flame is projected out of the mouth *f* of the burner, and its highest temperature is attained at or near this mouth at some distance above the vaporizer.

What I do claim, and desire to secure by Letters Patent, is—

In a burner for liquid fuel the combination of a fuel-feed pipe, a cone-shaped mantle having elongated slots and surrounding said fuel-feed pipe, a hollow vaporizer, communicating with the said cone-shaped mantle and having an outwardly-dished cover-plate, provided with slots, an outer mantle surrounding the said cone-shaped mantle and the vaporizer at some distance and an air-supply pipe, opening into the space formed between the said outer mantle, the cone-shaped mantle and the vaporizer, the parts being constructed and arranged substantially as set forth.

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

OSCAR BRÜNLER.

Witnesses:

RUDOLPH FRICKE,  
WILLI GINCKE.