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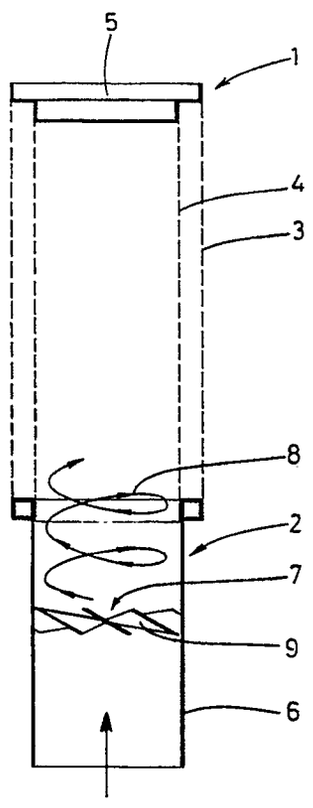
(54) Radiant burner.

(57) A radiant burner (1) for gaseous fuel is provided with an elongated hollow body (2) with a grid- or gause-like burner surface (3) and an inner grid at a distance inside of the burner surface. This body (2) is closed at one end and, at the other end, has a fuel supply end (6) preceding the burner surface. A rotation element (7) is provided within the fuel supply end (6) at a distance ahead of the burner surface (3), said rotation element being adapted to bring the supplied fuel mixture into rotation.



EP 0 392 573 A1

Radiant burner

The invention relates to a radiant burner for gaseous fuel, comprising an elongated hollow body with a grid- or gauze-like burner surface and an inner grid at a distance inside of said burner surface, wherein the body is closed at one end and at the other end has a fuel supply end preceding the burner surface.

Such a radiant burner is for example known from US patent 4,480,988. In such radiant burners it is important to supply the fuel mixture at a uniform pressure as steady and regular as possible along the whole burner surface. In the known radiant burner it is difficult to meet this condition, whereby flame instabilities may occur.

The invention aims to provide an improved radiant burner of the above-mentioned type wherein a uniform and stable flame is guaranteed along the whole burner surface.

To this end the radiant burner according to the invention is characterized in that a rotation element is provided within the fuel supply end at a distance ahead of the burner surface, said rotation element being adapted to bring the supplied fuel mixture into rotation.

In this manner the fuel mixture is given a rotary movement, whereby the fuel mixture is distributed along the whole burner surface with a uniform pressure. Thereby a very uniform and stable flame along the whole burner surface is guaranteed.

According to a very simple embodiment the rotation element consists of blade wheel fixedly mounted in the fuel supply end.

In this case, the position of the blades of the blade wheel is preferably adjustable, so that the configuration of the blade wheel can be adapted to the supply speed of the fuel mixture and the length of the burner surface.

The invention will hereinafter be further explained by reference to the drawing in which an embodiment is schematically shown.

The shown radiant burner 1 for gaseous fuel is provided with an elongated hollow cilindrical body 2 with a grid-like burner surface 3 indicated by a dashed line. At a distance inside of the burner surface 3 an inner grid 4 is provided which is also indicated by a dashed line. The radiant burner 1 is closed at one end by a plate 5 whereas a fuel supply end 6 is located at the other end. As appears from the drawing the inner grid 4 in the embodiment shown is substantially in line with the supply end 6, so that a smooth junction from the supply end 6 to the inner grid 4 is guaranteed and undesired whirls are not caused. The fuel mixture, for example a gas/air mixture is supplied in axial direction to the fuel supply end 6, as indicated by an arrow.

A blade wheel 7 is fixedly mounted in the fuel supply end 6 as a rotation element, which blade wheel 7 brings the axially supplied fuel mixture into rotation as schematically shown by the line 8. Due to this rotary movement the fuel mixture on its way to the blade 5 moves with a uniform pressure along the whole axial length of the burner surface 3 towards the inner grid 4 which supplies the fuel mixture along the whole burner surface 3 to this burner surface in a uniform manner. Thereby a very uniform and stable flame is guaranteed along the whole burner surface 3.

The position of the blades 9 of the blade wheel 7 is adjustable so that the configuration of the blade wheel 7 can be adapted to the supply speed of the fuel mixture and the axial length of the burner surface.

Experiments with a prototype of the radiant burner described showed very favourable results with respect to the flame stability, wherein moreover a very low Nox-emission was realized due to the low burning temperature.

The invention is not restricted to the above-described embodiment which can be varied in a number of ways within the scope of the invention.

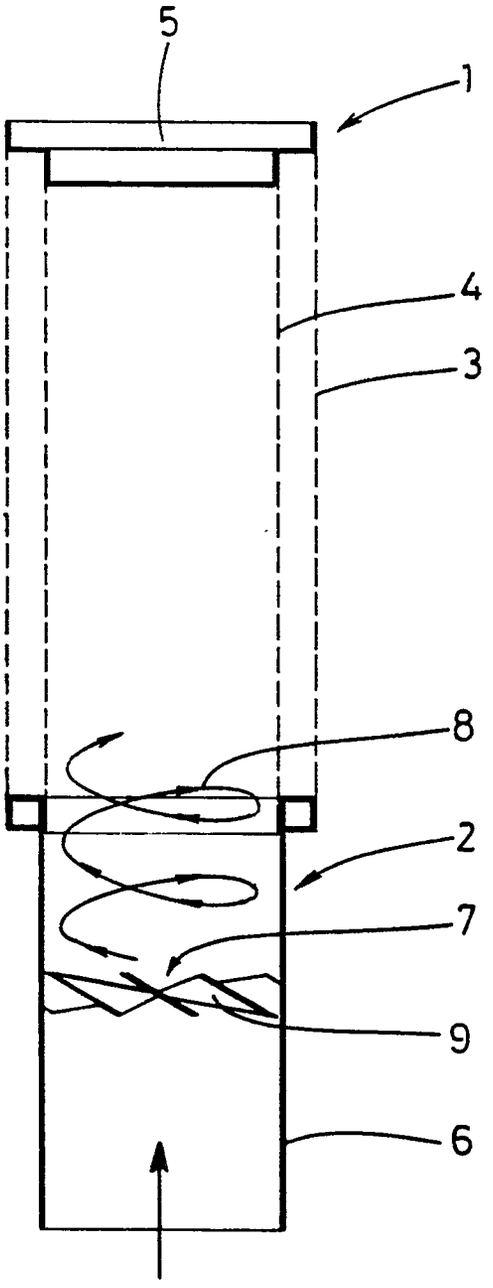
Claims

1. Radiant burner for gaseous fuel, comprising an elongated hollow body with a grid- or gauze-like burner surface and an inner grid at a distance inside of said burner surface, wherein the body is closed at one end and at the other end has a fuel supply end preceding the burner surface, characterized in that a rotation element is provided within the fuel supply end at a distance ahead of the burner surface, said rotation element being adapted to bring the supplied fuel mixture into rotation.

2. Radiant burner according to claim 1, characterized in that the rotation element consists of blade wheel fixedly mounted in the supply end.

3. Radiant burner according to claim 2, characterized in that the position of the blades of the blade wheel is adjustable.

4. Radiant burner according to anyone of the preceding claims, characterized in that the inner grid is in line with the supply end.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EUROPEAN SEARCH REPORT

Application number

DOCUMENTS CONSIDERED TO BE RELEVANT

EP 90200436.5

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.)
A	GB - A - 1 057 729 (UNIVERSAL OIL PRODUCTS) * Page 2, line 125 - page 3, line 11 *		F 23 D 14/14
A	EP - A2 - 0 235 789 (RUHRGAS) * Column 3, lines 5-26; fig. 3 *		
D,A	US - A - 4 480 998 (OKABAYASHI)		

TECHNICAL FIELDS SEARCHED (Int. Cl.)

F 23 D 14/00
F 24 C 3/00

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
VIENNA	22-05-1990	TSCHÖLLITSCH

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
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