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ELECTRIC CURRENT JET FLAME GENERATOR

Class 21g, 35. No. 133133 (656721/24 dated 26 Feb 1960)

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SOURCE: Byulleten' Izobreteniy, Vol. 37, No. 21, November 1960,
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Class 21g.35, No 133133 (656721/24 dated Febr.26,1960)

Electric Current Jet flame Generator

(ПЛАМЕННОСТРУЙНЫЙ ГЕНЕРАТОР ЭЛЕКТРИЧЕСКОГО ТОКА)

by

A.I.Moskvitin

From Byulleten' Izobreteniy (Bulletin of Inventions) No.21, Nov.1960,pp.31-32

1. Electric current jet flame generator, in which the stream of hot gas travels from the combustion chamber through an expansion nozzle, situated in the magnetic field of an excitation system and containing current stripping electrodes, characterized by the fact that to increase the thermal stability of the nozzle walls and to raise the thermal efficiency of the installation, the nozzle walls are provided with inserted in it electric conductors, forming a focusing winding around which the current is directed in direction opposite of that of the operating current in the gas, to force away the gaseous stream from the walls and to seal the gas in the nozzle as a result of electrodynamic repulsion of the current carrying gas stream from the winding conductors.

2. Generator according to par. 1, distinguished by the fact that the focusing winding is made of hollow cooled conductors or from busbars with cooling of the water jacket type.

3. Generator according to par. 1 and 2 distinguished by the fact that the focusing winding conductors are made of a material with greater thermal radiation reflection coefficients (silver, aluminum etc.), or coated with such materials.

4. Generator according to par. 1, in which the gaseous medium is subjected

to additional ionization preferably unipolar, characterized by the fact that to intensify the effect of repulsion of the gaseous stream from the walls of the nozzle, these walls are made of electro-conductive material and to these walls is fed an electric charge the sign of which corresponds to the sign of the charge of the gas stream or that part of the latter which bears the basic thermal energy.

5. Change in form of generator according to par.4 characterized by the fact that to produce an effective electrostatic repulsion of the gas stream from the nozzle walls the charge is fed into the focusing winding.

6. Generator according to par.1-5 characterized by the fact that the combustion chamber is situated in the magnetic field and in it (combustion chamber) are situated the electrodes for passing the current through the ionized gas, for the purpose of creating in the gas (electrodynamically) a pressure in direction of the nozzle.

7. In the generator, according to par. 1-6 the application of AC over DC current for feeding the excitation winding, either on the voltage of the electric ~~charge~~ of the walls or focusing winding, or simultaneously on some of these currents and voltages in various combinations to create vibration in the gaseous mixture, for the purpose of improving the combustion of the fuel in the stream.

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