A Novel Fuel Efficient Domestic Cooking Burner for PNG (Piped Natural Gas) and its Commercialization

INTRODUCTION

Piped Natural Gas (PNG) as domestic cooking fuel is already in use in many parts of India with more than 70 lakh connections. However, due to unavailability of dedicated PNG burner/stove, the available LPG stove is being modified to use PNG by changing the gas injector. This act of modification compromises with the efficiency of the burner & safety of users. Moreover, it is an act of tampering with a standard LPG Stove. LPG & PNG are two different gases with different physicochemical properties. LPG is a mixture of Propane and Butane whereas PNG is majorly Methane. Due to difference in Wobbe No., PNG and LPG has poor interchangeability. Also, due to difference in gas inlet pressure and flow rates "flame lift" is observed when PNG is fired in a LPG burner which is unsafe for use.

Given this, an Energy Efficiency and PNG dedicated domestic cooking burner is developed and commercialized by CSIR-Indian Institute of Petroleum. The developed burner is an atmospheric burner that confirms to a repeatable performance of thermal efficiency (> 65%) and safety when evaluated as per I.S.: 17153. The burner has been designed through CFD modelling, validated through extensive experiments and verified through field trials. Further, the burner is designed to deliver a range of power output (1.5 kW to 2.25 kW).

Energy Efficient PNG Stove with Logo

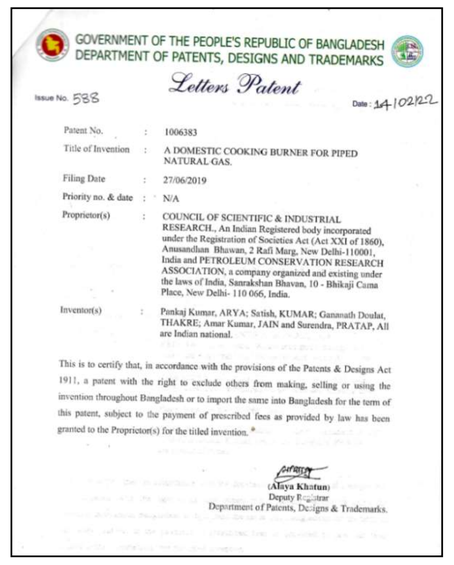
Comparison of flames of CSIR-IIP and retrofitted burners

MoU Signed with Goa Natural Gas Limited

SALIENT FEATURES

- The present burner can save up to 25% of the fuel (PNG) when compared with in-use modified PNG burners through its novel design.
- The fuel saving with replacement will be worth Rs. 500 crore per annum for in-use PNG connections and an additional Rs. 4000 crore per annum for 4 crore targeted PNG connections in the next 4 years.
- It can reduce 0.35 million tons of CO_2 emissions per year from in-use PNG connections and additional 2.8 million tonnes of CO_2 emissions per year for 4 crore new targeted PNG connections in the next 4 years.
- It has a potential to benefit the entire stove and burner manufacturing sector (MSME) of India with business potential of over 1000 Cr.
- Technology has been transferred to 41 nos. of Indian domestic stove & burner manufacturing companies.
- Available on online marketing platforms like Amazon and Flipkart.
- Installed at major institutes like GAIL, MGL, IGL, Avantika Gas, Goa Natural Gas, Air Force Colony, Bangalore and Shantikunj, Haridwar.

Showcased by GAIL Gas Limited at India Energy Week



Patent Granted in India and Bangladesh

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