

Grassroots Technological Innovations For National Awards



Innovation Ref No:

1	Category	General
2	Name of the innovator	Mr. Bharat Amrutlal Agarawat
3	Address of innovator	Village: Pikhori, Ta: Malia Hatina, District: Junagadh Tel:02870-245306
4	Title of the innovation	Modified Wood Stove
5	Keywords	Wood stove, Combustion Chamber,
6	Background of the Innovator	Age: 40 years, Education: 10 th Pass. Runs an agricultural equipments workshop since last 25 years. Innovator of Lemon Cutter, Innovative windmill design for lifting water from wells.

Summary: The principle behind this product is that since the flame always would follow the direction of the air passage. The heating chambers need to be oriented in order to be able to completely utilize the heat energy produced. It is wood stove with two different modifications. This stove has three chambers each with different applications. First one with highest heating capacity, second with medium heating capacity and third is low heating capacity. It's just a simple modification of existing wood stove used in villages. Its basic idea is to utilize the maximum amount of heat from combustion of wood by passing through various chambers.

Features of the Entry:

Modification in wood stoves to improve the thermal efficiency by utilizing maximum amount of heat from burning of wood.

1	Novelty of the innovation, feature or sub system.	Three modified chambers with certain different of height in three chambers is novelty of this stove.
2	Comparison to current conventional alternative by a) Functioning b) Cost c) Removal of drudgery	<p>The stove, which are available in the market, are not using maximum amount of heat from the burning of the wood. Lot of heat goes in atmosphere as a waste. This modification ensures that heat generated from burning of wood can be fully utilized before going into atmosphere.</p> <p>Functioning is very simple of this stove. Wood is burnt in the first combustion chamber placed on the wood carrying plate. Wood get oxygen from the underneath the plate and burns. Flames generated from the burning heat the first chamber and then hot fumes go in up direction to the second chamber and similarly third chamber.</p> <p>Rs. 3500/- with water heating vessel Rs. 1500/- without water heating vessel</p>
3	a) Demerits and Limitations b) Areas needing further work:	<p>These kinds of stoves are very useful in the village, which saves energy and consumes less wood for cooking. One demerit of existing stove is it gets highly heated up so chance of heat burn and problem of ash removal could be there.</p> <p>1. In the lower chamber mud has been used as an insulator, it has been sandwiched between</p>

	c) Further modification under progress by innovator	<p>sheet metal. It might be possible to achieve the same effect by leaving an air passage between the two sheet metal members.</p> <ol style="list-style-type: none"> 2. This angle can further be increased so that the flame gets an easier direction. 3. The angle of this upward passage can be increased so that the flame gets an easier direction, which might increase the heat in the top-heating unit. 4. The passage and the walls of the top heating unit need insulation like the lower chamber. 5. Single the prime inlet for the air is from the bottom. The increase in the stand height would improve combustion. <ul style="list-style-type: none"> - One more heating shield of metal sheet plate 2” inches apart from all three chambers. - One more heating vessel arrangement for heating more water at third chamber and utilizing still more heat before going into atmosphere.
4	<p>Commercialization</p> <p>a) How many has been made/sold/used locally?</p> <p>b) What is the diffusion potential?</p>	<p>40 no. of this kind of modified wood stoves have been sold so far.</p> <p>It has got good diffusion potential in the Indian villages.</p>
5	Current and future application areas (multiplicity of utility)	Can be used for cooking, heating of water and also heating of room in cold areas.
6	Social /environmental impact	Has social and environmental impact
7	Significance to women, handicapped and other marginalized sections	In India, normally women cook food. So it is quite significant for them, as it reduces the efforts required to put in new wood for burning again and again.
8	IPR considerations	