Sl #	Title of the Invention	Brief of the Invention	Area of Application and Relevant Industries
1	PROCESS FOR REMOVAL OF METALS FROM VEGETABLE OILS AND ANIMAL FATS	The invention relates to a process of preparation of a thermal and metal stable RFCC catalyst from a spent FCC catalyst having lower metal and thermal stability. Thus prepared value added catalyst offers higher economic benefits, due to enhanced performance of host catalyst through enhanced conversion, enhanced distillates. Besides, newly developed catalyst can serve as a metal passivator additive for simultaneous passivation of both vanadium and nickel.	Oil and Refinery Industries
2	A NOVEL REACTOR DESIGN FOR GAS TO LIQUID (GTL) PROCESSES	The invention relates to a process for regeneration of catalytic cracking catalyst for the multistage operation where the spent catalyst from the two reactors contains different coke content. This system has the advantage of minimizing the exposure to the high temperature of low coked catalyst to the minimum possible time and high coke contained catalyst to the required time for its complete regeneration.	Oil and Refinery Industries
3	UPFLOW REGENERATION OF FCC CATALYST FOR MULTISTAGE CRACKING	The invention provides a novel method and apparatus for the continuous cracking of the residual oils with non-catalytic or low active adsorbent and zeolite cracking catalyst. The process of the invention features a novel combination of steps, which in combination, may result in substantial benefits by removing the impurities from the bottom of the barrel and reducing the catalyst addition rate & maintaining the activity of the cracking catalyst. Though low active adsorbent is more suitable for this process, the present invention also supports the use of high active adsorbent for removal of feed impurities.	Oil and Refinery Industries
4	TWO STAGE FLUID CATALYTIC CRACKING APPARATUS	According to this invention there is provided an improved apparatus and process for fluid catalytic cracking wherein catalytic cracking of hydrocarbon feed is done in two flow reactors, a first flow reactor, preferably a downer and a second flow reactor, preferably a riser reactor using separate catalyst systems with intermediate separation of the products of desired boiling range and unconverted hydrocarbons in a fractionator. The aim of the present invention is to provide a fluid catalytic cracking apparatus and a process which can handle hydrocarbon feedstocks of different quality for the simultaneous maximization of middle distillates, ethylene and propylene.	Oil and Refinery Industries
5	DUAL RISER CATALYTIC CRACKING APPARATUS AND PROCESS FOR RESID UPGRADATION	The invention describes the process for removal of total metals below 1 ppm in edible and non-edible vegetable oils such as Jatropha carcass oil, Karanj oil, Castor oil, Rricebran oil, Soybean oil, Sunflower oil, Palm oil, Rapeseed oil etc. and animal oil/ fats such as Fish oil, Lard etc. without using water. The simultaneous use of phosphoric and citric acid reduces total quantity of the acids required in comparison to any individual acid. The clay used in this process can be recycled in the process hence its total consumption is minimized. In this process the use of Ion Exchange Resin reduces total metal below 1 ppm.	Oil and Refinery Industries

6	DUAL FUNCTION ADDITIVE FROM SPENT CATALYST	The invention relates an apparatus for convertion of syngas into one or more hydrocarbons in presence of Fisher-Tropsch catalyst under fluidised condition. This invention more particularly relates to an apparatus and a process to transfer the activated catalyst to the main slurry reactor by flow of hydrogen gas in dry phase.	Oil and Refinery Industries
7	SYSTEM FOR PRODUCTION OF HYDROGEN-COMPRESSED NATURAL GAS MIXTURE AND PROCESS	The invention relates to a system for a low severity steam methane reforming process for the production of Hydrogen-Compressed Natural Gas (H-CNG) mixture from natural gas. The invention also relates to the process of H-CNG production by using the system. This process is rugged and flexible for quick start and stop to meet H-CNG demand fluctuations for dispensing to automobiles.	Oil and Refinery Industries
8	A FEED NOZZLE ASSEMBLY	The subject matter relates to an atomization process for a liquid hydrocarbon and in particular relates to a feed nozzle assembly for the achievement of the atomization process. The feed nozzle assembly described by the present subject matter atomizes all forms of the liquid hydrocarbon feed that have high viscosity and surface tension. In addition, the present feed nozzle assembly prevents a requirement of highly pressurized liquid hydrocarbon supply.	Oil and Refinery Industries
9	PROCESS FOR SELECTIVE REMOVAL OF MERCAPTAN FROM AVIATION TURBINE FUEL (ATF)	The invention relates to a process for selective removal of mercaptans from aviation turbine fuel (ATF) feed. This also provides aviation turbine fuel product having negligible mercaptan, good colour, moderate sulfur and low acidity. The process is for selective mercaptan removal with minimum removal of other sulfur compounds.	Oil and Refinery Industries
10	APPARATUS FOR CATALYTIC CRACKING	The invention relates to catalytic cracking of feedstock.	Oil and Refinery Industries
11	A TWO STAGE GASIFIER FOR GENERATING SYNGAS	The subject matter describes an integrated gasification system to gasify various types of feedstock. The various types of feedstock are separated into various categories based on their ash content, reactivity and temperature range required for gasification.	Oil and Refinery Industries
12	METAL PASSIVATOR ADDITIVE & PROCESS FOR PREPARING	The invention relates to a metal passivator additive. This also relates to a process for preparing the metal passivator additive. The metal passivator of the present invention is an effective metal passivator additive, which can effectively passivate the metals and compensate for the dilution.	Oil and Refinery Industries
13	COMPOSITION OF HIGH PERFORMANCE SEMI-SYNTHETIC, BIO-STABLE AND OPERATOR FRIENDLY SOLUBLE CUTTING OIL	The invention relates to a composition of high performance semi-synthetic bio-stable and operator friendly soluble cutting oil for metal working applications comprising high viscosity spindle oil, suitable emulsifiers and other performance additives. The composition is quite useful for various metalworking applications particularly cutting operations like grinding, milling, drilling, turning etc. The uniqueness lies in its operator friendly nature and applicability for less to high severity operations. This invention can be used for both ferrous and non-ferrous	Oil and Refinery Industries

		type applications.	
14	DEVELOPMENT OF HIGH PERFORMANCE MULTIPURPOSE OIL FOR HYDRAULIC CUM CUTTING APPLICATIONS	The newly developed dual oil possesses better metal compatibility, high temperature thermal / oxidation stability required for hydraulic system, efficient cooling of tools & superior load bearing capability required for satisfactory cutting operation.	Oil and Refinery Industries
15	A PROCESS FOR SIMULTANEOUS CRACKING OF LIGHTER AND HEAVIER HYDROCARBON FEED AND SYSTEM FOR THE SAME	The invention relates to an apparatus and process for simultaneous cracking of lighter and heavier hydrocarbon feed. In this process both the light and heavy feeds are processed in two different reactors operated in series with respect to catalyst flow and parallel with respect to feed flow to produce light olefins in the range of C2 to C4 and aromatic products in the range C6 to C8 mainly benzene, toluene and xylene.	Oil and Refinery Industries
16	COMPOSITION OF OIL FOR HIGH SPEED THIN AND THICK GAUGE STEEL SHEET ROLLING IN TANDEM MILLS	The invention relates to a steel cold rolling oil composition comprising of natural fats/oils, synthetic ester, fatty acid, antioxidant, antiwear, antifoam, emulsifiers, dispersant and high viscosity index mineral oil. The oil composition shows good lubrication, load carrying and reduction properties and is useful for steel cold rolling, particularly for thin or thick gauge steel rolling in high speed tandem rolling mills.	Oil and Refinery Industries
17	CARRIER OIL COMPOSITION FOR SPRAY OF FUNGICIDES ON RUBBER PLANTATIONS AND OTHER CROPS	The relates to an environmental friendly carrier oil composition for spray of fungicides on rubber plantations and other crops comprising an ester of vegetable oils, paraffinic oil and a lighter petroleum oil fraction.	Oil and Refinery Industries
18	A BROACHING OIL OR HEAVY DUTY NEAT CUTTING OIL COMPOSITION	The invention relates to an oil based neat broaching oil or heavy duty neat cutting oil composition comprising of natural fats/oils, synthetic ester, antiwear, extreme pressure additives, antioxidant and mineral oil. The composition described in the present invention can also be used for other heavy duty metal cutting applications e.g., tapping, boring, drilling, gear cutting as per the requirement of the customer.	Oil and Refinery Industries
19	AN APPARATUS FOR COMBUSTION OF GASEOUS FUEL OBTAINED FROM ORGANIC WASTES	Biogas domestic burner is a biogas based burner to be used by people for home cooking purpose.	Oil and Refinery Industries
20	BIO-AUGMENTATION COMPOSITION AND USE THEREOF FOR IMPROVING	The invention a process discloses a microbial composition for improving efficiency of activated sludge in effluent treatment plant for reduction of hydrocarbon content of wastewater generated from any hydrocarbon processing industry.	Oil and Refinery Industries

	EFFICIENCY OF EFFLUENT TREATMENT PLANT HYDROCARBON PROCESSING PLANT		
21	INTEGRATED PROCESS FOR DEEP DESULFURIZATION OF DIESEL WITH REDUCED HYDROGEN CONSUMPTION	Invention brief will be sent upon request	Oil and Refinery Industries
22	PROCESS FOR DEEP DESULFURIZATION OF CRACKED GASOLINE WITH MINIMUM OCTANE LOSS	Invention brief will be sent upon request	Oil and Refinery Industries
23	HIGH PERFORMANCE GEAR LUBRICANT WITH ENHANCED DRAIN POTENTIAL FOR HEAVY DUTY COMMERCIAL VEHICLES	Invention brief will be sent upon request	Oil and Refinery Industries
24	COMPOSITION OF ECOFRIENDLY OIL FOR JUTE BATCHING APPLICATION	Invention brief will be sent upon request	Oil and Refinery Industries