

TePP-A Joint Initiative of DSIR and DST/TIFAC



Ministry of Science and Technology
Technopreneur Promotion Programme (TePP)



Creative **INDIA**

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The creative Brigade marches on...

Creativity is a mental process involving the generation of new ideas or concepts, or new associations between existing ideas or concepts. From a scientific point of view, the products of creative thought are usually considered to have both *originality* and *appropriateness*. An alternative, more everyday conception of creativity is that it is simply the act of making something new.

Although intuitively a simple phenomenon, it is in fact quite complex. It has been studied from the perspectives of behavioural psychology, social psychology, psychometrics, cognitive science, artificial intelligence, philosophy, history, economics, design research, business, and management, among others. The studies have covered everyday creativity, exceptional creativity and even artificial creativity. Unlike many phenomena in science, there is no single, authoritative perspective or definition of creativity. Unlike many phenomena in psychology, there is no standardized measurement technique.

Creativity has been attributed variously to divine intervention, cognitive processes, the social environment, personality traits, and chance. It has been associated with genius, mental illness and humour. Some say it is a trait we are born with; others say it can be taught with the application of simple techniques. Although popularly associated with art and literature, it is also an essential part of innovation and invention and is important in professions such as business, economics, architecture, industrial design, science and engineering.

"Creativity, it has been said, consists largely of re-arranging what we know in order to find out what we do not know."

Creativity is also seen by economists as an important element in the recombination of elements to produce new technologies and products and, consequently, economic growth. Creativity leads to capital, and creative products are protected by intellectual property laws.

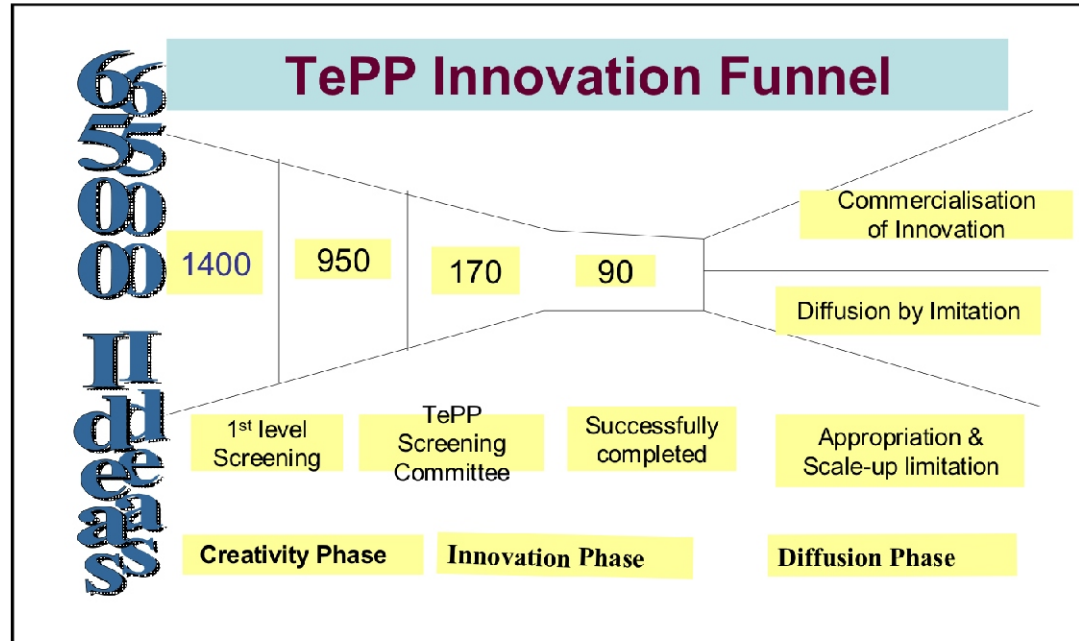
Innovation

Creativity by individuals and teams *is a starting point for innovation*; the first is a necessary *but not sufficient* condition for the second. The term *innovation* is often used to refer to the entire process by which an organization generates creative new ideas and converts them into novel, useful and viable commercial products, services, and business practices, while the term *creativity* is reserved to apply specifically to the generation of novel ideas by individuals or groups, as a necessary step within the innovation process.

TePP

TePP deals with independent innovators , thousands of them at their creative best. Few are financially supported yet all are guided by the TePP network of out reach centres, network partners, experts and mentors. TePP facilitated innovations mostly fall in the category of Non-programmed innovations , which can be subdivided into *slack* innovations and *distress* innovations. Slack innovations occur as a result of the availability of slack resources whereas distress innovations are immediate responses to crisis. They are also referred to as innovations for the bottom of the pyramid market. Creative, original thinking is needed to come with low cost-high performance products/services.

TePP innovation funnel



Source: TePP, 2006

The creative brigade of TePP innovators marches on spreading the fragrance of a million ideas.

1. Arecanut Peeling Machine

The innovator, Shri Appachan is from Kannur district of Kerala, who earlier developed 'palm climber'.

The modified Arecanut Peeling Machine developed by Shri Appachan is a unique device that will peel 5-7 nuts in a second as compared to peeling manually 2-3 nuts in a minute. The model works mainly on a toothed cylinder which rotates by manual efforts. The hard-shelled nuts are stocked at the top, which in turn pushes the nuts into the rotating cylinder. The nuts are cracked as they pass between the tight-fitted cylinder and the supporter. Future modifications will enable the machine to separate the nuts from the outer shell automatically. This innovation is a boon to the cultivators of the Arecanut, helping them to peel the Arecanut themselves.

Status of Technology

The innovator has successfully made the Arecanut Peeling Machine.



Innovator

Shri Appachan

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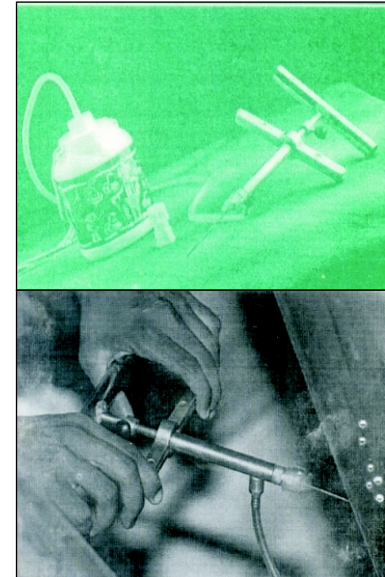
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2. Banana Stem Injector

The innovator is a farmer

In order to control pests in banana farmers are usually using sprayers to apply pesticides. The Innovator has thought an alternative method of application of pesticides by applying it through stem. As per Innovator's claim this is a multi-purpose stem injector which can be used in banana, coconut and orange. It also avoids excessive use of pesticides since with its help correct and measured quantities of pesticides could be injected. It is also safe to operate. The same injector can be used as a Garden Sprayer by fitting a nozzle by replacing the Needle. The injector will be having adjustable nut through which quantity of pesticide can be adjusted in terms of 2ml., 4ml., 6ml., 8ml., etc.

Currently an injector-marketed version made out of brass fittings has been designed by the Innovator and is being marketed. The Tamil Nadu State Agriculture Department has listed the product for subsidy grant. However, based on the feed back from the market, the Innovator feels that its market is being affected by its prohibitive cost.



Innovator

Shri Manoharan

M/s. Raj Engineering Works

Dindigul Road

Batlagundu Town

Dindigul Dist. (TN)

3. Bicycle weeder (Motorised Cycle Hoe)

The innovator is a farmer

Bicycle weeder is a multipurpose farm implement fashioned out of inexpensive bicycle components. The main part of the implement consists of the front portion of a bicycle, namely handle bar, front axle and the wheel. A steel fork is connected to the axle and other end carries different attachments. Separate attachments for weeding and tilling are attached to the working end using bolts and nuts. This helps in changing the attachments as needed. Suitable slots are provided for attachments so that the distance between the blades can be adjustable to suit specific requirements. Safety provisions are incorporated so that the blade did not injure the farmer at the time of reversing the device during weeding. The cost of the weeder is Rs. 1200/-. With it, a person can weed 0.08 ha per hour. The load in digging out the soil has been kept to the minimum by providing appropriate profiles and curvature to the implements through a process of trial and error.



Benefits / Advantages:

- It is very easy to operate and is ideally suited to the needs of marginal farmers who can not afford to maintain bullocks.
- The tiller attachment enables the farmers to cultivate medium hard soil up to a depth of 3 cm.
- Only one labour is required to operate it.
- The device is so simple that even 12 year old boy or woman can operate it safely without difficulty.

Innovator

Shri Gopal Malhari Bhise

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(Maharashtra)

4. Design improvement and testing of weed cutting-cum-inter-cultivator

The innovator is a farmer.

The innovator has designed a three-wheeler cutting machine' by using Vespa Scooter engine. The weeding machine could be used for crops like cotton, banana, groundnut etc. The new weeder would harvest 3 acres in a day. For harvesting 3 "acres, at least 45 labourers are required for completing the operation in one day. This would be very useful for farmers for their weeding operation.

Innovator

Shri V India Bharathidasan

Thanjakoor Post

Thiruppacheti via

Manamadurai TK

Sivagangai Dt

Contact : SEVA (Sustainable Agriculture & Environment Voluntary Action), Madurai

5. Grape Flakes

The innovator is a housewife.

The food habits of urban middle class families have gone tremendous changes and have started using new food products based on latest technologies such as corn flakes for breakfast, etc. Realising that grape flakes could be used very good breakfast material the innovator developed grape flakes which is not only different from corn but as better quality as crispiness which are essential for market acceptability

She initially produced grape flakes being crispy in nature using domestic kitchenware. Later using modern equipments she produced international quality of grape flakes.

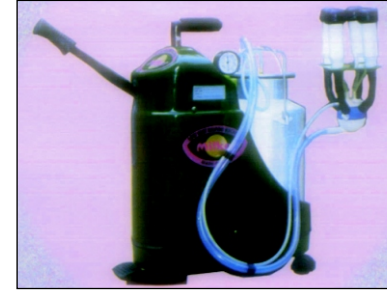


Innovator
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6. JS Milker milking machine

The innovator is an entrepreneur and farmer. He does farming of rubber, vanilla, paddy etc. He also manufactures bio-mature.

He developed a hand operated version Milking machine. 'JS Milker' is a simple vacuum driven device which can be used to draw milk effortlessly from cows buffaloes. It is a portable machine which has a vacuum handle which is used to create the necessary suction power to draw milk out of the udder in a hygienic and easy manner. The device provides a vacuum meter to monitor the vacuum built and prevent any damage to the milk nodes of the animal there by making the process safe for cattle.



Innovator
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7. Low Cost Greenhouse Structure

The innovator is a Lecturer.

It was observed by me in most of the villages in Maharashtra that small farmers with 2 to 3 acres of land and cultivating conventional crops are in a miserable condition as the yield of the crops is not sufficient to meet their daily needs. While thinking on this problem of small farmers I got this idea of developing a low cost Greenhouse Structure for cultivating non conventional crops in it to have sufficient monthly earning to a small farmer. Development of a cylindrical shape greenhouse structure is in progress. Bamboo, GI pipes, Steel wire ropes, UV stabilized Polythene film, and polygrippers will be used for building this structure. The structure is having side opening for proper air circulation to maintain the CO₂ levels inside the structure which is needed for the proper growth of plants. Top vent is also provided for hot air escape. The height of the structure is 6 Meters. Temperature inside the greenhouse will be controlled by sensors and microcontroller by operating a fogger mechanism; this will simultaneously maintain the humidity levels inside the greenhouse. An arm type rotating fogger mechanism will be used in the structure; the same mechanism can be used for pesticide spray on the crop. A polythene gripper is developed to grip the polythene which is the covering material used for greenhouse. The polygripper holds the polythene firmly to the structural member without tearing the polythene. The structure is tested for wind loads of 140 km/hr. using structure design software and was found ok.

The cost of this structure will be between 1.25 lakhs to 1.40 lakhs for five guntha area.

Benefits:-

- i The Low Cost Greenhouse Structure will be very beneficial for small farmers in India as the crops cultivated in this greenhouse will have very good quality and high yield, which will fetch them good returns.
- ii Cultivation of vegetables in greenhouse can be promoted to earn approximately Rs. 5000/- per month with proper post harvest management system.
- iii Unemployed educated youth can also start this business of cultivating non conventional crops in greenhouse such as vanilla, orchids, colour capsicum etc. to get a very good income and provide employment for others.

Patent

Patent yet to be filed.

Status of Technology

The technology is yet to be commercialised.



Innovator

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8. Manually Operated Water Pump

The innovator is a farmer.

The Manually Operated Water Pumps for Villages is for the benefit of large group of rural population and can make a material difference to the incomes of this group. The needs for Drinking Water are sought to be met by Hand Pumps. These are manually operated and meet other Domestic needs besides Drinking water also. The output of these pumps is adequate for these needs.

The innovator developed a working model at the *NEDA's* Research and Training Centre, Lucknow. In this model a single person can operate four pumps of conventional design using a long Pendulum type lever and a system of Pulleys, some links and belts. The module physically demonstrates the possibility of achieving higher output.

Innovator

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Agricultural Sciences

9. A Novel Neem + Oil for Chronic Wounds and Ulcers

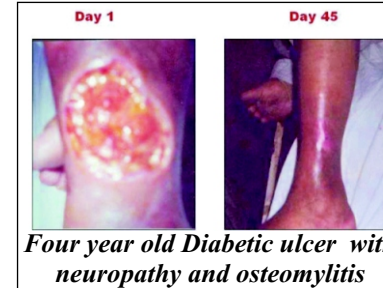
The innovator is a software professional turned ayurvedic practitioner.

He has developed a new Ayurvedic Oil "Neem + Oil" for successful treatment of the chronic wounds. The new oil is based on the classical preparation of the Jatyadi Oil mentioned in Ayurvedic Formulary of India Part I with the addition of Neem as an important constituent. A six week pilot study on the performance of the oil on patients with non-healing ulcers, diabetic ulcers, various ulcers, bed sores, traumatic wounds was conducted by Prof Anurag Srivastava, Department of Surgery, AIIMS, New Delhi. During the pilot study it was found that more than 50% of the wounds healed without any side effect. Such a pilot study was not conducted before on any Jatyadi Oil formulation.

Presently, most of the antiseptics available in the country are owned by multinationals. These antiseptics are costly and have shown to be cytotoxic and damage the delicate granulation tissue and epithelial cells. The new Neem + Oil after the successful study will be the first of its kind indigenous antiseptic and will be cheaply available for the common mass.



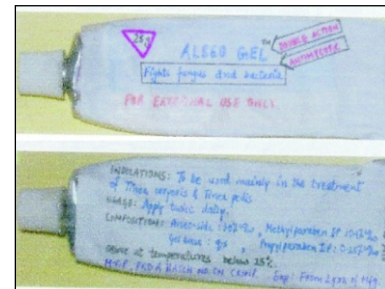
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10. Anti-fungal agent

The innovator Dr. Versha Parcha is a scientist from Dehradun.

Natural products once served as the source of all drugs and even today (with their derivatives and analogs) still represent over 50% of all drugs in clinical use, with higher plant-derived natural products representing 25% of the total. In context of this *Alseodaphne andersonii* a timber plant was chosen by Dr Versha for experimental work. Fractionation of alseodaphne leaves led to isolation of active principle from the same which is given the trial name alsoeside being a glycoside based on spectral and chemical analysis. This is first report of its kind where an appreciable antifungal along with antibacterial activity has been established from a plant extract which is an added advantage over the conventional antifungal specially dermatophytes (against skin infection). After the active principle is established , number of formulations were attempted to get the best dosage form with reference to its physicochemical and therapeutic effects.



Status of Technology

The innovation is first of its kind being plant based anti fungal (antidermatophyte) i.e. effective against various skin diseases like athlete's foot, ring worm. The effect has been proved on animal model .

Patent

The process of patenting is in final stage.



Innovator :

Dr. Versha Parcha

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11. Arecanut (Supari) based products

Innovator Dr Gopalkrishna Nagesh Hegde, from Uttarkarnataka is a doctorate in literature (Kannada).

Arecanut is a main and ancient economic crop grown and used in India. Arecanut is from "Areca catechce Linn palmaecea" family. Other nations like Bangla, Srilanka, Indonesia, Vietnam, Malaysia, China etc. grow arecanut. But the involvement of Arecanut in routine Indian life is comparatively richer than in any other countries. The books of Indian Medical system like charka samhita, Shushruta Samhita, Haartia Samhita, Bhaishaja Ratnavali, Bhavaprakasha, Masoorika etc., have clearly and scientifically given some 25 medicines prepared by keeping arecanut as the main item. Medicinal arecanut should be first of all be cultured or refined. Most of all herbs need this process before using to make a medicine.



Status of Technology

As per Ayurveda, supari contains a poison named "Bhanga" which should be eradicated before using for medicine. The innovator tried and succeeded in producing useful alternative items from arecanut, i.e., Supari Chewing Gum, Supari Chocolate, Suparti Digestive sweet Tablets, Supari pain balm etc.

Benefits

- | | |
|--------------------------------|---|
| Supari Chewing Gum | - This gives melodious taste as you chew more, and it also helps to improve digestion. |
| Supari Chocolate | - Pleasure you get while eating, removes bad breath and helps digestion. |
| Supari Digestive Sweet Tablets | - One can easily chew and consume to help reducing digestive problems. problems like acidity and gastric and gives sound sleep. |
| Supari Pain Balm (Pain Killer) | - Very much effective to relieve muscle and nerve connected body pains. Purely made of herbal items and arecanut. |



Innovator

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12. CPAP device for the treatment of Sleep Apnea

The innovator is a software professional.

A **Continuous Positive Airway pressure** (CPAP) machine is used mainly by patients at home for the treatment of sleep apnea. In sleep apnea, the patient's airway becomes restricted as the patient's muscles relax naturally during sleep, which causes arousal from sleep. The CPAP machine stops this phenomenon by delivering a stream of compressed air via a face mask and hose, splinting the airway (keeping it open under air pressure) so that unobstructed breathing becomes possible, reducing and/or preventing apneas and hypopneas.



The CPAP machine blows air at a prescribed pressure (also called the titrated pressure). The necessary pressure is usually determined by a physician after review of a study supervised by a sleep technician during an overnight study in a sleep laboratory. The titrated pressure is the pressure of air at which most (if not all) apneas and hypopneas have been prevented, and it is usually measured in centimetres of water (cm/H₂O). A typical CPAP machine can deliver pressures between 4 and 20 cm; more specialized units can deliver pressures up to 25 or 30 cm.

CPAP treatment is highly effective in treating obstructive sleep apnea, and associated snoring. For some patients, the improvement in the quality of sleep due to CPAP treatment will be noticed after a single night's use.

Status of Technology : The technology for CPAP is in the last phase of development and would be commercialized post March'07.

Benefits: The aim of the project is to make CPAP Device affordable by reducing the price by at least 30 - 40% of the existing price of the imported models.

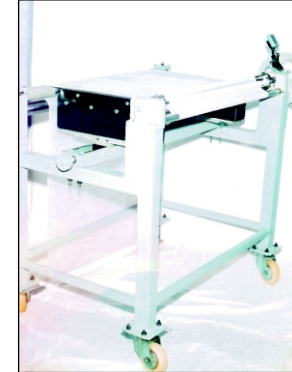


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13. Design & Development of a Machine to produce Quality Surgical Bandages

The innovator is a retired DRDO scientist from Delhi.

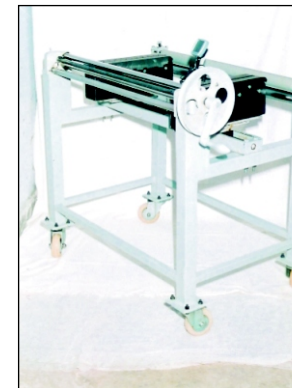
At present, in India, surgical bandages are manufactured using a wooden machine measuring 2500 mm x 1700 mm x 1500 mm, weighing 200 to 250 Kg, and costing approximately Rs.20,000/= to 30,000/=. The output from the machine not only costs more, but also lacks a number of quality attributes, resulting in its failure to capture any share in the global market. To address the impediments faced by the industry, a new machine was invented, and a cutting edge process technology developed. The invention has brought out a world class design with high efficiency and enhanced productivity. It is very small, compact made of steel and costs half of the cost of existing machine. The machine comprises of a feeding sub assembly, a width controller mechanism, and a rolling system. The machine is designed for a manual drive with a provision of electrical drive. The machine interfaces a tachometer to measure the length of the cloth rolled.



The rolling system IS so designed as to take up manufacture of different lengths of roll without any change of settings unlike the existing winding device wherein different attachments settings are needed for different lengths of rolls to be manufactured.

Status of Technology

Whereas the existing technology necessitates 8 to 10 operations to produce a roll, the present invention has 2 or 3 operations only. The bandage cloth received from the supplier is to be placed in front of the machine and its free end is fed into the rolling system through the feeding sub assembly and over the width controller mechanism. The roll of a specified length is produced by driving the pulley. The required length is set in the tachometer. This machine can be used to manufacture industry standard rolls of any specified length and width, without any drudgery unlike the limitations of the existing process in which the width is stretched manually, while the cloth is in motion.



Patent

The provisional patent has already been taken.



Innovator

Shri R A Yadav

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14. Endodontic Instrument for Root Canal Sterilization

The innovator is a renowned dentist from Kerala.

The methods currently in use for sterilization of the root canals is by irrigating with antimicrobial fluids like sodium hypochlorite and placement of antimicrobial medicaments like calcium hydroxide or glutaraldehyde in the pulp chamber, which is done in two or more sittings. The root canal is a small space with an inside diameter of about 1 to 1.5 mm, wider at the crown part of the root and considerably narrow at the tissue part of the root. Thus it is not possible to carry the medicament into this small space using the existing apparatus.



Status of Technology

This innovation relates to an instrument for sterilizing root canal(s) during endodontic (root canal treatment) procedures. The instrument comprises of an elongate member closely fitting the root canal and an attached flattened end (handle), which remains in the pulp chamber. The antimicrobial medicament placed in the pulp chamber is transported throughout the root canal by the *capillary action* exerted by the capillary space between the root canal wall and the closely fitting instrument. The innovator himself has commercialised the technology.

Patent

The invention, Endodontic Instrument For Root Canal Sterilization has been granted Indian patent.



Innovator

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Kerala.

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15. Indigenously Developed 'P & P Dental Implant System'

The innovator is a dentist from Poona.

The innovator has indigenously developed a cost effective Dental Implant Systems. The innovator has employed endosseous root form (self-tapping screw) methods which is an innovative feature. The innovator has also used plasma etching for surface implant which is a novel feature for dental implant. Extensive in-vitro and in-vivo studies of these implants were done by the innovator to establish their safety and efficacy in the treatment of various types of conditions resulting because of missing teeth.



Benefits

These implants are cheaper by over 50 % to 70% than the existing implants materials available in the market. It has very simplified design as compared to imported dental implants resulting in decrease in the inventory size and simplifying the procedures. P&P Dental implant surface technology has been developed for achieving faster and predictable bone union. The technology developed can be useful in developing other metallic implants such as orthopaedic implants.

Status of Technology

The technology is yet to be commercialised.

Patent

Indian patent in the subject is pending.



Innovator

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16 Intrauterine Distending System

The innovator is a practicing doctor from Jaipur.

The invention is a special type of 'Uterine Distending Pump' which is used in operative hysteroscopy. Hysteroscopy means visualization of the interior of the woman's uterus and it can diagnose a large number of women's diseases and treat them without the need of removing the uterus. The procedure has special role in treating patients of menorrhagia (excessive bleeding during the menses), fibroids, infertility and a multitude of other gynecological problems.



The equipment used for distending the uterine cavity is known as 'Uterine Distending System'. One most important drawback of the current systems is that they are unable to detect the real time rate of fluid absorptions which occur during hysteroscopic surgery and the surgeon comes to know about these absorptions only after they have occurred. Once excess fluid enters into the human body the surgeon can only take remedial measures for treating the complications caused by this fluid overload and at times the patients may even die despite treatment.

Status of Technology

The technology has been tested and already transferred.

Patent

The technology has been patented through PCT.



Innovator

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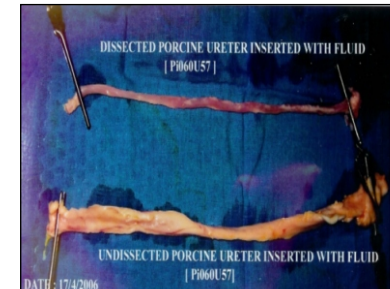
17. Porcine Ureters for Cardio Vascular use

The innovator is a doctor working in Chennai.

Prosthetic devices have been used for several decades to replace malfunctioning cardiovascular tissues. Despite advances in implant technology, complications related to synthetic prosthetic materials occur, hence living cell based devices are being developed.

Porcine xenografts have been used for the past 40 years as porcine heart valves, porcine skin and insulin producing pancreatic islet cells. They carry numerous viruses, the most important of them being porcine endogenous retro viruses (PERV -A, PERV -B), circovirus, parvovirus, porcine CMV & porcine herpes viruses.

The innovator studied PERV porcine viruses by PCR based methods (DNA PCR for proviral DNA & RT PCR for PERV RNA). The innovation aims at making tissue engineered porcine ureters as small vascular replacement grafts.



Innovator

Dr. (Ms) Susan Verghese, MD, PhD,

Consultant Microbiologist

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18. Prefabrication Technology to manufacture Indian Oriental Remedies

The innovator is a retired professor and social worker.

In India, both traditional, and herbal remedies are not unknown. However the manufacturing of such remedies, to reach the common man is not satisfactory for two reasons i.e. the cost and technology to make it. In order to maintain the health in the society, both palliative and curative products can be thought off but the exploitation of Indian herbs to process into these categories is possible only through qualified chemists/pharmacists/technologists/Ayurvedic doctors.

Prefabrication technology is a new concept in the manufacturing process technology of Pharmaceutical formulations, drugs, remedies etc. In the present work, this technology is going to be applied for the manufacture of oriental health crafts from indigenous herbal resources. This idea has been conceived by the innovator and attempted in tablet dosage forms. The dose concentrate of the herbal extracts and other additives for the stability of the formulation will be designed and then optimized. Concentrate of this active ingredients will be made available in such a form which is ready to be mixed with the vehicle, filled into the containers, labeled and packed, after quality assurance tests are performed for the finished product. Multistage processing technology is simplified to two stages.

As many of the small scale industries do not have neither the technical knowledge nor the depth in the manufacturing / processing problems of dosage forms, this is being aimed at developing a prefabricated way - in other words, processing into dosage form is only a step away. This will enable more SSI / CI's to benefit in adapting this technology and manufacture a few oriental remedies like general tonics e.g. liver tonics, peadiatric antidiarrhoeal suspension.



Innovator

Prof (Dr) **Vimala Devi**

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Biomedical & Herbals

19. Automatic pump operator

The innovator from Manipur is a student.

APO works by virtue of changing fluid level of a confined fluid. The device puts off the pump automatically when the reservoir is filled upto its full capacity and puts on when the device is near empty. A device of 3 way valve system cum sensing unit named as Multi Tasker Sensing Unit is trying to be designed. With the help of this new device, APO can work more in the following situations:



- To control the overflow of the ground reservoir by collecting and diverting the water to other containers available.
- To tap a flowing source of water and not the ground reservoir to fill up the reservoir.
- This new device could work in other situations in co-ordination/ combination of the systems in the earlier prototype.

The innovator is also trying to develop remote control device to operate the multi-tasker. This will overcome the inconveniences of wire connections among several units like control panel, ground reservoir and overhead tank.

Patent

Application has been filed for design registration under copyright act.



Innovator
Shri Manoharmayum Manihar Sharma
Nongmeibung Wangkheirakpam Leiki Pungmakhong
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20. Camera Mouse for Visually Handicapped

The innovator is a retired engineer.

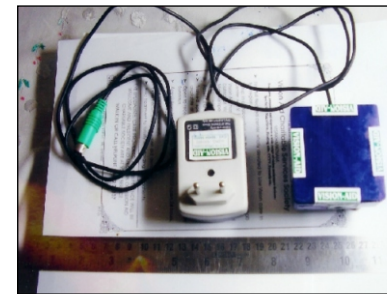
This a device developed principally for the visually handicapped. It helps persons of low vision (partially blind) to scan, see and read text messages and pictures from any written matter and to a limited extent three dimensional objects.

It helps normal persons also to closely examine documents and objects with magnification unto 20 times in true color and proportions. Examples application are Forensic examination including Coin and artefacts examination, Cheques, Notes and signatures, Handwriting and Clinical examinations.

With slight modification it can be adopted for super imposing two objects under study, e.g. a banker can compare signature on a cheque with specimen signature.

Status of Technology

The device has been successfully developed and Vision Aid Charitable Services Society has shown its willingness for manufacturing and marketing of the product.



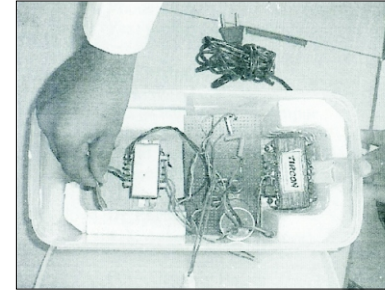
Innovator :

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21. Electric Fencer

The innovator is a professor.

A electric fencer works on the principle of energizing the fence line with high voltage pulses of short duration. A typical pulse may peak at over 10,000 volts and have a duration of less than 1/5000 of a second. An animal touching the energized wire will then complete the circuit from the fence through its body and then through ground to the ground rod. The discomfort of this shock will then encourage the animal to stay away from the fence.



The energy delivered is only about 6 watts per second for our most powerful unit, but the effect (volt x ampere x time) is quite different. Since the 6 watts are delivered over 1/5000 of a second the strength of the shock is 30,000 watts. What renders it harmless to people is its short duration. It will be felt like a whiplash.

Status of Technology

The technology is under development.



Innovator :

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22. Electronic Purse

The innovator is a trader in electronic goods.

This Electronic Purse looks like a mobile-Tel., but needs neither any network nor any account number. It is a modified calculator, operated with two pencil cells. All the transactions will be done in figures only. Figures to take and figures to give is the main 'function' in it. Figures will take place *of* currency.

There are two models in it 'Citizen' and 'Vip'. Citizen-model is very simple to operate. There are 2 pockets /channels in it, each pocket can hold 99,999/- figures in it. The VIP-model will cost Rs.1000/- per set to the customer and is managed *by* a password. There are two pockets in it, and is able to hold figures upto 99,99,999/- in each channel. This is useful within dedicated group.

Status of Technology

The technology is yet to be commercialised.

Patent

The idea has been granted patent.



Innovator

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23. Energy Efficient Geyser

The innovator is an engineer from Ghaziabad.

This LPLT technology (Low Pressure Low Temperature) is in contrast to the conventional technology used all over the world where intrinsic / essential features are High Pressure & High Temperature. In this new technology, the toxic / corrosive gases released from water upon heating (trichloro ethylene/trihalo methane/chloroform etc) as well as the scaling salts are expelled from the tank, making conditions highly noble there, resulting in practically zero corrosion & scaling and the highest levels of safety. And a unique water circuitry ensures zero mixing ratio so that the heated water comes out of the geyser at a constant temperature (at any pre-set level, say around 40°C for a comfortable hot shower bath) and at a very good flow rate.



Status of Technology

The technology is yet to be commercialised.

Patent

The innovation has been granted patent (sealed on 6.5.2004).

Benefits

It is user friendly and saves electricity consumption by 50%. The product may be cheaper than the other conventional geyser available in the market.



Innovator

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24. Gas flow meter

The innovator is retired Defence officer.

This gas flow meter uses a radial turbine instead of axial turbine as presently used in turbine flow meters. This innovative approach permits use at low pressures. It is an indicative, low friction device as different to displacement diaphragm type, currently used and being installed in the country.

Features

50 meters were assembled and calibrated. The meters have electronic add-on modules having LCD displays and distance data retrieval facilities. The technology for portable data retrieval system was upgraded. The portable hand-held data retriever can acquire consumption data of 30 meters at a time. LCD software was developed and provided into the PC to process the data and display the periods and consumption online.

Patent

The innovation has been patented.

Innovator

Air Vice Marshal SN Roy Chaudhuri (Retd.)

M/s. Total Energy Systems

618, Nav Uday

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Koramangla

Bangalore-560 034.

25. Instrument for Spectral Analysis of Communication Channels at High Frequency

The innovator is an IIT graduate.

The innovator developed a low cost spectrum analyzer of communication channels at high frequency. The principle of this instrument is of a three stage, up-converting super heterodyne receiver. In up-conversion, the input RF frequency (0-2.15 GHz) is up-converted to a first stage IF (Intermediate frequency) that is above the highest input frequency to be received. The only voltage tunable component in the complete scheme is the first local Oscillator. This greatly reduces the complexity of the design. Since it is difficult to obtain the required level of selectivity (the target frequency resolution in this case being 2 KHz) at the high first IF, two further stages of frequency conversion is taken up. Every frequency component in a signal is converted to a third IF of 10.7 MHz. The amplitude of the signal at this fixed third IF (amplitude in dB) is then plotted against the frequency and displayed on a visual display as its spectrum.

The new instrument will be available at a lower cost around Rs.75,000/- (Imported cost around Rs.15 Lakh) to the' educational institutions.

Patent

Possibility of protection under IC layout could be explored.



Innovator
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26. Laser Modem Transceiver (LMT)

The innovator is a student.

When two or more persons talk to each other, vibrations are created in materials nearer to them according to the audio frequencies of their speech. If a laser beam is incident on these vibrating materials then it will get modulated according to different audio frequencies. The reflected laser beam from these materials is incident on a photo detector which converts this modulated laser beam into corresponding voltages under demodulation process. This demodulated voltage which is weak in magnitude can be amplified with the help of a low power audio amplifier resulting into the listing or recording of the discussion from a distant place.

Based on the above principle, the innovator a 3rd year BE student from Technocrat Institute of Technology, Bhopal has successfully designed and fabricated a prototype called Laser modem transceiver.

Innovator
Shri Gaurav Kavathekar
G-97/32, Tulsi Nagar
Bhopal (M.P)

27. Micro Windmill Generator

The innovator is a software professional.

The innovation is for tapping wind energy to generate electrical energy through a miniature(micro) version of windmill without any gear wheel mechanism. The innovator aims to generate enough power to charge mobiles, ply radio etc using wind speed of 20 km./hour, while travelling in a train/ bus. The device will be portable and can be fitted to any kind of railings of bus or train .

The innovator has made the first model demonstrating the feasibility.



Innovator

Shri N V Satyanarayana
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Nizampet, **Hyderabad**
Andhra Pradesh

Contact : NIF (National Innovation Foundation), Ahmedabad

28. Mikshafut- Tareeq A path detection device

The innovator is researcher from Srinagar.

The innovation is an electromechanical path detection device. First the path to be used can be recorded on the device in the form of a dark curve on a transparent photo-sensitive tape. When it is used for guiding, whenever the user deviates from the proper path, an LDR fitted in the device will receive variable amount of light intensity emitted by an LED and fitted on the other side of the transparent tape, opposite to the LDR. This will be made to generate an audio signal communicated to the user through a headset.

Patent

Patent application filed.

Innovator

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29. On-line Time Domain instrument for moisture measurements

The innovator is a researcher.

The innovator developed instruments for online measurement of moisture of products like soap etc. using Time Domain Reflectometry. The principle of this method is to transmit a voltage pulse via a cable. The pulse is propagated in the form of an electromagnetic field in the cables. The transit time of the pulse depends upon the properties of the medium of propagation.

The instrument invented by the applicant has a number of advantages such as :

- . One port measurement
- . Possibility of multi-channel and multi-point measurement
- . Response and recovery time of mill i-second duration
- . Non-destructive measurement for liquids, semi-solids, powders and solids
- . Possibility of moisture measurement in noodles, soap cake or powder stage
- . Moisture measurement unaffected by conductivity of the material
- . Custom calibration for each product, unlike other moisture probes in the market, and
- . Possibility of on-line detection of air gaps or voids in the material in the probe area



Innovator
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Pune 411030

30. Solar Powered Lamp

The Innovator is a technopreneur.

The lamp named “Solar Powered Lamp” based on mini-tube light and solar charging. According to the innovator conventional tube lights operate on a 250 Volt AC supply and their energy efficiency is poor. A mini tube light typically consumes 8 watts of energy. The innovator has used this 8 watt mini tube light to obtain sufficient illumination with input power of 2 watts by incorporating novel design electronics. The discharge in a conventional tube light is uncontrolled working in negative resistance regime. A careful study of the physics behind these discharge lamps showed that at certain operating points the tube light would be energy efficient and could provide more light for a given input wattage. Present trials indicated that sufficient light is provided at high efficiency with an input of just about 2 watts. Novel design permitted the innovator to exploit this feature a feature essential if the time between recharges of the cell powering a mini lamp is to be large.



The current samples consume about 2 watts of power and provide sufficient light for a rural household. This will be very useful in remote areas where electricity is rarely available as it can be based on solar energy.

Innovator

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Contact : SINE, Indian Institute of Technology, Mumbai

31. Thermocycler for polymerase chain reaction (PCR)

The innovator is a scientist.

The programmable thermocycler basically facilitates the automatic heating and cooling of the reaction mixture as per pre-set parameters of time, temperature, number of duration of cycles and eventual hold time. The technology envisaged the development of a simple, affordable machine, without costly features not required for routine use.



This PCR is used in many applications in biotechnology, diagnosis of infectious diseases, DNA finger printing, agriculture, dairy research, human genome project, evolutionary studies etc. It can be used for performing a polymerase chain reaction for DNA amplification.

The innovator has developed the proto-type for a thermocycler for polymerase chain reaction which is much simpler and which is cheaper than imported thermocycler & it was demonstrated in the Indian Science Congress Exhibition at Bangalore, 2003. Thermocyclers are extensively used in Polymerase Chain Reaction for DNA amplification techniques.

Status of Technology

The technology has successfully been developed but not transferred /scaled up yet.

Innovator

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32. Variable reluctance electric servo actuator

The innovator is an engineer.

The inventor developed low cost integrated electric servo actuator, which consists of an electric motor, a speed reducer, a position/velocity feedback sensor, commutation circuitry, control circuitry and power supply.

Cost of imported complete servo actuator with 100 W electric servo actuator, speed reducer & encoder with resolution of 2000 counts per rev is about Rs.75000/-. It is expected that development of this indigenous technology will make it available at Rs.40000/-.

With TePP support, innovator developed power supply, a variable reluctance motor and control electronics.

Innovator

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Jayanagar

Bangalore 560 011

Mechanical Engineering



33. Buttonhole machine

The innovator is a tailor master.

The innovator developed a buttonhole machine indigenously with innovative features like, automatic thread cutting & easy thread handling, adjustable jog lever, timer mechanism over base plate for better maneuverability, efficient transmission unit, optimum height of the base plate for easy accessibility & for bobbin-shuttle adjustments, needle steering mechanism coupled with easy fault finding mechanisms.

The proposed machine will benefit readymade garment industries, both small and large scale unit for buttonhole making at a comparatively low price.

Patent

The patent application has not been filed. However, GIAN has initiated the process of filing the patent application in India.



Innovator

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Ambika Girls' High School
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Contact : GIAN (Gujarat Grassroots Innovations Augmentation Network), Ahmedabad

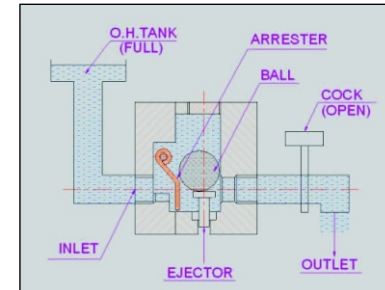
34. Cut-off valve

Shri LV Rashingkar is an engineer from Pune and inventor of cut-off valve.

In the housing societies, sometimes overhead water tanks go dry because of water shortage. During this period somebody opens the cock & leaves it opened, by mistake. Water drains through it when the tank is full. The wastage of water aggravates the water shortage problem. We have faced this problem many times.

He found a solution- developed a valve which blocks the inlet of the cock when there is no water. And the flow will start again only after opening the valve MANUALLY. His out of box thinking, helped him to come with a simple product, when people see this product they would exclaim - OOH.

The market size is enormous, needed on every tap.



Innovator
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Pune 411 029

35. Lift Operating on Potential Energy

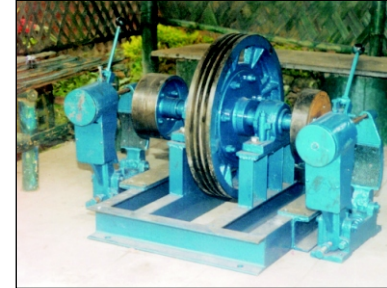
The innovator is an engineer by profession and self-employed.

In this invention, prime effort is made to make the service available to the economically weaker section of the society. The unique feature of this invention is the variable counter-weight and the cage-weight. In effect both the counter-weight and cage have water tanks where water can be put in or taken out at will by using a common or separate domestic water pumps that moves along with both the tanks resulting in change in the potentiality of the both mobile units. The created pre-designed differential weight between the load-unit and the effort-unit will put the system in dynamic condition. Several different set-up of the tanks and pumps can be arranged depending upon the requirement and other conditions.

Energy spent is not directly responsible for working of the lift, it is consumed only to bring-out the differential potential levels to make the system work. Inter changing the quantity of water mass from one tank to the other is directly proportional to pay load. The effective "differential-weight" between the load and effort (in this innovation, meaning of load and effort are inter changeable) will be doubled for each unit of water transferred.

Patent

The patent application in respect of the idea with provisional specifications were filed in India.



Innovator

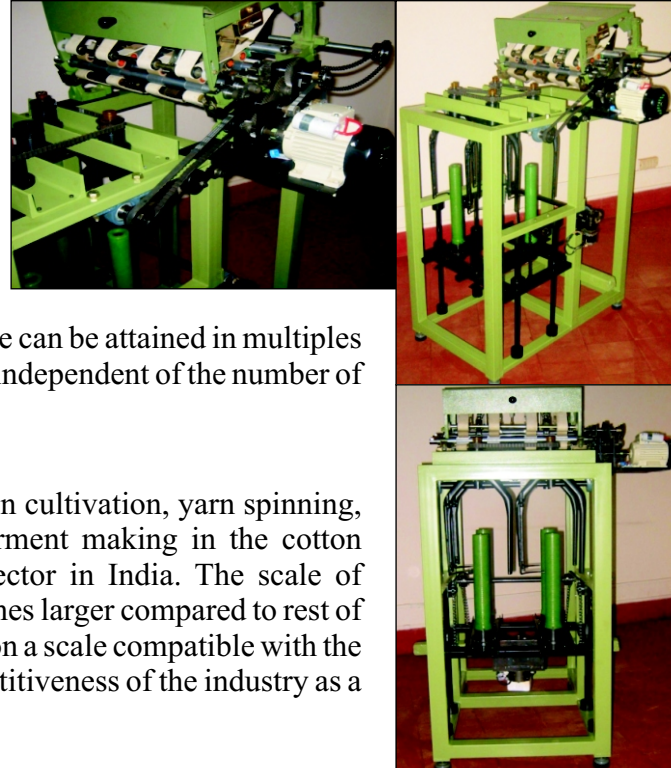
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36. Mechatronic Flyer Frame for Cotton Spinning

The Innovator is an Engineer from Chennai.

The present innovation is a mechatronic flyer frame for use in cotton yarn spinning with the capacity of accepting slivers of counts in the range .14s to .25 s (Ne) to deliver roving of count .80s to 4.0 s (Ne) wound around bobbins. The bobbins so produced are expected to be amenable to conversion into yarn on ring frames in the count range 12s to 120 s (Ne). The design of the mechatronic flyer frame will be modular, so that the requisite number of spindles per frame can be attained in multiples of 2 spindles, with the per-spindle cost of the machine being independent of the number of modules.

With the exception of spinning, all the stages namely, cotton cultivation, yarn spinning, weaving/knitting,. processing (dyeing, bleaching) and garment making in the cotton textile industry are predominantly in the decentralized sector in India. The scale of production in an average spinning mill is about a hundred times larger compared to rest of the industry. The proposed technology will enable spinning on a scale compatible with the rest of the industry, enhancing the efficiency and cost competitiveness of the industry as a whole.



Innovator
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37. Micro Fine Pulverising of Red Sanders Wood

The innovator is a serial innovator.

Red sanders wood powder in fine form is a long felt need of the end users including domestic and foreign buyers . The machine for micro fine pulverising of red sanders wood is used to fine pulverise red sanders wood, preserving natural drug and colour values. It could also purify the powder so pulverised. The advantage of the pulverising machine are that it generates low heat thereby not affecting the colour and therapeutic values of red sanders powder, Contains negligible percentage of ash, Small and even large timbers can be fed into the machine, so that, there is no need of a size reducing machine before pulverising,



Status of Technology

The technology is ready for commercialisation. It is noteworthy that one such machine was put into operation for producing micro fine red sanders powders in Kerala.

Benefits

The powder produced by this machine has very good domestic and export market. Red Sanders wood powders in



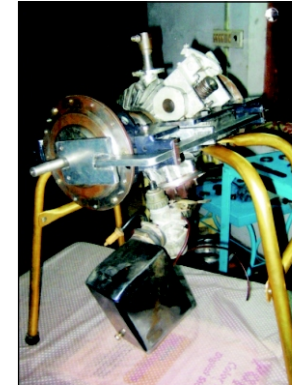
Innovator

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38. Rotary variable compression ratio internal combustion engine

The innovator is a Marine Engineer from Kerala

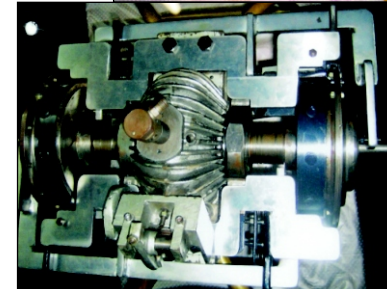
Mr Das Ajee Kamath's innovation is a Rotary Apparatus Adapted to Perform as Variable Compression Ratio Internal Combustion Engine, Compressor, Pump or a Metering Device. Conventionally reciprocating and centrifugal mechanisms are used in pumps, compressors and engines. His innovation is an intermediate between the conventional mechanisms and use of both. It comprises of two identical vanes, two hollow cylindrical sleeves, hollow cylindrical liner, cams, couplings, shafts, clutch and braking arrangements. Different fuels can be burned i.e. Engine running on choice of fuel (it will be possible to change over from one fuel to other during the running of the engine).



His first prototype is ready for testing Automotive Research Association of India (ARAI), Pune .

M/s TATA Motors has shown interest in this development and signed the Memorandum and Article of Association.

The innovation is patented globally.



Innovator

Shri Ajee Kamath Das

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Vrindavan, Chetichitra Road

Elamkumal, Drnakulam

Kochi 682 019

39. Split Type Wood Forming Cutter, Insects and Cutter Heads

The innovator is a carpenter.

The cutting tools for wood work plays a very important role in modern time. The customers are looking for quality finish as well as quickness and time saving for the word work in housing sector. The present innovation aims at to fabricate a machine at a cost of Rs. 20,000/-, while the existing cutting tool is available at a exorbitant cost of about Rs.2.00 Lakhs.

The inventor has developed a new generation of cutting tools using locally available raw materials to address the problems mentioned above. This will result in cutting down considerably the service charges incurred on wood work in any housing activity.



Innovator
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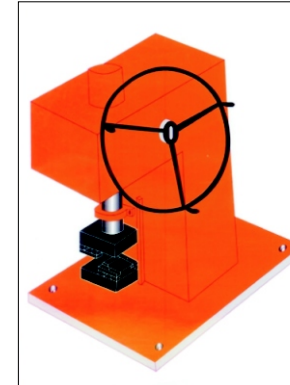
Contact : TREC-STEP, Trichy

40. Table Top Manual Operated Metal Cutter / Sheer Press

The innovator is a technician.

Metal fabrication, concrete structural works and similar jobs require cutting of metal rods, angles and flats. The general practice nowadays adopted in 'small scale sector' and 'on site activities' is cutting the metal with a chisel & hammer which requires more manpower, time and is exhaustible. The precision & accuracy maintained by this way is also poor. This innovative machine overcomes these problems

The worm gear is manually rotated with the help of a hand wheel. Rotation of the worm wheel leads in advancement of the screw to very little linear distances but with huge amount of force. The screw carries a cutting tool and another cutting tool is fixed on the bed. Between these two cutting tools the job is placed. With this machine one can cut 25mm steel rod or 2 inch flat having 5mm thickness (approx).



Innovator
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Mobile : 094435 90167

Contact : TREC-STEP, Trichy

41. Tamper-proof seal for Disposable Bottles and Jars

The innovator is an entrepreneur.

The existing "tamper evident" techniques have not adequately evolved to keep pace with today's security needs in packaging. The SEAL of the present invention is customized to address the "present day" security need for the packaging of disposable bottles and jars. The present innovation is 100% tamper-proof and it is impossible to manipulate, replace or duplicate the SEAL, since it is manufactured as a part of the bottle (or jar) and it has an internal locking ratchets to engage the CAP Inside. The only way to duplicate the proposed SEAL is by manufacturing the whole bottle.

Patent

Indian patent application filed on 08.10.2003.

Also, PCT & application has been filed (No. PCT/IN 04/0061 dt.08.06.2004).

Innovator

Shri Narendra Prabhakar Bonde

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Sector # 4, Nerol,

Navi Mumbai 400 706

Maharashtra

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E-mail: nbonde@yahoo.com

42. Tractor Mounted Pulveriser

The innovator is an entrepreneur.

Ramanathapuram district in Tamilnadu blessed with abundant availability of BABUL Tree and THORN Trees which normally seen in temperate countries. It is a short duration tree. Generally the Babul Tree used for fire wood and Charcoal for fuel and raw material purpose. The bye-product, i.e. the thorny small branches left in the field and fired to clear the land.

The invention is a tractor driven mobile machine for pulverising waste wood with a capacity of 5 tones production per day for their utilization as a fuel. Such pulverised chip are in high demand from industries like paper, food processing, textiles, industrial boilers and so on for its high heat value with blue film.



Innovator

Shri I. Panneerselvam

Bharath Agro Products

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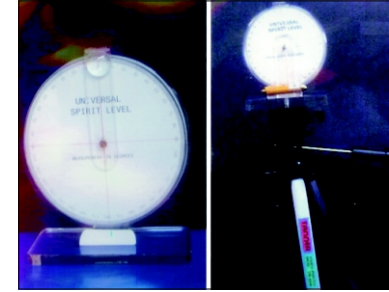
Contact : TREC-STEP, Trichy

43. Universal Spirit Level

The innovator is a student.

It is a low cost user friendly slope measuring instrument. It is highly useful for construction workers in slope setting and level transferring.

The base of the instrument is placed on the inclined surface. The rider is fixed over the bubble and the point of the bubble is located. The reading against the centre of the bubble gives the inclined angle. It is a hybrid instrument, which can do the task of plumb line and ordinary spirit level. It can be used in all engineering applications where slope angle measurement is needed.



Patent

Provisional patent application has been filed in India with the help of IPMD (Intellectual Property Management Division) of CSIR.



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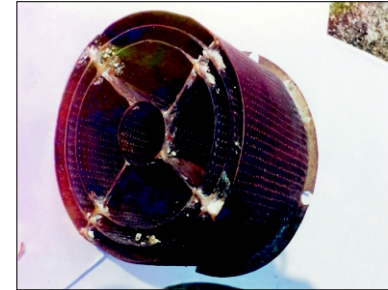
Others

44. Catalytic Converter

The innovators are professor and entrepreneur respectively.

The innovator developed a prototype of Catalytic Converter using indigenously developed catalyst of a new material. The converter consists of two parts

- 1) The outer casing made up of mild steel and coated with pure copper inside.
- 2) The inner cassette (which is replaceable) made from pure Cu - having three stages there in .



The cassette is composed of innumerable holes to pass the exhaust gases after contacting with the catalysts.

A very low percentage of precious metals like Platinum (Pt), Palladium (Pd) are doped along with other metals to form a bimetallic catalytic combinations in ZSM-5 . The above Chemically processed catalysts are fitted in to a three stages cassette system, gives an encouraging results to have 80-90% reductions of NO_x, CO & HCs in a wide range of air/fuel ratio & temperatures.

Innovators :

Sri Partha Pratim Ghosh and Dr. B.B. Ghosh an Ex-Professor of IIT, Kharagpur, forwarded through STEP-IIT Kharagpur (Science & Technology Entrepreneur Park).



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45. Door clip for child safety

The innovator is an engineer.

Conventionally the stoppers are placed in the door hinge or at the bottom of the door to prevent the closure of the door. The drawback involved with these stoppers are that they are easily accessible to children and can be manipulated. Further the production as well as maintenance cost is higher for these door stopper. Also, for these door stopper, screws have to be drilled through the doors which causes damage to the doors and reinstallation is difficult.

In the present invention above mentioned drawback has been overcome. So, these door clip can prevent the door from complete closure/ locking and also sudden closing due to high wind velocity. For installation of these clips screws and channels are not required and these clips are lighter in weight and requires no maintenance and are economically feasible.

Patent

Patent application has been filed in India.

Innovator

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46. Ferro Cement Catamaran Boat

The inventors are Engineer.

Late Shri P.K. Kulkarni, while serving as Chief Research Officer, Ship model testing division, CWPRS, Pune worked on the idea-CATAMARAN IN FERRO CEMENT FOR RIVER PASSENGER TRAFFIC (Years 1970-1976). While carrying out development work on solar thermal energy, applicant became acquainted with Shri B.V. BHEDASGAONKAR due to his work on FEROCEMENT. The project was thus jointly executed by Late Shri P.K.Kulkarni and Shri B.V. Bhedasgaonkar. Late Shri P.K. Kulkarni passed away in 2005.



The Catamaran is formed of two separate hulls, each hull being built by one 'Fore' and one 'Aft' section. These two hulls are joined by cross members to form supporting structure for the deck. The carrying capacity of the deck is 35 persons with some provision for cargo. The propulsion machinery is mounted on the deck with single propeller between two hulls. Overall dimension of the Catamaran boat are 3.6 mtr width x 5.6 mtr length. The average draft of the boat (portion of the boat under water) is 700 mm.

Catamaran in ferrocement is the end product. The material is a combination of various mesh type reinforcement given the shape as per design including high strength steel of 5 mm diameter. This is then mortared with a high performance mortar mix with polymers, cement , sand, fibers microsilica etc for higher durability and toughness. It also has a protective coating from outside.

The important innovation is : A catamaran is in ferrocement. Secondly, boats of different lengths can be built from three standard sections, each easily transportable in truck and then joined at site. Usually the reinforcing cage is only to be transported and final assembly and mortaring is done at site (next to water body). So cages can be transported in Bullock carts also. No heavy equipment is required except some winches at the time of launching. If done on a sloping platform on rollers then launching is easy.

Reasons for this choice are : Normal single hull boats often capsize in rivers with loss of life. A catamaran is unsinkable. Sitting arrangement for passengers is more convenient in catamaran. Good teak wood required for boat building boats is very costly and unobtainable. Ordinary wooden boats do not last long. Steel boats corrode and require periodic maintenance. The catamaran in ferrocement is maintenance free.

All the above difficulties are overcome in a catamaran in ferrocement.

Benefits

Potential major applications and users: Major application is for inland water transport. Users would include irrigation departments of various states, Zilla Parishads which provide access to villages around water reservoirs, public health centres in such areas which need to provide medical facilities in villages which have no means of communication except water transport, recreation parks and resorts etc.

What would be the environmental and safety consideration of the project : Both objectives are fully met. In fact a catamaran is proposed to increase passenger safety and Ferrosement to save wood. There would be economic benefit due to longer life of boat.

Patent

Yet to be filed.

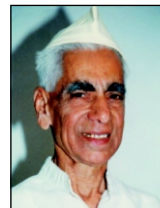
Status of Technology

The prototype has been demonstrated to organizations like PWD, Irrigation, Zilla Parishad officials.

Innovators



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Late Shri P. K. Kulkarni
Pune

47. Improved Method for Making Paper Machie Material and Process for making Art and Craft items

The innovator is a house-wife.

The innovator has developed a scientific approach for manufacturing paper machie art craft, using simple plant and machinery. The main idea is to productionise the process and reduce production time. Hand pounding would be replaced with kneader, regrinding would be done by blender. Special release materials, simple moulds, mould-making methods would be adopted. Spray printing will be used for good finish. The paper machine with mould is heated in an oven. After drying, the material is taken out of the mould and given 2-3 coats of paints. The process would be safe, simpler and environment-friendly.



Some of the items made by the Innovator out of this process are :

- 4 feet tall 'Nanda Deepa' used in inaugural function, presenting Bronze and silver.
- 1 ½' tall Mandasana or Mantap having replical gods on the pillars, similar to Belur Halebed temples.
- Varieties of Table lamps-which can be used continuously.
- Varieties of jewellery with embedded stones using camel paint finish, which is water resistant, and can be used in all weather conditions.
- Varieties of flower vases, ranging from 6 “ to 14” tall, with artistic paintings
- Chess-set
- Tanjavur type wall plate
- Goet-upadesha
- Varieties of Tanjore Kalasha
- “Bidore” work on paper machine flower vase



Innovator

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48. Innovative Car Jack - Device to lift the chassis

The innovator is a diploma engineer and owns automobile repair workshop.

Present way of lifting the cars for replacing the tyres is by way of using Jacks, which are placed below the chassis for the desired lift. There are three types of Jacks, namely, scissor jacks, screw jack and hydraulic bottle jacks which are in vogue. All the above jacks work on the manual effort of the operator and sufficient knowledge for placing the jack to the right position is required. The innovator, Shri Devesh Ashok Kulkarni has designed and fabricated a new kind of semi auto jack which can be fixed to the chassis of the vehicle and works on the engine power for getting the desired lift.



The newly developed jacks are first fixed at the chassis (one on the right side and other on the left; side of the driver) with 2 control levers provided below the dash board near steering, One is for the left side wheels and other for the right side, When the appropriate lever is pulled or pressed the system comes into operation and the main rod is released hitting the ground and making an angle of 46 degree with the plane of chassis, An anchor plate attached to the rod helps the rod to get nicely anchored to the ground, The car is now moved in the reverse direction till it automatically comes to rest. At this position, the rod makes an angle of 100 degree to the plane of chassis. In the whole process the combination of mechanical links of the jack convert the linear motion of the vehicle into the rotary motion and thus give a desired lift to one side wheels,

Patent

The innovator has applied for a patent in India.



Innovator

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49. Mineral Water Vending Machine

The innovator is a retired engineer.

The machines which are available in the market vend the liquid only when any glass or container is put under its tape after insertion of a coin. This invented machine is fully automatic, as one insert the coin, machine automatically delivers the filled disposable cup of beverages on the cantilever tray, after auto opening of the door and as you lift the glass, the cantilever tray returns automatically to shut down the door.

An automated vending machine for supply of beverages in a disposable cup comprising a container for storing liquids, a water tank provided around and a brewing cup positioned below the said container, a cylindrical volume measuring cup is connected to the said container, a container connected to a chamber have a hole on the bottom of its wall side end an adjustable gate provided out side the said wall for controlling flow of solids, a wastebasket provided in conjunction with said brewing cup, a cup dispenser provided with the tray for movement cup below the brewing cup, a conveyor with tray provided with means for controlling the movement of disposable cups, a door with two side channels provided at the end of the wherein the said disposable cup conveyor tray is movable from the first filling position to a second position in a cantilevered manner out side the door so that the said cup is removed from the second position by user or by partially closing of the door.



Patent

Patent has been granted in India.



Innovator

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50. Parabox Solar Cooker (Top loading, bottom heating & fixed type solar cooker)

The innovator is an architect engineer by profession

The parabox cooker is basically a parabolic mirror inside a insulated box with a double glass window. The tray containing the food boxes is placed at the focus of this mirror. The tray rests on a cradle and slides in and out from the side of the cooker. The cooker's body rests on a metal frame and can be adjusted to face the Sun. The cooker has a cover which in open position reflects sun's rays to the food tray. To use the cooker, the cover is opened and the cooker's body is aligned to the east west axis, with the window facing the south. Then slowly the window is turned till the window is at right angles to the plane of rotation of the sun, at this point the shadow of the dial mounted on the body is narrowest ,and rays of sun are brought to a focus on the tray. Once the cooker is set, the tray is slid out and pushed back with the boxes containing the food. This cooker can cook 2.5 kg of Rice/Dal/cake etc in less than two hours. The cooker does not need any further adjustment during the day and has to be set again after four days.

Benefits

It saves fuel and easy to use. As the cooking temperature is low, the food retains its taste and nutrients. The cooker is water proof and can be permanently left outdoor. The cooker is also useful for baking cakes, bread and other high energy consuming recipes.

Status of Technology

Field trials are under way.



Innovator

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51. Temper Proof Electronic Lock for transportation of Petroleum products

The Innovator is an Engineer

The petroleum products are very much vulnerable to adulteration, proliferation especially during transportation from supply to storage points and storage to consumptions points.

The product is an electronic lock for transportation of petroleum products. The product is an electronic latch that displays a random number for 10 seconds just after the latch is put. After the tank is filled, it is locked and the randomly generated number is manually noted. At the destination, before opening the latch, the receiver will see the number on LCD and compare it with the number written on invoice. If tank is open on the way, then the number will not be same.

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52. U.V. trans-illuminator

The innovator is a doctorate degree holder.

Microbiological laboratories equipments like UV trans-illuminator, gel membrane shaker, gel drier etc. need to be indigenised for high performance. Presently the imported units are expensive. The innovator used alternate technology which is more economical and also giving better performance. It also includes details like battery backup to align the equipment before shut down, as well as uninterrupted performance for about 4 hours.

Innovators is working to make available essential molecular laboratories equipment at cheaper rates and thus help in molecular biology education in the country.

Innovator

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Mumba 400 103

53. Upgraded Solar Water Harvester

The innovator Shri Deepak Raj Rao was a student, who had taken up this development with support from TePP Network partner Rural Innovation Network (RIN), Chennai.

The principle used in this device is of evaporation and condensation. A specific type of fabric has been used to increase the rate of evaporation and condensation. Ultimately the latent heat from the system is removed to a cooling (water inlet) tank fixed at the top of the device, which makes the process of condensation to happen continuously.

Status of Technology

A full size model has been developed. Also water sample analysis reports from the Metro Water Laboratory, Chennai have confirmed water being fit for drinking. The device can give approximately 10 liters of drinking water per solar day.

Patent

Patent application has been filed.



Innovator

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54. Water Emulsification in Fuel Oil

The innovator is a Chemical Engineer and entrepreneur by profession.

The idea is for demonstration of the concept of water incorporation in fuel oils for user industry. This process is known as emulsification. The innovator wants to develop the above technology indigenously for incorporation of 10-20% water in fuel oils, such as diesel, furnace oils (such as LDO) etc. The innovator claims that this will help in reduction of particulate matter and the nitrogen oxide in the exhaust.

The technology developed aims at reduction of 30% to 50% fuel cost for the user industry apart from reducing pollution level in the exhaust.

The innovator has demonstrated the process to produce the emulsion for the purpose and collected sufficient data for comparative studies in respect of fuel efficiency, the quantum of particulate matter and NOX etc.



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55. Woven Seamless Garment Making Machine

The Innovator is a fashion designer.

Design and Prototype of BEM - a "new" futuristic woven seamless garment making machine. The yarn is processed directly into garments and makes the whole garment of any size seamless in woven (ie. Garments without any stitch) including pockets, lining, excesses, loops etc. and with negligible or no involvement of an intermediaries.

Claims that BEM can also perform other features like excess in garments without stitches, finer finishing-in-built. The garments are woven and can be of different kinds of weaves. The machine can be computerized to make garments of higher speed and increase its designing quality. Single person can easily handle and operate multiple machines at a time.

Presently, a model machine is functioning and has been used for producing the desired sample and series of tests to upgrade the machine to a higher of perfection is being undertaken.

Claims that BEM would find potential major applications and users in the Garment Industries, and in areas like Space suits, E-Garments or Smart garments, Chemical and Fire fighting suits, Sports wear, Furnishing and Fabric Balloons.

Patent

Applied and in process. Patent No. PCT/IN05/00035 /28.01.2005.



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Interested? Contact:

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