

Virus developed Mask – Virus does the Mask Task

Dr Saurabh K Resolve, Dr Vijeta Jha

1. Idle Resources to Ideality

Psychological inertia of many types coupled with weak design thinking methods disable us to locate, identify and appreciate 'idle' or free resources around us. A higher-level invention often exploits maximum of idling resources, subjectively and objectively, thus resulting in manufactured product (or process manufacturing a product) tagged with a high factor of Idealization, 'I'. Based upon Function-Cost-Analysis methodology humbly derived from famous Value-Analysis system developed by great GE design engineer, Lawrence D. Miles, the paper attempts to give optimum weight-age to often neglected idle resources prevalent within system or outside system (environment) missed by our minds being submerged in complexities of design. Within system, utilization of an idle resource is a direct or modified use of an unseen, hidden or little used feature of an object that is part of the system. In cotter joint for instance, the geometry of cotter is tapered or wedge shaped for faster, easier & reliable fastening or unfastening. In packaging industry, small packets are combined to form a larger packet that is sturdier, easily transportable. Outside system, idling resources are more in abundant and come quite free without a trade-off. Empty space is used to hang stuff from ceiling in a crowded garage. Pores, foam, etc. in manufacturing technology are common. Extra & noisy component of energy fields also serve as active resources. So to design a teapot that signals pouring by emitting a musical tone, it is preferable to use a sprout with specially created geometric interior – one that interacts with out-flowing liquid to generate an acoustical wave rather than use an extraneous electronic block powered by battery.

Thinking in terms of size at times also helps. Stream of water droplets (spray) constitute a better extinguisher in controlling fire than a continuous water stream. Here air gap, a free environment resource is used to switch system from macro to micro level. Many patents have been granted wherein atoms of a hot metallic liquid act as conveyor belt to transport a lighter substance. On other occasions, reciprocal is beneficial. A lawn-mover's noise level can be reduced by shifting paradigm from system to super-system. If we think of park with grass and lawn-mover as one huge super system, we can direct exhaust gases from muffler downward towards grass. Grass takes an extra role – muffler in this case. Interestingly, strict pollution norms these days are responsible for high emission standards: ecologists need not worry about grass getting damaged by smoke. On contrary, hot exhaust gases raise temperature of to-be-cut grass enabling cutting more effective. In

conclusion, psychological inertias of varied types need to be broken for us to notice and unveil many idle resources around us.

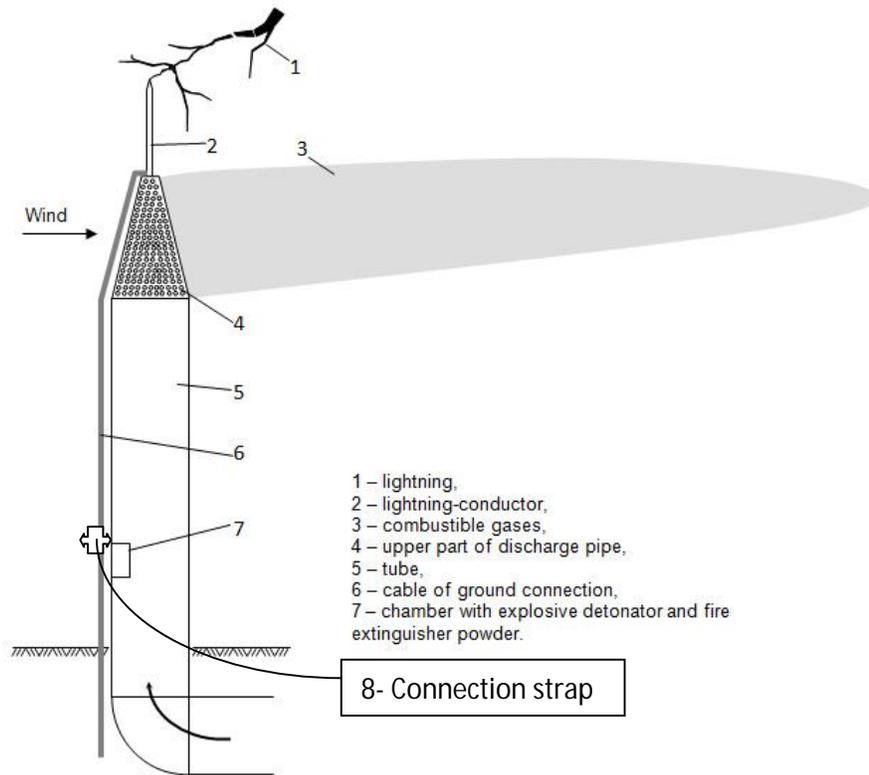
2. Usage of Paradoxical, Idle Resources

The readily available or easily achievable (by slight modification) idle resources, both within and outside system may seem contradictory or conflicting in first instance to the purpose in question, but must not be ignored. Rather, they must be considered deeply.

2.1 Using explosive detonator to prevent damage from lightning strike

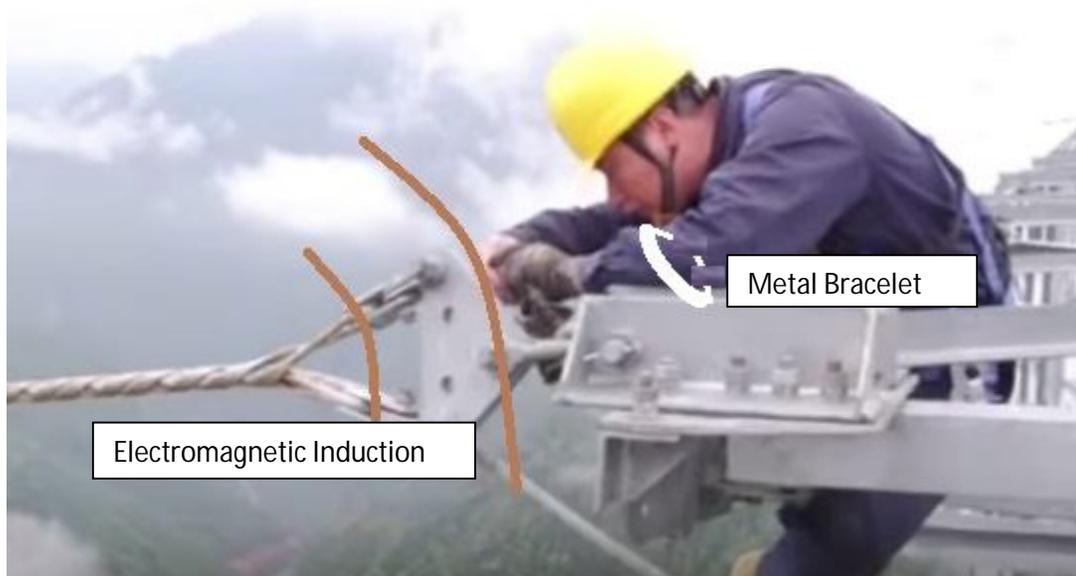
Methane is probably a permanent companion to workers and machines in underground mining of coal. It forms a combustible mixture with air. Gases pumped out from mines are thrown away high into atmosphere through special tall pipes (in engineering slang – candles). These pipes should be high enough in order to prevent accidentally hit of spark from some above-ground sources. Because very often, waste dumps burn in moving gas close to mines. These pipes, however, should be low enough to prevent a dangerous lightning fall. This physical contradiction, viz. keeping candles short or tall is resolved in latter direction. Candles are kept tall and prevention of fire from lightning strike is established. The solution may appear paradoxical because it uses a small quantity of explosive detonator. Simply put, an explosive substance puts an end to explosion from lightning discharge!

On top of candle, a standard lightning conductor is erected. Between the ground cable and the lower end of lightning conductor is inserted a connection strap (like a fuse). On interior surface of candle, close to the connection strap, a chamber containing mixture of an explosive detonator and a fire extinguishing powder is setup. Operation of this system is fully automatic. The moment of hit of lightning activates function of system. Lightning passes to the ground via circuit consisting of lightning conductor, the connection (delay) strap and ground cable. In doing so, the connection strap burns like a fuse. The fire caused by burning of connection strap reaches the close by chamber. The mixture in chamber explodes. The detonator is just there in small proportion to cause the fire extinguishing powder to spread out. Fire is quenched by this powder. Thus we have used the free charge available in environment (lightning) and a paradoxical substance (detonator) to achieve our purpose wittingly.



2.2 Using high tension current itself to preventing electric shock while working on it

Electrician sometimes do not put on proper working clothes like rubber gloves, high boots, helmets, etc. and also forget to check whether power lines are active or not. (Means, whether there is a current or not). This becomes the prime cause of accidents. Strict instructions, verbal suggestion, posters do not always help. Pocket devices that radiate acoustic signal near the current source (the higher the tension of electric field, stronger the signal) also may be ignored by workers. And also possibly, the sound generated from this device may be subdued by strong industrial noise or by loud conversation of workers or else. A fool proof yet efficient method of protection from electrical shock is needed. Even if an electrician wishes, he or she shouldn't be able to touch a live high tension wire.



Once again, use of idle electric field produced by power lines (Alternating Current, for sure worldwide) is done. We direct it not on any apparatus, but on the worker. A bracelet on hand or electrodes in helmet worn by worker is setup. Upon entry into strong electric field, an electric current appears in metal due to Faraday's laws of electromagnetic induction. The current causes an unexpected prick of current on arm or in head. An even better solution is: electrodes are positioned on the inner side of underclothes, in the area of shoulders. In this witty solution, a small electric shock causes involuntary retraction of muscles. Hands are distanced away from wire without thinking. Worker is rendered safe.

2.3 Fire Alarm System

Most existing devices that alarm fire, signal an acoustic signal on increase of temperature indoors. There is a compressed spring held by substance with appropriately low melting point, for instance a Nickel & Titanium alloy with paraffin stuffed in. In the case of fire, substance melts; spring straightens to free the valve on balloon containing filled with air. Air moves into acoustic siren to generate sound alarm.

This is not very reliable system because fortunately occurs rarely, and probably should never. During long year of no use, spring can lose elasticity; the substance can spoil, for instance oxidize or decompose. Besides, after each operation, device has to be reset. It has to be turned on carefully to prepare it for next cycle of operation. To set new balloon with pressed air, to press the spring, to fill it by easy melted substance and so on.

While above device is fire-triggered and uses a free resource, viz. heat generated by fire, it has shortcomings. It is complex, needs resetting to neutrality each time, and is this unreliable. What is bad in system of the existing patent?

A better fire alarm was invented, is in use, but still needs improvement. A bimetallic plate or wire of an alloy (Nickel + Titanium) is the working unit. On appearance of heat (fire), plate bends and opens a valve on cylinder that releases air or carbon dioxide enriched air. On termination of fire, plate returns to its starting position restoring system partially to its neutral state. The partial non-restoration is due to fact that cylinder will empty itself out even after fire is quenched. Once again available resources, free of course, need to be exploited in this technological evolution.

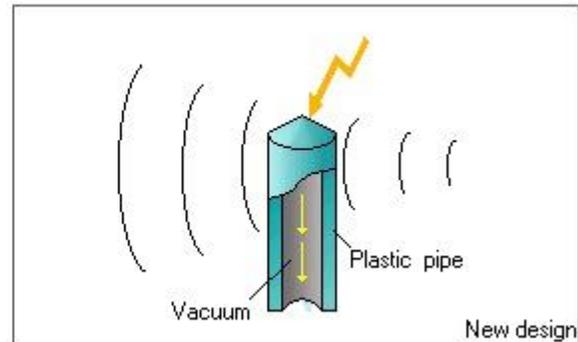
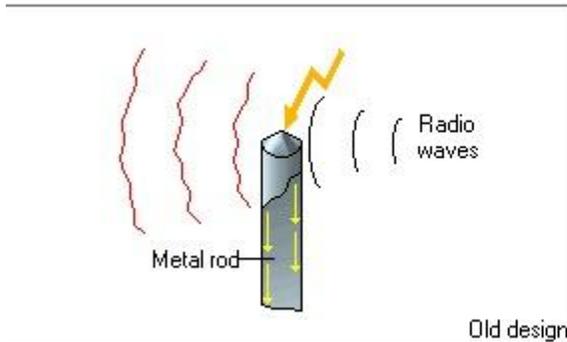
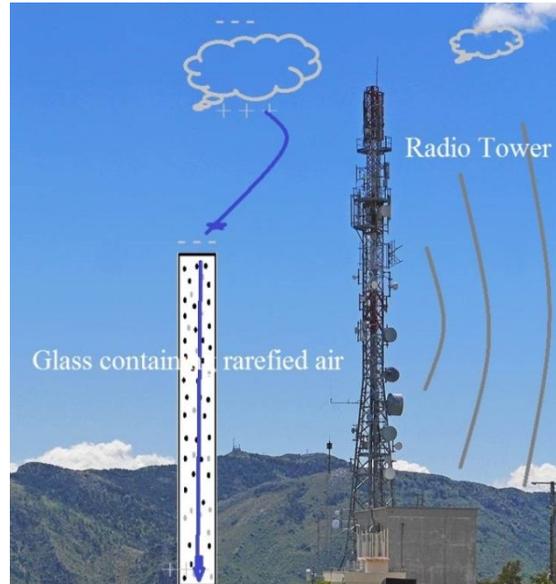
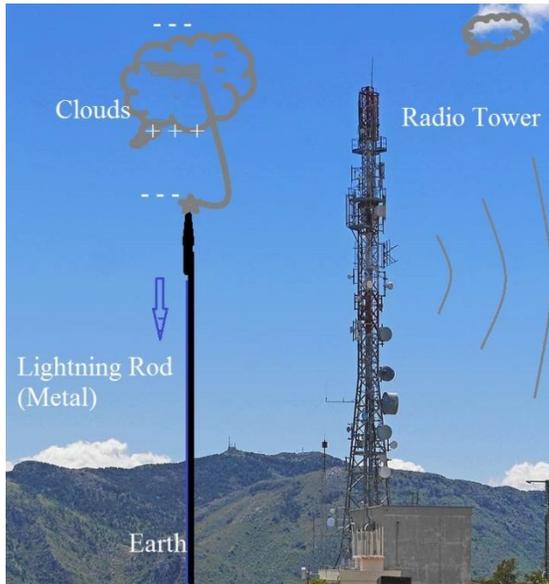
2.4 Ordinary Air in Transparent Glass as a Lightning Conductor

Lightning conductors are conductive, hence generally metallic by definition. To protect a tall radio tower, such as mobile network radiator, an accompanying lightning arrestor is mandatory. Problem arises because in normal circumstances (viz. no lightning), such a lightning conductor interferes with transmission system. The lightning arrestor must be operative or even existential only during rare, if at all, lightning strike. In simple words, a lightning arrestor must exist during the extremely short time interval of strike. This Operational Time (OT) must coincide with functioning or better generation of lightning protector. Hint is already out!

We use the idling resource, lightning itself, no matter how odd or paradoxical it may appear, to protect tower from damage due to lightning stroke.

Another free resource, standard air with a small processing is used additionally. Rarefied air column in a tube made of plastic or glass works as a lightning arrestor. In other words, a partial vacuum sealed in a transparent container does the task.

During storm, rarefied air inside the dielectric rod becomes ionized. From physics it is known that lower the air pressure inside rod, lower the voltage required to cause a discharge. The plasma produced within the rod conducts the lightning currents to the ground. After the storm, ions recombine, and the gas converts to the electro-neutral state. In this solution, the lightning rod does not distort the radio waves except possibly during the OT. In this technical design, free resources such as dreaded lightning's voltage and a mixture of air with void works out well.

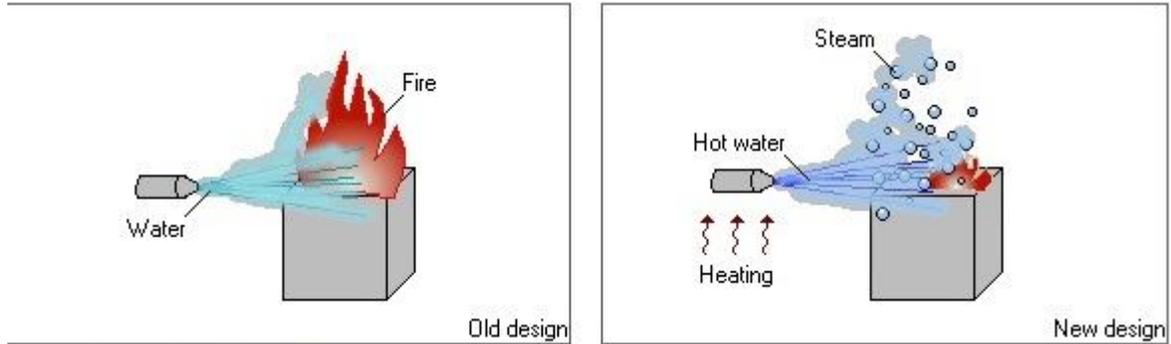


Standard lightning protector not suitable

Air column in plastic tube does the job

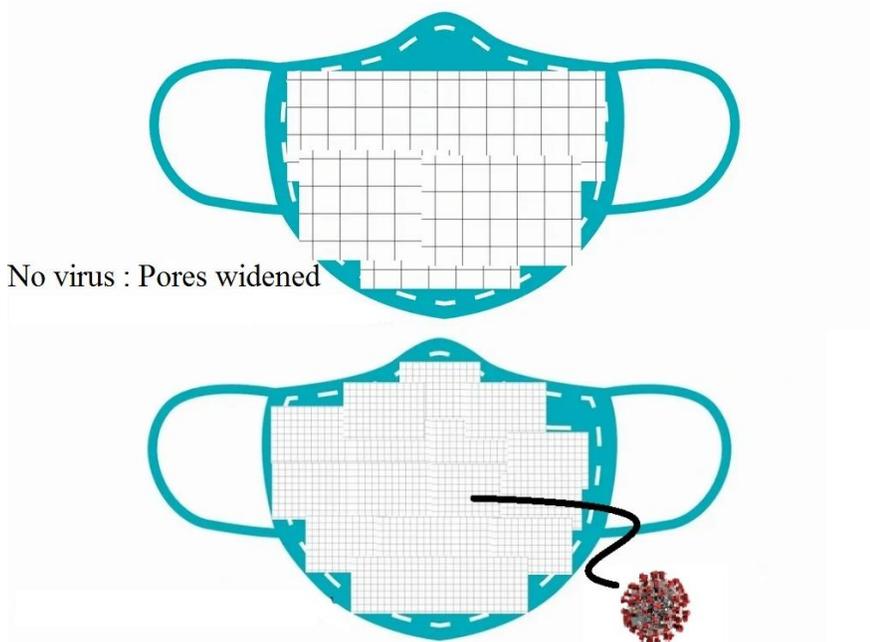
2.5 Hot water fights hot fire better

Figures below are self-explanatory. High latent heat of vaporization of water being holds key to this patented technology. Water heated to just below its boiling point is used to fight a fire. It is more efficient this way than to use cold water. It may appear paradoxical, but is correct use of already available system in-house resource, viz. water after a modification (heating).



5.6 Virus does the mask task

Idle resources available here are: Carbon dioxide concentration in crowd, noise due to talking and sneezing of people around as weak or unsure resources and of course Covid-19 virus or other micro-organisms responsible for pandemic as a confirmative resource. Being an open innovation paper, technology awaits a mask that acts like a non-mask (non-congestive) when Covid-19 not around and a mask when Covid-19 around. The virus must generate or activate masking. Array of directions in creative thought exist here on: chemical, biological, physical effects, known or to be discovered.



Virus there : Pores narrowed