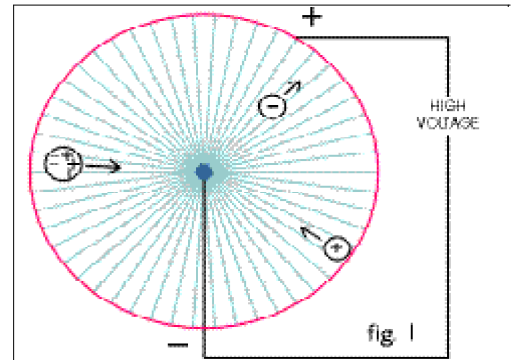


ELECTRON CASCADE EFFECT

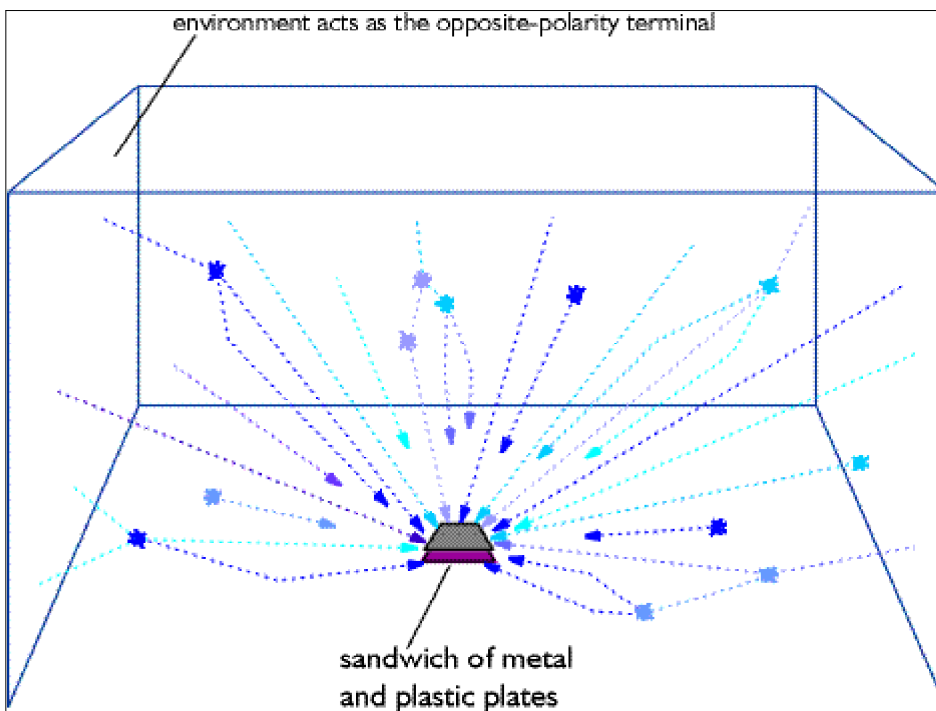
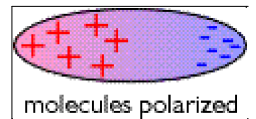
Taken from Patrick Flanagan's taped lecture on **The Electron Field Generator** (c.1988). The electron cascade is a phenomenon of continuous production of electrons - throughout the environment in the air itself. The production of the electron cascade effect, according to Patrick is...

"Number one, we have this phenomenon whereby we found that certain insulators, and some insulators are more effective than others, if we apply a high frequency, high voltage, alternating field across an insulator that we produce this [J.Willard] Gibbs phenomenon, this non-Maxwellian field, which has a differential polarization, that is, that it creates a polarity differential between it and the environment such that neutral and charged air molecules are accelerated at extremely high speed, not very low speed, but at very high speed toward the emitter. As these molecules are accelerated they collide with other molecules in the air and when this collision occurs the electrons are knocked off the molecules, that is, free electrons are knocked off the molecules and they in turn are accelerated by this field and then collide with the other molecules causing a discharge of more electrons and this is the origin of the basis of what we call the electron cascade - we have an entire cascade of electrons being generated everywhere in the environment.



Lines of electric force converge toward electrode at center, indicating that the field grows stronger from outside in. Nonuniform field acts on both neutral and polarized particles; neutral particles move to the strongest part of the field, while polarized particles move to the electrode of opposite polarity.

Now its true that we have a greater, that is, higher velocity, electrons being generated in the vicinity of the machine, however, so that the air passing through the machine (we have a fan that brings air through the machine, through this emitter device), although the air passing through the machine is exposed to very high concentration of free electrons the machine is also creating free electrons in space around the machine, that is, so that, it is affecting air and purifying air in the environment."



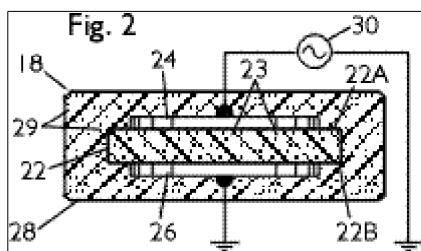
The standard negative-ion ionizer charges only a very LOCAL area of air, of about one metre from the

unit (directly outside of which is strongly *positively* charged); whereas the superior **electron cascade effect** creates free-electrons actually in the environment by speeding up electrons, which in turn collide with air atoms, to create more free-electrons. The force of the free-electrons is then enhanced by dielectrophoresis and electrophoresis acting in a nonuniform electric field, resulting in a cooled environment of fresh negative-ion air.

See his US patents 4,391,773 (July 5 1983), and 4,743,275 (May 10 1988) [The Electron Field Generator](#).

ELECTRON FIELD GENERATOR

Patrick Flanagan's US Patent # 4,743,275 of May 10 1988.

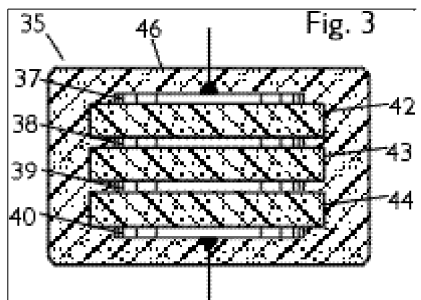


Referring to fig.2, the field emitter 18 may be seen to comprise a slab or sheet 22 of a solid dielectric material such as glass, paraffin, acrylic, epoxy or other suitable dielectric in which a plurality of small particles or granules 23 of conductive or semiconductive material are dispersed. A pair of planar electrodes 24 and 26 are mounted to the opposite faces 22A and 22B of the member 22 to form a capacitor which may be encapsulated in an insulator 28. The member 22 is square when viewed from the top as are the electrodes 24 and 26, but these members may, if

desired, be circular or of some other suitable shape. The corresponding dimensions of the dielectric member are greater than those of the electrodes 24 and 26. The insulator 28 is also a solid dielectric material such as glass, paraffin, acrylic, epoxy or other suitable dielectric and may be **DOPED** so as to include conductive or semiconductive particles or granules 29 dispersed therein.

As shown, the electrode 24 is connected to one terminal of a high voltage, high frequency source of electric energy 30, and the electrode 26 is connected via ground to the other terminal of the energy source 30. The voltage applied across the emitter has a frequency of at least 20 kiloHertz and a voltage of at least 5000 volts rms.

The reason why the field strength is increased by the presence of conductive particles in the dielectric material is not fully understood. However, comparative tests have proven that the electric field is strengthened and significantly improved air purification is achieved when such materials are dispersed in the dielectric, and it is believed that the work function of the dielectric is altered by the added material and this results in the increased emission from the device.



Referring to fig.3, there is shown a negative electric field emitter 35 which comprises a plurality of planar metallic electrodes 37, 38, 39 and 40 separated by a plurality of flat dielectric members 42, 43 and 44. The electrodes and the dielectric members are encapsulated in an insulating material 46. Conductive leads extend from the electrodes 37 and 40 through the insulating material 46 for connection of the field emitter 35 to a high frequency, high voltage source to develop a generally toroidal electric field around the field emitter 35...

In order to substantiate the fact that doping of the insulator with different non-dielectric materials alters the resultant field and in some cases increases the field strength a substantial amount, several different experiments were conducted. In making these experiments, three different emitters of identical size and shape were constructed. The dielectric slabs were circular being 80 mm in diameter and 15 mm thick. The plates were 63 mm in

diameter. In one emitter, the dielectric was a pure epoxy. In a second emitter the dielectric was epoxy containing ten percent by volume of small lead spheres dispersed throughout the epoxy so as to be insulated from one another. The spheres had a diameter of 0.7 mm. In a third emitter the epoxy was doped with SILICON CARBIDE GRANULES having a size of 75 mesh. These granules were of the type used in lapidary grinding and thus contain a substantial amount of elemental impurities wherefor the material is actually a crude semi-conductor. It is also PARAMAGNETIC.

The emitters were connected across a high frequency power supply of 24 kV at 44 kiloHertz in the manner described in my US Patent # 4,391,773 using a Kiethly electrometer and an ion/electron probe.

[Additional data from his other US patent 4,391,773...When a power source having a voltage of 24 kilovolts at a frequency of 38 kiloHertz was used, readings as high as 6.38×10^9 ions per cml were measured at a distance of 50 cm from the device. This negative field is sufficiently strong to purify air by discharging particulates entrained therein and to destroy bacteria in the air. An input voltage of 5 kilovolts at a frequency of about 20 kiloHertz produced a negative field which appears to have about the minimum strength for purifying air. The measured field strength at 50 cm from the device was 500,000 ions per cml per second.]

At a distance of ten centimeters from the emitters the following measurements were made.

Pure epoxy dielectric 2.98×10^9 electrons/cml

Epoxy with lead spheres 3.97×10^9 electrons/cml

Epoxy with silicon carbide 4.76×10^9 electrons/cml

It may thus be seen that the addition of conductive or semiconductive or PARAMAGNETIC particles to the dielectric greatly increases the field strength of the field generated by the emitter.