

Apparatus for Dissociation of Atmospheric Nitrogen and other Linear Gas Molecules

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Submitted: 19 Mar 2019; **Accepted:** 25 Mar 2019; **Published:** 09 Apr 2019

Keywords: Alternative Fuel, Atmospheric Nitrogen Based Fuel, Carbon Dioxide Dissociation, Zero Emissions Fuel, Nitrogen Dissociation, Clean Energy, Climate Change Solution, Alternating Electrostatic Force Fields, Faster Than Light, Electricity Propagation.

Introduction

This article discloses some of the theory underlying much of Nikola Tesla's electrical works. Through Tesla's understanding of the fundamentals of electrical science and of how electrical energy propagates, technology desperately needed for providing climate change solutions is enabled.

In other words, the alternative electrical concepts disclosed here are necessary to achieve the stated results which are otherwise impossible according to the accepted electrical laws of modern physics. I went looking for better science after concluding that better science is our only hope. We need massive amounts of clean energy for human civilization to exist and to repair the damage we have done to our environment. I believe the situation is dire.

This simple electrical apparatus enables nitrogen or other linear gas molecules to be easily dissociated at normal atmospheric pressures. The operation is confirmed by visible electric discharges which create a glowing cloud of plasma or electrically charged atoms. Nitrogen, oxygen, carbon monoxide and carbon dioxide can all be processed in this manner. By extension, the resulting dissociated atoms facilitate recombination with hydrogen for making a clean burning alternative to fossil fuels easily manufactured anywhere it is needed in the world.

Propositions of Purpose

All waste emissions resulting from the combustion of fossil fuels in air can be eliminated by application of the principles exemplified by this apparatus. Carbon dioxide can be dissociated as it is produced and therefore eliminated before entering the atmosphere.

Atmospheric nitrogen may be dissociated for manufacture of clean burning nitrogen based fuels or soil may be fertilized anywhere nitrogen in this form is needed.

Ozone for disinfection, sanitation, sterilization, deodorization or water purification can be manufactured where ever it is needed.

Please note that this apparatus requires electrical energy to operate

and this article does not describe free energy or over unity energy generation although it may seem so at first glance. The results are achieved merely by moving the definition of unity to a more appropriate place which is not the same at all. This new outlook allows for more easily made or more direct interaction with some important energy aspects of the small invisible and indivisible sub atomic structures which make up the tiny particles of all the elements that everything we know of as matter is made of.

I believe Tesla explains electricity propagation in a much more reasonable manner than modern science teaches if consideration is given to all the existing empirical data. Furthermore Tesla's concepts can be directly used to enable world changing energy solutions. We now currently face existential pollution problems which the silence of science says are unsolvable. I think I disclose here more than anyone else has to offer and it is my hope that through this article, I am able to motivate enough people to simply demand immediate implementation of this technology.

The patent document granted to Tesla for his ozone implementation of this concept is included at the end as both an impeccable reference and to provide brevity in explanation of the working principles. There are many references in many other published documents throughout Tesla's long research career that make specific reference to the intended functions I document here. The most important purpose right now is the dissociation of atmospheric nitrogen. This electrostatic dissociation technique also makes possible industrial processes for local manufacturing of nitrogen based fertilizers in addition to simple ammonia fuels. This apparatus is designed to process nitrogen gas molecules at atmospheric pressure into nitrogen atoms for use as the base element of a pollution free alternative to fossil fuels. This emission free fuel may be manufactured where it is needed meaning anywhere in the world. This means no transport costs or necessity to purchase fuel from someone else.

Our pollution has overloaded the natural cycles required for all life on earth. Carbon and nitrogen and water cycles are overwhelmed and inundated and for whatever incomprehensible reasons, human governance and world leadership has failed to care. We must, now, make use of these simple electrical laws to put the era of fossil fuel energy rule to an end. If we do not do this now it will be too late. The place to start is for this new 'science' to be given a fair public examination. My purpose is to convince everyone this should be done. I already know what you will find when you try and I will

be more than happy to help and act as advocate for Tesla's work in case there are those who would desire to deviate from following Tesla's instructions.

More than a hundred years ago, Nikola Tesla thought we would need this technology one day because we would run out of oil. He afterwards put aside this work and went on in his investigations of higher energy transformations. I know we haven't run out of oil, but we have run out of time because of our green house gas emissions. This concept is not a final energy technology, but we do need this now to stop the environmental destruction. It is almost too late. All we have to do is decide to burn clean, cheap, nitrogen fuel, manufactured where it is needed, instead of continuing to burn fossil fuels.

This technology simply uses alternating electrostatic fields and the associated electric forces to interact more directly with the molecular structures of some specific gas molecule structures. First let me stress that there are qualifications and requirements. Pure and desiccated nitrogen must be used to achieve efficiency with this apparatus. The oxygen component of air would be very detrimental to performance and water vapour would be crippling to these electrostatic operations. This is due to the magnetic molecular effects and nature of these molecules and how they react in a mixture with nitrogen such as air.

The apparatus breaks apart nitrogen molecules by causing internal axial molecular vibrations to acquire energy, in effect pumping up the molecules internal electrostatic bonds through a non heat generating axial vibration mode, while also causing molecular accelerations in an alternating external steep and powerful electric field gradient. Thereby, the molecular accelerations are increased, creating ever stronger collisions and exchanging electric charge between nearby gas molecules. The high strength or potential of the alternating electric field and the changing of the electric density or electric force lines due to these rapid alternations creates a high rate of change and a steep electric field gradient between the plates which form the surface boundaries of the dielectric cavity space where the nitrogen gas is being acted upon. This capacitor and dielectric cavity is formed by the plates attached to the opposite terminals of the high voltage transformer secondary coil. It is inside this electrically active region of space where the high frequency alternating electrostatic force fields are surging back and forth between the surfaces of the plates that the nitrogen molecules internal vibrations become strongly enough affected. As electric charge is increasingly imparted to the molecules by contact and by electrostatic induction they reach a point where the atoms acquire enough energy that the molecules easily separate.

The alternation of the electric field lines of the strong electrostatic forces can affect the internal atomic polarization of the covalent bonds of linear molecules. These effects are greatly enhanced if a steep enough gradient exists for the electric field lines alternating between the electrified surfaces. It is within such circumstances that the inductive effects of the alternating electrostatic forces interact with the strongest with the molecular bonds. The required electric charge to create the necessary alternating electrostatic forces is created by disruptive discharge of the working capacitor. These electrostatic discharge impulses are caused to surge back and forth through the primary circuit of the oscillator.

There exists a correct frequency or rate of alternation whereby the changing electrostatic fields can interact more directly with the

axial polarization vibrations of linear gas molecules. At the correct voltage gradient and rate of change to the alternating electrostatic field lines, the electric forces reversals prevent what would otherwise manifest as electromagnetic fields to interfere with the internal molecular action.

We can encourage the axial vibration modes of the electrostatic bonds holding the atoms together to be stressed by vigorous electrostatic induction vibrations being imparted to the component atoms. The molecules are already lined up because of the background alternating electric field lines and alternating electrostatic forces and when conditions are correctly adjusted this causes the molecules to knock together and eventually knock each other apart. Streaks of light from a striation discharge are to be seen in the gas between the plates as a visible sign of the molecular separations going on. We simply enhance these effects through simple adjustments and scale the apparatus and recombine the output as required.

To understand Tesla's ozone apparatus or for adjusting it for use with nitrogen or carbon dioxide, Tesla's fundamental electrical propagation effects as created by a disruptive discharge to create an electrostatic impulse, must be accepted. These impulses are longitudinal electrostatic thrusts or impulses that precede electromagnetic wave propagation and cause oscillations and vibrations and ringing in circuits as per the known laws of physics as applied to compression and rarefaction of air molecules as is propagated sound.

The speed of light in a vacuum, which to Tesla contains the gaseous ether particles and which responds to electromagnetic waves as air does for sound waves is the speed of sound. If what Tesla considered as self evident propositions, which are listed below, are taken as axioms, we may compose the appropriate equations into formulas or algorithms.

Tesla always used the inter connectivity of the centimetre-gram-second units of measure throughout his work for both the mechanical and electrical components of his machines. Tesla made use of many techniques to avoid electrical leakage and also rigorously followed the appropriate electrical laws per Maxwell's fundamental equations. Tesla's approach differs from our modern electrical laws in that he maintains a separation of electromagnetic effects which propagate at the speed of light from pure electrostatic effects which may propagate at much quicker velocities.

Perhaps I should say that modern electrostatic effects are defined as having no motion and Tesla's electrostatic force fields are about motion faster than the speed of light causing inductive electrostatic effects and interacting with the electrostatic bonds that hold molecules together. I apologize if am awkward in these explanations. What I am trying to tell you is that these electrostatic inductive effects can actually 'happen', faster than the speed of light, in the near field regions of the surface boundaries of electrically charged molecular matter. Here are Tesla's postulates or axioms.

1. High frequency electrical impulses produce powerful inductive actions on physical matter of any type or phase.
2. These inductive effects are both electrostatic and electromagnetic.
3. Electrostatic effects diminish much more rapidly.
4. Electrostatic effects diminish at the square of the distance from the source charge.

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5. Electromagnetic effects only diminish in simple proportion to the distance.

While on the other hand

6. Electrostatic effects grow at the square of the intensity of the source charge.
7. Electromagnetic effects grow only in simple proportion to the intensity of the source.
8. The Inductive actions of electrostatic effects increase at the square of the intensity.
9. Electromagnetic inductive effects increase in simple proportion to the intensity.
10. Both of these effects may be used conjointly to establish a field of strong actions extending through a considerable region of space.

Tesla uses these to create multiplication factors for the forces manifested within the interrelated combinations of RLC circuit systems of the appropriate physical geometry. He furthermore proceeds to manipulate these electrical forces in whatever manner is needed to create his desired effects.

Tesla's patent 568177. Apparatus for Generating Ozone is the concept machine necessary for the dissociation of nitrogen and carbon dioxide. I have included a copy at the end of this paper. I ask that you think about what we now know about atoms and molecular bonds and see how this fits, because Tesla worked all this out about a dozen years before even the electron was discovered.

If I think about air and sound waves and music and octaves and harmonics how well all this fits with Tesla's understanding of electricity and his ether and how the physics of the propagation of sound impulses and vibrations in different mediums all fits. Thinking of vibration modes as molecular tunes and add in the vibration modes of all the platonic primitive structures such as tetrahedrons. All the different notes with surfaces and edges and vertices and on and up through all the elements and how all the crystal structures fit so well.

Another word picture is that electrostatic lines are always straight radial lines like the spokes on a bicycle wheel that tie the hub to the rim. They always go out 'straight' out from the hub, but perpendicular to direction the electric charge is moving. As if a bicycle wheel was turned sideways and moving hub first forwards. The electromagnetic lines of force are rings like the doughnut shaped tire on then rim that ties the spokes together. These rings form by rolling up the surface from the top. If the charge was a sphere and was also the hub of a bicycle wheel, it is like the electromagnetic rings start rolling down from the top of the sphere in all directions at once, like away from the North Pole in every direction. When these rolls get all the way down to the equator they separate and continue to roll outwards into space like smoke rings, rolling up and spreading out and following each other and the direction of the electric lines leading before them.

If the moving charge was a ball it would have lines sticking out like long pins perpendicular to the equator's surface. The magnetic rings would trail out behind us looking like an ever widening cone of concentric tubular circles. Of course, at 300,000,000 metres per second for the electromagnetic waves makes it sort of impossible for us to see any of this going on. The electric field lines are elec-

trostatic impulse thrusts. The rings are electromagnetic waves. And all of this is incredibly small and close together and as I mentioned all happens at the speed of light, only meaning the electromagnetic ring effects to propagate in a vacuum.

The electrostatic thrust or impulse occurs first. This means for the impulse to 'spike' or go out and return before the electromagnetic effects have started to move at the speed of light is exactly why the speed of these electrostatic effects in the near fields of atomic structures must exceed the speed of light.

I believe Tesla saw light as breaking the sound barrier of the ether gas that constitutes empty space just like air molecules constitute our atmosphere and there are speeds that can break the barrier.

There are tiny vortex particles found in Maxwell's work. Perhaps this has to do with the purpose of neutrinos and they represent the ether and exist as boundaries or portals to a dimension of pure energy. Perhaps the electron opens a hole down into this dimension and the proton is an opposite protrusion on this side of the energy dimension boundary. This would make neutrons exist as protrusions with an electron plug in the centre, because they fall apart outside the nucleus. All of this would suggest that Tesla is correct and that the energy only exists outside the inside of matter.

My point is that it matters not. If we choose to manifest electrical forces as described in this manner, we can control them, and we make use of them, by simply following Tesla's rules.

Here is another word picture to go on. Cosmic rays are particles that cause impulses at molecular levels at the top of our atmosphere. We call this the ionosphere because of the ions or plasma like the northern lights that exists up there. Tesla was writing about this about four decades before cosmic rays were even determined to be particles. And he predicted the incredible power to some of them and he predicted and analyzed what they do to gas molecules at the top of the atmosphere of our world. Now, just like ripples from vertical drops of rain on the still surface of a pond, left behind by the disturbance of the surface boundary when the particles falling from the medium of our atmosphere meet the surface boundary of water. The ripples are caused by the impulse of the drop of rain. Did you ever go out in the rain and watch it fall into still water. Big drops and little drops and what happens when the intensity increases. Cosmic electricity is just the same. The electrostatic impulses are the fundamental causes and not the electric current ripples of Ampere's magnetic current reactions in metals like a wire conducting an electric current.

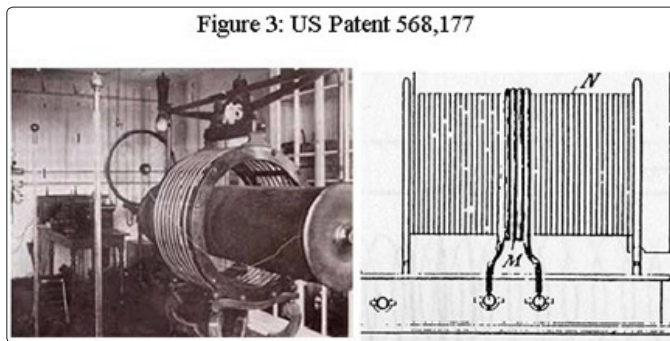
Have you ever seen ripples reflect back to the centre, like in a full barrel of water when you make a disturbance by banging on the side. The rings run straight into the middle, but we do not get the same results as a drop impacting from above because the water doesn't want to let go. When an impulse meets the boundary skin, the waves spread out from the point of impact. Now let's move on up to a jet plane breaking the sound barrier in the air and hearing a big bang like an explosion or clap of thunder just like lightning or the fireball of burning air I once saw created by a shorted hydro line. Now we have to shift our scales and move on down in size and up in energy density to get to electrons and breaking the ether barrier and making light with the electromagnetic ring vibrations at shell boundary layers as surface skins of molecular forces separate.

Now we jump to a lightning strike impacting on the ground and setting up electric wave vibrations that ring in the earth just like a bell or ripples on a pond that can extend out for hundreds of miles.

When we see streaks of light from the striated discharges within the pure nitrogen gas acting as the dielectric between the insulated plates attached to the high voltage secondary terminals, how is that any different from any other representation of the heat required for molecular separation except that it is performed at the molecular boundaries without any sensible heat or pressure, instead of under great containment pressure and heat like we industrially dissociate nitrogen now.

This method of molecular dissociation does not break any laws of physics, it merely confines the energy requirements and effects to the molecular boundaries where much less external forces are needed and so this is simply much more efficient machine.

Thank you for this opportunity to explain. My hope is that I have done enough justice in explaining this part of Tesla's work that he will be given the recognition he deserves and this technology will be used to save our world. E&OE



Tesla's linear molecule dissociation apparatus; as built – customized for ozone production from air

UNITED STATES PATENT OFFICE
NIKOLA TESLA, OF NEW YORK, N. Y.

Apparatus for Producing Ozone

SPECIFICATION forming part of Letters Patent No. 588,177, dated September 22, 1896.

Application filed June 17, 1896. Serial No. 595,927. (No. model.)

To all whom it may concern

Be it known that I, NIKOLA TESLA, a citizen of the United States, residing at New York, in the county and State of New York, 5 have invented certain new and useful Improvements in Apparatus for Producing Ozone, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

10 The invention subject of my present application has primarily as its object to provide a simple, cheap, and effective apparatus for the production of ozone or such gases as are obtained by the action of high-tension 15 electrical discharges, although in the application to such purposes of the apparatus heretofore invented by me and designed for the production of electric currents of high frequency and potential I have made certain improvements 20 in such apparatus

itself which are novel and useful in other and more general applications of the same. I have heretofore shown and described, notably in Patents No. 462,418, dated November 3, 1891, and No. 454,022, dated 25 June 23, 1891, an apparatus devised for the purpose of converting and supplying electrical energy in a form suited for the production of certain novel electrical phenomena which require currents of higher frequency 30 and potential than can readily or even possibly be developed by generators of the ordinary types or by such mechanical appliances as were theretofore known. This apparatus involved means for utilizing the intermittent 35 or oscillating discharge of the accumulated electrical energy of a condenser or a circuit possessing capacity in what may be designated the "working" circuit or that which contains the translating devices or means for 40 utilizing such currents. In my present improvement I have utilized appliances of this general character under conditions and in combination with certain instrumentalities, hereinafter described, which enable me to 45 produce without difficulty and at very slight expense, ozone in any desired quantities. I would state the apparatus which I have devised for this purpose is capable of other and highly important uses of a similar nature, so but for purposes of the present case I deem it sufficient to describe its operation and 50 effects when used for the purpose of generating ozone.

In the accompanying drawings, illustrative of the principle of construction and mode of operation of my improvement, Figure 1 is a diagrammatic illustration of the invention; and Fig. 2, a view, partly in side elevation and partly in section, of the apparatus as I construct it for practical use.

60 The device hereinafter described is especially designed for direct application to and use with existing circuits carrying direct currents, such as the ordinary municipal incandescent-lighting circuits. 65 Let A B designate the terminals from any given circuit of this character. In such circuit I connect up an electromagnetic motor C in any of the usual ways. That is to say, the coils of the field and armature may be in 70 series or derivation or wholly independent, and either or both are connected up in the circuit. In the present instance one terminal, as B, is connected to one of the binding-posts, from which the circuit is led through one field-coil, D, the brushes and commutator 75 E, the other F, the other G, which rests upon a circuit-controller H, consisting in general of a conducting disk or cylinder with insulating-sections in its 80 periphery. The other terminal, as A, connects with a second brush K, bearing on the controller, so that the current which passes through and operates the motor is periodically interrupted. For this reason the iron 85 cores of the motor should be laminated. Around the controller is formed a circuit of low self-induction, which, includes a condenser L and the primary M of a transformer. The circuit, including the motor is of relatively 90 high self-induction, and this property is imparted to it by the coils of the motor, or, when these are not sufficient, by the addition of suitable choking-coils, so that at each break of the motor-circuit a current of high 95 electromotive force will be developed for charging the condenser, which may therefore be small and inexpensive. The condenser discharges through the circuit which is completed through the brushes G K and the 100 controller H, and since the self-induction of this circuit, as well as the capacity of the Page 2 568,177.

Condenser itself may be given practically any desired value the frequency of the discharge-current may be adjusted at will. The potential of the high-frequency discharge-current 5 is raised by a secondary coil N in inductive relation to the primary M. The con-

ductors of such secondary circuit are connected to two insulated conducting-plates P P, and when the apparatus is in operation a 10 discharge in the form of streams will be maintained between such plates, as indicated by the wavy lines in the figures. If air be forced between the plates P during this discharge, the effectiveness of the apparatus is increased 15 and ozone is generated in large quantities. In order to secure this result, I inclose the said plates P P in a casing R of any proper description, through which a current of air is maintained by a fan S, mounted on the 20 shaft of the motor.

This apparatus may be constructed and combined in very compact form and small compass. Its operation involves but a small expenditure of energy, while it requires 25 practically no care or attention for the continued production of ozone in unlimited amount.

What I claim as my invention is

1. The combination with a circuit of direct currents, of a controller for making and 30 breaking the same, a motor included in or connected with said circuit so as to increase its self-induction, and driving the said, controller, a condenser in a circuit around the controller, and a transformer through the primary of which the condenser discharges, as set forth. 35
2. The combination with a circuit of direct currents, of a controller for making and breaking the same, a series-wound motor having its coils included in said circuit and driving 40 the said controller, a condenser connected with the circuit around the point of interruption therein, and a transformer, the primary of which is in the discharge-circuit of the condenser, as set forth. 45
3. A device for producing ozone comprising in combination, surfaces between which an electrical discharge takes place, a transformer for producing the potential necessary for such discharge, a condenser in the primary circuit 55 of the transformer, a charging circuit, means 50 for charging the condenser by such circuit and discharging it through the primary of the transformer, and a device for maintaining a current of air between the discharge-surfaces, as set forth.
4. A device for producing ozone comprising in combination, surfaces between which an electrical discharge takes place, a transformer for producing the potential necessary for such discharge, a condenser in the primary circuit 60 of the transformer, a charging-circuit, means for charging the condenser by such circuit and discharging it through the primary of the transformer, a motor operated by the charging-circuit, and a device operated thereby 65 for maintaining a current of air between the discharge-surfaces, as set forth.
5. A device for producing ozone comprising in combination, surfaces between which an electrical discharge takes place, a transformer 70 for producing the potential necessary for such discharge, a condenser in the primary circuit of the transformer, a charging-circuit, a circuit-controller effecting the charging and discharging of the condenser, and a fan-motor connected with the charging-circuit and operating the circuit-controller and adapted to maintain a current of air between the discharge-surfaces, as set forth.
6. A device for producing ozone comprising in combination, means for charging a condenser, a circuit of low self-induction and resistance into which the condenser discharges, a coil for raising the potential of such discharge, and means for passing a current of 85 air through the high-potential discharge, as set forth.

References

1. Apparatus for the production of ozone or such gases as are obtained by the action of high-tension electrical discharges.
2. I have made certain improvements, more general applications of the same. Patents No. 462,418, dated November 3, 1891, and No. 454,022, dated 25 June 23, 1891.
3. In my present improvement I have utilized appliances of this general character under conditions and in combination certain instrumentalities, hereinafter described, which enable me to 45 produce without difficulty and at very slight expense, ozone in any desired quantities.
4. The apparatus which I have devised for this purpose is capable of other and highly important uses of a similar nature.
5. The device hereinafter described is especially designed for direct application to and use with existing circuits carrying direct currents.
6. In such circuit I connect up an electromagnetic motor C in any of the usual ways.
7. In the present instance one terminal, as B, is connected to one of the binding-posts, from which the circuit is led through one field-coil, D, the brushes and commutator 75 E, the other F, and thence to a brush G, which rests upon a circuit-controller H, consisting in general of a conducting disk or cylinder with insulating-sections in its 80 periphery. The other terminal, as A, connects with a second brush K, bearing on the controller, so that the current which passes through and operates the motor is periodically interrupted.
8. For this reason the iron 85 cores of the motor should be laminated.
9. Around the controller is formed a circuit of low self-induction, which, includes a condenser L and the primary M of a transformer.
10. The circuit, including the motor is of relatively high self-induction, and this property is imparted to it by the coils of the motor, or, when these are not sufficient, by the addition of suitable choking-coils, so that at each break of the motor-circuit a current of high electromotive force will be developed for charging the condenser, which may therefore be small and inexpensive.
11. The condenser discharges through the circuit which is completed through the brushes G K and the 100 controller H, and since the self-induction of this circuit, as well as the capacity of the condenser itself, may be given practically any desired value the frequency of the discharge-currant may be adjusted at will.
12. The conductors of such secondary circuit are connected to two insulated conducting-plates P P, and when the apparatus is in operation a 10 discharge in the form of streams will be maintained between such plates, as indicated by the wavy lines in the figures.
13. If air be forced between the plates P during this discharge, the effectiveness of the apparatus is increased 15 and ozone is generated in large quantities.
14. Its operation involves but a small expenditure of energy, while it requires 25 practically no care or attention.
15. What I claim is-a motor included in or connected with said circuit so as to increase its self-induction.

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