THE SECRET OF THE J-CELL

Disclaimer:

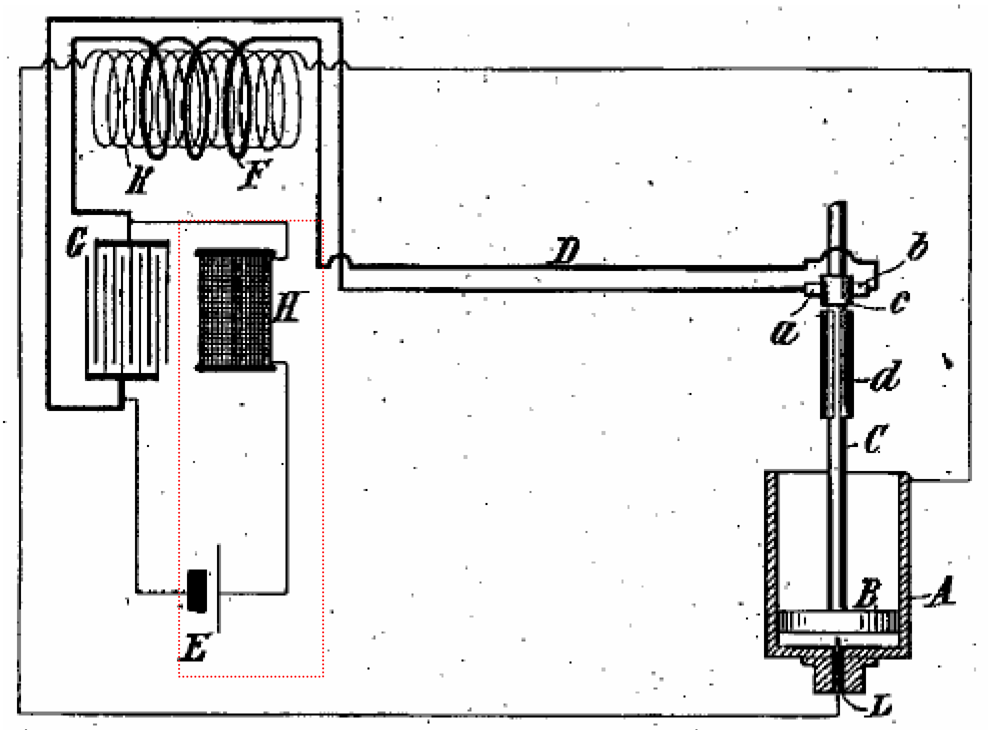
While every effort is made to reveal correct information as much as possible, it is assumed that whoever undertakes to follow what is revealed herein is doing so at his/her own risk. High voltages are involved and would require the experiences of one skilled in the art. The author would not be responsible for any consequences that may be incurred as a result of following advice or recommendations contained herein.

Contents

Abstract

When static energy or charge is made dynamic, it exhibits anomalous effects. If the charging of a capacitor is considered as positive flow of energy, discharging it could be considered to be negative flow of charges or energy. This negative dynamic charge flow is positive polarity seeking and can be made to jump a spark gap by providing a positive polarity to which the flow is attracted.

When this high value jumper discharge is pulsed for brief periods, their anomalous effects are intensified. This is a discovery made by Nikola Tesla, modified and taken advantage of by Edwin Gray, and that would be applied to the J-Cell. Or should it be the “B-Cell”, as it would be found to exhibit all the effects of the J-Cell but is remarkably different in implementation.



Introduction

I would recommend that you read the two patents that I posted (609250 by Tesla and 459975 by Gray). You can also refer to any Tesla patent that deals with disruptive discharges of high impulse DC circuits, such as 462418, 514168, 645576 etc. They basically are all the same.

Let me start off by drawing your attention to the above diagram which is an example of the several Tesla circuits on this subject. I will especially be identifying certain aspects of the design we will be making reference to when we eventually apply this knowledge to the J-Cell.

First thing to note is that the above circuit is a DC circuit with a make and break element at points **a** and **b** that is achieved by the movement of the piston **B** up and down inside the cylinder **A**. This make-and-break of the circuit will cause the capacitor **C** to discharge, the pulses that will jump the spark gap that is between the cylinder rod **B** and the conductor rod **L**.

Second thing to note about the above circuit is that the battery is in series with the coil and the two together are in parallel with the capacitor **C**. Magnetic energy will be stored in the coil which will be dumped into the capacitor when the terminals of the capacitor **C** are open, effectively transferring the stored magnetic energy into the capacitor. This capacitive or static energy is then dumped into the primary coil **F** when the circuit at **a**-**b** is made. When it reopens the energy contained in the primary coil tries to prevent the cessation of current flow and creates a very high voltage back EMF in the process which is then reflected in the secondary circuit. The secondary circuit acts to effectively amplifier the back EMF voltage of the primary.

Also note that back EMF energy is of a special type of energy that conventional science does not have a very good grip on as yet.

FIG. I

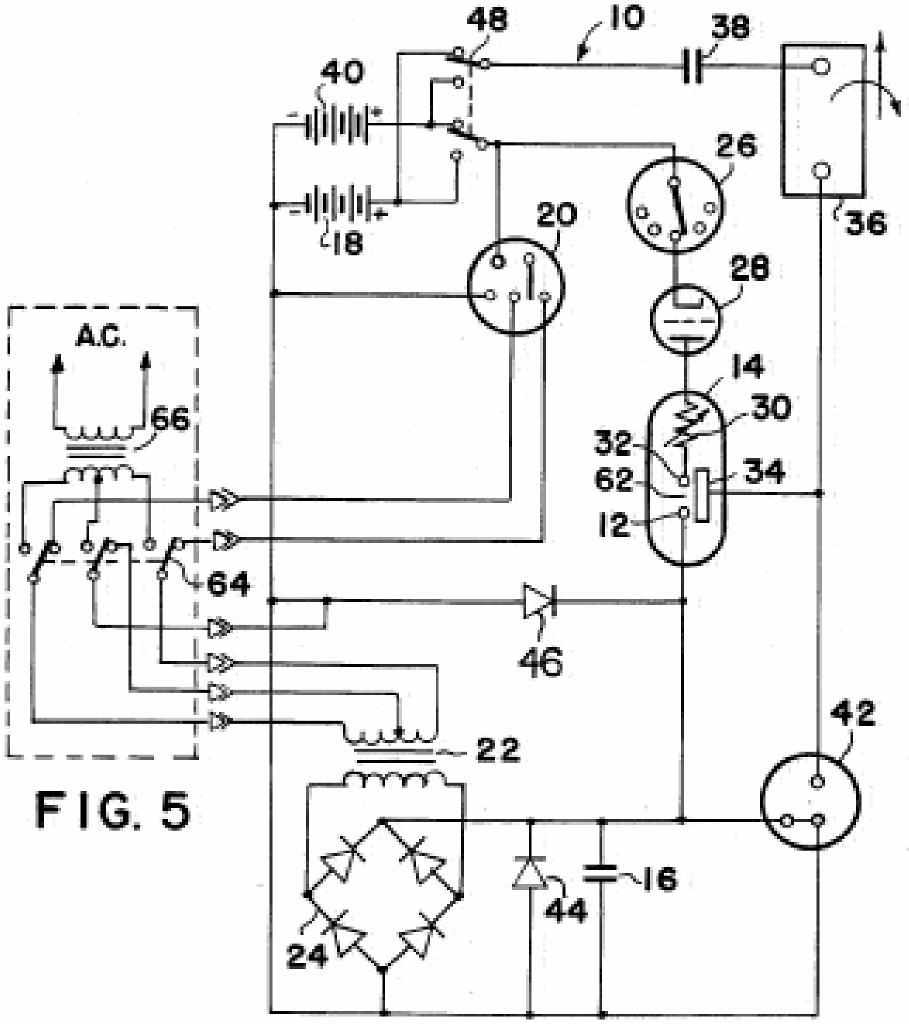
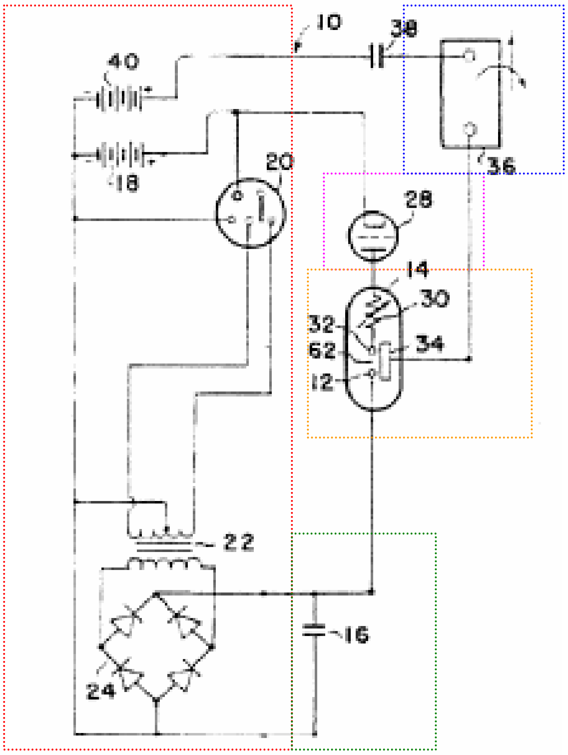


FIG. 5

Let us now consider Gray's circuit:

I'd like to refer you to Peter Lindemann's exposé of the Gray circuit (Free Energy Secrets of Cold Electricity). Some of you may have to read up the history of Edwin Gray to appreciate why his is important to our exposé.

Peter recommends, and I agree with him if the circuit should reflect Tesla's pulse circuits and also to make things easier to understand, that we remove elements **42**, **44**, **46** since, even according to Gray, they are just safety overshoot mechanisms. When that is done the circuit essentially boils down to the diagram below.



I have drawn colored boxes to certain areas of the circuit to draw your attention to them.

First thing to note from this circuit is that the part in the red box is essentially the battery and coil part of the Tesla circuit discussed above. Component **20** of the above circuit is a vibrator which generates oscillations or pulsations so that they can be amplified by transformer induction action at component **22**. We can use modern circuits to achieve the same thing. This will be discussed later.

In Peter Lindemann's decoding of Gray's circuit he left out one very important element. The element **26** was what Gray was using to cause the make-and-break of the circuit. Please note *where* Gray is implementing his make-and-break. There are two places where a make-and-break is usually implemented in such circuits, in the primary or secondary circuits or both. Tesla usually had his make-and-break at the primary so that he could discharge his capacitors into primary coils of transformers. But this is really dictated by the application.

Second thing to note is the part in mauve; this is a vacuum tube that is acting as a diode here. Gray gives a reason in his patent for the use of the diode by saying that "A switching element tube type one-way energy path **28** is introduced between the commutator device and the conversion switching element tube to prevent high energy arcing at the commutator current path".

Well, even if it is also used for this purpose, its function is far more important that what is given by Gray here. This element ensures **unidirectional pulses**, an important requirement, and constitutes part of the very secret of Tesla and Gray. Its function will be explained later.

Elements **26** and **28** together illustrate the ingenuity of Gray and are what constitutes the difference between Gray's method and that of Tesla's. We can use modern circuits to achieve the same thing. This will be discussed later.

Third thing to note is the part in light orange. This is the Gray tube and which will be our J-Cell this time around.

The part in blue we will need if we wish to generate cold electricity and charge our battery or power other devices but we will not otherwise need it if our battery will be charged by the car alternator. It will, however, be our J-Cell connection point to the engine. Assume the element **36** to be the engine of a car.

Fourth thing to note is the part in the green box. This is the discharge capacitor and will be doing most of the magic. Recommendations on the type and value will be given as we develop our circuit.

Let me now draw your attention to the circuit below. It is from the Gray patent to which you were referred:

FIG. 2

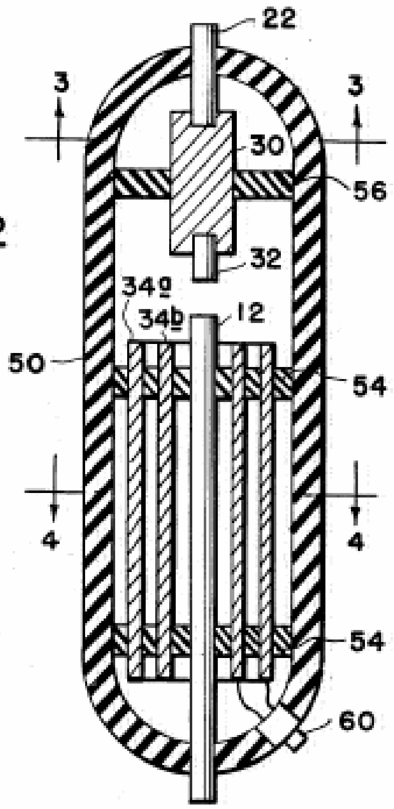


FIG. 3

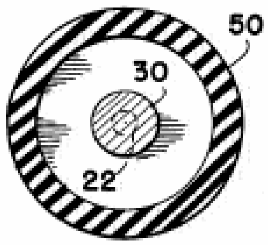
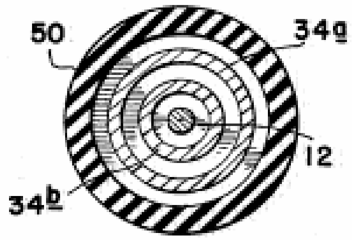


FIG. 4



Look closely at these diagrams; don't you see the J-Cell in it? Fig. 4 is a sectional plan of the J-Cell with cylinders equally spaced inside. Element **54** is the spacer, Buna N or whatever that holds the whole part of the assembly that will be immersed in water. We will talk about how the cell is wired up when we are done building our circuit. Component **12** is the high voltage anode of Gray's Circuit and will be the centre cylinder of the J-Cell this time around. Component **32** is the low voltage anode.

Theory, analysis, procedure and required conditions

There are two conventional ways in which discharges can be effected:
- by the discharge of an inductor into a load capacitor
- by the discharge of a capacitor into a load inductor

Let me add a third way:
- by the discharge of a capacitor or inductor into an inductive-capacitive or capacitive-inductive load. This essentially is what we will be doing with the J-Cell.

Tesla particularly preferred the second type for the following reasons:
- Capacitor discharges produce high impulse voltages compared with typical inductive discharges
- Capacitive discharges have faster voltage rise times (between 3-10 kV/µS) compared with typical inductive discharges (between 300-500 V/µS)

In the words of Tesla; "*The condenser is the most wonderful instrument …because it enables us to attain greater activities than are practical with explosives. There is no limit to the energy which can be developed with a condenser.*"

Let me add one more reason to the above list why we should prefer capacitive discharges:
- Capacitive discharges involve the transformation of static charges to dynamic charges in the discharge process, which is responsible for many over unity effects. It is this fact that is exploited in the Swiss Testatika; charges are collected by a Wimhurst machine and stored in capacitors, these are then subsequently discharged into usable power.

Now, I'd like to identify certain statements on the discusses of Nikola Tesla as narrated by Gerry Vassilatos in his "Lost Science" and also by Edwin Gray in his patent to aid our understanding of what we must implement in the J-Cell to achieve results.

First a word about pulsed power:

Pulsed power is the term used to describe the science and technology of accumulating energy over a relatively long period of time and releasing it very rapidly thus increasing the instantaneous power. Energy is typically stored within electrostatic fields (capacitors); magnetic fields (inductors), etc. by releasing the stored energy over a very short interval, a huge amount of power can be delivered to a load. For example, if one joule of energy is stored within a capacitor and then evenly released to a load over one second, the peak power delivered would only be 1 watt. However, if all the stored energy was released within 1 µS (10^{-6} sec), the peak power would be 1 megawatt! A million times greater!
Electric current is by definition the flow of electric charge. The unit of current is Ampere (A), which is equal to a flow of 1 coulomb of charge per second. If 1

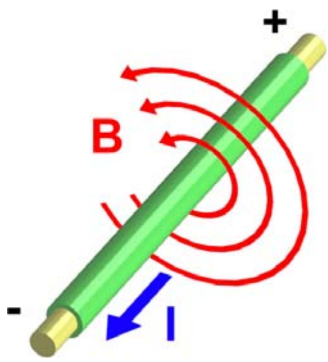
coulomb of charge were to flow for 1 μS, then the current would be 1 million Amperes (10^6 A). *The point we are making here is that an insignificant amount of energy when applied instantaneously could become very significant*. *And when those instantaneous instances become periodically numerous, the power generated is like steady DC or AC.*

Now if our cell were an energy store of both a capacitor and an inductor as intimated above. You ask why this is important. The reason is because the J-Cell is both a capacitor and an inductor. All such similar devices exhibit anomalous effects. Another example is the bifilar or caduceus or moebius coil. They have a relationship to our mental energies, which could explain the so called "Y" factor of the J-Cell. But this could be a topic for another paper. I am going to explain this using conventional theory as much as possible, I'll identify areas where they differ so that we can be aware of them and note them accordingly.

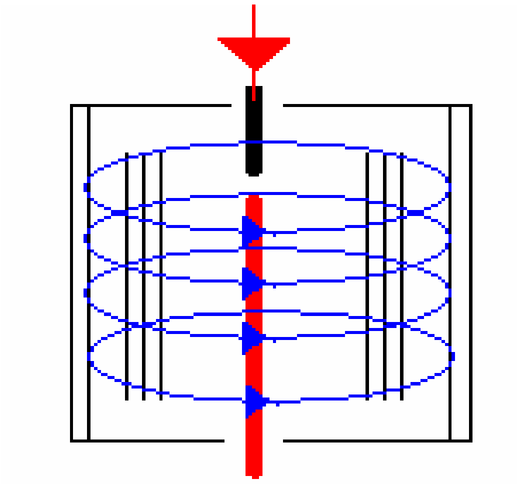
Most people who have been working on the J-Cell would not be surprised when they are told the J-Cell is a capacitor but would be surprised when they are told it is also an inductor. But how is the J-Cell an inductor? And why is its being an inductor important? It is important because our discharge capacitor will be discharging into the inductor of our J-Cell.

If a disk or cylinder with material such as ferrites or even water is formed with a central opening therethrough. An electrical conductor passed through the central opening of the disk or cylinder forms a single loop induction coil, while a cylinder of electrically conducting material (in our case steel) around the central conductor forms a condenser with whatever medium is in between.

In such an arrangement of parts, the water acts both as an induction coil core and as a condenser dielectric to enable the formation of a unitary inductance-capacitance; an inductive capacitor or a capacitive inductor. In case you wish to explore this idea further, please check out US patent number 2,611,094.



It is known generally in Physics that a current carrying conductor produces a magnetic field around the wire. Our discharge capacitor indicated by component **16** on the Gray circuit will discharge into the primary (*the J-Cell central conductor*) of the Tesla circuit indicated by component **F** and this in turn will induce a very high back EMF voltage, when the circuit is broken, into the secondary of the transformer (*the J-Cell cylinders*) of the Tesla circuit indicated as **K**. The collapsing electric field in our central conductor of the J-Cell will produce a magnetic field that will be induced in the surrounding one-turn coils that constitute the circular cylinders around the central electrode. In normal J-Cell designs there are 3 circular cylinders, which means that the number of secondary turns or independent secondary coils in the cell is 3, but it doesn't have to be restricted to that if we can ensure that the generated magnetic flux in the central conductor encompasses all the secondary turns. *This is why it should improve the* *performance of the J-Cell when alternate holes are drilled through the surfaces of the cylinders to make meshes so that magnetic flux generated at the center electrode can reach subsequent cylinders*. So what if this magnetic field were actually the A-vector field, popularly known in physics to have very interesting properties. The central conductor would normally be, in this case, a toroid or bifilar coil to produce such a field. I am not going to go into this aspect at this time. This could be a whole topic on its own.



Utilizing the principle that the inductance produced by one turn of wire about a core of permeability **n** is electrically equivalent to a coil of the same cross section wound with **n** turns of wire, the central conductor of the J-cell forms a single turn induction coil with water functioning as its magnetic core.

The J-Cell therefore can be seen a parallel resonant circuit with an inductor and capacitor in parallel.

Let us now quote references from the observations of Tesla to guide us in our design of the cell. The quotes are in italics interspersed with my comments.

1. Tesla was getting radiant sparks in his disruptive discharge experiments. Gerry Vassilatos explains "… *These special radiant sparks were the result of non-reversing impulse*." Non-reversing impulses are effected by diodes. You will understand why diodes are very much a part of the secret here.

2. "*The secret lay principally in the direct current application in small time intervals*" The effect is essentially a DC effect pulsed at small time intervals by a make-and-break circuit. This make-and-break could develop painful sensations, but increasing the pulse frequency would reduce the painful effects.

3. "*Highly charged capacitors were allowed to impulsively discharge across special heavy duty magnetic cores.*" Would water be considered a heavy duty magnetic core? Probably not, but the properties of water

bring into the equation other special effects which make the J-Cell unique and which would account for some of the antigravity effects.

4. "*For one thing Tesla noticed that metallic surfaces near the impulser became covered with white brush-like corona discharges.*" I am sure you would not be surprised now if your J-Cell were to produce light, especially with highly polished stainless steel.

5. "*There was an aerodynamic nature inherent in radiant electricity.*" So you wouldn't be surprised if your J-Cell were to float. This property depends upon the pulse rate and the amount of magnetism you can generate, which is also dependent upon the voltage discharged by the capacitor **16** and the rate of change of charge.

6. "*Copper cylinders produced remarkable volumes of white discharges. The discharges from certain sized cylinders were actually larger than those being applied. This inferred that energy transformation effect was taking place within the cylinder. This reminded him of his initial observation with shock-excited wires; those which did not explode gave forth far greater voltages than were initially used.* "Here we learn how copper cylinders were particular good at amplifying the effect but there is no reason why stainless steel cannot do similarly. The J-Cell involves the use of water and stainless steel is the best choice for corrosion prevention.

7. "*There was an obvious connection between the supplied impulse train and the cylinder volume… When the shape and volume of metal conductors were just right, the energy appeared as a stable white corona of far greater voltage than the impulse generator supplied*" This point was also made by Gray. This begins to give us a sense of the over unity involved and should stimulate our suspicion as to the part being played by the capacitive J-Cell. We will attempt to predict mathematically the resonance frequency necessary for parallel capacitor-inductor J-Cell resonance later on.

8. "*Here was a new transformer effect! …electrostatic transformation, impulse currents each possessed an electrostatic nature.*" The impulse currents are here dynamic charges discharged by the capacitor into an inductor. "*… Tesla suddenly realized that coils represented a truly special and valuable component in his quest…*" Apparently the capacitor and the inductor are very essential components of our quest.

9. "*Constricting this field volume produces a greatly magnified voltage. Placement of any conductor in the field space alters the field by constricting its shape. When symmetrical conductors of special shape,*

volume and resistance are placed in this space, the field is greatly constricted. Because the impulsing electrostatic field is very abrupt, it 'snaps' over the conductor from end to end. … if the resistance in the conductor is great enough, the snapping electrostatic force cannot move any charges, it is forced to 'grow' over the conductor surface where it discharges at the end point; where greatly magnified voltages are obtained." This should make us rest assured that stainless steel is also fine enough if not even better as the effect is pronounced stronger with greater resistance in the conductor. This may explain why Gray had to use a carbon resistor (*component **30***) in his lower positive voltage anode to increase the resistance.

Let us now quote references from the observations of Gray to also guide us in our design of the cell. The quotes are in italics interspersed with my comments.

1. "*The intensity of this electromagnetic field is determined by the high electromotive potential developed upon the electrostatic grids and the very short time duration required to develop the energy pulse*" This statement reads almost Teslaan. This means the strength of the magnetism induced or produced is proportional to the voltage developed across the capacitor **16**, which determines the amount of induced voltage in the grids, and the frequency of the make-and-break at component **26**.

2. "*The anode material may be identical for each anode, or may be of differing materials for each anode, as dictated by the most efficient utilization of the device*." This means the anode electrodes are not critical. Gray used silver plated electrodes.

3. "*The grids are of physical size and appropriately positioned as to be compatible with the size of the tubes and therefore directly related to the amount of energy to be anticipated when the device is operating….The shape and spacing of the electrostatic grids is also susceptible to variation with application (voltage, current and energy requirements)*" This is another way of saying what Tesla had mentioned in quote no. 7 above. One would calculate the size of the grids or cylinders according one's requirements. We will make an attempt to develop design equations in this regard later on.

4. "*Control of the energy spike within the conversion switching element is accomplished by a mechanical or solid-sate commutator that closes the circuit path from the low voltage anode to the current source at the moment when the delivery of energy to the output load is most auspicious*." One would wonder at what point breaks should be made in the circuit. This statement implies we should synchronize the breaks at the low voltage anode with the current source at the high voltage

anode. We will need to revisit this aspect when we do the actual circuit design later on. Tesla also indicated that "*excessive sparking were actually lossy instabilities… conversion is more efficient when the sparking is at a minimum.*"

5. "*When control of the repetitive rate of the systems output is required, it is accomplished by controlling the time of connection at the low voltage anode.*" It should be clear from this that the total systems output is easily controlled by the pulse duration at element **26**.

IMPLEMENTATION AND APPLICATION TO THE J-CELL

Let us now try to apply all the guidelines we have been putting together to the J-Cell.

We have a few options depending upon our current project setup:

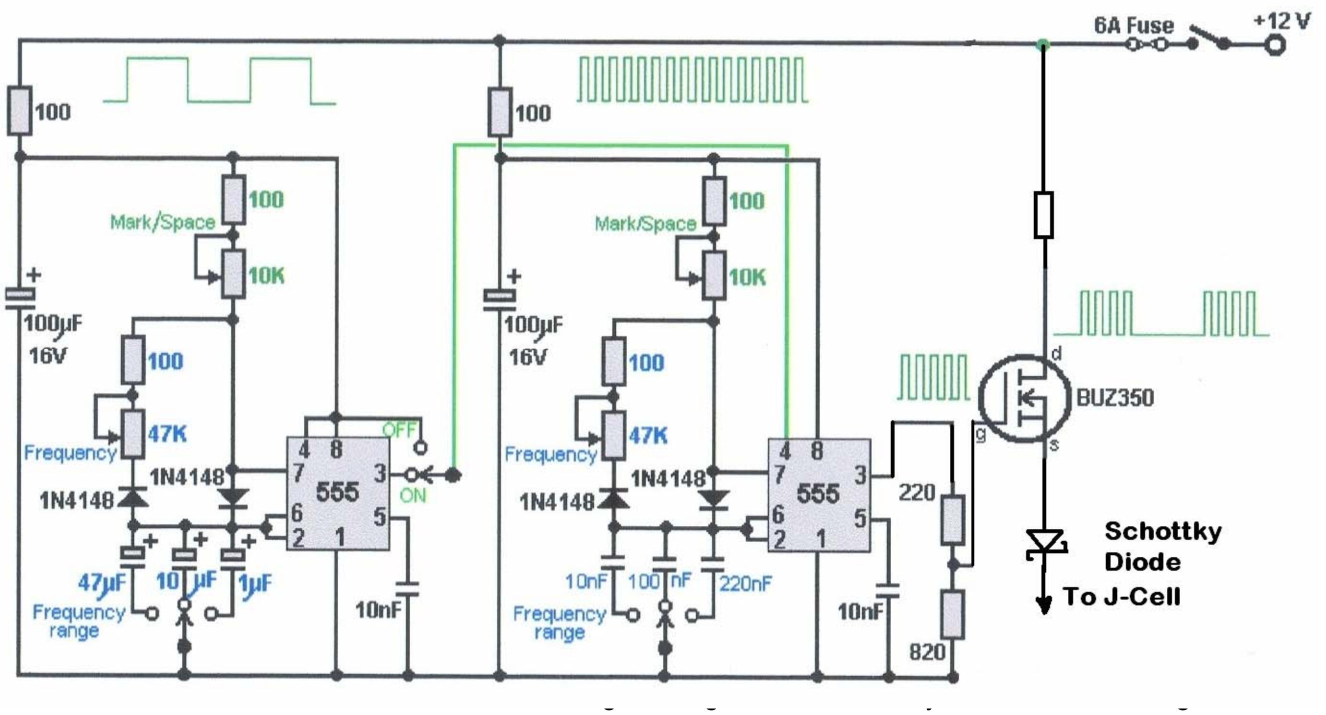
- using a modified Gray's circuit with suggestions
- using some components of your car
- using a modified circuit I got from a patent

I am going to do all three options so as to explain clearly how the design can be modified to achieve results once the principles are well understood.

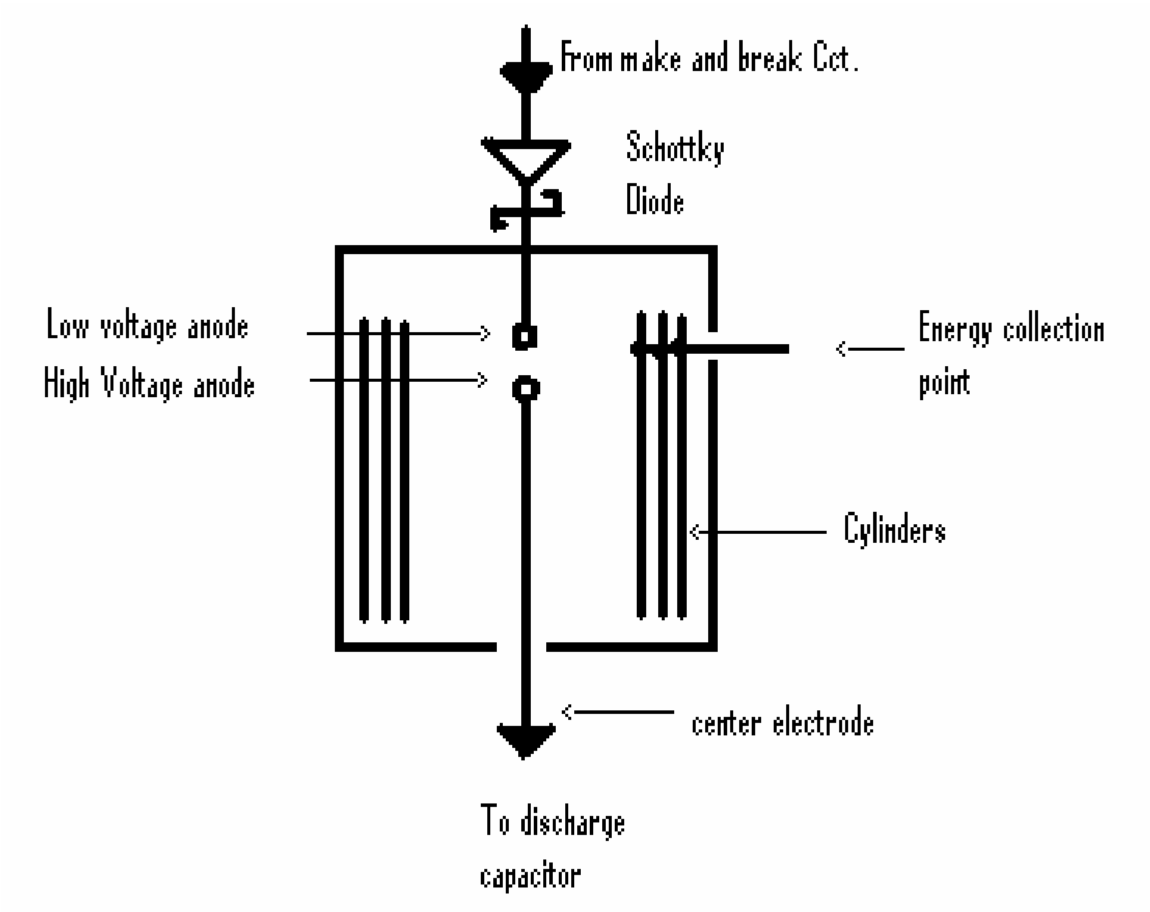
Gray's circuit:

The abridged form of Gray's circuit was used to explain the barebones of the principles of the design. I'd now like to refer you to the full circuit diagram of Gray's patent. Everything in that circuit is normal stuff except for the following points to be noted:

1. Make component **26** a make-and-break circuit, preferably a solid state make and break circuit. Gray used a car distributor for this purpose, which would have discharge rates between 10,000 and 15,000. Below is a pulse circuit that I stole and modified from Dave Lawton (I hope you will excuse me Dave) that you can use as the make-and-break trigger circuit. Dave used this circuit in his replication of Stanley Meyers' Hydrogen generator. You could also use or build a make and break circuit around a standard Tyco Electronics solid state relay DS13-1001 or an EDR82604. You can experiment with various pulse rates. Tesla preferred to experiment with pulse rates between 30 KHz to 60 KHz or higher.



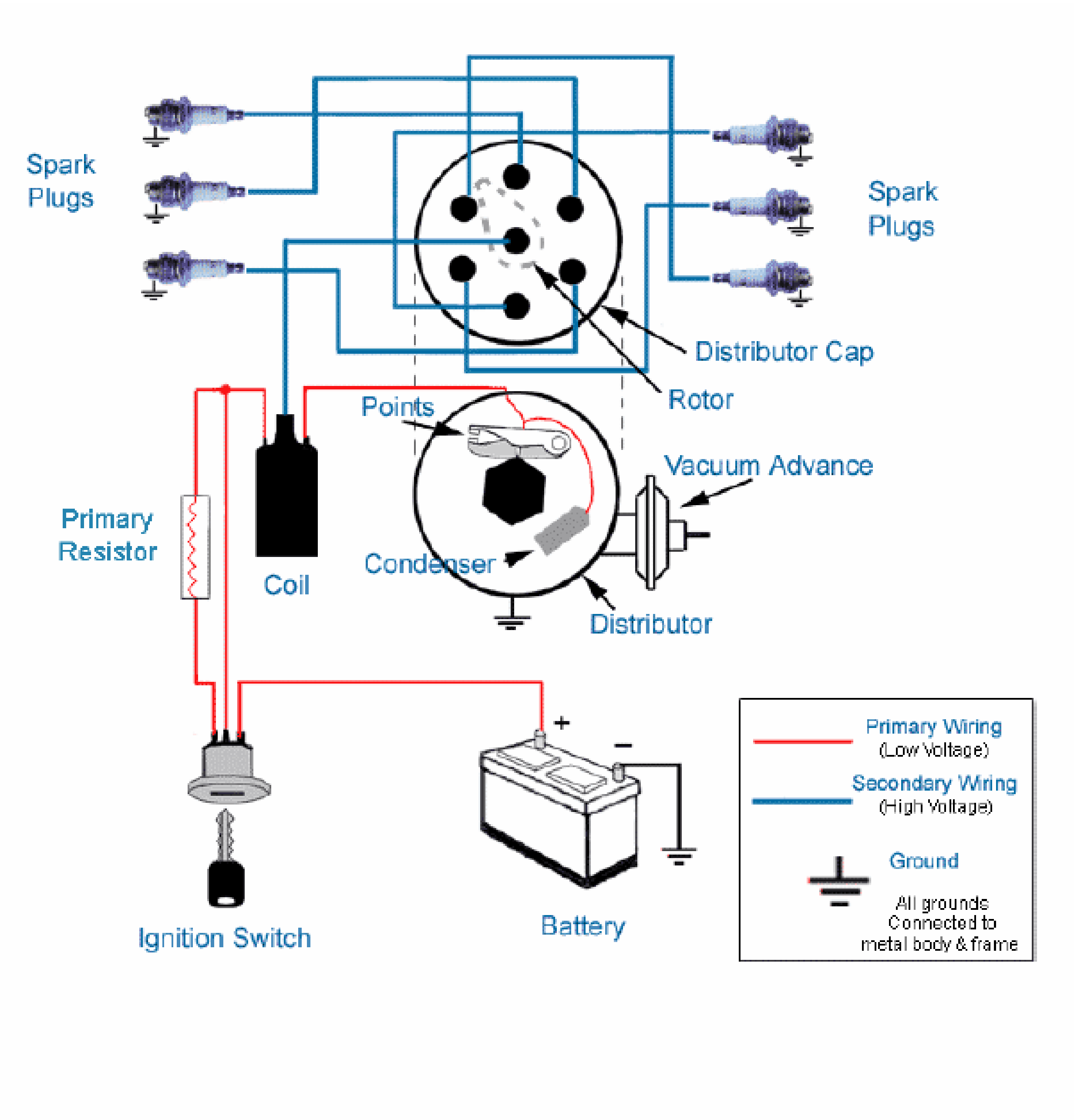
2. Component **28** on Gray's circuit is a diode. Preferably use a Schottky diode for fast switching. This diode is absolutely essential, as it ensures that no negative pulses or reverse pulses are allowed to traverse the "secret path".
3. Component **14** of Gray's circuit is the J-Cell. Connect it as shown in the diagram below.



4. Component **42** is an overshoot protection circuit. You will need this if you are generating too much power. It is a spark gap that will fire when there is too much power. You can use an ordinary car spark plug for this.
5. Component **36** is the energy consumption unit. This can be anything you wish to power; car engine, motor, etc.
6. Component **38** is a capacitor you will use to protect your charging batteries. This component, as Peter Lindemann found out, is out of place here but when you consider that we are now dealing with cold electricity around here, it proves to be useful as was eventually confirmed by John Bedini.
7. Component **16** is the discharge capacitor. Gray used a 5KV 12 µF capacitor for this. But depending upon your design you could use appropriate values. You should only note that it should be a fast high, non-leaking energy capacitor.
8. All other components, indicated by a red box in the diagrams above, are standard design components for high voltage DC, rectified or otherwise. You can pick and choose how you want to get High voltage DC to the capacitor **16**.

Using components you already have in your car:

You could use the same basic circuit as the Gray circuit above except replace the High voltage DC generator circuit with an ignition coil. A normal ignition coil will have a circuit similar to the one shown below:



There are, however, some points to note here.

1. The ignition coils work on the principle that their primary coil circuit be broken periodically so as to provoke a back EMF discharge of the secondary coil. So if you should use a car ignition coil, you may take advantage of the make and break provided by the car circuitry to dump the coil power into the capacitor. But if you prefer not to disturb the car or you are doing a standalone project and but still wish to use a car ignition coil, then you will need to make a make-and-break circuit at the

primary of the ignition coil. Modern ignition coils have voltages in the range of between 40 KV and 100 KV, so don't forget to size you capacitors appropriately. Possible capacitor types and values to use are TDK ceramic capacitor UHV-12 (2000 pF, rated at 40 KV), Maxwell 37335 (rated at 75 KV)

2. Also you should note that you will need to synchronize the make-and-break on the ignition coil primary and the make-and-break on the low voltage anode of the "secret path". It is when the ignition coil primary is broken that its secondary back EMF charges the capacitor so a make-and-break at the low voltage anode will ***make*** when the capacitor is charged, that is, the two makes and breaks should be complementary.
3. You can use the distributor in your car. Most car designs are now avoiding distributors so you may have to design something similar for your project.

Using a modified circuit:

Below is a circuit I got from patent number 3,980,053. I would recommend that you read this patent. The circuit I am talking about is very well explained in the patent. I am only going to modify it so that it functions using the "secret path". I am doing this so that you can see how to change any pulse circuit to operate on the principle that I wish to emphasize here.

My changes to the circuit are in red. A few points to note:

1. The part identified with a red box, you should replace with the J-Cell. Also you can use ***as is*** if your design has other objectives. That part shows that this "secret" can be extended to other applications.
2. Part **88** of the circuit would be the centre conductor of the J-Cell.
3. Transformers can be fly backs
4. You can replace the oscillator part of the circuit with a 555 timer.

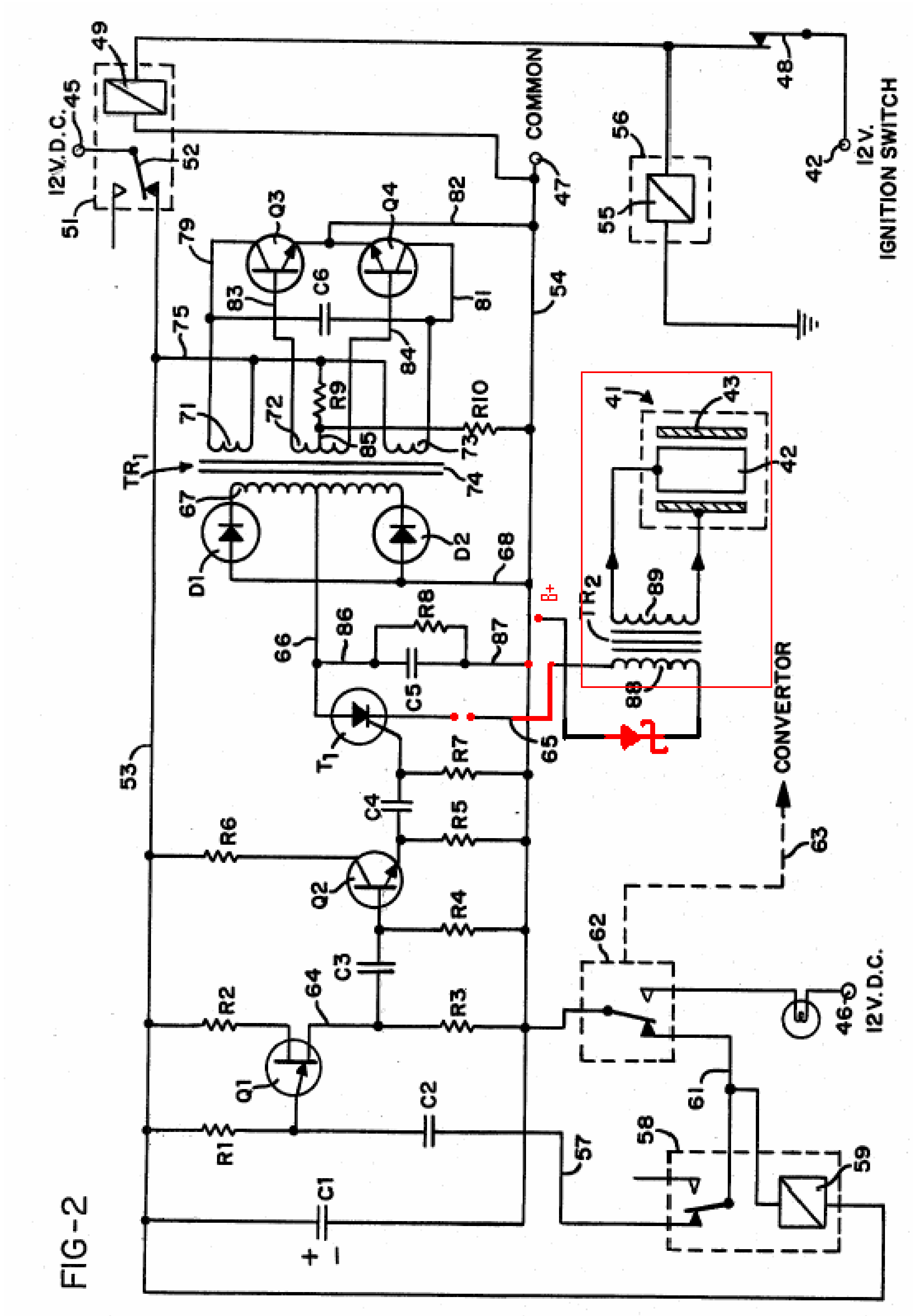

12V.D.C.
COMMON
12V.
IGNITION SWITCH
CONVERTOR
12V.D.C.
TR1
TR2
Q1
Q2
Q3
Q4
T1
D1
D2
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
C1
C2
C3
C4
C5
C6
B+

FIG-2

Summary

Let us now summarize the most important differences between the J-Cell we used to know and the modified J-Cell. Let's call it the B-Cell for now.

1. The J-Cell has the battery negative connected to the middle conductor of the cell. The B-Cell on the other hand has the middle conductor as the positive high voltage anode connected to the discharge capacitor.
2. The J-Cell, apparently, is powered directly from the battery, the B-Cell, on the other hand, is powered from a 12V battery but has voltage discharges from a capacitor or capacitive inductor which can have values of between 5 KV to 100 KV on the high voltage anode.
3. There is no spark gap in the J-Cell. There is a spark gap in the B-Cell
4. The power supplies to the B-Cell anodes are unidirectional and are pulsed.
5. The unidirectional nature of the pulse power of the B-Cell is effected by a fast diode.
6. There is at least one make-and-break circuit in the B-Cell (you will need to have two if you are using a standalone ignition coil). This make-and-break circuit controls the effectiveness and the power output of the B-Cell.

APPENDIX

The mathematical predictability of the J-Cell.

For those of us who are engineers and scientist or who wish to be able to scale their J-Cell design will require some mathematical predictability of the J-Cell.

We now know that the J-Cell is effectively both an inductor and a capacitor. We would therefore like to know how resonance can be exploited to improve or change certain characteristics of the J-Cell. We may also like to know how we can change or scale the electrostatic and magnetic properties of the cell for other applications we may have.

The J-Cell as an inductor:

Current through a conductor creates a magnetic flux proportional to the current. A change in this current creates a magnetic flux that, in turn generates an electromotive force. While a capacitor opposes changes in voltage, an inductor opposes changes in current.

The inductance of a straight conductor is given by[7]:

$L = l*(\ln(4l/d) - 1)*200\times10^{-9}$

Where L = inductance in H, l = conductor length in meters, d = conductor diameter in meters.

We can rewrite the formula in imperial units:

$L = 5.08* l*(\ln(4l/d) - 1)$

Where L = inductance in nH, l = conductor length in inches, d = conductor diameter in inches.

I am going to use the blue prints in the J-Cell group files as examples. These can be found here:
http://tech.groups.yahoo.com/group/joecellfreeenergydevice/files/%21%20Joe%20Cell%20Blueprints%20%21/

$L = 5.08*5*(\ln(4*5)-1) = 5.08*5*2 = 51\text{nH}$

The J-Cell as a capacitor:

When voltage is applied to a capacitor, electric charges of equal magnitude, but opposite polarity, build up on each plate, which in this case are cylinders.

The capacitance between two coaxial cylinders is given by:
$C = 2\pi\varepsilon/\ln(b/a)$

Where C = capacitance in (F/m), ε = permittivity of the material, b = radius of the outer cylinder in meters, a = radius of the inner cylinder in meters

The value of ε for water is $\varepsilon_r\varepsilon_0 = 80*8.85x10^{-12} = 7.08 \times 10^{-10}$
Therefore $2\pi\varepsilon = 44.5 \times 10^{-10}$

There are at least three coaxial cylinders. So we will consider three coaxial cylinders having capacitances in series since the boundary between any inner cylinders will be a capacitor plate between two neighboring cylinder capacitors.

The effective capacitance in series for C_1, C_2, C_3 is $C_s = C_1C_2C_3/(C_2C_3 + C_1C_3 + C_1C_2)$
$C_s = (2\pi\varepsilon)^3*[\ln(R_2/R_1)*\ln(R_3/R_2)*\ln(R_4/R_3)]/(2\pi\varepsilon)^2*[\ln(R_3/R_2)*\ln(R_4/R_3) + \ln(R_2/R_1)*\ln(R_4/R_3) + \ln(R_2/R_1)*\ln(R_3/R_2)]$

From the blue prints, R1 = 1in = 2.5 cm = 0.025m, R2 = 2in = 5cm = 0.05m, R3 = 3in = 7.5cm = 0.075m, R4 = 4in = 10cm = 0.10m

$R_2/R_1 = 2$, $R_3/R_2 = 1.5$, $R_4/R_3 = 1.3$, $\ln(R_2/R_1) = 0.693$, $\ln(R_3/R_2) = 0.405$, $\ln(R_4/R_3) = 0.262$

Therefore $C_s = 44.5 \times 10^{-10} * (0.693*0.405*0.262)/(0.405*0.262 + 0.693*0.262 + 0.693*0.405) = 44.5 \times 10^{-10} *0.074/0.568 = 580pF$.

Now that we have estimates on the capacitance and inductance, we can estimate what the likely resonance frequency will be. We can then test this against experimental data and see whether we are any closer at all to real values.

Parallel resonance occurs when $X_c = X_L$

Since the total current is zero, which was one very important Tesla experimental observation[5], the impedance of the ideal parallel circuit is infinitely large.

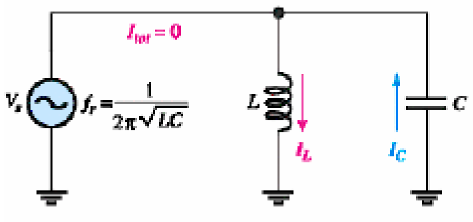
- The impedance is maximum at resonance
- Total current is minimum at resonance
- Bandwidth is the same as for series resonance and is 70.7% of the resonant frequency on either side.

For non ideal resonant circuits with quality factor values of Q >=10, the parallel resonant frequency is:

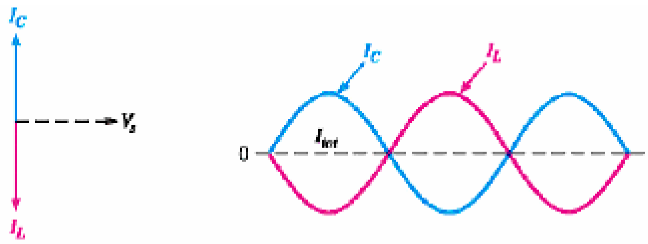
$f_r = 1/(2\pi\sqrt{LC})$

A parallel resonant circuit stores energy in the magnetic field of the coil and the electric field in the capacitor. The energy is transferred back and forth between the coil and the capacitor. But what happens when the inductor is the capacitor? We would expect an oscillatory transference between magnetic and electrostatic energies. Magneto-static energy!

Ideal Parallel Resonant Circuit



(a) Parallel circuit at resonance ($X_C = X_L$, $Z = \infty$)

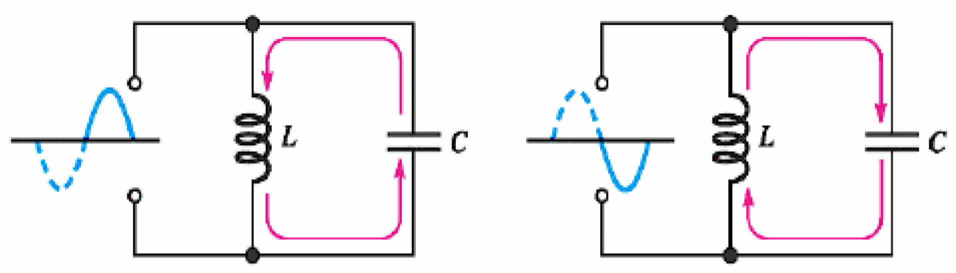


(b) Current phasors (c) Current waveforms

The resonant frequency for the calculated values above is:
$f_r = 1/(2\pi\sqrt{LC}) = 1/(2\pi\sqrt{51\text{x}10^{-9}*580\text{x}10^{-12}}) = \quad 1/(2\pi*54.4\text{x}10^{-10})$
f_r = 29MHz

The more there are cylinders, the smaller the effective series capacitance and the higher the resonant frequency.

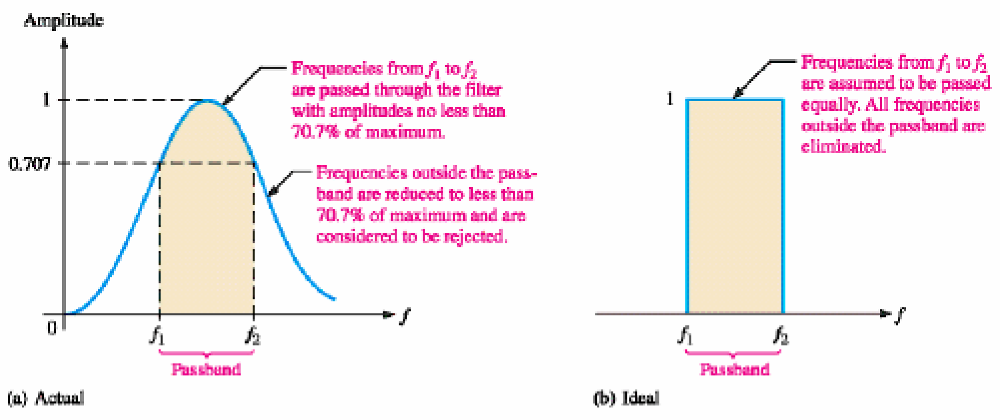
We can see that the resonant frequency is very high for these values. So let's try pulsing our cell at or around 29 MHz (34nS) and observe what result we get.



(a) The coil deenergizes as the capacitor charges. (b) The capacitor discharges as the coil energizes.

For a range of values between which we could try our experiments, let's consider the bandwidth:

Bandwidth



Bandwidth = +/- 70.7%*29 MHz = 20 MHz – 38 MHz.

Happy Experimenting!

Reference:

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3. H. B. Rex Patent No.: 2,611,094
4. Horvath Patent No.: 3,980,053
5. Lost Science by Gerry Vassilatos
6. Replication of Stanley Meyer's Demonstration Electrolyzer by Dave Lawton
7. Wikipedia, The Free Online Encyclopedia (www.en.wikipedia.org)
8. Resonance by Professor A. H. Andersen