Voltage Threshold & Amp Restriction Levels

GPT Interpretation from: https://stanslegacy.com/books/us-patents/page/gas-generator-voltage-control-circuit-4798661

L-1. Voltage and Current Regulation: The use of a uni-polar pulsating DC voltage is an initial approach to raise the amplitude of the voltage without electron leakage. However, it has a limit up to an amplitude of 4.0 volts. This is represented by level L-1 in Fig. 8.

L-2. Duty Cycle Variation: To further restrict current flow with amplitude voltages above L-1, the duty cycle pulse of the pulsed DC voltages can be varied (as shown in FIGS. 2, 3, and 8). This can help control and limit the electron leakage from the exciter plate which has negative voltage applied. The voltage amplitude limit in this approach is 4.0 volts, as represented by L-2 in Fig. 8.

L-3. Pulsed DC Voltage: The pulsing of the pulsed DC voltage, which comprises switching the voltage on and off periodically, can help in the function of inhibiting electron leakage. The duty pulses have an effective amplitude in inhibiting electron leakage by controlling the force on the electrons around the plate exciter, having the negative potential voltage applied. The amplitude is effective to increase the output gas generation with an upper limit of 5.5 volts, in this instance L-3 of Fig. 8.

L-4. Serially Connected Exciter Plates: Though serially connected exciter plates do permit a higher amplitude of voltage to be applied, it too, has a limitation L-4 of 7 volts. This method allows the positive voltage to be applied individually to each of the outer plate exciters and the negative voltage to each of the inner plate exciters, which increases the surface between the inner and outer plates, thus reducing the probability of an electron breaking free and leaking to the attractive field of the positive voltage plate.

L-5. Use of Resistors as Current Inhibitors: Resistors, such as resistor 60 shown in FIGS. 1 and 5, can act as simple current inhibitors to prevent electron leakage. These resistors can be fine-tuned for specific applications and are connected to each of the plates having the negative voltage connected thereto. They effectively raise the voltage amplitude limit to 8.5 volts before breakdown, as shown at L-5 in Fig. 8.

Beyond L-5. Use of Poor Conductive Material: Using a material that is a poor conductor of electricity, like stainless steel 304L, can further inhibit electron leakage. This material is used in the electron inhibitor, shown in FIG. 7, which is connected between the inner plate (having the negative potential connected to it) and ground. Stainless steel 304L is considered a poor conductor when compared to materials like copper or gold, and can effectively restrict the electron flow, thus reducing electron leakage. This technique removes the upper level of amplitude of the voltage as shown beyond L-5 in Fig. 8. Fine-tuning of the resistive value of the electron inhibitor is achieved by changing the resistive material to binder ratio, and by the use of resistor 75 connected in series.

The varying of the duty cycle of the uni-polar DC voltage pulses is a technique used to control the amplitude of the voltage and thereby inhibit electron leakage. This variation can be periodic or aperiodic:

Periodic Variation of Amplitude (Claim 7):

In the periodic variation of amplitude, the on/off pattern of the duty cycle of the uni-polar DC voltage pulses repeats at regular intervals. This could involve, for example, turning on the voltage for one second, then turning it off for one second, and repeating this pattern continuously. This form of periodic variation can help maintain a certain average voltage amplitude, preventing electron leakage by keeping the voltage within safe limits.

Aperiodic Variation of Amplitude (Claim 8):

On the other hand, in the aperiodic variation of amplitude, the duty cycle of the uni-polar DC voltage pulses changes irregularly or randomly. For instance, the voltage might be on for two seconds, then off for one second, then on for half a second, and so forth, with no consistent pattern. This form of aperiodic variation might be useful in systems where the conditions fluctuate or where a certain level of randomness is beneficial. As in the case of periodic variation, the aim is to maintain an average voltage amplitude that minimizes electron leakage.

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