Carbon Arc Experimentation notes:

If one studies the subject one finds the following key design considerations:

Using hard graphite carbon rods (made like pencil leads) and a voltage of 45 to 60 volts with about 2 to 10 amps DC in a Simi closed environment (behind glass, with controlled air flow) consumes the least amount of carbon rod. DC work best but AC can be used. Current is limited by use of resistor (DC) or Inductance (Ac). This is necessary because of the negative resistance characteristic of the arc.

With this in mind --- For testing carbon Arc I purchased two surplus small 70 Volt (open circuit) output transformers that worked on 120 Volts input. Each one weights about 2 lbs. I wired them in parallel for input and output windings (to give more power) and put a 5 ohm power resistor in series with the 120 volt input winding. The 5 ohm resistor is to give short circuit protection to the transformers. The short circuiting the output causes the current flow for input winding to be 6 amps. By using jumper clip leads carbon poles from small dry cells and pencil led was tested. One could strike an arc by bring the ends together, and then separate the electrodes to produce a carbon gas plasma wider arc. The pencil led was a bit thin and didn't last long it would get red hot along its length while in operation. This indicated it was running way over current for its small size. Lots of white light was produced when in operation but for a short time.

Electrode making is by far the harder thing to accomplish. It becomes the go or no go deciding points as to workability for any one attempting to use carbon arc lighting. I consider my attempts at this to be a failure.

I tried baking several types of mixture of ground charcoal and liquid material that should turn to carbon if heated. I tried individually at separate times oil, sugar, and wax as the binding agent. I had read that pitch was used as a binder at some point in the past.

In my testing the mixture was then heated over an electric stove burner. I could get it to harden but not conduct electricity. It also was too porous. It needed compressing and heating at the same time. It needed to be hotter than my red hot electric stove would make. Also the hotter it got the more it would burn and turn to ash. It needed to be in a closed environment under pressure.

Next I was going to try to use 50% ground up charcoal and 50% lamp black (soot from chimney or incomplete burning), and 10% clay and water or ground grain (flower) and water. Heat it in one end of a .5" SS tube pack in more from other end (use a packing rod) as heat dries and fuses it into a rod that comes out the other end. I

never made this test. It became beyond my current skills. From studying patent info I doubt I could heat it enough to work.

Other possible components that would turn to carbon but were not tested are:
Wax, fat, sap, pitch, tar, bug-juice, ground up coal, oil, milk, eggs, gelatin, cotton strands mixed in for reinforcing, or other carbon producing material.