

UNITED STATES PATENT OFFICE.

FRANK R. CRANE, JR., OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-THIRD TO HENRY JAMPOLIS AND ONE-THIRD TO GEORGE N. NELSON, BOTH OF CHICAGO, ILLINOIS.

ARC-LAMP ELECTRODE.

1,075,768.

Specification of Letters Patent.

Patented Oct. 14, 1913.

No Drawing.

Application filed March 31, 1913. Serial No. 758,025.

To all whom it may concern:

Be it known that I, FRANK R. CRANE, JR., a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented a new and useful Improvement in Arc-Lamp Electrodes, of which the following is a specification.

My invention relates to arc lamp electrodes and contemplates better and more efficient composition which will produce more desirable light.

There are a great many electrodes on the market of various compositions which burn with a flaming arc but such electrodes contain too much sodium and the light is sickly and trying on the eyes.

My improved electrodes will cause a flaming arc but the light is of whitish pink color and much softer and less trying on the eyes. The greater part of the electrode is of some carbonaceous substance which will give sufficient conductivity to current flow. With this conducting material are mixed various substances to give the desired color and intensity of light, and a suitable binder is added, the entire mass being compressed into form and may be baked.

I preferably use comminuted carbon or lamp black as the conducting body and add thereto soda ash, cast iron filings, metallic magnesium in suitable proportions to give the desired color and intensity, and preferably use clay as a binder. The mixture is compressed and dried and, if desired, may be baked.

When the electrodes are connected in circuit and an arc forms between them the substance added to the carbon will fuse and when the circuit is broken this fused mass cools and becomes glassy. The proportion of carbon should be large enough so that the glassy mass will retain sufficient carbon to enable current flow therethrough to start the arc when the circuit is again closed.

I find that the following proportions give very efficient results:

Comminuted carbon or lamp black	75. %	
Soda ash	12.5 %	
Cast iron filings	5. %	50
Metallic Magnesium	5. %	
Binder such as clay	2.5 %	
	100. %	

The soda ash, filings and magnesium combine to give a soft whitish pink light which has considerable volume but which does not try or hurt the eyes. The light closely resembles day light and is therefore much more desirable than the sickly yellow light given off by other electrodes.

It is evident that the proportions above may be somewhat varied without decreasing the efficiency and I do not therefore desire to be limited to the exact proportions stated.

I claim the following:

1. An electrode composed of a mixture of about 75% comminuted carbon, 12.5% soda ash, 5% iron filings, 5% metallic magnesium, and the remainder a suitable binder.
2. An electrode composed of the ingredients

Comminuted carbon or lamp black	75. %	
Soda ash	12.5 %	75
Cast iron filings	5. %	
Metallic magnesium	5. %	
Clay as a binder	2.5 %	

compressed together and into form.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses this 24 day of March, A. D. 1913, at Chicago, Illinois.

FRANK R. CRANE, JR.

Witnesses:

BENJ. S. MESIROW,
EDW. R. NEUMANN.