

W. R. MOTT.
CORED CARBON WITH ARC EXTINGUISHING PLUG.
APPLICATION FILED DEC. 26, 1911.

1,187,166.

Patented June 13, 1916.

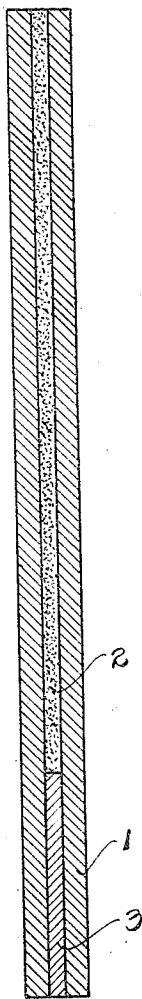


Fig. 1

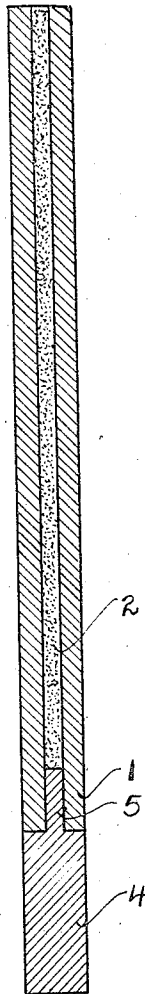


Fig. 2

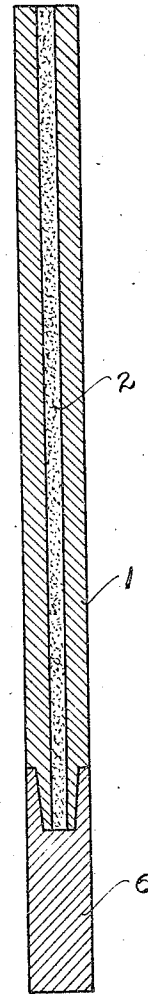


Fig. 3

WITNESSES
B. Dyer
J. E. Hansen

INVENTOR
William Roy Mott
BY *Era J. Adams*
ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM ROY MOTT, OF LAKEWOOD, OHIO, ASSIGNOR TO NATIONAL CARBON CO., OF CLEVELAND, OHIO, A CORPORATION OF NEW JERSEY.

CORED CARBON WITH ARC-EXTINGUISHING PLUG.

1.187,166.

Specification of Letters Patent.

Patented June 13, 1916.

Application filed December 26, 1911. Serial No. 667,822.

To all whom it may concern:

Be it known that I, WILLIAM ROY MOTT, a resident of Lakewood, in the county of Cuyahoga, in the State of Ohio, have invented new and useful Improvements in Cored Carbons with Arc-Extinguishing Plugs, of which the following is a clear and exact description.

This invention is an improvement in cored carbons with arc extinguishing plug. As is well known, cored carbons consist of an outer part that is formed with a central channel. The carbon and channel are formed at the same time by forcing a carbon mix out through a die in a hydraulic press machine. The carbons are then dried and baked to obtain the requisite hardness, and finally are ready to be filled with the material to enrich the flame of the arc. This material is forced into the hollow in the carbon by pressure and frequently the workman removes the carbon before it is filled to the tip. The defective carbons must either be thrown on the scrap heap or else additional time and labor must be expended to patch them up. Then again the carelessness of the workman frequently results in air bubbles being formed within the core. In the defective cores the air bubbles cause the candle power to vary or even cause the disruption of the arc.

In case the binding material is of an insulating nature when cold, the end of the core cannot be plated satisfactorily when the carbon is "silver tipped".

When lamps are used in series across a constant voltage circuit, it frequently happens that the lamps will not break the circuit when the carbons are burned down to the point where this action should take place. The lamp sometimes continues to burn until the economizer or other part is burned out. This results from the high conductivity of the arc due to the material in the core.

My invention obviates the fore-mentioned difficulties in the manner clearly stated in the following description, particular reference being had to the drawings in which;

Figure 1 is a section through the length of a cored carbon, showing my improvement attached thereto. Fig. 2 shows a section of a cored carbon with a modified arrangement. Fig. 3 shows a section of a carbon with another modified arrangement.

Referring to Fig. 1, the outer part of the carbon is designated by reference character 1. The inner part, or core, is designated by 2. A plug 3 fills the holder end of the carbon. This plug or rod is of slightly less diameter than the hole in the carbon 1, and is approximately two and one-half inches long, this being the usual length of the end that is ultimately thrown away as a stub. The plug is inserted by hand in a freshly filled carbon, and pressed in for about a half-inch. After it has set for about a half minute the workman holds a finger over the flame end of the carbon and pushes the plug to place. By this process the material is densely packed within, and if the carbon is not entirely filled the material will be forced to the extreme tip. It is therefore not necessary to go through a separate process for patching up defective tips. If there are any air bubbles in the core, it becomes evident when the plug 3 is pressed in, as the core is elastic and partly forces the plug outward when the pressure is released. When this happens the defective carbon is thrown on the scrap heap as the air bubble cannot be eliminated satisfactorily. My invention thus aids in the detection of defective carbons. The plug 3 may also be inserted by a machine. In case it were inserted mechanically the plug would be forced out slightly by any air bubbles when the carbon was removed from the machine so that a defective carbon could be detected. The carbon 1 and plug 3, having none of the enriching materials that are found in the core filling, will not support an arc of any great length. The result is that when the carbon burns down to the plug 3 the lamp will go out, thus avoiding the difficulty previously mentioned. It will be impossible for the arc to continue to burn after the filling material is all burned out, as the length of arc is greater than can be maintained without this material. The plug 3 may be of material similar to the outer part 1, and is a good conductor of electricity when cold. Hence the entire end of the carbon will be coated with metal in the "silver tipping process". The material in the plug is cheaper than that used in the core. In a twenty-four inch carbon the plug takes up approximately 10% of the space. My improvement therefore results in a saving of expensive filling material.

It is obvious that the upper stub end of

the carbon can be formed with an integral plug as shown in Fig. 2. The carbon 1 has filling material 2 that is compressed by forcing in the plug end 3 of a carbon stub 4. This modification secures all the results stated in description of Fig. 1.

Fig. 3 shows another modification in which a carbon stub 6 is secured to the end of the carbon in a different manner. This modification, while not compacting the filling material in the core as in Figs. 1 and 2, enables the lamp to cut itself out on account of the stub 6 being unable to support an arc of any great length. The stub 6 being made of a cheaper material also reduces the cost of the carbon. This part of the carbon is eventually thrown away as a stub, so that is immaterial as to whether or not it has enriching material in its composition.

In the modification shown in Figs. 1 and 2, the compacting of the filling material greatly increases the candle power of the

lamp, and the carbons have proven very superior to the present yellow flame cored carbon or any other cored carbon. The candle- power has been increased as much as 20% in some cases.

Having described my invention, what I claim is:

An arc light electrode consisting of a carbon body with a channel extending longitudinally therethrough, and a filling of good arc supporting material in the greater part of said channel, and a plug of poor arc supporting material in the remaining part whereby the arc will be extinguished when it reaches said plug.

In testimony whereof I have hereunto signed my name.

WILLIAM BOY MOTT.

Witnesses:

F. D. LAURENCE,
RICHARD B. HANSEN.