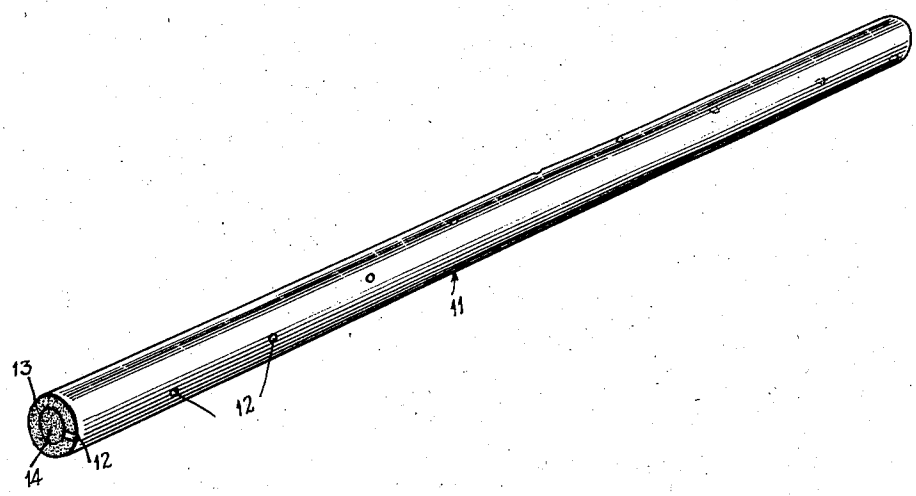
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CARBON FOR ARC LIGHTS

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CARBON FOR ARC LIGHTS

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This invention relates to electric arc lights and deals particularly with carbons used in lights of this nature.

The invention to be hereinafter described has been developed for a special use in motion picture studios but to those versed in the art it will become evident that it may be used to good advantage in other fields wherever a high intensity carbon arc light is required.

In using carbons in arc lights, particularly for motion picture work, a highly objectionable feature is the sputtering of the light between the carbons. This may be caused by a variety of things but is probably mainly due to escaping gas from the crater of the carbon. As is customary, carbons, and especially the carbon used on the positive side of the arc, are made with a comparatively hard, brittle shell surrounding a soft core. The core is generally made of a granular substance held together by a suitable binder. In the intense heat generated by the arc, gas is liberated from this core, which because of the outer impervious shell must escape through the crater in the arc. This causes sputtering of the arc, which has two very bad effects. One is to fluctuate the light value, which cannot be tolerated in motion picture work, and the other is to pit reflecting mirrors which are positioned close to the arc by the hot particles thrown off from the crater. To overcome these objectionable features, I conceived of a way whereby the gas and molten material generated by the heat could escape some other way than through the crater itself. The method is simple and efficient and requires only that the shell itself be porous or that a series of small holes be drilled through the shell so that the gas and molten material resulting from the fusing of the core can escape through the holes back of the crater. This prevents the eruptive escape of the gas through the crater and eliminates all sputtering of the arc, with a consequent improvement in the light.

In its preferred form, my invention consists of drilling a series of small holes of approximately one-sixteenth inch in diameter spaced along the length of the carbon so that as the carbon is fed into the arc there will always be a hole near the crater. The result is that the customary carbons which heretofore could be used only up to a certain definite amperage without the holes could be used with a definitely higher amperage after the holes had been drilled and accordingly could be made to yield a marked increase in the amount of light produced.

An object of my invention, therefore, is to provide a means for improving the conventional carbons for arc lights so that they may be used with a higher amperage to yield a greater light value. Another object is to provide a carbon having a shell surrounding a core with the outer shell so formed that gas and/or molten material may escape from the inner core through the outer shell.

Other objects and advantages will become apparent as the description proceeds in conjunction with the drawing, in which the single view is a perspective of a carbon embodying my invention and having one end shown in section.

As will become obvious from this view, a conventional carbon 11 has been drilled with a series of holes 12. These holes as shown are spiraled around the carbon, mainly for the purpose of preventing a weakness in the shell of the carbon. No particular stress is laid upon the manner in which the holes are drilled, it being deemed sufficient to state that the holes should be of sufficient diameter and sufficiently close to each other to permit molten material and gases to flow backward from the crater and escape through the holes. As shown and as previously mentioned, the carbon comprises a shell 13 surrounding a core 14 and as seen on the end of the carbon the holes 12 penetrate through the shell 13 and form a passageway from the core through the shell.

After it is drilled, the carbon is used in the conventional manner and is mounted in the holders in the usual way. In practice it has been found that satisfactory results are obtained if the positive carbon only is treated in the manner stated. As the carbon is fed into the arc, a crater is formed and the carbon is eaten away, but there is always a hole 12 near the crater to permit escape of the gas and molten material. This has been found to eliminate all sputtering and has allowed increased amperages to be used on standard carbons high above their manufactured rating, with the result that a higher light intensity may be obtained from a conventional carbon. Amperages have been increased almost 100% over the conventional rating with satisfactory performance on standard carbons that have been drilled with holes according to my invention.

It is to be understood that the size and number of holes drilled in the carbon may be varied to suit requirements, which if carried to a logical conclusion would result in a carbon having a porous shell. The invention is accordingly intended to cover this form and all other modifications and refinements in construction and ar-

rangement that embody the same concept and would be obvious to one skilled in the art.

I claim:

1. A carbon for arc lights consisting of a substantially solid non-metallic body formed into a relatively hard shell surrounding an inner core with holes extending through said shell to said core to conduct products of combustion from said core to the atmosphere.

2. For use in an arc light a carbon consisting of a substantially solid non-metallic body having an inner core of flame producing material, said body forming a relatively hard outer shell surrounding and contacting said core at all places with holes extending radially through said shell to said core to permit products of combustion to escape therethrough.

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