

(No Model.)

J. V. NICHOLS.
INCANDESCENT LAMP.

No. 258.943.

Patented June 6, 1882.

Fig. 1.

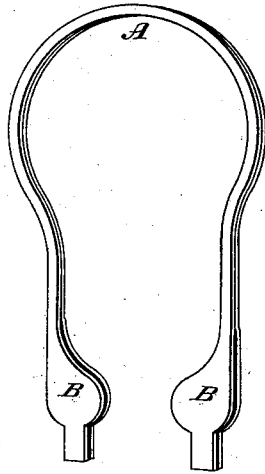
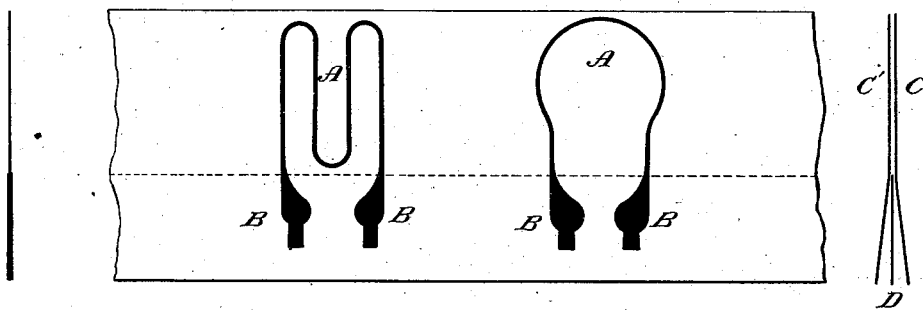


Fig. 4.

Fig. 2.

Fig. 3.



Attest:
R. H. Barnes
W. Fishy

Inventor:
Joseph V. Nichols
by Park W. Page

Attorney:

UNITED STATES PATENT OFFICE.

JOSEPH V. NICHOLS, OF BROOKLYN, ASSIGNOR TO THE UNITED STATES
ELECTRIC LIGHTING COMPANY, OF NEW YORK, N. Y.

INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 258,943, dated June 6, 1882.

Application filed September 7, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH V. NICHOLS, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Incandescent Lamps, which are set forth and described in the following specification and illustrated in the drawings accompanying and forming a part of the same.

10 The conductors in the manufacture of which my invention enters as an improvement are designed for use in incandescent lamps. As now commonly made they consist of carbonized strips or filaments of paper, wood, or other
15 fibrous material, presenting the general shape of a loop or arch. It has been found advisable, for many well-known reasons, to shape and treat the above-named conductors in such a way that the main portion will be rendered
20 incandescent by the current, while the ends to which the clamps are attached will not be visibly affected. They have for this reason been formed with a slender stem or body, the ends of which are widened or enlarged and subjected
25 to various processes with a view to improving their electrical conductivity and rendering them homogeneous with the remaining portions of the conductor. Many of the difficulties encountered in the manufacture of these conductors
30 are met with in forming clamping ends or stubs which will exhibit the proper relative electrical resistance or conductivity to their slender stem. Up to the present time the methods usually resorted to involve the necessity of
35 pasting independent washers onto the ends of the strips previous to carbonization, or require a special treatment of the ends subsequently to carbonization for improving their electrical conductivity, said processes consisting generally
40 in heating the ends electrically or otherwise in a hydrocarbon vapor. Over these methods my invention is designed as an improvement, as by it I dispense entirely with the necessity of forming independent washers, and
45 greatly reduce the labor and time required for the manufacturing of the carbons.

The manner of carrying out my invention which I have adopted as the most convenient and practicable will be described for greater

convenience by reference to the accompanying 50 drawings, in which—

Figure 1 is a view of a blank ready for carbonization, enlarged to better illustrate the invention. Fig. 2 is a diagram designed to show the manner of cutting or forming the blanks; 55 Fig. 3, an end view of the sheet from which the blanks are cut, showing the component parts distinct; and Fig. 4, a similar view of the same after compression.

The material which I propose to employ is 60 paper, and by preference thin linen bond or parchment paper. This is cut into strips of any desired length, and a little wider than the length of the loops. I also form a number of strips of the same material, but considerably 65 narrower than the others, and then form a compound strip of one narrow and two wide strips, as shown in Fig. 3. The inner faces of strips C C' are carefully covered with an even coating of ordinary flour-paste, and the strip D 70 is laid between them along one edge, so that the whole will adhere and form practically one sheet or strip re-enforced along one edge. The compound strips are then pressed between bibulous paper for taking up superfluous moisture, after which they are subjected simultaneously 75 to a temperature a little below the melting-point of lead, and a pressure sufficient to reduce the re-enforced edge to the same apparent thickness as the rest of the strips. This 80 may be done by placing the strips between previously-heated plates in a hydraulic press or by directing a gas-jet against the plates until the desired temperature is attained. By this means the several sheets are reduced to an apparently 85 single semi-carbonized sheet of equal thickness, the re-enforced portion being distinguished by its greatly-increased density. From these the blanks A for the conductors are cut in the usual manner by a die, care being taken that 90 the strips may be cut by the die in such a way that the re-enforced portion will extend only to the dividing-line between the incandescent and non-incandescent portions of the carbons—that is to say, to the point where the slender stems 95 A join the wider strip B, as will be understood by reference to Fig. 2. The blanks or forms are then carbonized in the usual manner and

mounted, after being treated, when necessary, for increasing their conductivity or reducing their resistance. It will be found, however, that carbons prepared by the above-described method require but little, if any, other treatment than that specified.

In the above three strips are described. This number, however, is not essential to the production of an efficient conductor under my invention, as it is obvious that the same object would be attained by the employment of one wide and one or two narrow or re-enforcing strips, and, in fact, a great variety of combinations of this kind may be formed. With the arrangement described, however, a conductor of great utility is produced.

I would state that I do not restrict myself to the use of parchment paper nor paper generally in the above, as I may treat sheets of wood or other similar substances in the same way with equally good results. I would also state that I am aware that the ends of carbon conductors have been enlarged, as well as rendered more dense, for a similar purpose to that herein set forth. Such, therefore, I do not claim; but

What I claim as new, and desire to secure by Letters Patent, is—

1. The method of manufacturing carbon con-

ductors for incandescent lamps, which consists in re-enforcing a sheet of fibrous material by a strip or strips of similar material united thereto, then cutting or punching partly from the main and partly from the re-enforced portions thereof strips of the desired shape, and carbonizing such strips, substantially as set forth.

2. The method of manufacturing carbon conductors for incandescent lamps, which consists in forming a compound sheet of fibrous material, re-enforced by a strip or strips of a similar material united thereto, and consolidating the same by heat and pressure, as described, then cutting or punching partly from the main and partly from the re-enforced portions thereof strips of the desired shape, and carbonizing such strips, substantially as described.

3. The conductor for incandescent electric lamps, composed of one or several superposed layers or strips of fibrous material, with a re-enforcing strip or strips at the ends, united together and carbonized, substantially as described.

In testimony whereof I have hereunto set my hand this 31st day of August, 1881.

JOSEPH V. NICHOLS. [L. S.]

Witnesses:

W. FRISBY,
R. F. BARNES.