(No Model.)

M. M. M. SLATTERY.

PROCESS OF TREATING INCANDESCENTS.

No. 269,239. Patented Dec. 19, 1882.

Fig 1.

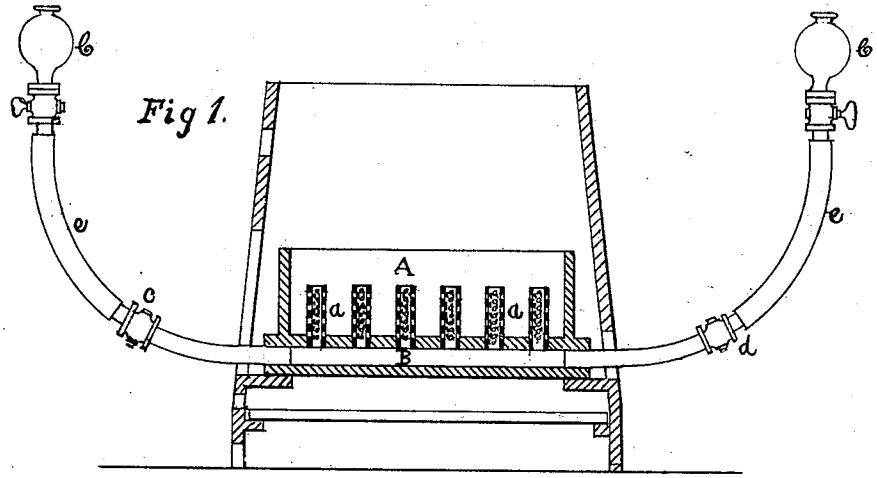


Fig. 2.

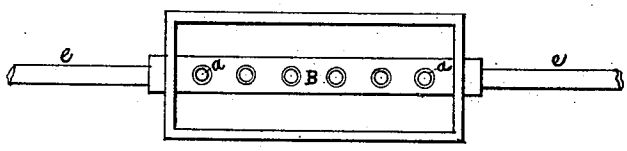


Fig. 3

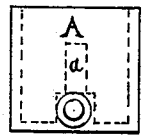
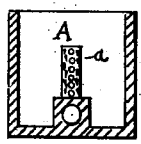


Fig. 4.



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UNITED STATES PATENT OFFICE.

MARMADUKE M. M. SLATTERY, OF NEW YORK, N. Y., ASSIGNOR TO THE SLATTERY INCANDESCENT LAMP COMPANY, OF SAME PLACE.

PROCESS OF TREATING INCANDESCENTS.

SPECIFICATION forming part of Letters Patent No. 269,239, dated December 19, 1882.

Application filed March 6, 1882. (No model.)

To all whom it may concern:

Be it known that I, MARMADUKE M. M. SLATTERY, of the city of New York, in the county and State of New York, have invented certain new and useful Improvements in the Process of Preparing Carbon Filaments for Incandescent Lights, of which the following is a full, clear, concise, and exact description, such as will enable others skilled in the art to which my invention appertains to make use of and practice the same, reference being had to the accompanying drawing.

The drawing represents one form of a carbonizing apparatus which may be used in carbonizing the filaments, and also in carrying into effect my process of preparing the filaments as they are being carbonized.

The object of my invention is to prepare filaments for incandescent lights during carbonization of the same, so as to secure an even resistance throughout the filaments contained in the carbonizing apparatus; and it consists in using a good non-volatile hydrocarbon oil, the fumes of which are so rarefied or diluted and applied to the filaments while they are being carbonized as to effectually accomplish the result in the manner hereinafter described.

In the drawing, A represents a box into which the filaments to be carbonized are placed. In the bottom of this box there is a passage-way or chamber, B, which is open at each end, and connected by pipes *e e* to the bulbs C C. The pipes *e e* have one or more stop-cocks, *c d*. Above the passage-way B, and within the box A, small tubes or nipples *a a* are placed at suitable intervals, each of which communicates with the chamber or passage-way B. These nipples are perforated, so as to have outlets for the escape of the agents to be applied to the filaments, so as to secure a uniform charge of carbonaceous fumes throughout the box containing the filaments. When the box A is charged with the filaments to be carbonized, which are of a uniform size, and placed between thin plates of carbon surfaced with plumbago, it is then sealed so as to be nearly air-tight and placed in a retort. The temperature is then gradually raised, in order to prevent injury to the filaments being carbonized. One of the bulbs C C contains non-volatile hydrocarbon oil such as pure olive-oil, linseed-oil, sperm-oil, or any other good non-volatile hydrocarbon oil; but the use of olive-oil is preferred. The other bulb contains nitrogen gas, which is used for the purpose of displacing the oxygen in the box A and rarefying the hydrocarbon fumes therein, as hereinafter explained.

When the box containing the filaments is placed in a retort for the purpose of carbonizing the filaments, I charge said box several times with nitrogen gas, in order to displace the injurious oxygen therein, the nitrogen being admitted from one of the bulbs into the chamber B, from whence it passes through the nipples *a a* into the chamber containing the filaments, thereby displacing the oxygen. When the carbonizing-box is raised to a sufficiently high temperature to decompose the hydrocarbon oil, I allow a feed of a few drops at a time to pass into the chamber B, where it is converted into fumes, which ascend up through the nipples *a a* to the box A, where thereby a strengthening process of hydrocarbon deposition takes place upon the filaments. I also find it necessary during carbonization to occasionally charge the box with nitrogen gas for the purpose of diluting the hydrocarbon-fumes contained therein, and also to wash out the semi-decomposed fumes. By this operation I am enabled to obtain a cleaner and more dense deposit of the carbonaceous fumes upon the filaments, for I find that by the use of a suitable rarefying agent under the above circumstances the dark soft hydrocarbon deposition which occasionally takes place upon the filaments operated upon is prevented. The process of charging the carbonizing-box A with hydrocarbon oil, varied by occasional charges of nitrogen gas, should be carried on from three to six hours. By this means of preparing the filaments in the box during carbonization I secure a high degree of density, hardness, and electrical conductivity, and at the same time a more even resistance in the filaments within the box than has ever before been obtained during carbonization.

I am aware that carbon conductors have heretofore been cut from sheets of carbonized wood or paper, and then treated in the usual manner by a current of electricity passed through them while surrounded by an attenu-

ated atmosphere of hydrocarbon vapor. Such treatment, however, is essentially different from my invention, and I do not claim it; but

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

The process of preparing filaments during carbonization, which consists in first placing the filaments within a suitable carbonizing-box, then putting the box containing the filaments into a retort, and, when it is slightly heated, charging the same with nitrogen gas, then raising the temperature, and, when a high degree of heat is obtained, allowing a slow feed of non-volatile hydrocarbon oil to pass into a chamber beneath the filaments, where it is converted by the action of the heat into fumes, which arise and surround the filaments, then occasionally diluting these fumes by a charge of nitrogen gas or any suitable agent, and continuing the process from three to six hours, or a sufficient length of time to obtain a uniform deposit throughout the filaments, substantially as described.

MARMADUKE M. M. SLATTERY.

Witnesses:
J. E. TALBOT,
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