

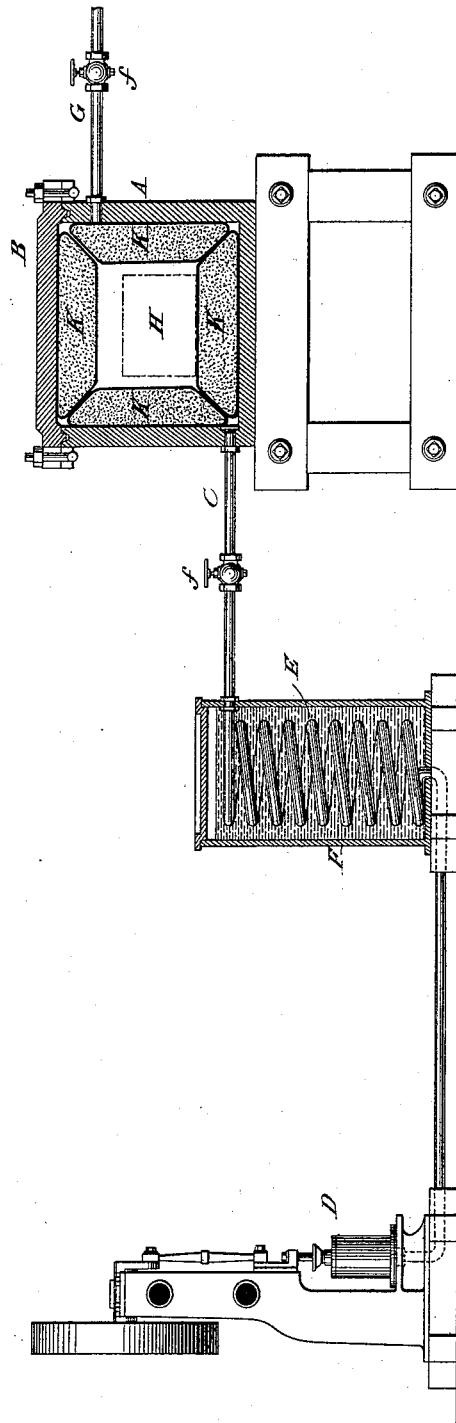
(No Model.)

E. WESTON.

PROCESS OF MAKING INCANDESCENTS.

No. 340,402.

Patented Apr. 20, 1886.



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# UNITED STATES PATENT OFFICE.

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## PROCESS OF MAKING INCANDESCENTS.

SPECIFICATION forming part of Letters Patent No. 340,402, dated April 20, 1886.

Application filed January 4, 1886. Serial No. 187,611. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD WESTON, a subject of the Queen of Great Britain, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Processes of Manufacturing Carbon Conductors for Incandescent Lamps, of which the following is a specification, reference being had to the drawing accompanying and forming a part of the same.

My improvements relate to the production of the carbonized conducting strips or filaments for incandescent electric lamps, the object of the same being to produce more dense and perfect carbons free from the presence of so-called "occluded gases."

The treatment which my present invention involves is applied during that portion or stage of the process of making carbons which consists in heating the blanks to a very high temperature in a closed muffle or retort for carbonizing them; and it consists in placing the said blanks, before they have become cool, but after their carbonization has been effected as completely as practicable, in a close vessel or chamber and withdrawing therefrom the air and gases by a pump, or by any other means of producing a partial vacuum.

The complete process in detail is as follows: A large number of strips or blanks are cut, punched, or otherwise formed from a proper material. These are packed in an iron or plumbago box or muffle between sheets of carbon or in a carbon powder, the box closed and placed in a furnace. It is here subjected to a very intense heat until the carbonization of the strips has been effected to as perfect a degree as is practicable. The box or muffle is then taken out, and while at a white heat is placed in a vessel or chamber which is so constructed that it may be closed air-tight. With this an air-pump or vacuum apparatus is connected and kept in operation until the muffle and its contents have nearly or entirely cooled off. By thus subjecting the carbons to the action of a vacuum while cooling, the gases which they would otherwise retain are withdrawn, and a carbon much more perfect in quality is produced at a greatly-reduced cost.

This process, to be practically and economically carried out, requires the use of certain devices, which the accompanying drawing illustrates.

A is a stout box, of iron or other refractory material, with a cover, B, that may be applied to close the box air-tight. From this box leads a tube or pipe, C, to an air-exhaust apparatus, D. The latter is here shown as an ordinary mechanical exhaust-pump; but any other means of producing a vacuum may be employed. The pipe C at some intermediate point is formed in a coil, E, which is contained in a water-jacket, F, in which a flow of cold water may be maintained to cool the air or gas in the pipe and prevent injury to the vacuum apparatus. The box A is also provided with an air-inlet, G, and both the pipes C and G are provided with suitable valves or cocks, *f f*.

H represents the muffle containing the carbons. It is desirable that it should retain its heat as long as possible, and therefore it is surrounded, when placed in box A, by a packing of asbestos, (represented by the mats or pads K K.) Under these conditions, when a muffle is taken from the furnace at a white heat, it remains at a temperature sufficiently high to cause the evolution of gas from the carbons for a considerable length of time. When the carbons have cooled so that there is no further evolution of gas, the exhausting is stopped and air admitted through the pipe G. The muffle is then removed and the carbons treated and used in any of the usual ways.

The method heretofore employed in expelling the gases retained by the conductors of incandescent lamps has been to raise the conductors to a high degree of incandescence by an electric current after being mounted in the lamps, but before the latter are sealed off from the pumps. The labor and time required in doing this I have found to be very materially reduced by treating the carbons in the manner which I have herein described.

What I claim is—

1. The improvement in the process of making or treating carbon conductors, which consists in placing the carbons, after removal from

the carbonizing-furnace and while cooling, in a close vessel or chamber and exhausting the air and gas from the same.

2. The improvement in the process of treating carbon conductors, which consists in placing the muffle, with the carbons contained therein, after removal from the carbonizing-furnace and while cooling, in a close vessel or chamber and exhausting the air and gas from the same.

3. The method of treating carbons herein

described, which consists in transferring the muffle, filled with carbons, from the carbonizing-furnace to a close vessel or chamber, packing the muffle with asbestos to retard cooling, and exhausting the air and gas from the vessel.

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