

(No Model.)

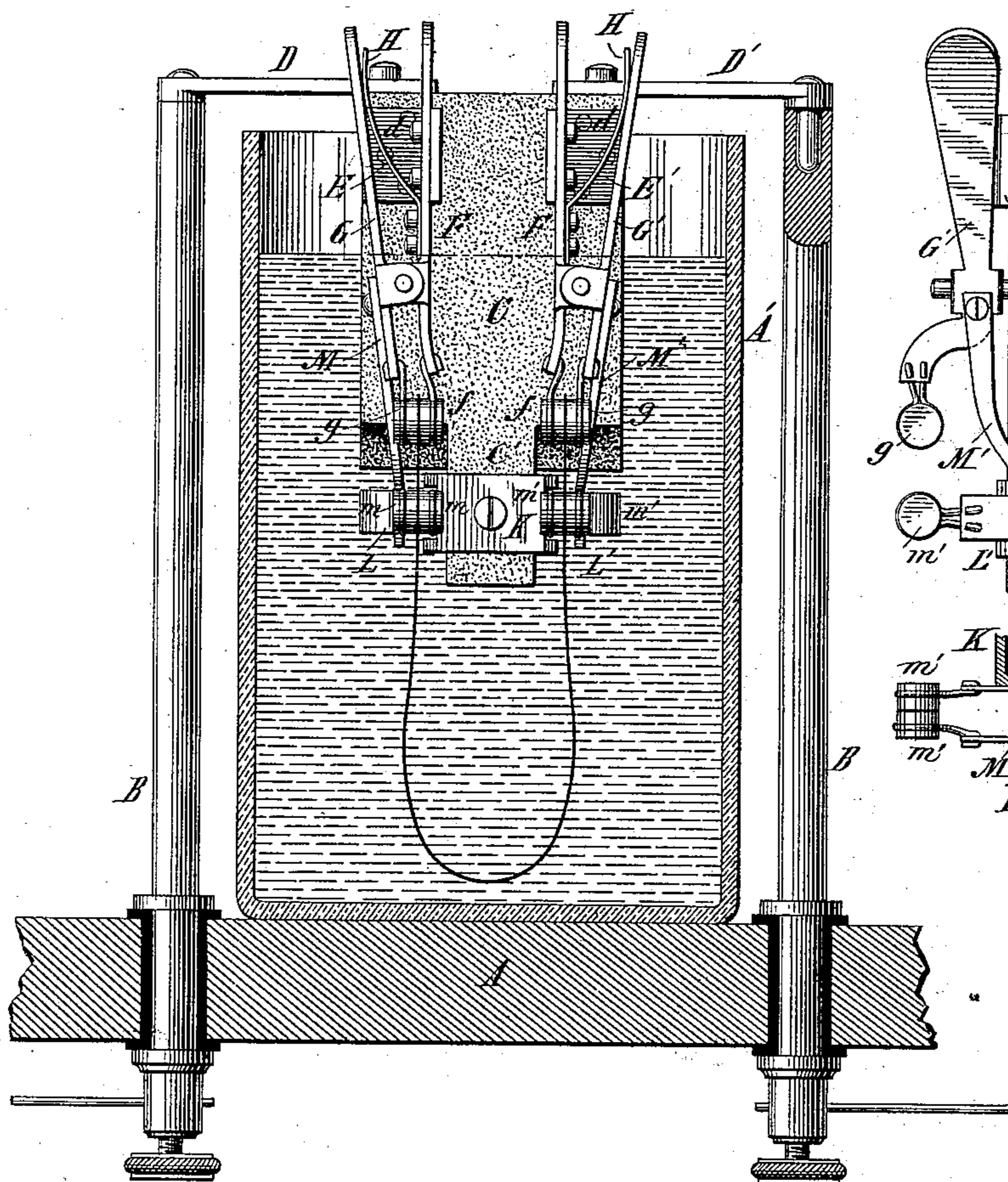
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# APPARATUS FOR TREATING CARBONS.

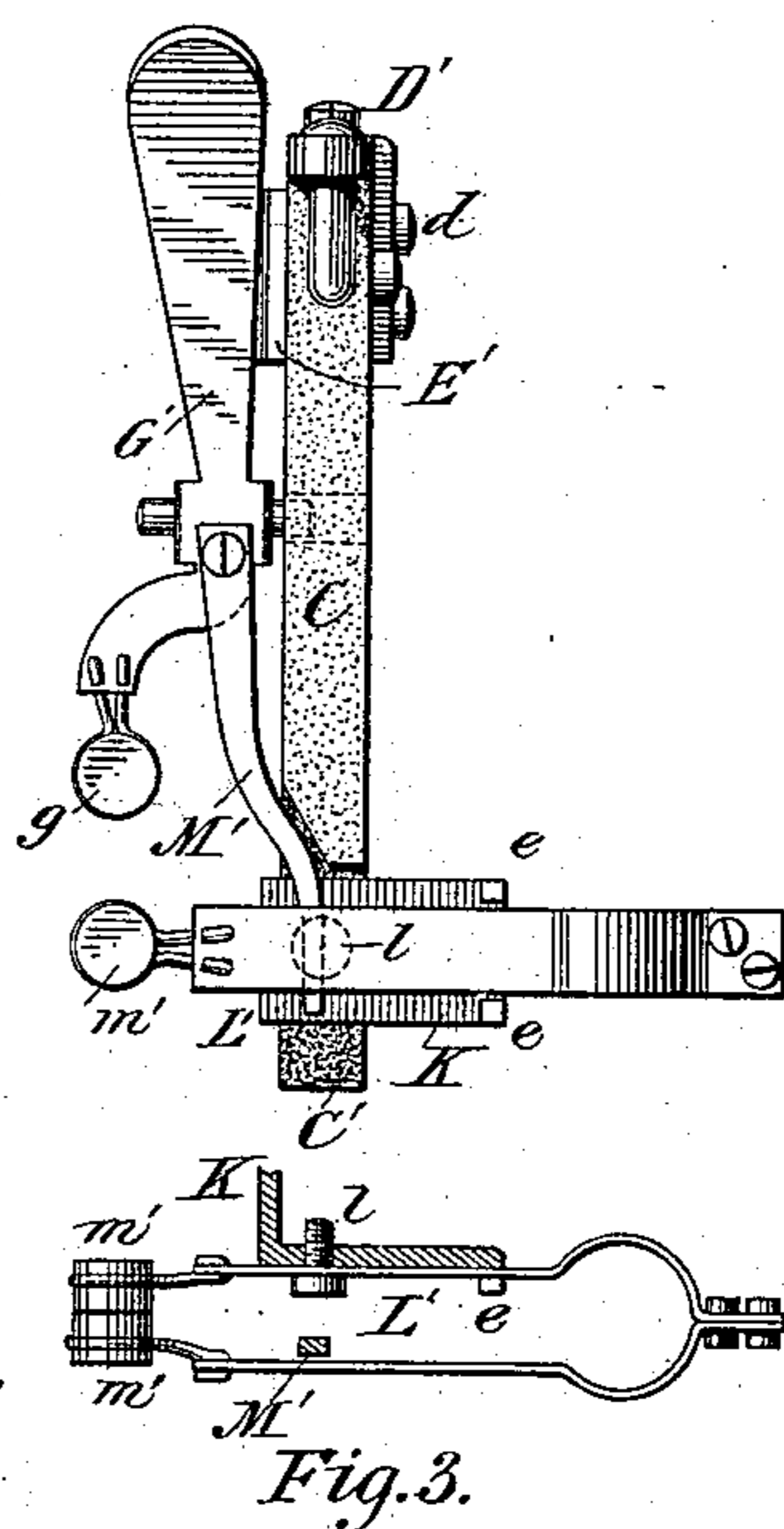
No. 334,146.

Patented Jan. 12, 1886.

*Fig. 1.*



*Fig. 2.*



*Attest:*

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# UNITED STATES PATENT OFFICE.

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## APPARATUS FOR TREATING CARBONS.

SPECIFICATION forming part of Letters Patent No. 334,146, dated January 12, 1886.

Application filed September 8, 1885. Serial No. 176,502. (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 Carbon-Treating Apparatus, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

My invention is an improvement in apparatus used in the process of treating or preparing the carbon conductors for incandescent lamps, the said process, or the particular parts thereof to which the invention relates, being chiefly as follows: The carbonized strips or threads, prepared from any proper material and by any well-understood process, are of even cross-section throughout; in other words, they have no enlargements at or near their ends, such as similar carbons usually have. These are subsequently formed by raising the portion of the strips which it is intended to enlarge to a red or white heat in a hydrocarbon gas, vapor, or fluid, thereby building up the heated portions by the electro deposition of carbon. To effect this it is necessary to have some means for making contact with the extreme ends of the carbon, and with points thereon slightly above the ends, whereby only short portions of the carbon will be directly included in the circuit, and in a new and improved device for this purpose my invention resides.

The nature and objects of the apparatus will be understood by reference to the accompanying drawings.

Figure 1 is a front elevation of the apparatus with parts in section. Fig. 2 is a side view of the main portion of the same. Fig. 3 is a plan and part sectional view of one of the lower clips or contact-makers.

The apparatus is generally used on a stand or table, A, in which are set brass rods B, by means of which the current is conveyed to the carbon. The clamping devices are attached to an insulating-plate, C. Two brass or copper strips, D D', are fixed to the upper edge of this plate, and are suitably arranged for connection with the rods B, whereby the device is supported in proper position to hold a

carbon immersed in a receptacle, A', containing a suitable hydrocarbon oil. To the upper part of the face of the plate C are attached brass plates E E', which are electrically connected with the strips D D' by the screws *d d*. A strip or plate, F, is fixed to each plate E E', and carries at its lower end a platinum button, *f*. To the strips F are pivoted the brass levers G G', which also carry platinum buttons *g*, that are held normally in contact with buttons *f* by the action of suitable springs, H H. The plate C is extended by a narrower portion, C', to which is secured a brass plate, K, which is bent at right angles and projects back of the plate C at each end, as shown in Fig. 2.

Spring-clamps L L', formed like calipers, are pivoted to plate K, the connection being made by pivoting-screws *l* passing through one of the legs of the clamp. These clamps are held in horizontal position by stops *ee* on the plate K, that allow a slight play or oscillating movement of the clamps. The clamps L L' carry platinum buttons *m m'*, for gripping the carbon, and for opening the clamps, the arms M M', extending from the levers G G', are employed. The buttons *m m'* are vertically in line with the buttons *f g*, respectively; but from the manner of their support they are capable of a short play toward and from the said buttons. This is to allow for the expansion of the heated portions of the conductor and to prevent warping of the same.

In using the apparatus the levers G G' are pressed toward their respective plates, by which operation the four sets of clamping-buttons are separated. The ends of a carbon are then inserted between the faces of the upper buttons, *f g*, and the carbon held between the faces of buttons *m m'*. The levers are then released, when the buttons clamp upon the carbon. The carbon and such portions of the apparatus as are necessary are then immersed in the oil; or it may be simply mounted in a receiver containing a suitable gas or vapor and the current directed through the apparatus. The current, it may be assumed, enters by post B, and passes thence through plate E to the strip F and lever G, and to one end of the carbon by the buttons *f g*. The arms M M' are either of insulating material or are so

arranged as to be normally out of contact with the legs of the clamps L L', upon which they work, so that the current passes through the portion of the conductor between the upper and lower buttons; thence, taking the shortest path, it crosses plate K, and passes through the corresponding portion of the conductor between buttons *m'* and the upper buttons. Thus the short portions of the conductor included between the clamps are rendered hot or incandescent, and a deposition of carbon takes place that forms enlargements to be subsequently utilized in mounting the carbon on the metallic conducting-wires.

The advantages of this apparatus are mainly that the clamps are all opened by a single operation, and no adjustment of the position of any of the clamps is required. The clamps are capable of a slight movement, which compensates for contraction or expansion of the parts of the carbon under treatment, and thus prevents distortion of the same, and the apparatus as a whole is simple and convenient.

In practice, when a receptacle containing oil is used, it will generally be found advisable to place a bell-jar over the apparatus and to run a number of the devices simultaneously, either in series or multiple arc.

As the special processes to which it is desirable or necessary to subject the carbons before and after treatment by the apparatus herein described have no direct connection with this invention, a full description of the same is reserved for other applications.

What I now claim is—

1. In an apparatus for forming enlargements on carbon conductors, the combination, with two independent pairs or sets of clamps adapted to grip or bind the carbon at and near its ends, as described, of bars or levers connected therewith and adapted to open or control all of said clamps simultaneously or by a single operation, as set forth.

2. In an apparatus of the kind described, the combination, with a pair of stationary clamps adapted to receive the ends of the carbon, of a pair of clamps near the first and capable of a slight movement toward and from the same, as and for the purpose set forth.

3. In an apparatus of the kind described, the combination, with a pair of stationary clamps adapted to receive the ends of the carbon, of a pair of pivoted clamps adapted to grip or bind the carbon at a short distance from the others, as and for the purpose specified.

4. In an apparatus of the kind described, the combination, with a pair of stationary clamps adapted to receive the ends of the carbon, of a pair of movable or pivoted clamps for gripping or binding the carbon at a short distance from the others, and levers connected with all the clamps and adapted to open or control the same simultaneously or by a single operation, as set forth.

5. In an apparatus of the kind described, the combination, with a pair of spring-clamps fixed to an insulating-plate, of a pair of spring-clamps pivoted to the plate, and connections whereby the movement or operation of the latter is controlled by a similar operation of the stationary clamps, these parts being combined for use and operation in substantially the manner set forth.

6. In an apparatus of the kind described, the combination, with the insulating-plate and the clamps secured thereto in a normally-vertical position, of the lower clamps pivoted in a nearly-horizontal position and capable of a slight oscillating movement, as set forth.

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Witnesses:

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