

(No Model.)

E. WESTON.
INCANDESCENT LAMP.

No. 292,720.

Patented Jan. 29, 1884.

Fig. 1.



Fig. 2.



Fig. 3.

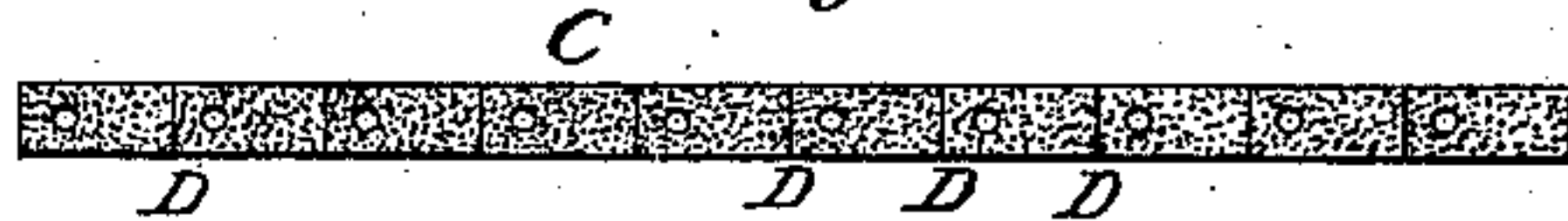
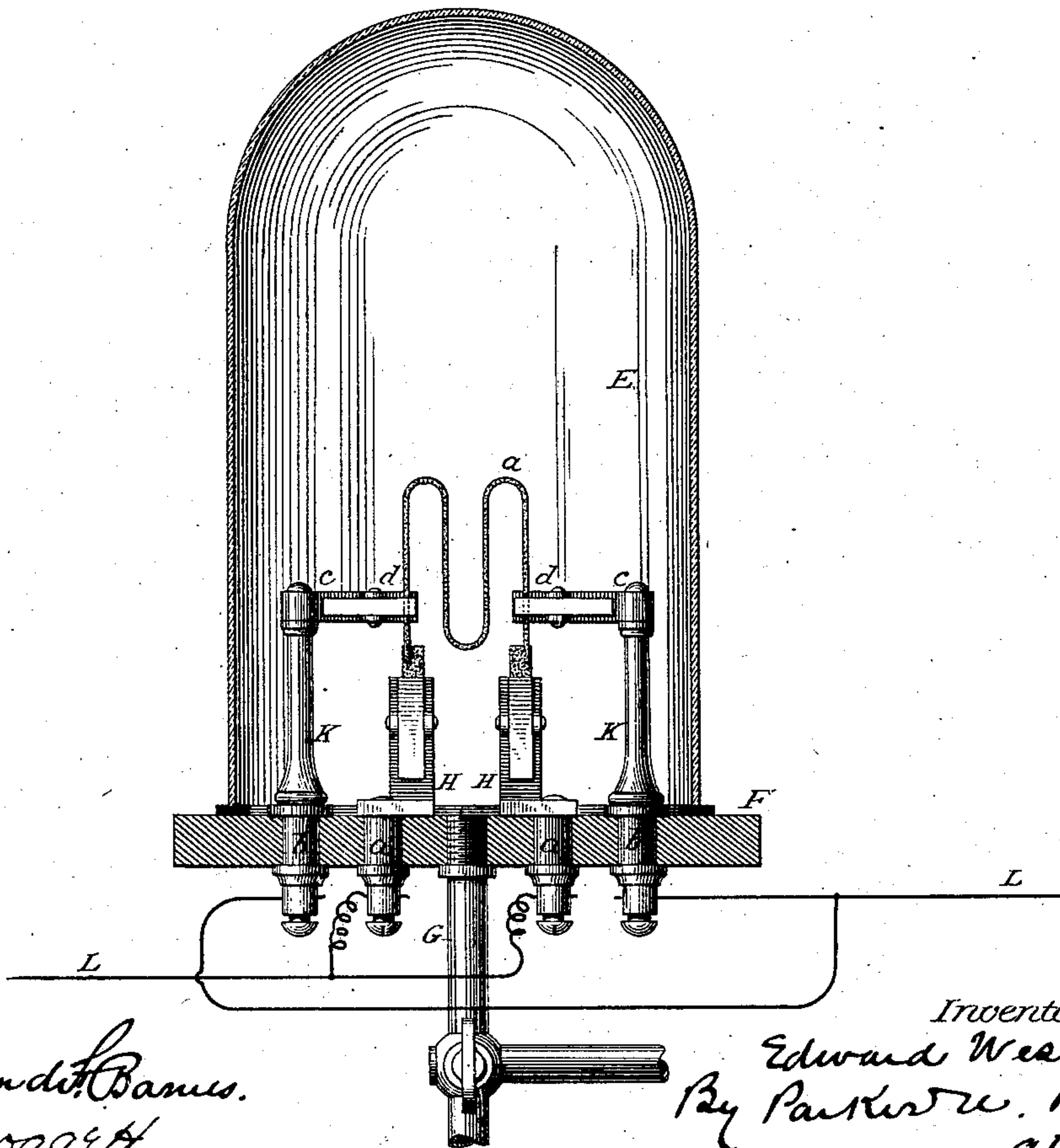


Fig. 4.



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UNITED STATES PATENT OFFICE.

EDWARD WESTON, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE UNITED STATES ELECTRIC LIGHTING COMPANY, OF NEW YORK, N. Y.

INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 292,720, dated January 29, 1884.

Application filed September 15, 1883. (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 Incandescent Lamps, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

The usual method of producing the carbon conductors for incandescent electric lamps, is to cut out blanks in the form of slender strips or filaments from some carbonized material, the blanks being of the same general shape as that designed for the finished conductor, though somewhat larger. These blanks are carbonized, and then secured to the supporting-conductors by suitable clamps. Several difficulties, due to the shape of the blanks, are met with in their manufacture. For example, the widened clamping ends are not properly carbonized, and the completed carbons are often found to contain, or to rapidly develop when used, weak points, particularly at the junction of the widened ends with the narrow body or strip.

To overcome these objections and to produce a better carbon than heretofore are the objects of my invention, which consists, broadly, in forming independently the carbonized strips and clamping ends, and uniting the same by the deposition of carbon.

In carrying out my invention I cut strips or filaments of the desired length and of uniform width from sheets or strips of fibrous material or other carbonizable substances, such as the amorphous cellulose described by me in former patents. These strips I carbonize in the usual way. I also cut or stamp short pieces or stubs of greater width than the strips from the same or a similar material. The strips and the stubs may then be treated in any of the usual ways, if so desired, after which I place the stubs in clamps connected with one conductor of a circuit and the strips in other clamps arranged to hold their ends in contact with the stubs, and connected to the other conductor of the circuit. I then pass a current through the ends of the strips and stubs, surrounding both by an atmosphere of some hydrocarbon vapor, and raising the temperature of the joints suffi-

ciently to effect a deposit of carbon, and firmly unite the two. A very superior carbon is in this way produced, and one in which weak spots, such as are commonly met with in carbons made in the usual way, are less liable to occur.

In the accompanying drawings, Figure 1 represents a straight carbon strip or filament. Fig. 2, various forms of stub; Fig. 3, a strip of carbon from which the stubs may be cut. Fig. 4 is a view in elevation and part section of an apparatus for uniting the strips and stubs.

It is immaterial to the invention in what precise shape the strips may be prepared. They may be in straight filaments, as in Fig. 1, or stamped out in shapes similar to that shown in Fig. 4, *a* designating the carbon. The stubs *B* may be of various shapes, some of which are indicated in Fig. 2. I prefer to prepare them, however, by first cutting out a strip, *C*, of sufficient width, perforating the same at given intervals, carbonizing and treating the strip, and then cutting it up in lengths. *DD* represent the lines of division. For uniting the strips and stubs I use a globe or receiver, *E*, ground to fit smoothly on a plate, *F*, through which extends a tube, *G*, by means of which the air may be withdrawn from the receiver and a hydrocarbon vapor admitted.

H H are clamps fixed to the plate *F* under the receiver by metal plugs *a a*, serving as binding-posts.

K K are standards or supports set in the desired positions relatively to the clamps *H*, and provided in a similar way with binding-posts *b b*. Arms *c c*, capable of being turned, extend from the supports *K*, and are provided with suitable clamps, *d d*. The ends of a reversed circuit, *L L*, connect, respectively, with the posts *a* and *b*.

In using the apparatus carbonized stubs are inserted in the clamps *H*, and a carbonized strip in the clamps *d d*, the strip being bent to the shape of a loop or arch when originally straight. The arms *c c* are then turned or adjusted, so that the ends of the strips *a* bear on the stubs *B*. The air in the receiver *E* is then withdrawn, and in its place a rarefied atmosphere of hydrocarbon vapor introduced. The circuit is then completed, and the junctions of

the strip and stubs raised to a red heat. Carbon is by this means deposited around the joints, firmly uniting the stubs to the strips. The carbon may then be removed and mounted in the usual way in a lamp.

I am aware that carbons for incandescent lamps have been united to the metallic supporting-conductors by the deposition of metal and of carbon; but in all such cases the enlarged ends of the carbon have either been previously formed on the carbons or made up entirely by the deposited carbon and the strip by the deposited joint united inseparably to the supporting-conductor. This I do not claim herein; but

What I now desire to secure by Letters Patent is—

1. The method herein described of manufacturing carbon conductors for incandescent lamps, which consists in independently forming and carbonizing the strips or filaments and the stubs or enlarged clamping-ends; and then

uniting them by the deposition of carbon, substantially as set forth.

2. The method herein described of manufacturing carbon conductors for incandescent lamps, which consists in independently forming and carbonizing the strips and the stubs, placing the same in contact in a receiver containing an atmosphere of hydrocarbon, and passing a current through them, whereby carbon is deposited, and a permanent union effected in the manner described.

3. A carbon conductor for incandescent lamps, consisting of a strip or filament, enlarged clamping ends, and connections of deposited carbon uniting the clamping ends to the strip, as herein set forth.

In testimony whereof I have hereunto set my hand this 13th day of September, 1883.

EDWARD WESTON.

Witnesses:

H. A. BECKMEYER,

L. V. E. INNES.