

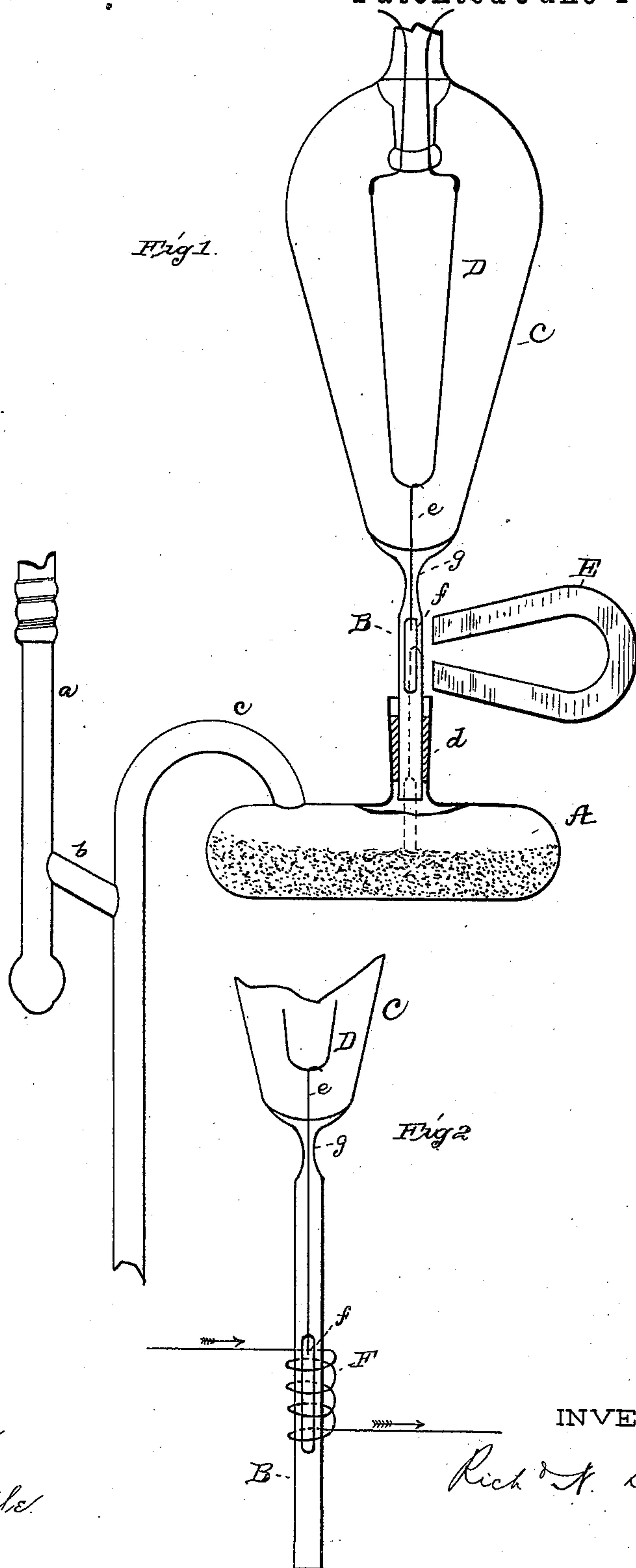
(No Model.)

R. N. DYER.

MANUFACTURE OF INCANDESCENT ELECTRIC LAMPS.

No. 429,608.

Patented June 10, 1890.



ATTEST:

E. Rowland
A. W. Kiddle

INVENTOR:

Rich^d N. Dyer

UNITED STATES PATENT OFFICE.

RICHARD N. DYER, OF NEW YORK, N. Y.

MANUFACTURE OF INCANDESCENT ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 429,608, dated June 10, 1890.

Application filed June 5, 1884. Serial No. 133,997. (No model.)

To all whom it may concern:

Be it known that I, RICHARD N. DYER, of New York city, in the county and State of New York, have invented a certain new and useful Improvement in the Method of Manufacturing Incandescent Electric Lamps, of which the following is a specification.

My invention relates to the method of manufacturing incandescent electric lamps having loop-shaped conductors, wherein the loops are straightened or changed in form or are prevented from assuming a bent or irregular shape by subjecting them to a constant strain during the operation of exhausting the lamps, which includes the gradual heating of the loops to high incandescence by an electric current, the strain being produced by hanging weights on the ends of the loops. This broad method forms no part of my invention. In carrying out this method heretofore it has been found necessary to attach to each lamp globe or bulb an exhaust-tube longer than usual, and after the operation of exhausting the lamp was completed this tube was first sealed some distance from the lamp-globe and the lamp removed from the pump. Then by manipulating the lamp the weight was unhooked from the loop and dropped into the tube, and this tube was then sealed off from the lamp.

The principal object I have in view is to simplify and cheapen this method by releasing the weight from the loop while the lamp is on the pump, so that the lamp can be sealed off directly from the pump. This I accomplish by releasing the weight magnetically.

In carrying out my invention I provide the wire weight with an end of iron, steel, or other magnetic material, or I make the entire weight of iron or steel. The weight is released by means of a magnet, which, when brought close to the exhaust-tube, attracts the weight and enables it to be moved vertically and axially to unhook it from the loop. It can then be dropped into the vessel containing the drying agent and the lamp sealed off directly from the pump. This simplifies and cheapens the method of handling the weight and removing it from the lamp, and also does away with the necessity of using a long exhaust-tube—that is to say, the lamp can be sealed directly off from the pump by

one operation, since the strain is applied to the carbon-loop, and is removed therefrom while the lamp is still connected with the pump.

It is evident that with a magnetic weight a magnet can be used for attaching the weight to the loop as well as for detaching it, and it is also evident that the magnetic weight could be used to advantage with the double-sealing method employed heretofore, and a magnet be used for releasing or attaching the weight, or for both attaching it to and releasing it from the loop. A further use of a magnetic weight is to increase the strain or pull upon the loop by means of an externally-applied magnetic force. In this way if the weight proved insufficient to straighten the loop or bring it to the desired shape a magnet could be used to draw downwardly upon the weight.

It might be found desirable to make the magnetic weights light and to straighten or shape the loops by an externally-applied magnetic force, the magnet being mounted in position to act constantly or being brought into action, as desired.

The invention is illustrated in the accompanying drawings, Figure 1 of which is an elevation of a lamp in position on a pump with the weight hanging on the loop, the weight being shown in dotted lines as released from the loop and dropped out of the lamp-globe.

A is the drying-chamber of the pump, and *a b c* the mercury drop-tubes. The chamber A has a tapering tube *d*, receiving the exhaust-tube B from the lamp globe or bulb C.

D is the carbon-loop of the lamp, to which is hung the magnetic weight. This is composed of a hook-end wire *e*, of copper or platinum, and a body *f*, of iron, steel, or other magnetic material, or the entire weight, including the wire, may be of magnetic material.

E is a permanent or electro magnet, which may be used to unhook the weight from the loop or to hook it thereon, or to increase the pull of the weight on the loop.

By the preferred method, after the operation of exhausting the lamp is completed, during which operation the weight is hung on the loop, as shown in full lines in the drawings, the magnet E is brought close to tube B, and the weight is raised and turned to unhook it from the loop, and is then allowed to

drop into chamber A, as shown in dotted lines, or the hook on the end of the weight may be straight, or nearly so, to permit the hook to be drawn laterally off the loop without raising
 5 the weight. After the weight is dropped into the chamber A the lamp is sealed off at the point *g*.

A solenoid-coil F may be used instead of a magnet for attracting or manipulating the
 10 magnetic weight, as shown in Fig. 2, which is an elevation of the lower end of a lamp before sealing off, with the weight attached to the carbon.

What I claim is—

15 1. The method of manufacturing incandescing electric lamps having loop-conductors, consisting in subjecting the loop-conductors to strain during the exhausting process by weights hung to them, removing such weights
 20 from the lamp-globes while the lamps are still connected with the pumps, and then sealing off the lamps, substantially as set forth.

2. The improvement in the method described of straightening the loop-shaped con-

ductor of an incandescing electric lamp by 25 hanging a weight to it during the exhausting process, which improvement consists in manipulating the weight by magnetic force exerted external to the glass globe and its exhaust-tube and acting upon the weight 30 through the glass, substantially as and for the purposes set forth.

3. The method of manufacturing incandescing electric lamps having carbon conductors, consisting in subjecting such carbon con- 35 ductors to strain during the exhausting process and while such conductors are being heated by an electric current, and removing such strain while the lamps are still connected with the pumps, whereby the lamps can be 40 sealed off from the pumps by one operation, substantially as set forth.

This specification signed and witnessed this 1st day of May, 1884.

RICHARD N. DYER.

Witnesses:

ALFRED W. KIDDLE,
 E. C. ROWLAND.