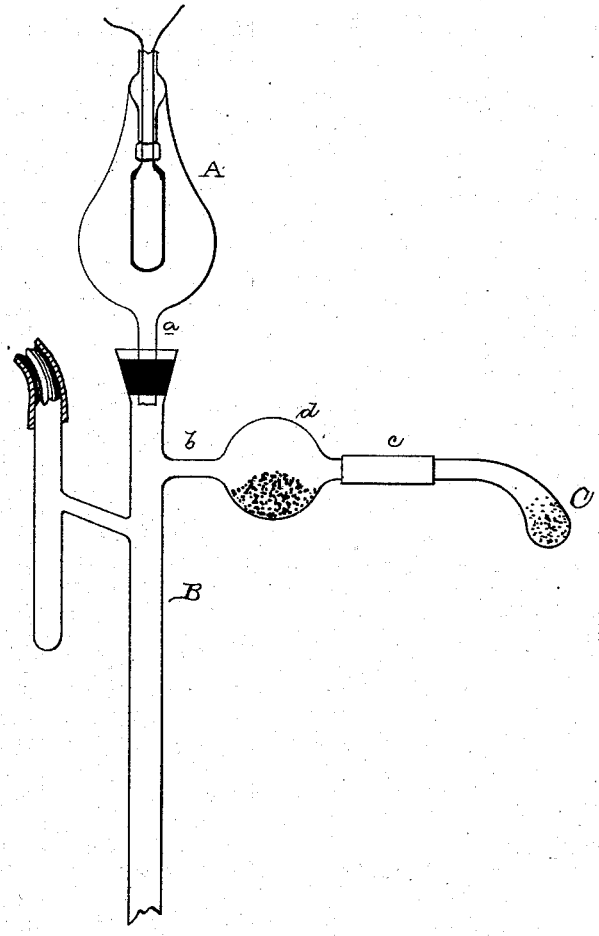
(No Model.)

T. A. EDISON.

MANUFACTURE OF INCANDESCING ELECTRIC LAMPS.

No. 278,417. Patented May 29, 1883.



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MANUFACTURE OF INCANDESCING ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 278,417, dated May 29, 1883.

Application filed January 22, 1883. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in the Manufacture of Incandescing Electric Lamps, (Case No. 536,) of which the following is a specification.

In my application No. 516 (Serial No. 77,526) is described an incandescing electric lamp whose inclosing-globe contains nitrogen at a pressure which prevents electrical carrying from the carbon incandescing conductor.

The object of my present invention is to provide a simple, economical, and efficient method of introducing such a nitrogen atmosphere into such lamp-globes, the nitrogen admitted being pure and free from moisture, such method being also applicable when it is desired to charge any vessel or receptacle with any gas in a pure and dry condition.

In applying my invention to the purposes for which it is preferred, the nitrogen is evolved by heating a dry salt containing nitrogen, such as the nitrite of ammonia, or nitrite of potassium, or nitrite of chromium; or certain mixtures may be used which include such nitrites—for instance, a mixture of potassic nitrite and chloride of ammonia. The substances, when heated, give off pure nitrogen. The lamp-globe, when ready for exhaustion, is placed in connection with a Sprengel vacuum apparatus, from the exhaust-tube of which extends a tube which terminates in a bulb or chamber in which is placed the dry salt containing nitrogen. The lamp and also this bulb or chamber are then exhausted by the vacuum apparatus, with which both are connected, to as nearly complete a vacuum as possible, after which the action of said apparatus is stopped and the bulb or chamber is heated by a lamp, or in any suitable way. The compound is decomposed, and the nitrogen given off flows through the tube and into the lamp until the desired pressure is obtained, after which the lamp is sealed off. A portion of the tube through which the nitrogen flows, and which is exhausted with the rest of the apparatus, contains phosphoric anhydride or other drying agent to take up the water of crystallization of the dry salt, the gas which enters the globe being thus free from moisture.

A convenient apparatus is illustrated in the annexed drawing.

A is the inclosing-globe of an incandescing electric lamp, provided with an exhaust-tube, *a*, which is connected with the Sprengel vacuum-pump B. From this pump extends a tube, *b*, to which is connected by a rubber section, *c*, or in any other suitable manner, a tube terminating in a bulb, C, which contains one of the substances or mixtures previously mentioned, or other equivalent substance or mixture. The tube *b* is provided with a bulb, *d*, which contains phosphoric anhydride or other drying agent. The operation of the apparatus is as before explained, the lamp being finally sealed off at *a*.

It is evident that this invention may be employed in charging any receptacle with any gas by heating a dry compound placed in said receptacle, which compound is decomposable by heat into the gas required, and said receptacle being first exhausted.

What I claim is—

1. The method of charging a receptacle with pure gas, consisting in exhausting said receptacle to a high vacuum, and then heating a dry compound decomposable by heat into the gas required, said compound being placed within said receptacle, substantially as set forth.

2. The method of providing the exhausted inclosing-globe of an incandescing electric lamp with an atmosphere of pure nitrogen, consisting in heating a dry salt capable of giving off nitrogen when decomposed by heating, placed in an exhausted receptacle connected with said lamp-globe, substantially as set forth.

3. The method of providing the inclosing-globe of an incandescing electric lamp with an atmosphere of pure nitrogen, consisting in exhausting said globe and simultaneously exhausting a receptacle connected therewith and containing a dry salt containing nitrogen and decomposable by heat, and then heating said receptacle, substantially as set forth.

This specification signed and witnessed this 13th day of January, 1883.

THOS. A. EDISON.

Witnesses:
H. W. SEELY,
EDWARD H. PYATT.