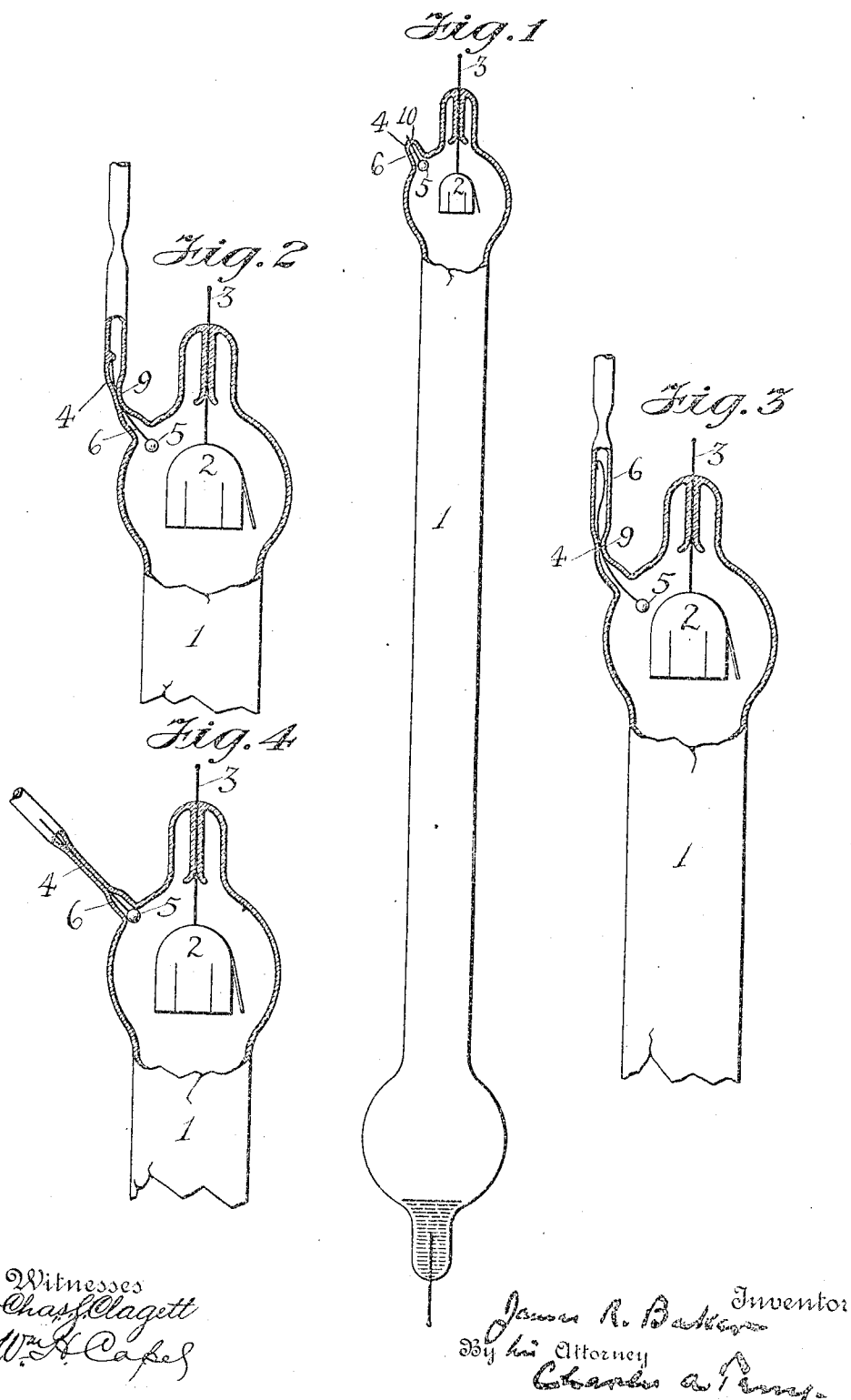


No. 871,772.

PATENTED NOV. 26, 1907.

J. R. BAKER.
SEALING FOR ELECTRIC APPARATUS.
APPLICATION FILED MAR. 31, 1905.



UNITED STATES PATENT OFFICE.

JAMES R. BAKER, OF ARLINGTON, NEW JERSEY, ASSIGNOR TO COOPER HEWITT ELECTRIC COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

SEALING FOR ELECTRIC APPARATUS.

No. 871,772.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed March 31, 1905. Serial No. 253,100.

To all whom it may concern:

Be it known that I, JAMES R. BAKER, a citizen of the United States, and resident of Arlington, county of Hudson, State of New Jersey, have invented certain new and useful Improvements in Sealings for Electric Apparatus, of which the following is a specification.

My invention relates to the construction of electric vapor apparatus, and more particularly that class in which a small quantity of mercury, or other heavy fluid, is contained within a sealed-off chamber.

In the ordinary construction of vapor apparatus of the character referred to difficulty is sometimes encountered in preventing the breakage of the glass container at the point where the device is sealed off after it has been exhausted. In sealing off any vacuum chamber, it is customary to employ a small tube, which, during the process of sealing, constitutes a continuation of the chamber itself and thereafter is sealed off by fusing, leaving a narrow conical point. When in shipment or otherwise, a small quantity of heavy fluid, such as mercury, covers this sealing-off point, and a slight jar is liable to break the seal open by reason of the concentration upon the point of the blow caused by the movement of the fluid.

I have found that by placing a small plug of glass or other suitable material in the sealing off cavity, the seal may be protected against such blows by distributing the blow over a larger surface and preventing its concentration within the cavity.

Various different means may be employed for securing the plug in the proper place.

In the accompanying drawings, Figure 1 illustrates a completed lamp involving the features of construction; Fig. 2, represents one method of temporarily supporting the plug during the process of exhaustion; Fig. 3 illustrates a modification of Fig. 2; and Fig. 4 illustrates a step in the process of sealing off.

Referring to the figures, 1 represents a portion of the main body of a mercury vapor apparatus, and 2 represents one of the electrodes therefor. This electrode is shown as being carried by a leading-in conductor, 3, supported in any convenient manner and passing through the walls of the vessel.

4 represents the sealing off point of the device, and 5 the plug of glass or other suitable

material located at the mouth of the sealing off cavity. This is shown as being attached to a thin wire of platinum or other material 6. In the process of construction the plug may be inserted through the opening, 7, (see Fig. 2) to which the seal-off tube, 8, is fused. The wire 6 is here shown as being temporarily fastened to the wall of the vessel at a point 9.

After the device has been exhausted the tube is sealed off at a point beyond the attachment of the wire. The lower contraction is then sealed and drawn outward, as shown in Fig. 4, bringing the plug into the sealing off cavity. This is done while the glass is soft. The glass and wire are then severed at the point 10. The exposed end of the platinum wire may then be coated with a drop of melted glass, as shown in Fig. 1.

Instead of temporarily fastening the wire 6 to the side of the tube, a longer wire may be used as shown in Fig. 3, a small hook being formed on the end. This wire is first slipped into the lamp through the large opening as in the first instance, and after the seal-off tube has been joined to the lamp, the wire is hooked up to the position shown in Fig. 3, by means of another fine wire. The spring of the wire is sufficient to hold it in place during the exhausting; and the position of the plug with reference to the adjacent electrode may be such as to prevent its dropping into the tube.

I have found in practice that a seal made in this manner prevents almost entirely the breakages which were liable to occur with a seal having a cavity unfilled.

When the lamp or other device has to be washed or otherwise treated, it is sometimes advisable not to put in the plug and attaching wire until the lamp or other device is ready for the pump. In this case a small hole may be blown in the lamp or other device preferably in the bulb, the plug inserted and the hole closed.

I claim as my invention:—

1. A seal for vacuum apparatus, consisting of a plug fitting within the seal-off cavity, and means for securing the same in position.

2. A seal for vacuum apparatus, consisting of a rigid plug fitting within the seal-off cavity, and means for securing the same in position.

3. The combination with the seal-off pro-

jection of an inclosing chamber for apparatus, of a rigid body held within the seal-off cavity.

4. The combination with the seal-off projection of an inclosing chamber for apparatus, of a body held within the seal-off cavity.

5. The combination with the seal-off of a mercury vapor apparatus, of a shock-resisting body located within the seal-off cavity, and a wire passing through the wall of the vessel and holding the same in position.

6. A seal for mercury vapor and like ap-

paratus, consisting of a projecting portion of the wall of the vessel forming a conical cavity, and a plug of heat-resisting material located within the cavity, and means for holding the same in position. 15

Signed at New York, in the county of New York, and State of New York, this fourteenth day of March A. D. 1905.

JAMES R. BAKER.

Witnesses:

WM. H. CAPEL,

PERCY H. THOMAS.