

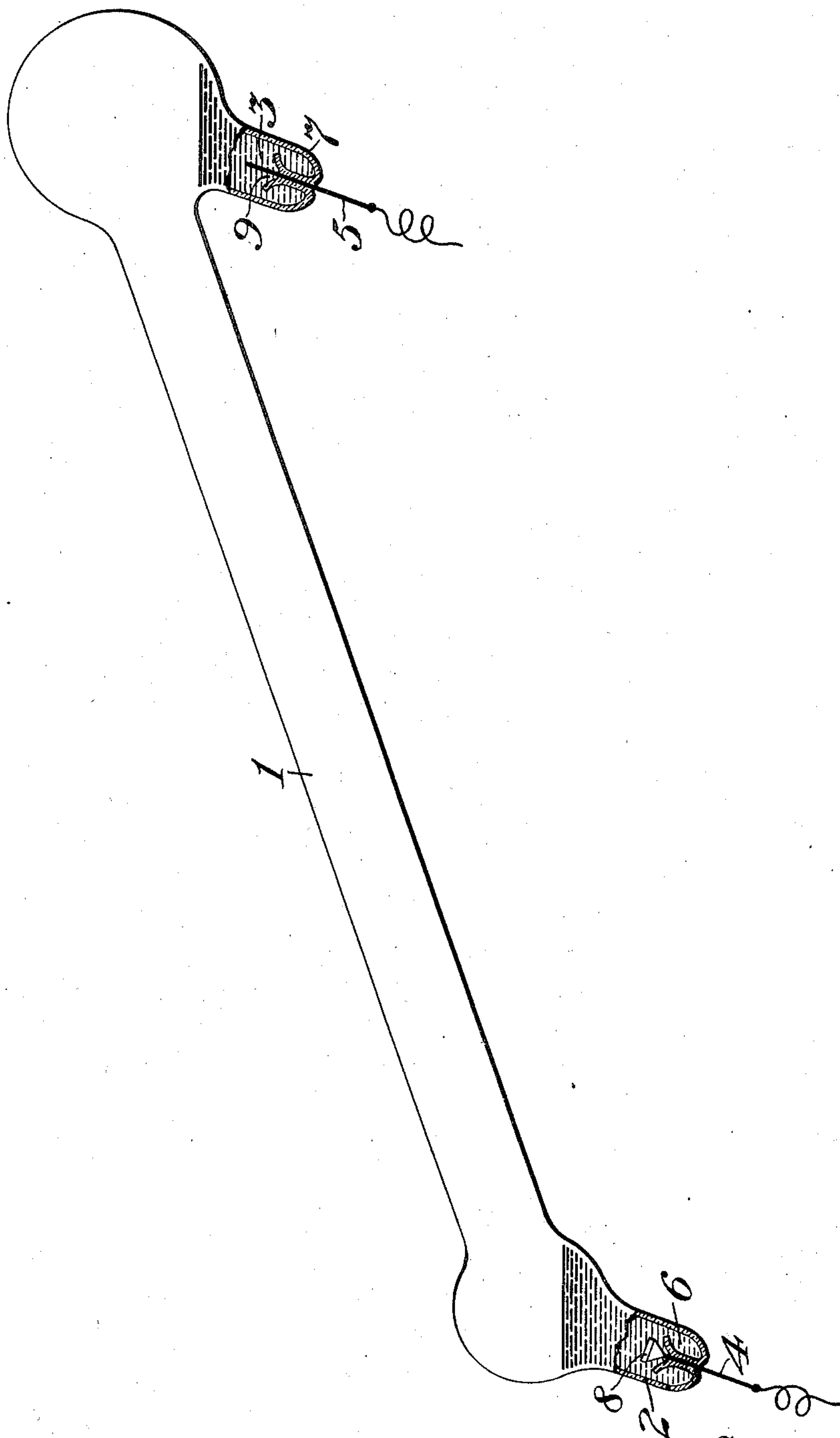
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P. H. THOMAS.

PROTECTING DEVICE FOR VAPOR APPARATUS.

APPLICATION FILED JULY 30, 1904.



Witnesses
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UNITED STATES PATENT OFFICE.

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Specification of Letters Patent.

Patented Feb. 26, 1907.

Substitute of application Serial No. 217,764, filed July 23, 1904. This application filed July 30, 1904. Serial No. 218,832.

To all whom it may concern:

Be it known that I, PERCY H. THOMAS, a citizen of the United States, and a resident of East Orange, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Protecting Devices for Vapor Apparatus, of which the following is a specification.

In the practical use of certain types of vapor-lamps in which the substance or material of the electrode is a liquid and is contained in one or more pockets leading off from the main body of the container it is found that sudden movements of the container may cause a momentary separation between the liquid in the electrode-pockets and the leading-in wires. Such a separation may take place when the tilting of the lamp for starting purposes is undertaken. If the lamp happens to be operating or the current turned on, this means that for the moment the current must pass through a short vapor-space, utilizing a portion of the liquid as one electrode and the lead-wire as the other. In case the lead-wire is caused to act as a positive electrode by reason of the fact that it usually has a very small area or cross-section it may become excessively heated even in the very short space of time during which the liquid is separated from the lead-wire. This heating may cause a breaking of the material of the container or the liberation of a certain amount of deleterious gases or injury to the lead-wire itself. In some instances the generation of a small quantity of gas under such circumstances as those described causes an elevation of temperature in the liquid which prevents the separated particles of the liquid from again returning to the electrode in the pocket.

The object of the present invention is to prevent injurious effects of this character, and for this purpose I provide a cap-piece of insulating material, preferably fastened to the end of the lead-wire, which cap-piece, together with the end of the lead-wire itself in some instances, provides a pocket for holding back the liquid at a time when the lead-wire would otherwise be left bare and which thereby prevents the current from having access to the uncovered surface of the lead-wire. This is the arrangement which I prefer for protecting the positive lead-wire. The nega-

tive lead-wire may be protected by so forming the glass around the point where the wire leaves the glass as to make a small pocket for retaining a portion of the liquid in contact with the lead-wire, the liquid being the part which preferably takes the current. These different provisions for the positive lead-wire and the negative lead-wire rest upon the assumption that the negative lead-wire is not likely to be subjected to so great danger of exposure as the positive lead-wire under ordinary conditions of lamp operation.

The drawing represents a mercury-vapor lamp having the present invention applied to both the positive and the negative electrode.

In the drawing, 1 is a container, of glass or other suitable transparent material.

2 is a positive electrode, of mercury, and 3 is a negative electrode, of the same material. The respective electrodes are provided with lead-wires 4 and 5, passing through the pockets or extensions 6 and 7, in which the electrode material is contained. The lead-wire 4 for the positive electrode is spread at its inner end and provided with a cap 8, of glass or other insulating material, secured to the end of the lead-wire. The glass at the point where the lead-wire 4 passes through is spread and formed into a sort of cup-shape, the end of the wire passing into the cup and constituting with the cap-piece 8 a retaining means for preventing the sudden withdrawal of the mercury in the cup in case of shock. The lead-wire 5 is not provided with any cap; but it is found sufficient to let it pass into a similar cup-shaped portion, (shown at 9,) this portion being itself so arranged with relation to the walls of the pocket 7 so as to prevent a sudden emptying of the pocket in case of tilting or shock.

I claim as my invention—

1. In a vapor electric apparatus, the combination with a lead-wire, a liquid electrode around the same, an outer pocket for holding the said electrode, and a cup-shaped receptacle immediately surrounding the lead-wire for holding a portion of the liquid in contact therewith at times of sudden jar.

2. In a vapor electric apparatus, a main chamber, an electrode of conducting liquid, an outer receptacle for holding the said electrode, and a lead-wire entering the said recep-

tacle, in combination with a cup-shaped receptacle immediately surrounding the inner end of the lead-wire and adapted to prevent the separation of the electrode material from the lead-wire on the occurrence of a sudden jar.

3. In a vapor electric apparatus, a main chamber, an electrode of conducting liquid, a receptacle for holding the said electrode, and a lead-wire entering the said receptacle, in combination with a pocket surrounding the inner end of the lead-wire, and an insulating-cap supported upon the extremity of the lead-wire.

4. In a vapor electric apparatus, a main chamber, an electrode of conducting liquid, a receptacle for holding the said electrode, a lead-wire entering the said receptacle, and means for causing a portion of the conducting liquid material to remain in contact with the lead-wire when the apparatus is jarred.

Signed at New York, in the county of New York and State of New York, this 26th day of July, A. D. 1904.

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Witnesses:

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