No. 675,427. Patented June 4, 1901.

# J. VAN VLECK & W. N. STEVENS.

## ELECTRIC HEATER FOR ELECTRIC GLOWER LAMPS.

(No Model.) (Application filed Apr. 27, 1900.)

*Fig. 1.*

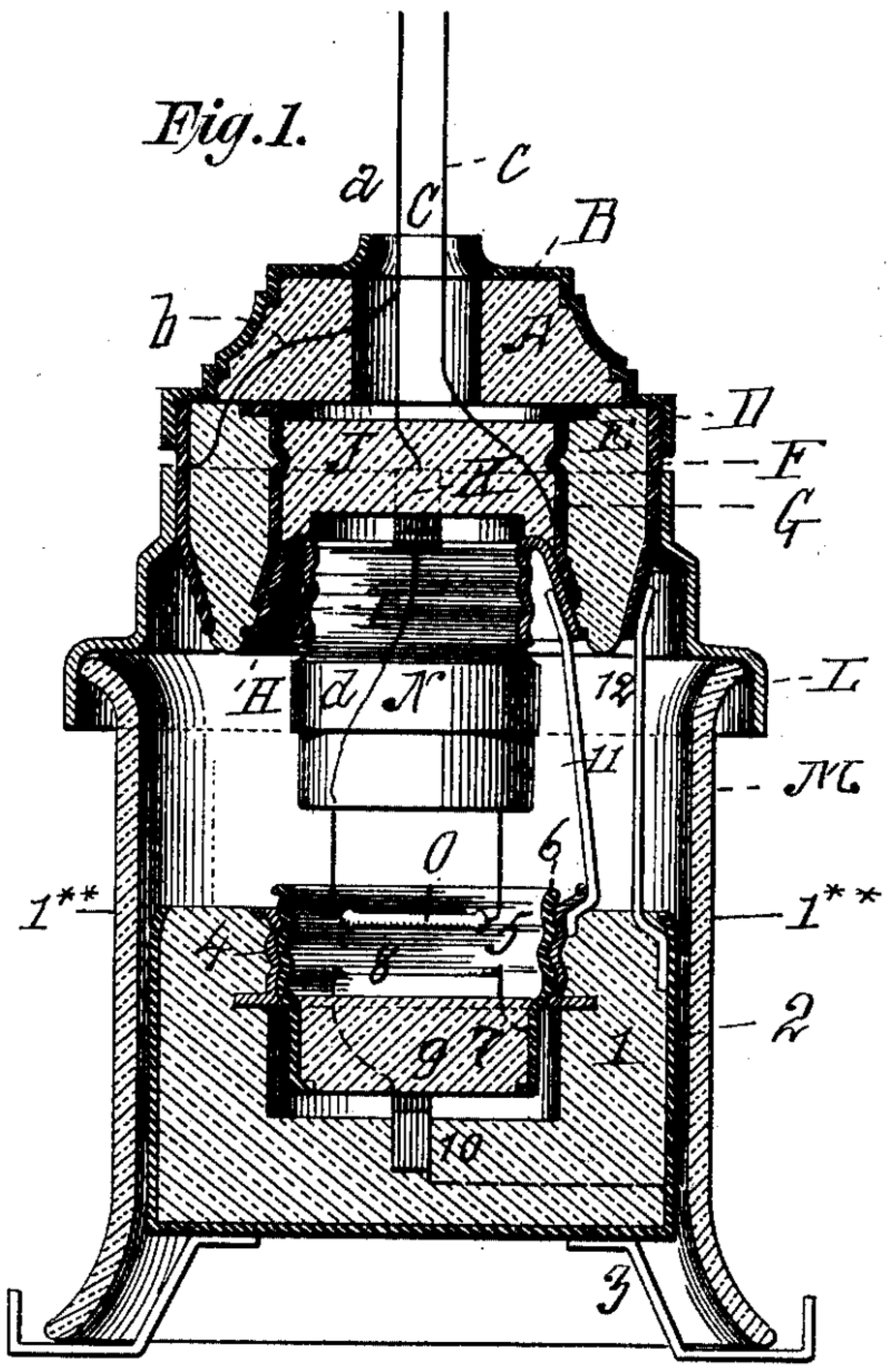
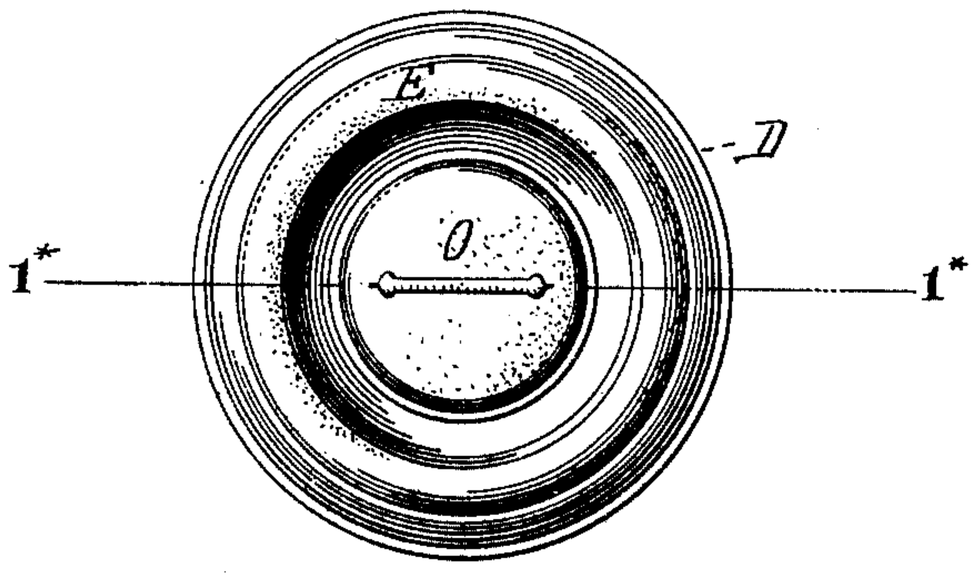



*Fig. 2.*

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# UNITED STATES PATENT OFFICE.

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## ELECTRIC HEATER FOR ELECTRIC GLOWER-LAMPS.

SPECIFICATION forming part of Letters Patent No. 675,427, dated June 4, 1901.

Application filed April 27, 1900. Serial No. 14,521. (No model.)

*To all whom it may concern:*

Be it known that we, JOHN VAN VLECK and WILLIAM N. STEVENS, of the city of New York, State of New York, have invented a new and useful Improvement in Electric Heaters for Electric Glower-Lamps, of which the following is a specification.

Our invention relates to that type of electric lamp in which there is a glower normally non-conducting, but which becomes conducting and caused to glow upon being raised to a certain temperature, and more particularly that class of such lamps in which the glower is elevated in temperature by radiation from an electric heater in suitable proximity thereto.

Our invention consists, broadly, in a removable electric heating device for electric glower-lamps, in such a device so constructed and arranged as that when it is adjusted to the lamp it will be guided into proper operative position with respect to the glower and circuit automatically established through the heating coil or wire, in the construction of the removable heater-supporting plug or support, in the construction of the lamp containing both a removable glower and a removable electric heater, and in the various combinations hereinafter more particularly pointed out.

In the accompanying drawings, Figure 1 is a vertical section on the line 1* 1* of Fig. 2, and Fig. 2 is a transverse section of our device on the line 1** 1** of Fig. 1.

Similar letters and numerals of reference indicate like parts.

The lamp-support consists, first, of a body of plaster or other non-conducting material A, which is inclosed in a metallic case B. In the body of plaster A there is a central opening C for the passage of the conducting-wires and for the attachment of the device in place. On the lower edge of the shell or case B there is a circular flange D, in which is received an annular body of non-conducting material E. This body of non-conducting material has an outer case or shell F, of metal, and an inner shell G, also of metal. The outer metal case F bears against and makes electrical contact with the flange D. The lower edge of the annular body E is tapered downward and is provided with a metal lining H, which is bent over and screw-threaded, as shown at I. Above this lining there is a body of plaster or other non-conducting material J, in which is embedded a contact-plate K, which communicates with one of the circuit-wires *a*. A branch *b* of circuit-wire *a* is connected to the shell F. The other circuit-wire *c* is connected to the inner shell G. Outside of and secured upon the shell F is a flanged socket L, which is adapted to receive and hold in any suitable way the protecting glass cylinder M.

N is the glower-supporting plug, the outer shell of which incloses a body of plaster or other non-conducting material.

O is the glower, supported by said plug and having one end connected with the wire *d*, dotted lines, which communicates with the contact-plate *e* on the upper surface of said plug. The other end of the glower communicates with the shell N.

The detachable electric heating device is a cylindrical body of plaster or other non-conducting material 1, inclosed in a metallic shell 2 and supported upon a metal flanged ring 3, the said ring 3 being secured to the flat bottom portion of the shell 2. Within the cylindrical body 1 there is a cylindrical opening having a screw-threaded sheet-metal lining 4.

5 is the heater-supporting plug, which consists of a metal shell 6 screw-threaded at its upper portion, so as to be received in the threaded lining 4, and having in its lower portion a body of plaster or other non-conducting material 7. Upon the upper surface of this body of plaster 7 and within the plug 5 is supported the heater 8, which may be a coil or other shaped body of thin platinum wire, for example. One end of this heater 8 is connected to a contact-piece 9, secured on the under side of the body of plaster 7. The other end of the heater 8 is connected to the shell 6.

Within the cylindrical body of plaster 1 is a contact-plate 10, which when the heater-supporting plug 5 is in place makes electrical contact with the plate 9.

Secured to the lining 4 of the cylindrical body 1 is a contact-spring 11, and also embedded in said body 1 and in electrical contact with the shell 2 is another contact-spring 12.

Ordinarily the electric heating device just described is removed from the lamp and is

inserted when it is desired to set the lamp in operation, suitably elevating the temperature of the glower O. When the heating device is inserted, as shown in Fig. 1, the ring 3 meets the lower edge of the protecting glass cylinder M, thus insuring the adjustment of the electric heating device in proper position, or, in other words, so that the heater 8 will be in proper heating proximity to the glower O, which glower, as shown, extends down into the opening in the upper side of the heater-plug 6. The circuit which feeds the glower proceeds by the wire *a* to the contact-plate K and contact-plate *e*, and so by the wire *d* to the glower, and thence by the shell N to the shell G, and so to the wire *b*. When the heating device is in place, as shown in Fig. 1, the circuit for feeding the heater proceeds by the wire *a* through the branch wire *b* to the shell F, to the spring 12, shell 2, and thence by the embedded wire to the contact-spring 10, contact-plate 9, wire *g*, heater 8, the shell 6, to the lining 4, to the contact-spring 11, and so to lining H, shell G to wire *c*. The upper ends of the springs 11 and 12 are inclined upwardly, so that when the heating device is put in position, as shown in Fig. 1, they receive between them the tapered lowered portion of the annular piece E and make electrical contact respectively with the lining H and the outer shell F. The electrical heating device is kept in the position shown in Fig. 1 until the glower O is sufficiently heated by radiation from the heater 8, when the current then becomes established through the glower, after which the heating device is removed. The heating device may of course be attached to any suitable handle.

We desire to call particular attention to the following points: The heater proper, 8, is supported upon and within its plug 5, so as to be readily removable therewith. The shell of the plug incloses the heater and so forms a hood around the same operating to confine the radiations. When the plug is in place, as shown in Fig. 1, the glower O enters this hood, and thus is subjected to the heat confined within the hood. Circuit is closed through the heater automatically when its support is placed within the cylinder M. As the position of this support within the cylinder is determined by the ring 3, it is apparent that the heater cannot be otherwise than properly placed with respect to the glower. It will also be observed that both the glower-plug and the heater-plug are detachable, and yet that the construction is such that it is practically impossible to put them back in their supports except correctly.

We have described the cylinder M as held in the flanged socket L of the glower-support; but it will be obvious that it may be free from that socket and held in the ring 3, thus being united with the heater-support instead of the glower-support. In such case of course when the electric heating device is removed from the lamp the cylinder will be removed with it.

We do not limit ourselves to the use of the contact-springs 11 and 12 for establishing circuit between the heater-support and the glower-support, inasmuch as we may employ any other suitable contact-closing device arranged to operate in like manner when the heater-support is put in the position shown in Fig. 1.

We claim—

1. In an electric glower-lamp, a glower, an electric heater therefor, a holder for said heater and a support for said heater-holder, contact-terminals respectively on said holder and said support; the said holder and said support being constructed and arranged so that circuit shall be established by contact of said terminals when said holder is applied to said support and broken when said holder is removed from said support and also so that said heater may be placed in operative position with respect to said glower or removed from said position without interference with said glower, substantially as described.

2. In an electric glower-lamp, a glower, a cylindrical guard surrounding the same, a heater and a support therefor adapted to fit within and be removable from said guard, and means for determining the proximity of the heater to the glower, substantially as described.

3. In an electric glower-lamp, a glower, a threaded plug supporting said glower, a threaded tube adapted to receive said plug, and a socket having its body portion of insulated material and containing a circular recess wherein said threaded tube is supported; the said recess being of greater diameter than said tube, substantially as described.

4. In an electric lamp, a socket, a glower, a plug supporting said glower and detachably connected to said socket, contact-plates I, K on said socket and circuit connections to said glower and contact-plates, substantially as described.

5. In an electric glower-lamp, a socket, a glower, a plug supporting said glower and detachably connected to said socket, contact-plates on said socket and circuit connections between said glower and contact-plates, a removable heater and means for electrically connecting said heater to said contact-plates, substantially as described.

6. In an electric heater for electric glower-lamps, a metal shell, a block of insulating material, and a rod or coil of conducting material within said shell and supported on said block, substantially as described.

7. In an electric heater, for electric glower-lamps, a cylindrical metal shell, a body of non-conducting material within said shell and solidly filling a portion of the same, and a rod or coil of conducting material supported on

the said body of non-conducting material, and disposed within the unfilled portion of said shell, substantially as described.

8. In an electric glower-lamp, a glower, a support for said glower independent of the heater-support, a heater and support therefor, circuit connections in said heater-support, a removable socket having a recess adapted to receive said heater-support and circuit connections whereby circuit is established between said socket and heater-support when said socket is placed in said recess, substantially as described.

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