

No. 685,528.

Patented Oct. 29, 1901.

H. N. POTTER.
HEATING DEVICE FOR ELECTRIC LAMPS.

(Application filed Sept. 11, 1899.)

(No Model.)

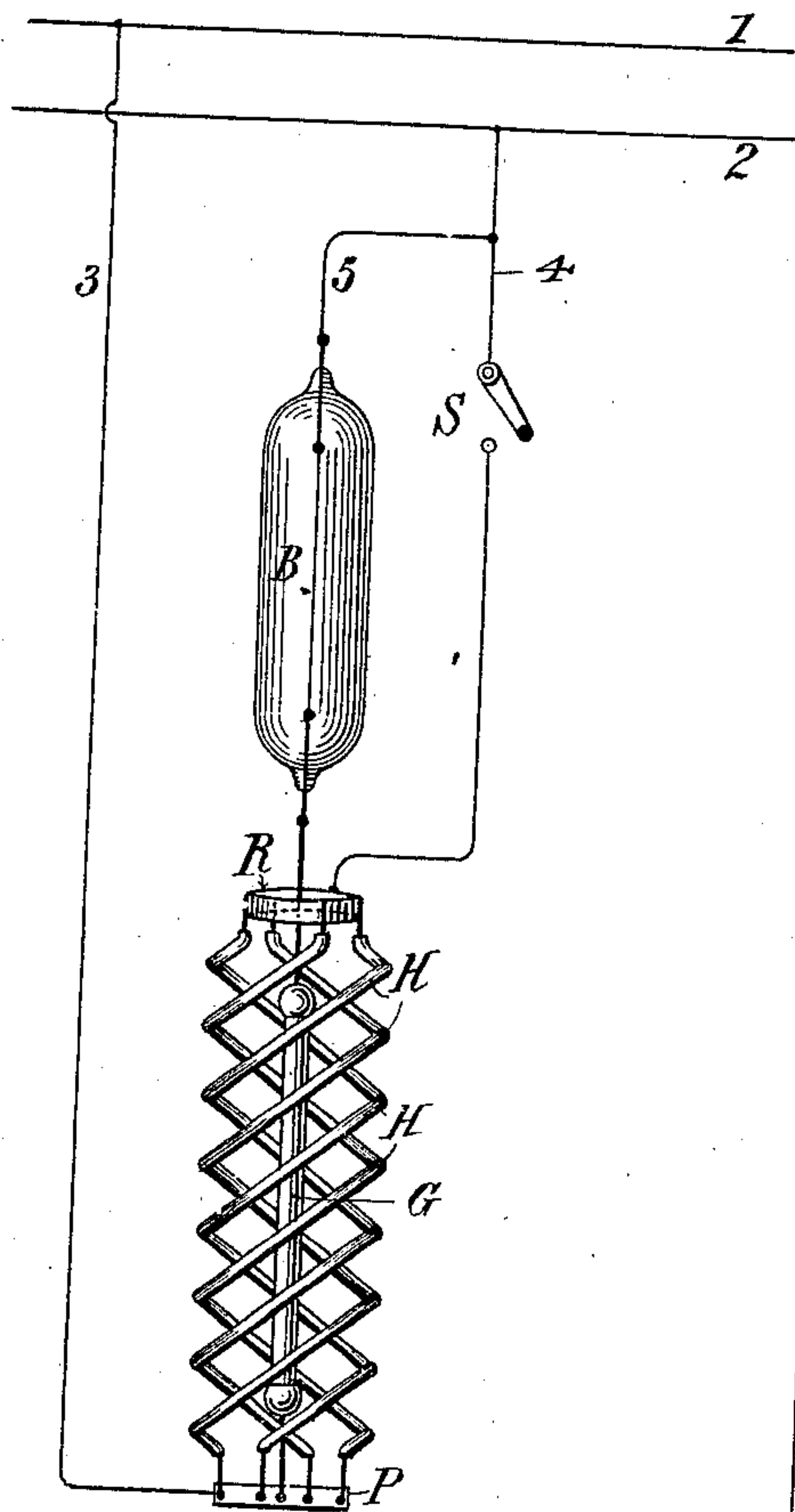


Fig. 1

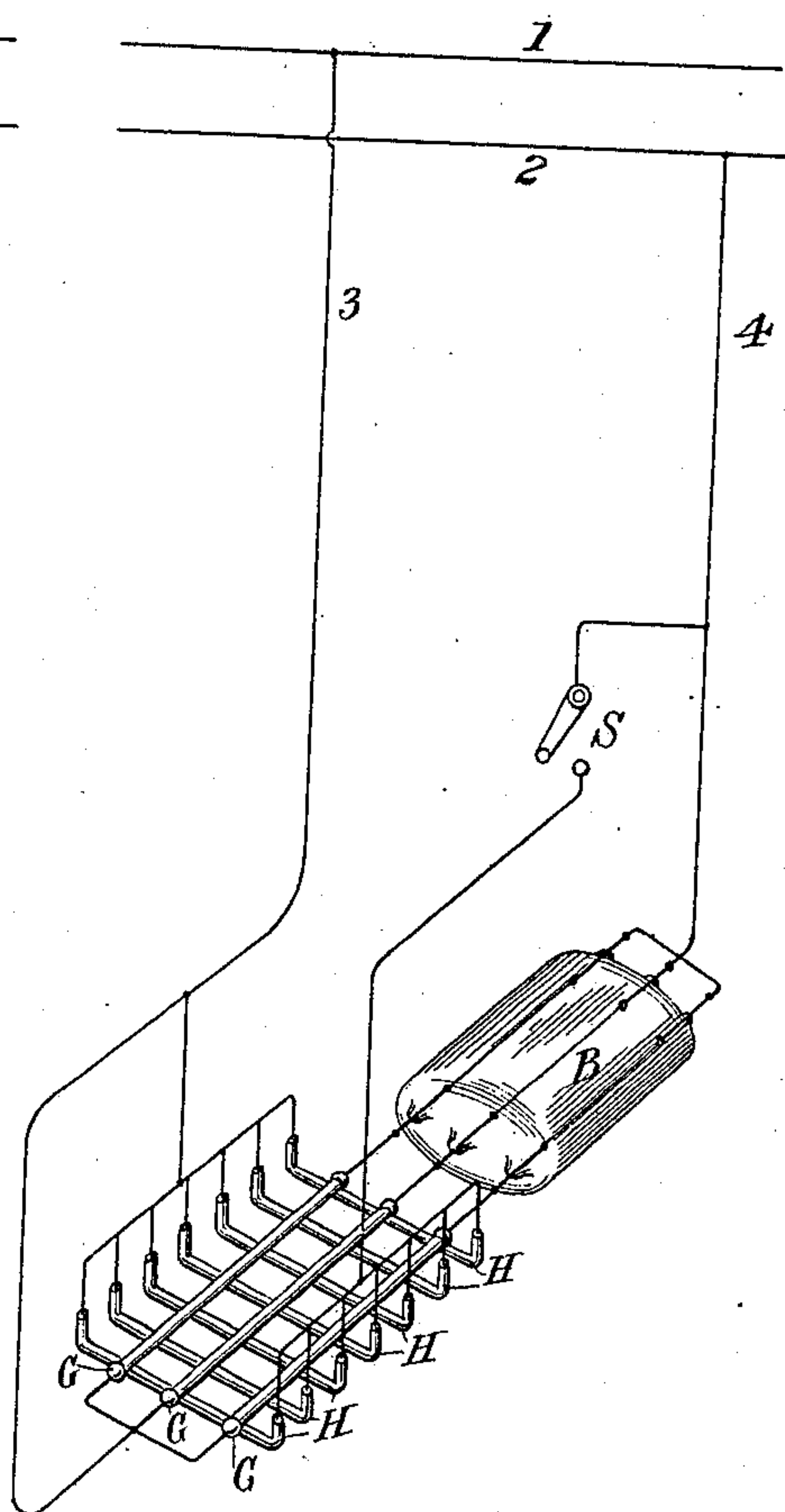


Fig. 2

Witnesses:
Raphael Potter
J. H. Jones

Inventor
Harry Noel Potter
by Charles A. Perry. Atty

UNITED STATES PATENT OFFICE.

HENRY NOEL POTTER, OF GÖTTINGEN, GERMANY, ASSIGNOR TO GEORGE WESTINGHOUSE, OF PITTSBURG, PENNSYLVANIA.

HEATING DEVICE FOR ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 685,528, dated October 29, 1901.

Application filed September 11, 1899. Serial No. 730,052. (No model.)

To all whom it may concern:

Be it known that I, HENRY NOEL POTTER, a citizen of the United States of America, residing at Göttingen, Germany, have invented certain new and useful Improvements in Heating Devices for Electric Lamps, of which the following is a specification.

My invention relates to that type of electric lamps in which the light-giving element is a conductor only when hot, and particularly to the heating device by which the glower is given its essential temporary preliminary heating.

In Letters Patent No. 652,638, dated June 26, 1900, I have described a novel form of heater, consisting of a fine conducting spiral embedded in an insulating material to form a composite wire, the whole being bent into such form as to embrace the glower to a greater or less extent.

My present invention consists, in general, in the use of several such spirals to effect the heating of a single glower or a plurality of glowers within the spirals. A single spiral suffices for heating small glowers with sufficient uniformity, but when glowers of large current capacity, particularly such of the latter as consist of thin-walled tubes, are to be started up the heating must be very evenly distributed to prevent cracking of the glower. Enlarging the diameter and length of wire of a small heater does not produce a successful large heater, because the surface of the heater and its mass do not bear the same relation to each other in the large as in the small heater. Furthermore, an increase in the diameter of the actual heater-conductor produces a disproportionately great increase in its cost with which the increased heating effects do not keep pace. It is therefore cheaper to multiply heaters in parallel rather than increase their size. Several heaters equal in surface to a single large heater heat up more quickly, as they have altogether but a fraction of the mass of the large one. Several small heaters can be so distributed about a glower that their combined effects heat it much more evenly than a single spiral practically can.

In the drawings, Figure 1 is a side elevation of the essential elements of a lamp embodying my invention, and Fig. 2 is a perspective view of a modification.

In Fig. 1 the glower G is surrounded by four geometrically and electrically parallel spiral heaters H H H H. These latter are connected to a plate P at the bottom, and to this is also connected the lower glower-terminal. At their upper ends the heater spirals are connected to a ring R, from which a conductor leads to a switch S. In series with the glower G is its ballast resistance B, which is here shown as an iron wire in an atmosphere of hydrogen, but any other suitable form of ballast may be employed. The switch S being closed, current flows through all four heaters in parallel, and the glower G within is very evenly heated to conductance and "starts," whereupon the switch S is opened, thus interrupting further current to the heater.

In Fig. 2 a form is shown in which three horizontal glowers are heated by seven horizontal heaters in parallel with each other and disposed at right angles to and beneath the glowers. At B is shown the compound ballast, each glower having its separate steady- ing resistance, all being, however, located in one chamber. The action is the same as in the modification shown in Fig. 1.

By arranging the heaters at an angle to the glower or glowers the shadows which would be thrown by heaters arranged parallel to the glower are largely avoided.

I claim as my invention—

In an electric lamp of the type described, the combination with a glower or glowers, of a plurality of heaters disposed in parallel lines adjacent and transversely to the glower or glowers and electrically connected in parallel.

In witness whereof I have hereunto signed my name, this 9th day of August, 1899, in the presence of two subscribing witnesses.

HENRY NOEL POTTER.

Witnesses:

WOLDEMAR HAUPT,
MAX HINON.