

No. 684,093.

Patented Oct. 8, 1901.

H. N. POTTER.  
HEATER FOR ELECTRIC LAMP GLOWERS.

(Application filed Aug. 14, 1899.)

(No Model.)

Fig. 1.



Fig. 2.

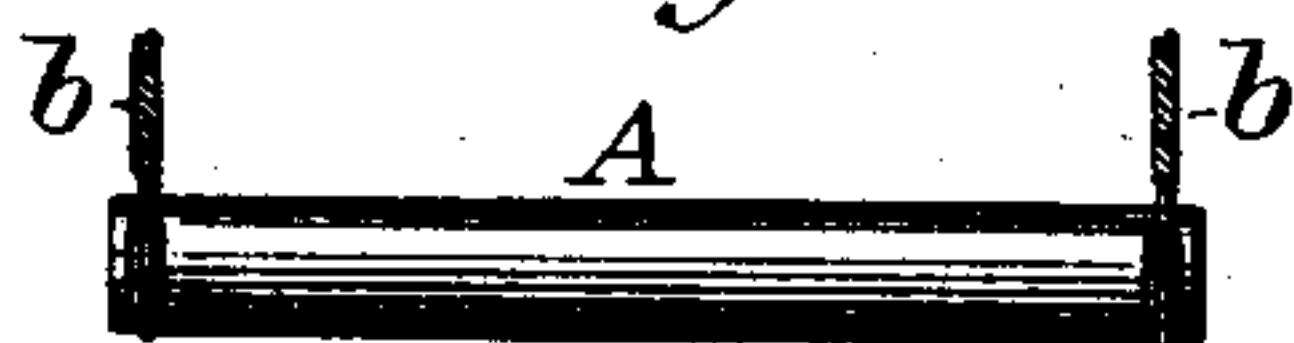


Fig. 3.

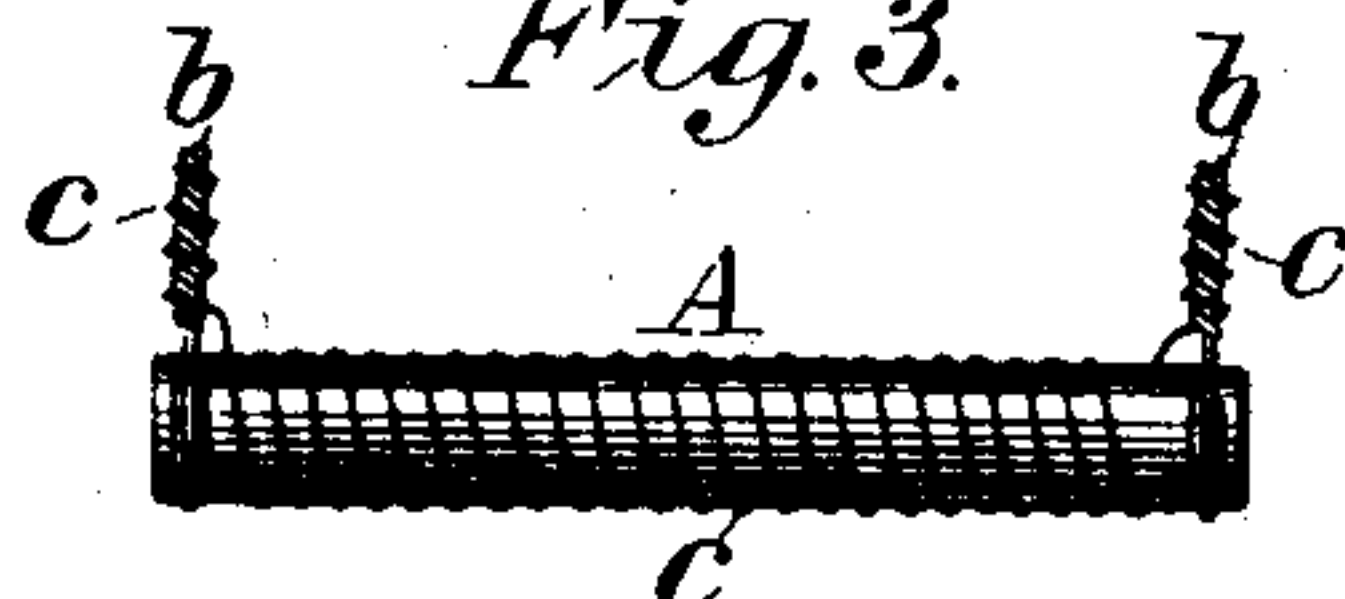


Fig. 4.

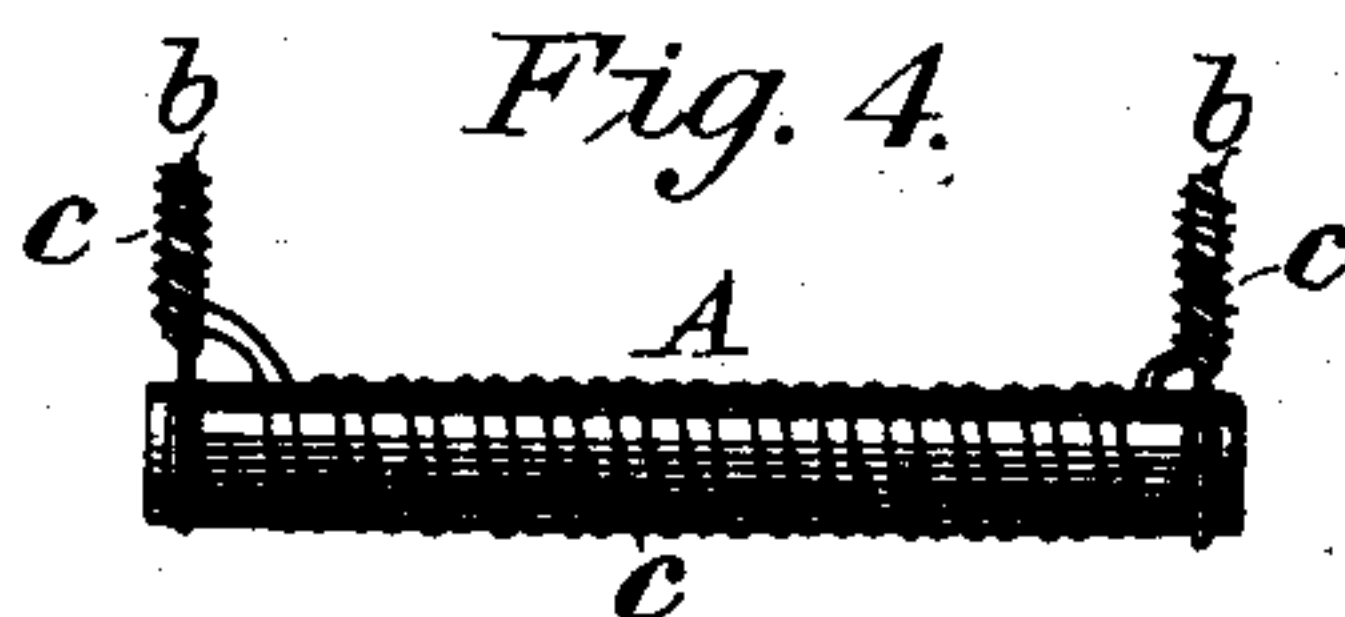


Fig. 5.



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## HEATER FOR ELECTRIC-LAMP GLOWERS.

SPECIFICATION forming part of Letters Patent No. 684,093, dated October 8, 1901.

Application filed August 14, 1899. Serial No. 727,148. (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 in Göttingen, Germany, have invented certain new and useful Improvements in Heaters for Electric-Lamp Glow-  
5 Heaters for Electric-Lamp Glow-ers, of which the following is a specification.

The problem of constructing a serviceable electric heater for use in electric lamps of the  
10 Nernst class wherein the glowers have to be brought to a high temperature before they are adapted to take enough current to maintain their luminosity without the aid of external sources of heat has been solved in various  
15 ways, both for heaters which are designed to remain stationary with respect to the glowers and for movable heaters controlled by suitable electrical devices. I have invented a novel electric heater which is especially  
20 designed to serve as a stationary heater for lamps of this class, although I do not desire to limit its application to that use alone. The body of the heater which I have  
25 designed is generally tubular in cross-section, by which I especially mean that the said body is hollow and not necessarily that it is a section of a true cylinder. This body I wind externally with a conductor or con-  
30 ductors designed to serve as the heating elements. The said conductor or conductors may be wound spirally in screw-threads or portions of screw-threads formed on the external surface of the heater-body or they may  
35 be wound around a smooth surface of a body of this type, and in either case they may afterward be covered with a paste formed from materials of the same general kind as the body of the heater itself. I generally  
40 make use of a single wire as the heating-conductor, this wire being wound spirally around the heater-body and the separate windings being insulated from each other. In some instances I prefer to use finer wires for the  
45 heating-conductors, in which case I purpose forming cables, strands, or bundles of such wires having a surface approximately equal to that of a single wire ordinarily employed. I do not mean that I necessarily form these  
50 finer wires into twisted or braided cables, but I connect them in parallel on the surface of the heater-body in any manner.

In order to assist in localizing the heat of the electric heater, so as to produce the greatest immediate effect upon the glower, I may  
flatten the top of the heater, as will be ex- 55  
plained farther on. Moreover, I have found a certain composition to which I have given the name "talcite" especially adapted to serve as the heater-body in devices of this  
60 class, and I particularly desire to claim the use of this material in connection with heater-bodies of a general tubular cross-section, as set forth in this application. The material  
which I call "talcite" is made of soapstone  
65 powder in the proportions of about one hundred parts mixed with about fifteen parts of tragacanth, dextrine, or other suitable binding material and about forty parts water.

I also show and describe in this application special terminal connections for tubular  
70 heaters.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the body of a tubular electric heater. Fig. 2 is a similar  
75 view showing an electric terminal connected with the said heater-body. Fig. 3 is an elevation of the completed heater having the heating-conductor wound externally upon the heater-body. Fig. 4 is a view similar to  
80 Fig. 3, but showing a plurality of heating-conductors connected in parallel; and Fig. 5 shows cross-sections of various forms of tubular heater-bodies adapted for use in heat-  
85 ers of this class.

Referring to the drawings, A is a hollow  
generally tubular body of insulating heat-  
resisting material, preferably talcite. Near  
the opposite ends of the body A, I make slits  
90 or notches *a*, and around the body and passing through the notches I wind terminal con-  
ductors *b b*, so as to make good mechanical connection between said terminal conductors  
and the heater-body. After winding the  
short wires in the manner described around  
95 the ends of the heater-body I generally twist the ends of the said wire together so as to leave a projecting conductor, through the  
medium of which it will be easy to make  
good electrical connection with the external  
100 conductors between which the heater is to be connected up. Instead of thus winding the



terminal conductors around the ends of the heater-body I may simply thread the said conductors through the slits *a a* and twist the ends together as before.

5 In applying the heater-wire (shown at *c*) to the outer surface of the heater-body A, I wind the same spirally on the said body and generally connect its ends to the terminals *b b* by winding them around said terminals,  
10 as shown in Figs. 3 and 4.

In Fig. 5 I show cross-sections of hollow heater-bodies, one of which is strictly tubular, while the others are more or less flattened on the upper side. The object of such flattening is, as has already been set forth, to  
15 concentrate upon the glower as much of the heat radiated from the heater as can be conveniently done without sacrificing the conditions of a tubular structure for the heater-  
20 body.

In general it may be said for heaters of the kind described above that the tubular form is especially well adapted to admit of the heater-body being made very thin and at the  
25 same time to provide sufficient strength for ordinary uses. By virtue of the extreme attenuation of the heater-body it is possible to avoid undue waste of energy in heating up the supporting-body for the heating-con-  
30 ductor. It is also true that with a very thin body of material to be heated up the act of heating is quickly accomplished, which is a desirable feature in lamps of this class.

I claim as my invention—

35 1. In an electric lamp of the class described, an electric heater consisting of a thin tubular body of talcite spirally wound with a heating-conductor.

40 2. In an electric lamp of the class described, an electric heater consisting of a hollow body of talcite, and a heating-conductor secured upon the outer surface thereof.

3. In an electric lamp of the class described,

an electric heater consisting of a thin tubular body of insulating, heat-resisting material, 45 and a heating-conductor on the outer surface of the said body, the said insulating-body being peripherally notched or perforated at each end to receive a terminal connection for the said heater.

50 4. In an electric lamp of the class described, a thin tubular body of talcite, a heating-conductor supported on the outer surface thereof, and a terminal connection consisting of a wire or wires, the ends of which are twisted 55 together, the said terminal wire or wires being suitably secured to the ends of the said talcite body, and the ends of the said heating-conductor being connected with the said wire or wires.

60 5. In an electric lamp of the class described, an electric heater consisting of a hollow body of insulating, heat-resisting material, peripherally notched or perforated at each end, a heating-conductor supported on the outer sur- 65 face of the said body, and a terminal connection consisting of one or more wires which traverse the said notches or perforations, and the ends of the heating-conductor being brought together to form a means for connec- 70 tion with the external circuit.

6. An electric heater for lamps of the class described consisting of a thin body of talcite wound with a plurality of heating-conductors connected in parallel.

75 7. In a lamp of the class described, a heater consisting of a talcite tube spirally wound with a plurality of heating-conductors connected in parallel.

Signed by me at Hanover, Germany, this 80 14th day of July, 1899.

HENRY NOEL POTTER.

Witnesses:

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KIRKE LATHROP.