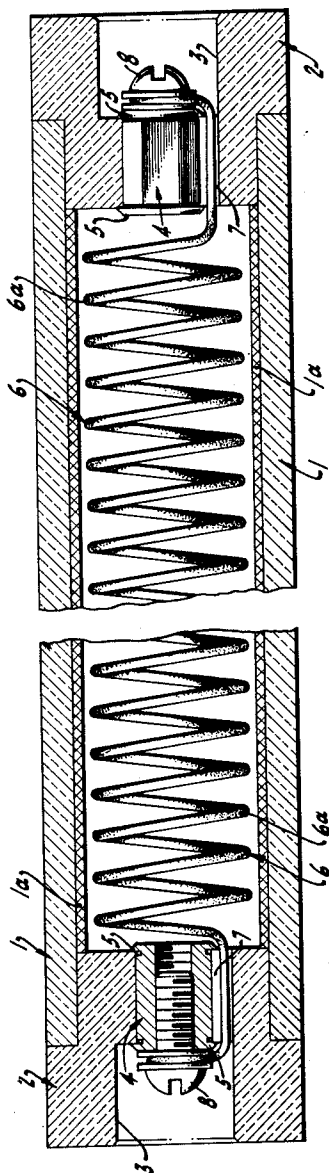


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HEATER ELEMENT
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HEATER ELEMENT

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6 Claims. (Cl. 201-67)

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This invention relates to electrical heating elements and in general has for its object the provision of an infrared ray radiant heater element.

More specifically, the object of this invention is the provision of a heating element of the character described including a glass tube housing a Nichrome wire coil resistance element stretched between readily removable insulating caps mounted in the ends of the tube, the caps being provided with electric terminals and the surface of the coil and the inner surface of the tube being coated with either crystalline silica or silicon carbide.

A further object of this invention is the provision of a heating element capable, when operated at the proper wattage, of generating infrared rays of a character which for some reason not presently understood, are particularly efficacious in heat therapy.

Numerous other objects and features of the present invention will be apparent from a consideration of the following specification taken in conjunction with the accompanying drawing.

Referring to the drawing, the single figure appearing thereon is a longitudinal mid-section of a heating element embodying the objects of my invention.

The heating element shown in this figure includes a Pyrex glass tube or envelope 1 coated on its inner surface with a layer 1^a of crystalline silica or silicon carbide in the order of $\frac{1}{64}$ " thick. Loosely mounted within each end of the tube 1 is a flanged cap 2 formed with an end recess 3 and provided with an interiorly threaded metal terminal 4. Conveniently the terminals 4 are molded within their respective caps and provided with end locking flanges 5.

Housed within the tube 1 is a Nichrome wire coil resistance element 6, each end of this coil being threaded through a hole 7 formed in the caps 2 and securely connected to one of the terminals 4 by screws 8 threaded thereto. Depending upon the length of the heating element Nichrome wire of a gauge in the order of 18 to 24 B and S has been found to give satisfactory results. Normally the wire coil resistance element is of a length substantially less than the length of the tube 1, but is stretched to the latter length so as to be maintained under considerable tension.

By resorting to this expedient the wire coil serves to hold the caps 2 seated within the ends of the tube and is itself held out of contact with the walls of the tube. Furthermore this con-

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struction permits the ready removal of the resistance element and its replacement with either an identical element or with one having different characteristics. The resistance element 6, like the inner surface of the tube 1, should also be coated with a layer 6^a of crystalline silica or silicon carbide.

To apply the silica or silicon carbide to the tube, the temperature of the tube is brought up to about 750° F. and then while at this temperature its inner walls are contacted with a body of silica or silicon carbide suspended in water glass. By so bringing the compound into contact with the glass it becomes bonded therewith to form an integral structure having an opaque crystalline surface. The same procedure can be resorted to for applying the coating 6^a to the resistance element.

By the proper selection of the resistance of the element 6 in relation to the voltage to be used, a heater element of this kind can be made effectively to generate infrared rays without the concurrent emanation of any rays of the visible spectrum or rays of a wavelength shorter than those of the visible spectrum and for some unknown reason the rays emitted appear to be more efficacious when used for heat therapy than the rays obtained from infrared ray heaters presently available.

Aside from any therapeutic value that these rays may have, the efficiency of my heating element is greatly enhanced by the crystalline silica or silicon carbide coating applied to the resistance element and particularly to the walls of glass envelope.

I claim:

1. A heating element comprising: a glass envelope; electric terminals mounted in said envelope and extending therethrough; and an electric resistance element mounted within said envelope, and connected to said terminals, one surface of said envelope being coated with a layer of a compound selected from the group consisting of silica and silicon carbide.

2. A heating element comprising: a glass envelope; electric terminals mounted in said envelope and extending therethrough; and an electric resistance element mounted within said envelope and connected with said terminals, the inner surface of said envelope being coated with a compound selected from the group consisting of crystalline silica and silicon carbide.

3. A heating element comprising: a glass envelope; electric terminals mounted in said envelope and extending therethrough; and an

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electric resistance element mounted within said envelope and connected to said terminals, the surface of said resistance element and one surface of said envelope being coated with a compound selected from the group consisting of crystalline silica and silicon carbide.

4. A heating element comprising: a glass envelope; electric terminals mounted in and extending through said envelope; and an electric resistance element mounted in said envelope in circuit with said terminals, the inner surface of the envelope and the outer surface of said resistance element being coated with a compound selected from the group consisting of crystalline silica and silicon carbide.

5. A heating element comprising: a glass tube; an electric terminal mounted within each end of said tube; and a Nichrome wire coil disposed within said tube with its ends connected to said terminals, said wire coil and the inner surface of said tube being coated with a compound selected from the group consisting of crystalline silica and silicon carbide.

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6. A heating element comprising: a glass tube; an insulating cap mounted on each end of said tube; an electric terminal mounted in each of said caps; and a Nichrome wire coil connected to and stretched between said terminals within said tube, the surface of said coil and the inner surface of said tube being coated with a layer of a compound selected from the group consisting of silica and silicon carbide.

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