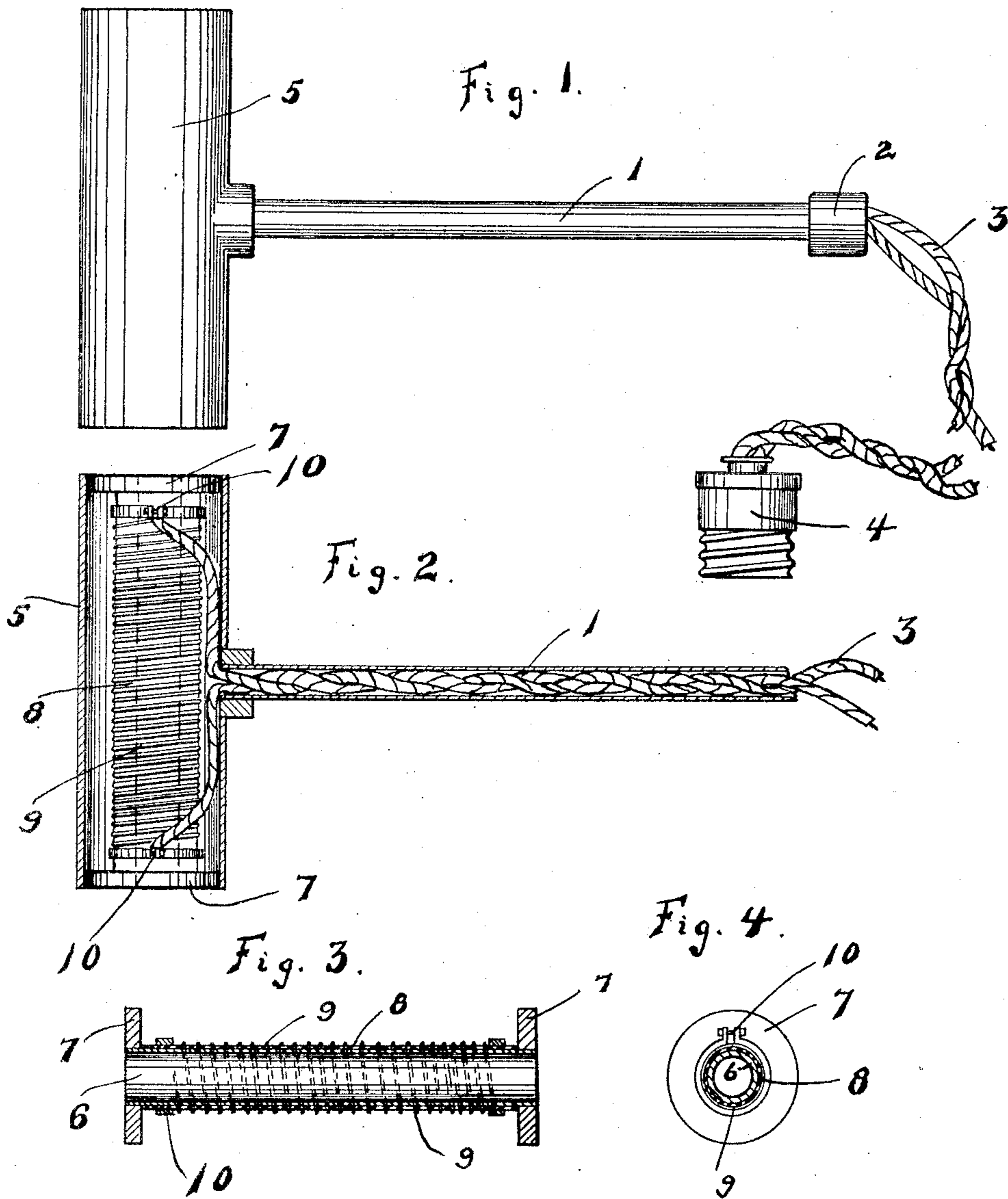


M. H. SHOENBERG.  
ELECTRIC HEATER.  
APPLICATION FILED JUNE 1, 1910.

976,405.

Patented Nov. 22, 1910.



Witnesses  
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by,

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# UNITED STATES PATENT OFFICE.

MILTON H. SHOENBERG, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO THE PRESTO ELECTRICAL MANUFACTURING COMPANY, A CORPORATION OF CALIFORNIA.

## ELECTRIC HEATER.

976,405.

Specification of Letters Patent.

Patented Nov. 22, 1910.

Application filed June 1, 1910. Serial No. 564,435.

To all whom it may concern:

Be it known that I, MILTON H. SHOENBERG, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented a new and useful Electric Heater, of which the following is a specification in such full and clear terms as will enable those skilled in the art to construct and use the same.

This invention relates to an electric heater especially adapted for heating liquids, and its object is to produce a heater having the heating elements protected from the liquid to be heated.

It will be understood by those skilled in the art that substances which decompose readily cannot be heated by contact with an electrically charged wire without the decomposition of the substances of said liquid. The result is that where the liquid comes in contact with the electrically charged resistance wire that the liquid is decomposed and spoiled.

In the present invention the wire is sealed within a metallic case which heats the liquid by conduction through the metal of said case, thus making it possible to use the heater for milk or other substances which decompose readily.

Another advantage of this construction is that the life of the resistance wire is considerably extended.

Another advantage of this form of construction is that by securing the heater casing to the handle at right angles thereto and making the same rather short, it may be placed in almost any small vessel and used to heat a very small quantity of liquid, since it may be completely covered when there is about an inch of liquid in the vessel.

Another advantage of this invention is that the liquid to be heated comes in contact with a considerable area of heated surface, due to the fact that the resistance wire heats the tube 5 and the tube 6, both of which are in contact with the liquid being heated.

In the drawings in which the same numeral of reference is applied to the same

portion throughout the several views, Figure 1 shows a side elevation of the heater with an electric plug attached. Fig. 2 is a cross sectional view through the casing of the heater showing the spool of high resistance wire within the casing. Fig. 3 is a longitudinal sectional view of the spool of high resistance wire. Fig. 4 is a cross sectional view of the spool of high resistance wire having the mica covering under the wire.

The numeral 1 represents the handle of the heater, a wooden bushel tube being used to prevent the end of said tube from cutting the insulation on the leading wires 3, said wires having a plug 4 to screw into any of the ordinary electric lighting fixtures. The other end of the handle is provided with a casing 5 which is tubular and connected with the handle 1. This casing is large enough to receive a metal tube 6 having rings 7 at the ends thereof. Surrounding the tube 6 is a thin sheet of mica 8 on which the high resistance wire 9 is wound, a binding post 10 being provided at each end to connect the electrical wire 3, said wires passing through the handle 1 and into the casing 5.

It will be understood by those skilled in the art that any suitable insulation may be used on the outside of the tube 6.

An advantage of this construction is that the sheet of insulation is so thin that heat is rapidly conducted away from the resistance wire and the area of the tube 6 is so considerable that the resistance wire will withstand severe usage without being burned up.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States is as follows:—

An electric heater comprising a casing open at both ends, a tubular handle secured thereto and extending at right angles therefrom, a tubular spool within said casing having both ends open and registering with the ends of the casing, the cavity between

the spool and casing being closed at both  
ends, a high resistance wire upon said spool  
within said cavity, an insulating medium  
separating said wire from the spool, and  
5 conducting wires passing through said han-  
dle and connected to the resistance wire.  
In testimony whereof I have hereunto set

my hand this 26th day of May A. D. 1910,  
in the presence of the two subscribed wit-  
nesses.

MILTON H. SHOENBERG.

Witnesses:

CHARLES R. HOLTON,  
ROSWELL P. ROGERS.