

(No Model.)

G. B. FRALEY.
ELECTRIC HEATER.

No. 569,278.

Patented Oct. 13, 1896.

Fig. 1.

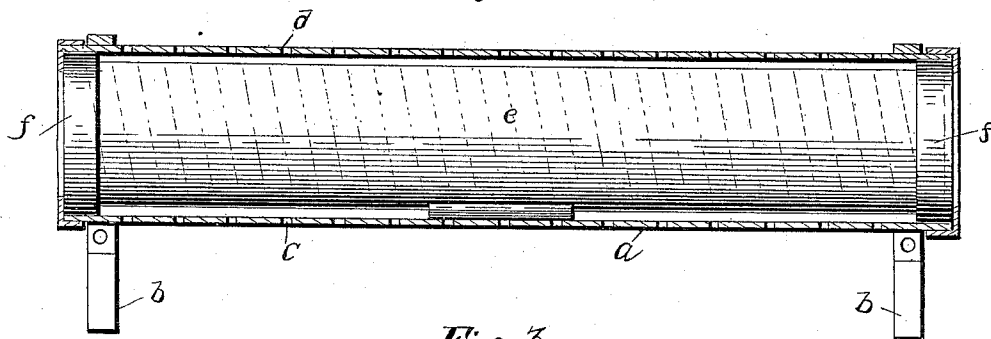


Fig. 3.

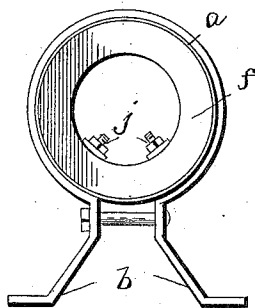
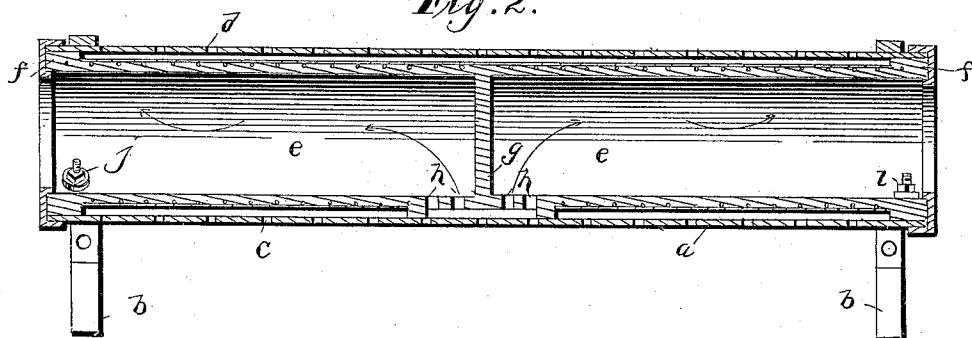


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE B. FRALEY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR, BY
DIRECT AND MESNE ASSIGNMENTS, TO THE GLOBE ELECTRIC HEAT-
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ELECTRIC HEATER.

SPECIFICATION forming part of Letters Patent No. 569,278, dated October 13, 1896.

Application filed July 11, 1896. Serial No. 598,858. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. FRALEY, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Electrical Heaters; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it apper-
tains to make and use the same, reference be-
ing had to the accompanying drawings, and
to the letters of reference marked thereon,
which form part of this specification.

This invention relates to certain new and
useful improvements in electrical heaters.

The object of the invention is to provide a highly-efficient and economical heater, simple, cheap, and durable in construction and composed of a minimum number of parts.

A further object of the invention is to provide means for quickly and easily removing worn or burned parts and replacing them with perfect similar parts.

In the drawings, Figure 1 is a central longitudinal section showing the inner cylinder in side elevation. Fig. 2 is a central longitudinal section through the entire heater. Fig. 3 is an end view of the heater.

Referring by letter to the drawings, *a* indicates the outer or metallic cylinder provided with the supports *b* therefor. *c* is a series of openings in the bottom of said cylinder, and *d* are similar holes in the top thereof to permit of a free circulation of air.

e is a cylinder made of fireproof material, having the flanges *f* at either end to snugly fit within the metallic perforated cylinder *a*.

The cylinder *e* is provided at or near its center with a wall *g*, forming two chambers thereof to prevent a draft through the cylinder and also to prevent the entire volume of heat passing out of one end thereof should either end be raised higher than the other. *h* are a series of openings through the lower wall of the said fireproof cylinder *e*, opening into the two chambers of said cylinder. These openings register with several of the openings *c* in the metallic cylinder or casing *a*. The holes or openings *h* are surrounded with a wall or inclosure formed integral with the cylinder *e* and adapted to snugly fit the bottom wall of

the metallic cylinder or casing *a*. This wall or inclosure forms a channel or guide for the cold air to the several chambers of the inner or fireproof cylinder *e*. In constructing this inner fireproof cylinder it is molded preferably round and encircled with several coils of wire, beginning at the common binding-post *i*, each stand of coiled wire at its other end having its own binding-post, such as *j*. Any number of these wires may be employed and used, if so desired, so that when one is burned out a connection can be made to any of the other posts, and so on until they have all become useless, when the cylinder may be removed and another substituted at a very slight cost. When an inner or fireproof cylinder is to be removed, it is only necessary to remove the circular cap at either end of the casing and it can be easily and quickly pushed out. Over the several strands of coiled wire around the inner cylinder I form a coating of compound composed principally of powdered talc, silicate of soda, and water in the proportion desired. Mineral wool (made from silicious rock) may also be added. This is mixed into a plastic state and applied as desired. If made thin, it may be put on with a brush like paint, when several coats will be necessary, or it may be made thicker and applied by hand and allowed to dry. Otherwise it would bubble and form cells in the coating when the heat is applied. This coating being a good conductor of heat allows the full power of the current to come in contact with the air circulating between the casing *a* and the cylinder *e*, and at the same time keeps the wires in perfect condition and prevents corroding or oxidizing.

It will be readily seen that by means of the openings *c* and *h* a free circulation of air is had both within and around the cylinder *e*. Thereby the effectiveness of the heater is increased.

I do not wish to limit myself to the exact construction herein described, but consider myself entitled to all changes that fall within the spirit and scope of my invention.

Having thus fully described my invention, what I claim is—

1. An electrical heater consisting of a perforated metallic casing open at both ends, a

fireproof inner cylinder, a wall at or near the center of said cylinder forming two chambers therein, openings in said chambers registering with the perforations in the casing and
5 strands of wire coiled around said fireproof cylinder through which the current flows, substantially as described.

2. An electrical heater composed of the metallic perforated casing, a fireproof cylinder
10 therein, a dividing-wall in said cylinder, openings in said cylinder connecting with the perforated casing, a wall or inclosure surrounding said openings and flush with the

lower wall of the casing, flanges at each end of the cylinder closing the ends of the casing 15 and forming a chamber between the inner cylinder and the casing, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in presence of 20 two witnesses.

GEORGE B. FRALEY.

Witnesses:

JOHN F. TURNER,
A. B. PAULSON.