

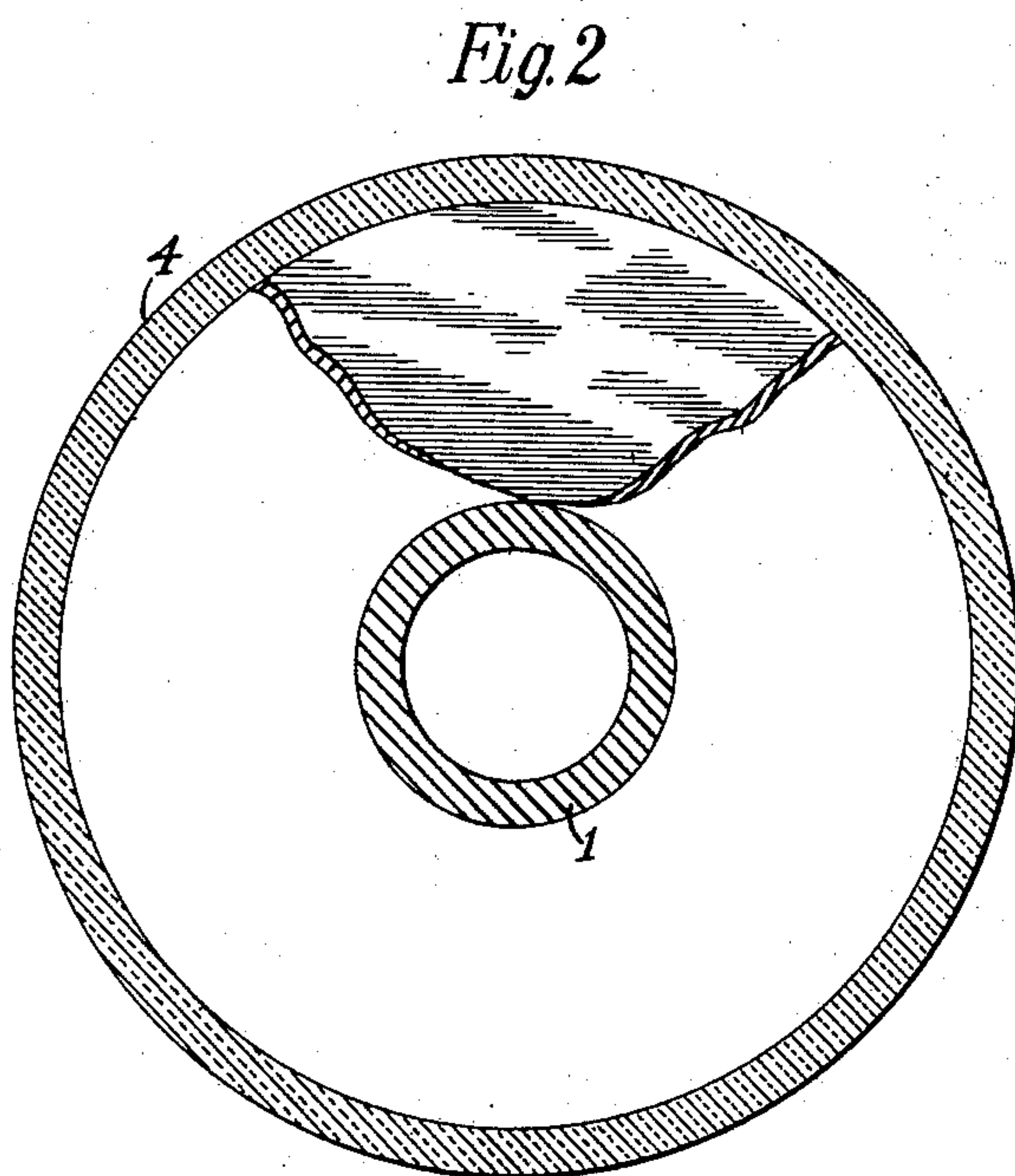
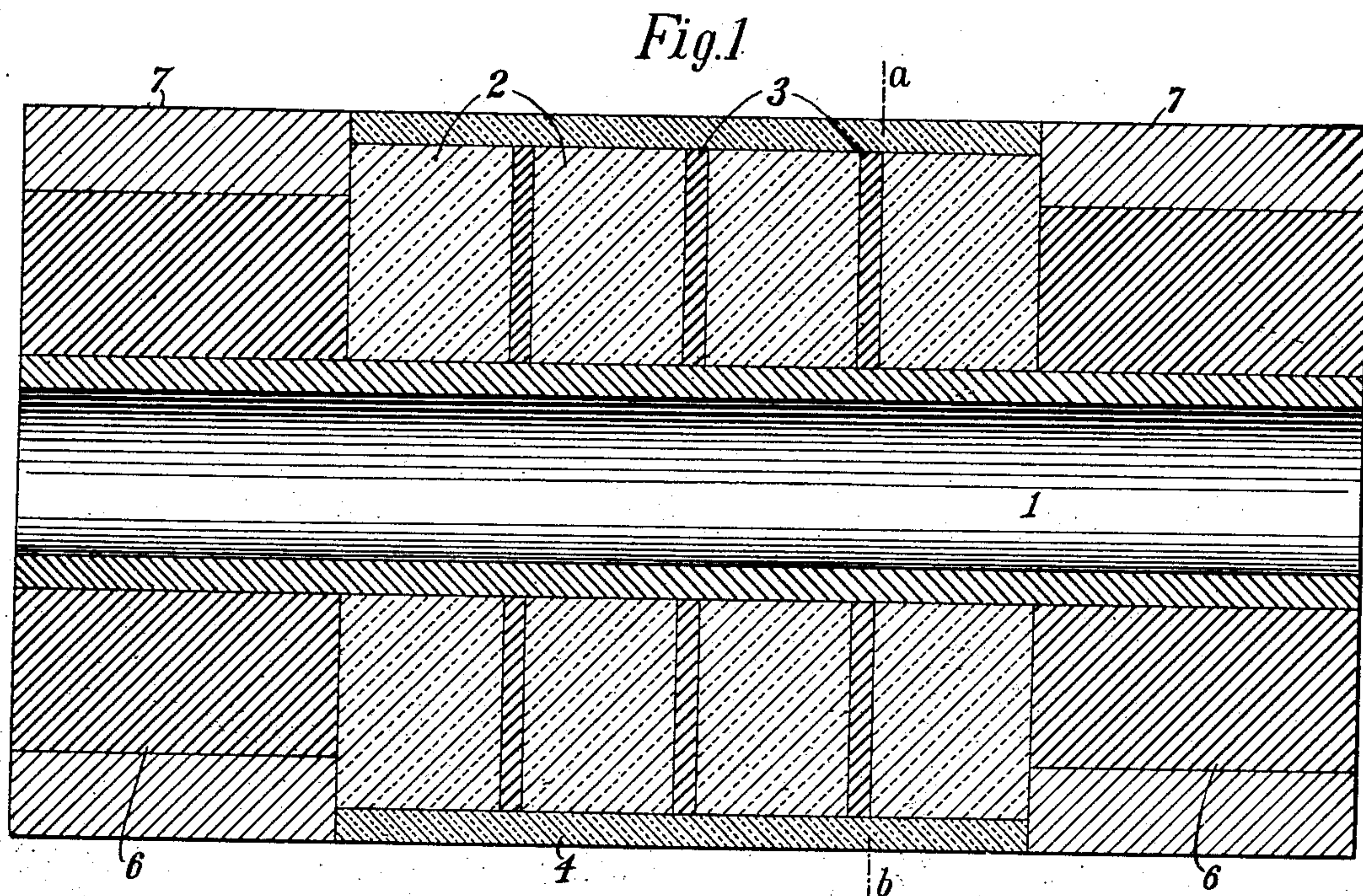
No. 715,507.

Patented Dec. 9, 1902.

H. N. POTTER.
TUBULAR ELECTRIC FURNACE.

(Application filed Feb. 7, 1902.)

(No Model.)



Witnesses:

Raphael Potter
Wm. H. Capel

Harry Noel Potter *Inventor*
by *Charles A. Perry* *Att'y*

UNITED STATES PATENT OFFICE.

HENRY NOEL POTTER, OF NEW ROCHELLE, NEW YORK, ASSIGNOR TO
GEORGE WESTINGHOUSE, OF PITTSBURG, PENNSYLVANIA.

TUBULAR ELECTRIC FURNACE.

SPECIFICATION forming part of Letters Patent No. 715,507, dated December 9, 1902.

Application filed February 7, 1902. Serial No. 92,968. (No model.)

To all whom it may concern:

Be it known that I, HENRY NOEL POTTER, a citizen of the United States, and a resident of New Rochelle, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Tubular Electric Furnaces, of which the following is a specification.

The present invention relates to improvements in electric furnaces, the special object being to protect such furnaces from the danger of sagging or warping out of shape under the influence of extremely high temperature to which they are subjected when in operation.

It is found that a carbon-tube furnace is subject to such distortion of shape under the influence of extreme heat, the carbon becoming plastic at the high temperature reached in the furnace, while other substances, such as magnesia, which are also used to form the body of such furnaces, are still more subject to distortion of shape under the influence of heat.

The means which I disclose herein for preventing the sagging or warping of the carbon-tube furnace consists of a series of carbon collars surrounding and supporting the internal tube throughout its length, the collars extending from the tube at right angles thereto into a region which is much cooler than that next to the tube. This construction does not interfere with the use of the usual jacket for the carbon tube, inasmuch as the carbon collars referred to extend through or into the jacket, as will be readily understood. I generally prefer to surround the entire structure, including the jacket and the collars, with a non-conducting tube, as will appear farther on.

My invention will be clearly understood by reference to the accompanying drawings, in which—

Figure 1 is a longitudinal section of a furnace constructed in accordance with my invention, and Fig. 2 is a transverse section along the line *a b* in Fig. 1.

Referring to the drawings, 1 is a tube of carbon constituting the inner tube of an electric furnace. The parts indicated by the char-

acter 2 are parts of a jacketing material, such as magnesia, surrounding the tube, while the parts indicated by the character 3 are collars of carbon arranged to surround the carbon tube 1 and extend at right angles to the tube 1 through the jacketing material. The whole is then surrounded by a non-conducting tube 4, which may be of stoneware and which constitutes a jacket-wall and makes a smooth and even external surface for the furnace. The terminal construction of this tube is formed in any convenient way. I show, for example, at each end a carbon terminal 6 in the form of a collar or ring surrounding the tube 1, and I place around each carbon terminal a metal terminal 7, which may be a split ring capable of being pressed against the terminal 6 and of pressing the said terminal in turn against the carbon tube 1, so as to make good electrical connection. Through the metal connections 7 7 connection is made with the external circuit.

While I have described an electric furnace having a carbon tube as the most central body of the furnace, yet such a tube might be provided with a lining of magnesia or other suitable material, and the central tube itself may be composed wholly of some suitable material, such as magnesia, and derive support from collars of carbon or other material in the way indicated.

I claim as my invention—

1. A tubular electric furnace having a tube of carbon, and surrounded at intervals along its length by supporting-collars of carbon extending at right angles to the said tube.

2. A tubular electric furnace having a tube of carbon surrounded by alternate collars of jacketing material, such as magnesia and carbon, the carbon collars extending through or into the jacketing material, and the whole being surrounded by a finishing-tube.

3. A tubular electric furnace having a tube of carbon surrounded by alternate collars extending at right angles to the tube, one set of collars being of jacketing material, such as magnesia, and the other being carbon.

4. A tubular electric furnace having a tube of carbon surrounded by supporting-collars of carbon extending at right angles thereto,

rings of jacketing material, such as magnesia, alternating with the carbon collars, and a tube or ring surrounding the described structure.

5. A tubular electric furnace having a conducting-tube surrounded at intervals along its length by supporting-collars of carbon extending at right angles to the said tube.

Signed at New York, in the county of New York and State of New York, this 5th day of February, A. D. 1902.

HENRY NOEL POTTER.

Witnesses:

WM. H. CAPEL,

GEORGE H. STOCKBRIDGE.