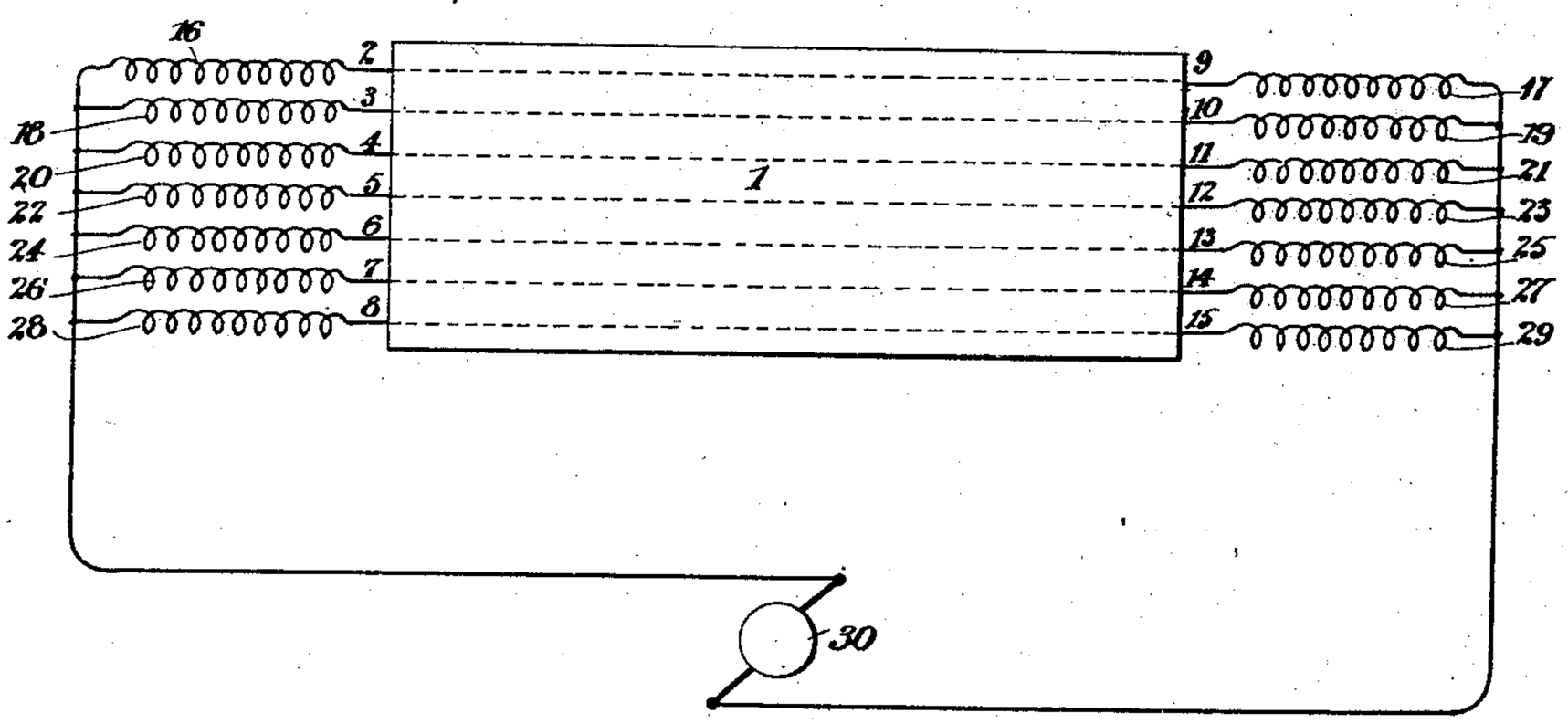
No. 719,507. PATENTED FEB. 3, 1903

H. N. POTTER.

ELECTRIC FURNACE.

APPLICATION FILED NOV. 20, 1902.

NO MODEL.



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UNITED STATES PATENT OFFICE.

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

ELECTRIC FURNACE.

SPECIFICATION forming part of Letters Patent No. 719,507, dated February 3, 1903.

Original application filed November 21, 1901, Serial No. 83,075. Divided and this application filed November 20, 1902. Serial No. 132,053. (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 Electric Furnaces, of which the following is a specification.

This application is a division of an application filed by me November 21, 1901, Serial No. 83,075.

The invention described in the original application relates to providing means for preventing the current in an electrolytic-tube furnace from flowing unevenly by reason of almost unavoidable slight differences in specific resistance of the tube due to structural and perhaps chemical irregularities in the tube material.

In the original application I show and describe several embodiments of my invention wherein the terminals are arranged in confronting pairs. Among these embodiments is one in which each pair of confronting terminals is connected to a ballast resistance or a set of ballast resistances, and this embodiment forms the subject of the present divisional application.

The invention is illustrated in the accompanying drawing, which shows an electrolytic tube developed into a plane and having confronting pairs of terminals, each member or each pair being connected with a separate ballast.

Referring to the drawing, 1 indicates a tube containing a mixture of dry electrolytes, such as magnesia and alumina, the same being supplied with terminals 2, 3, 4, 5, 6, 7, and 8 at one end and with corresponding terminals 9, 10, 11, 12, 13, 14, and 15 at the opposite end. The terminals at the opposite ends of the tube are arranged in confronting pairs. The resistance, and consequently the voltage drop, will therefore with a given current be less from any given terminal to its direct opposite than to any other terminal.

Each confronting pair of terminals is connected in the present embodiment of the invention to a separate ballast resistance or set of ballast resistances, as shown.

The ballast resistances for the pair of terminals 2 and 9 are indicated at 16 and 17. Those for the pair 3 and 10 are indicated at 18 and 19, and so on through the ballast resistances 20, 21, 22, 23, 24, 25, 26, 27, 28, and 29.

Beyond the ballast resistances the pairs of terminals are connected with a suitable generator 30.

The current through any ballast, should it tend to stray from a straight line across to the opposite terminal, must traverse the longer path, and thus, geometrically speaking, the path of greater resistance.

If the current from the terminal 2, for example, should tend to enter the terminal 10 instead of the terminal 9, where it belongs, the voltage at 9 rises and that at 10 falls in proportion to the stray current, thereby tending to maintain even distribution from all the terminals.

While it would be feasible to operate the furnace with a single ballast in series with each pair of terminals, yet I prefer to use the arrangement illustrated, in which the ballast is connected with each member of each pair of terminals.

I claim as my invention—

1. An electric furnace consisting of a tube composed of a mixture of dry electrolytes, and provided with confronting electric-circuit terminals arranged in pairs at its opposite ends, each pair of terminals being in series with a separate ballast device.

2. An electric furnace, consisting of a tube composed of a mixture of dry electrolytes, and provided with confronting electric-circuit terminals arranged in pairs at its opposite ends, each member of each pair of terminals being in series with a separate ballast device.

3. The combination with an electric furnace, consisting of a tube composed of a mixture of dry electrolytes, and provided with confronting electric-circuit terminals arranged in pairs at its opposite ends, of a suitable electric generator connected in multiple to the several pairs of terminals, and a ballast device interposed in each multiple circuit at each of the furnaces.

Signed at New York, in the county of New York and State of New York, this 12th day of November, A. D. 1902.

HENRY NOEL POTTER.

Witnesses:
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