

MIN DELIN McGERRY.
ELECTRIC HEATER.
APPLICATION FILED MAR. 4, 1908.

950,599.

Patented Mar. 1, 1910.

Fig. 1.

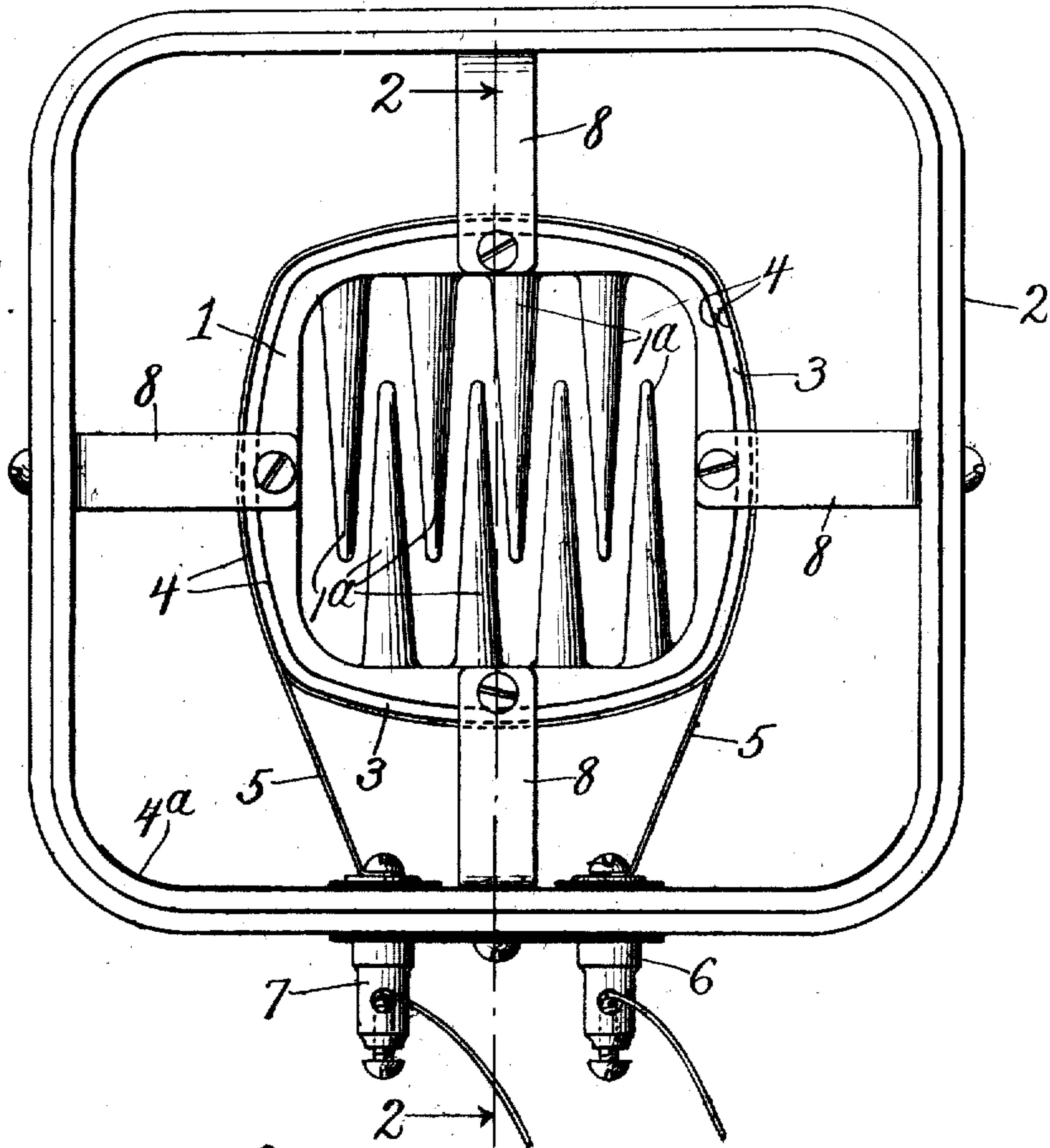
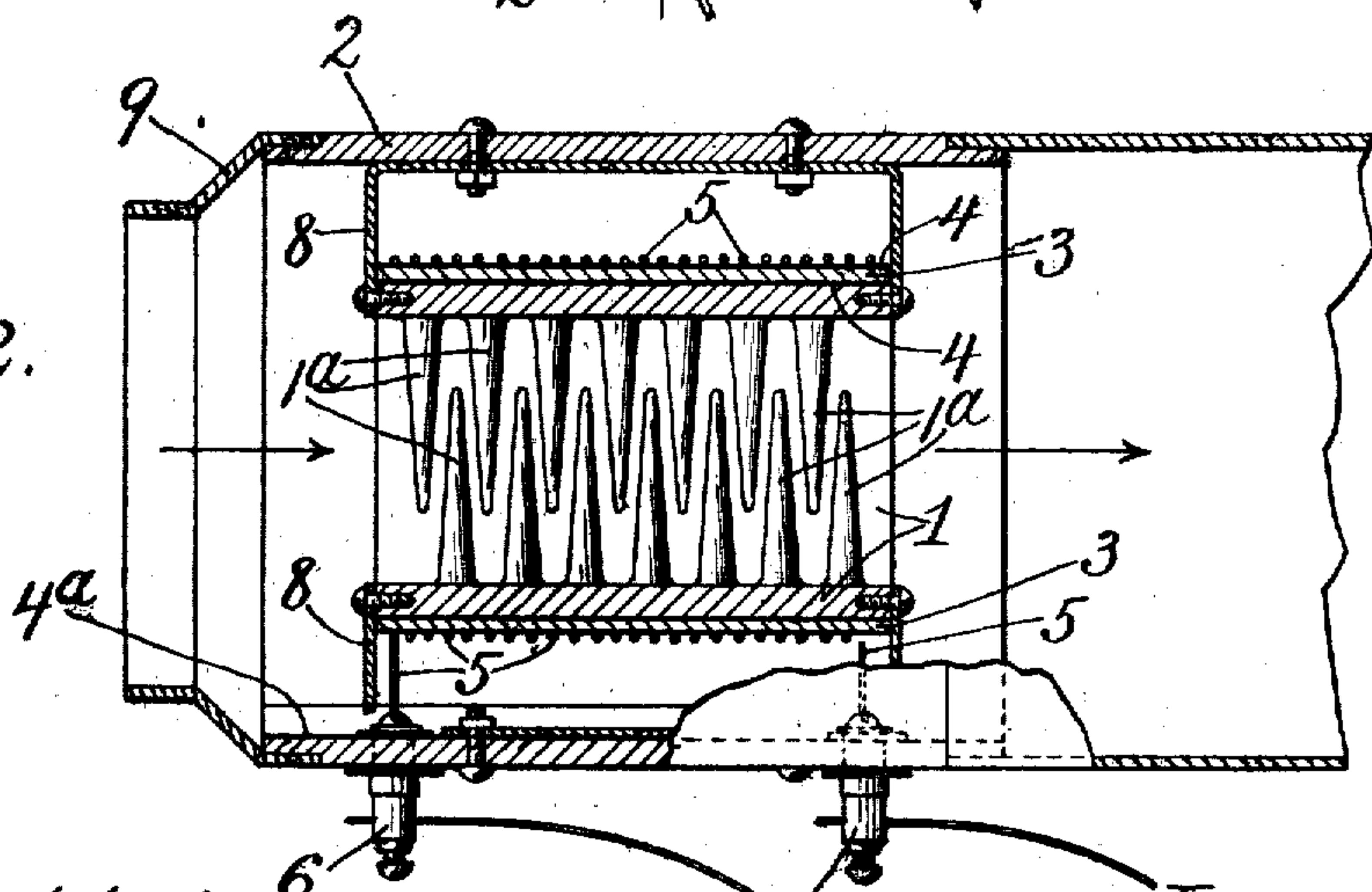


Fig. 2.



Witnesses,
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UNITED STATES PATENT OFFICE.

MIN DELIN MCGERRY, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO BERT E. McDONALD, OF CHICAGO, ILLINOIS.

ELECTRIC HEATER.

950,599.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed March 4, 1908. Serial No. 419,143.

To all whom it may concern:

Be it known that I, MIN DELIN MCGERRY, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented new and useful Improvements in Electric Heaters, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The purpose of this invention is to provide an improved device for heating air, especially for warming and ventilating apartments into which the air passes from the heater; and it is also particularly designed to be used in connection with forced circulation of air for heating or ventilation.

It consists in the elements and features of construction shown and described as indicated in the claims.

In the drawings:—Figure 1 is an end elevation of a heater embodying this invention. Fig. 2 is a longitudinal section at the line 2—2 on Fig. 1.

The heater which constitutes this invention comprises a hollow core, 1, open from end to end, about which there is wound the high resistance wire, 5, for generating heat from a current for electricity of which it is a conductor. The coil, 5, wound about the hollow core, 1, is separated and insulated therefrom preferably by two layers of mica, 4, 4, which are separated from each other by an asbestos layer, 3. The longitudinal cavity of the hollow core, 1, is designed to constitute a passage for the air to be heated, and for increasing the heat radiating surface of the core there are provided a multiplicity of heat-radiating bosses or fingers, 1^a, relatively broad at the base and tapered from base to tip projecting from two opposite sides of the interior wall of the core and occupying very largely the cavity of the core but still leaving a large percentage of air space through the core and about the radiating fingers, 1^a. The core with its heating coil winding, is mounted within an exterior air conduit, 2, from whose exterior wall it is held spaced by the supporting brackets, 5, 5, the two ends of the wire coil, 4, running to insulated binding posts, 6 and 7, which project from the conduit, 2, to receive the inleading and outleading wires respectively of the heating circuit.

The entire device, comprising the outer air conduit and the hollow core forming an in-

ner air conduit and having the heating coil wound about it as described, is designed to be connected with any means for forcing a circulation of air through the device, as a fan, not shown, whose discharge mouth will be connected to one end of the other conduit, 2, which is the inlet end of the device shown in the drawings, the opposite end being connected with an air pipe, 9, for conducting the heated air current to the apartment; or said end of the device may open directly into the apartment or chamber to be warmed and ventilated. Preferably, the outlet end of the conduit, 2, is reduced in width or diameter, as shown at 2^a, the purpose of such reduction being to cause some compression of the air in the chamber and so retain it somewhat longer in the presence of the heat radiating surfaces.

An important feature of the construction is the exposure of the heating wire coil, 5, bare, to the air current passing over it so that it is adapted to radiate heat more rapidly in proportion as the air current passing over it is more rapid. This makes it possible by running the fan or other device employed to force the air current so as to produce a rapid current of air, to employ without injury to the apparatus an electric current for heating, which in the absence of the rapid air current would melt the wire of the coil, and thus makes it possible to use a much smaller device for a given amount of heating than would otherwise be possible.

The fingers, 1^a, are made relatively broad at the base to afford large conductivity from the heated core, 1, and tapered from base to tip to obtain area which can be well heated by the conduction afforded by extended base and leave adequate air path among the fingers.

I claim:—

1. An electric heater comprising two air conduits, one extending within the other and spaced therefrom; an electric heating coil wound about the inner conduit, insulated therefrom and exteriorly exposed within the outer conduit, said inner conduit being of metal and having a multiplicity of inwardly-extending heat-radiating fingers or bosses distributed throughout the length as well as the breadth of said conduit, obstructing the air path through said inner conduit, said fingers being relatively broad at the base and tapered from base to tip.

2. An electric heater comprising two air
conduits, one extending within the other and
spaced therefrom; an electric heating coil
wound about the inner conduit and insulated
5 therefrom and exteriorly exposed within the
outer conduit, said inner conduit having a
multiplicity of inwardly-extending heat-
radiating fingers or bosses distributed
throughout the length as well as the breadth
10 of said conduit obstructing the air path

through said inner conduit, said fingers be-
ing relatively broad at the base and tapered
from base to tip.

In testimony whereof, I have hereunto set
my hand, at Grand Rapids, Mich., this 26th 15
day of February, 1908.

MIN DELIN MCGERRY.

Witnesses:

ELIZABETH MCGERRY,
LEROY G. WITHEY.