

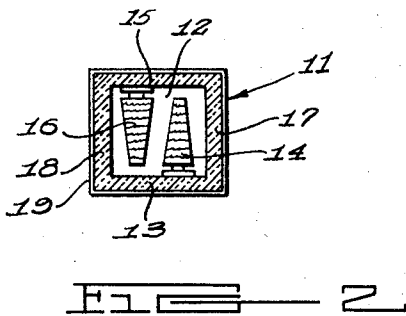
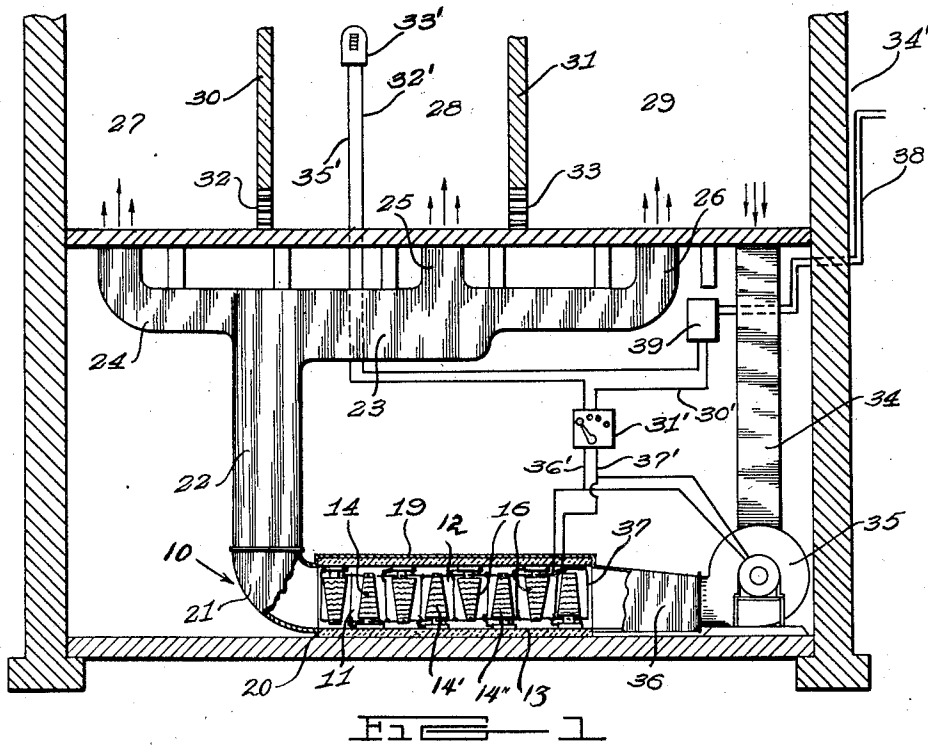
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S. M. HOOPER

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AIR-DUCT ELECTRIC HEATER

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## UNITED STATES PATENT OFFICE

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## AIR-DUCT ELECTRIC HEATER

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4 Claims. (Cl. 219—39)

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The invention sufficiently described in the following specification that those versed in its art may understand its purposes, its functions and its mode of construction and manufacture, is also shown in the accompanying drawings which illustrate at least one form thereof, has for a primary object to provide a simple, inexpensive electric heating plant, which while shown in the drawing as a heater for three rooms, it is clearly evident that the plant may be enlarged to any desired heating capacity.

This invention has for another object to provide a combined heating and air conditioning plant.

A still further object of the invention is to provide an electric heating system by means of which a series of rooms may be heated to a desired temperature and the cooled and foul air drawn off from the rooms to be passed through the heater for purification and reheating.

Other features and advantages will become more readily apparent from the following description and the accompanying illustrative drawings in which:

Figure 1 is an elevational view of the invention shown diagrammatically as applied to a building and

Figure 2 is an enlarged end view of the heating unit.

While one embodiment of the invention is illustrated in the above referred to drawings, it is to be understood that they are merely for the purpose of illustration and that various changes in construction may be resorted to in the course of manufacture in order that the invention may be utilized to the best advantage according to circumstances which may arise, without in any way departing from the the spirit and intention of the device which is to be limited only in accordance with the appended claims. And while there is stated the primary field of utility of the invention it remains obvious that it may be employed in any other capacity wherein it may be found applicable.

In the accompanying drawings, and in the following specification, the same reference characters are used to designate the same parts and elements throughout and in which 10 refers to the complete invention which consists of an electric heater 11 in the duct 12 of which and on its bottom wall 13 is provided preferably two or more rows of conically formed upstanding heating elements 14 and the top wall 15 of which duct is also provided with a like number of like heating elements 16 depending between each

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pair of elements 14, as 14 and 14' and 14' and 14'' the elements 16 being inverted to form baffles for an air current and at the same time conserve space.

5 The walls 17, 13, 18 and 15 of the duct 11 are formed of a non-conducting material and are encased in a metal housing 19 into the end 20 of which is fitted a pipe elbow 21 connected with a vertical pipe 22 leading into a hot air chamber 23. From the chamber 23 extends a series of reduced pipes 24, 25, 26, etc. for conveying hot air from the chamber 23 to the separate rooms 27, 28 and 29, as indicated by the arrows leading from said pipes.

15 The lower part of each of the partition walls 30 and 31 are provided grills 32 and 33 whereby cold air is drawn from rooms 27 and 28 into room 29 and from thence through a vertical air outlet pipe 34 to an electric fan 35 from where it is blown through the connecting pipe 36 into the end 37 of the said duct 11.

The current for the fan 35 and heating elements comes from supply leads 38 extending to a general switch 39, one wire 30' from which extends to the heat control switch 31' and the other wire 32' from which extends to the switch 33' located conveniently in the building 34' and from which latter switch a wire 35' returns to switch 31'. From switch 31' wires 36' and 37' lead to the heating elements 14 and 16 and to the fan 35.

From the above description of the invention it will be readily seen that a very simple and comparatively inexpensive air conditioning system has been provided. It is obvious that an automatic current control switch may be substituted for switch 33' and the switch 31' eliminated altogether from the system.

From the foregoing specification it will become apparent that the invention disclosed will adequately accomplish the functions for which it has been designed and in an economical manner and that its simplicity, accuracy and ease of operation are such as to provide a relatively inexpensive device considering what it will accomplish and that it will find an important place in the art to which it appertains when once placed on the market.

It is thought that persons skilled in the art to which the invention relates will be able to obtain a clear understanding of the invention after considering the description in connection with the drawings. Therefore, a more lengthy description is regarded as unnecessary.

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Changes in shape, size and rearrangement of details and parts such as come within the purview of the invention claimed may be resorted to, in actual practice, if desired.

Having thus described the invention that those versed in its particular art will fully understand how to make and use the same, as well as its functions, and without having attempted to detail all of the forms in which it may be made, all of its advantages, or all of the uses to which it may be put, it is declared that which is claimed as new and sought to be protected by Letters Patent is:

1. An air-duct electric heater comprising a housing, a plurality of conically formed heating elements depending from the upper wall of said housing, a second plurality of conically formed heating elements carried by the bottom wall of said housing and staggered with respect to said first heater elements, and an electrical circuit for actuating said heating element.

2. An air-duct electric heater comprising a housing interposed within an air duct system, a plurality of longitudinally spaced conically formed heating elements depending from the upper wall of said housing, a second plurality of conically formed longitudinally spaced heating elements carried by the bottom wall of said housing and staggered with respect to said first heating elements, and an electrical circuit for actuating said heating elements.

3. An air-duct electric heater comprising a housing interposed within an air duct system, a duct of non-conductive material mounted within said housing, a series of longitudinally spaced conically formed heating elements depending from the upper wall of said duct, a second series

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of longitudinally spaced conically formed heating elements carried by the bottom wall of said duct and staggered with respect to said first series of elements, and an electrical circuit for actuating said heating elements.

4. An air-duct electric heater comprising a substantially rectangular housing interposed with an air duct system, a substantially rectangular duct of non-conductive material mounted within said housing, a series of longitudinally spaced conically formed heating elements depending from the upper wall of said duct, the free ends of said elements being spaced above the lower wall of said duct, a second series of longitudinally spaced conically formed heating elements carried by the bottom wall of said duct and staggered with respect to said first elements, the free ends of said second elements being spaced below the upper wall of said duct, and an electrical circuit for actuating said heating elements.

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