

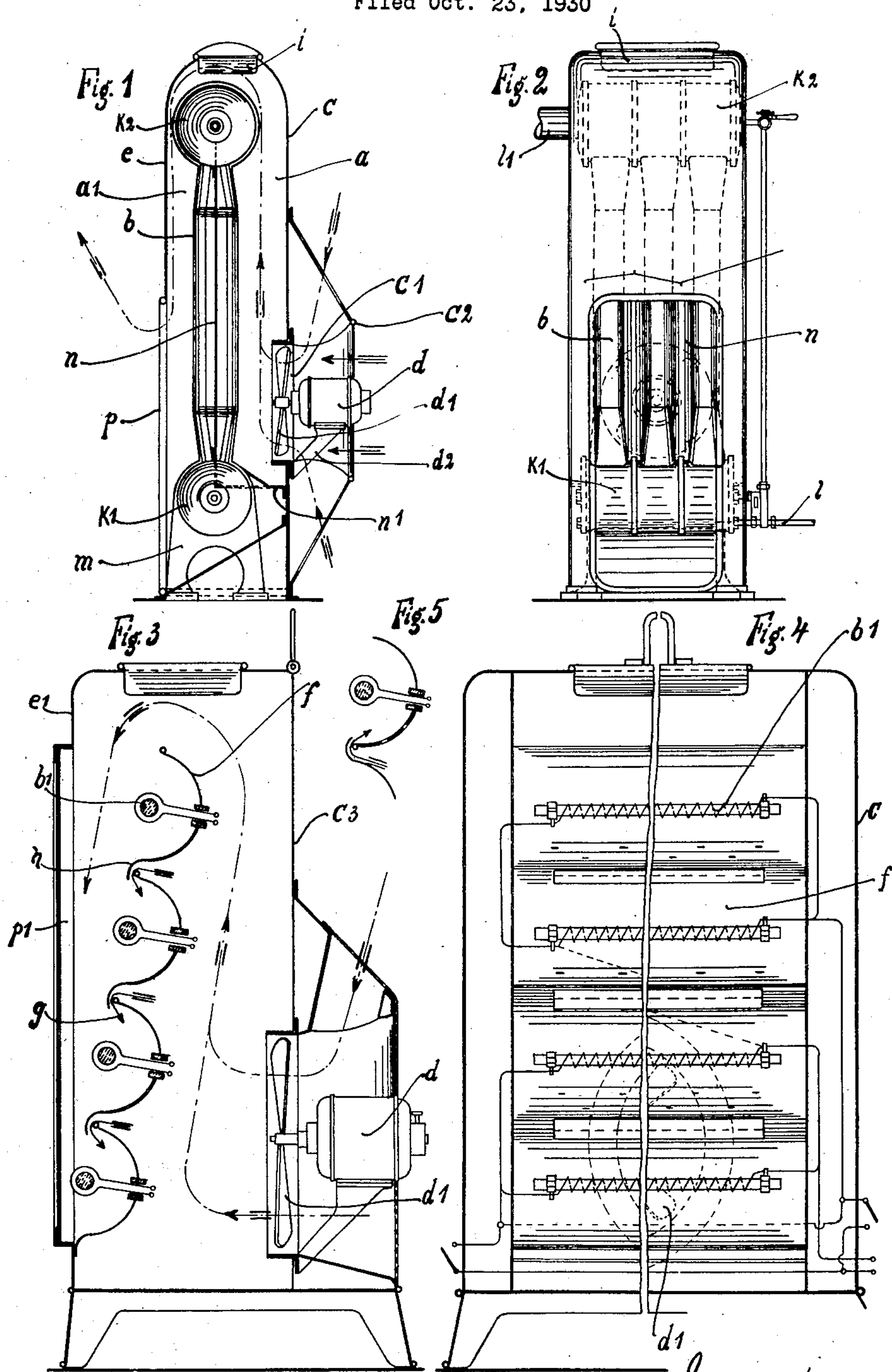
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RADIATOR

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UNITED STATES PATENT OFFICE

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RADIATOR

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My invention relates to improvements in radiators and more particularly in radiators provided with a fan for circulating the air and rapidly delivering the same into the room to be heated. The object of the improvements is to provide a radiator of this type in which the heat is rapidly and thoroughly transmitted from the radiator elements and the heating effect of the radiator is improved. Another object of the improvements is to provide a radiator in which excessive heating of certain parts of the radiator is avoided. With these objects in view my invention consists in disposing the fan at the rear side of the radiator comprising a plurality of heating elements disposed one beside the other or one above the other, the fan being disposed so that the air rises at the rear side of the radiator, whereupon it is deflected at its top for flowing downwardly along the front side of the heating elements. Thus the air is delivered from the radiator in a direction towards the floor of the room and at a part of the radiator where transmission of heat also takes place by radiation.

In one embodiment of the invention I make use of electrical heating members mounted on rods of insulating material, the said rods being individually disposed within semi-cylindrical screens disposed one above the other or one beside the other and overlapping one another with their longitudinal margins and providing slots at the said margins for the passage of the air there-through. Thus a part of the current of air flows from the rear side of the radiator to the front thereof, and it is directed against the electrical heating elements. Thus when switching in the current the room is rapidly heated because the heat cannot be stored at any part of the radiator, and it is directly transmitted by the current of air and by radiation into the room. By the current of air also the cold air located near the floor is moved and replaced by warm air.

For the purpose of explaining the invention two examples embodying the same have been shown in the accompanying drawing in which the same reference characters have

been used in all the views to indicate corresponding parts. In said drawing,

Fig. 1 is a sectional elevation showing the radiator,

Fig. 2 is a front elevation viewed from the left in Fig. 1,

Fig. 3 is a sectional elevation showing a modification,

Fig. 4 is a sectional elevation taken on the line 4—4 of Fig. 3, and

Fig. 5 is a sectional view showing a detail.

In the example shown in Figs. 1 and 2 the radiator is heated by means of gas, and it comprises upper and lower tubular members k^1 and k^2 connected by vertical pipes b , the gas being supplied through a pipe l and the burned gas escaping through a pipe l^1 . The radiator is supported on a base m , and it is confined within a casing comprising a rear wall c and a front wall e , the said walls being connected at their top by a semi-cylindrical wall having a container i for water fitted therein. The casing c, e is divided by the radiator and partition walls n located between the pipes b and extending to the side walls of the casing into a rear chamber a and a front chamber a^1 , and the rear chamber a is closed at its bottom by a plate n^1 . The rear wall c is formed with a circular hole having a flanged ring c^1 fitted therein, and to the rear wall a frame c^2 is secured in which a motor d for driving a fan d^1 is mounted on a bracket d^2 . The front wall e is formed at its bottom part with a large opening p .

In the operation of the apparatus air is taken in by the fan d^2 and delivered upwardly through the rear passage a and alongside the rear wall of the radiator. At the top of the casing the current of air is directed downwardly and through the front passage a^1 , from which it is delivered into the room through the opening p . Thus air is transmitted into the room by the current of air and in addition by radiation.

In the modification shown in Figs. 3-5 the casing enclosing the radiator consists of a rear wall c^3 and a front wall e^1 , and the rear wall c^3 is provided with a motor d and

a fan d^1 , the said motor and fan and associated parts being similar in construction to the corresponding parts described with reference to Figs. 1 and 2. The front wall e^1 is formed with an opening p^1 which extends from a part near the bottom to a part near the top of the casing. The radiator comprises electrical heating members b^1 , made in the form of wires helically wound on rods of refractory material. Each heating element is disposed within a semi-cylindrical radiating shield f located at the rear thereof, and all the said shields are disposed one above the other so as to provide a partition within the casing c . At their adjacent margins the shields are spaced from each other to provide downwardly directed passages g . In the operation of the apparatus the air taken in by the fan d^1 flows upwardly through the rear passage of the casing, and thereafter downwardly to the front side thereof from whence it is delivered through the opening p^1 . A portion of the air flowing upwardly through the rear passage is deflected through the passages g and towards the heating elements, thus effectively cooling the same and transmitting the heat outwardly and into the room. The concave portion of the shields f is directed outwardly, so that the heat radiated from the heating elements is thrown into the room.

I claim:

1. A device for heating rooms and the like, comprising a casing and a radiator mounted therein formed of a plurality of electrical heating elements and semi-cylindrical radiating shields, one for each of said elements and each surrounding its elements, said shields being superposed above the other and arranged to provide a partition extending at an incline to the vertical axis of the casing, and a fan connected with the rear part of the casing in communication with the atmosphere, said fan being disposed on the rear wall of the casing to blow the air first through the rear part thereof and thereafter through the front part and the opening in the front wall, while the shields radiate the heat from the electrical elements outwardly of the casing.

2. In a heating device, a casing having an opening in its front wall, a plurality of electrical heating members extending across the casing and arranged above each other at a plane inclined to the longitudinal axis of the casing, a plurality of curvate radiating shields arranged behind the heating members at an incline to the longitudinal axis of the casing to provide a partition within the casing, said shields having a portion extending over the next shield to provide a passage of air between the shields, and means at the back wall of the casing for forcing air currents into the casing to circulate the

air through the casing and the passages between the shields.

3. A radiator for heating rooms, comprising a casing an opening in its front wall, and a radiator mounted therein formed of a plurality of electrical heating elements and semi-cylindrical radiating shields one for each of said elements and each surrounding its elements, said shields being arranged to provide a partition inclined from the bottom end of the casing upwardly and rearwardly to a part remote from the top end, the bottom edge of the intermediate shields being flanged to provide passages with the top of the next succeeding shield to direct air towards the heating elements, and a fan connected with the rear part of said casing in position for blowing air first through the rear part thereof and thereafter through the front part and the opening made in the front wall.

4. A device for heating rooms, comprising a casing having an opening in the front wall, a plurality of super-imposed semi-circular radial sheet metal radiators, heating elements enclosed in said radiators, the radiators being arranged so as to form a separating wall from the bottom of the casing to the top thereof, the edges of the radiators being spaced one upon the other to permit passage of air between the spaces to the heating elements, and a ventilator in the rear part of the casing for forcing air through the rear and then through the front of the casing and downwardly through the opening in the front wall to the floor on which said device stands.

5. A device for heating rooms, comprising a casing and a plurality of heated radiating elements extending in the casing from the floor to the ceiling thereof, marked thereby that a vertical separating wall is arranged in the container forming two chambers said casing having an opening in the front at its lower part, and a ventilator in connection with the rear wall of the casing adapted to blow air to the floor of the room, first through the rear chamber of the casing to the top and then through the front and outlet opening of the same over the heating elements to the bottom opposite the heat flow arising from the heating elements.

6. A heating device for a room, comprising a casing, a radiating unit in the casing, a vertical separating wall in said casing extending from the bottom of the casing to the top of the same forming a front and a rear chamber, said casing having an opening in its front wall, and a ventilator in connection with the rear wall and over the floor of the casing for blowing air upwardly through the rear chamber and then downwardly over the heating elements through the front chamber to the floor of said room.

7. A device for heating rooms and the

like, comprising a casing with an opening in the front lower portion of said casing, a plurality of semi-cylindrical radiating units, heating elements in said radiating units arranged so that a vertical wall is formed, a ventilator mounted in the rear wall of the container for blowing air, first through the rear part and then over the heating elements and front part of the casing and finally outwardly through the opening in the front wall thereof, while said semi-cylindrical units radiate heat from the heating elements to the outside through said opening.

15 8. A heating device, comprising a casing having an opening in the front wall thereof, superimposed spaced electrical heating elements extending horizontally through the casing and arranged in a plane inclined to the vertical axis of the casing, spaced radial reflecting units behind said heating units inclined to the vertical axis of the casing and forming a separating wall in said casing, said reflecting units having a depending flange extending partly over the next unit to form an air passage between the units, and means on the rear wall of the casing for producing an air circulation therein whereby said air is simultaneously heated with radiant heat from said heating units.

30 In testimony whereof I hereunto affix my signature.

EDMUND ROSER.

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