

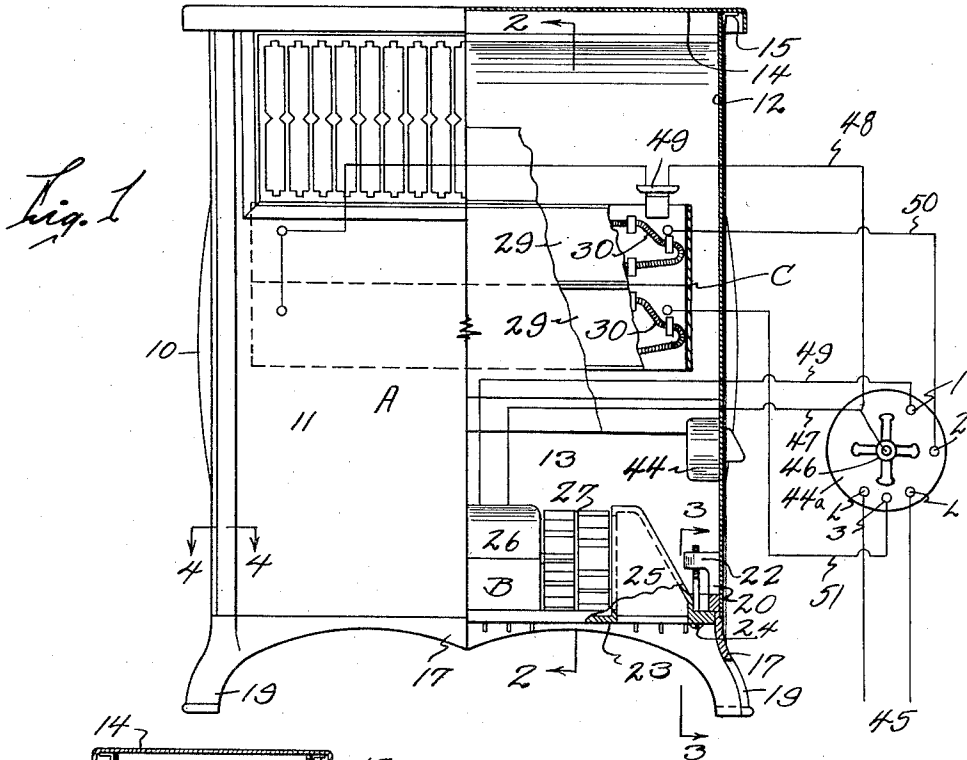
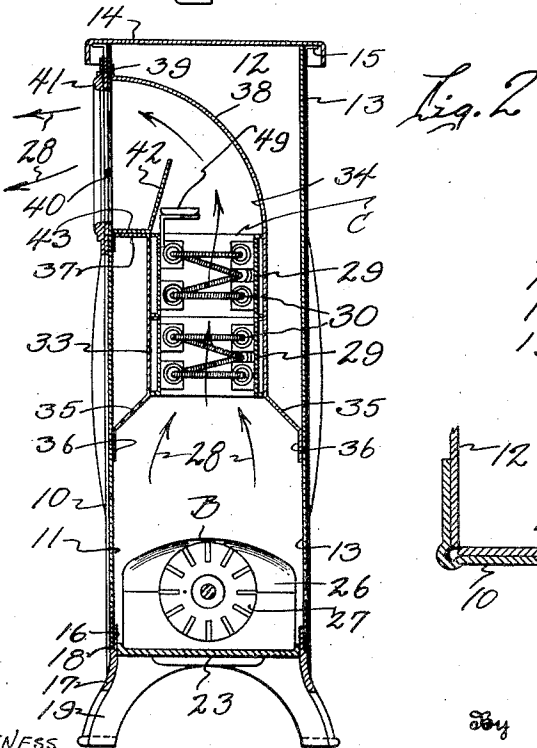
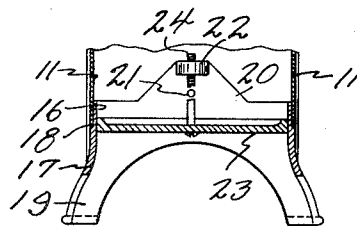
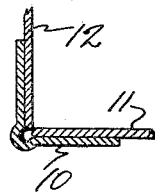
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1,978,413

PORTABLE HEATER

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PORTABLE HEATER

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5 Claims. (Cl. 219—39)

My invention relates to heaters of the portable type, i. e., the type that is not fastened down as a permanent fixture in a building to be heated.

More particularly, my invention relates to that type of heater wherein a blower and heat radiator are mounted in a cabinet in such relation that the blower will pass a stream of air over the radiator, which stream will thence be discharged from the cabinet in a substantially horizontal direction for conditioning the air of a room in which the heater is installed.

An object of my invention is to provide a portable heater of this type which is of simple, durable and sturdy construction.

Another object is to provide a novel arrangement for supporting the radiator element, insulating it from the vertical walls of the cabinet, and confining the stream of air delivered from the blower so that practically all of said stream will be forced to contact the radiator.

Another object is to provide, in a heater of the type including a cabinet with a discharge opening in the upper region of its front wall and a radiator the upper extremity of which is near said discharge opening, means for concealing said radiator from view through said discharge opening, said means being arranged so as not to interfere with the travel of the air stream through the heater.

A further object is to provide a novel arrangement of cabinet, base and blower mounted thereon so as to receive air through the base.

Another object is to provide an arrangement wherein a rear insulator wall and radiator support serves also as a means for deflecting the air stream from the blower forwardly through the discharge opening of the cabinet.

Another object of my invention is to provide a novel arrangement including an electric heat radiator or heating element and means for protecting said element against burning out.

With these and other objects in view my invention consists in the combination construction and arrangement of the various parts thereof, whereby the objects contemplated are attained, as more fully set forth in the accompanying specification, pointed out in my claims, and illustrated in the accompanying drawing, in which:

Fig. 1 is a front elevation of a portable heater embodying my invention, parts being broken away to better illustrate the entire construction thereof.

Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 1.

Fig. 3 is a detail sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is a detail sectional view taken on the line 4—4 of Fig. 1.

The heater of my invention includes a cabinet "A" having four corner posts 10 shown in section in Fig. 4. These corner posts are L shaped in cross section and to the flanges thereof are secured the forward wall 11, the end walls 12, and the rear wall 13.

A cover 14 is secured by brackets 15 to the side and end walls of the cabinet.

The cabinet base comprises a casting including the open frame member 16, a skirt 17, a shoulder 18 formed between the frame member 16 and the skirt 17, and the legs 19 depending from the skirt 17.

The superstructure of the cabinet is received over the frame member 16, which may be considered as a flange extending upwardly from the skirt 17, and snugly receives the same. The end portions of the frame member 16 are widened upwardly to form ears 20 and these may be secured to the end walls 12 as by means of rivets 21 (Fig. 3).

Lugs 22 project inwardly from the upper ends of the ears 20. The blower "B" has a cast base 23 which fits snugly inside of the frame member 16 and is suspended therefrom by means of screws 24 extended through the ends of the blower base and threaded into the lugs 22.

The blower unit "B" includes the receiving hoods 25 formed integrally with the blower base 23, the motor 26, and the rotors 27. The hoods 25 take air through the base, feed it to the central region of the rotors, and the latter deliver it centrifugally in a stream which passes upwardly through the cabinet as indicated by the arrows 28.

The radiator "C" includes the frame member 29, and two electrical heating elements 30.

Forward and rear insulator walls 33 and 34 respectively, supported upon the respective front and rear walls 11 and 13, serve to support the radiator "C", which is suspended between them with its frame members 29 in contact with both insulator walls. The insulator walls include the upwardly inclined portions 35 which are secured as at 36 to the respective front and rear walls 11 and 13 of the cabinet. The term "insulator" is used to indicate the function of these walls in forming insulating air spaces.

The inclined portions 35 serve not only as supporting brackets for the insulator walls but also as deflector plates for concentrating the air stream

delivered from the blower within the space defined between the insulator walls.

The forward insulator wall 33 is bent forwardly at its upper extremity to form a ledge 37 which is secured to the forward wall 11. The rear insulator wall 34 is extended upwardly above the cut-out 31, thence inclined forwardly as at 38, and thence secured as at 39 to the upper region of the forward wall 11 just above the discharge opening 40 therein.

A grille 41 covers the discharge opening 40.

A baffle plate 42 is provided with a flange 43 secured to the ledge 47, and extends upwardly from said ledge as shown in Fig. 2, to a height just sufficient to conceal from view the heating element 30 and the cut-out 31.

Electric current is conveyed to the heater through a multi-throw switch 44, shown in diagram at 44—A in Fig. 1 and a system of wiring which allows the device to be operated in any of three ways, as follows: (1) With the blower alone in operation providing unheated air for ventilation purposes. (2) The blower and one heating element in operation providing low heat. (3) With the blower and both heating elements in operation, providing high heat.

The switch 44 is of a type which includes a brush adapted to contact first an initial switch point, thence the initial plus a second switch point, and then the first two plus a third switch point, so as to successively throw in additional parallel circuits.

The connection of the two current carrying wires or leads 45 to the switch is indicated at "L". The switch lever or brush 46 is connected by means of a lead 47 to the motor 26 and also to the two heating elements by means of a lead wire 48. A cut-out 49, positioned in the path of heated air coming from the radiator, is interposed in the lead wire 48.

Switch point #1 is connected by a lead wire 49 to the motor 26. Switch point #2 is connected by a wire 50 to one of the heating elements, and switch point #3 is connected by a lead wire 51 to the heating element.

It will now be seen that in rotating the switch arm or brush 46, it will first contact the switch point one, thence the switch point one and two, and thence the switch points one, two and three, throwing in first the motor alone, thence the motor and one of the heating elements, and thence the motor and two of the heating elements.

In this manner, it is possible to use a constant speed motor and yet vary the heating effect which can be secured by the heater.

It will be seen that I have provided a portable heater including a cabinet, an intake opening in the lower region thereof, a blower adjacent said opening delivering air upwardly through the cabinet, a discharge opening in the upper region of the cabinet, and an electrical heating unit or radiator positioned between the blower and said discharge opening. This is a very compact arrangement, the blower is assisted by the tendency of the air stream to rise after it has been heated, and air is delivered in a horizontal stream which is most effective for room tempering purposes, insulating it from the front and rear walls so as to avoid undue radiating effects in the near vicinity of the heater and concentrating the heating effect on the air stream which is propelled into the room, and also to confine the air stream so that substantially all of it must contact the radiator.

The baffle plate 42 serves not only to conceal the radiator from view through the discharge opening but also to concentrate the heated air stream in contact with the cut-out.

The cast base structure includes the ears 20 from which is suspended the blower unit. The base is formed so as to merge with the lines of the superstructure of the cabinet.

The corner posts 10 of the cabinet serve not only to produce graceful lines in the cabinet but also to conceal the edges of the vertical walls thereof and to provide a very rigid connection between said vertical walls.

I claim as my invention:

1. In a heat transfer device, a casing including front and rear walls, a forward insulator wall spaced inwardly from said front wall, a ledge connecting the upper extremity of said insulator wall and the front casing wall, a radiator positioned rearwardly of said forward insulator wall, a blower below said radiator, and a baffle plate supported upon said ledge and extending upwardly in front of said radiator.

2. In a heat transfer device, a casing including front and rear walls, a pair of insulator walls spaced inwardly from said cabinet walls, and supported thereon, a radiator supported between said insulator walls, the rear insulator wall being inclined upwardly and forwardly to provide a deflector, a blower beneath the radiator, a ledge connecting the upper extremity of the forward insulator wall and the front casing wall, a discharge opening in the front casing wall between said ledge and said deflector, and a baffle plate secured to said ledge and extending upwardly in front of said radiator.

3. In a heat transfer device, a cabinet including front, rear and side walls, an integrally cast base including corner legs and an open frame comprising an upwardly extending flange received between the lower extremity of said walls, and a blower suspended from said base, said blower including a casing comprising a marginal flange engaged below said frame and a body portion projecting upwardly therethrough.

4. In a heat transfer device, an integrally cast base including end ears extending upwardly and an open frame member of which said end ears are a part, lugs projecting inwardly from said ears, a blower unit including a blower base screws threaded into said lugs and depending therebelow, said base being suspended on said screws, a cabinet structure projecting upwardly from said base, and a radiator suspended within the cabinet above said blower.

5. In a heat exchanger, an upright casing including front and rear walls, a pair of insulator walls spaced from the forward and rear walls and from each other to form an intermediate air passage bounded by vertically remote discharge and blower spaces respectively, said insulator walls terminating in portions extending laterally in opposite directions and facing said blower space the extremities of said diverging portions being directly secured to the front and rear casing walls respectively intermediate the top and bottom of the casing, the front wall having a discharge opening communicating with said discharge space, a heat exchanger mounted between said insulator walls, and a blower in the blower space.

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