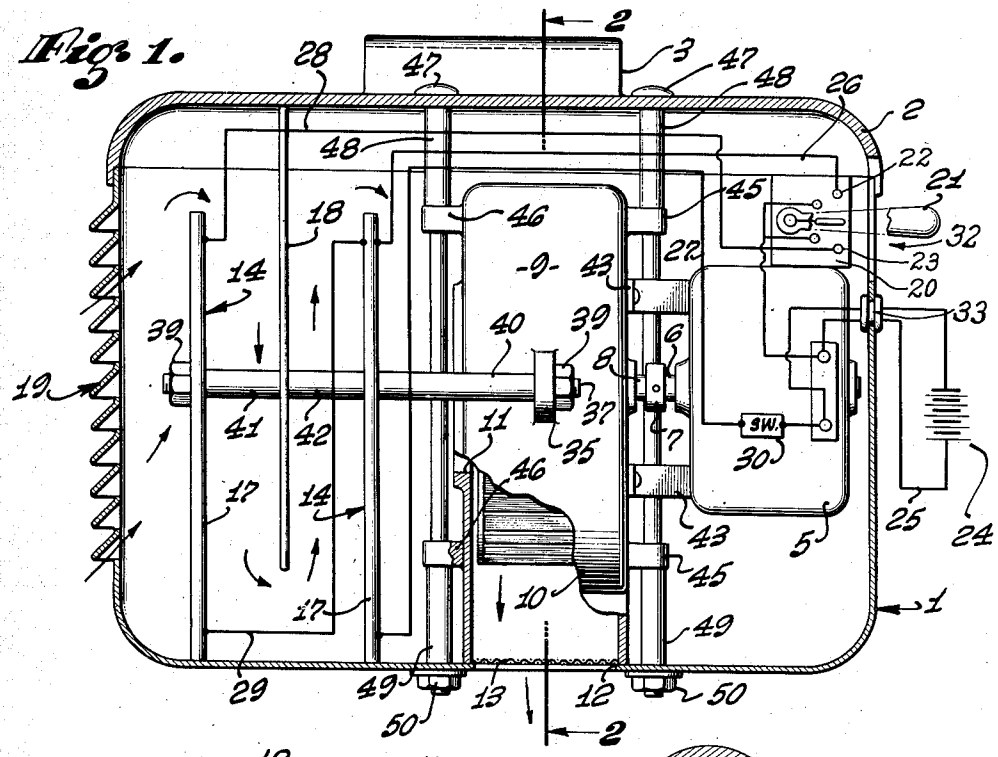
Dec. 26, 1950 A. JOSEPHSON 2,535,424

CAR HEATING ATTACHMENT

Filed Aug. 31, 1948 2 Sheets-Sheet 1

Fig. 1.



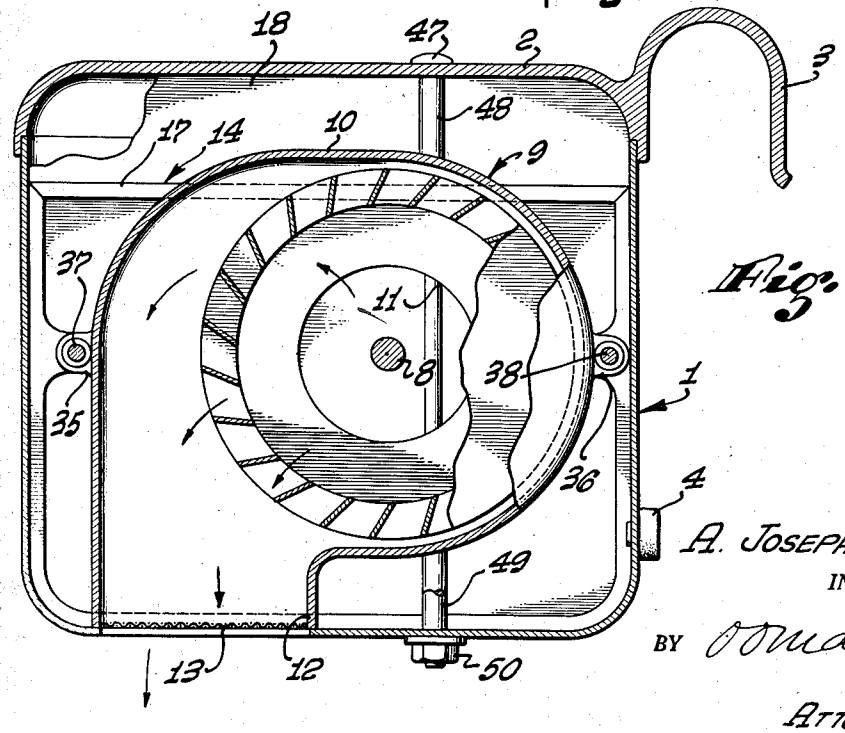


Fig. 2.

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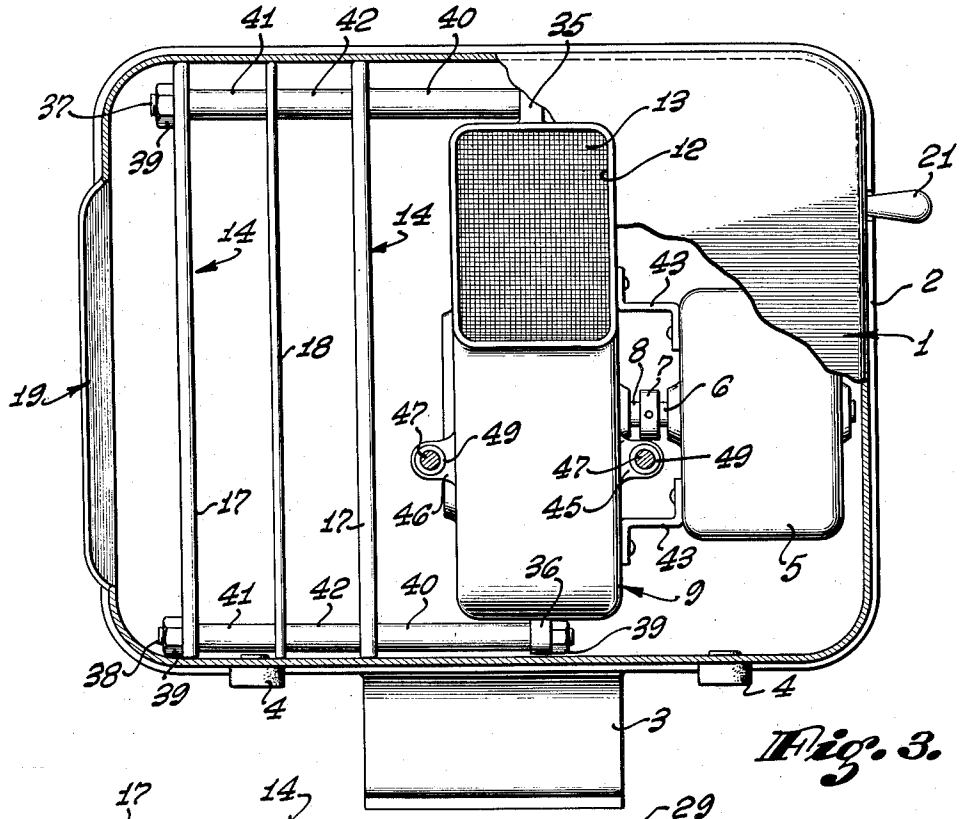

Fig. 3.

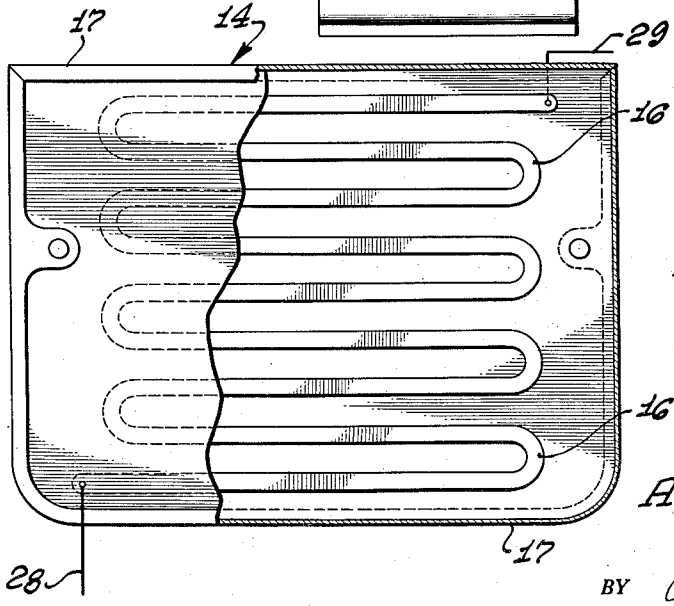

Fig. 4.

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2,535,424

UNITED STATES PATENT OFFICE

2,535,424

CAR HEATING ATTACHMENT

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Application August 31, 1948, Serial No. 47,103

4 Claims. (Cl. 219—39)

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This invention relates to air circulating and heating apparatus and refers particularly to a portable device for use in places such as automobiles and house trailers or buildings.

While many vehicles and buildings are equipped with air conditioning apparatus it is believed correct to say that most vehicles and dwelling houses in use at the present time are not so equipped. It is, for this reason, the principal object of the present invention to provide a compact, simple and inexpensive portable air circulating and heating device which may be placed within such vehicles, or within any other space in need of air conditioning, by detachably suspending the device from the seat back or door of a car or any other convenient support of a vehicle or building space.

Another object of the invention is to provide a device consisting of a casing and a pre-assembled circulating unit mountable therein.

To this end, the invention resides in the combinations hereinafter fully described and a preferred form of device is illustrated in the accompanying drawings, of which:

Fig. 1 is an elevational view of a device embodying the invention with the front wall thereof broken away;

Fig. 2 is a cross-sectional end view taken on line 2 of Fig. 1;

Fig. 3 is a bottom view of the device with the bottom plate thereof partly broken away; and

Fig. 4 shows one of the heat elements of the device.

The device of the invention, in the form illustrated in the drawings, comprises a box 1, the top of which is closed by means of a cover 2. When fastened together, a neat rectangular casing is provided and it is fitted at the back thereof with an attachment element which, in this case, takes the form of a hook 3 of a size to fit over the sill of a car door window or any other suitable support. In order to maintain the casing in spaced relation to its support and so as to prevent rubbing of the casing against the supporting surface, one or more soft, resilient buttons 4 may be placed on the rear wall of the casing, beneath the hook 3.

An electric motor 5 is shown mounted within the casing and the shaft 6 of this motor is in any suitable manner, as by a collar 7, secured to the end of the shaft 8 of a blower 9. The circular fan of this blower is mounted within a housing 10, having an inlet 11 at the side thereof away from the motor. Air drawn through this inlet is expelled through an opening 12 at the bottom

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of the fan housing and the casing. A screen 13 is fitted into this opening to block entrance into the fan and so to eliminate danger of fingers or other objects accidentally reaching the rotating blades of the fan.

In front of the inlet opening of the fan is seated a pair of heat elements 14, in parallel spaced relation to each other and to the fan. These elements may conveniently consist of sheets of mica between which are placed flat wires 16, such as conventionally are employed in heat elements, and the combined sheets are, as indicated in Fig. 4, held firmly in position within light, rectangular frames 17 which may be and preferably are exactly alike. Between these heat elements is placed a baffle plate 18. As shown in Fig. 2, the two heat elements and this plate all span the space across the casing and the elements extend upwardly from the bottom thereof nearly to the top of the blower. The plate 18 reaches downward from the cover substantially the same distance. When so arranged, it is found that air by the fan is drawn in through a casing opening 19 and that it flows along all four surfaces of the heat elements in the direction of the arrows of Fig. 1, to be discharged through an opening 12 in the bottom of the casing.

A two pole switch is in Fig. 1 shown fitted with a handle or knob 21 carrying current from a source of energy 24 and which, when moved to connect the two contacts of one of the poles 22 or 23 thereof, will pass current from the source of energy through the motor 5, thence to return the current to its source through a conductor 25. A wire 26 extends from the pole 22 to the heat element 14, from which the current returns through a conductor 27 and the conductor 25. The pole 23 is by a wire 28 shown connected with the heat element 15 and a wire 29 extends from the latter to the elements 14 to carry the current through this element and the conductor 27 back to the source of energy.

From this it is seen that, when the switch lever is thrown to connect the contacts of the pole 22, a circuit is closed through the heat element 14. When, on the other hand, the lever is thrown to the pole 23, a circuit is closed through both heat elements. In addition, it is noticed that a switch 30 is placed in the conductor 27 to disrupt the circuit through the heat element when it is desired to circulate cool air through the device.

As above stated, an important feature of the invention is the provision of means whereby the air circulating devices, including the motor 5,

the switch 20, the blower 9, the heat elements 14 and the baffle plate 18, all are assembled to form a complete unit before they are placed within the casing. For the purpose of such assembly, the blower housing is shown made with lugs 35, 36 in which are seated rods 37, 38 and the ends of these rods are threaded to receive lock nuts 39. The heat elements 14 and the baffle plate 18 are all perforated to receive these rods and tubular spacers 40, 41, 42 are placed on the rods to maintain the parts tightly united. The motor 5 is similarly, by means of brackets 43, shown rigidly tied to the blower housing. But other interconnecting means may be substituted, if desired. Having in such manner interlocked the air circulating elements, it is merely required to seat this unit within the box 1 and to lock it in position therein. Illustrative of means for locking the unit in position, I have shown lugs 45, 46 projecting from one side surface of the blower housing. These lugs are perforated to receive bolts 47 which, after the cover 2 has been placed in position on the box, are dropped through perforations of the cover, these lugs and perforations of the box bottom to take the positions indicated in the drawings. In addition, it may be found preferable to place tubular spacers 48, 49 above and below the lugs 45, 46 to maintain the parts in properly spaced relation to each other without danger of buckling the material of the box and cover. Finally nuts 50 are applied to the lower ends of the bolts to lock unit rigidly in position within the tightly closed casing. If preferred, the baffle plate may be omitted, in which case it is merely required to stagger the elements vertically. In order to make it possible to seat the unit it is necessary to cut a recess 32 in the upper edge of the box to clear the switch lever 21, in addition to which insulating means, such as a soft rubber bushing 33, should be provided to carry the conductors through the wall of the casing. This bushing may conveniently be seated in the recess 32 when the unit is placed in position. The switch 30 is shown mounted within the casing and this may be found most convenient where the device is set permanently or semi-permanently for heating or cooling. But the switch lever or button may, of course, extend through the wall of the casing in a manner similar to that used in mounting the switch 20.

From the foregoing it is seen that I have provided a very simple and inexpensive portable air conditioning device which may hang on any suitable support to serve the space within a vehicle or other space to be heated.

I claim:

1. A portable electric heater comprising a rectangular casing, an electric motor in the casing, the casing having an air discharge opening in the bottom thereof and an air inlet in the wall directly opposite said motor, a blower in the casing having its air inlet in registration with said casing inlet and its outlet in line with said discharge opening of the casing, said blower having perforated lugs projecting from the sides thereof, a screen at the discharge outlet from the blower, heat elements between the blower air inlet and the said inlet opening of the casing, the heat elements having perforations through the side edges thereof in axial alignment with said lug perforations, bolts extending through said aligned perforations to lock the heat elements in position on the motor in spaced relation thereto and to each other, and baffle plate between said heat elements.

2. A portable electric heater comprising a casing, an electric motor in the casing, the casing having an air discharge opening in the bottom thereof and an air inlet in the wall directly opposite said motor, a blower in the casing having its air inlet in registration with said casing inlet and its outlet in line with said discharge opening of the casing, two heat elements between the blower air inlet and the said inlet opening of the casing and extending from the bottom thereof to a point nearer the top thereof, a baffle plate extending downward from the top of the casing between the two elements to a point nearer the bottom thereof, means maintaining said elements rigidly suspended from the blower in spaced relation thereto and to each other, a circuit energizing said motor and heat elements, and switch means for cutting out one or both of said heat elements.

3. A portable electric heater comprising a casing, an electric motor in the casing, the casing having an air discharge opening in the bottom thereof and an air inlet in the wall directly opposite said motor, a blower in the casing having its air inlet in registration with said casing inlet and its outlet in line with said discharge opening of the casing, heat elements between the blower air inlet and the said inlet opening of the casing, a baffle plate between the heat elements, the said heat elements and the baffle plate being staggered to cause the air from the blower to pass along all the side surfaces thereof, and means maintaining the elements and the baffle plate rigidly suspended from the blower in uniformly spaced relations thereto and to each other.

4. A portable electric heater comprising a casing, an attachment element on said casing, a soft resilient pad below said element, an electric motor in the casing, the casing having an air discharge opening in the bottom thereof and an air inlet opening in the wall directly opposite said motor, a blower in the casing driven by said motor and having its air inlet in registration with said casing inlet and its outlet in line with said discharge opening of the casing, heat elements between the blower air inlet and the said inlet opening of the casing and means maintaining said heat elements suspended from the blower in spaced relation thereto and to each other.

ARCHIE JOSEPHSON.

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