May 16, 1939. C. J. SUCHARSKI ET AL 2,158,258

HEATING DEVICE

Filed April 8, 1936

FIG. 1.

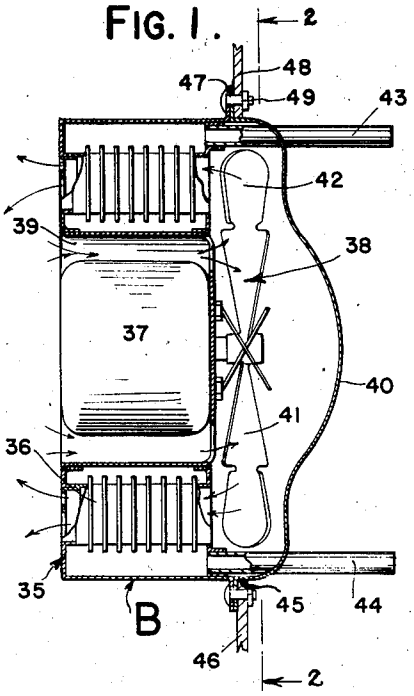
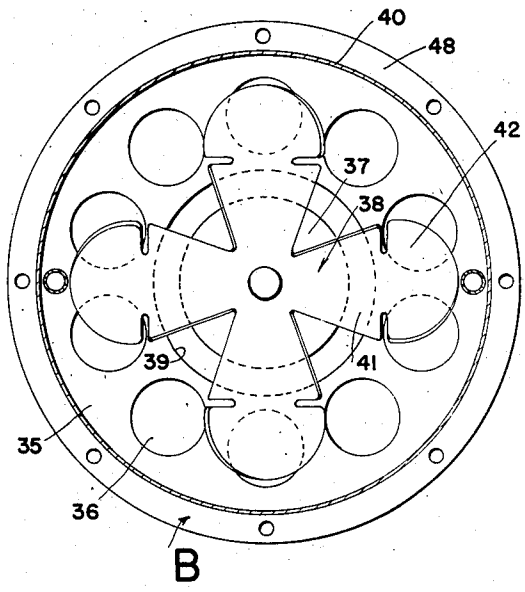


FIG. 2.



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HEATING DEVICE

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2 Claims. (Cl. 257—137)

This invention appertains to heating devices of the type which are particularly adapted for heating the interior of vehicle bodies during the winter season.

One of the primary objects of our invention is to provide a compact and durable heater, which will occupy a minimum amount of space and have a maximum amount of heat radiating surface for the current of air forced through the heater, so that the temperature of the air will be effectively raised.

Another salient object of our invention is the provision of novel core units arranged in an unusual manner in the heater shell, whereby the heating medium will freely circulate about said core units and thereby permit the rapid transmission of heat to the air flowing through said units.

A further important object of our invention is the provision of novel means for forming the shell, and for incorporating the motor for the fan in the shell so that an exceptionally compact structure will be had.

A still further object of our invention is the provision of novel means for forming the shell of the heater, whereby the shell can be inserted through an opening or depression in the dash-board of the vehicle, and rigidly secured thereto, so as to eliminate vibration in the heater and strain on the feed and return pipes for the heating medium.

With these and other objects in view, the invention consists in the novel construction, arrangement, and formation of parts, as will be hereinafter more specifically described, claimed, and illustrated in the accompanying drawing, in which drawing:

Figure 1 is a central section through one form of heater, the view also illustrating a desired method of connecting the heater to the vehicle dash-board, or other convenient place.

Figure 2 is a section through the heater taken substantially on the line 2—2 of Figure 1, looking in the direction of the arrows.

Referring to the drawing in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter A generally indicates one form of our vehicle heater. The heater B includes an annular shell 35 for receiving the heating medium, and the shell supports an annular row of the core units 36 through which air is forced. The electric motor 37 for the fan 38 is arranged within the inner wall of the shell 35, but is spaced from said shell so as to provide an air intake passage 39 between the motor and the shell. The shell carries a casing 40 for the fan 38, and this casing is not provided with air openings.

In this form of my invention we utilize a novel form of fan 38 for setting up a current of air around the motor 37, and into the fan casing 40, and for discharging the air through the core units 37 into the body of the vehicle. Thus the fan is utilized for both the intake and discharge of air, and the air is caused to flow through the shell twice. The incoming air tends to cool the motor 37, and at the same time is initially warmed by the heater shell. As the air flows through the core units the temperature of the air will be materially increased. Thus we have provided an ideal means for rapidly raising the air temperature.

The fan blades 41 of the fan 38 have their outer terminals 42 twisted at an angle to the body portion of the blades, as indicated by the reference character 42. The body portions of the blades are arranged directly in rear of the motor 37, and the air passage around the motor, while the twisted terminals of the blades are disposed in rear of the core units. This brings about the intake and discharge of the air. In this form of our invention we also eliminate the necessity of supporting the heater by the feed and return pipes 43 and 44, and the heater is inserted directly in an opening 45 formed in the vehicle dash-board 46. This opening can be made in the dash-board by the automobile manufacturer for the reception of the heater, and the opening can be closed by a removable plate before the installation of the heater.

The outer end of the shell 35 is provided with an outstanding annular flange 47, which is adapted to abut against a similar flange 48 formed on the fan casing 40. These flanges are placed in engagement with the dash-board, and suitable fastening elements 49 are passed through the flanges and the dash-board. This forms an exceptionally simple means of uniting the parts of the heater, and for rigidly securing the heater to the motor vehicle.

From the foregoing description it can be seen that we have provided an exceptionally simple and novel form of vehicle heater.

Changes in details may be made without departing from the spirit or the scope of our invention, but what we claim as new is:

1. In a vehicle heater, a shell having a central air intake opening, core units extending through said shell, said core units forming air passageways, an electric motor arranged in the central

opening of the shell and spaced from the wall of said openings to form an air intake passage-way therewith, a fan driven by said motor, a casing enclosing said fan, the fan including blades having the tips thereof bent in an opposite direction from the body portions thereof, the body portions of the blades being disposed in rear of the central opening, and the tips of the blades being disposed in rear of the core units.

2. The combination with a support having an enlarged opening therein, of a vehicle heater including a shell having an annular outstanding flange, the shell having air passage-ways therein, a fan for causing a circulation of air through said passage-ways, a casing for said fan having an annular outstanding flange arranged in abutting relation to the flange of the shell, said casing being disposed in the opening of the support with its flange in engagement with one face of said support, and fastening elements extending through the support and flanges.

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