April 8, 1930. D. T. MacLEOD 1,753,382

AUTOMOBILE BODY HEATER

Filed Jan. 26, 1929 2 Sheets-Sheet 1

Fig. 1.

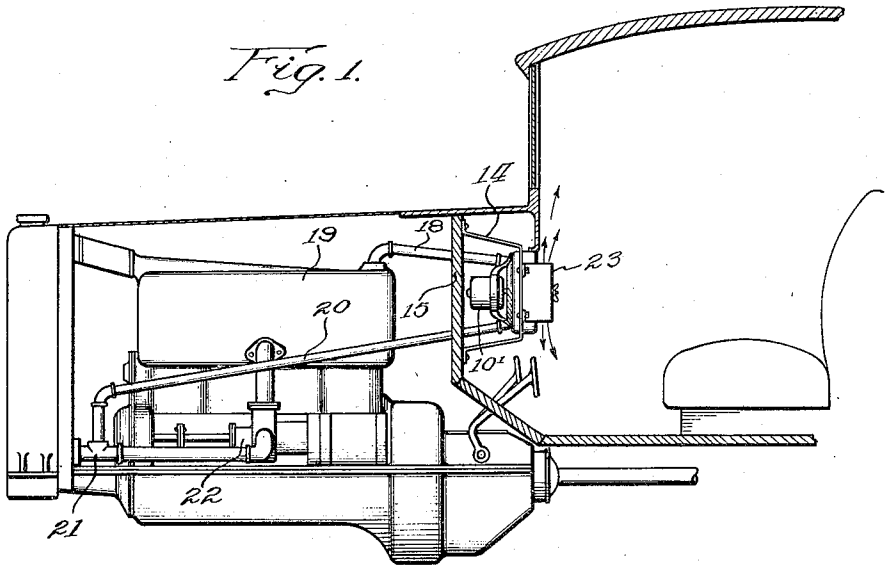
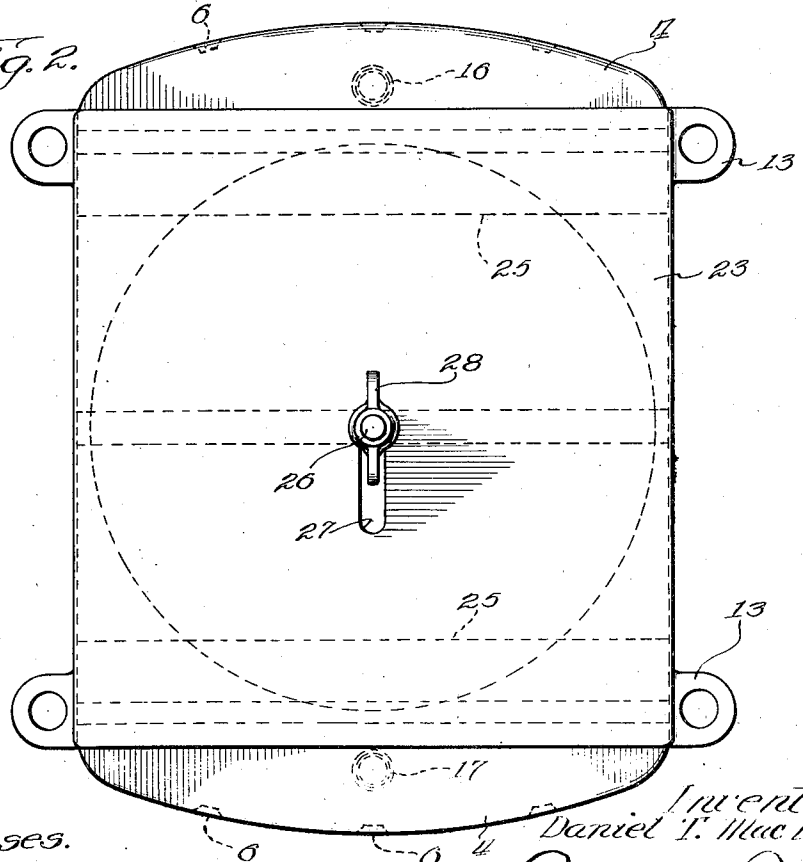


Fig. 2.



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Fig. 3.

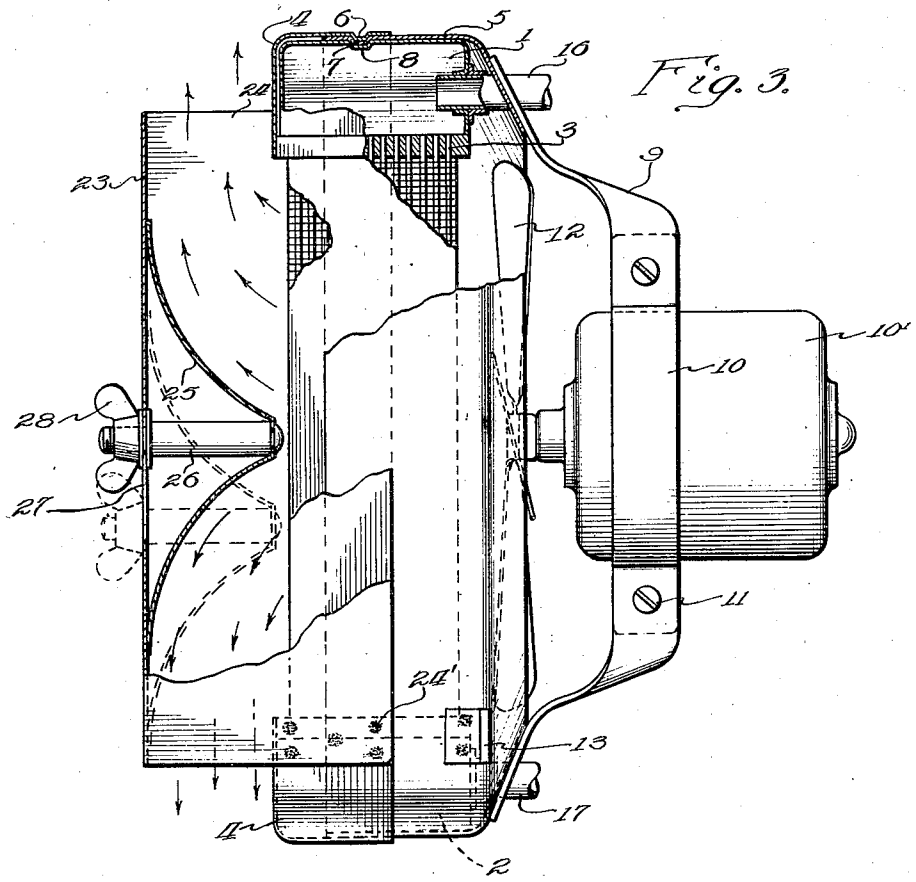


Fig. 4.

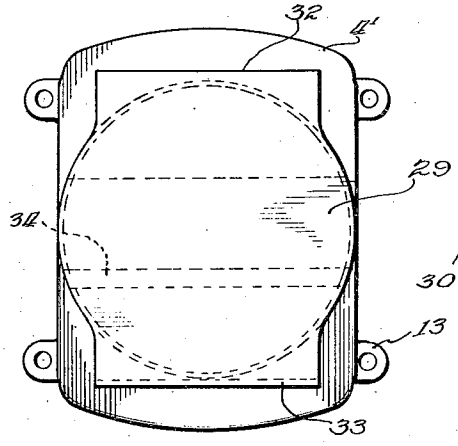


Fig. 6.

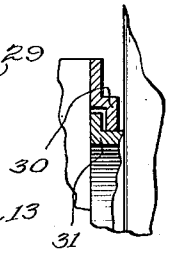
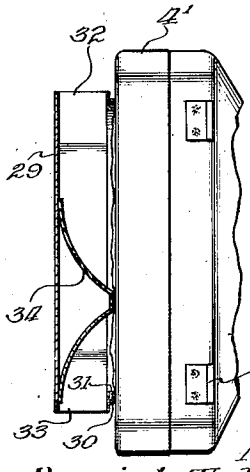


Fig. 5.



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UNITED STATES PATENT OFFICE

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AUTOMOBILE BODY HEATER

Application filed January 28, 1929. Serial No. 335,223.

This invention relates to space heaters of the general type wherein air is circulated over a heat transfer device to heat a room.

The main objects of this invention are to provide an improved construction for such heaters for use in small spaces like the body of an automobile; to provide an improved shell for a radiator of a space heater in which complementary sections are yieldably attached together and to the radiator core; to provide improved means for circulating currents of heated air in various directions; to provide adjustable means for selectively proportioning a flow of air from a space heater into oppositely directed currents; and to provide an improved arrangement of the water connections for such heater to an automobile engine whereby the circulation of cooling water in the engine jacket is improved.

In the accompanying drawings, I have illustrated an embodiment of my invention in which:—

Figure 1 is a fragmentary sectional view of an automobile showing a space heater mounted therein.

Fig. 2 is a front elevation of a space heater.

Fig. 3 is a fragmentary central section.

Fig. 4 is a front elevation of another form of my invention.

Fig. 5 is a fragmentary side elevation of the form shown in Fig. 4.

Fig. 6 is an enlarged fragmentary detail.

In general, my invention comprises a radiator core enclosed within a shell consisting of a front and rear section. A motor driven fan is mounted on the rear section for forcing a draft of air through the core, and a shield is mounted on the front section for distributing the flow of heated air. A baffle is adjustably mounted on the shield for proportioning the air into oppositely directed currents. The shield is provided with flanges to which brackets or strips are attached for conveniently mounting the device on a wall of an enclosure such as an automobile body, and the tanks of the radiator core comprise outlets for communicatively connecting the radiator with any available source of heated liquid; for example, the cooling system of an internal combustion engine as illustrated in Fig. 1 of the accompanying drawings.

In the form shown, the radiator core comprises spaced tanks 1 and 2 communicatively connected by water tubes 3 and enclosed within a shell. The shell is made up of complementary sections 4 and 5 which are provided with registering depressed portions 6 and 7 respectively. When the shell sections are assembled, the depressed portion 6 of the front section engages in the depressed portion 7 of the rear section and yieldably holds the two sections together. Depressions 8 are formed in the tanks 1 and 2 in registration with the depressions 6 and 7 of the shell sections for receiving the depressed portions thereof to yieldably attach the shell to the radiator tanks.

A strap 9 is secured to the rear shell section 5 and is provided at its intermediate portion with a semi-cylindrical band for receiving an electric motor 10'. A U-shaped strap 10 is attached to the strap 9 by bolts 11 for firmly clamping the motor in a central position relative to the radiator core. A fan 12 is mounted on the shaft of the motor and is positioned within the open end of the rear shell section 5. Flanges 13 are secured to the sides of the rear shell section 5 and brackets or straps 14 are attached to these flanges. The brackets are mounted on a partition 15 between the engine compartment and the passenger compartment of the vehicle shown in Fig. 1. An inlet 16, communicative with the upper tank 1, and an outlet 17, communicative with the lower tank 2, are provided for facilitating the circulation of a heating medium through the radiator.

In the illustration shown in the drawings, the inlet 16 is connected by a pipe 18 with

the rear end of the water jacket 19 of an internal combustion engine, and the outlet 17 is communicatively connected by a pipe 20 with the supply pipe 21 of the automobile radiator from which the pump 22 draws the cooling medium. The pump 22 of the motor causes a continuous positive circulation of heated water through the radiator core of the space heater when the motor is running. The electric motor 10′ may be connected with a battery, not shown in the drawing. It will be understood that the fan 12 drives a current of air through the radiator core between the water tubes 3.

A shield comprising a front wall 23 and side edges 24 is mounted on the front shell section 4 in advance of the open front thereof. This shield preferably comprises a channel shaped sheet metal member which is spot-welded to the front shell section 4 as shown at 24′. The front 23 of the shield prevents the heated air from being discharged directly upon passengers of the vehicle and the top and bottom open edges of the shield cause the flow of heated air to be divided into two oppositely directed currents. The flow of heated air may be apportioned between the oppositely directed currents by an adjustable baffle 25 mounted on the front of the shield 23. The baffle 25 comprises a sheet metal member having converging sections extending laterally of the shield. It is mounted on a threaded stem 26 which extends through a slot 27 in the front wall of the shield. The outer end of the stem 26 is provided with a wing nut 28 by means of which the baffle may be set in a desired position. When the baffle is in its uppermost position the flow of heated air is divided substantially equally between the oppositely directed currents but when it is in the dotted line position shown in Fig. 3 the greater portion of the flow of heated air is directed upwardly.

In the form of my invention shown in Figs. 4, 5, and 6, an adjustable shield 29 comprising peripheral flange 30 is rotatively mounted on a peripheral flange 31 of the front shell section 4′. The shield 29 has top and bottom outlets 32 and 33 respectively, and is provided with a baffle 34 extending laterally of the interior of the shield and comprising converging sides. The baffle 34 is rigidly secured to the front plate of the shield 29, and is positioned so as to direct substantially one-third of the current of air passing through the radiator core through the discharge 33 and the remaining two-thirds of the heated air through the outlet 32.

The shield 29 may be rotated relative to the radiator shell from the position shown in Figs. 4 and 5 for discharging the heated air sidewise or in inclined paths.

When the internal combustion engine shown in Fig. 1 is operated a portion of the cooling medium flows from the rear end of the water jacket 19, where the temperature is highest, through the pipe 18 to the radiator core of the heater. The liquid passes through the core of the heater and into the pipe 20 by which it is conveyed into the feed pipe 21 of the cooling system. The pump 22 draws the cooling medium from the pipe 20 and recirculates it through the water jacket of the engine, thereby providing a positive circulation through the radiator core of the heater.

Although but two specific embodiments of this invention have been herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

I claim:

1. A space heater comprising a radiator core and a shell, means mounted on one side of said shell for forcing a draft of air through said radiator, a shield mounted on said shell spaced from and extending across the face of the radiator for deflecting the heated air in opposite directions, and means slidably mounted on said shield for selectively proportioning the amount of said heated air flowing in said opposite directions.

2. A space heater comprising a radiator core, a shell on said radiator core comprising separable front and back sections having overlapping side portions, means associated with one of said shell sections for forcing a current of air through said radiator core, and means on the other shell section for distributing said current of air after it is heated, one of said shell sections having a peripheral series of offsets in its side portions and the other having complementary offsets in its side portion, said offsets being arranged to resiliently interfit to hold said shell sections together.

3. A space heater comprising a radiator core and spaced tanks and having offsets in its sides, a shell on said radiator core comprising complementary sections having registering offsets therein for yieldingly holding said sections together, the offsets of said shell sections being engaged in the offsets of said radiator tanks for yieldingly securing said shell to said tanks, a fan associated with one of said shell sections for forcing a current of air through said radiator core, and a shield on the other shell section for dividing and discharging said current of air in different directions.

4. A space heater comprising a radiator core and spaced tanks having offsets in opposite sides thereof, a shell on said radiator core comprising complementary sections having registering offsets therein for holding said sections together, the offsets of said shell sections engaging the offsets of said radiator tanks for securing said shell to said tanks,

a fan associated with one of said shell sections for forcing a current of air through said radiator core, a shield on the other shell section extending across the face of said core, and a baffle slidably mounted on said shield for selectively proportioning the flow of heated air toward respectively opposite sides of the radiator.

Signed at Milwaukee, this 23rd day of Jan., 1929.

DANIEL T. MacLEOD.