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HOT WATER HEATER FOR AUTOMOBILES

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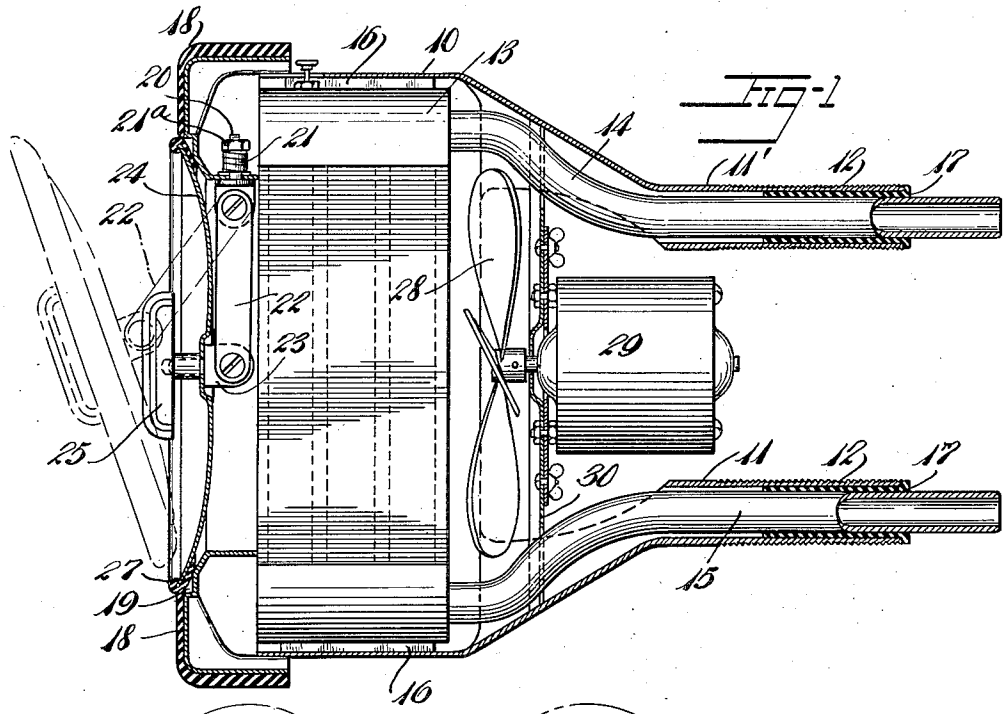


Fig-1

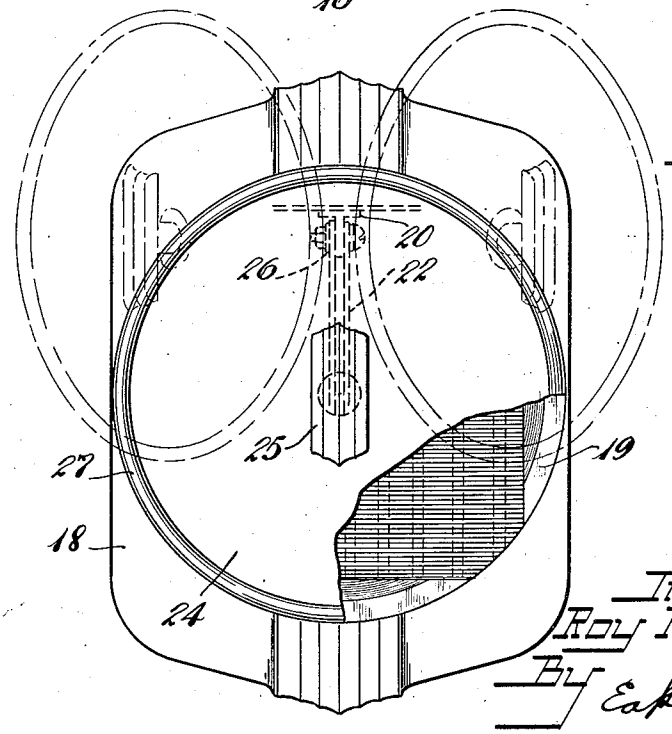


Fig-2

Inventor
Roy H. Griffiths
By Eaton & Avery
Attys

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HOT WATER HEATER FOR AUTOMOBILES

Roy H. Griffiths, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N. Y., a corporation of New York

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4 Claims. (Cl. 98—2)

This invention relates to heating units of the type in which air is forced through a casing containing a heat radiator and is particularly useful in the heating of automobiles.

In the usual hot water heater for automobiles, a casing for supporting a hot water radiator is attached to the car, usually to the dash board, between the floor and the instrument board. Hot water from the engine cooling system is circulated through the radiator, and a fan, usually driven by an electric motor from the ignition battery, is used to circulate the air through the radiator. Heretofore it has been proposed to provide deflectors which would direct the heated air where most desired, but such deflectors have been so mounted as to obstruct direct flow of air from the delivery face of the radiator, have been of complicated structure, have not been adapted completely to shut off the flow of air when in closed position, and have been so constructed as to cause noise and vibration.

The principal objects of the present invention are to provide simplicity of construction and freedom from noise and vibration, to accomplish complete closing of the device when desired, and unobstructed flow of air from the delivery face of the radiator when in use.

Other objects will appear from the following description and the accompanying drawing.

Of the drawing:

Fig. 1 is a central vertical view, partly in section showing the complete heater unit in its preferred form, the deflector being shown in full lines in its closed position, and in dot and dash lines in one of its open positions.

Fig. 2 is a front elevation of the heater unit, the deflector being shown in closed position in full lines and partially broken away to show the radiator, other open positions of the deflector being shown in dot and dash lines.

Referring to the drawing, the numeral 10 designates a hollow metal casing, open at the front and rear and terminating at the rear in a pair of tubular extensions 11, 11'. The extensions are externally threaded as at 12 so that clamping nuts may be screwed thereon to retain the extensions in engagement with the dash board of the automobile through openings in which they are adapted to extend.

The hot water unit comprises a radiator 13 of thin metal having numerous passages therethrough from front to rear for the passage of air, and water circulating spaces around the air passages. Rigid pipes 14 and 15 communicate with the water passages of the radiator and extend through the tubular extensions 11, 11' to provide flow and return passages for the hot water. The radiator 13 is supported from the casing 10 by blocks 16 of resilient rubber, and resilient bushings 17 of the same material are placed around the pipes 14 and 15 where they pass through the tubular extensions 11, 11' to prevent vibration.

The front of the casing 10 is partially covered by an ornamental frame 18 defining a preferably circular opening 19 for the escape of heated air.

A swivel shackle 20 is rotatably mounted on the frame 18, to which it is frictionally held by a coil spring 21 and nut 21a. A pair of links 22 are pivoted at one end to the shackle 20 and at their opposite ends are pivoted to another shackle 23 fixed to the center of a dished or conical deflector 24. A convenient handle 25 serves as a nut to retain shackle 23 and also to manipulate the deflector. The joints between the links 22 and their shackles are frictionally held against accidental movement of the links by spring tension washers 26 or other similar means. The arrangement is such that in closed position the deflector covers the opening 19 and may be swung outwardly as shown in the dot and dash line position shown in Fig. 1 and tipped from side to side as indicated by the dot and dash line positions in Fig. 2, the movement being universal within the limits prescribed by the length of the links 22.

In order more perfectly to seal the opening 19, when the deflector is in closed position, and to provide cushioning of the edge of the deflector when it rests against the frame 18, when adjusted to a deflecting attitude, a soft rubber cushioning ring 27 is mounted upon the margin of the deflector. This ring preferably is retained by its natural elasticity, being molded slightly smaller in circumference than the deflector, and being formed with an internal annular groove to engage over the edge of the deflector.

The device is of course provided with the usual fan 28 and fan motor 29, which conveniently may be mounted upon a brace 30 attached to the casing 10.

I claim:

1. A heating unit comprising a casing defining an opening in its face, a heat radiator enclosed thereby, means for directing air through the casing toward said opening, and a single heat deflector pivotally mounted on the casing and adapted to assume a plurality of positions with respect thereto and in one of its positions completely to close said opening.

2. A heating unit comprising a casing defining

an opening in its face, a heat radiator enclosed thereby, means for forcing air through the casing toward said opening, a single heat deflector pivotally mounted on the casing and adapted to assume a plurality of positions with respect thereto and in one of its positions completely to close said opening, and a resilient gasket adapted to cushion the margin of said deflector.

3. A heating unit comprising a casing defining an opening in its face, a heat radiator resiliently mounted within said casing, means for directing air through the casing toward said opening, a conical heat deflector mounted for universal movement with respect to said casing and adapted completely to close said opening and a marginal resilient cushion mounted upon said deflector and adapted to engage said casing.

4. A heating unit comprising a casing defining an opening in its face, a heat radiator enclosed thereby, means for directing air through the casing toward said opening, and a single heat deflector pivotally mounted on the casing and adapted to assume a plurality of positions with respect thereto by movement on a plurality of non-parallel pivotal axes and in one of its positions completely to close said opening.

ROY H. GRIFFITHS.