

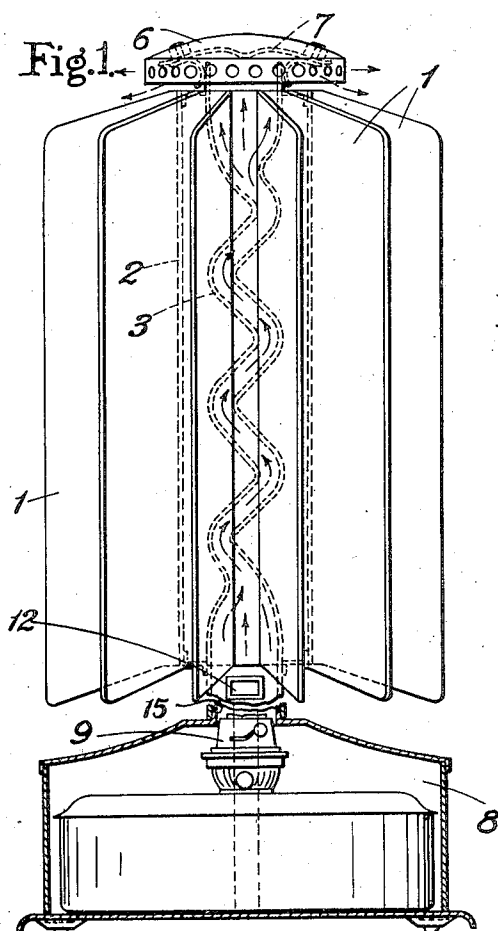
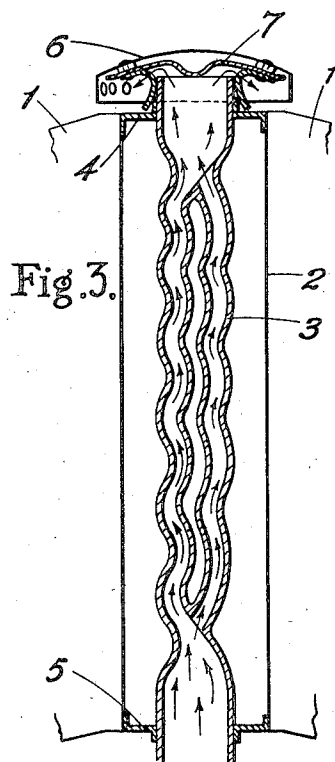
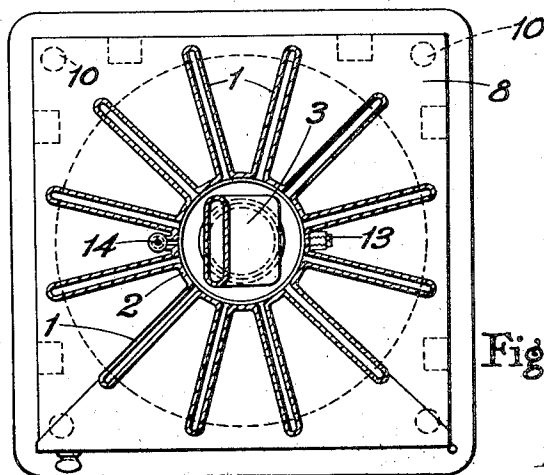
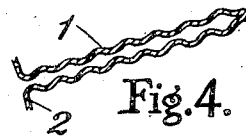
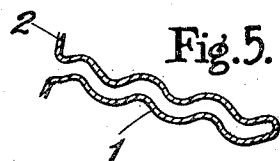
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RADIATOR

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RADIATOR

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1 Claim. (Cl. 237—17)

This invention relates to an improved radiator for heating rooms and like places, and has for its object to provide a unit construction which is simple and cheap to make; is easy to install, operate and maintain; is unlikely to get out of order during use; and one which may be made in portable form so as to be capable of being moved about as may be required; while a further object is to provide such a radiator which may be readily adapted to act in conjunction with a hot water, steam or vapour system.

According to the invention, a radiator for heating rooms and like places, comprises a series of hollow vanes radiating from and communicating with a central hollow hub, provided with an inlet for filling the radiator with the heating medium, such as water, steam or vapour and a heater for applying heat direct to the said medium.

In a preferred form the radiator is constructed of sheet metal folded and pressed to form the hollow vanes radiating from the hub, the said hub being closed at each end by plates making a fluid or gas tight connection therewith. Alternatively, the vanes and hub including the end plates may be cast in one, the end plates in each case being formed for the introduction of the heater, although in the cast construction the heater may be integral with the hub as will be apparent from the following description.

The radiator according to the present invention may be heated by oil or gas burners associated with a flue disposed in the hub, or in another embodiment the heater may consist of an electric element capable of being immersed in the hot water, steam or vapour circulating in the vanes and hub.

Thus, in one construction, the heater may comprise a flue passing from end to end of the hub and terminating at the top in a cowl to allow of the escape of the heating gases which are applied at the lower end of the flue. Associated with the lower end may be an oil or gas burner mounted in a housing constituting the base of the radiator unit, or alternatively the lower end of the flue may be made for connection to an external source of hot air or gas.

In order to baffle the flue gases, the flue may be serpentine or dented. The vanes may be of irregular form to increase the heating surface.

Preferred constructions of radiator will now be described, by way of example only, with reference to the accompanying drawing, wherein:—

Figure 1 is an elevation of a heating radiator, partly in section;

Figure 2 is a plan thereof, a section being taken through the body of the radiating unit;

Figure 3 is a fragmentary view showing a section through the central hub and flue;

Figures 4 and 5 are sections of alternative forms of radiating vanes.

In one embodiment adapted to be heated by gas or oil, a sheet of metal is pressed and folded to form the hollow vanes 1 and the whole is then bent round to resemble flat spokes each lying in a vertical plane and radiating from a central vertical hub 2. This may be of circular or rectangular cross section, the former being illustrated in the accompanying drawing. Through the hub 2 passes a flue 3 which is fixed in position by means of plates 4 and 5 secured one at either end of the hub 2. These end plates 4 and 5, the ends of the vanes 1, and the vertical seam or seams of the radiator are joined by folding, welding, riveting, soldering, or by any other suitable means according to the type and thickness of the metal employed, so as to form a fluid tight connection.

For increasing the heating surface and stiffening the vanes 1, they may be formed in any desired manner. For example, they may be corrugated, either horizontally or vertically.

Figures 4 and 5 show two alternative forms of corrugating the walls of the vanes.

The central flue 3 preferably is circular in cross section at its extremities, but the intermediate portion thereof may be of oblong or circular section and may take a serpentine or such like course to form baffles for the flue gases. Such a shape is shown in Figures 1 and 2, the oblong section being chosen for purpose of illustration.

In an alternative construction, the central flue 3 may be divided into two or more flueways as in Figure 3 which are each joined into the common flue at the top and bottom ends and the one or more of which may be serpentine or they may be of simple straight form.

At the flue outlet a cowl or cap 6, which may be removable, is fitted, and a deflecting plate or baffle 7 may be fixed therein and insulated from the cowl by heat-resisting washers or other suitable insulating means.

At the bottom of the flue is attached a sheet metal housing 8 which apart from accommodating the burner 9 also forms the support or base of the radiator. This housing may be of any convenient shape to accommodate suitably the oil burner with its container, or the gas burner. Extending upwardly from said housing is a flange 15 over which telescopes the lower projecting end

of the flue 3. Thus, since said flue is fastened to the end plates 4 and 5 and therefore is rigid with the radiator proper, the latter is supported on the base or housing solely through the instrumentality of said flue.

Extending inwardly from the sides of the housing are lugs by which a base plate is attached, the lugs passing through slots in the base plate and being turned up or riveted or otherwise secured to the plate. The base plate may be suitably stiffened and its edges may project beyond the housing sides and be turned down as seen in Figure 1 to form a curb on which the radiator stands. At suitable points in the base plate or thereabouts, a hole or holes 10 may be cut for the admittance of air for combustion purposes.

In the portable construction castors may be attached underneath the base plate to facilitate the radiator being moved about, and handles conveniently projecting from the vanes or elsewhere may also be provided. Where the radiator is intended to be a fixture, the castors may be substituted by downturned lugs from the base plate constituting legs, or the lugs may be outturned and provided with holes to take fixing bolts or the like for securing the radiator to the floor.

Preferably, at the flue inlet an inspection port 12 is cut and covered by a removable mica or glass window.

Near the top of the radiator is provided the water inlet 13 through which the hub and vanes are filled with water to the required level, this inlet preferably being of the needle screw down valve type serving also for the release of surplus air or water, and there may be provided in addition a spring type of valve or fusible pressure plug 14 for emergency purposes.

The radiator is filled with water to a level below

the top thereof so that upon heating to say 200° F. no undue pressure is created. No water feed system or replenishment is required as the water is sealed from the atmosphere and when heated does not evaporate but condenses on the inner faces of the walls of the radiator.

If the radiator is oil heated, a blue flame atmospheric oil burner associated with a container, may be employed, whereas heating by gas may be effected by a Bray or Bunsen burner having a thermostatic control with the necessary service connection. In the electrically heated construction, the flue could either be replaced by an immersion or withdrawable type of electric element, and the cowl dispensed with, or the flue retained.

In order to make the radiator suitable for circulating hot water, steam or vapour through a heating system, the end plates may have tapped bosses for attachment to the flow and return of the system.

I claim:—

A heating radiator comprising, in combination, a radiating shell made from sheet metal folded to form a central hollow hub and a plurality of vertically disposed hollow vanes radiating therefrom and communicating therewith, end plates attached to the respective ends of the hollow hub, and each having a central aperture, a flue extending through the length of the hub and passing through the apertures in the end plates, the portion of the flue situated between said end plates being of serpentine formation, a cowl fitted on the top of the flue, and a bottom housing for a heating device, said housing forming the support for the radiator and the latter being connected with said housing solely through the instrumentality of the flue.

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