June 4, 1929. T. E. MURRAY 1,715,378

RADIATOR

Filed May 1, 1924

Fig. 1.

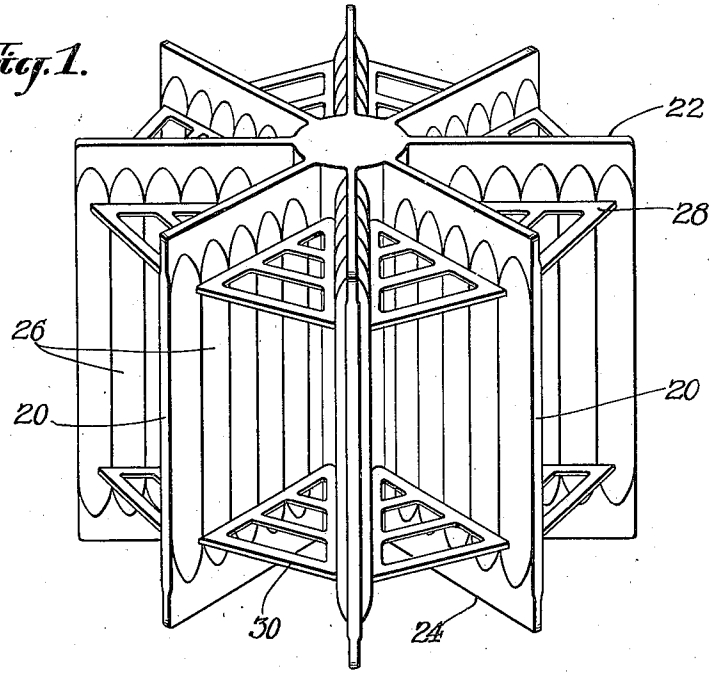


Fig. 2.

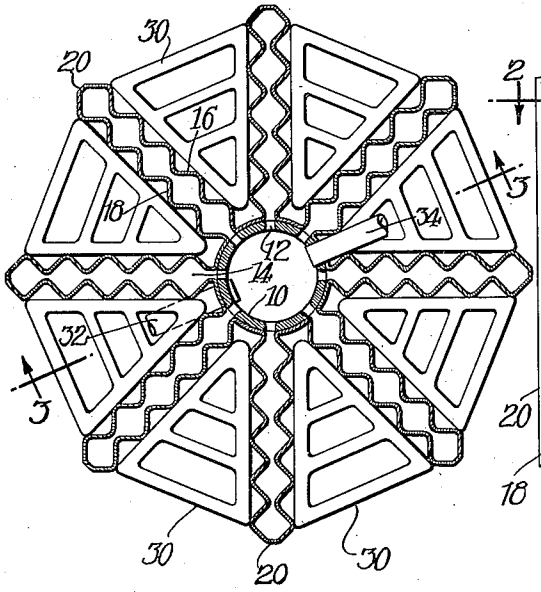
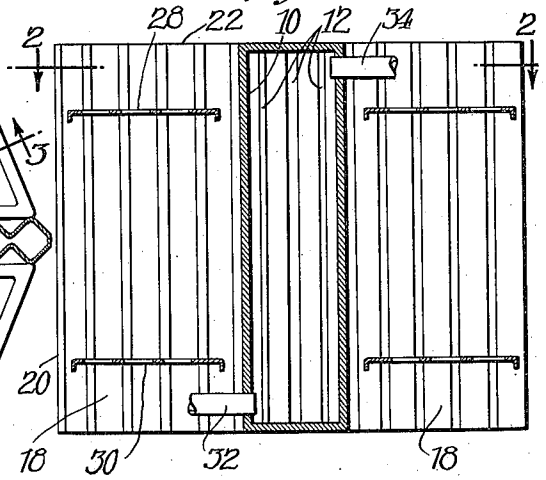


Fig. 3.



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UNITED STATES PATENT OFFICE.

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RADIATOR.

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This invention relates to heating apparatus and particularly to a radiator of improved design and aims to provide a structure which can be inexpensively manufactured and yet serve its function equally as well or better than radiators heretofore used.

An embodiment of the invention is illustrated in the accompanying drawings in which

Fig. 1 is a perspective view of the radiator;

Fig. 2 is a horizontal section thereof on the line 2—2 of Fig. 3;

Fig. 3 is a vertical section on line 3—3 of Fig. 2.

The radiator illustrated is of a built up type composed essentially of a central heating chamber and a series of hollow arms extending radially outward therefrom and communicating with the heating chamber. The central chamber in the embodiment illustrated is formed of the length of pipe 10 having a series of ports 12 formed therein which communicate with the spaces 14 between the walls 16 and 18 of the several arms 20. The arms as shown are preferably formed of thin sheet metal which is corrugated, as best shown in Fig. 2, so as to form an extended surface for absorbing the heat from the medium supplied to the radiator and also to increase the surface area of the exterior of the radiator so as to provide a more extensive surface for contact with the surrounding atmospheric air. The corrugations in the arms 20 extend to within a short distance of the upper and lower edges 22 and 24 respectively of the arms and in appearance resemble somewhat columns as indicated at 26. The columns or corrugations in addition to providing an increased surface area, enhance the appearance of the structure and also add stiffness to the thin sheet metal arms.

To rigidify the entire structure, substantially triangular braces 28 and 30 are secured between the adjacent arms at points near the top and bottom of the same. These braces are preferably made of pressed metal which is electrically welded to the peaks of the corrugations of the arms. However, it is to be understood that if desired cast iron braces or braces of other materials may be used and may be secured in various ways other than by electric welding.

If the radiator is to be used in connection with a hot water heating system suitable inlet and outlet pipes 32 and 34 respectively may be connected to the central chamber 10 as shown. In some cases the radiator may comprise part of the piping of a hot water system which is provided with suitable ports 12 and to which the sheet metal arms 20 are secured. With such an arrangement the hot water would enter at one end of the pipe or chamber 10 and leave the pipe at the other end. In the case of steam radiator, one end of the pipe 10 may be suitably threaded for connection with the steam line and the other end of the pipe may be closed by a suitable plug.

In the drawings the several arms 20 are shown as formed of one continuous sheet of thin metal which is suitably corrugated as above described. This is a convenient and economical way of manufacturing the radiator, however, it is to be understood that if desired I may form each arm 20 as a separate unit and secure it to the central pipe by welding or by means of an expanded metal joint or in various other ways.

The bracing members of spacers 28 and 30 above referred to, in addition to serving the function of rigidifying the entire structure also provide an extended surface between the arms for radiating the heat to the surrounding atmosphere.

While I have described with great particularity the specific embodiment of the invention illustrated, it is not to be construed that I am limited thereto as various modifications and changes may be made by those skilled in the art without departing from the invention as defined in the appended claims.

What I claim is:—

1. A radiator comprising a number of hollow radial heat-conducting arms constituting parts of a tight chamber for the circulation of steam or other heating medium, said arms extending the full length of the radiator and united to one another along the length of their inner edges, the arms being of substantial width and of comparatively thin flexible sheet metal, in combination with braces between the several arms so as to distribute the pressure equally among them and to prevent distortion of the arms under pressure from the heating medium.

2. A radiator comprising a number of hollow radial heat-conducting arms constituting parts of a tight chamber for the circulation of steam or other heating medium, said arms extending the full length of the radiator and united to one another along the length of their inner edges, the arms being

of substantial width and of comparatively thin flexible sheet metal with a central pipe for the heating medium communicating with several arms and attached to their inner edges throughout the height of said arms to hold said edges rigidly in place.

3. A radiator comprising a number of hollow radial heat-conducting arms constituting parts of a tight chamber for the circulation of steam or other heating medium, said arms extending the full length of the radiator and united to one another along the length of their inner edges, the arms being of substantial width and of comparatively thin flexible sheet metal, the radiating arms being formed with walls of sheet metal and being of substantial width and of approximately the same thickness throughout their width so as to leave outwardly flaring spaces between them and braces in said spaces between the arms.

In witness whereof, I have hereunto signed my name.

THOMAS E. MURRAY.