

May 3, 1932.

A. B. MODINE

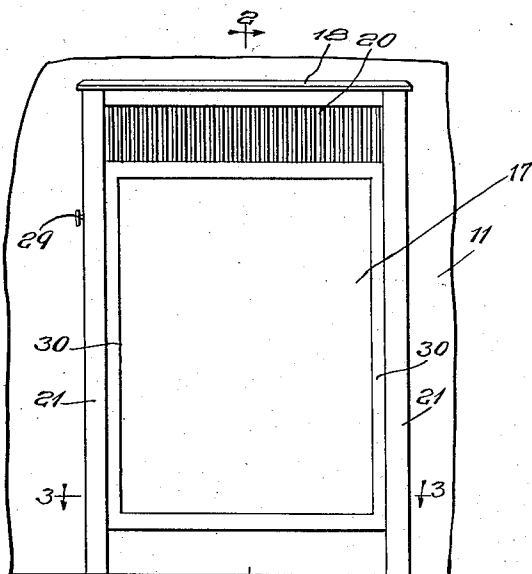
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WALL RADIATOR

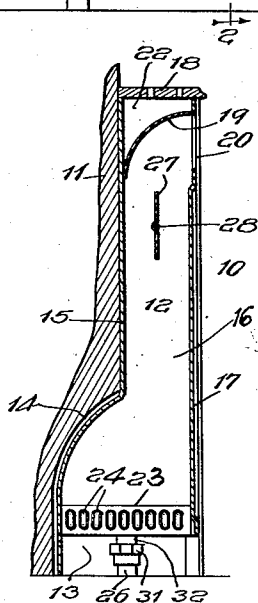
Filed Aug. 7, 1929

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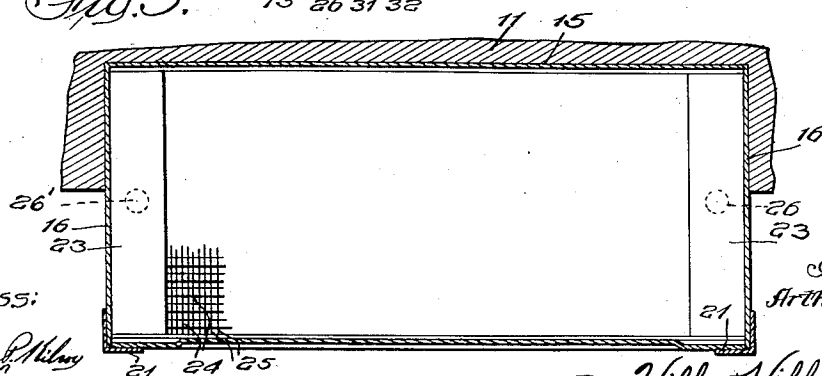
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witness:

*William P. Hilary*

Inventor:  
*Arthur B. Modine*

*Hill & Hill*

*ATTY*

**May 3, 1932.**

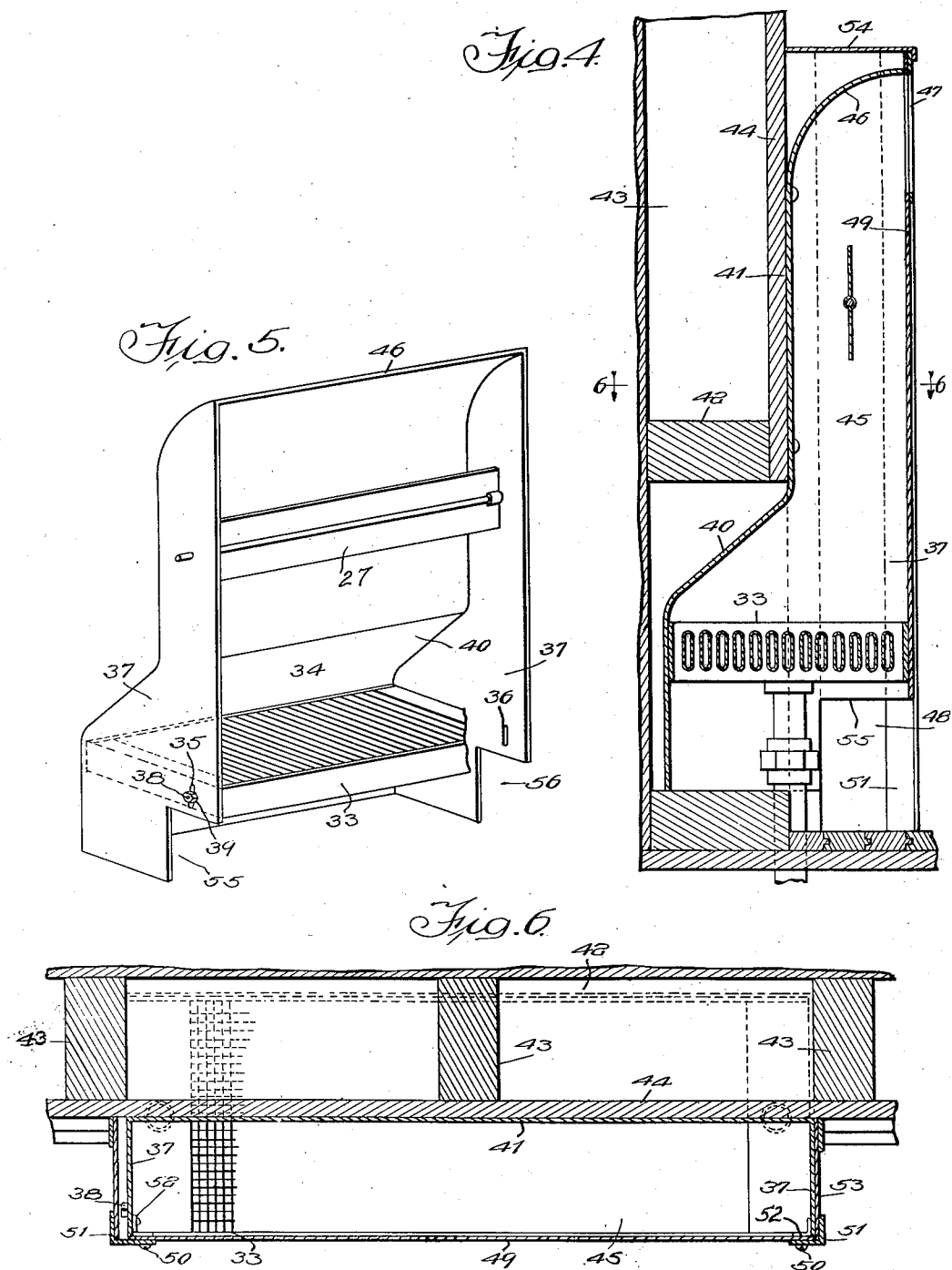
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Filed Aug. 7, 1929.

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## UNITED STATES PATENT OFFICE

ARTHUR B. MODINE, OF RACINE, WISCONSIN, ASSIGNOR TO MODINE MANUFACTURING COMPANY, OF RACINE, WISCONSIN, A CORPORATION OF WISCONSIN

## WALL RADIATOR

Application filed August 7, 1929. Serial No. 384,202.

The invention relates to radiator stacks and is designed to provide means for housing a radiator and conducting heated air to the interior of a room to heat the latter.

5 The invention has among its various objects the provision of a construction which affords a radiator chamber capable of receiving a radiator of a size to properly heat a room, and to provide a stack with a duct  
10 leading from the radiator chamber to conduct the heated air to the room, the duct and chamber being respectively provided with an air inlet and outlet, the air inlet being arranged relatively to the radiator chamber  
15 so that air introduced to the stack is compelled to pass through the radiator to be heated prior to its introduction to the air duct.

One of the principal objects of the invention is the provision of a construction having  
20 a part capable of being arranged in a recess provided in the wall of a building and having a part which may extend beyond the wall and protrude into the room so that the room space for the device is minimized and  
25 a space is provided sufficient to receive a heating element of a required size to adequately heat the room which is to be served.

A further object of the invention is the provision of means whereby the radiator may  
30 be adjusted to incline it to thus insure flow of the heating medium from the inlet to the outlet of the radiator and further to provide the device with a humidifier.

Another object of the invention is to provide  
35 a stack having the above enumerated and other objects and to combine a heating element therewith, to provide the structure with means whereby access to the interior of the stack is facilitated and also to provide  
40 the device with means whereby the humidifier may be charged when this is found necessary or desirable.

Still another object of the invention is to provide a stack in which the radiator is connected  
45 therewith as a unit or is separable therefrom.

The invention will be explained and more readily understood when read in conjunction with the accompanying drawings which  
50 illustrate various modifications which may

be resorted to, it being therefore obvious that other changes and modifications may be employed without departing from the spirit of the appended claims forming a part hereof.

In the drawings, Fig. 1 is a front elevation  
55 of the device showing its application to a wall;

Fig. 2 is a section taken on the line 2—2 of Fig. 1;

Fig. 3 is a plan section taken on the line  
60 3—3 of Fig. 1;

Fig. 4 is a section similar to Fig. 2 showing a slightly modified construction which may be resorted to;

Fig. 5 is a perspective view of the radiator  
65 stack shown in Fig. 4; and

Fig. 6 is a section taken on the line 6—6 of Fig. 4 looking in the direction of the arrows;

Referring now more particularly to Figs.  
70 1 to 3 of the drawings, the numeral 10 generally designates a combination heat exchange device and cabinet, housing for the same. A recess 14 is provided in a wall 11  
75 of the building structure to receive the rear projecting portion of the device and provide a maximum radiator space with a minimum of encroachment upon the room space.

The front portion of the cabinet comprises a plate 17 suitably fastened to a pair of corner angle posts 21 fastened to the end walls  
80 16. The rear wall of the cabinet comprises a wall 15 having its upper portion vertical for positioning adjacent a wall of the room and its lower portion extending rearwardly  
85 beyond said wall 15 to provide space for a horizontally extending radiator unit. The wall 15 projects downwardly into contact with the floor and together with the posts 21 supports the radiator unit and cabinet. By  
90 reason of the increased dimension of the cabinet, due to projecting the wall 15 rearwardly, additional space is provided for the horizontally extending radiator unit without encroaching upon the room space.  
95

An apertured cover 18 closes the upper end of the cabinet and a curved plate 19 positioned below and adjacent the cover 18 serves to deflect the heated air coming from the radiator unit outwardly into the room. By 100

forming a fluid tight joint between the plate 19 and the walls 15 and 16, a humidifying tank 22 may be provided, moisture being permitted to escape through said apertures. A grille plate 20 is positioned in the front wall of the cabinet immediately underneath the curved plate 19.

The radiator unit comprises a plurality of horizontally extending tubes 24 connecting oppositely positioned header tanks 23. The radiator unit is positioned in the lower end of the cabinet and is in spaced relation to the floor. The front plate 17 terminates in substantial alignment with the bottom of the heating unit, leaving an air inlet between the lower edge of the plate and the floor. A plurality of fins 25 serve to accelerate the transfer of heat from the unit to the air passing between the tubes and upwardly and outwardly through the grille 20.

Heating fluid is admitted to the radiator unit through a feed pipe 26. The feed pipe 26 projects upwardly through the floor and is connected with a nipple 32 by means of a union 31. The fluid coming from the pipe 26 empties into one of the tanks 23. The tubes 24 provide for the flow of the fluid to the other of the tanks 23 from which it passes through a tube 26' connected by means of a union 31 and a nipple 32 similarly to the connection described for feed pipe 26.

The flow of air through the device is controlled by a damper plate 27 fixedly mounted on a rotatable rod 28. The damper is manipulated by means of a knob 29 projecting through one wall of the device, as shown in Fig. 1.

The structure shown in Figs. 4 to 6 substantially corresponds to that shown and previously described, however, it differs in that the heating element 33 is arranged for vertical adjustment with respect to the stack generally designated 34, this adjustment being provided for to allow the radiator to be tilted or inclined to insure flow of the heating medium from the inlet to the outlet. The means for accomplishing this last mentioned feature includes slots 35 and 36, respectively, provided in the opposite end walls 37—37, and a screw-threaded stud 38 which projects from the radiator 33 through the slot. The stud has a nut 39 whereby the radiator may be held in any one of its adjusted positions with respect to the radiator stack generally designated 34. The radiator stacks respectively generally designated 10 and 34 are each formed of a sheet of metal bent to provide the side walls 37—37 and the rear wall such as 40. This rear wall such as 40 and the wall 15 is bent inwardly toward the radiator chamber to divide the space above the chamber to produce a recess 41 and the duct 45, the recess being provided to receive a cross piece such as 42, studding 43 and wall 44. The upper termination of the duct 45 is

curved outwardly as indicated at 46. An opening 47 is located adjacent this end of the duct and an opening 48 is provided at the opposite end of the stack, the latter opening being arranged below the radiator 33 so that air admitted to the stack through the opening 48 is compelled to pass through the radiator and become heated before it is permitted to escape through the opening 47. The structure shown in Fig. 4 contemplates the use of a removable cover plate 49 which provides a closure for the opening between the end walls 37—37, the closure being removable to permit access to the interior of the stack to facilitate cleansing thereof or to make necessary adjustments of the radiator 33 should this become necessary. The closure 49 is held relatively to the remaining structure by any suitable means, that herein shown includes screws 50 which are passed through the angle iron legs 51 into threaded engagement with brackets 52 secured to the side walls such as 37 of the stack.

The structure shown in Figs. 4 to 6 is enclosed within a casing 53 including a cover 54 which caps the upper end of the device and assists to give this portion of the structure a finished appearance. The side walls 37—37 of the structure shown in Figs. 4 to 6 have a portion thereof removed near the forward end thereof to provide openings 55 and 56 to thereby allow greater freedom of the passage of air from the room and through the radiator.

From the foregoing description of the structure, it is manifest that a relatively large radiator chamber is provided and in which that portion of the stack above the radiator chamber is formed to provide a recess for the reception of a wall of the building structure and in addition is constructed to form an air duct, the combined structure cooperating to provide for the accommodation of a relatively large radiator and means for introducing heated air to the room in which the room space utilized by the device is reduced to a minimum.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:

1. A radiator stack having one side wall provided with openings respectively in the upper and lower portions thereof which open into the room to be heated, an opposite side wall having its lower portion projecting laterally therefrom to provide a chamber and a heating unit located in said portion between said openings and forming the bottom of said stack.

2. A radiator stack having a radiator chamber in combination with a wall of a room with which said stack is associated, said wall having a recess, a duct adapted to be located outside of said wall communicating with and extending from said chamber, said

duct being offset relatively to a portion of said chamber a portion of said chamber being located in said recess, and an air inlet provided in said chamber.

5 3. A radiator stack having a front wall and an opening in the upper portion thereof, the rear wall of said stack having its lower portion projecting backwardly, a heating unit forming the bottom wall of said stack, 10 the upper termination of said rear wall providing a wall of a tank located in the upper portion of the stack, said wall of the tank being curved and providing means for deflecting a current of air outwardly through 15 said opening, an opening provided in the lower portion of the stack, a heating unit being arranged above said opening and providing means through which air entering said stack passes to be heated prior to its 20 discharge from said stack.

4. A radiator stack having a front wall with an opening in the upper portion thereof and the opposite end stopping short of the floor, supporting posts positioned at the 25 front corners of said stack, the rear wall of said stack having its lower portion projecting backwardly, and a heating unit forming the bottom wall of said stack, said rear wall extending downwardly below the heating unit, as a support for the stack. 30

5. In a radiator stack, the combination of a member having an open side and end, a radiator chamber provided at said end, one wall of said stack having a portion which is 35 offset relatively to another portion of said wall to provide a recess, a duct, the latter of which communicates with said radiator chamber, a closure for the open side of said member, said closure being removable from 40 said member, and an air inlet and outlet respectively leading to said radiator chamber and from said duct.

6. A member providing a stack adapted to be located in a space to be heated, said 45 stack having an air inlet and outlet arranged at the opposite upper and lower ends thereof, the inlet being arranged adjacent the floor of said stack and the outlet being arranged to discharge heated air into said 50 space, said stack including an element having a wall, one portion of which is offset relatively to another portion thereof and having side walls projecting therefrom and providing a member having an open side, a member 55 providing a closure for said open side, said closure and first mentioned means providing means which cooperate with each other to provide a radiator chamber and a duct leading therefrom with which said inlet and outlet 60 respectively communicate.

7. In a radiator stack, the combination of a member having front, rear and side walls, the front wall having an air inlet at one end and an air outlet at the opposite end, said 65 air inlet and outlet providing means of com-

munication with a space to be heated, the inlet being located adjacent the floor of said space, a radiator chamber provided at the first mentioned end, the rear wall of said 70 chamber being extended toward the front wall of said member and being spaced therefrom to provide a wall of a duct arranged at the front of the stack which duct communicates with the radiator chamber.

8. A radiator stack having a radiator 75 chamber, a radiator located therein and means for connecting said radiator with a fluid supply and return, a duct communicating with and extending from said chamber, said duct being offset relatively to a portion 80 of said chamber, an air inlet provided in said chamber, and means including said first mentioned means whereby said radiator is supported in said radiator chamber above 85 the air inlet and said first mentioned means being arranged adjacent said air inlet and said inlet providing means of access to said first mentioned means.

9. A radiator stack having a front wall provided with an opening in the upper and 90 lower portion of said front wall, the rear wall of said stack having its lower portion projecting backwardly, a horizontally disposed heating unit arranged above the lower opening forming the bottom of said stack 95 and providing means through which air entering said lower opening may pass and be heated prior to its discharge through the upper opening.

In witness whereof, I hereunto subscribe 100 my name this 18th day of July A. D., 1929.

ARTHUR B. MODINE.