

June 1 , 1926.

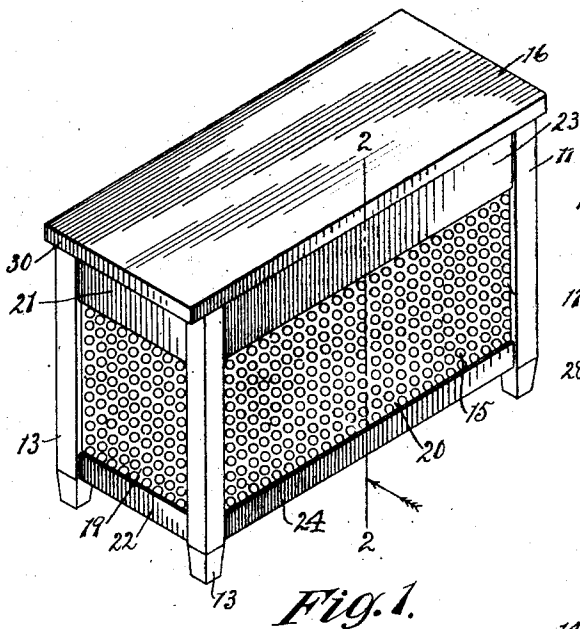
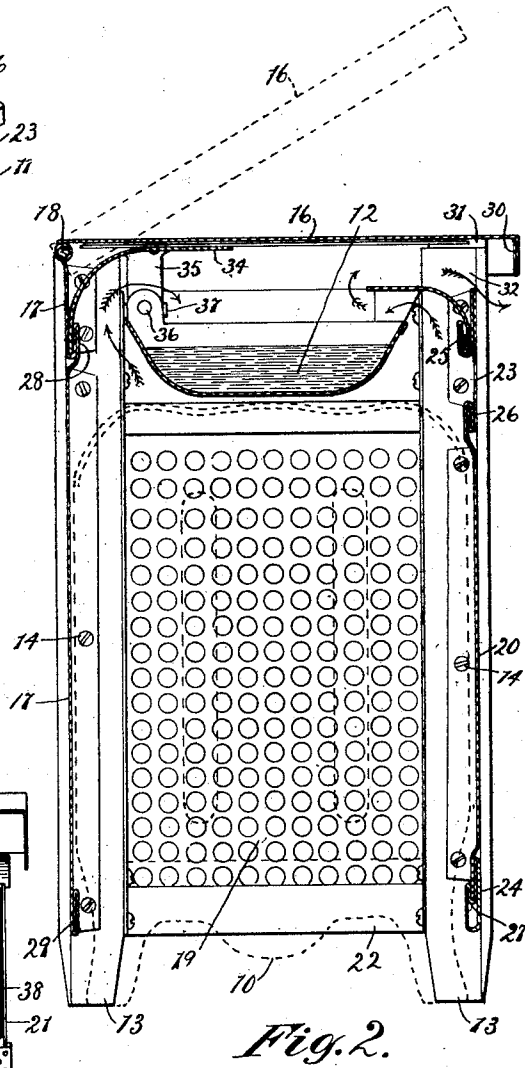
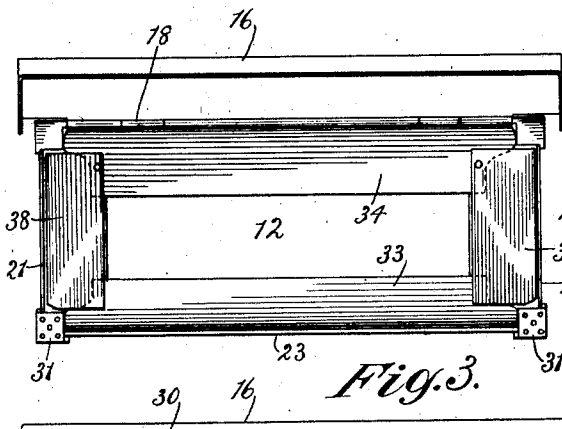
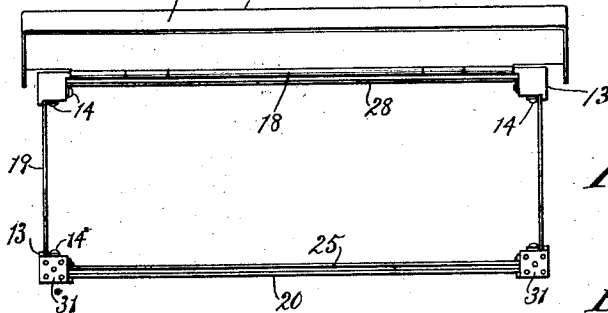
1,586,604

A. D. BULL

RADIATOR CASING

Filed Sept. 17. 1923

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

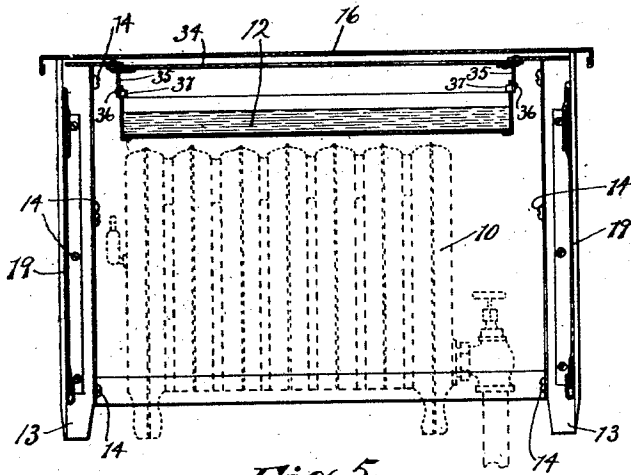


Fig. 5.

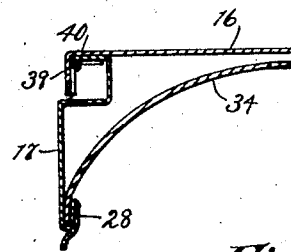


Fig. 8.

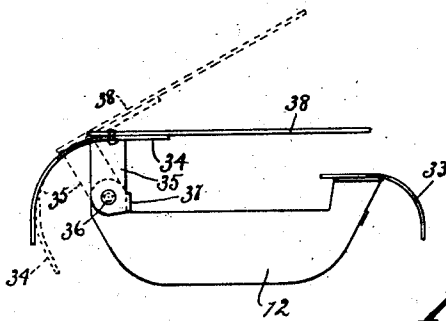


Fig. 6.

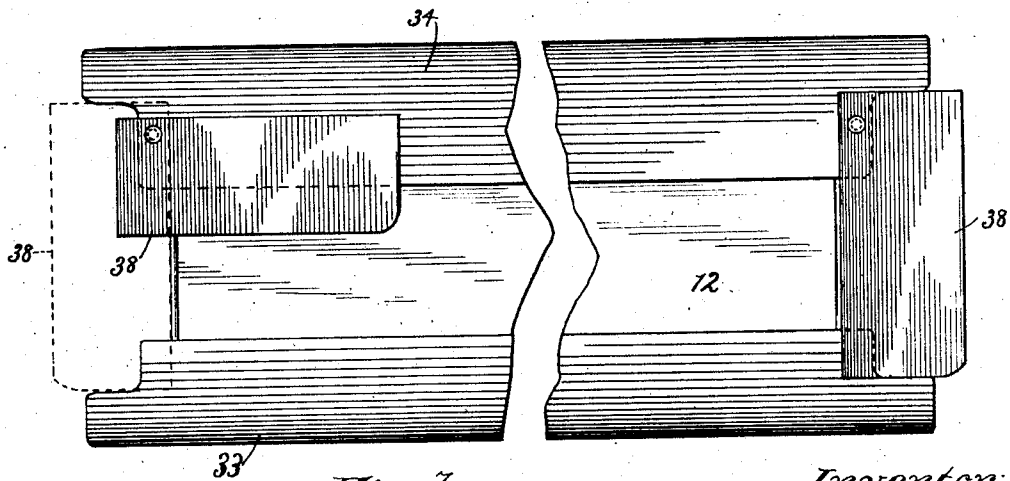


Fig. 7.

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Patented June 1, 1926.

1,586,604

UNITED STATES PATENT OFFICE.

ADAM D. BULL, OF CHICAGO, ILLINOIS, ASSIGNOR TO HOME RADIATOR CABINET CO.,
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RADIATOR CASING.

Application filed September 17, 1923. Serial No. 663,120.

This invention relates to humidifier cabinets and particularly to cabinets which are primarily designed for use with the radiator sections which constitute the heating units for the various rooms in dwellings, offices and the like.

It is common experience that uncovered radiator sections collect dust and by their unsightly appearance detract from the otherwise pleasing appearance of a room. Frequent painting of the radiators to freshen their appearance is not only expensive in requiring the expenditure of considerable time and money but diminishes their efficiency as heat radiators, and as a result add to the outlay for fuel. My invention consists in the provision of a cabinet which is adapted for positioning over the radiator to hide the same from view. I am aware that it is not new to provide a cabinet cover for radiators, but such covers as heretofore constructed have lessened the efficiency of the radiators by retarding the flow of heated air therefrom and one of the principal objects of my invention is to provide a cabinet cover which is constructed to permit the heated air to flow freely therefrom so that the efficiency of the heating plant is not lowered thereby.

Another object is the provision of a cabinet cover for radiators which is so constructed as to be adapted for a useful and ornamental article of furniture.

A further object is the provision of a cabinet cover for radiators which is of highly economical construction by reason of its walls and cover being adapted for construction from sheet metal by stamping and for its being shipped "knocked down" from the factory and its easy assembly by the purchaser.

A still further object of the invention is the provision of a combined cabinet cover and humidifier for radiators constructed so that the air currents which the heated radiator put in motion are directed over the surface of the water contained in the humidifier in such a way that maximum saturation is obtained.

The soiling of walls and draperies by the solid particles carried from the radiators

by the induced air currents is a common and heretofore unavoidable experience which it is another object of the invention to prevent by directing the air currents over the water in the humidifier in close contact with the surface and through the heated vapors arising therefrom so that the air is washed clean of said solid particles and the soiling of the walls and draperies is minimized.

The foregoing and other objects will appear in the following detailed description.

An illustrative embodiment of the invention is shown in the accompanying drawings, in which—

Fig. 1 is a perspective view of the cabinet and humidifier as it appears when completed and in position ready for use.

Fig. 2 is a sectional view along the line 2—2 of Fig. 1.

Fig. 3 is a plan view of the device with the lid opened and the humidifier in position.

Fig. 4 is a plan view of the device with the lid opened and the humidifier removed.

Fig. 5 is a longitudinal sectional view of the combined cabinet and humidifier.

Fig. 6 is an end view of the humidifier.

Fig. 7 is a plan view of the humidifier as it appears when detached from the cabinet.

Fig. 8 is a view showing a detail of an alternative lid connection.

Referring to the drawings, 10 represents the sections comprising a radiator which are arranged in series, as shown, and are supported by suitable legs or feet as shown in Figs. 2 and 5.

The invention consists in the provision of a cabinet cover 11 which is constructed to permit the free ingress of air from the room and is provided with a suitable outlet for the air at the top which has become heated by contact with the radiator. The invention further consists in the provision of a humidifier pan 12 and means for directing the heated air over the surface of the water in the pan 12 in such a way that maximum saturation occurs and the air is freed of its dust particles by its contact with the water and the vapors rising therefrom before it again escapes into the room.

In its preferred form the cabinet cover or housing 11 is rectangular in shape and is provided with vertical legs 13 at each of its corners to which the walls of the housing are fastened as by screws or bolts 14. The vertical walls of the housing preferably stop short of the floor and are provided with a plurality of perforations 15 through which the relatively cool air of the room enters the housing as well as through the space between the walls and the floor. Access to the housing is obtained by pivotally connecting the top wall 16 to the rear wall 17 as by hinges 18 as best indicated in Figs. 2, 3, and 4. The housing 11 is made sufficiently long so that the end walls 19 are spaced away from the radiator sufficiently to clear the valves and provide ample room for the insertion of the arm and hand to conveniently operate the valves with which radiators are usually equipped.

The walls of the housing may be constructed of any desired material but are especially adapted for manufacture from sheet metal by stamping, the perforations and bends being such that they are economically formed by a minimum number of operations. Rigidity is given to the exposed end walls 19 and the front wall 20 by providing the end walls with upper and lower marginal members 21 and 22 respectively and the front wall with corresponding marginal members 23 and 24. These marginal members are preferably folded inwardly and upwardly or downwardly so that the folded portions are substantially parallel with the main outer portion of the members. The marginal members thereby present a smooth and regular exterior which in connection with the main wall members 19 and 20 give a panel effect to the housing. This panel effect is enhanced by painting the housing to match the decorations of the room so that the housing becomes an ornament to the room.

The folds 25 and 26 on the upper marginal members and the fold 27 on the lower marginal members are spaced away from the main portion of the members of which they form a part, thereby increasing the resistance of the members to bending. The folds 26 and 27 are adapted to receive the marginal edges of the members 19 and 20, the latter being bent for wedging engagement therewith. This feature is conducive to the housing being shipped "knocked-down" and its easy assembly. The folds 28 and 29 on the rear wall 17 add to its rigidity. The folds 25 and 28 also provide a support for the humidifier pan 12 in the manner hereinafter described.

The top wall 16 has its marginal edges turned down to form a flange 30 which adds to the appearance of the housing by giving it the effect of a finished article of furniture

such as a table or a bench. Fiber strips 31 are fastened to the top of the front legs 13 to serve as a cushion should the lid be dropped in closing. When the top wall 16 is closed it rests upon the strips 31 which adapt it to support loads which may be placed thereon. The upper edge of the marginal member 23 of the front wall stops short of the flange 30 and forms therewith a slotted opening 32 in the front wall of the cabinet when the top wall is closed. The opening 32 provides an outlet for the heated air currents which rise from the radiator and are directed therethrough. The openings between the sections comprising the radiator and the front and rear walls 20 and 17 provide free passage for the air as it ascends which is unretarded by the folds on the interior thereof since the folds present slightly projecting and rounded edges to the air currents.

The pan 11 is supported from the folds 25 and 28 by baffle plates 33 and 34 which are mounted upon the pan and spaced away from its top longitudinal edges to form passages for air currents rising from the radiator. Both the front plate 33 and the rear plate 34 are concave towards the pan through an angle of substantially ninety degrees and have a substantially straight horizontal portion projecting over the adjacent edges of the pan with their lower edge portions wedged into the loops 25 and 28 respectively. The rear plate 34 is spaced further from the pan and projects further over the pan than the corresponding portions of the front plate 33. The lower longitudinal edges of the pan are convex outwardly so that the rising air currents are directed into contact with the concave faces of the plates 33 and 34 which in turn direct the currents over the surface of the water contained in the pan. The pan is spaced above the radiator slightly to permit passage of air beneath the pan so as to equalize the flow of currents which are directed against the plates 33 and 34. The air striking the front plate 33 is directed horizontally over the water surface in intimate contact therewith and with the vapor which rises from the water by reason of the proximity of the pan to the radiator. The rear baffle plate is positioned substantially opposite the opening 32 and directs the air currents from the back of the radiator horizontally over the water surface and on out through the opening. These air currents like those from the front baffle plate 33 are mixed with the heated vapors and washed of their dust particles. Both sets of currents are also thoroughly saturated, the saturation process being aided by the eddying of the air currents which is caused by the opposing currents meeting at slightly different levels in intimate contact with the water surface and heated vapors.

In the eddying process the currents from the front baffle plate are merged with the currents from the rear baffle plate and pass out there-with through the opening 32 in a washed and thoroughly saturated condition. The baffle plates are preferably positioned relatively close to the top wall so as to prevent any of the air coming from the pan to remain at rest in the housing.

The wedging of the plates 33 and 34 in the folds serves to hold the pan securely in position and permits its easy removal for cleaning and replenishing. The rear plate 34 is pivotally mounted on the pan being provided for that purpose with downwardly extending fingers 35. The fingers are rotatably fastened to the end walls of the pan by rivets or pins 36 and have a lug 37 which serves as a stop to limit the rotation of the plate 34 towards the surface of the water. The lugs 37 are positioned to stop the plate 34 with its top portion in its normal horizontal position, and to permit rotation of the plate outwardly away from the water surface when the pan is removed, thereby facilitating the cleaning and replenishing of the pan.

The pan is preferably made substantially as long as the radiator with the baffle plates 33 and 34 projecting to partially close off the open end portions above the valves. Sufficient space remains between the overhanging ends of the baffle plates and the housing to permit insertion of the hand to operate the valve. This space is normally closed off by horizontal plates 38 which are pivotally mounted on the baffle plate 34 and are rotatable inwardly to permit access to the valves. The plates 38 prevent the air from rising around the ends of the baffle plates and serve to direct the air currents between the baffle plates and over the surface of the water in the pan.

An alternative mounting for the top wall 16 is shown in Fig. 8 where the rear wall 17 is turned inwardly and outwardly to form an outwardly opening recess in which hinges 39 are mounted. The rear flange of the top wall 16 is set in slightly so that the angular edge 40 at the intersection of the flange with the wall 16 remains inside the vertical plane of the rear wall when the wall is rotated to open the housing. This arrangement permits the housing to be positioned with its rear wall 17 against the wall of the room and the top wall 16 opened without striking against the wall of the room.

Thus it will be seen that I have provided an improved cabinet and humidifier for use with heating ventilators which is pleasing in appearance and hides the ventilator from view without lessening its efficiency and which is adapted to direct the heated air currents into close contact with the water surface in the humidifier and causes the air

currents to intermingle in the vapors rising from the humidifier whereby the air is washed of its impurities before it escapes into the room and which further creates in the air a maximum amount of saturation.

What I claim as new and desire to secure by U. S. Letters Patent is:—

1. A device of the character described comprising a housing for a radiator, the front and rear walls of said housing being positioned away from the radiator to form passages for air currents rising from the radiator, the front wall of said housing having a horizontal slotted opening therein near its upper end, a baffle plate mounted on the rear wall of the housing adapted to direct the air currents from the rear passages outwardly through said opening and a front baffle plate mounted on the front wall of the housing beneath said opening adapted to direct air currents from the front passages into convergence with the air currents from the rear passages.

2. A device of the class described comprising a housing for a radiator, the front and rear walls of said housing being positioned away from the radiator to form passages for the heated air currents rising from the radiator, the front wall of said housing having an opening therein near its upper end, a baffle plate adapted to direct the air currents from the rear passages outwardly through the opening and a second baffle plate adapted to direct air currents from the front passages into convergence with the currents from the rear passages.

3. A device of the class described comprising a housing for a radiator, the front and rear walls of said housing being positioned away from the radiator to form passages for the air currents rising from the radiator, the front wall of said housing having a slotted opening therein near its upper end, a baffle plate adapted to direct the air currents outwardly from the rear passages through the opening, and a second baffle plate adapted to direct the air currents from the front passages into convergence with the currents from the rear passages, said plates being curved to present a concave surface to the directed air currents.

4. A device of the class described comprising a housing for a radiator, the front and rear walls of said housing being positioned away from the radiator to form passages for the air currents rising from the radiator, the front wall of said housing having a slotted opening therein near its upper end, a baffle plate adapted to direct the air currents outwardly from the rear passages through the opening, and a second baffle plate adapted to direct the air currents from the front passages into convergence with the currents from the rear passages, said plates being curved to pre-

sent a concave surface to the directed air currents, and upwardly extending lugs on the inner faces of the front and rear walls respectively forming with said walls openings in which said plates are wedgingly mounted.

5. In a device of the class described the combination of a housing adapted to be positioned over a radiator, a pan mounted in the housing above the radiator and spaced from the housing to form passages for air between the front and rear walls of the housing and the pan, said housing having a longitudinal slotted opening in its front wall substantially opposite the top of said pan, a baffle plate mounted over the passage between the pan and the rear wall and opposite said slotted opening, said plate being adapted to direct the air currents from the rear passages over the surface of water contained in the pan and out through said opening, and a second baffle plate mounted over the passage between the pan and the front wall and below the slotted opening, said second baffle plate being adapted to direct the air currents from the front passages into convergence with the currents from said rear passages adjacent the surface of the water in said pan.

6. In a device of the class described the combination of a housing adapted to be positioned over a radiator, a pan mounted in the housing above the radiator and spaced from the housing and from the radiator to form passages for the air below the pan and between the front and rear walls of the housing and the pan, said housing having a horizontally extending opening in its front wall in substantial alinement with the top of the pan at a relatively slight elevation above the pan, a baffle plate mounted over the passages between the pan and the rear wall and opposite the opening, said plate being adapted to direct the air currents from the rear passages over the surface of the water contained in the pan and out through said opening, and a second baffle plate mounted over the passage between the pan and the front wall and below the slotted opening, said second baffle plate being adapted to direct the air currents from the front passages over said water surface into convergence with the currents from said rear passages, said plates being formed to present a concave surface to the directed air currents.

7. In a device of the class described the combination of a housing adapted to be positioned over a radiator, a pan mounted in the housing above the radiator and spaced from the housing to form passages between the pan and the front and rear walls of the housing, said housing having a horizontally extending opening in its front wall at a relatively slight elevation above the

pan, front and rear baffle plates mounted on the pan and spaced therefrom to form passages between the plates and the top edges of the pan, said plates being concave towards the pan through substantially ninety degrees and having a substantially straight horizontal portion projecting over the adjacent edges of the pan, said rear plate being spaced further from the pan and projecting further over the pan than the corresponding portion of the front plate, and upwardly extending lugs on the inner faces of the front and rear walls forming with said walls substantially vertical openings in which the lower edges of the baffle plates are wedgingly mounted in contact with said front and rear walls respectively.

8. In a device of the class described the combination of a housing adapted to be mounted over a radiator, a pan mounted in the housing above the radiator and spaced from the front and rear walls of the housing to form passages for air currents rising from the radiator, said housing having an opening in the front wall substantially opposite the top of the pan, a lid on the upper end of the housing, a baffle plate mounted on the pan and spaced therefrom adapted to direct air currents from the rear passages over the surface of the water in the pan and out through the opening, a second baffle plate mounted on the pan and spaced therefrom adapted to direct air currents from the front passages over the water surface into convergence with the currents from the rear passages, and shelves on the walls of the housing, said plates resting on said shelves and said pan being suspended from the plates whereby the pan and plates may be removed from the upper end of the housing.

9. In a device of the class described, the combination of a housing adapted to be positioned over a radiator, a pan mounted in the housing above the radiator and spaced from the front and rear walls of the housing to form passages for air currents rising from the radiator, said housing having an opening in the front wall substantially opposite the top of said pan, a lid on the upper end of the housing, a baffle plate mounted on the pan and spaced therefrom adapted to direct air currents from the rear passages over the surfaces of the water in the pan and out through the opening, a second baffle plate mounted on the pan and spaced therefrom adapted to direct air currents from the front passages over the water surface into convergence with the currents from the rear passages, said plates being concave towards the pan with their upper edges substantially horizontal and their lower edges substantially vertical, one of said plates being pivotally connected to the pan and rotatable downwardly from its normal position towards the pan when the pan is removed

from the housing, and shelves on the walls of the housing adapted to support said plates and pan.

10. In a device of the class described the combination of a housing adapted to be positioned over a radiator, the end walls of the housing being spaced away from the radiator, a pan mounted in the housing above the radiator and spaced from the housing to form passages for air between the front and rear walls of the housing and the pan, baffle plates mounted on the pan adapted to direct the air currents rising from the radiator over the surface of water in the pan, and horizontal plates pivotally mounted on the ends of the pan normally closing off the space between the ends of the pan and the end walls of the housing, said horizontal plates being swingable inwardly and the top wall of the housing being pivotally mounted whereby the radiator valves are easily accessible from the top of the housing.

11. A humidifier pan for a radiator having front and rear baffle plates mounted thereon and spaced therefrom to form passages between the plates and the top edges of the pan, said plates being concave towards the pan through substantially ninety degrees and having a substantially straight horizontal portion projecting over the adjacent edges of the pan, said rear plate being spaced further from the pan and projecting further over the pan than the corresponding portion of the front plate.

12. A humidifier pan for a radiator having front and rear baffle plates mounted thereon and spaced therefrom to form passages between the plates and the top edges of the pan, said plates overhanging the side walls of the pan and being concave towards the pan.

13. A humidifier pan for a radiator having front and rear baffle plates mounted thereon and spaced therefrom to form passages between the plates and the top edges of the pan, said plates overhanging the side walls of the pan and being concave towards the pan, one of said plates being pivotally mounted on the pan so as to be rotatable downwardly towards the pan from its normal operative position.

14. A humidifier pan for a radiator having front and rear baffle plates mounted

thereon and spaced therefrom to form passages between the plates and the top edges of the pan and end plates overhanging the ends of the pan, said end plates being pivotally mounted on the ends of the pan and rotatable inwardly to a non-projecting position relative to the ends of the pan.

15. A rectangular casing of the class described having corner legs, and top, front, rear and end walls, said front and end walls each comprising an upper marginal member, a lower marginal member and an intermediate member, said members having inwardly projecting flanges on their ends adapted to be fastened to said legs by screws, the lower edges of said marginal members each being turned inwardly and upwardly to form a narrow channel, the upper edge of said intermediate member being turned outwardly and downwardly to form a longitudinally extending flange, said intermediate members having their lower edges positioned in the channels in the corresponding lower marginal member and its longitudinal flange positioned in the channel on the corresponding upper marginal member.

16. A rectangular casing of the class described having corner legs, and top, front, rear and end walls, said front and end walls each comprising an upper marginal member, a lower marginal member and an intermediate member, said members having inwardly projecting flanges on their ends adapted to be fastened to said legs by screws, the lower edges of said marginal members each being turned inwardly and upwardly to form a narrow channel, the upper edge of said intermediate member being turned outwardly and downwardly to form a longitudinally extending flange, said intermediate members having their lower edges positioned in the channels in the corresponding lower marginal member and its longitudinal flange positioned in the channel on the corresponding upper marginal member, the upper and lower portions of said intermediate members being offset inwardly sufficiently to bring the exposed portion thereof into substantial vertical alinement with the marginal members.

In testimony whereof, I have hereunto affixed my signature.

ADAM D. BULL.