Jan. 20, 1959 R. L. LEIGH 2,869,450

AIR REGISTER OF THE WALL TYPE

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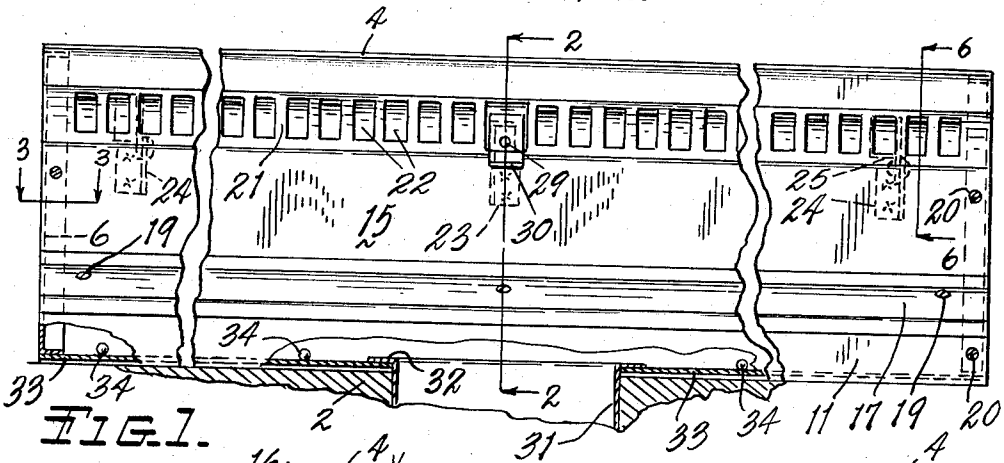


FIG. 1.

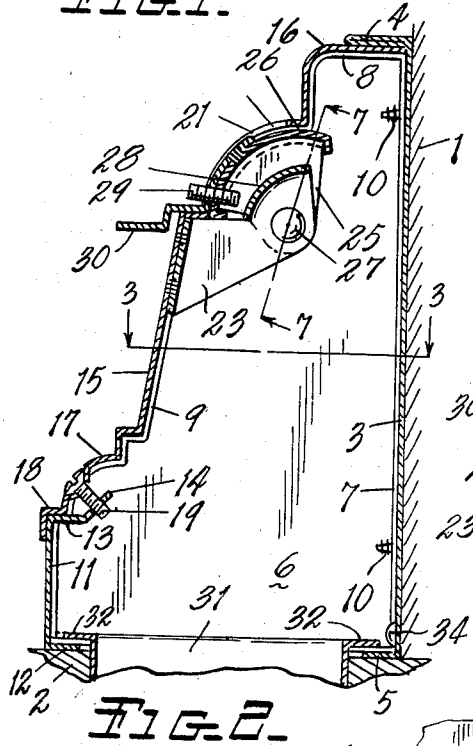


FIG. 2.

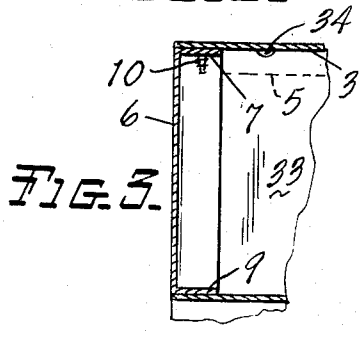


FIG. 3.

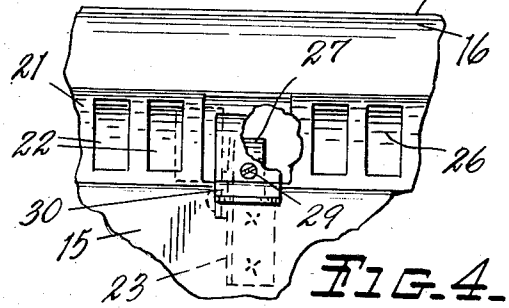


FIG. 4.

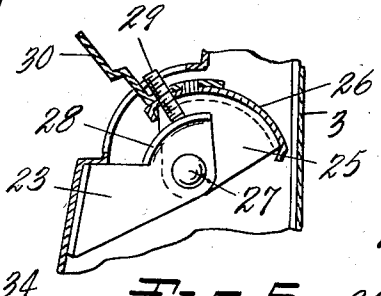


FIG. 5.

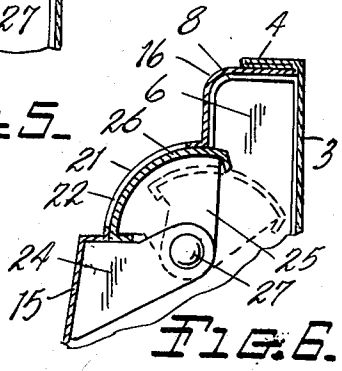


FIG. 6.

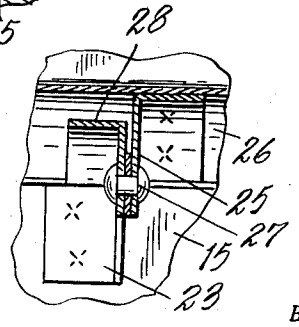


FIG. 7.

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AIR REGISTER OF THE WALL TYPE

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6 Claims. (Cl. 98—108)

This invention relates to an air register of the wall type commonly designated as a baseboard register or diffuser.

The main objects of this invention are:

First, to provide an air register in which the discharge of air may be effectively regulated to meet varying requirements as to volume without substantially varying the velocity of the air discharged.

Second, to provide an air register having a uniform velocity discharge with a control damper having adjustable stop means for variably limiting the opening of the damper.

Third, to provide an air register with an adjustable bottom member or members which may be easily adjusted to facilitate installation and the connection of the register to a flue.

Fourth, to provide a wall register including a removable face member on which the damper and its associated parts are mounted facilitating the assembly of the parts and repairs and adjustments thereof as may be required.

Fifth, to provide a register having these advantages which is simple and economical in its parts and the assembly thereof and which may be readily installed and at the same time is attractive in appearance.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined and pointed out in the claims.

A preferred embodiment of the invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a fragmentary front elevational view of a register embodying my invention, parts being broken away to show structural details.

Fig. 2 is an enlarged view in section on a line corresponding to line 2—2 of Fig. 1 with the damper in fully closed position.

Fig. 3 is a fragmentary view in section on line 3—3 of Fig. 1.

Fig. 4 is an enlarged fragmentary front elevational view showing certain details of the damper stop means.

Fig. 5 is an enlarged fragmentary view corresponding to that of Fig. 2 showing the damper in partially open position.

Fig. 6 is an enlarged fragmentary view on a line 6—6 of Fig. 1 illustrating the damper in closed position by full lines and in open position by dotted lines.

Fig. 7 is a fragmentary view on line 7—7 of Fig. 2 showing details of the damper stop means.

The embodiment of my invention illustrated is designed as a wall register, that is, adapted to be installed against a wall which is conventionally indicated at 1 in Fig. 2. The floor is conventionally indicated at 2.

The housing of my improved register comprises a rear wall 3 having a forwardly projecting top flange 4 of substantial width and a forwardly projecting bottom flange 5. The end walls 6 are provided with inturned rear, top and front flanges 7, 8 and 9 respectively. The top and front edges of the end walls are contoured to the desired shape to support the front and face member. The

rear wall is secured to the rear flanges of the end walls as by means of the screws 10.

The front wall 11 is provided with an inwardly projecting bottom flange 12 and an inwardly projecting annular top flange 13, the arm of the top flange 13 projecting upwardly and inwardly. The flange 5 of the rear wall and the flange 12 of the front wall are disposed in a downwardly spaced relation relative to the lower ends of the end walls.

The face member 15 has a rearwardly projecting top portion 16 which is disposed between the top flange 4 of the rear wall and the top flanges 8 of the end walls. The top flange 4 of the rear wall is desirably folded inwardly upon itself to provide a smooth rounded front edge. The face member 15 is of general rearwardly stepped conformation, the front edges of the end walls being correspondingly stepped or conformed.

At its lower end the face member is provided with a forwardly offset curved portion 17 terminating in an angled flange 18 seated upon the front wall. The lower end of the face member is secured to the face member by screws 19 engaging the arm 14 of the top flange 13 of the front wall. The front wall 11 is secured to the end walls by the fasteners, preferably screw fasteners, 20 while the face member is secured to the front flanges of the end walls by similar fasteners 20.

The face member 15 has an outwardly curved upwardly facing intermediate outlet portion 21 having a longitudinal series of vertically disposed rectangular discharge openings 22. The face member is provided with inwardly projecting brackets 23 and 24 on which the pivot arms 25 of the damper 26 are swingably mounted by means of the pivots 27. The bracket 23 is provided with a forwardly inclined and preferably curved stop member 28 eccentrically positioned relative to the pivots 27.

The damper is provided with an adjustable stop 29, desirably in the form of a screw which coacts with the stop 28 to limit the opening movement of the damper. The damper is curved to correspond substantially to the curvature of the outlet portion of the face member so that it closes against the inner side of the outlet portion 21 of the register, as shown in Fig. 2.

The pivots 27 are desirably slightly off center relative to the curvature of the outlet portion of the face member so that clearance is provided when the damper swings from closed toward open position and closes against the inner side of the outlet portion. However, the damper is sufficiently close to the outlet openings in all its positions of adjustment so that the outlet area thereof is accurately controlled or a uniform volume control is provided without materially varying the velocity.

Otherwise stated the damper does not impede the velocity flow of air through the register but does control the amount of air discharged. The clearance described is provided to insure free operation of the damper through its projecting handle 30 at the same time providing a tight closure when the damper is in fully closed position. The stroke of the damper may be easily and accurately controlled by adjusting the stop 29.

The flue 31 is desirably positioned centrally of the register housing but that is not always possible and also, flues are frequently of different dimensions. The flue is desirably provided with outturned flanges 32 which are disposed on the flange 5 of the rear wall and the flange 12 of the front wall. These flanges 5 and 12 also support the bottom members 33 which are slidable thereon below the bottom edges of the end walls, as is shown at the left hand of Fig. 1.

The rear wall is provided with a series of dimple like

lugs 34 spaced to engage the upper sides of the bottom member where permitting their sliding adjustment.

In practice a single bottom sheet or bottom member is supplied with the register. This bottom member may be removed and cut to meet the particular flue conditions and then the bottom member parts reinserted in proper relation to receive the flue between them.

As stated, the structure illustrated is particularly designed as a wall register sometimes referred to as a diffuser, that is, air is diffused in a sheet like stream along and somewhat spaced outwardly from the wall.

The removable face member greatly facilitates the installation of the register and the damper being carried by the face member can be mounted therewith as a unit after the positioning of the register housing and the connection of the flue thereto. The completed structure is attractive in appearance.

I have illustrated and described my invention in a highly practical embodiment thereof. I have not attempted to illustrate other embodiments or adaptations which I contemplate as it is believed this disclosure will enable those skilled in the art to embody or adapt my invention as may be desired.

Having thus described the invention, what is claimed as new and is desired to be secured by Letters Patent is:

1. A wall register comprising a rear wall having a forwardly projecting top flange, end walls with upright rear edges, horizontal top edges, short upright front edges and rearwardly stepped intermediate front edges between said upright front and top edges and having inwardly projecting flanges at their rear, top and front and intermediate edges, the rear wall being removably secured to the flanges on the rear edges of the end walls with the flange on its upper edge spaced upwardly relative to the upper ends of the end walls, a front wall removably secured to the upright front flanges of said end walls and having rearwardly then upwardly inclined top flanges, a face member detachably secured to the intermediate front flanges of said end walls and having a downwardly angled lower edge seating against the top of said front wall and the rearwardly turned flange thereon and having a rearwardly projecting top portion disposed between the top flange of the rear wall and the top flanges of the end walls, downwardly and rearwardly inclined screws connecting said face member to the upwardly inclined flange on said front wall, said face member having an intermediate outwardly curved outlet portion provided with a longitudinal series of vertically disposed slot-like outlet openings, brackets mounted on said face member to project rearwardly therefrom, and a damper curved to correspond substantially to the curvature of said outlet portion of said front wall and having downwardly projecting arms pivotally mounted on said brackets.

2. A wall register comprising a housing having a face member provided with an outwardly curved outlet portion having longitudinal series of vertically elongated outlet openings therein, a damper curved to correspond substantially to the curvature of said outlet portion of said face member and provided with downwardly projecting pivot arms, pivots for said arms carried by said housing disposed in off center relation to the curvature of said curved outlet portion of said face member, the pivots being disposed so that the damper lies closely adjacent and closes the outlet openings or portions thereof according to adjustment thereof but clearance is provided when the damper swings toward open position, an adjustable stop on said damper, and a fixed stop member disposed in a forwardly inclined relation relative to the path of travel of the stop member on the damper.

3. A wall register comprising a housing having a face member provided with an outwardly curved outlet portion having a longitudinal series of vertically elongated outlet openings therein, a damper curved to correspond substantially to the curvature of said outlet portion of said face member and provided with downwardly projecting pivot arms, pivots for said arms carried by said housing disposed in off center relation to the curvature of said curved outlet portion of said face member, the pivots being disposed so that the damper lies closely adjacent and closes the outlet openings or portions thereof according to adjustment thereof but clearance is provided when the damper swings toward open position.

4. A horizontally elongated baseboard simulating register adapted to be mounted on a floor and against a wall to distribute forced warm air from a flue opening in the floor comprising a rear wall having forwardly turned top and bottom flanges, a front wall substantially lower than said back wall and having rearwardly turned top and bottom flanges with an upwardly and rearwardly inclined flange on the inner edge of its top flange, end walls having upright front and back edges with inturned flanges thereon removably secured to the ends of said front and rear walls, the bottoms of said end walls being spaced upwardly from the inturned flanges on the bottoms of said front and rear walls, the tops of said end walls being spaced downwardly from said top flange on said rear wall, a horizontally elongated face plate of upwardly and rearwardly stepped shape having a downwardly and rearwardly facing shoulder on its lower edge seated against the front and top flange of said front plate and having a rearwardly turned top flange nesting between top flange on said rear wall and the tops of said end walls, said end walls having intermediate front edges with inturned flanges thereon conformed to the shape of said face plate, removable fasteners securing the ends of said face plate to the inturned flanges on the intermediate portions of said end walls, other removable fasteners arranged in downwardly and rearwardly inclined relation and connecting the lower portion of said face plate to upwardly and rearwardly inclined flange on said front wall, an outwardly curved segmental cylindrical surface formed along the length of said face plate and having a horizontal series of vertically extending outlet openings formed therein, brackets projecting inwardly from said face plate below said outwardly curved portion, an elongated cylindrically curved segmental damper pivotally connected to said brackets in eccentric relation to said curved portion to converge forwardly and downwardly against the rear side of said curved portion in closing relation to said openings, a stop on one of said brackets arranged in upwardly and rearwardly inclined eccentric relation to the pivots of said damper, another stop radially adjustable on said damper and positioned to coact with said first stop, and bottom plates corresponding in width to the width of said end walls slidably adjustably supported on the bottom flanges of said front and rear walls and disposed in the space between the flanges and the lower edges of the end walls to extend longitudinally inwardly from the ends of the register to the sides of a flue opening.

5. A horizontally elongated baseboard simulating register adapted to be mounted on a floor and against a wall to distribute forced warm air from a flue opening in the floor comprising a rear wall having forwardly turned top and bottom flanges, a front wall substantially lower than said back wall and having rearwardly turned top and bottom flanges, end walls having upright front and back edges with inturned flanges thereon removably secured to the ends of said front and rear walls, the bottoms of said end walls being spaced upwardly from the inturned flanges on the bottoms of said front and rear walls, the tops of said end walls being spaced downwardly from said top flange on said rear wall, a horizontally elongated face plate of upwardly and rearwardly stepped shape having a downwardly and rearwardly facing shoulder on its lower edge seated against the front and top flange of said front plate and having a rearwardly turned top flange nesting between said top flange on said rear wall and the tops of said end walls, said end walls having intermediate front edges with inturned

flanges thereon conformed to the shape of said face plate, removable fasteners securing the ends of said face plate to the inturned flanges on the intermediate portions of said end walls, other removable fasteners connecting the lower portion of said face plate to said front wall, an outwardly curved segmental cylindrical surface formed along the length of said face plate and having a horiontal series of vertically extending outlet openings formed therein, brackets projecting inwardly from said face plate below said outwardly curved portion, an elongated cylindrically curved segmental damper pivotally connected to said brackets in eccentric relation to said curved portion to converge forwardly and downwardly against the rear side of said curved portion in closing relation to said openings, and bottom plates corresponding in width to the width of said end walls slidably adjustably supported on the bottom flanges of said front and rear walls and disposed in the space between the flanges and the lower edges of the end walls to extend longitudinally inwardly from the ends of the register to the sides of a flue opening.

6. A horizontally elongated baseboard simulating register adapted to be mounted on a floor and against a wall to distribute forced warm air from a flue opening in the floor comprising a rear wall having forwardly turned top and bottom flanges, lugs projecting forwardly from said rear wall in closely spaced relation above its bottom flange, a front wall substantially lower than said back wall and having rearwardly turned top and bottom flanges, end walls having upright front and back edges with inturned flanges thereon removably secured to the ends of said front and rear walls, the bottoms of said end walls being spaced upwardly from the inturned flanges on the bottoms of said front and rear walls, the tops of said end walls being spaced downwardly from said top flange on said rear wall, a horizontally elongated face plate of upwardly and rearwardly stepped shape having a downwardly and rearwardly facing shoulder on its lower edge seated against the front and top flange of said front plate and having a rearwardly turned top flange nesting

between top flange on said rear wall and the tops of said end walls, said end walls having intermediate front edges with inturned flanges thereon conformed to the shape of said face plate, removable fasteners securing the ends of said face plate to the inturned flanges on the intermediate portions of said end walls, other removable fasteners connecting the lower portion of said face plate to said front wall, an outwardly curved segmental cylindrical surface formed along the length of said face plate and having a horizontal series of vertically extending outlet openings formed therein, brackets projecting inwardly from said face plate below said outwardly curved portion, an elongated cylindrically curved segmental damper pivotally connected to said brackets to swing forwardly and downwardly behind the rear side of said curved portion in closing relation to said openings, a stop on one of said brackets arranged in upwardly and rearwardly inclined eccentric relation to the pivots of said damper, another stop radially adjustable on said damper and positioned to coact with said first stop, and bottom plates corresponding in width to the width of said end walls slidably adjustably supported on the bottom flanges of said front and rear walls and engaged under the lugs on said rear wall and disposed in the space between the flanges and the lower edges of the end walls to extend longitudinally inwardly from the ends of the register to the sides of a flue opening.

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