Oct. 29, 1957 R. L. LEIGH 2,811,096

AIR DISTRIBUTING REGISTER

Filed Nov. 10, 1955 2 Sheets-Sheet 1

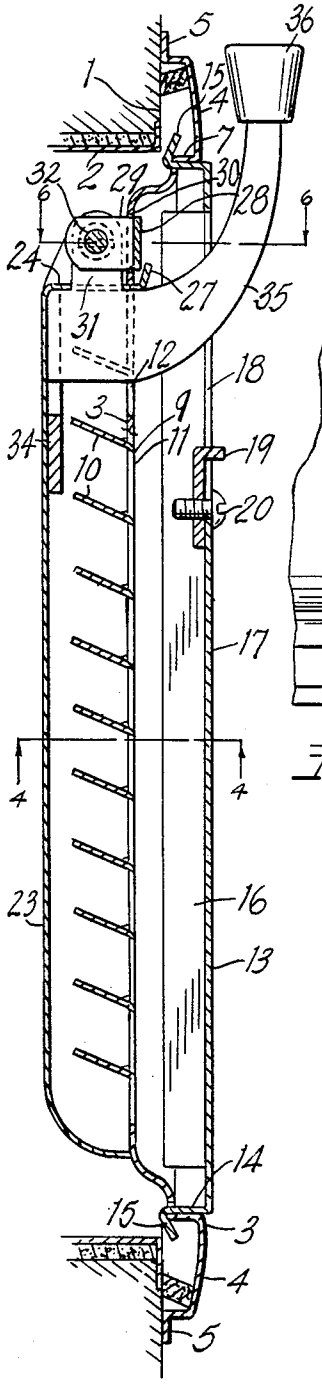


Fig. 1.

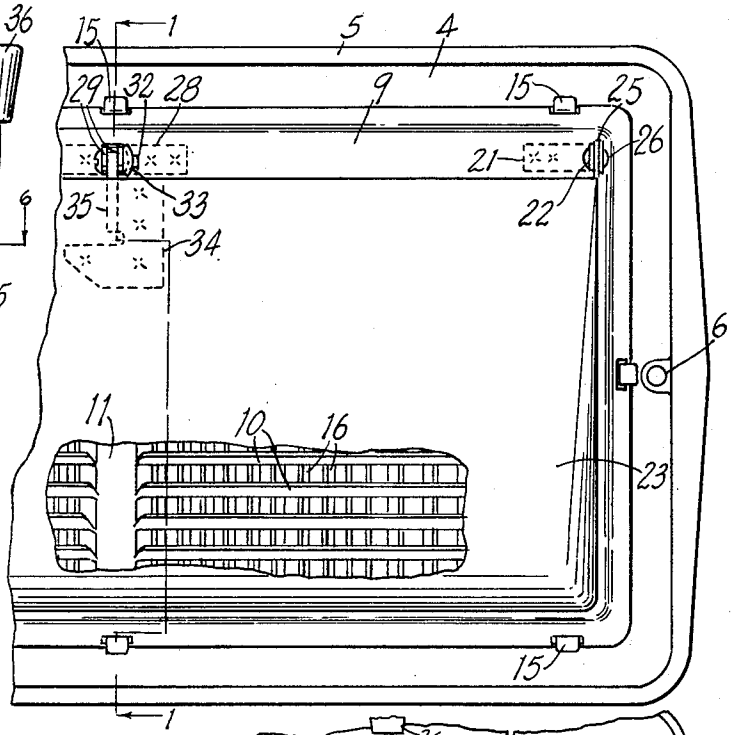


Fig. 2.

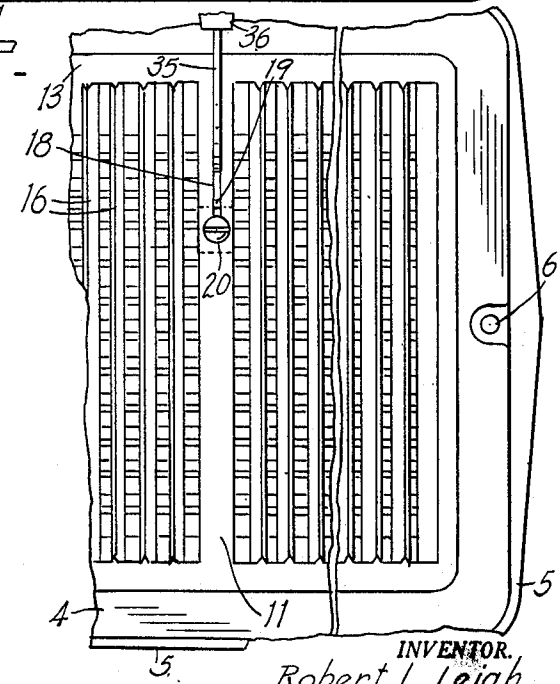


Fig. 3.

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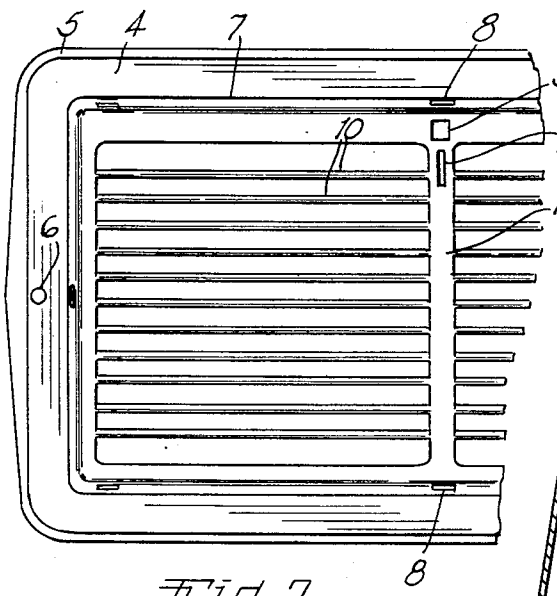


Fig. 1.

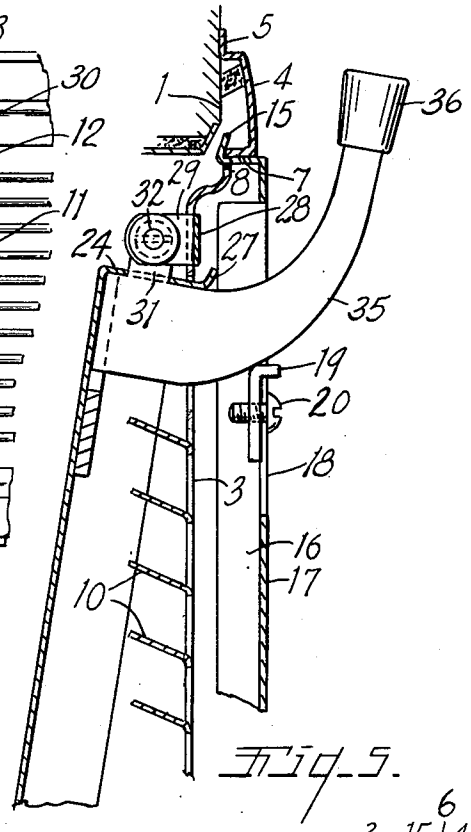


Fig. 5.

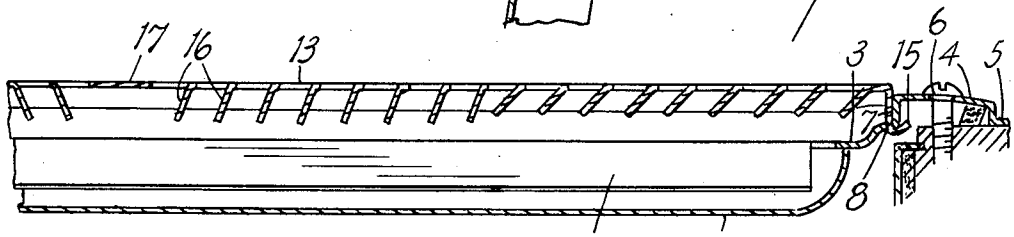


Fig. 4.

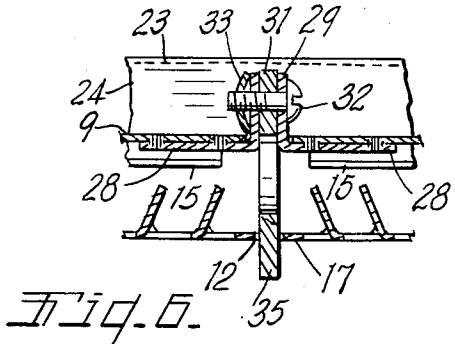


Fig. 6.

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AIR DISTRIBUTING REGISTER

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Application November 10, 1955, Serial No. 546,113

14 Claims. (Cl. 98—106)

This invention relates to improvements in air distributing register. The principal objects of this invention are:

First, to provide a register particularly adapted for mounting in the stackhead of a forced air distribution system to control and direct the flow of air from the stackhead into a room.

Second, to provide a register which is easily manufactured at a minimum of expense and which is entirely satisfactory for controlling and directing the air through the register and which has a pleasing appearance.

Third, to provide a register which can be assembled from a minimum number of parts and which provides both horizontally and vertically extending fins or vanes for fully controlling the direction of flow of air from the register.

Fourth, to provide a multi-louvered register with both horizontal and vertical air directing fins which functions to control the flow of air in the desired directions regardless of whether the register is fully or only partially open.

Other objects and advantages of the invention will be apparent from a consideration of the following description and claims. The drawings, of which there are two sheets, illustrate a highly practical form of the register.

Fig. 1 is a vertical cross sectional view through the register as installed in a standard stackhead, the section of the register being taken along the plane of the line 1—1 in Fig. 2.

Fig. 2 is a fragmentary rear elevational view of the register with a portion of the damper broken away.

Fig. 3 is a fragmentary front elevational view of the register illustrating the center and one end thereof.

Fig. 4 is a fragmentary horizontal cross sectional view taken along the plane of the line 4—4 in Fig. 1.

Fig. 5 is a fragmentary vertical cross sectional view through the upper edge of the damper illustrating the damper in partially open position.

Fig. 6 is a fragmentary cross sectional view taken along the plane of the line 6—6 in Fig. 1 and illustrating the frictional holding connection between the damper and the register body.

Fig. 7 is a fragmentary front elevational view of the frame constituting the main supporting element of the register.

In Fig. 1 a portion of the wall of a room is indicated at 1 with a part of a stackhead air outlet 2 mounted therein. The register which conceals and controls the effective opening of the stackhead 2 consists first of a generally rectangular frame 3 which forms the main body of the register. The frame 3 is formed as a stamping from sheet metal and has peripheral border 4 sized to overlap the edges of the stackhead opening. The border has an exterior flange 5 adapted to seat against the wall and is provided with holes 6 through which screws may be passed to attach the frame to the wall.

Inwardly of the frame 3 towards its center, the border 4 is integrally connected to a recessed shoulder 7 that extends completely around the interior of the border.

The shoulder 7 defines a plurality of short slots 8 distributed around the border for a purpose to be described presently. Radially inwardly from the shoulder 7 the frame and border are integrally connected with a further recessed central panel 9. The panel 9 has a plurality of horizontally extending fins 10 struck therefrom and folded rearwardly. The fins 10 are divided into laterally spaced groups separated by a central vertical mullion 11 and the upper end of the mullion defines a vertical slot 12 for passing a damper control handle as will be described.

A rectangular face plate 13 has rearwardly turned pheripheral flanges 14 that are received between the opposite sides of the shoulder 7 and against the forwardly facing surface of the shoulder. The flanges 14 have ears 15 on their rear edges which are passed through the previously mentioned slots 8 and bent outwardly into retaining engagement with the inner edge of the border 4. The central area of the face plate 13 has a plurality of vertically extending fins 16 slit therefrom and bent rearwardly. The fins 16 are separated into two laterally spaced groups by a central upright mullion 17 and the mullion 17 is slotted as at 18 near its upper end in registry with the slot 12 in the mullion of the frame. Desirably but not necessarily, the fins 16 at the opposite ends of the face plate are inclined oppositely to the rear and toward the center of the face plate. The angle of the fins 16 with respect to the plane of the face plate may be varied or adjusted to obtain the desired directional control and distribution of air.

Slidably mounted in the slot 18 in the outer mullion is a stop 19 adjustably held in place by a screw 20. The stop 19 is engageable with the operating handle of the register as will be described to limit and determine the desired maximum opening of the register.

Secured to the upper portion of the central panel 9 at each end thereof are angular clips 21 having flanges 22 turned rearwardly and passed through the central panel to project rearwardly therefrom. The flanges 22 serve to pivotally support a damper 23 on the rear side of the central panel. The damper 23 has forwardly turned peripheral flanges 24 that engage the central panel 9 while receiving the fins 10 within the recessed center of the damper. The upper flange 24 of the damper has ears 25 turned upwardly therefrom in lapped relation with the above mentioned flanges 22 and the ears 25 and flanges 22 are pivotally connected by rivets 26. The top flange 24 of the damper also has a forward lip 27 that projects through the upper slots in the central panel so that all air entering between the damper and the central panel is directed forwardly between the fiins 10.

Two additional angle clips 28 are secured in the center of the upper portion of the central panel with rearwardly projecting flanges 29 extending through a hole 30 provided therefor in the central panel. The flanges 29 are spaced apart and receive an ear 31 extending upwardly from the top of the operator plate 35. A bolt 32 is passed through the flange 29 and the ear 31 along the axis of the pivots 26 and threaded into a springable sheet metal nut 33 to apply clamping pressure between the flanges and the ear. This creates frictional engagement between the damper and its supporting member to hold the damper in any adjusted position.

Secured to the upper central portion of the damper 23 is a plate 34 having an arm 35 bent forwardly and passed through the slots 12 and 18 to the front of the register where it is provided with an operating handle 36. When the handle 36 is depressed the damper 23 is opened to permit the flow of air through the register. The degree of opening of the damper may be regulated to balance the forced air system as desired and the previously men-

tioned stop 19 may be adjusted to engage the arm 35 at any predetermined adjustment of the arm.

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

1. An air directing wall register comprising a frame adapted for mounting in a stackhead and having a margin arranged to overlie and be attached to the wall surrounding the stackhead, a recessed shoulder formed on said frame and extending around the inside of said frame and defining a plurality of slots distributed around the frame, a further recessed panel formed as an integral continuation of and extending between the opposed inner edges of said shoulder, said panel having a plurality of horizontally extending air directing fins struck rearwardly therefrom and a center upright mullion defining a slot in its upper end, a face plate having a rearwardly turned peripheral flange seated against the front of said recessed shoulder with ears on the flange passed through the slots in the shoulder and bent into retaining engagement with the back of the shoulder, said face plate having a plurality of vertical fins struck rearwardly therefrom and a center upright mullion defining a slot in front of the slot in the mullion of the panel, a stop adjustably mounted in said slot in said face plate mullion, a damper closable against the rear of said panel and dished to embrace the fins on the panel, coacting pivot ears on said panel and damper at the top of the damper and pivotally connected together, and an operating handle secured to said damper and projecting through said slots in the mullions of said panel and face plate to the front of the register and engageable with said stop.

2. An air directing wall register comprising a frame adapted for mounting in a stackhead and having a margin arranged to overlie and be attached to the wall surrounding the stackhead, a recessed shoulder formed on said frame and extending around the inside of said frame and defining a plurality of slots distributed around the frame, a further recessed panel formed as an integral continuation of and extending between the opposed inner edges of said shoulder, said panel having a plurality of horizontally extending air directing fins struck rearwardly therefrom, a face plate having a rearwardly turned peripheral flange seated against the front of said recessed shoulder with ears on the flange passed through the slots in the shoulder and bent into retaining engagement with the back of the shoulder, said face plate having a plurality of vertical fins struck rearwardly therefrom, a damper closable against the rear of said panel and dished to embrace the fins on the panel, coacting pivot ears on said panel and damper at the top of the damper and pivotally connected together, and an operating handle secured to said damper and projecting through said slots in said panel and face plate to the front of the register.

3. An air directing wall register comprising a frame adapted for mounting on a stackhead and having a margin arranged to overlie the wall surrounding the stackhead, a recessed shoulder formed on said frame and extending around the inside of said frame, a further recessed panel formed as an integral continuation of and extending between the opposed inner edges of said shoulder, said panel having a plurality of horizontally extending air directing fins struck rearwardly therefrom, a face plate having a rearwardly turned peripheral flange seated against the front of said shoulder, means securing said plate to said panel, said face plate having a plurality of vertical fins struck rearwardly therefrom, a damper closable against the rear of said panel and dished to embrace the fins on the panel, coacting pivot ears on said panel and damper at the top of the damper and pivotally connected together, and an operating handle secured to said damper and projecting through slots in said panel and face plate to the front of the register.

4. An air directing wall register comprising a frame adapted for mounting on a stackhead and having a margin arranged to overlie the wall surrounding the stackhead, a recessed shoulder formed on said frame and extending around the inside of said frame, a further recessed panel extending between the opposed inner edges of said shoulder, said panel having a plurality of horizontally extending air directing fins struck rearwardly therefrom, a face plate having a peripheral flange engaged with said shoulder, means securing said plate to said panel, said face plate having a plurality of vertical fins struck rearwardly therefrom, a damper closable against the rear of said panel and dished to embrace the fins on the panel, coacting pivot ears on said panel and damper at the top of the damper and pivotally connected together, and an operating handle secured to said damper and projecting through slots in said panel and face plate to the front of the register.

5. An air directing wall register comprising a frame adapted for mounting on a stackhead and having a margin arranged to overlie the wall surrounding the stackhead, a shoulder formed on said frame and extending around the inside of said frame, a panel extending between the opposed inner edges of said shoulder, said panel having a plurality of horizontally extending air directing fins struck rearwardly therefrom, a face plate having a rearwardly turned peripheral flange engaged with said shoulder, means securing said plate to said panel, said face plate having a plurality of vertical fins struck rearwardly therefrom, a damper closable against the rear of said panel and dished to embrace the fins on the panels, coacting pivot ears on said panel and damper at the top of the damper and pivotally connected together, and an operating handle secured to said damper and projecting through slots in said panel and face plate to the front of the register.

6. An air directing wall register comprising a frame adapted for mounting over an air supply opening and having a margin arranged to overlie and be attached to the wall surrounding the opening, a recessed panel formed as an integral continuation of and extending between the opposed inner edges of said frame, said panel having a plurality of horizontally extending air directing fins struck rearwardly therefrom, a face plate having a rearwardly turned peripheral flange seated against the front of said frame, means securing said plate to said frame, said face plate having a plurality of vertical fins struck rearwardly therefrom, a damper closable against the rear of said panel and dished to embrace the fins on the panel, coacting portions on said panel and damper at the top of the damper and pivotally connected together, and an operating handle secured to said damper and projecting through said panel and face plate to the front of the register.

7. An air directing wall register comprising a frame adapted for mounting over an air supply opening, a panel extending between the opposed inner edges of said frame, said panel having a plurality of horizontally extending air directing fins struck therefrom, a face plate seated against the front of said frame, means securing said plate to said frame, said face plate having a plurality of vertical fins struck rearwardly therefrom, a damper closable against the rear of said panel, coacting portions on said panel and damper at the top of the damper and pivotally connected together, and an operating handle secured to said damper and projecting through said panel and face plate to the front of the register.

8. An air directing wall register comprising a frame adapted for mounting over an air supply opening, and having a margin arranged to overlie and be attached to the wall surrounding the opening, a shoulder formed on said frame and extending around the inside of said frame, a panel formed as an integral continuation of and extending between the opposed inner edges of said shoulder, said panel having a plurality of air directing fins struck rearwardly therefrom, a face plate having a rearwardly turned peripheral portion engaged with said shoulder and positioned in spaced relation in front of said panel, means

securing said plate to said frame, said face plate having a plurality of fins struck rearwardly therefrom, the fins in the plate extending at an angle to the fins in the panel, a damper closable against the rear of said panel and dished to embrace the fins on the panel, means pivotally connecting the damper and frame together, and an operating handle secured to said damper and projecting through slots in said panel and face plate to the front of the register.

9. An air directing wall register comprising a frame adapted for mounting over an air supply opening, and having a margin arranged to overlie and be attached to the wall surrounding the opening, a shoulder formed on said frame and extending around the inside of said frame, a panel extending between the opposed inner edges of said shoulder, said panel having a plurality of air directing fins struck therefrom, a face plate having a peripheral portion engaged with said shoulder and positioned in spaced relation in front of said panel, means securing said plate to said frame, said face plate having a plurality of fins struck therefrom, the fins in the plate extending at an angle to the fins in the panel, a damper closable against the rear of said panel, means pivotally connecting the damper and frame together, and an operating handle secured to said damper and projecting through said panel and face plate to the front of the register.

10. An air directing wall register comprising a frame adapted for mounting over an air supply opening and having a margin arranged to overlie and be attached to the wall surrounding the opening, a recessed shoulder formed on said frame and extending around the inside of said frame, a further recessed panel formed as an integral continuation of and extending between the opposed inner edges of said shoulder, said panel having a plurality of parallel air directing fins struck rearwardly therefrom, a face plate having a rearwardly turned peripheral flange seated against the front of said recessed shoulder, means securing said plate to said frame, said face plate having a plurality of parallel fins struck rearwardly therefrom, the fins in the plate extending at an angle to the fins in the panel, a damper closable against the rear of said panel and dished to embrace the fins on the panel, means pivotally connecting the damper and frame together, and an operating handle secured to said damper and projecting through said panel and face plate to the front of the register.

11. An air directing wall register comprising a frame adapted for mounting over an air supply opening and having a margin arranged to overlie and be attached to the wall surrounding the opening, a recessed shoulder formed on said frame and extending around the inside of said frame, a further recessed panel formed as an integral continuation of and extending between the opposed inner

edges of said shoulder, said panel having a plurality of parallel air directing fins struck therefrom, a face plate having a peripheral portion seated within said recessed shoulder, means securing said plate to said frame, said face plate having a plurality of parallel fins struck therefrom, the fins in the plate extending at an angle to the fins in the panel, a damper closable against the rear of said panel, means pivotally connecting the damper and frame together, and an operating handle secured to said damper and projecting through said panel and face plate to the front of the register.

12. A wall register comprising a frame member having a central panel portion, a plate member, said members having coacting interengaging portions connecting the periphery of the plate member over the front of the central portion of the frame and in spaced relation thereto, parallel fins struck rearwardly from the central panel portion of said frame member, parallel fins struck from said plate member, the fins on the panel portion extending at an angle to the fins on the plate member, and a damper pivoted on the rear of said frame member to close against the rear of said panel portion, said damper being recessed to embrace the fins on said panel portion.

13. A wall register comprising a frame member having a central panel portion, a plate member, said members having coacting interengaging portions connecting the periphery of the plate member over the central portion of the frame and in spaced front to rear relation thereto, parallel fins struck from the central panel portion of said frame member, parallel fins struck from said plate member, the fins on the panel portion extending at an angle to the fins on the plate member, and a damper pivoted on the rear of the rearmost of said members to close over the fins thereon.

14. A wall register comprising a frame member having a central panel portion, a plate member, said members having coacting interengaging portions connecting the periphery of the plate member over the central portion of the frame and in spaced front to rear relation thereto, parallel fins struck from the central panel portion of said frame member, parallel fins struck from said plate member, the fins on the panel portion extending at an angle to the fins on the plate member, and a damper pivoted on the rear of one of said members to close over the fins on the rearmost member.

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