

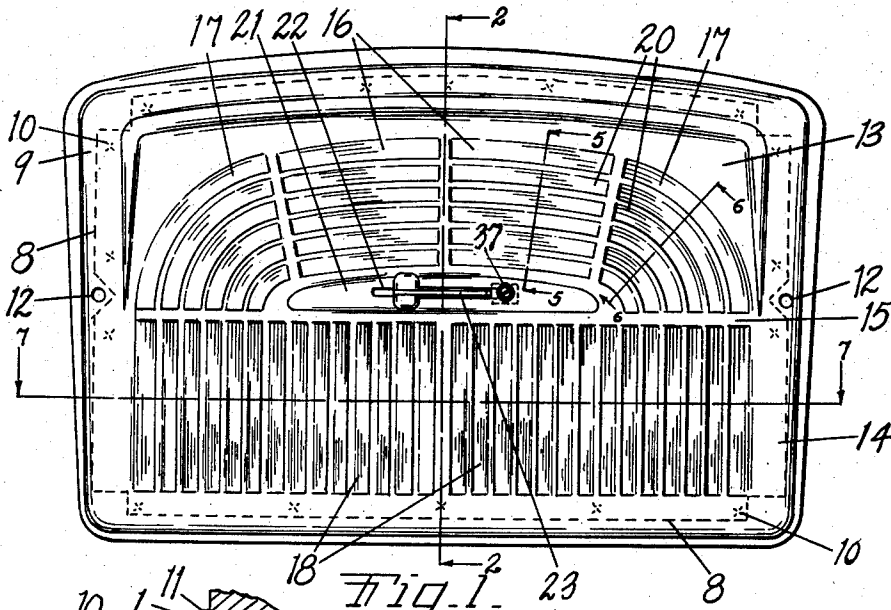
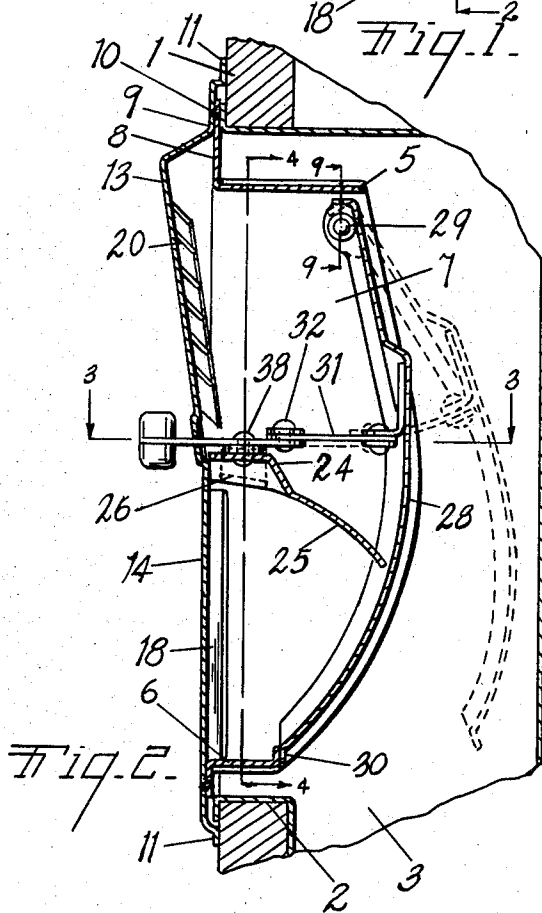
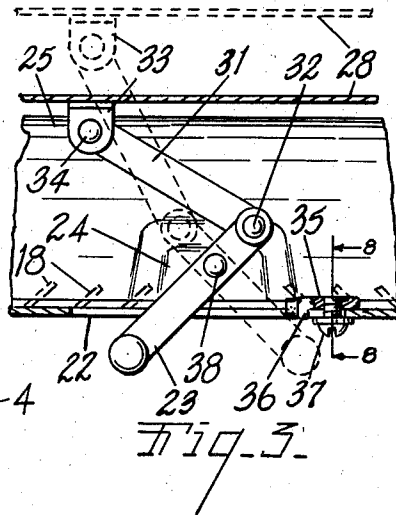
Aug. 19, 1958

F. F. GLASS
SIDE WALL REGISTER

2,847,928

Filed Aug. 27, 1952

2 Sheets-Sheet 1



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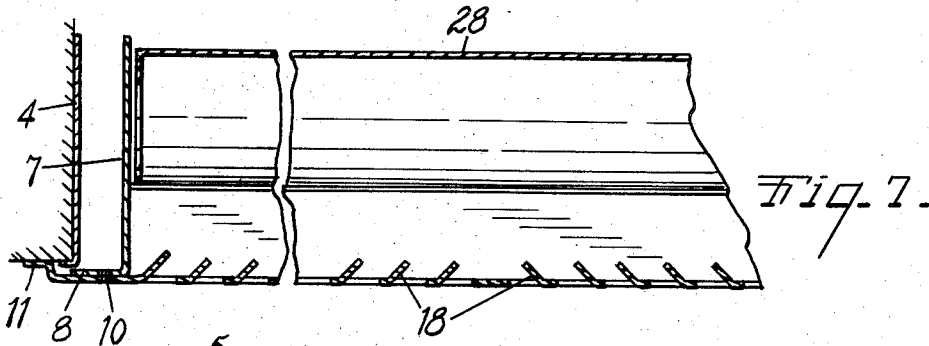
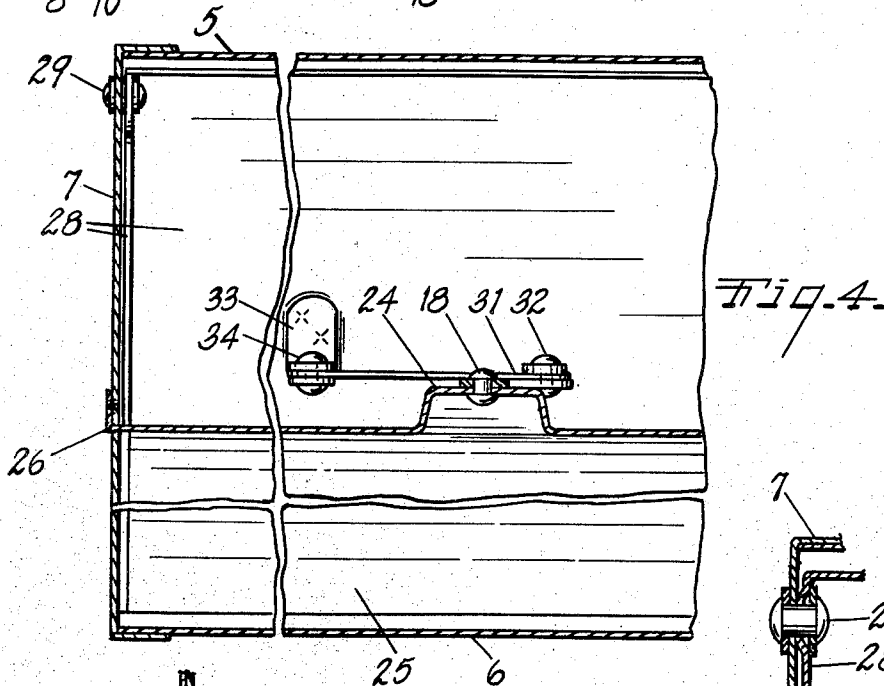
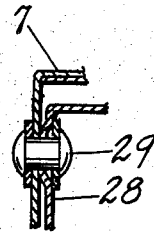
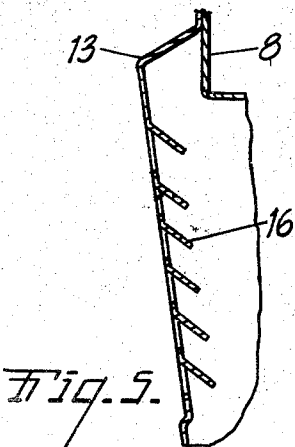
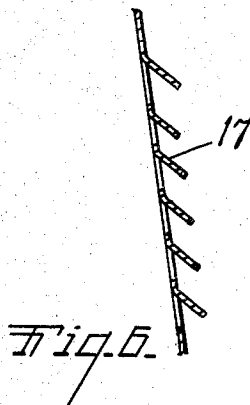
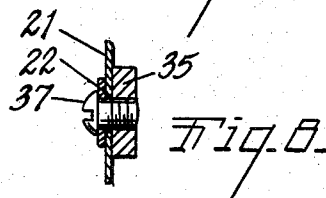
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F. F. GLASS
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2 Sheets-Sheet 2



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SIDE WALL REGISTER

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11 Claims. (Cl. 98—106)

This invention relates to improvements in a side wall register.

The main objects of this invention are:

First, to provide a wall register which is particularly well adapted for use in heating systems and discharges air in a substantially flat horizontal pattern more or less rectangular in shape, which will blanket the cold outside wall in which the register is installed.

Second, to provide a register or diffuser of this type having a face plate or member formed of a stamping and provided with a plurality of slot-like discharge openings with deflectors associated therewith resulting from striking in portions of the stamping to form the discharge openings.

Third, to provide a wall register having an upper portion which is inclined downwardly and rearwardly and provided with discharge openings and louver-like deflectors associated therewith to direct the air away from the wall above the register.

Fourth, to provide a wall register having an upper and a lower series of discharge openings in which air is distributed through the series of openings with the control valve in various positions of adjustment between its fully opened and substantially closed positions.

Fifth, to provide a wall register or diffuser having these advantages which is very simple and economical to produce and at the same time 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 front elevational view of a register embodying my invention, the relation of the housing wall flanges thereto being shown by dotted lines.

Fig. 2 is an enlarged fragmentary vertical section on a line corresponding to line 2—2 of Fig. 1 with the valve shown in closed position by full lines and in one open position by dotted lines.

Fig. 3 is a fragmentary view, partially in section, on a line corresponding to line 3—3 of Fig. 2, the valve and its operating mechanism being shown in one position by full lines and in another position by dotted lines.

Fig. 4 is a fragmentary view in section on a line corresponding to line 4—4 of Fig. 2.

Fig. 5 is a fragmentary view in section on line 5—5 of Fig. 1.

Fig. 6 is a fragmentary view in section on a line corresponding to line 6—6 of Fig. 1.

Fig. 7 is a fragmentary view in section on a line corresponding to line 7—7 of Fig. 1.

Fig. 8 is a detailed section on a line corresponding to line 8—8 of Fig. 3.

Fig. 9 is a detailed section on a line corresponding to line 9—9 of Fig. 2.

In the accompanying drawing, 1 represents a wall

having an opening 2 therein for a register, 3 represents a flue or conduit, and 4 the head box thereof. The register housing in the embodiment illustrated comprises a top wall 5, bottom wall 6 and side walls 7. These walls are provided with outturned flanges 8 on their forward edges to which the face plate, designated generally by the numeral 9, is fixedly secured as by means of spot welds 10.

The face plate is formed as an integral stamping and has inwardly offset edges 11 adapted to seat against the wall to which the register is secured by screws, not shown engaged in the openings 12 provided therefor. The register walls and their flanges 8 stiffen and reinforce the face plate so that it does not warp or twist even when formed of relatively light stock.

The face plate has an upper portion 13 which is embossed to provide an outwardly offset downwardly and rearwardly inclined face portion. The lower portion 14 of the face plate is substantially vertical. These upper and lower portions are separated by the bar portion 15.

The face plate is provided with an upper series and a lower series of slot-like discharge openings. The upper series comprises two intermediate groups 16 generally longitudinally disposed and two end groups 17 which are outwardly curved. The lower series comprises two groups of vertically arranged discharge openings 18. The upper series of discharge openings have projecting inclined louver-like deflectors 20 at their upper edges, the deflectors of the two lower groups of discharge openings being inclined toward each other. The slot-like discharge openings are formed by striking in portions of the face plate, the struck-in portions constituting the deflectors.

The elongated panel 21 between the upper and lower groups of discharge openings is longitudinally slotted at 22 to receive the operating lever 23. The operating lever is mounted on the central embossed portion 24 of the deflector vane 25 which extends transversely across the housing with its forward edge closely adjacent the face plate and between the upper and lower series of discharge openings. The deflector vane is mounted on the end walls at 26.

The valve 28 is rearwardly curved and is pivotally mounted at 29 to the side walls of the housing to close between the same and is provided at its lower end with a flange 30 which closes against the inner flanged edge of the bottom wall. It will be noted that with the valve in closed position the rear edge of the deflector vane is close to the valve. The curving of the valve and its relation to the deflector vane minimizes turbulence as the air flows into the register with the valve in selected positions between its fully open and closed positions.

The pivot 38 for the operating lever is intermediate its ends, the lever being connected to the valve by the resiliently flexible link 31 which is pivoted to the lever at 32 and to an ear 33 on the valve by the pivot 34. These pivots are in the form of rivets which are fairly tight so that while permitting pivoting action they prevent rattling. The link bends laterally as the valve is opened as is indicated by dotted lines in Fig. 2.

The register of my invention is highly efficient as a side wall diffuser and discharges air in a substantially flat horizontal pattern, more or less rectangular in shape, that will blanket a part of the wall. The louver-like deflectors or fins in association with the elongated slots distribute the air so as to blanket an outer cold wall in which the register is installed with a blanket of warm air. The outwardly projecting upper portion of the register serves to direct the air away from the wall to prevent its

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so-called "scrubbing action" of the air on the wall which results in soiling or streaking the wall.

The baffle plate or deflector vane 25 directs a portion of the air through the lower series of discharge openings and prevents the tendency of the air to flow mainly out of the upper portion of the register and results in a substantially uniform distribution of air through the discharge openings with the valve in various open positions. To determine the fully open position of the valve I provide a stop 35 which is disposed on the inner side of the face plate and provided with a lug 36 engaging the horizontal slot 22 in the face plate. The screw 37 disposed through the slot and threaded into the stop clamps it in its adjusted position. It is shown in fully retracted position in Fig. 3.

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

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

1. In a wall register the combination of a housing comprising top, bottom and side walls having outturned flanges at their forward edges, the bottom wall being narrower than the top and side walls, a face plate overlapping and fixedly secured to said flanges, said face plate having an outwardly offset downwardly and rearwardly inclined upper portion and an upper and lower series of slot-like discharge openings, there being a panel between said upper and lower series of discharge openings, said panel having a horizontal slot therein, the upper series of discharge openings being in said rearwardly inclined upper portion and comprising substantially horizontal intermediate groups and upwardly curved end groups at the outer ends of the intermediate groups, there being downwardly and inwardly inclined louver-like deflectors at the upper edges of the discharge openings of the upper series formed integrally with the face plate, the lower series of discharge openings being vertically disposed and comprising two groups, there being inwardly projecting inwardly inclined louver-like deflectors at the outer edges of the openings of the groups of the lower series formed integrally with the face plate, a rearwardly curved valve pivotally mounted at its upper end between said side walls to close between the side walls with its lower edge in abutting relation to the inner edge of the bottom wall, an upwardly curved rearwardly and downwardly inclined deflector vane extending between the side walls with its forward edge disposed between said upper and lower series of discharge openings, an operating lever disposed through said slot in said panel and pivotally mounted on said deflector vane, a springably bendable link connected to said valve and to the inner end of said operating lever, a stop disposed on the inner side of said face plate and provided with a lug engaging said slot in said panel, and a screw disposed through said slot for adjustably securing said stop to said face plate for limiting the opening movement of the operating lever.

2. In a wall register the combination of a housing comprising top, bottom and side walls having outturned flanges at their forward edges, the bottom wall being narrower than the top and side walls, a face plate overlapping and fixedly secured to said flanges, said face plate having an outwardly offset downwardly and rearwardly inclined upper portion and an upper and lower series of slot-like discharge openings, the upper series of discharge openings being in said rearwardly inclined upper portion and comprising substantially horizontal intermediate groups and upwardly curved end groups at the outer ends of the intermediate groups, there being downwardly and inwardly inclined louver-like deflectors at the upper edges of the discharge openings of the upper series formed integrally with the face plate, the lower series

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of discharge openings being vertically disposed and comprising two groups, there being inwardly projecting inwardly inclined louver-like deflectors at the outer edges of the openings of the groups of the lower series formed integrally with the face plate, a rearwardly curved valve pivotally mounted at its upper end between said side walls to close between the side walls with its lower edge in abutting relation to the inner edge of the bottom wall, an upwardly curved rearwardly and downwardly inclined deflector vane extending between the side walls with its forward edge disposed between said upper and lower series of discharge openings, and means for adjusting said valve.

3. In a wall register the combination of a housing comprising top, bottom and side walls, a face plate for said housing having an outwardly offset downwardly and rearwardly inclined upper portion and an upper and lower series of slot-like discharge openings, there being a panel between said upper and lower series of discharge openings, said panel having a horizontal slot therein, the upper series of discharge openings comprising substantially horizontal intermediate and upwardly curved end openings at the outer ends of the intermediate openings, there being downwardly and inwardly inclined louver-like deflectors at the upper edges of the discharge openings of the upper series formed integrally with the face plate, the lower series of discharge openings being vertically disposed and comprising two groups, there being inwardly projecting oppositely inclined louver-like deflectors at the outer edges of the openings of the groups of the lower series formed integrally with the face plate, a valve swingably mounted at its upper end, a rearwardly and downwardly inclined deflector vane extending between the side walls with its forward edge disposed between said upper and lower series of discharge openings, an operating lever for said valve disposed through said slot in said panel, and an adjustable stop for said lever.

4. In a wall register the combination of a housing comprising top, bottom and side walls, a face plate for said housing having an outwardly offset downwardly and rearwardly inclined upper portion and an upper and lower series of slot-like discharge openings, the upper series of discharge openings comprising substantially horizontal intermediate and upwardly curved end openings at the outer ends of the intermediate openings, there being downwardly and inwardly inclined louver-like deflectors at the upper edges of the discharge openings of the upper series formed integrally with the face plate, the lower series of discharge openings being vertically disposed and comprising two groups, there being inwardly projecting oppositely inclined louver-like deflectors at the outer edges of the openings of the groups of the lower series formed integrally with the face plate, a valve swingably mounted at its upper end, a rearwardly and downwardly inclined deflector vane extending between the side walls with its forward edge disposed between said upper and lower series of discharge openings, and means for adjusting said valve.

5. In a wall register the combination of a housing, a face plate therefor having an upper and lower series of slot-like discharge openings, there being a panel between said upper and lower series of discharge openings, said panel having a horizontal slot therein, the upper series of discharge openings comprising substantially horizontal intermediate and upwardly curved end openings, there being downwardly and inwardly inclined louver-like deflectors at the upper edges of the discharge openings of the upper series, the lower series of discharge openings being vertically disposed, there being inwardly projecting louver-like deflectors at the outer edges of the openings, a valve pivotally mounted on said housing at its upper end, a rearwardly and downwardly inclined deflector vane disposed in the housing with its forward edge between said upper and lower series of

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discharge openings, an operating lever disposed through said slot in said panel and pivotally mounted on said deflector vane, a springably bendable link connected to said valve and to the inner end of said operating lever, a stop disposed on the inner side of said face plate and provided with a lug engaging said slot in said panel, and a screw disposed through said slot for adjustably securing said stop to said face plate for limiting the opening movement of the operating lever.

6. In a wall register the combination of a housing, a face plate therefor having an upper and lower series of slot-like discharge openings, the upper series of discharge openings comprising intermediate and end groups, the openings of the intermediate groups being generally horizontally disposed, the openings of the end groups being upwardly curved and the openings of the groups at their adjacent ends being aligned, there being downwardly and inwardly inclined louver-like deflectors at the upper edges of the discharge openings of the upper series, the lower series of discharge openings being vertically disposed and divided into left and right hand groups, there being inwardly projecting louver-like deflectors at the outer edges of both groups of openings, the deflectors of both groups of openings being inclined relative to the general plane of the face plate, the inclination of one group of deflectors being opposite from that of the other group to horizontally diverge the current of air passing through the openings of one group from the current passing through the openings of the other group, a valve pivotally mounted on said housing at its upper end, a rearwardly and downwardly inclined deflector vane disposed in the housing at the rear of both groups of vertical openings with its forward edge between said upper and lower series of discharge openings, and means for adjusting said valve.

7. In a wall register, the combination of a housing, a face plate therefor having an outwardly offset downwardly and rearwardly inclined upper portion and a substantially vertical lower portion, said upper and lower portions each having a series of slot-like discharge openings therein, there being downwardly and inwardly inclined louver-like deflectors at the upper edge of the discharge openings of said upper portion struck inwardly from said face plate to form said discharge openings therein, the discharge openings of the lower portion of the face plate being substantially vertically disposed and having louver-like deflectors at one edge thereof struck inwardly from said face plate to form the discharge opening, a valve pivotally mounted at its upper end within the housing to close into the housing, a deflector vane disposed within the housing with its forward edge between the upper and lower series of discharge openings, and means for adjustably supporting said valve.

8. In a wall register the combination of a housing, a face plate therefor having an outwardly offset downwardly and rearwardly inclined upper portion and a substantially vertical lower portion, said upper and lower portions each having a series of slot-like discharge openings therein, there being downwardly and inwardly inclined louver-like deflectors at the upper edge of the discharge openings of said upper portion, the discharge openings of the lower portion of the face plate being substantially vertically disposed and having louver-like deflectors at one edge thereof struck inwardly from said face plate to form the discharge opening, a valve pivotally mounted

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at its upper end within the housing, to close into the housing, a deflector vane disposed within the housing with its forward edge between the upper and lower series of discharge openings, and means for adjustably supporting said valve.

9. In a wall register the combination of a housing, a face plate therefor having an outwardly offset downwardly and rearwardly inclined upper portion and a substantially vertical lower portion, said upper and lower portions each having a series of slot-like discharge openings therein, there being downwardly and inwardly inclined louver-like deflectors at the upper edge of the discharge openings of said upper portion, the discharge openings of the lower portion of the face plate being substantially vertically disposed and having louver-like deflectors at one edge thereof struck inwardly from said face plate to form the discharge opening, a rearwardly curved valve pivotally mounted at its upper end within the housing to close into the housing, an upwardly curved rearwardly and downwardly inclined deflector vane disposed within the housing with its forward edge between the upper and lower series of discharge openings, and means for adjustably supporting said valve.

10. In a wall register the combination of a housing, a face plate therefor provided with an upper and lower series of discharge openings, there being a panel between said upper and lower series of discharge openings having a horizontal slot therein, a rearwardly and downwardly inclined deflector vane disposed in said housing with its forward edge between the upper and lower series of discharge openings, a valve mounted on said housing to swing about a horizontal axis at the top of to close the housing, the rear edge of said deflector vane being closely adjacent to said valve when the valve is in closed position, an operating lever disposed through said slot in said panel of said face plate and pivotally mounted on said deflector vane to swing about a vertical axis, and a springably bendable link connected to said valve and to said operating lever.

11. In a wall register the combination of a housing, a face plate therefor provided with an upper and lower series of discharge openings, there being a panel between said upper and lower series of discharge openings having a horizontal slot therein, a deflector vane disposed in said housing with its forward edge between the upper and lower series of discharge openings, a valve mounted on said housing to swing about a horizontal axis to close the housing, an operating lever disposed through said slot in said panel of said face plate and pivotally mounted on said deflector vane to swing about a vertical axis, and a springably bendable link connected to said valve and to said operating lever.

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