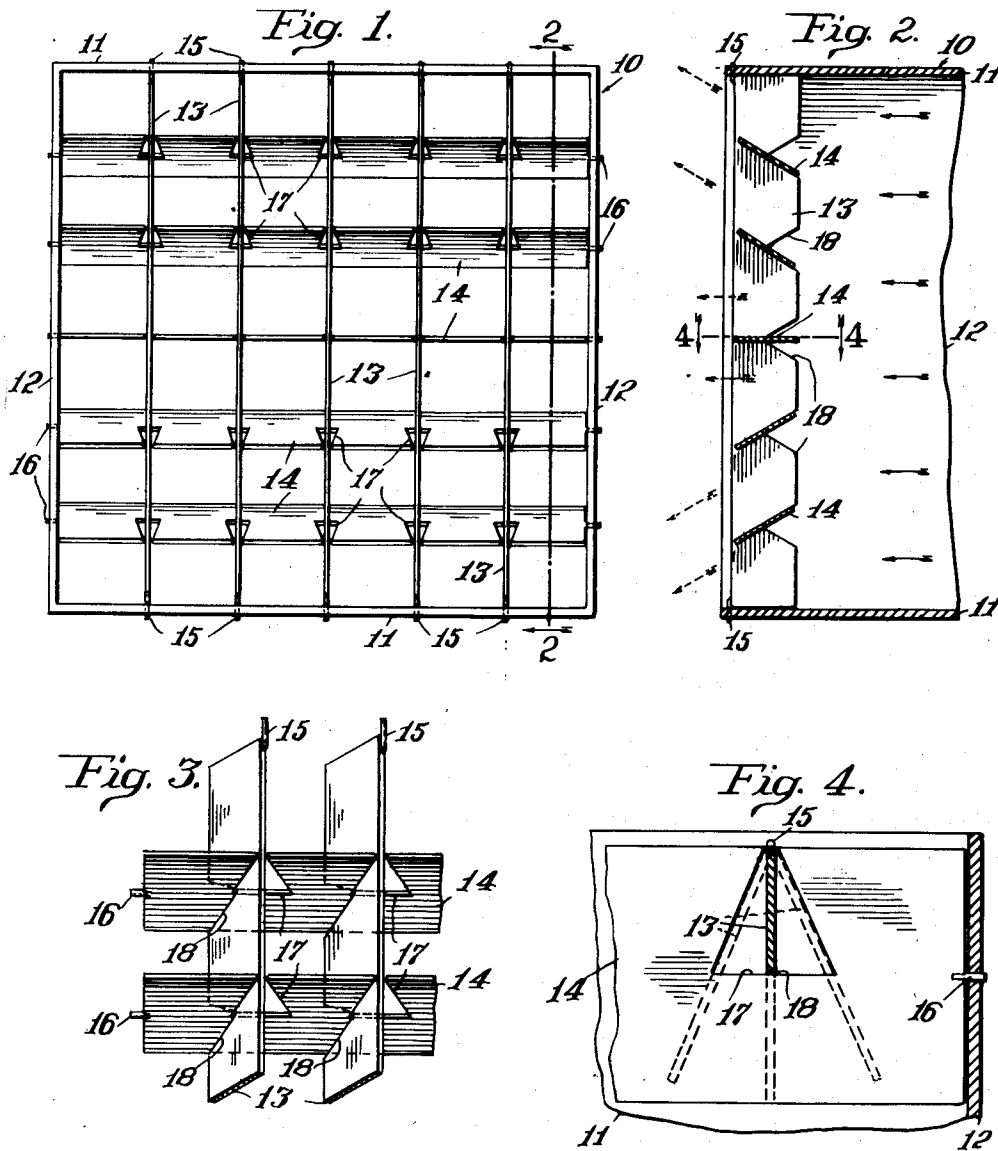


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ADJUSTABLE VENTILATOR GRILLE

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ADJUSTABLE VENTILATOR GRILLE

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The present invention relates to ventilator grilles, and more specifically to an improved ventilator grille of the type adapted to be positioned within the discharge opening of a fluid passage or air duct to control the direction of travel of fluids from such opening.

The primary object of the present invention is to provide a ventilator grille which comprises a plurality of fluid-deflecting slats or members which are arranged to be adjusted individually so as to deflect or divert fluids passing through the discharge opening of an air duct or conduit in different directions in accordance with desired conditions.

A further object of the present invention is to provide an improved grille assembly which comprises a plurality of perpendicularly related and intersecting slats which are formed with inter-fitting slotted regions permitting of arrangement of the slats in a common plane, while at the same time providing for transverse rocking movement of the individual slats, whereby to divert and deflect air passing through a duct in which the grille is positioned in a number of different directions.

For a further and more detailed understanding of the present invention and the various additional objects and advantages realized therefrom, reference is made to the following description and the accompanying drawing, wherein:

Fig. 1 is a front elevational view of a ventilator grille formed in accordance with the present invention;

Fig. 2 is a transverse vertical sectional view taken along the plane indicated by the line 2—2 of Fig. 1;

Fig. 3 is an enlarged fragmentary elevational view of a segment of the grille disclosed in Fig. 1 and showing two pairs of perpendicularly related slats in angularly adjusted positions;

Fig. 4 is an enlarged detailed horizontal sectional view taken along the line 4—4 of Fig. 2, and showing in broken lines the adjustable positions of the vertical slat members.

Referring now to the drawing, the numeral 10 designates generally a rectangular outer frame or air duct structure, such as the discharge conduit of a forced air space heater or a furnace register opening. The outer frame 10 comprises upper and lower horizontal walls 11 and transversely spaced vertical side walls 12. Positioned between the upper and lower horizontal walls 11 at spaced intervals are a plurality of vertically arranged spaced parallel slats or air-deflecting plates 13. In the same manner, the side walls 12 carry therebetween a plurality of horizontally arranged and spaced parallel slats or air-deflecting plates 14. The slats 13 and 14 are formed of relatively

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thin elongated strips, preferably of metal stock, and are arranged to have their central longitudinal axes intersect in a common plane. The vertical slats 13 are formed at either end with pivot pins 15 which are disposed in longitudinal alignment with one edge of the vertically disposed slats, and extend through openings formed in the horizontal walls 11 of the outer frame 10 in a manner to permit of transverse rocking movement of the vertical slats about axes extending longitudinally along the outer edges of each of the vertical slats. The horizontal slats 14 are formed at their respective ends with pivot pins 16 which are disposed in alignment with the longitudinal center line of the slats so as to permit transverse rocking movement of the horizontal slats about their central longitudinal axes. The horizontal slats 14 are further formed with a plurality of longitudinally spaced and transversely disposed triangular recesses or slots 17. Each of the slots 17 is arranged to have the apex of the triangle opening along the outer edge of the slat, while the base legs of the triangular slots are disposed along the longitudinal center line of the slat. As will be seen particularly in Fig. 3 of the drawing, the triangular slots 17 are formed with edge openings of substantially the same width as the thickness of the vertical slats 13. By the same token, the vertical slats 13 are provided with V-shaped recesses or slots 18 which are arranged to have their apexes disposed along the longitudinal center line of the vertical slats 13, while the wider ends open along the inner edges of the vertical slats.

The vertical and horizontal slats 13 and 14 are of equal width, and the triangular and V-shaped slots 17 and 18 extend substantially one-half the width of the individual slats whereby, upon engagement of the slotted regions of the vertical and horizontal slats, the outer edge portions of the individual slats lie along a substantially common plane.

As before mentioned, the longitudinal center lines of the vertical and horizontal slats intersect along a common vertical plane, and the vertical slats 13 are pivoted for oscillating movement about axes disposed in alignment with the forward edges of such slats, while the horizontal slats 14 are arranged for pivotal rocking movement in transverse planes about the pins 16 which are disposed in alignment with the longitudinal center line of the horizontal slats. This arrangement permits each vertical and horizontal slat to swing about its pivotal axis independently of any remaining slat, whereby fluids passing through the passageway defined by the outer frame 10 may be deflected upwardly, downwardly, and laterally to either side of the outer frame. As seen

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in Fig. 2, the horizontal slats 14 are arranged so that the two uppermost slats are directed in an upwardly inclined direction, the central slat being directed horizontally, and the two lowermost slats being directed in a downwardly inclined plane. In this manner, fluid being discharged through the outer casing 10 may be diverted in upward and downward directions, as well as axially outwardly along the longitudinal axis of the outer frame. By the same token, the vertical slats 13 may be individually adjusted so as to deflect air passing through the outer frame 10 laterally to either side of the frame.

One particular advantage gained in forming the triangular slots 17 so as to have their apex portions opening along the outer edge of the horizontal slats 14 resides in the fact that the relatively narrow openings present an attractive uninterrupted edge surface appearance to the forward side of the ventilator grille.

In view of the foregoing, it will be seen that the present invention provides a mechanically efficient, yet structurally simple, adjustable ventilator grille construction wherein the slats or air-deflecting plates may be individually adjusted to cause the passage of air through a duct opening in a number of different directions. By simultaneously positioning the vertical and horizontal slats in angular relation, as shown in Fig. 3, air currents passing through an air duct may be deflected diagonally upwardly and laterally outwardly through the grille opening. In this respect, the slats provide a unique diffusion screen by which the main body of air may be divided into a number of variable direction air streams.

The present improved ventilator grille construction has particular advantages when utilized with forced air heating apparatus, such as the ordinary unit heater or automobile vehicle heater, wherein it is highly desirable to have a versatile control over the direction of air flow.

While a single preferred embodiment of the present invention has been disclosed in detail, it is to be understood that various modifications are possible without departing from the spirit of the invention or the scope of the following claims.

I claim:

1. A ventilator grille comprising an outer frame defining a fluid passage; a first set of relatively spaced parallel slats pivotally connected at their respective ends with said frame for oscillating movement about their central longitudinal axes, each of said first set of slats being formed with a plurality of longitudinally spaced transversely disposed triangular recesses opening along one edge thereof; and a second set of spaced parallel slats disposed in perpendicular relation to said first set of slats and pivotally connected at their respective ends and in line with one edge thereof with said frame, each of said second set of slats being formed with a plurality of longitudinally spaced transversely disposed V-shaped recesses opening along one edge thereof and receiving the triangularly recessed regions of said first set of slats, the recesses formed in both sets of slats being arranged to permit the longitudinal center lines of said first set of slats to intersect the longitudinal center lines of said second set of slats and providing for limited transverse rocking movement of the individual slats about their pivotal axes.

2. In a ventilator grille; a first set of elongated spaced parallel slats arranged for transverse rocking movement about axes coincident

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with an outer edge of the slats, each of said first set of slats being formed with a plurality of V-shaped recesses having apexes terminating along the longitudinal center line of the slats; and a second set of elongated spaced parallel slats disposed in perpendicular relation to said first set of slats and arranged for transverse rocking movement about axes coincident with the longitudinal center lines of the slats, each of said second set of slats being formed with a plurality of triangular recesses opening along an edge of the slat and having base legs disposed along the longitudinal center line of the slat, the longitudinal center lines of said first and second set of slats being arranged in a common plane.

3. In a ventilator grille; a plurality of intersecting, substantially perpendicularly related, air-deflecting slat members each formed with a transversely disposed, triangular recess opening along one edge thereof and receiving the triangular recess of the other slat member; and means pivotally supporting said slat members at their respective ends for oscillating movement in transverse planes, the triangular recess of each of said slat members having its apex disposed along the pivotal axis of the other slat member to permit independent oscillating movement of each of said slat members.

4. A ventilator grille comprising an outer frame defining a fluid passage; a first set of relatively spaced parallel slat members forming louvers pivotally connected at their respective ends with said frame for oscillating movement, each of said first set of louvers being formed with a plurality of spaced triangular recesses opening along one edge thereof; and a second set of spaced parallel slat members forming louvers, disposed in substantially perpendicular relation to said first set of louvers and pivotally connected at their respective ends with said frame, each of said second set of louvers being formed with a plurality of spaced triangular recesses opening along one edge thereof and receiving the triangular recesses of said first set of louvers, the apices of the triangular recesses of each set of slat members being disposed along the pivotal axes of the opposite set of slat members to permit independent oscillating movement of the slat members of each set.

5. A ventilator grille comprising an outer frame defining a fluid passage; a first set of relatively spaced parallel slat members forming louvers, pivotally connected at their respective ends with said frame for oscillating movement, each of said first set of louvers being formed with a plurality of spaced triangular recesses opening along one edge thereof; and a second set of spaced parallel slat members forming louvers, disposed in perpendicular relation to said first set of louvers and pivotally connected at their respective ends with said frame, each of said second set of louvers being formed with a plurality of spaced triangular recesses opening along one edge thereof and receiving the triangular recesses of said first set of louvers, whereby the apices of each set of recesses act as pivots for the opposite set of slat members.

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