Dec. 5, 1944. N. H. BRICKHAM 2,364,265

AIR DEFLECTOR FOR VENTILATING SYSTEMS

Filed July 27, 1942

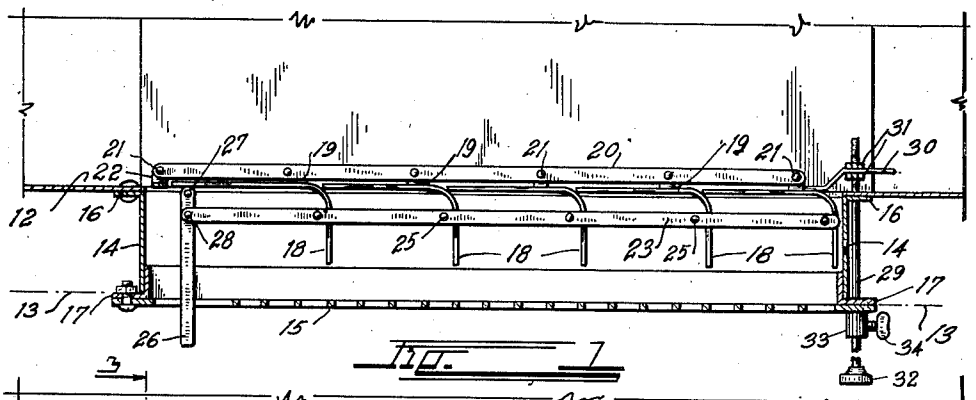


Fig. 1

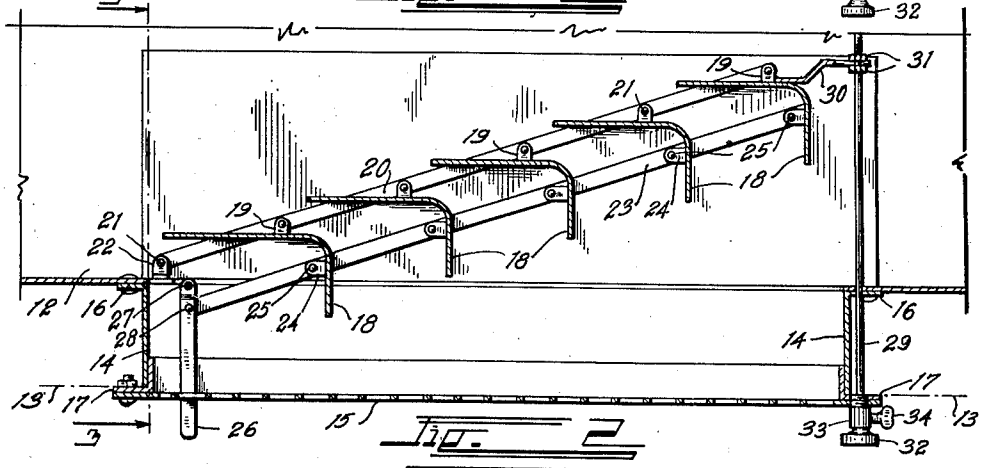


Fig. 2

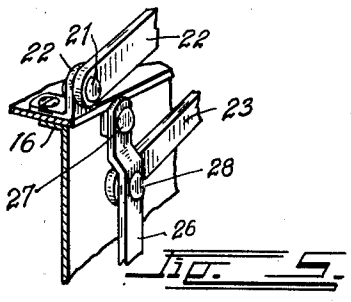


Fig. 5

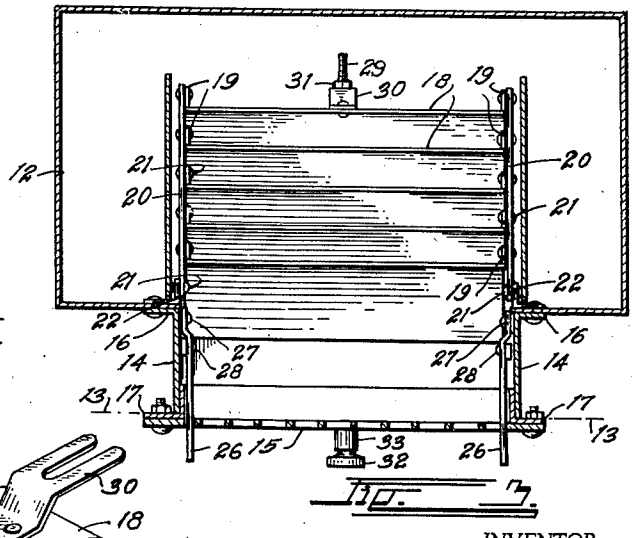


Fig. 3

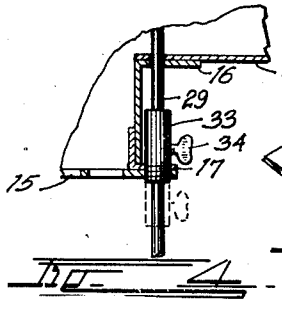


Fig. 4

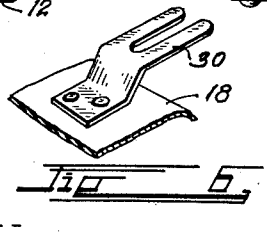


Fig. 6

INVENTOR.
NELSON H. BRICKHAM.
BY
ATTORNEY.

Patented Dec. 5, 1944

2,364,265

UNITED STATES PATENT OFFICE

2,364,265

AIR DEFLECTOR FOR VENTILATING SYSTEMS

Nelson H. Brickham, Cheyenne, Wyo.

Application July 27, 1942, Serial No. 452,525

1 Claim. (Cl. 98—106)

This invention relates to an air distributor for ventilating systems and has for its principal object the provision of a device of this character for controlling a side outlet in an air duct of a ventilating or heating system, by means of which, any desired portion of the air in the duct may be deflected and directed from the duct flow through the side outlet and, in which, the flow discharging from the outlet will be uniform over its entire area.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is a longitudinal section through the improved distributor illustrating it in the closed position;

Fig. 2 is a similar section, illustrating the distributor in the partially open position;

Fig. 3 is a cross section thereof, taken on the line 3—3, Fig. 2;

Fig. 4 is a detail view illustrating the locking sleeve employed for holding the grille open;

Fig. 5 is a detail view of the bar hinges employed; and

Fig. 6 is a detail view of the angle adjusting bracket.

In the drawing a typical air duct is illustrated at 12 positioned in a room ceiling 13. It could, of course, be similarly positioned in a vertical air duct in which event the ceiling line 13 would represent the wall plaster line. It could also be attached to open air ducts either horizontal or vertical as desired.

The entire distributor is enclosed in a rectangular frame 14, one face of which is enclosed by means of an ornamental register face or grille 15. The frame is formed with an inner flange 16 which is bolted, riveted or otherwise attached to the face of the air duct 12, and with an outer flange 17 which forms the border or frame for the attachment of the grille 15. In open installations the housing simply projects from the duct. In closed installations the outer flange 17 overlies the plaster line 13, as illustrated.

The distributor consists of a plurality of transversely extending sheet-metal blades 18. The blades are bent longitudinally to a substantially rectangular cross section, that is, the inner portions of the blades lie substantially parallel to the axis of the air duct and the outer portions lie substantially at right angles thereto, the two portions being joined by an arcuately curved bend as illustrated.

A first hinge lug 19 is formed or secured on each extremity of the inner portion of each blade and projects inwardly therefrom. A supporting bar 20 extends across all of the blades at each extremity thereof. The hinge lugs of the blades are secured to the bars 20 at uniformly spaced points by means of pivot rivets 21. The spacing is such that the inner portion of each blade slightly overlaps the curved bend of the preceding blade as illustrated.

The outer extremities of the two connecting bars are hingedly mounted on hinge clips 22 attached to the inner flange 16. The blades are freely rotatable on the pivot rivets 21 and are maintained in parallel relation at all positions by means of two connecting bars 23, there being one connecting bar across each extremity of the series of blades. Each blade is pivotally secured to the connecting bars at its extremities by means of pivot ears 24 and pivot rivets 25. The spacing of the pivot rivets 25 along the bars 23 corresponds to the spacing of the pivot rivets 21 along the bars 20 and the bars 23 are parallel to the bars 21 so that the blades are maintained parallel to each other at all times.

The angularity of the blades, however, is adjustable by shifting the bars 23 longitudinally. This shifting is accomplished by means of adjusting levers 26 which are pivotally mounted at their inner extremities on the housing 14, as shown at 27, and which project outwardly through the grille 15 at their outer extremities. One extremity of each connecting bar 23 is pivoted to one of the levers 26 intermediate the extremities of the latter, as shown at 28. Thus, it can be seen that movement of the levers 26 will simultaneously swing all of the blades on their pivots 21.

The entire series of blades can be swung into the duct by means of a push rod 29 which is rotatably mounted in a slotted rod bracket 30 secured on the innermost blade. The rod 29 is provided with suitable fixed bushing flanges or nuts 31 to prevent the bracket from moving longitudinally of the rod. The push rod extends through both the inner and outer flanges 16 and 17 and terminates on the exterior in a suitable finger knob 32. The rod extends through a locking sleeve 33, one extremity of which is threaded

into the outer flange **17**. The sleeve **33** is provided with a set screw **34** by means of which the rod may be locked in any desired position in the sleeve.

For open installations, the sleeve is preferably threaded into the back of the outer flange, as shown in Fig. 4, and for enclosed installations the sleeve is preferably threaded into the front of the flange as shown in Fig. 1, so that access to the set screw may be had in either type of installation.

The operation of the distributor is believed to be readily apparent. When in the closed position no air passes out the grille **15**. As the push rod **29** is forced inwardly the blades separate from each other, as shown in Fig. 2, and each blade slices off, as it were, its proportional amount of the air flow and delivers it through the grille.

Thus, a uniform flow is assured throughout the entire width of the grille. The width of the so-called "slice" taken by each blade can be regulated by regulation of the push rod **29**. Adjustment by means of the lever **26** serves to direct the air discharging from the grille to either side or straight ahead as desired.

This exact control of the amount of air deflected allows all of the outlets along an air duct to be regulated or metered so that all will receive a uniform or proportionate amount of the air flow. The device operates equally well at the head of a duct or at any given intermediate position therealong.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied, within the scope of the appended claim, without departing from the spirit of the invention.

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

In an air deflecting device for air ducts of the type having a series of parallel curvated blades pivotally mounted at their extremities on a pair of parallel supporting bars, means for swinging the entire series of blades into said duct and for rotating the blades on their pivots from the exterior of said duct comprising: a fixed pivot attaching one of each pair of parallel bars to said duct; an adjusting lever pivoted at its one extremity to said duct and extending to the exterior thereof; means for pivoting the extremity of the other parallel bar of each pair on said lever eccentric of the axis thereof; and an adjusting member extending to the exterior of said duct and connected with the free extremity of the first parallel bar of each pair.

NELSON H. BRICKHAM.