

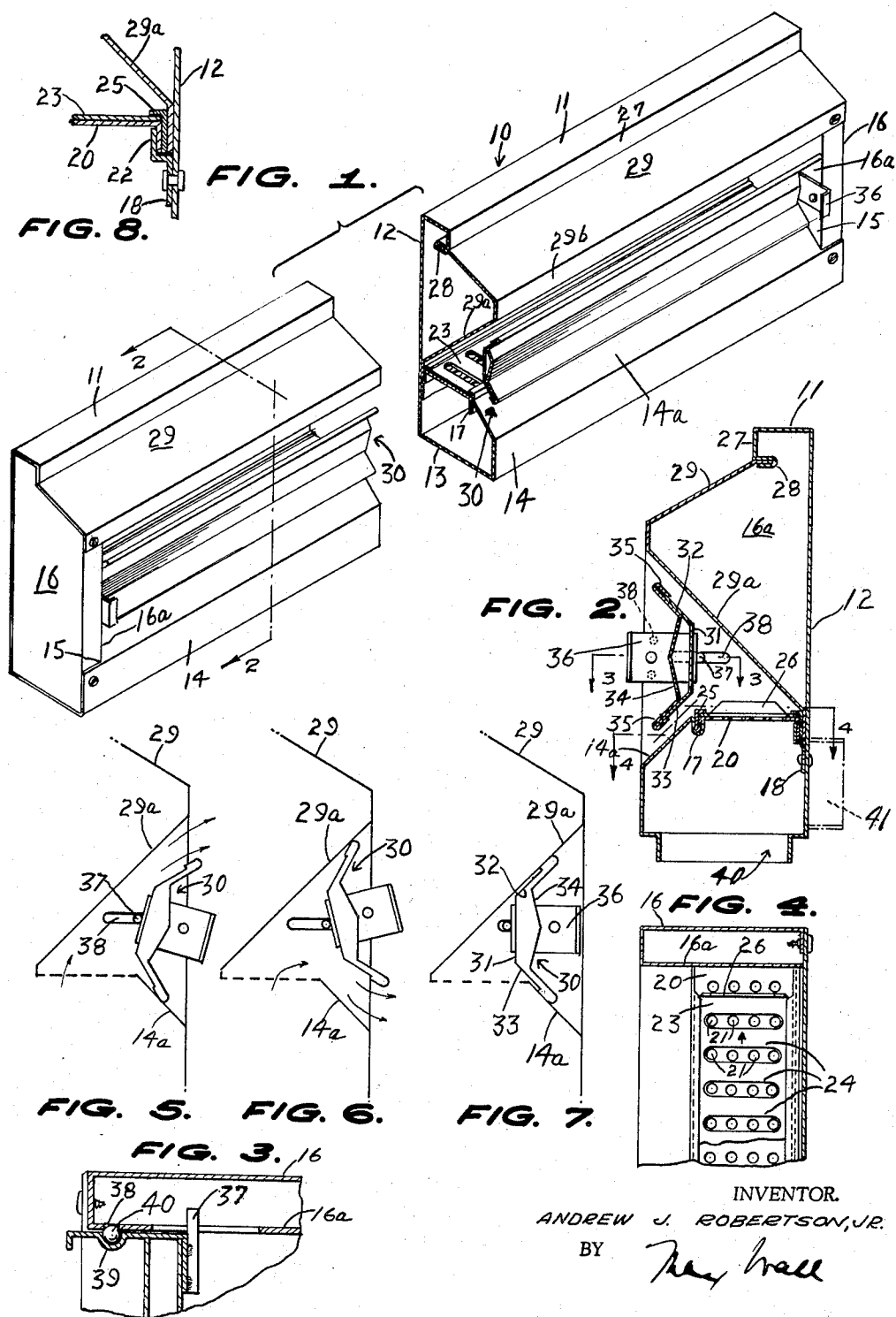
July 13, 1965

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3,194,145

AIR DISTRIBUTOR

Filed July 31, 1963



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3,194,145

AIR DISTRIBUTOR

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Filed July 31, 1963, Ser. No. 299,009

5 Claims. (Cl. 98—40)

This invention relates to a baseboard air distributor unit for ventilating, heating and air conditioning systems. In baseboard heating and air conditioning systems, the air distributor unit is placed around the perimeter of the room at the intersection of the wall and floor, and it may be installed so as to lie flush with the wall or to project from the wall into the space, and either heated or cooled air is delivered to the baseboard unit from a central heating-cooling plant. Various means are known in the prior art for controlling the flow of air from the baseboard distributor. This invention relates to improved means for making such a distributor and for controlling the direction of flow and the volume of flow of air delivered from the baseboard unit.

When ventilating, heating or cooling a space, the volume of air required to do an effective job without undesirable drafts or other ill effects in a particular enclosure, such as a room, depends in large measure on the output capability of the air source and on the size of the room. Therefore, some means must be provided to enable the occupants to quickly and easily adjust the flow to the required needs. The distributor of the instant invention supplies this need. By means to be further more fully described herein, the present invention will enable an occupant to direct air into a room upwardly or downwardly in a wide range of angle, to adjust it so that it flows both upwardly and downwardly if desired, or to shut off the flow completely, when that is desired.

For example, when heating a room, it being known that warm air has a tendency to rise, the influx of warm air may be directly forced downwardly, or both downwardly and upwardly to heat the area more quickly. To ventilate or cool a room, the influx of air may be directed upwardly, or both downwardly and upwardly, to ventilate or cool the entire area more quickly. Or, if desired for example, during the winter, where a particular room is not being used, the distributor may be shut off completely, to conserve heat. In the same fashion, in warm weather, the cooling air may be shut off completely where desired.

A principal object of the invention therefore is to provide improved means in a baseboard air distributor for distributing the flow of air therefrom and for controlling the volume of flow.

Another object is to provide a simple deflector-damper mechanism for accomplishing these purposes, the mechanism to be supported within the air distributor.

Another object is to provide such a mechanism which is easy of adjustment for any of the desired positions and purposes, and which can readily be locked in any adjusted position.

Still another object is to provide such a baseboard air distributor with a deflector-damper mechanism which can be adjusted to direct the air completely upwardly or completely downwardly; or to divide the flow so that a portion thereof may be adjusted to go both upwardly and downwardly.

Another object is to provide such a damper-deflector

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mechanism which can readily be adjusted to completely shut off the flow of air from the distributor when desired.

Still a further object of the invention is to provide a mechanism of the kind described which, in addition to the foregoing, can also be adjusted to control the volume of the flow in any of the desired directions.

For a better understanding of the invention, reference is made to the accompanying drawing and specification, showing and describing an illustrative embodiment of the invention, and in which

FIGURE 1 is a perspective view of the air distributor unit with a portion shown in section.

FIGURE 2 is an enlarged vertical, sectional view taken along the line 2—2 of FIGURE 1.

FIGURE 3 is a sectional detail taken along the line 3—3 of FIGURE 2.

FIGURE 4 is a sectional detail, with parts shown in plan, taken along the line 4—4 of FIGURE 2.

FIGURES 5, 6 and 7 show various positions of adjustment of the damper-deflector of this invention in diagrammatic form.

FIGURE 8 is an enlarged detail of a portion of FIGURE 2.

The invention comprises generally an elongated sheet metal body 10 made in lengths suitable to the need, or they may be made in shorter sections than room length and joined together as needed by means known to those skilled in the art. More particularly, the body is formed of a sheet of material bent upon itself to form a top wall 11, a back wall 12, a bottom wall 13, and a front wall 14. The front wall 14 has an extension 14a which is bent inwardly and inclined upwardly of the distributor, forming an obtuse angle with the wall 14. The ends of the portion 14a are notched out at 15 to accommodate the end walls of the distributor. Each end wall is of double walled box construction as shown in FIGURE 4, having an outside wall 16, and an inside wall 16a. At its upper edge, the wall 14a is formed into a U-shaped trough 17. A supporting bracket 18 is suitably secured along the inner face of the rear wall 12, with its upper edge offset from the wall to provide a trough, and it is arranged at a height substantially level with the upper edge of the trough 17. A channel member 20, having spaced rows of perforations 21 along its length, has its flanges 22 seated in said troughs 17 and 19, an enlarged detail thereof being shown in FIGURE 8.

A slide member 23 having rows of slots spaced to correspond and register with the perforations 21 is placed over the perforated surface of the channel 20, the slide being slightly shorter in length than the channel 20, so that it may be moved longitudinally thereof to open or close said perforations as desired. The slide is frictionally locked in place on said channel by a pair of angle members 25, one flange of each of which is pressed into said troughs to frictionally support the channel 20 and slide 23 for operation as described. One end of the slide is upturned as at 26 to form a handle whereby its position may be shifted as desired.

The top wall 11 has a downwardly bent portion forming a narrow front wall 27. The lower edge of this wall is turned inwardly and formed into a horizontally disposed slot or narrow trough or channel 28. A supplementary upper front wall includes a member having a

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wall 29 forming an upper closure for the air distributor with one edge of said wall 29 seated and crimped or frictionally locked in said slot or channel 28. The lower portion of said angular member has a guiding or deflecting wall 29a which is bent inwardly of the distributor and inclined downwardly at an angle to the rear wall 12, and the lower edge resting in the trough of the bracket 18, as best shown in FIGURE 8. The angularly disposed walls 29 and 29a are connected by a narrow vertical front wall portion 29b. The walls 14a and 29a of the distributor form an obtuse angle with one another for a purpose about to be described.

A damper-deflector member generally indicated at 30 is positioned along substantially the length of the distributor, in the angle formed by the walls 14a and 29a. The deflector member is formed of channel shape with a central portion or web 31 having flanges 32, 33 extending outwardly of the web and at an angle thereto, the angle formed by the flanges 32, 33 with each other being complementary to the angle formed by the walls 29a and 14a. The forward or outward face of the damper-deflector is covered with an elongated ornamental panel 34 which is held in place by crimping its edges 35 over the edges of the flanges 32, 33 in a known manner. The ornamental panel may be omitted, in which event the flanges of the damper-deflector will lie flush against the walls 14a, 29a when fully closed.

A latch member 36 is permanently secured to each end of the damper-deflector for ease of handling in adjusting same to its various adjustable positions. Permanently attached to each latch, or to the back of the damper-deflector at each end, is a pin or journal member 37 which extends beyond each end of the damper-deflector and into a slot 38 formed in the inner wall 16a of each end wall structural unit. The slot 38 is horizontally arranged in the end wall 16a on a line substantially coincident with a perpendicular dropped from the vertex of the angle formed by the walls 14a, 29a, and the wall of the slot acts as a bearing and guide for the journal 37 in its movement therein. The damper-deflector is fitted between the end walls 16a at each end of the distributor unit so that it will be a friction fit therein, capable of being sustained in any of its adjusted positions by friction alone between said end walls. To further insure that the damper-deflector will maintain any adjusted position, the inner end wall 16a, adjacent the latch member 36, is provided with a series of substantially vertically arranged perforations 38, disposed in a slight arc, and a corresponding and registering portion of the latch is provided with a depression or dimple 39, as best shown in FIGURE 3, a ball 40 being seated in the dimple and engaging one or another of the perforations 38 as the latch is moved from one position to another.

In the operation of the distributor, air from a central source flows thereinto from an opening either in the bottom, at 40, or through the opening 41 at the rear thereof, whichever is more appropriate for the particular installation. If the slide 23 is so positioned that the perforations are open, air may flow into the discharge space between the walls 14a and 29a.

With the damper-deflector in the position shown in FIGURE 2, the damper-deflector 30 is shown in a median position in the slot 38 where it will restrict the flow of air and direct it both upwardly and downwardly. In FIGURE 5, the damper-deflector is adjusted to permit a discharge of air upwardly only. In FIGURE 6, the damper-deflector is adjusted to discharge the air downwardly only, and in FIGURE 7 it is adjusted to close the air discharge passage completely. As shown in FIGURE 2, by adjusting the damper-deflector inwardly or outwardly of the discharge opening, the journals 37 sliding in the slot 38, the volume of flow may be controlled from a minimum to a maximum of the capacity of the opening. The various parts of the distributor unit are assembled by the

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use of welding processes or by means of sheet metal screws or rivets, as shown in the drawings.

It will be understood that as shown and described, the disclosure presents an illustrative embodiment of the invention, and that changes in design, construction and arrangement of parts may be made without departing from the spirit of the invention as defined by the appended claims.

I claim:

1. A baseboard forced air distributor comprising an elongated duct for receiving and discharging air under pressure, said duct having side and end walls, one of said side walls having upper and lower portions converging inwardly of said distributor and at an angle to one another to define an angular discharge opening, said end walls each having a transverse slot formed therein within said discharge opening and positioned substantially medially of said opening, a damper-deflector member positioned in said duct within said discharge opening, said damper-deflector member having oppositely extending deflecting flanges arrangeable in a parallel relationship with said upper and lower angularly disposed side wall portions; said damper-deflector member having a journal at each end extending into one of the slots and being pivotably adjustable in said opening to adjust the discharge flow of air therefrom to one side or the other of the pivotal axis of said damper-deflector, or in both directions simultaneously, said damper-deflector member being transversely slidably adjustable in said opening to move the flanges of said damper-deflector with respect to said respective side wall portions to control the volume of flow there-through and direct said flow to one side or the other of said pivotal axis, or in both directions, or to shut off the flow through said discharge opening.

2. A distributor according to claim 1, in which said damper-deflector member has a latch member thereon at each end, extending outwardly thereof, with cooperating means on said latch and said end walls for locking said damper-deflector member in any adjusted position with respect to said opening.

3. An air distributor according to claim 1, in which said damper-deflector member has a latch member at each end extending outwardly thereof, and said end walls have perforations therein adjacent said latch, said latch having a depression therein in registry with one of said openings, and frictional means disposed in said depression and engageable with any of said openings to fix said latch in any one of several positions.

4. An air distributor comprising a body having a rear wall, said wall extending forwardly at its upper and lower edges to form a top and a bottom wall, respectively, the bottom wall having a portion extending substantially vertically upwardly from its forward edge to form a lower front wall; the top wall extending downwardly from its forward edge and then inwardly thereof and being formed into a channel member with the channel arranged substantially on a horizontal plane; the upper edge of said lower front wall having a portion bent inwardly and inclined upwardly at an angle to said vertical portion, the free edge of said last mentioned angularly extending portion terminating in a vertically disposed forward trough; a bracket attached to said rear wall along its length and forming a rear trough therewith at a height substantially coincident with that of said forward trough; means supported by said troughs to open or close the flow of air from said distributor; a supplementary upper front wall for said distributor having one edge supported in said longitudinally arranged channel and extending downwardly and inclined inwardly of said distributor, the inwardly inclined portion being supported in said rear trough, said last mentioned inwardly inclined wall portion forming with said inwardly inclined wall portion of said lower front wall an air discharge passage for said distributor, a damper-deflector supported in said discharge opening, said damper-deflector member being adjustable

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in said opening and cooperating with said walls of said discharge opening to direct the flow of air therefrom either to one side or the other of said damper-deflector, or in both directions at once, said damper-deflector being further adjustable to close said discharge opening.

5. An air distributor according to claim 4 in which said damper-deflector member is channel shaped, the flanges thereof extending angularly outwardly with respect to the web thereof, the angle formed by said flanges with one another being complementary with the angle formed by said inclined walls defining said discharge opening.

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References Cited by the Examiner

UNITED STATES PATENTS

2,350,514	6/44	Livar	98—40
2,742,845	4/56	Simpson	98—40
2,822,742	2/58	Ochs	98—40
2,902,919	9/59	Waalkes	98—40
2,933,035	4/60	Phillips	98—40

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