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M. I. LEVY

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DIRECTIONAL AIR FLOW LOUVER

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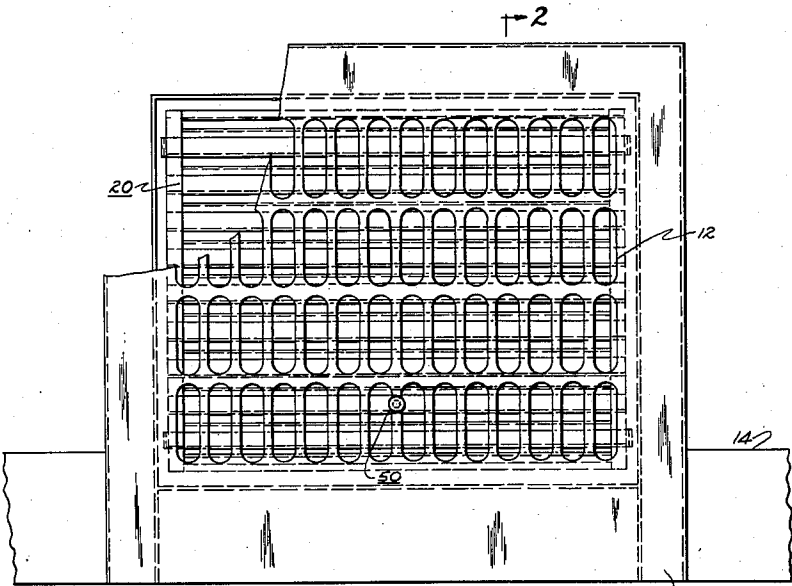


FIG. 1

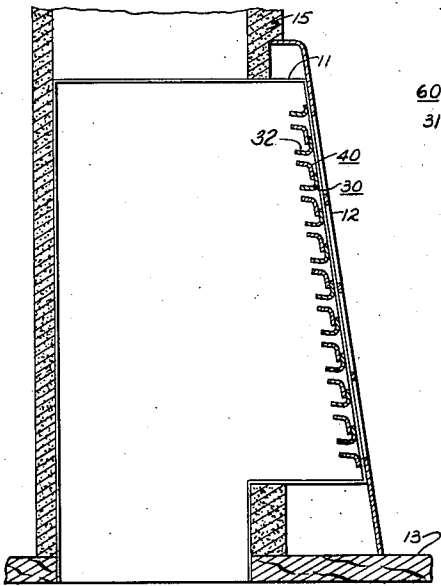


FIG. 2

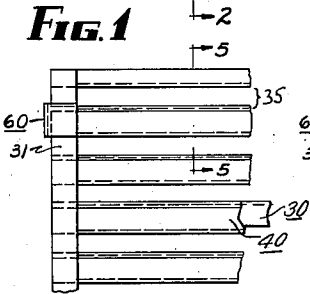


FIG. 3

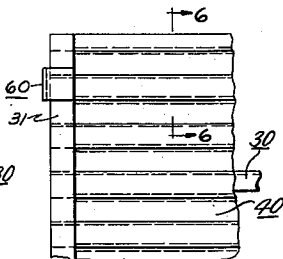


FIG. 4

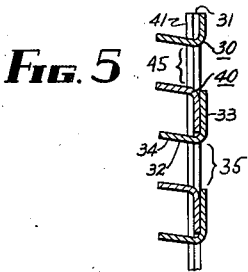


FIG. 5

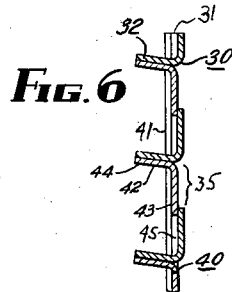


FIG. 6

INVENTOR.
MARION I. LEVY

BY
Morton S. Broekman

UNITED STATES PATENT OFFICE

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DIRECTIONAL AIR FLOW LOUVER

Marion I. Levy, Cleveland, Ohio

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1 Claim. (Cl. 98—101)

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This invention relates to dampers, and particularly to directional air flow dampers.

The primary object of this invention is to provide a means for simultaneously regulating the direction and volume of the flow of air, or other aeriform fluid, through the outlet of a duct or pipe.

Another object is to provide a directional air flow damper that is of such simple and compact structure that it can be easily and quickly installed behind new or existing duct outlet grills, where space is limited.

These and other objects of the invention will become apparent from a reading of the following specification and claims, together with the accompanying drawing, in which like parts are referred to and indicated by like reference characters and wherein:

Figure 1 is a front elevation of the damper installed in a conventional baseboard gravity register;

Figure 2 is a cross-sectional view of the same, taken along the line and in the direction of the arrows 2—2 of the Figure 1;

Figure 3 is a front view of a part of the damper only, with its louvers in the open position;

Figure 4 is a front view of the same part in the closed position;

Figure 5 is an enlarged cross-sectional view of the damper part, taken along the line and in the direction of the arrows 5—5 of the Figure 3; and

Figure 6 is an enlarged cross-sectional view of the damper part, taken along the line and in the direction of the arrows 6—6 of the Figure 4.

The instant invention consists broadly of a pair of slideably opposed plates 30 and 40 combined to form the directional air flow damper 20 which is shown in Figures 1 and 2 as being mounted behind the grill 12 of a baseboard register 10, and wherein reference characters 11, 13, 14 and 15 refer to a register box, floor, baseboard, and wall, respectively, of a conventional baseboard gravity register installation.

In the preferred method of fabrication, the damper is made of two sheet metal stampings, although it is to be understood that it could be fabricated from strips of metal held together by means of rivets or welds, or it might even be molded from plastics or other suitable material.

The fixed plate 30 is stamped from a single piece of sheet metal to form the side frame 31, the guiding tabs or ears 60, and the vertically spaced louvers 32. The movable plate 40 is

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similarly stamped from a single piece of sheet metal to form the side frame 41 and the vertically spaced louvers 42.

The louvers 32 of the stationary plate 30 combine a flat portion or horizontal bar 33 in the same plane as the face of the plate, and a rearwardly projecting fin 34 which is formed by bending that portion of the plate immediately abutting the lower edge of the bar 33 rearwardly to form an angle of approximately 115 degrees with the face of the stationary plate, or about 25 degrees with the horizontal, as shown in Figures 2, 5 and 6.

The formation of the fin 34 results in the creation of an opening or slot 35 between each successive louver 32. The louvers 42 and the openings or slots 45 therebetween of the movable plate 40 are similarly formed, but in this case the fins 44 are formed as a continuation of the upper edges of the bars 43 and are bent rearwardly to form an angle of approximately 65 degrees with the face of the movable plate, or about 25 degrees with the horizontal.

In assembling the directional air flow damper, the movable plate 40 is placed on top of the stationary plate 30 in such a manner that the fins 34 of the stationary plate 30 will project through the slots 45 of the movable plate 40. The guides 60 on the stationary plate 30 are then bent to form guiding channels in which the movable plate 40 is held in slidable contact with the stationary plate 30, as indicated in Figures 1, 2, 3 and 4.

A conventional positioning or adjusting handle 50 is fixed to the movable plate 40 for the purpose of providing a means whereby the movable plate may be slideably adjusted vertically with reference to the stationary plate and thus control the volume of air passing through the damper. The handle should be long enough to extend through the grill 10 as illustrated in Figures 1 and 2.

When the damper is in its open position, the openings between the louvers on the two plates coincide and, together with the fins, form passageways through the damper which control and determine the direction the air will take upon leaving the damper, as illustrated in Figures 3 and 5.

In their closed position the horizontal bars 43 of the movable plate 40 cover the openings 35 of the stationary plate 30, while the upper surfaces of the fins 44 abut the lower surfaces of the fins 34 to completely cut off the flow of air through the damper, as illustrated in Figures

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4 and 6. At intermediate positions of the movable plate 40, the volume of air flowing through the damper is accurately controlled, across the entire face of the damper, by varying the area of the openings 35 left uncovered by the horizontal bars 43, while the direction of the flow is determined by the fins which form a series of continuous frictionless passageways through the damper.

It will be further seen that, unlike prior art devices which require more space for their operation, the instant device, because of its compact structure, can be easily installed behind the grill of an ordinary household register box and will accurately regulate the volume and direction of air flowing into the room at intermediate positions as well as at full on or off.

It will now be clear that there is provided a device which accomplishes the objectives heretofore set forth. While the invention has been disclosed in its preferred form, it should be understood that the device as described and illustrated is not to be construed in a limited sense, as no limitations of the invention are intended except those imposed thereon by the scope of the appended claim.

I claim:

A damper, comprising in combination, a stationary plate formed of stamped sheet metal including side frame elements and having a first series of horizontally extending and vertically spaced bars between said frame elements and also having a first series of slots between the said bars, each of the said bars having a laterally extending inclined fin projecting rearwardly and upwardly from the bottom edge thereof and formed from the metal removed from the adjacent slot; a plurality of guide tabs on the side frame elements, spaced therefrom and forming

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guiding channels thereon, a movable plate of stamped sheet metal including side frame elements engaged by the said guide tabs and movable in the said channels, the said plate having a second series of horizontally extending and vertically spaced bars between said frame elements and slidably engageable with the first series of bars and also having a second series of slots between the said bars, each of the second series of bars having a laterally inclined fin formed of the metal removed from the adjacent slot projecting rearwardly and upwardly from the top edge thereof and through a contiguous slot of the first series, all of the fins of the respective stationary and movable plates being inclined at the same angle, the second series of bars obstructing the first series of slots and the said fins of both the first and second series being in close contact when the movable plate is in its closed position and correlatively the said bars clearing the said slots and the said fins of the two series being separated when the movable plate is in its open position, the said movable plate having a handle mounted thereon to facilitate movement thereof with respect to the stationary plate.

MARION I. LEVY.

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