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3,225,679

AIR DEFLECTOR

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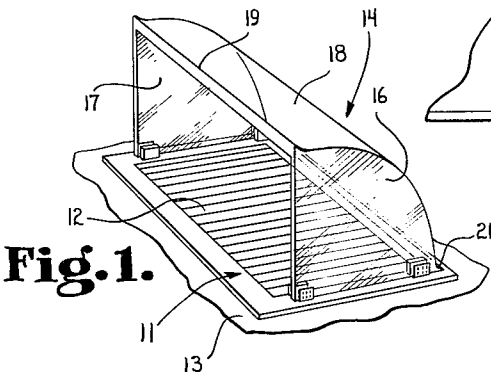


Fig. 1.

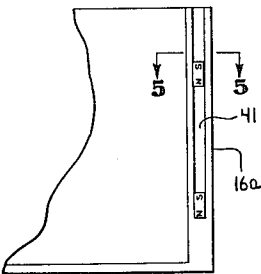


Fig. 4.

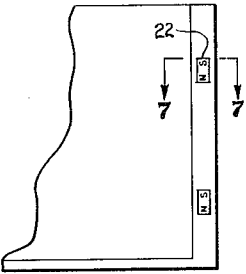


Fig. 6.

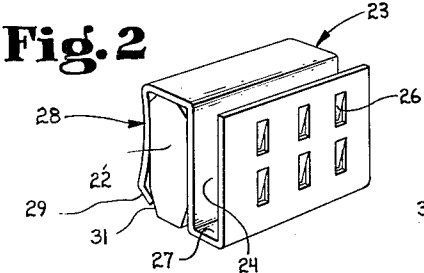


Fig. 2

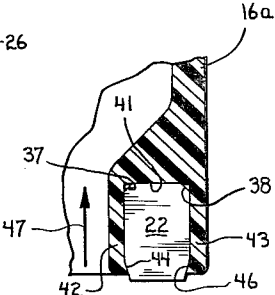


Fig. 5.

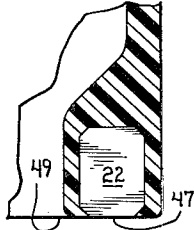


Fig. 7.

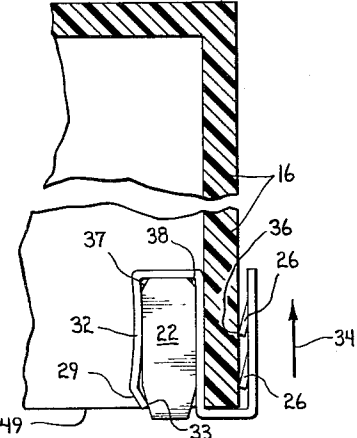


Fig. 3.

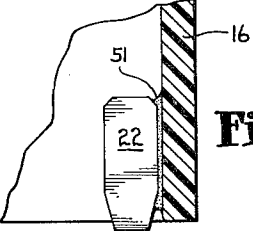


Fig. 8.

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1

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AIR DEFLECTOR

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3 Claims. (Cl. 98-103)

This invention relates generally to air deflecting means, and particularly to an air deflector which can be conveniently and quickly installed in operative relation to an air register.

Many types and locations of air registers are used in forced air heating and cooling systems for buildings of many types. In many instances, it is desirable that the air flowing from an outlet into a room be directed in some specific direction. While this can be accomplished with permanently installed louvers in the registers themselves, the result of such construction is excessive expense and complexity. Also, the possibility of providing substantial changes in direction of the air issuing from such registers is limited.

Because of variable load conditions or because of the arrangement of furniture and draperies and other accessories in a room, it may be desirable to deflect air issuing from an outlet in an upward, downward, or sideward sense. It is also desirable to keep window draperies from covering air outlets and returns.

While permanent installations can be obtained for achieving some of the aforementioned results, it must be recognized that furniture is relocated from time to time, in residences particularly, and the length and type of window draperies is also changed from time to time. This frequently necessitates redirection of the air flow from the register and this cannot be readily achieved by existing equipment.

It is, therefore, a general object of the present invention to provide an air deflector which can be easily and quickly installed on and subsequently easily and quickly removed from a variety of conventional air registers.

A further object is to provide a device achieving the foregoing object and incorporating a simple and inexpensive construction and readily suited to manufacture in a variety of sizes and shapes.

A further object is to provide a device achieving the foregoing objects and which can be installed and removed without the requirement of tools of any sort.

A still further object is to provide a device achieving the foregoing objects and which is inconspicuous when installed, and which is adapted to prevent draperies from covering air inlet or outlet registers.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

FIG. 1 is a perspective view of a typical embodiment of the present invention employing a floor register for mounting.

FIG. 2 is an enlarged perspective view of a fastening member employed in the typical embodiment.

FIG. 3 is an enlarged fragmentary section through the embodiment of FIG. 1 and illustrating an end view of the fastening means.

FIG. 4 is a fragmentary bottom plan view illustrating a second arrangement of fastening means.

FIG. 5 is a section therethrough taken along the line 5-5 of FIG. 4 and viewed in the direction of the arrows.

FIG. 6 represents a still further embodiment showing another installation of fastening means.

FIG. 7 is a section taken along the line 7-7 in FIG. 6 and viewed in the direction of the arrows.

FIG. 8 is a section similar to those in FIG. 5 and FIG. 7 illustrating a still further type of fastening means.

2

Referring to the drawings in detail, FIG. 1 shows a conventional floor register 11 having a number of openings 12 therein to permit flow of air upwardly through the register. The register is positioned in the floor 13 and may be made of steel or other ferro magnetic material or components.

The illustrated embodiment of the air deflector 14 includes a member having opposite end walls 16 and 17 joined by a curved wall or shell portion 18. At the upper and lower marginal edges of the curved wall there are ridges 19 and 21 respectively which are coextensive with the wall and add structural rigidity thereto. A material employed in the deflector is colorless polystyrene, which is stable at the usual temperatures of the air leaving a register. However other materials can be used if desired. The colorless transparent feature permits the use of the deflector in a number of rooms without disturbing the color scheme of the adjacent wall, woodwork, register, or carpet, for example.

In order to secure the deflector to a register, magnets are employed according to the present invention. In the embodiment illustrated in FIGURES 1, 2, and 3, a bar magnet 22 is received in a generally S-shaped spring clip 23. The clip may be made of a stamping and has a channel 24 therein having punched fingers 26 provided in a wall thereof and extending into the channel toward the bottom or floor 27 of the channel. The magnet is secured in the other channel portion 28 of the clip, which opens in a direction opposite that of channel 24. The inwardly turned longitudinal edge portion 29 of the clip engages the tapered surface 31 of the magnet. Because the clip is springy material, the wall 32 of the channel portion 28 is slightly concave when the magnet 22 is inserted in place. The spring bias thereby created provides a secure engagement between the edge 33 of the portion 29 and the face 31 of the magnet.

Once the magnet has been installed in the clip, the clip may be mounted on an end wall 16, for example, by pushing it into place in the direction of the arrow 34 in FIG. 3. Thereupon the fingers or lugs 26 are pushed slightly outwardly by engagement with the outer surface of the end wall 16, with the edges 36 thereof snugly engaging the outer surface. If it is attempted to remove the clip from the wall, the edges 36 will bite into the plastic surface and prevent removal of the clips. Therefore there is no tendency for the clips to become unfastened from the body portion of the deflector. Moreover, because the edges of the tabs 26 are comparatively sharp, having been punched from the base metal of the clip, they will prevent movement of the clips along the wall 16. This is of particular advantage when the deflector is mounted to a surface lying in a vertical plane such as a wall mounted or baseboard mounted register. There is, therefore, no tendency for the deflector to fall from position once it is installed.

The provision of the angular surfaces 37 and 38 on the magnet make it easy to install the magnet in the clip by pushing it into the clip in the direction of the arrow 34, for example. This can be done either before or after the clip is mounted to the wall 16. Though four of the fasteners are shown in FIG. 1, it is usually not necessary to provide four as two are normally adequate to retain the deflector securely to a floor register. Normally, four magnets are employed in securing the deflector to a vertically disposed register such as a wall register, but the use of four magnets for this purpose is not absolutely necessary either.

FIGS. 4 and 5 show an alternative construction. In this construction the outer end wall, which is referred to by the reference character 16a is flared inwardly adjacent its lower marginal edge to provide a longitudinally extending channel 41 therein. The walls 42 and 43 of the

3

channel may flare inwardly slightly at 44 and 46 respectively. The magnet 22, by virtue of its tapered or angled surfaces 37 and 38, can be snapped into the groove by applying a force in the direction of the arrow 47.

As many magnets as desired can be pressed into the groove, and by reason of the resiliency of the plastic, will be retained securely and sufficiently well to prevent their coming out of place when the deflector is mounted to a vertical register. If desired, these magnets can be installed when the deflector is removed from a mold and before it has completely cooled. The longitudinally extending groove 41 facilitates removal of the deflector shell and end portions from a molding machine.

FIGS. 6 and 7 show another embodiment in which the magnets 22 are molded into the enlarged lower marginal portions of the walls during the molding of the body portion. In this instance, the contact face 47 of the magnet is usually flush with the plane of the lower marginal edges 49 of the body portion.

Still another means of mounting a magnet 22 to the end wall 16 is shown in FIG. 8. In this instance an adhesive 51 is employed. During the assembly of the magnets to the body portions, it is desirable to apply the adhesive, install the magnet, and retain the magnet in place while the adhesive sets by use of another magnet on the outer face of the wall until the adhesive has set. However other means could be used if desired.

From the foregoing description, it can be readily recognized that by reason of having no significant protrusion on the outside end walls, even in the embodiment using the clips 23, a series of deflectors can be employed side by side in the event that an outlet is unusually long. This facilitates the use of standard sizes of deflectors on above average lengths of outlets. The units are, therefore, useful to keep curtains or draperies clear from the outlet whereas otherwise they may tend to hang in front of the outlet and cover it.

From the foregoing description, it will readily be recognized that it is an extremely simple matter to move a deflector from one position to another on a register and to install and remove it therefrom. Therefore, the invention disclosed herein is well suited to accomplishment of this as well as the other objects set out above, together with other objects not specifically mentioned. It provides advantages which will be apparent to those skilled in the art as well as to users.

While the invention has been disclosed and described in some detail in the drawings the foregoing description, they are to be considered as illustrative and not restrictive in character, as other modifications may readily suggest themselves to persons skilled in this art and within the broad scope of the invention, reference being had to the appended claims.

The invention claimed is:

1. An air deflector comprising: a pair of spaced end walls joined by a third wall, each of said end walls having a linear marginal edge with the linear marginal edges of both of said walls lying in a common plane: a generally S-shaped spring clip having first and second channels opening in opposite directions, one of said channels having a floor and having punched spring fingers in a wall thereof with said fingers resiliently engaging a surface of

4

one of said end walls and retaining said clip on said one end wall, said fingers extending from said channel wall in a direction toward said floor and said floor abuttingly engaging the said marginal edge of said one of said end walls; and a magnet disposed in the other of said channels and resiliently engaged and retained in said other of said channels by a wall portion of said other of said channels.

2. An air deflector comprising: a pair of spaced end walls with a third wall meeting said end walls; a generally S-shaped spring clip having first and second channels therein and a sharp edged projection thereon, with one channel having a wall engaging one surface of one of said end walls and said projection engaging another surface of said one end wall; and a magnet resiliently retained in said second channel of said clip, said clip and said end walls being of materials such that external force tending to remove said clip from said one end wall in any direction causes said projection to bite into said one end wall and prevent movement of said clip.

3. An air deflector comprising: a pair of spaced end walls joined by a third wall, all of said walls being colorless and transparent plastic, said end walls having linear marginal edges lying in a common plane; a generally S-shaped spring metal clip having first and second oppositely opening channels therein, with said first channel having a first wall engaging an inner surface of one of said end walls and said first channel having a second wall with punched fingers therein engaging an outer surface of said one of said end walls and said first channel having a floor joined to and extending between said first and second walls and forming the floor of said first channel, said floor abuttingly engaging one of said marginal edges of said one end wall adjacent the portions of said inner and outer surfaces of said one end wall engaged by said first wall and said fingers, respectively, said first channel opening in a direction facing a portion of said third wall and said second channel opening in a direction facing away from said third wall, said fingers having sharp edges and projecting out of said second wall of said first channel in a direction away from said third wall and toward the floor of said first channel and preventing removal of said clip from said one end wall and preventing movement of said clip along said one end wall; and a magnet resiliently retained by said clip in said second channel of said clip, said magnet having tapered corners facilitating snapping into said second channel, and said clip having an inwardly turned longitudinal edge portion securely retaining said magnet in said second channel.

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