

[54] AIR FILTER AND DEFLECTOR WITH
ENCLOSED MAGNET MOUNTS

3,407,576 10/1968 Staunton..... 55/514
3,589,106 6/1971 Onuki..... 55/524

[76] Inventors: **Christoph P. Meyer**, 1441 Jefferson
Dr., Apt. B, Carmel, 46032;
Darby N. Meyer, 7970 N.
Englewood Rd., Indianapolis,
46240; **Stephen T. Meyer**, 725 E.
111th St., Indianapolis, all of
Ind. 46280

Primary Examiner—Bernard Nozick
Attorney—Harold R. Woodard

[22] Filed: **Oct. 20, 1971**

[21] Appl. No.: **190,913**

[52] U.S. Cl..... **55/385**, 55/496, 55/524,
98/108, 160/228

[51] Int. Cl..... **B01d 27/08**

[58] Field of Search..... 55/385, 482, 490,
55/495, 496, 501, 522, 524; 98/103, 101,
108, 114, 99.5, 99.7; 160/228

[56] **References Cited**

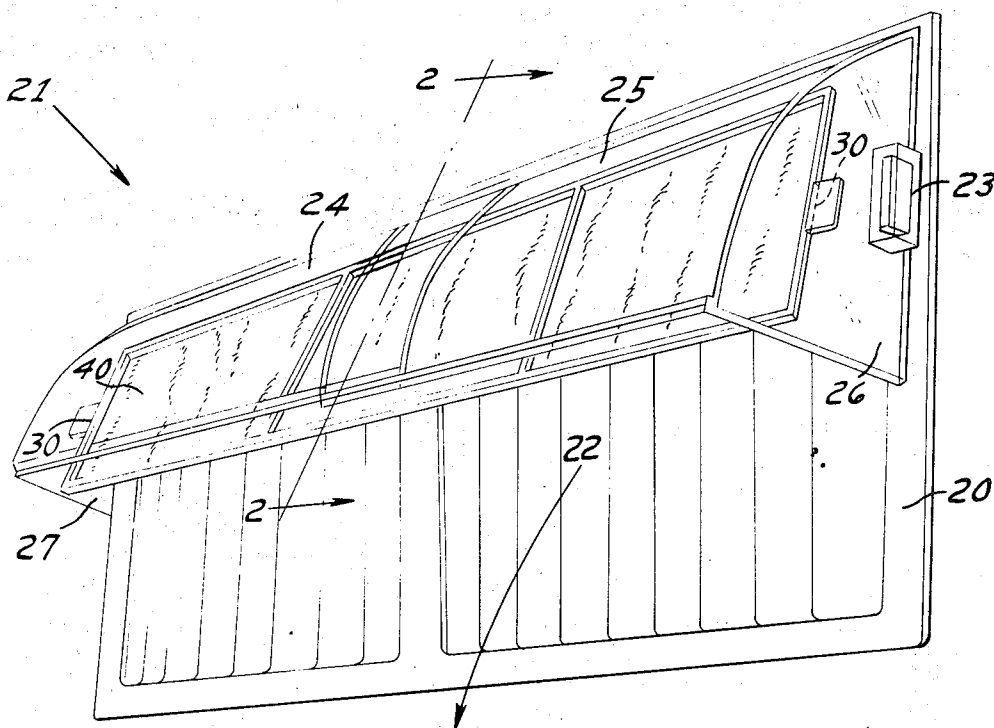
UNITED STATES PATENTS

192,200	6/1877	Underwood	160/228
1,622,031	3/1927	Elters	98/103
2,249,308	7/1941	Bedol	98/108
3,225,679	12/1965	Meyer	98/103
3,358,578	12/1967	Meyer	98/103

[57] **ABSTRACT**

An air filter and deflector which is mountable adjacent to an air register. The deflector has a main body with a curved air deflecting wall integrally connected to a pair of side walls having magnets secured thereto for the mounting of the deflector. The curved wall is adjustable so as to change the length of the deflector. The curved wall has a pair of curved walls slidably mounted together with the longitudinally extending edges of one of the curved walls being received in slots formed by the outwardly turned edges of the other curved wall. A filter frame having a filter material mounted thereto is secured within the deflector to the side walls thereof. The frame has first and second frame members telescopically connected together. A pair of guides are mounted on one end of one of the frames and slidably receives the edges of the other frame.

5 Claims, 7 Drawing Figures



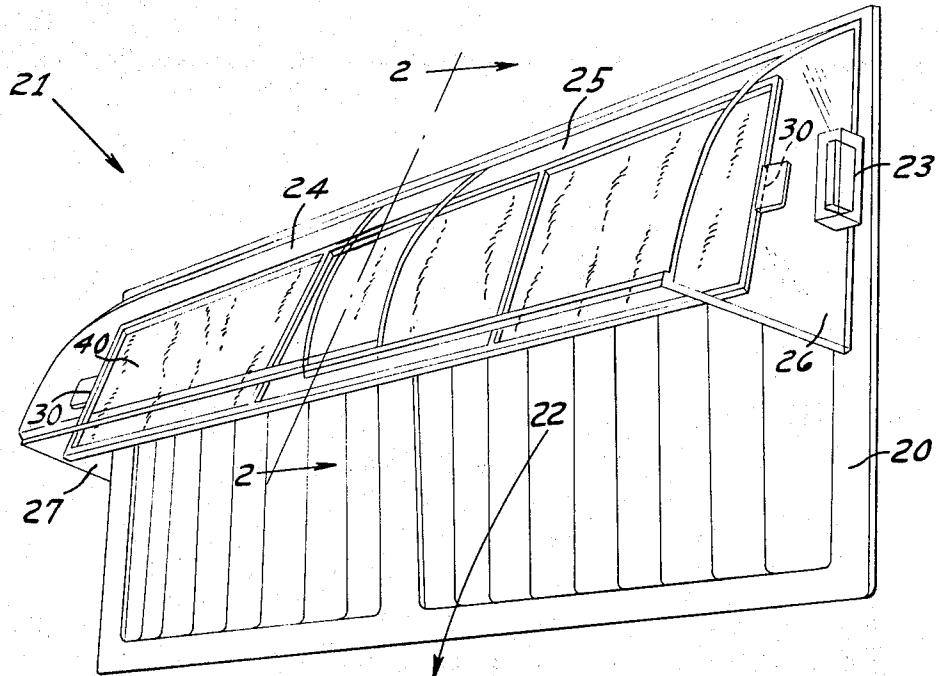


Fig. 1

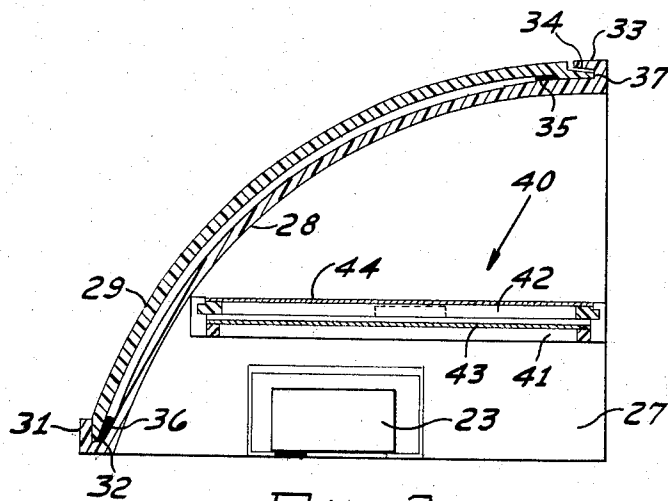


Fig. 2

INVENTORS
 Christoph P. Meyer
 Darby N. Meyer
 Stephen T. Meyer
 BY
 Woodard, Weikart,
 Emhardt & Naughton
 ATTORNEYS

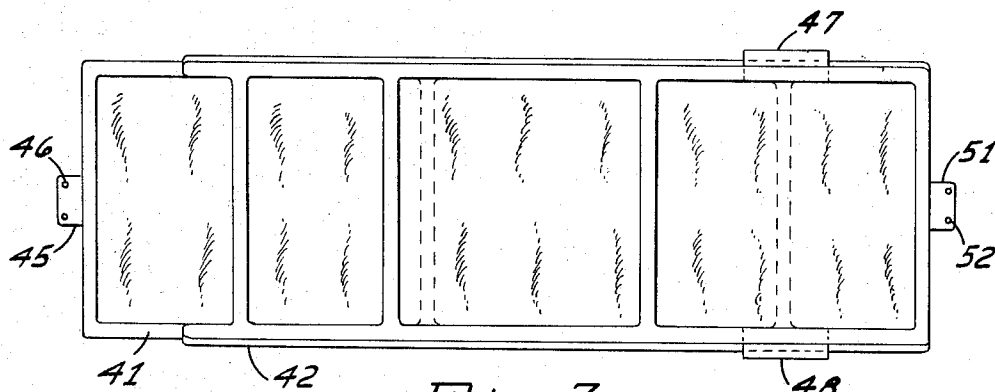


Fig. 3

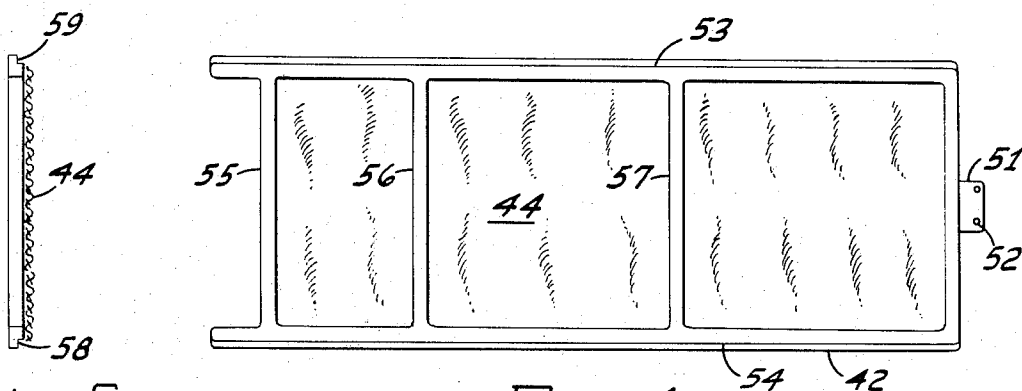


Fig. 4

Fig. 5

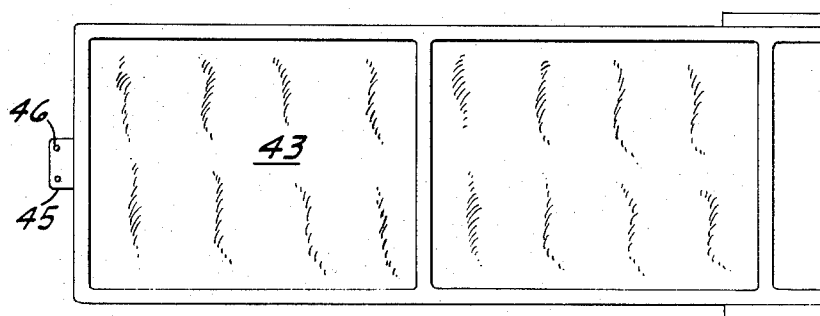


Fig. 6

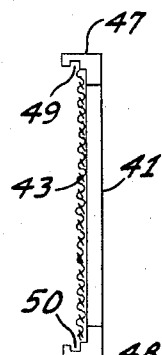


Fig. 7



INVENTORS
 Christoph P. Meyer
 Darby N. Meyer
 BY Stephen T. Meyer
 Woodward, Weikart,
 Emhardt & Naughton
 ATTORNEYS

AIR FILTER AND DEFLECTOR WITH ENCLOSED MAGNET MOUNTS

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to air deflectors with filters for air outlets in heating and cooling systems, and more particularly, to deflectors and filters having adjustable lengths.

2. Description of the Prior Art

In the U.S. Pat. No. 3,225,679 issued to Christoph P. Meyer is disclosed an air deflector which can be conveniently and quickly installed in operative relation to an air register. In the U.S. Pat. No. 3,358,578 also issued to Christoph P. Meyer there is disclosed an air deflector having magnetic mounts for the mounting of the deflector to an air register. Disclosed in this application is yet another air deflector which has a removable filter for cleaning the air as it passes from the air register and through the deflector. The deflector and filter disclosed herein are telescopically constructed so as to fit a variety of different sized air registers.

SUMMARY OF THE INVENTION

One embodiment of the present invention is an air filter deflector mountable adjacent a register comprising a main body having a pair of spaced apart side walls and air deflecting wall means connected to and between the side walls, a filter frame removably mounted to the deflector between the side walls, and, air filter means mounted to and across the frame.

It is an object of the present invention to provide a new and improved air deflector.

It is a further object of the present invention to provide an air deflector having an improved air filter.

Yet another object of the present invention is to provide an air deflector with filter which may be quickly and easily sized to fit an air register.

Related objects and advantages of the present invention will be apparent from the following description.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of an air deflector and filter incorporating the present invention shown mounted to an air register.

FIG. 2 is an enlarged cross-sectional view taken along the line 2—2 of FIG. 1 and viewed in the direction of the arrows and is rotated 90° counterclockwise.

FIG. 3 is an enlarged plan view of the filter 40 shown in FIG. 1.

FIG. 4 is the same view as FIG. 3 with frame member 41 removed therefrom.

FIG. 5 is a left end view of frame member 42 of FIG. 4.

FIG. 6 is the same view as FIG. 3 with frame member 42 removed therefrom.

FIG. 7 is a right end view of frame member 41 shown in FIG. 6.

DESCRIPTION OF THE PREFERRED EMBODIMENT

For the purposes of promoting an understanding of the principles of the invention, reference will now be made to the embodiment illustrated in the drawing and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended, such al-

terations and further modifications in the illustrated device, and such further applications of the principles of the invention as illustrated therein being contemplated as would normally occur to one skilled in the art to which the invention relates.

Referring now more particularly to FIG. 1, there is shown an air deflector 21 removably mounted to an air register 20. A filter 40 is removably mounted within deflector 21 for cleaning the air as it passes from the register in the direction of arrow 22. Deflector 21 has a main body with a pair of spaced apart side walls 26 and 27. A pair of magnets 23 are mounted on walls 26 and 27 for the removable mounting of the deflector to the air register. Magnets 23 are mounted to the side walls in a manner identical to that disclosed in the previously listed U.S. Pat. No. 3,358,578. Incorporated herein by reference is the disclosure of the U.S. Pat. No. 3,358,578 issued to Christoph P. Meyer and entitled AIR DEFLECTOR WITH ENCLOSED MAGNET MOUNTS relative to the magnets and side walls disclosed therein.

A curved wall having a left section 24 and a right section 25, as viewed in FIG. 1, is integrally connected to the side walls with the left section 24 connected to side wall 27 and with the right section 25 connected to side wall 26. The right wall section 25 slidably receives and passes beneath the left wall section 24. Referring to FIG. 2, inner wall 28 corresponds to the right wall section 25 of FIG. 1 with the outer wall 29 corresponding to the left wall section 24. Walls 28 and 29 are complementary in shape each being integrally joined at an end to one of the side walls. Wall 28 has a lower edge which is curved upwardly to form lip 31 and recess 32. Likewise, the upper edge of wall 28 forms lip 33 and recess 34. The lower tapered edge of wall 29 is slidably received in recess 32 whereas the upper off-set edge 37 of wall 29 is slidably received in recess 34. Recesses 32 and 34 extend longitudinally along the length of wall 28 so as to allow walls 28 and 29 to be telescoped to the appropriate size corresponding to the length of register 20. A pair of longitudinally extending upraised ridges 35 and 36 are formed on the outer surface of wall 28 adjacent, respectively, recesses 34 and 32. Ridges 35 and 36 space walls 28 and 29 apart thereby reducing the friction resulting from the sliding motion therebetween.

Filter 40 is also telescopically constructed along with the main body of the air deflector. Filter 40 (FIG. 3) is rectangular and has a pair of frame members 41 and 42 with member 42 also being shown in FIG. 4. Frame member 42 has a pair of longitudinally extending severable parallel side rails 53 and 54 integrally joined together and spaced apart by at least three cross struts which are shown as struts 55, 56 and 57. A pair of ledges 58 and 59 (FIG. 5) are respectively formed on rails 54 and 53 and are slidably received, respectively, by guides 48 and 47 integrally connected to frame member 41. Frame member 41 is shown in FIG. 6 with an end view thereof shown in FIG. 7. Frame member 41 has guides 47 and 48 integrally connected thereto with recesses 49 and 50 being provided in guides 47 and 48 for receiving ledges 59 and 58. A porous synthetic foam-like material coated with silicone is secured to frame member 41 by adhesive or other suitable means and is shown by item number 43. An identical material 44 is secured to frame member 42. The filter is removably mounted to side walls 27 and 26 which

are provided with slots 30 (FIG. 1) which receive, respectively tabs 45 and 51 (FIG. 3). Upraised tits 46 and 52 are formed on tabs 45 and 51 to abut against the outside surface of walls 27 and 26 thereby resisting relative movement between the tabs and side walls. Tabs 45 and 51 extend lockingly and removably through the side walls of the deflector. The guides 47 and 48 have not been shown in FIG. 1 for sake of clarity.

Frame member 42 may be cut with a sharp instrument; such as, a pair of scissors for sizing the filter to the respective air register. For example, rails 53 and 54 may be severed immediately adjacent to cross strut 56 leaving strut 56 connected to the frame and allowing strut 55 to be discarded. Thus, the length of frame member 42 is reduced allowing the filter 40 to be of a smaller length without excessive overlapping of filter materials 43 and 44. It is desirable to reduce the overlapping of filter materials 43 and 44 so as to not retard the air flow and to achieve a uniform air flow across the air filter.

While the invention has been illustrated and described in detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character, it being understood that only the preferred embodiment has been shown and described and that all changes and modifications that come within the spirit of the invention are desired to be protected. A variety of materials may be used to produce the main deflector body and the frame. Excellent results have been obtained by producing the deflector body and filter frame from plastic.

We claim:

1. An air filter deflector mountable adjacent a register comprising:

- a main body having a pair of spaced apart side walls and a first and second complementary shaped curved wall, each curved wall being joined at an end to one of said side walls, said first curved wall having longitudinally extending edges while said second curved wall having opposite longitudinally extending edge portions forming a pair of slots slidably receiving said edges of said first curved wall, said first curved wall and said second curved wall having mutually opposed surfaces with at least one curved wall having a longitudinally extending upraised ridge between said surfaces spacing said surfaces apart; and,
- a filter frame removably mounted to said side walls

and extending therebetween, said frame including means mounted thereto operable to filter air passing through said frame, said frame including a first frame member and a second frame member with said first frame member having a pair of guides fixedly mounted thereon with opposing recesses formed therein slidably receiving opposite edges of said second frame member, said recesses being spaced outwardly from said first frame member spacing said first frame member and said second frame member apart.

2. The deflector of claim 1 wherein:

each side wall has an aperture; and,
each of said members have a tab sized to interferingly extend through each aperture to lock said frame to each side wall.

3. The deflector of claim 2 wherein:

said second frame member is plastic and has a pair of longitudinally extending severable parallel side rails integrally joined together and spaced apart by at least three cross struts.

4. The deflector of claim 3 wherein:

said rails have ledges thereon extending into said recesses, and, said frame is rectangular.

5. An air filter and air deflector combination mountable adjacent a register comprising:

- a first frame member;
- a second frame member connected to said first frame member, said second frame member having a pair of guides on an end thereof with longitudinally extending recesses formed therein slidably receiving said first member; and,

air filter means mounted to and across said first frame member and said second frame member; and wherein:

said first frame member and second frame member each have a tab lockingly and removably extending through side walls of said deflector;

said first frame member has a pair of longitudinally extending severable parallel side rails integrally joined together and spaced apart by at least three cross struts;

said air filter means is a porous synthetic foam-like material coated with silicone;

said rails have ridges thereon extending into said recesses; and,

said frame is rectangular.

* * * * *

50

55

60

65