March 24, 1970 D. STEELE 3,502,016

AIR VENT WALL PROTECTOR

Original Filed April 11, 1967

FIG. 1

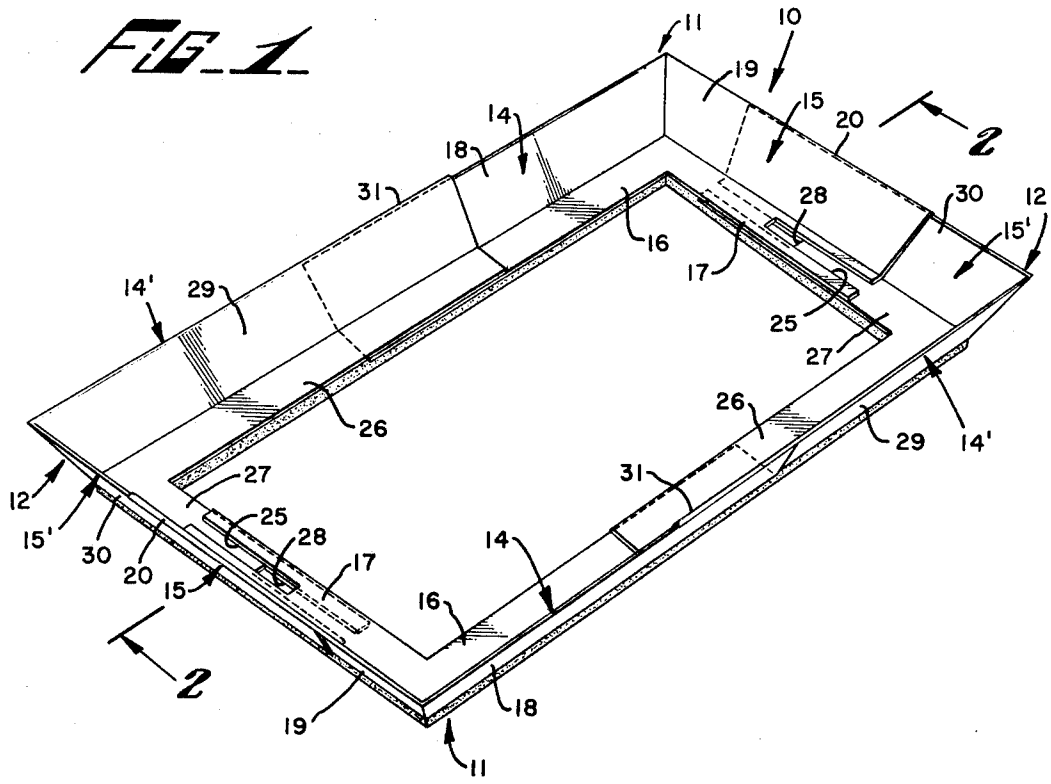
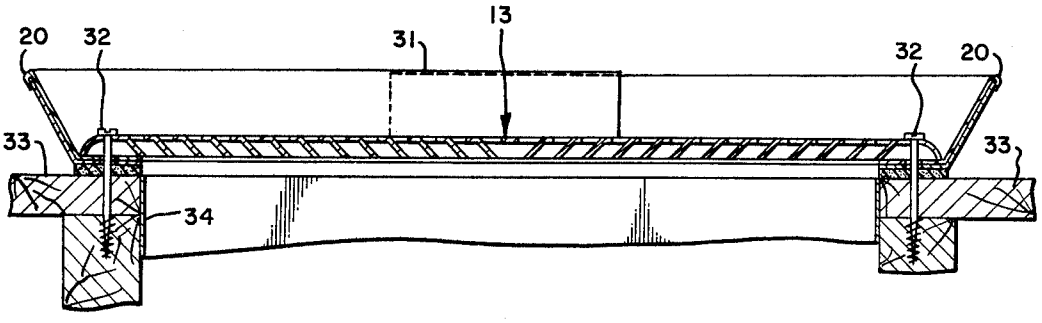


FIG. 2



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AIR VENT WALL PROTECTOR

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Int. Cl. F24f *13/00, 13/08*
U.S. Cl. 98—1 7 Claims

ABSTRACT OF THE DISCLOSURE

A rectangular air deflector comprising four straight outwardly-angled walls united at their corners and having narrow flanges extending inwardly from their lower edges in shape and the edge portions of which overlie said lie a rectangular marginal area of a wall or ceiling immediately surrounding an air vent opening formed therein. Said flanges are provided with a weather stripping material which makes a resilient contact with said wall area to prevent an outward flow of air, emitted from said opening, between said wall area and said deflector. Said deflector is associated with a grid which is rectangular in shape and the edge portions of which overlie said flanges and said grid and said deflector are adapted to be secured to said wall or ceiling by the same screws. The deflector walls are telescopic to permit said deflector to be adjusted to air vent openings and grids varying in size.

Cross-reference to related application

This application is a continuation of application Ser. No. 630,009, filed Apr. 11, 1967.

Summary of the invention

This invention reluates to ventilating systems, and particularly to the problem not uncommonly met with in such systems of walls being smudged by solid matter entrained in air discharged into a room through a flat shallow rectangular outlet grid mounted flush with the wall.

It is an object of the present invention to provide a simple and inexpensive means for protecting the wall in which such a grid is mounted from being smudged by air discharged through said grid.

It is another object of the invention to provide an air deflecting apron which extends entirely around such a grid and is inclined outwardly at an angle so as to induce the air discharged through said grid to expand outwardly into the room and away from the wall, so that solid matter entrained in said air is not caused to be deposited on the wall.

It is a further object of the invention to provide such an apron which will be held in place by a flange provided on said apron and extending inwardly between peripheral portions of said grid and the wall on which the latter is mounted.

Yet another object of the invention is to provide such a wall protecting apron which is telescopically constructed so as to fit any of a variety of sizes of air vent grid.

Still another object of the invention is to provide such an air-deflecting apron having a gasket provided on the flange, which extends underneath the peripheral portion of said grid, which is formed of a delicate, highly flexible porous, plastic material, which will cause this to conform to irregularities in a textured finish on the wall surface

so as to prevent the escape of air outwardly between said apron and the wall.

Brief description of the drawings

FIGURE 1 is a perspective view of a preferred embodiment of the wall protector of the present invention before the same is assembled in operative relation with an air vent grid.

FIGURE 2 is an enlarged sectional view taken on the line 2—2 of FIGURE 1 after said wall protector has been incorporated with an air outlet grid with the latter mounted on a wall in alignment with an air flue outlet.

Description of the preferred embodiment

Referring specifically to the drawings, the wall protector **10** of the invention is preferably made as shown in FIGURE 1 in the form of a rectangular apron comprising two elements **11** and two elements **12**. These elements are assembled in telescopic relation so that the entire wall protector may be expanded or contracted to change the over-all dimensions thereof to fit a variety of rectangular air vent grids **13** differing in length and width.

Each of the elements **11** and **12** is formed in the shape of a right angle element, **11** for instance, having a male telescopic arm **14**, and a female telescopic arm **15**. These arms have internal flanges, **16** and **17** respectively, which lie in the same plane and are integrally united with air stream deflecting flanges, **18** and **19** respectively. The flanges **18** and **19** preferably form an internal angle with flanges **16** and **17** of 120° and the contiguous ends of air deflecting flanges **18** and **19** at the corner of element **11** are united together in any desired manner, depending upon the mode of manufacturing elements **11** and **12**. The upper edge of flange **18** may be just a plain edge of the sheet material comprising this flange or, if the elements **11** and **12** are made of sheet metal, this edge may be beaded by bending an upper portion of the metal outwardly and downwardly flat against the outer surface of flange **18** for reinforcing purposes.

The upper edge of air deflecting flange **19**, on the other hand, is formed outwardly and downwardly to form a female telescopic guide **20** for telescopically receiving a male telescopic arm of one of the elements **12** as will be made clear hereinafter.

Internal flange **17** is provided with an open slot **25**, which extends longitudinally inwardly from the outward extremity of this flange for a purpose which will be made clear hereinafter.

It is now desired to point out that the two elements **11** as above described are assembled with the two elements **12** so that the two elements **11** comprise diagonally opposite corner portions of the wall protector **10** while the two elements **12** form the other diagonally opposite corner portions of said wall protector. The wall protector **10** being rectangular in shape, that is, the ends of the wall protector being shorter than the sides thereof, the female telescopic arm **15** of each element **11** is shorter than the male arm **14** of said element.

The structure of the elements **12** is identical with that of the elements **11** excepting that each element **12** has a short male telescopic arm **15'** which telescopically unites with the short female telescopic arm **15** of an adjacent element **11** at one end of the wall protector **10**, and a relatively long female telescopic arm **14'** which extends

along one side of the wall protector **10** and telescopically unites with the male telescopic arm **14** of the other element **11** of the wall protector **10**.

The female telescopic arm **14'** and the male telescopic arm **15'** of each element **12** have internal flanges **26** and **27** respectively which lie in the same plane and form a right angle with each other. The flange **27** is provided with an open slot **28** extending longitudinally inwardly from the end of said flange for a purpose which will be made clear hereinafter. The arms **14'** and **15'** of each element **12** are provided respectively with air deflecting flanges **29** and **30** respectively. The upper edge of the flange **30** is smooth and adapted for telescopic reflection into the telescopic guide **20** provided on air deflecting flange **19** of the adjacent element **11**. The air deflecting flange **29** on arm **14'** of each element **12** is provided along its upper edge with a female telescopic guide **31**, which is similar to the guide **20** described hereinabove on flange **19** of element **11**.

As clearly shown in FIGURE 1, the two pairs of elements **11** and **12** are assembled together by sliding these into telescopic relation with each other so as to provide a continuous rectangular wall protector **10**, which is readily adjustable telescopically to vary either the longitudinal or transverse dimension of said wall protector or both. The two open slots **25** and **28** in each adjacent pair of elements **11** and **12** at one end of the wall protector **10** cooperate to provide an opening for penetration by a screw **32**, two of which are used to secure opposite ends of air grid **13** to a wall **33** with said grid in registry with the open end of an air conduit **34** provided in said wall.

Each of the elements **11** and **12** has a right angular shaped strip of very yieldable foam plastic **35** secured to the bottom faces of the internal flanges thereof, this weather stripping being co-extensive in length with said flanges. This weather stripping is secured by adhesive to corner portions of the elements **11** and **12** but not to the extremities of said elements, so that unsecured end portions of weather stripping **35** may be trimmed when assembling elements **11** and **12** in the formation of a wall protector **10**, to the proper size to be associated with a particular air vent grid **13** as shown in FIGURE 2 of the drawings. These angular foam plastic weather stripping units **35** are thus trimmed to join together when the wall protector **10** is assembled with its air vent grid **13** to produce a complete continuous rectangular weather stripping between the wall protector **10** and the outer surface of the wall **33**. Thus, when the grid is held down securely by the screws **32**, the weather stripping **35** is compressed so as to seal off the space between the wall protector **10** and the finish of the wall **33** so that where the latter has an irregular texture, the weather stripping **35** will fill in all such irregularities and provide an effective seal, preventing the escape of air outwardly between the wall protector **10** and the wall **33**.

While the wall protector **10** of the invention is preferably shown as made in four parts, each of which is adjustable relative to each of the contiguous parts, it is to be understood that the invention also embraces making a wall protector **10** of two parts which are adjustable only lengthwise of the protector, or of two parts which are adjustable only transversely relative to each other. On the other hand, the wall protector **10** may be made as an integral unit and be manufactured in different sizes, one for each of the different sizes of air vent grid **13** with which the same is to be associated.

It is further to be understood that the invention is not limited to the wall protector **10** being made of sheet metal, although this is preferable, because it is well adapted to be molded from a suitable heat-resistant plastic such as Bakelite.

I claim:

1. A rectangular wall protector in combination with a rectangular air vent grid having obliquely directed air discharge orifices and secured to the outer face of a room wall and overlying the discharge end of an air conduit mounted in said room wall, said protector comprising a continuous rectangular air deflecting apron made of thin sheet material and surrounding said grid and conforming to the perimeter of the latter, said apron including straight walls flaring outwardly from said grid at a substantial angle, whereby the air discharged from said grid is deflected away from said room wall, thereby preventing the smudging of said room wall by the deposit of solids thereon from said air stream, and co-planar flanges which extend inwardly from inner edges of said walls beneath perimetral portions of said grid so that when the latter is secured to said room wall, said internal flanges of the wall protector are gripped between said grid and said room wall.

2. A combination as recited in claim **1** wherein a continuous perimetral weather stripping means is provided on the bottom faces of said co-planar flanges which is readily deformable by the pressure applied thereto by the securing of said grid to said room wall, to effectively prevent the escape of air laterally between said room wall and said wall protector.

3. A combination as recited in claim **1** wherein said protector is made up of a plurality of telescopically related elements whereby the protector may be adjustably contracted or expanded to cause the protector to fit various dimensioned air vent grids.

4. A combination as recited in claim **3** in which the protector is comprised of two pairs of elements and each of said elements includes two arms integrally connected at right angles with each other, said two arms of each element having co-planar internal flanges disposed at a right angle with each other and air deflecting flanges extending obliquely outwardly from outer edges of said co-planar flanges, one of said air deflecting flanges having a plain upper edge and the other of said flanges having an outwardly turned telescopic guide along its outward edge for telescopically receiving the plain-edge of an adjacent element.

5. A rectangular wall protector provided for mounting externally against a marginal outer surface area of a wall surrounding an air conduit discharge opening in said wall, and adapted to be held against said wall by a grid mounted in overlying relation with said protector, said wall protector comprising:

a continuous rectangular air deflecting apron made of thin sheet metal including straight walls joining at their ends and flaring outwardly at a substantial angle from the plane of said wall;

co-planar flanges extending inwardly over said area from inner edges of said walls and supporting said walls entirely from said inner edges; and

a continuous perimetral foam plastic weather stripping means provided on the bottom faces of said co-planar flanges to yieldably conform to said wall in said area when compressed thereagainst by said grid and thus prevent the escape of air laterally between said room wall and said protector.

6. A wall protector as recited in claim **5** wherein said protector is made up of a plurality of telescopically related elements whereby the protector may be adjustably contracted or expanded to cause the protector to fit variously dimensioned air conduit discharge openings.

7. A wall protector as recited in claim **6** in which the protector is comprised of two pairs of elements and each of said elements includes two arms integrally connected at right angles with each other, said two arms of each element having co-planar internal flanges disposed at a right angle with each other and air deflecting flanges extending obliquely outwardly from outer edges of said co-planar flanges, one of said air deflecting flanges having a plain upper edge and the other of said flanges having an outwardly turned telescopic guide along its out-

ward edge for telescopically receiving the plain edged flange of an adjacent element.

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U.S. Cl. X.R.

40—155; 98—61, 121