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GRILLE FOR SELF-CONTAINED AIR CONDITIONING UNITS

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FIG. 1

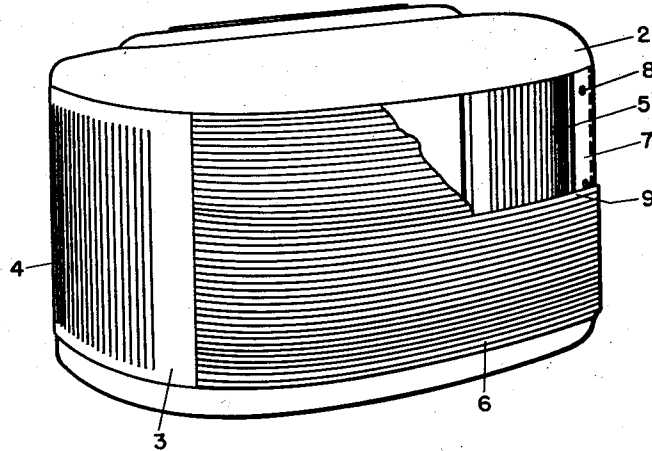


FIG. 2

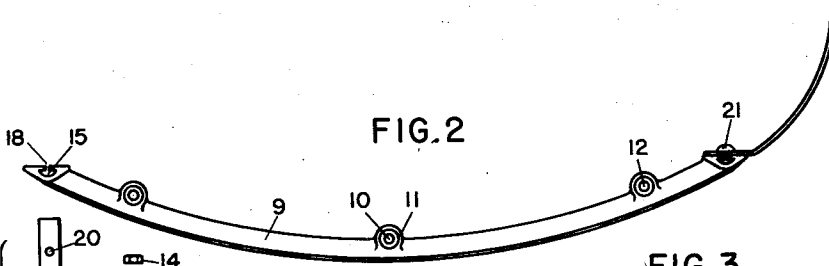


FIG. 3

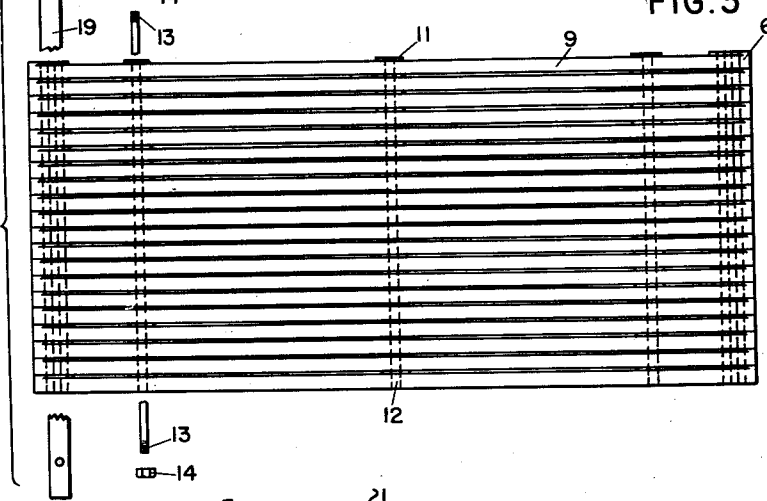
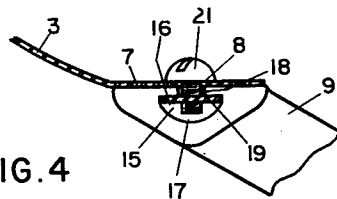


FIG. 4



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GRILLE FOR SELF-CONTAINED AIR-
CONDITIONING UNITS

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5 Claims. (Cl. 98—121)

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This invention relates to grilles for self-contained air conditioning units of the window type and to a method of assembling and securing the grille in desired position in the unit.

The chief object of the invention is to provide a grille which is readily and economically assembled and disposed in a self-contained air conditioning unit and which may be reversed if desired to change the direction of air flow.

An object is to provide a self-contained air conditioning unit including an economical grille readily disposed in the unit.

A further object is to provide a method of assembling and securing a grille in place in a self-contained air conditioning unit. Other objects of my invention will be readily perceived from the following description.

This invention relates to a self-contained air conditioning unit comprising, in combination, a casing, grilles disposed in the ends of the casing through which room air may be drawn into the casing, and a grille disposed in the front of the unit through which conditioned air may be discharged, the front grille including a plurality of horizontally extending grille members having vertical openings extending therethrough, such grille members having a spacer, on at least one side surrounding the openings, support members extending through the openings to support the grille members in juxtaposition, fastening means holding the grille members in place on said support members, each grille member having vertical openings adjacent its ends, each such opening having a slot extending through the rear wall of the grille member, elongated members disposed in the end openings and extending vertically through at least some of the grille members, said elongated members having spaced orifices therein, flanges in said casing having orifices therein in substantial alignment with the orifices in the elongated members, and fastening means extending through said orifices to hold the grille in place in the casing while permitting ready removal thereof as a unit.

The attached drawing illustrates a preferred embodiment of my invention, in which

Figure 1 is an isometric view of a self-contained air conditioning unit embodying the present invention;

Figure 2 is a plan view of the grille;

Figure 3 is a view in elevation of the grille; and

Figure 4 is an exaggerated plan view illustrating the manner in which the grille is held in place in the casing of the air conditioning unit.

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Referring to the drawing, there is shown an air conditioning unit designated generally at 2. The unit 2 includes suitable equipment (not shown) to condition air drawn therein, the equipment being mounted upon a suitable base. An ornamental casing 3 is disposed over the equipment. End grilles 4 and 5 are disposed in the ends of the casing to permit room air to be drawn into the unit. A grille 6 is disposed in the face of casing 3 to permit conditioned air to be discharged into the room being conditioned. Casing 3 includes flanges 7 having orifices 8 therein for a purpose hereinafter explained.

Grille 6 is composed of a plurality of arc-shaped, horizontally extending vanes or grille members 9 inclining upward from rear to front, each grille member having vertical openings 10 extending therethrough. Spacers 11 are disposed about each opening 10 and serve to space members 9 from one another to permit conditioned air to be discharged between adjacent members. If desired, a hexagonal recess may be formed on the opposite side of the grille, for a purpose hereinafter explained. Preferably, members 9 are molded from any suitable thermoplastic or thermosetting synthetic resins.

Bars or rods 12 disposed in openings 10 to support the structure. The ends of rods 12 are threaded as shown at 13 to receive nuts 14 which serve to lock the assembled grille members 9 in fixed position.

Each end of member 9 is provided with a vertically extending opening 15. Each opening 15 has a planar wall 16 and a concave wall 17. Extending rearwardly from wall 16 through the rear wall of member 9 is a slot or notch 18 which permits access to opening 15.

Elongated metal strip members 19 are adapted to fit within openings 15. Each strip member 19 extends vertically through at least some of the grille members 9. Strips 19 have orifices 20 therein, threaded if desired, adapted to be disposed in substantial alignment with orifices 8 in flanges 7. Fastening screws 21, which may be self-tapping screws if desired, extend through orifices 8, slots 18, and engage the wall of orifices 20 to secure the assembled grille in place in the casing. The concave wall 17 of opening 15 provides space to receive screw 21 and enables the grille to be fastened securely in place without forcing the strip away from the flange.

In assembling grille 6, members 9 are placed upon rods 12, rods 12 extending through openings 10, and nuts 14 placed on the threaded ends 13 of the rods 12 to hold members 9 in juxtapo-

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sition. By forming a hexagonal recess on the lower side of member 9 it will be appreciated it is not necessary to rotate the nuts 14 at both ends of rods 12. The recess in which the nut 14 fits holds it securely against rotation and permits the members 9 to be locked in position by rotating the nuts 14 on the upper ends of the rods. Strips 19 are then inserted in openings 15 and the assembly placed in position in casing 3. Screws 21 are then passed through the flange orifices 8 of the casing, slot 18 of members 9, and form threads in the wall of orifices 20 to hold the assembled grille in fixed position in the casing.

An advantage of this assembly resides in the fact that grille 6 is reversible to permit the stream of conditioned air passing therethrough to be directed upward or downward. To reverse the grille thereby changing the direction of discharge of conditioned air, it is necessary merely to remove screws 21, reverse the assembly through 180°, and again employ screws 21 to hold the grille in fixed position. If desired, it will be appreciated some of the grille members may be disposed to direct air passing therethrough in an upward direction while others may be disposed to direct some portion of the air passing therethrough in a downward direction.

My invention provides an inexpensive grille which may be readily assembled and removed from a self-contained air conditioning unit and which imparts a desired ornamental appearance to the casing as well as regulating the direction of discharge of conditioned air. Unskilled labor may be employed to assemble the grille and dispose it in position in the casing thus reducing manufacturing costs.

While I have described and illustrated a preferred embodiment of my invention, it will be understood my invention is not limited thereto since it may be otherwise embodied within the scope of the following claims.

I claim:

1. In a self-contained air conditioning unit, the combination of a casing, grilles disposed in the ends of the casing through which room air may be drawn into the casing, and a grille disposed in the front of the unit through which conditioned air may be discharged, the front grille including a plurality of horizontally extending grille members having openings extending vertically therethrough, such grille member having a spacer, on at least one side surrounding the openings, support members extending vertically through the openings to support the grille members in juxtaposition, fastening means holding the grille members in place on said support members, each grille member having vertically extending openings adjacent its ends, each such opening having a slot extending through the rear wall of the grille member, elongated members disposed in the end openings and extending vertically through at least some of the grille members, said elongated members having spaced orifices therein, flanges in said casing having orifices therein in substantial alignment with the orifices in the elongated members, and fastening means extending through said orifices in said casing flange, said slots in the rear walls of grille members and said orifices in the elongated members to hold the grille in place in the casing while permitting ready removal thereof as a unit.

2. In a self-contained air conditioning unit, the combination of a casing, grilles disposed in the ends of the casing through which room air may be drawn into the casing, and a grille dis-

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posed in the front of the unit through which conditioned air may be discharged, said front grille being reversible to permit discharged air to be directed in upward or downward directions, the grille including a plurality of horizontally extending grille members having vertical openings extending therethrough, each grille member having integral spacers on at least one side surrounding the openings, support members extending through the openings to support the grille members in juxtaposition, fastening means holding the grille members in place on said support members, each grille member having vertical openings adjacent its ends, each said opening having a planar wall, a concave wall and a notch portion extending through the planar wall to permit access to the opening through the rear wall of the grille member, elongated securing members disposed in the end openings and extending vertically through at least some of the grille members, said elongated members having spaced orifices therein, flanges in said casing having orifices therein in substantial alignment with the orifices in the securing members, and fastening means extending through said orifices to hold the grille in place in the casing while permitting ready removal thereof as a unit.

3. In a self-contained air conditioning unit, the combination of a casing, grilles disposed in the ends of the casing through which room air may be drawn into the casing, and a grille disposed in the front of the unit through which conditioned air may be discharged, said front grille being reversible to permit discharged air to be directed upward or downward, the grille including a plurality of molded, horizontally extending arc-shaped grille members having end sections adapted to fit against flanges of the casing, each grille member having a plurality of vertical openings extending therethrough, spacers on each grille member surrounding the openings, support bars extending through the openings to support the grille members in juxtaposition, fastening means to hold the grille members in place on the support bars, each grille member having vertical openings adjacent its ends, each said opening having a planar wall, a concave wall, and a slot extending through the planar wall to permit access to the opening through the rear wall of the grille member, elongated strips disposed in the end openings and extending vertically through said grille members, said strips having orifices extending horizontally therethrough, flanges in said casing having orifices therein in substantial alignment with the orifices in said strips, and self-tapping screws extending through said orifices and slot forming threads of the strip orifices to hold the grille in place in the casing while permitting ready removal thereof as a unit.

4. In a grille, the combination of a plurality of horizontally extending grille members having vertically extending openings therein, spacers on at least one side of each member surrounding the opening, support members extending through the openings to support the grille members in juxtaposition, fastening members holding the grille members in place on said support members, each grille member having vertically extending openings adjacent its ends, each such opening having a slot extending through the rear wall of the grille member, elongated members disposed in the end openings and extending vertically through at least some of the grille members, said elongated members having spaced orifices there-

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in to receive fastening means extending through the slots to hold the grille in desired position in an assembly.

5. In a grille, the combination of a plurality of molded, horizontally extending arc-shaped grille members having end sections adapted to fit against flanges of a casing, each grille member having a plurality of vertical openings extending therethrough, spacers integral with each grille member surrounding the openings, support bars extending through the openings to support the grille members in juxtaposition, fastening members to hold the grille members in place on the support bars, each grille member having vertical openings adjacent its ends, each said opening having a planar rear wall, a concave wall, and a slot extending through the planar wall to permit access to the opening through the rear wall of the grille member, elongated strips disposed in the end openings and extending vertically through the grille members, each strip having

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orifices therein to receive fastening means extending through the slot whereby the grille may be secured in place in an assembly.

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