Oct. 30, 1962 J. W. CIRA 3,060,834

LOUVERED GRILLE

Filed June 28, 1960

Fig. 1.

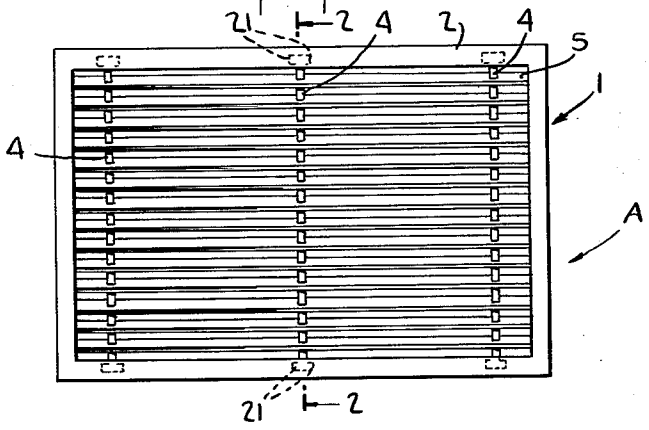


Fig. 2.

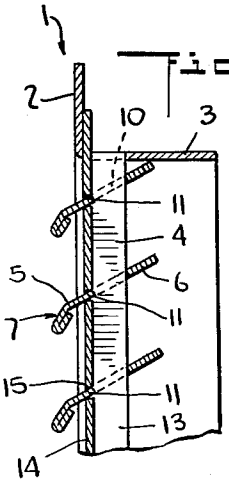
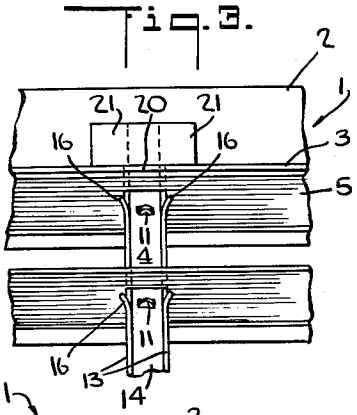


Fig. 3.



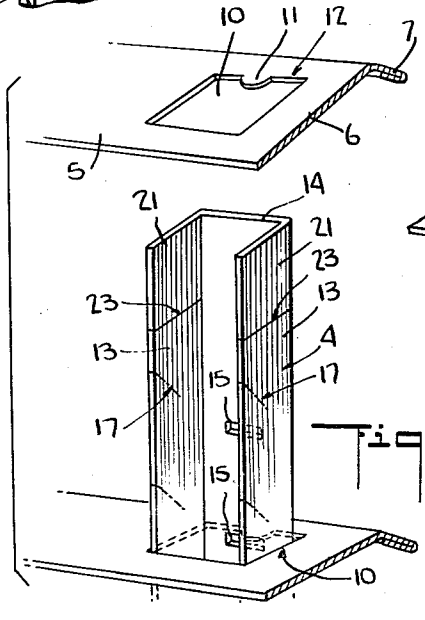
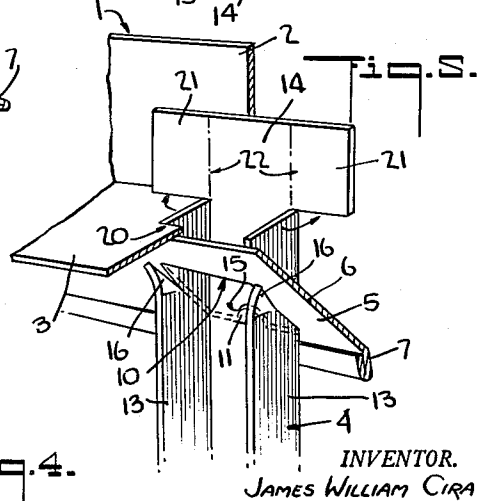


Fig. 4.

Fig. 5.



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LOUVERED GRILLE

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The present invention relates to an improved grille and more particularly to an improved louvered grille for a heater or the like.

Louvered grilles are commonly used as air diffusers for heaters and the like. However, one disadvantage of louvered grilles presently in use is that the angularity of the louvers is sometimes changed during shipment or normal handling.

Another disadvantage of louvered grilles in present use is the difficulty of assembling the louvers securely in a suitable frame—heretofore, the assembling of the louvers on a frame has been costly.

The present invention overcomes these disadvantages and has for one of its objects the provision of an improved louvered grille in which the angularity of the louvers are permanently fixed at the time of manufacture and cannot shift during shipment or handling.

Another object of the present invention is to provide an improved louvered grille in which the angularity of the louvers may be easily fixed at any angle desired.

Another object of the present invention is the provision of an improved louvered grille in which the louvers may be easily and inexpensively assembled into a frame without altering the appearance of the grille.

Another object of the present invention is to provide an improved louvered grille which may be inexpensively manufactured.

Other and further objects of the invention will be obvious upon an understanding of the illustrative embodiment about to be described, or will be indicated in the appended claims, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

A preferred embodiment of the invention has been chosen for purposes of illustration and description and is shown in the accompanying drawings, forming a part of the specification, wherein:

FIG. 1 is a front elevational view showing a louvered grille made in accordance with the present invention;

FIG. 2 is a sectional view taken along line 2—2 of FIG. 1 showing the position of the louvers on the grille;

FIG. 3 is a rear elevational view of a detail of the improved grille showing the means for maintaining angularity of louvers fixed;

FIG. 4 is an exploded perspective view showing the manner of inserting louvers onto a support; and

FIG. 5 is a perspective view showing the method of locking the louver-holding support in place on the frame.

Referring to the drawings and more particularly to FIG. 1, the grille A comprises a rectangular frame 1 having an upstanding front portion 2 and an inwardly directed flange portion 3 (FIGS. 2 and 5). The inwardly directed flange portions 3 are provided with openings 20 for a purpose which will be more fully discussed hereinafter.

Mounted on the frame 1 by means of the supports 4 are a plurality of louvers 5. The louvers 5 may be of any conventional or desired configuration. The particular louvers 5 illustrated in the drawings have a body portion 6 and an angled front facing portion 7, however, it will be understood that it is within the scope of the present invention to use louvers having other configurations.

In accordance with the present invention, the louvers

5 have openings 10 therein (FIG. 4) adapted to receive the supports 4. In the drawings three supports 4 are shown inserted in three openings 10 in the louvers 5, however, it will be understood that more or less openings and supports may be used, as may be desired. A tab 11 extends into the opening 10 from an edge 12 thereof and is adapted to be inserted into a slot 15 in the supports 4.

The supports 4 are preferably U-shaped and have a pair of legs 13 and base 14. The depth of the legs 14 is less than the depth of the opening 10 in the louver 5 to permit the louver to be angled with respect thereto. The base 14 of each support 4 is provided with a plurality of horizontally disposed slots 15 adapted to receive the tabs 11 of the louvers. The number of slots 15 in the supports 4 is preferably equal to the number of louvers 5 which are to be assembled thereon.

In order to assemble the louvers 5 on the support bars 4, the support bars 4 are passed into the openings 10 in the louvers 5. The tabs 11 of the louvers 5 are inserted into the slots 15 and the louvers 5 are pivoted upwardly to the desired angularity with the tab 11 acting as a fulcrum. To hold the louvers 5 firmly on the support bars 4 and to prevent any shift in angularity, a portion 16 of each leg 13 of the support bar 4 is mechanically offset or twisted outwardly, as shown in FIGS. 3 and 5, so that it abuts the under edge of the louver 5 and acts as a support for the louver. This will maintain the louvers 5 fixed on the support bars 4 so that the angularity of the louvers 5 cannot change during handling or shipment.

It is preferable that slits or weakened lines 17, as shown in dotted lines in FIG. 4, be provided on the legs 13 of the support bars 4 so as to facilitate offsetting or twisting of the metal to lock the louvers 5 in place.

It is also to be noted that the angle of the plane of the louver body 6 to the plane of the base 14 of the bars 4 is determined by the length of the hole 10 transverse to the length of the louver, i.e., the front to back depth of the hole, because this will regulate or control the amount the louver can be rotated on the tab 11 before the end wall of the hole 10 strikes against the legs 13. Therefore, the slits or weakened lines 17 will be positioned to lie slightly under the body 6 when in maximum up or leg engaging position.

Improved means are also provided for locking the support bars 4 on the frame 1. The support bars 4 are inserted in the openings 20 in flange 3 of the frame 1 (see FIG. 5) and upper wing portions 21 of the legs 13 of the U-shaped support 4 are bent back along the edges 22 so as to abut the upper edge of the flange 3. By bending the lower portions 21 of the support bars 4 in a similar manner, the support bar 4 is locked firmly in place on the frame.

As shown in the drawings, the upper portion 21 of legs 13 are flattened back so as to assume a 180° angle, i.e., a straight position in line with the base 14 of the support bar 4. However, it will be understood that it is within the scope of the invention for the wing portions 21 of the legs 13 to assume any angle with respect to the base 14. To facilitate bending of upper wing portion 21, a slit 23 may be made in the legs 13, as shown in FIG. 4.

To assemble the grille, the louvers 5 are placed onto the supports 4 through openings 10. The tabs 11 are inserted into slots 15 in the base 14 of the support bar 4 and the louvers are pivoted upwardly to the desired angle. Thereafter, portions 16 of the legs 13 of the support bar 4 are offset to lock the louvers 5 in place at the desired angle.

The supports 4 are then inserted in slots 20 in the flange 3 of the frame 1 and the upper and lower wing portions 21 of the support bars 4 are bent backwardly to lock the support bar in place on the frame.

It will be seen that the present invention provides an improved louvered grille in which the angularity of the louvers is permanently fixed and will not shift during shipment, which permits the louvers to be locked in place in any desired angle, and which may be easily and inexpensively manufactured and assembled.

The present invention also provides an improved louvered grille in which the support bars for holding the louvers are securely anchored in the frame.

As various changes may be made in the form, construction and arrangement of the parts herein without departing from the spirit and scope of the invention and without sacrificing any of its advantages, it is to be understood that all matter herein is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim:

1. A grille comprising a support bar, a plurality of louvers, each of said louvers having an opening, a tab extending inwardly from one edge of each of said openings, spaced slots in said support bar, said support bar being positioned in said openings, each of said slots receiving one of said tabs, and means on said support bar for locking said louvers in place to prevent angular shifting of said louvers.

2. A grille comprising a U-shaped support bar having a base and side flanges, a plurality of louvers, each of said louvers having an opening therethrough, a tab on each of said louvers extending inwardly from one edge of said opening, a plurality of slots spaced longitudinally in said base of said U-shaped support bar, said support bar being positioned in the openings of said louvers and having each slot receiving one of said tabs, portions of the support bar being offset to engage said louvers to hold said louvers in place to prevent angular shifting of said louvers.

3. A grille as claimed in claim 2, wherein said portions are portions of said flanges and are offset outwardly.

4. A grille comprising a frame having a first flange with an opening therethrough and having a second flange at an angle to said first flange, a U-shaped support bar extending through said opening, a plurality of louvers on said support bar on one side of said first flange, a portion of one of the legs of said support bar on the side of said flange opposite said louvers being outwardly offset and in edgewise abutting relation to said first flange thereby to lock the support bar on said frame.

5. A grille as claimed in claim 4 wherein a portion of each of the legs is so offset and the base of said bar and said offset portions are in face to face abutting engagement with said second flange.

6. A grille comprising a rectangular frame having inwardly directed parallel flanges with aligned openings therethrough, a U-shaped support bar extending at its opposite ends through said openings, said support bar having its side flanges turned outward adjacent the ends of said bar and toward the plane of the base portion of said bar thereby to overlie said frame flanges, said side flanges having a plurality of longitudinally spaced inclined edge slots therein, the base portion of said bar having longitudinally spaced slots therein, a plurality of louvers each having an opening therethrough receiving said bar, each of said louvers having a tab extending one into each of said base portion slots, said louvers each engaging a respective one of the edge faces of an inclined slot, a portion of each side flange at the inclined slots being bent outwardly to lie against the face of a louver and to hold that louver against the said engaged edge face of the inclined slot.

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