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AIR DIRECTING LOUVER DEVICE

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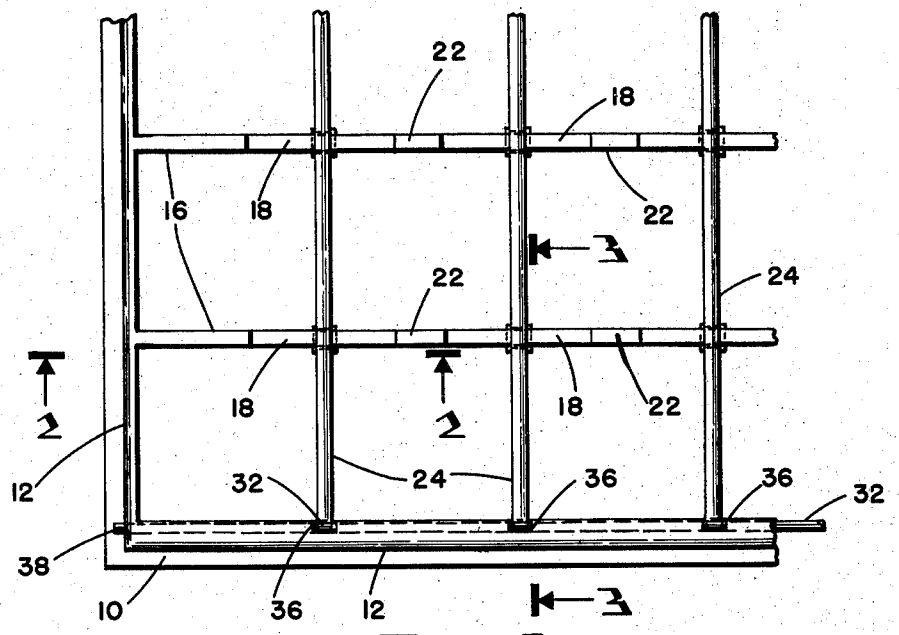


Fig. 1

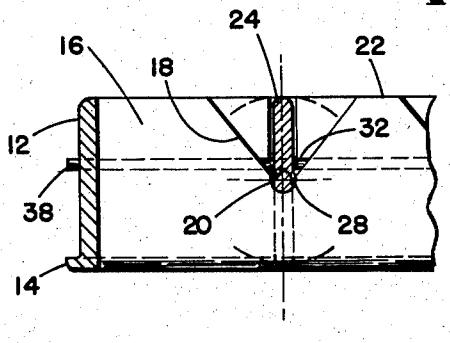


Fig. 2

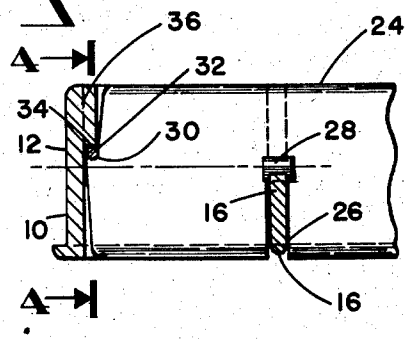


Fig. 3

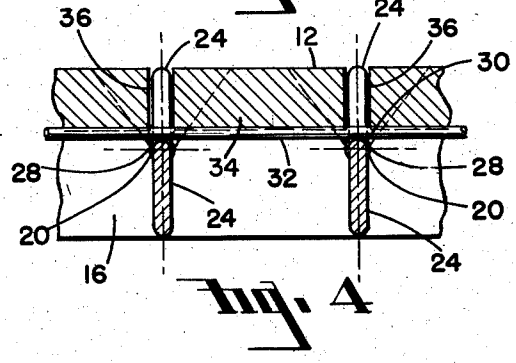


Fig. 4

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AIR DIRECTING LOUVER DEVICE

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5 Claims. (Cl. 98—110)

The present invention relates to an air directing louver device and more particularly to an air directing louver device having intersecting pivoted slats and means for holding the pivoted slats in a frame and properly located with respect to each other.

In the construction of air directing louver devices employing intersecting notched slats various devices have been employed for holding the notches of such intersecting slats in mesh or engaged relation with each other during the flow of air between the slats. Furthermore, it has been a problem to provide simple means for holding such slats in various adjusted positions relative to each other and within a frame which circumscribes the assembly of the intersecting slats.

According to the present invention a plurality of intersecting louver slats are provided with meshing notch portions having inwardly directed notch extremities wherein arcuate bearings interconnect the slats. The centers of the arcuate bearings form pivotal axes for the slats and permit them to pivot within the angular limits of the notches of these slats while the arcuate bearings also provide frictional interengagement of the slats to hold them in various angularly adjusted positions relative to each other. In addition, the present invention includes simple means for retaining an assembly of intersecting louver slats and a frame which circumscribes an assembly of the slats.

The present improvements in air directing louver construction are particularly adapted to the use of plastic materials which may have sufficient resilience to provide for frictional loading of interengaging arcuate bearings which interconnect the slats at their intersecting notch portions.

It is an object of the present invention to provide an air directing louver device wherein arcuate bearings, at the inner extremities of meshing notches in intersecting slats, interconnect the intersecting slats on their pivotal axes.

Another object of the invention is to provide an improved air directing louver construction particularly for use in the assembly of slats in frames.

Another object of the invention is to provide an assembly of several intersecting slats which may readily be retained in a rectangular frame by two straight wires which can be longitudinally inserted in the frame after an assembly of intersecting slats has been inserted therein.

Another object of the invention is to provide an air directing louver construction wherein a plurality of parallel slats are integral with a surrounding frame and wherein notches in said slats receive intermeshing notch portions of second slats which are held in the frame by substantially straight wire members inserted transversely of the ends of the second slats and whereby the ends of the second slats pivot adjacent to the wire members.

Further objects and advantages of the present invention may be apparent from the following specification, appended claims and accompanying drawings in which:

Fig. 1 is a fragmentary side elevational view of an air directing louver device including a plurality of intersecting slats contained in a substantially rectangular frame.

Fig. 2 is a fragmentary sectional view taken from the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary sectional view taken from the line 3—3 of Fig. 1 and;

Fig. 4 is a fragmentary sectional view taken from the line 4—4 of Fig. 3.

As shown in Fig. 1 of the drawings the present air directing louver device is provided with a frame 10 which is substantially rectangular and is provided with side elements 12 having flange portions 14 adapted to surround an opening in which the frame 10 may be inserted. The frame is provided with a plurality of integral spaced parallel slats 16 having substantially V-shaped notch portions 18 therein. These V-shaped notch portions are provided with arcuate concave bearing portions 20 at their inner extremities and these notches diverge outwardly to a common edge 22 of the slats 16.

A plurality of slats 24 are disposed at substantially right angles to the slats 16 and intersect the same. The slats 24 are provided with notch portions 26 having parallel sides which straddle the slats 16 and at the inner extremity of the notch portions 26 are arcuate in cross section cylindrical bearing portions 28 which are integral with the slats 24.

The arcuate bearings 28 are engaged in the arcuate recesses of the slats 16 and the arcuate bearing portions 20 extend substantially more than 180 degrees around the arcuate bearing portions 28. It will be noted that the bearings 28 are tightly fitted in the arcuate recesses 20. The resilience of the plastic material of the slats 16 at the arcuate bearing portions 20 gripping the bearing portions 28 provides sufficient friction so that the slats 24, when pivoted within the angular notch portions 18, will remain in adjusted position.

Opposite ends of the slats 24 are provided with arcuate bearing ledges 30 which are engaged by wires 32 inserted through the frame 10. The wires 32 may be inserted through openings in the end of the frame 10 and are supported in the frame 10 by ledges 34 as shown best in Fig. 3 of the drawings. The ledges 34 are formed by offset portions of the sides 12 which extend inwardly and notches 36 extend through these offset portions. It will be seen that the arcuate bearing ledges 30 as shown in Fig. 4 of the drawings bear against the wire 32 and that the pivotal axes of the bearings 28 pass through the middle portions of the slats 24 at a distance from the wire 32 equal to half the thickness of the slats 24.

In the sides 12 of the frame 10 are notch portions 36 through which the ends of the slats 24, at their ledge portions 30, may be inserted when the arcuate bearing portions 28 are inserted in the arcuate recess bearing portions 20 of the slats 16. It will be noted that the ledge bearing portions 30, when inserted in the notches 36 are forced downwardly below the ledge 34 at the terminus of the notch portions 36, whereupon the wires 32 may be inserted between the ledge 34 and the arcuate ledge bearing portions 30 of the slats 24.

In operation the slats 24 may be pivoted relative to the slats 16 within the angular limits of the V-shaped notches 18 while the arcuate bearing portions 20 grip the arcuate bearing portions 28 due to resilience of the plastic material in the slats 16. Thus, the slats 24 may be pivoted to various angular positions at which they will remain during vigorous flow of air through the louver slats thus the slats are prevented from buffeting or moving out of adjusted position while air is being

directed through the louver slats to a location in a building room as desired.

The bearing ledge portions **30** of the slats **24** pivot relative to the wires **32** concentric with axes of the arcuate bearing portions **28**. The wires **32** hold the slats **24** in the frame and prevent accidental displacement of the arcuate bearing portions **28** from the bearing portions **20** of the slats **16**. It will be noted that the ledge portions **34** which support the wires **32** are opposed to the arcuate bearing portions **20** so that the wires **32** oppose the displacement of the bearing portions **28** from the arcuate concave recess bearing portions **20**. Thus, the wires **32** in engagement with the arcuate ledge bearings **30** of the slats **24** hold them securely in a position wherein the arcuate bearing portions **28** cannot be displaced from the concave arcuate bearing recess portions of the slats **16**.

It will be noted that the wires **32** being straight and insertable under the ledge **34** of the frame **10** provide a very simple means for securely assembling the movable slats in the stationary slats of the louver device. The bearing portions **28**, which are resilient, are snapped into the concave arcuate bearing portions and provide a very simple arrangement for initial assembly of the louver slats in intersecting relationship with each other. The arcuate bearing portions **20** and **28** securely interengage each other and maintain a sufficiently close alignment of the ledge bearing portions **30** relative to the ledges **34** of the frame so that the wires **32** may readily be inserted without difficulty. Ends **38** of the wires **32** which are foremost when projected into the frame may be sharpened so they readily thread their way by the bearing ledge portions **30** of the slats **24** and the ledge **34** adjacent to the ends of the notches **36** to abridge the same and to prevent displacement of the slat bearing portions **30** therethrough.

Various modifications of the present invention may be resorted to in a manner limited only by a just interpretation of the following claims.

I claim:

1. In a louver slat and frame construction the combination of: a frame having a side member provided with an inwardly offset portion forming a ledge; said inwardly offset portion having notches extending therethrough and disposed to receive the ends of slats when inserted in said frame; slats pivotally disposed in said frame and having arcuate bearing portions at their ends and disposed adjacent said ledge; and a holding member engaging said ledge and bridging said notches, said holding member disposed between said ledge and the bearing portions of said slats to prevent displacement of said bearing portions through said notches and means retaining said slats adjacent to said holding member.

2. In a louver slat and frame construction the combination of: a frame having opposed side members each provided with an inwardly offset portion forming a ledge; each of said inwardly offset portions having notches extending therethrough and disposed to receive the ends of slats when inserted in said frame; first slats pivotally disposed in said frame and having arcuate bearing portions at their ends and disposed adjacent said ledge; and a holding member engaging said ledge and bridging said notches, said holding member disposed between said ledge and the bearing portions of said slats to prevent displacement of said bearing portions through said notches; second slats angularly intersecting said first slats and supported in said frame, said first slats held adjacent said second slats by means of said holding member supported on said ledge and retaining said bearing portions of said slats.

3. In a louver slat and frame construction the combination of: a frame having opposed side members each provided with an inwardly offset portion forming a ledge; each of said inwardly offset portions having notches extending therethrough and disposed to receive the ends of slats when inserted in said frame; first slats pivotally disposed in said frame and having arcuate bearing portions at their ends and disposed adjacent said ledge; and a holding member engaging said ledge and bridging said notches, said holding member disposed between said ledge and the bearing portions of said slats to prevent displacement of said bearing portions through said notches; second slats angularly intersecting said first slats and supported in said frame, said first slats held adjacent said second slats by means of said holding member supported on said ledge and retaining said bearing portions of said slats, said second slats fixed in said frame and having V-shaped notches within which said first slats are pivotally disposed.

4. In a louver slat and frame construction the combination of: a frame having opposed side members each provided with an inwardly offset portion forming a ledge; each of said inwardly offset portions having notches extending therethrough and disposed to receive the ends of slats when inserted in said frame; first slats pivotally disposed in said frame and having arcuate bearing portions at their ends and disposed adjacent said ledge; and a holding member engaging said ledge and bridging said notches, said holding member disposed between said ledge and the bearing portions of said slats to prevent displacement of said bearing portions through said notches; second slats angularly intersecting said first slats and supported in said frame, said first slats held adjacent said second slats by means of said holding member supported on said ledge and retaining said bearing portions of said slats, said second slats fixed in said frame and having V-shaped notches within which said first slats are pivotally disposed, said first slats having integral arcuate intersection bearing portions, said second slats having conforming arcuate recesses in the apices of said V-shaped notches, said conforming recesses extending slightly more than one hundred eighty degrees around said intersection bearing portions of said first slats to hold them adjacent said second slats at the slat intersections.

5. In a louver slat and frame construction the combination of: a frame having a side member provided with an inwardly offset portion forming a ledge; said inwardly offset portions having notches extending therethrough and disposed to receive the ends of slats when inserted in said frame; slats pivotally disposed in said frame and having arcuate bearing portions at their ends and disposed adjacent said ledge; and a holding member engaging said ledge and bridging said notches, said holding member disposed between said ledge and the bearing portions of said slats to prevent displacement of said bearing portions through said notches, said arcuate bearing portions of said slats having a radius equal to one half the thickness of the slats; and means retaining said slats adjacent to said holding member.

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