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AIR DIRECTING LOUVER DEVICE

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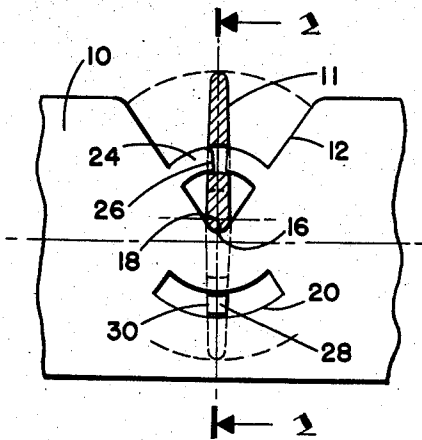


Fig. 1

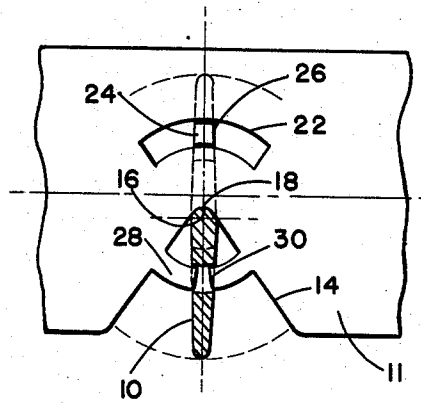
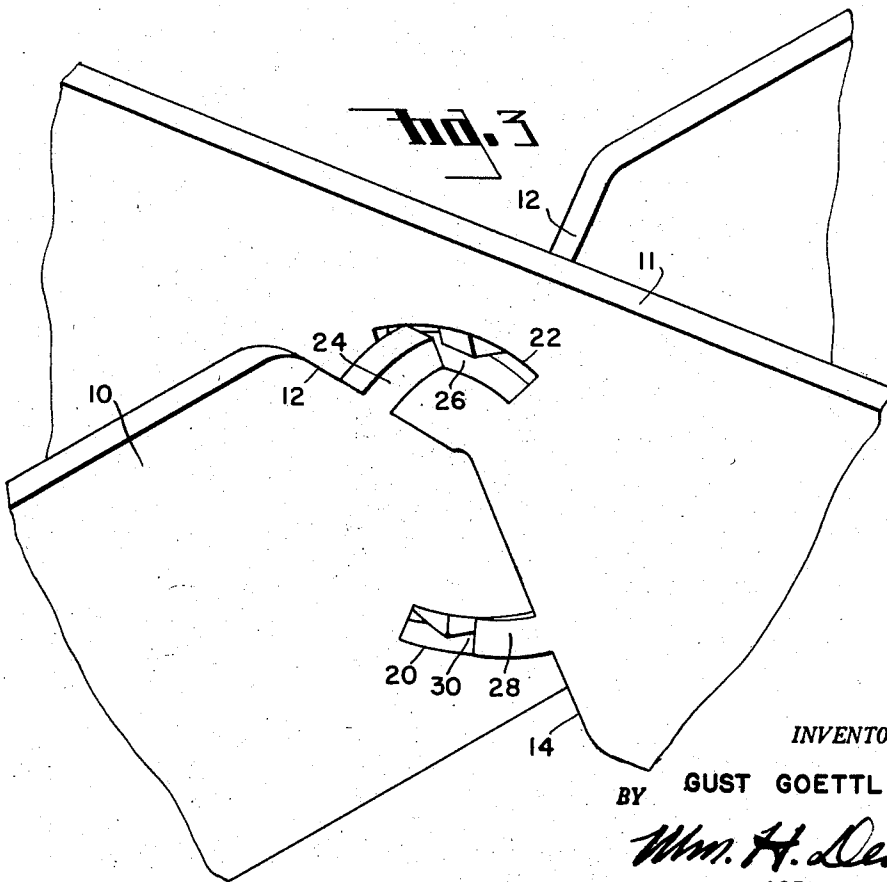


Fig. 2



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AIR DIRECTING LOUVER DEVICE

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3 Claims. (Cl. 98—110)

The present invention relates to an air directing louver device and more particularly to improvements over an invention disclosed in an application of Adam D. Goettl, Serial No. 583,016, filed May 7, 1956 for Air Directing Louver Device.

In the construction of air directing louver devices, employing intersecting notched slats, various devices have been employed for holding the notches of intersecting slats in close proximity or engaged relationship with each other during the flow of air between the slats.

According to the present invention a plurality of intersecting louver slats are provided with meshing V-shaped notches having inwardly directed apices wherein arcuate bearings initially 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 while these arcuate bearings also provide sufficient friction to hold the slats in various angularly adjusted positions relative to each other.

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 on arcuate bearings which interconnect apices of substantially V-shaped intersecting notches of the louver slats.

It is an object of the present invention to provide an air directing louver device wherein arcuate bearings at the apices of slots in the slats interconnect intersecting slats on their pivotal axes.

Another object of the invention is to provide an air directing louver device having intermeshing arcuate slot and strap means which is concentrically disposed relative to arcuate apices of substantially V-shaped notch portions which mesh in accordance with the intersecting angles of relatively pivoted slats.

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

Another object of the invention is to provide an air directing louver device having slat construction wherein arcuate bearing means interconnects the slats at the inner portions of V-shaped meshing notches therein, whereby the arcuate bearings in each of the meshing notches of the intersecting slats provides sufficient frictional loading of the slats relative to each other so that they will remain in certain angularly adjusted position relative to each other.

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 sectional view of a pair of intersecting slats of an air directing louver device in accordance with the present invention; Fig. 2 is a sectional view taken from line 2—2 of Fig. 1; and

Fig. 3 is an enlarged fragmentary perspective view of intersecting slats of the air directing louver device shown in Figs. 1 and 2 of the drawings.

As shown in Fig. 1 of the drawing the present inven-

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tion relates to an air directing louver device having intersecting slats 10 and 11. While only one of each of these slats is shown it is contemplated that a plurality of slats 10 may be arranged in parallel relationship to each other while a plurality of slats 11 may be arranged in a parallel relationship to each other and intersecting the slats 10. As shown in Fig. 1 the slat 10 is provided with a substantially V-shaped notch 12 which receives the slat 11 and the slat 11 is provided with a substantially V-shaped notch 14 which receives the slat 10. Thus, the notches 12 and 14 of the slats 10 and 11 mesh with each other and permit pivotal movement of the slats relative to each other within the angular limits of the substantially V-shaped notches.

The notch 12 in the slat 10 is provided with arcuate closed apex 16 while the notch 14 in the slat 11 is provided with an arcuate closed apex portion 18. Concentric with the arcuate closed notch apex portion 16 in the slat 10 is an arcuate slot 20 and disposed in the slat 11 is an arcuate slot 22 which is concentric with the arcuate closed notch apex portion 18 of the slat 11. The slat 10 is provided with an arcuate strap portion 24 which abridges the diverging substantially V-shaped notch 12 and this strap 24 is an arcuate strap concentric with the arcuate closed apex portion 16 of the slat 10. The arcuate strap 24 is provided with a slot 26 therein which is slightly narrower than the thickness of the slat 11 at its engagement with the arcuate closed notch apex portion 16. The slat 11 is provided with an arcuate strap portion 28 which is concentric with the arcuate closed notch apex portion 18 and this strap 28 abridges the diverging notch 14 as shown best in Fig. 2 of the drawings.

The strap 28 is provided with a slot 30 which is slightly narrower than the thickness of the slat 10 at the notch apex portion 18 of the slat 11. It will be noted that the notch apex portion 16 of the slat 10 and the notch apex portion 18 of the slat 11 are both provided with arcuate curvature disposed concentric with a longitudinal axis of each respective slat, said arcuate curvature being of equal radius to that of the arcuate closed notch apex portions 16 and 18.

The strap portion 24 of the slat 10 passes through the arcuate slot 22 of the slat 11 while the strap portion 28 of the slat 11 passes through the arcuate slot 20 of the slat 10 when the slats are pivoted relative to each other. Since the slots 26 and 30 of the straps 24 and 28 are narrower than the width of the slats 10 and 11 these strap portions at opposite sides of the slots 26 and 30 must be spread apart when the meshing notch portions of the slats 10 and 11 are received within each other. To accomplish this the slats must be made of substantially resilient material such as plastic or the like. When the closed notch apex portions 16 and 18 of the slats have been forced through the slots 26 and 30 of the straps 24 and 28 the notch apex portions 16 and 18 are engaged and the straps 24 and 28 snap into the respective slots 22 and 20 of the slats 11 and 10, respectively. This arrangement provides for an interlocking connection of the slats 10 and 11 and their pivotal action relative to each other is only limited by the angular divergence of the notches 12 and 14. The slots 26 and 30 are narrower than the thickness of the slats therefore they do not catch in the slots 20 and 22 when the slats are pivoted relative to each other.

All of the arcuate bearing portions disclosed in Figs. 1 and 2 of the drawings are arranged to provide pivotal axes for intersecting slats having meshing notch portions. These arcuate bearings are also arranged to provide for a connected assembly of the slats relative to each other so that the slats are held in assembled relation wherein

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they are angularly adjustable relative to each other to guide air therethrough in various directions as desired.

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 construction the combination of: a first slat having a substantially V shaped notch; a second slat intersecting said first slat at substantially right angles and having a substantially V shaped notch meshing with the V shaped notch of said first slat; inner portions of said notches of said slats being adjacent each other and each provided with an arcuate bearing structure; said arcuate bearing structures each comprising an arcuate apex; each slat also having an arcuate slot concentric with its arcuate apex; each slat having an arcuate strap concentric with each arcuate apex and abridging the diverging structure of a respective V shaped notch; the strap of each slat projecting through the arcuate slot of an intersecting slat; each strap having a slot disposed to spread resiliently whereby the portion of the slat between its notch apex portion and its arcuate slot may pass through the slot in the arcuate strap of an intersecting slat during assembly of the slats in positions wherein the notches of the first and second slats mesh.

2. In a louver slat construction the combination of: a first slat having a substantially V shaped notch; a second slat intersecting said first slat at substantially right angles and having a substantially V shaped notch meshing with the V shaped notch of said first slat; inner portions of said notches of said slats being adjacent each other and each provided with an arcuate bearing structure; said arcuate bearing structures each comprising an arcuate apex; each slat also having an arcuate slot concentric with its arcuate apex; each slat having an arcuate strap concentric with each arcuate apex and abridging the diverging structure of a respective V shaped notch; the

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strap of each slat projecting into the arcuate slot of an intersecting slat; each strap having a slot disposed to spread resiliently whereby the portion of the slat between its notch apex portion and its arcuate slot may pass through the slot in the arcuate strap of an intersecting slat during assembly of the slats in position wherein the notches of the first and second slats mesh, said apexes, said slots, and said straps of respective slats are all concentric with each other.

3. In a louver slat construction the combination of: a first slat having a substantially V shaped notch; a second slat intersecting said first slat at substantially right angles and having a substantially V shaped notch meshing with the V shaped notch of said first slat; inner portions of said notches of said slats being adjacent each other and each provided with an arcuate bearing structure; said arcuate bearing structures each comprising an arcuate apex; each slat also having an arcuate slot concentric with its arcuate apex; each slat having an arcuate strap concentric with each arcuate apex and abridging the diverging structure of a respective V shaped notch; the strap of each slat projecting through the arcuate slot of an intersecting slat; each strap being of resilient material and having a slot the width of which is slightly less than the thickness of an intersecting slat, said strap at said slot disposed to spread resiliently whereby the portion of the slat between its notch apex portion and its arcuate slot may pass through the slot in the arcuate strap of an intersecting slat during assembly of the slats in positions wherein the notches of the first and second slats mesh.

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