United States Patent [19]

Naude

[11] **3,928,954**

[45] **Dec. 30, 1975**

[54] **LOUVRE SYSTEM**

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[22] Filed: **Apr. 18, 1974**

[21] Appl. No.: **461,978**

[52] **U.S. Cl.** **52/473;** 52/664

[51] **Int. Cl.²** **E06B 7/08**

[58] **Field of Search** 52/473, 665-669

[56] **References Cited**

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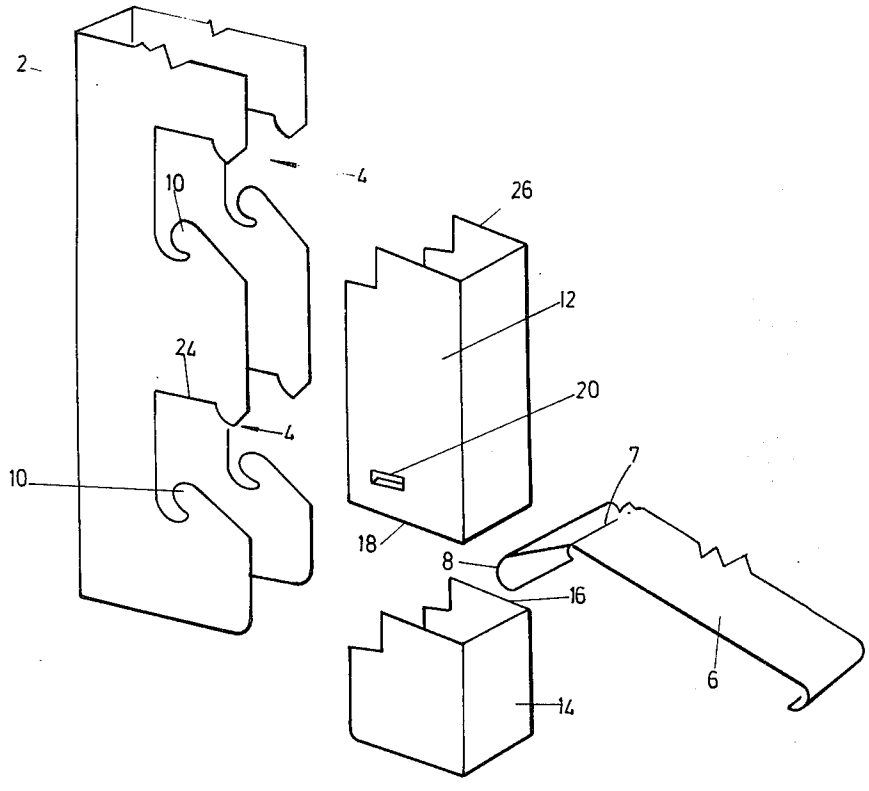
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Primary Examiner—Ernest R. Purser
Assistant Examiner—Carl D. Friedman
Attorney, Agent, or Firm—Young & Thompson

[57] **ABSTRACT**

A louvre system includes a series of louvres, stringers located parallel to each other to support the louvres between them, each stringer being formed with a registering slot receiving the louvre, and a locking piece adapted to engage with each stringer to clamp the louvre in position.

9 Claims, 6 Drawing Figures



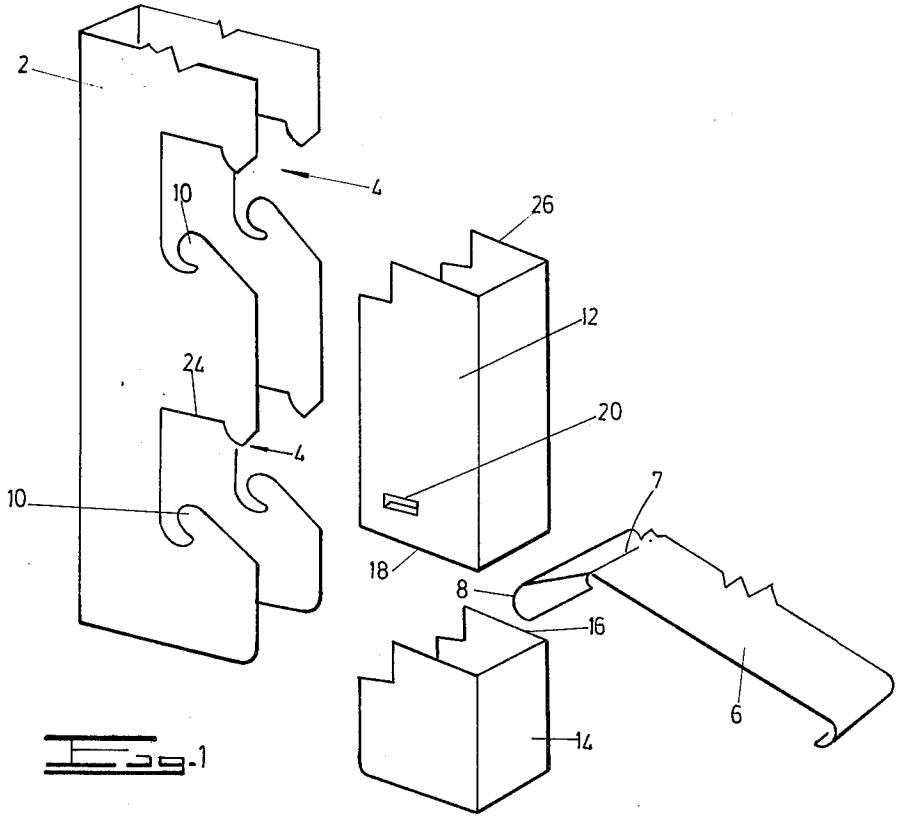


Fig. 1

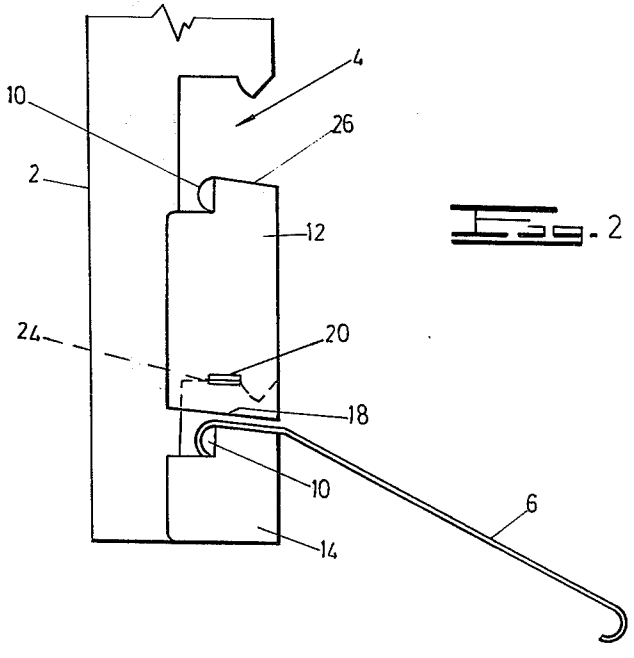


Fig. 2

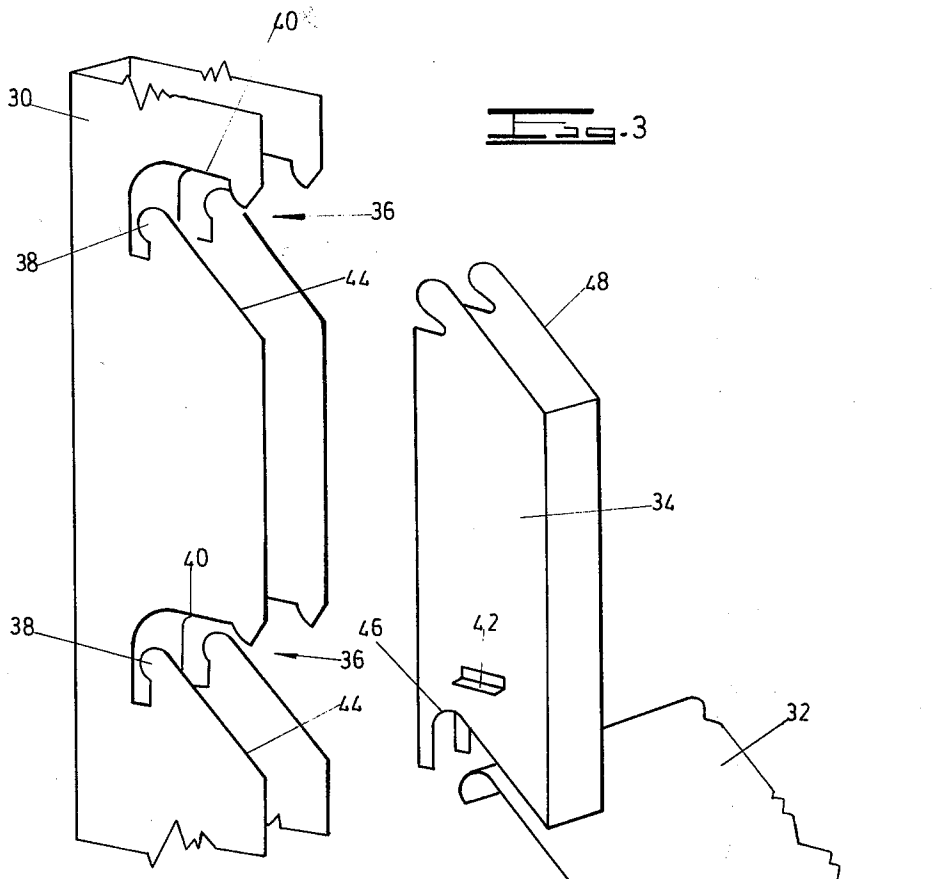


Fig. 3

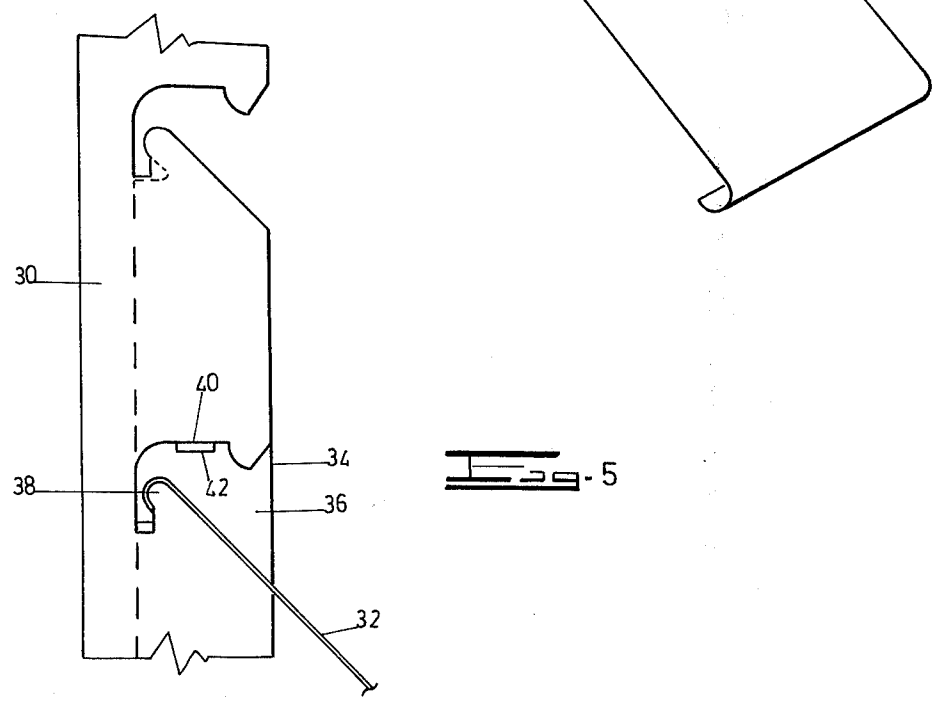


Fig. 5

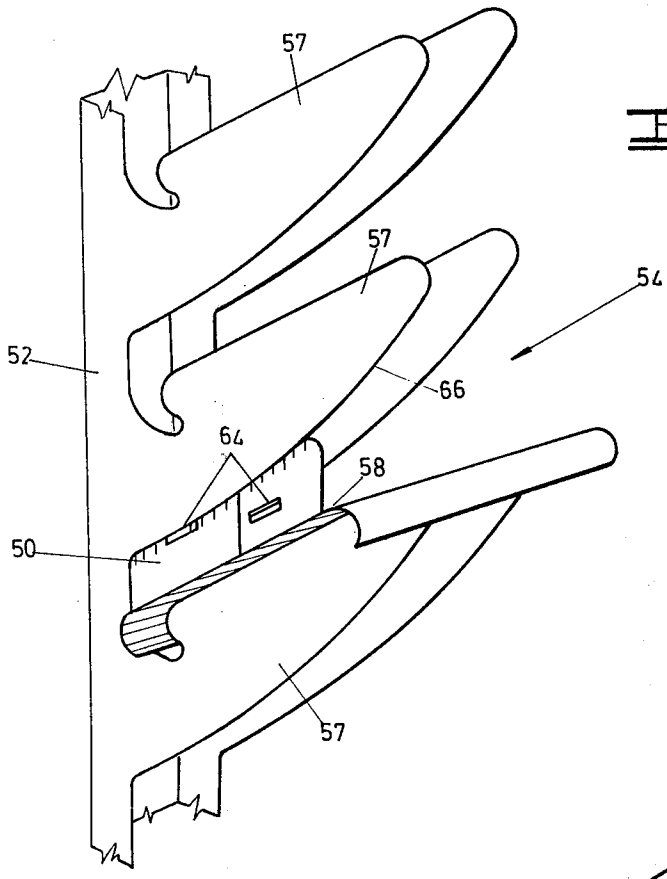


Fig. 6

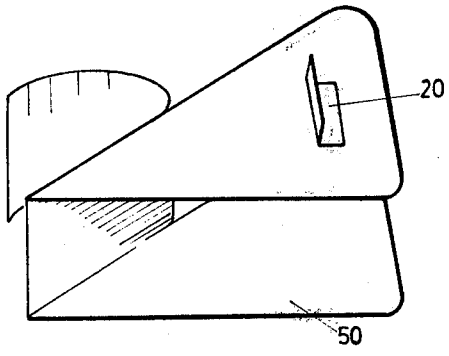


Fig. 4

LOUVRE SYSTEM

This invention relates to louvre systems of the type in which a series of louvres is supported between parallel stringers.

There are various methods for attaching louvres to the stringers in such systems, and various systems of this kind.

One such system which is well known and widely used is known as the "Luxaflex" system. This known system is effective and popular. It has parallel stringers and transverse louvres clipped on to brackets shaped from the stringers. The louvres are held by the spring action of the curled edges of the louvres.

The brackets extend between the edges of the louvres so that the brackets in all cases have to conform to the louvre shape.

An object of the invention is to provide a louvre system in which the louvres are more securely held.

The invention provides a louvre system including a louvre, at least two stringers adapted to be located parallel to each other and to support the louvre between them, each stringer being formed with a registering slot adapted to receive the louvre, an abutment comprising or associated with one edge of the slot, and a locking piece adapted to engage with each stringer to clamp the louvre against the abutment.

In one form of the invention in a louvre system of the type set out above the stringers are channel sections formed from sheet material and the registering slots are cut out of the walls of the channels, and the locking piece is a piece of channel section formed from sheet material adapted to engage in a push fit with a stringer to abut the louvre and clamp it against the abutment, means being provided to lock the locking piece in this position.

The sheet material is preferably sheet metal.

The invention is discussed further with reference to the accompanying drawings in which

FIG. 1 is an exploded view of a portion of a stringer, locking pieces, and a louvre for one embodiment of a louvre system according to the invention,

FIG. 2 shows the parts of FIG. 1 assembled,

FIG. 3 is an exploded view similar to FIG. 1 of another embodiment of the invention,

FIG. 4 shows an alternative form of locking piece for use in this embodiment,

FIG. 5 shows the parts of FIG. 3 assembled, and

FIG. 6 illustrates another embodiment.

Referring to FIG. 1, a stringer 2 for a louvre system is made from a channel section formed from sheet metal. Corresponding pairs of slots 4 are cut from the walls of the channel to provide registering slots adapted to receive louvres. FIG. 1 shows a louvre 6 about to be received in one of these registering slots. The louvre 6 has a hook formation 8 along the edge the slots 4 are intended to receive, and the portion intended to extend from the stringer 2 is cranked at 7 with respect to the portion to be received in the slots 4 to provide a desired inclination of the louvre to the support plane. Corresponding edges of the slots 4 are cut complementally with the hook formation 8 to form catches 10 over which the hook 8 can engage. The louvre 6 is clamped in the slots 4 by means of a locking piece 12. The locking piece 12 is made from a piece of channel section formed from sheet metal. The width of the channel is slightly greater than the overall width of the channel

section of the stringer 2. The locking piece 12 can therefore be push fitted over the stringer 2 to engage with it.

The elements are assembled as follows:

An end piece 14 intended to be located at the end of a stringer is, say, rivetted in to position on the stringer 2. The top edge 16 of this locking piece 14 protrudes from the lower edges of the registering slot 4, to provide an abutment on which the louvre 6 having had its edge 8 hooked over the catches 10, can rest. When the louvre 6 is so positioned, it can be locked in place by means of the locking piece 12.

The locking piece 12 is formed with lugs 20 in the form of tabs cut from the channel walls and bent to protrude in to the channel. These lugs 20 are so positioned from the lower edge 18 of the locking piece 12 that when the locking piece 12 is pushed onto the stringer 2, with its lower edge 18 abutting the louvre 6, the lugs 20 snap in to notches 24 provided in the upper edges of the registering slots 4, and clamp the louvre 6 against the abutment 16. Thus the lugs 20 comprise one species of locking means engaging between the locking piece and the stringer to maintain engaged the engaging means comprised by the slot wall and louvre. The upper edge 26 of the locking piece 12 shaped similarly to the upper edge 16 of the end piece 14, protrudes beyond the lower edge of the next slot 4 along the stringer 2, and forms the abutment for the slot.

In this manner a series of louvres 6 may be located on the stringer 2. In FIG. 2 the parts of FIG. 1 are shown assembled.

In FIG. 3 another embodiment of the invention is illustrated.

The stringer 30 is identical to the stringer 2 of the ambodiment just discussed. The lower edges 44 of the slots 36 here provide the abutments on which a louvre 32 to be positioned in the slot must rest. The louvre 32 is then locked in position by means of a locking piece 34 which operates similarly to the locking piece 12 in the previous embodiment. The bottom edges 46 of the locking piece 34 are curved complementally with the hooked formation at the edge of the louvre 32. The locking piece 34 this time fits inside the channel of the stringer 30, and has lugs 42 that project from the walls. Otherwise the clamping operation is performed as in the previous embodiment. The top edge 48 of the locking piece 34 is shaped complementally with the lower edge 44 and catch 38 of the next slot in the series. This merely serves to reinforce the abutment 44 it provides.

The locking piece for the FIGS. 3 and 5 embodiment may alternatively have the form shown in FIG. 4. Here the piece 50 serves to clamp only, in the same manner as the locking piece 34, but is cut off just above the lugs 20.

FIG. 5 shows the parts of FIG. 3 assembled.

FIG. 6 illustrates a stringer 52 of the Luxaflex system and its associated louvre 58. The louvre 58 has roundly curled longitudinal edges. The stringer 52 comprises a channel having its walls cut out to provide a plurality of equally spaced brackets 57 providing parallel seats for louvres. The seats have rounded ends complemental to the curls at the edges of the louvres. In the known system the louvres 58 are sprung into position by passing the curls over the rounded ends of the brackets.

In order to install a louvre in a known system a force is exerted by hand and the parts are shaped so that the louvre is not elastically deformed. It follows that the louvre can be removed by means of a similar force in

the opposite direction, even if it needs to be of a higher order. High winds can exert forces of a much higher order and in areas prone to high winds there is a constant replacement of louvres blown off by the wind.

From FIG. **6** it is clear that the brackets **57** between them define a slot **54** in the sense described with reference to FIGS. **1** to **4**. The locking pieces of FIGS. **1** and **2** or **3** and **5** cannot be used, but the locking piece of FIG. **4** lends itself to the purpose. In FIG. **6** a locking piece **50** is shown locking a louvre **58** in position.

The construction of FIG. **6** is not preferred because for every angle of the louvres **58** stringers with differently shaped brackets **57** have to be provided. Where a louvre is clamped only over a portion of its width, it can be cranked during rolling to provide different configurations. The embodiment of FIGS. **1** and **2** is ideal for this purpose.

The louvre supporting method, and louvre system described, make for ease of erection and manufacture. The parts are easily made, and material costs are reduced in that the elements are made from relatively lightweight materials.

The stringers for the first embodiment could obviously be made solid.

This makes for extra expense in metal systems, but solid plastics stringers could prove a sound commercial proposition.

Indeed, the entire system could possibly equally suitably be made from suitable plastic materials.

I claim:

1. A louvre system including a louvre, at least two stringers located parallel to each other and supporting a louvre between them, characterized by each stringer being formed with a registering slot receiving the louvre and said slot wall and louvre having engaging means, an abutment comprising or associated with one edge of the slot, a locking piece separate from the stringer and in engagement with the abutment to clamp the louvre against the abutment, and locking means engaging between said locking piece and said stringer to maintain engaged said engaging means.

2. A louvre system as claimed in claim **1** in which the stringers are channel sections having an open side between two legs formed from sheet material, and the registering slots are cut out of the legs.

3. A louvre system as claimed in claim **2** in which the sheet material is sheet metal.

4. A louvre system as claimed in claim **3** in which the locking piece is a piece of channel section formed from sheet material adapted to engage in a spring fit with a stringer to abut the louvre and clamp it against the abutment.

5. A louvre system as claimed in claim **4** in which the sheet material is sheet metal.

6. A louvre system as claimed in claim **4** in which the locking means comprises a lug projecting from the channel wall adapted to engage with the edge of the slot away from the abutment edge.

7. A louvre system as claimed in claim **6** in which the lug comprises a tab cut and bent from the sheet material.

8. A louvre system as claimed in claim **4** for supporting a plurality of louvres, a series of registering slots being spaced along the stringers, in which the end of the channel piece comprising the locking piece away from the end that abuts a louvre to hold it against the abutment associated with its registering slot, projects from the edge of the next slot in the series to from the abutment for that slot.

9. A louvre system as claimed in claim **1** in which one free edge of the louvre extends beyond the stringer.

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