Sept. 5, 1961 J. SPARGO 2,998,765

PIVOTAL LOUVER ASSEMBLY

Filed July 2, 1958 2 Sheets-Sheet 1

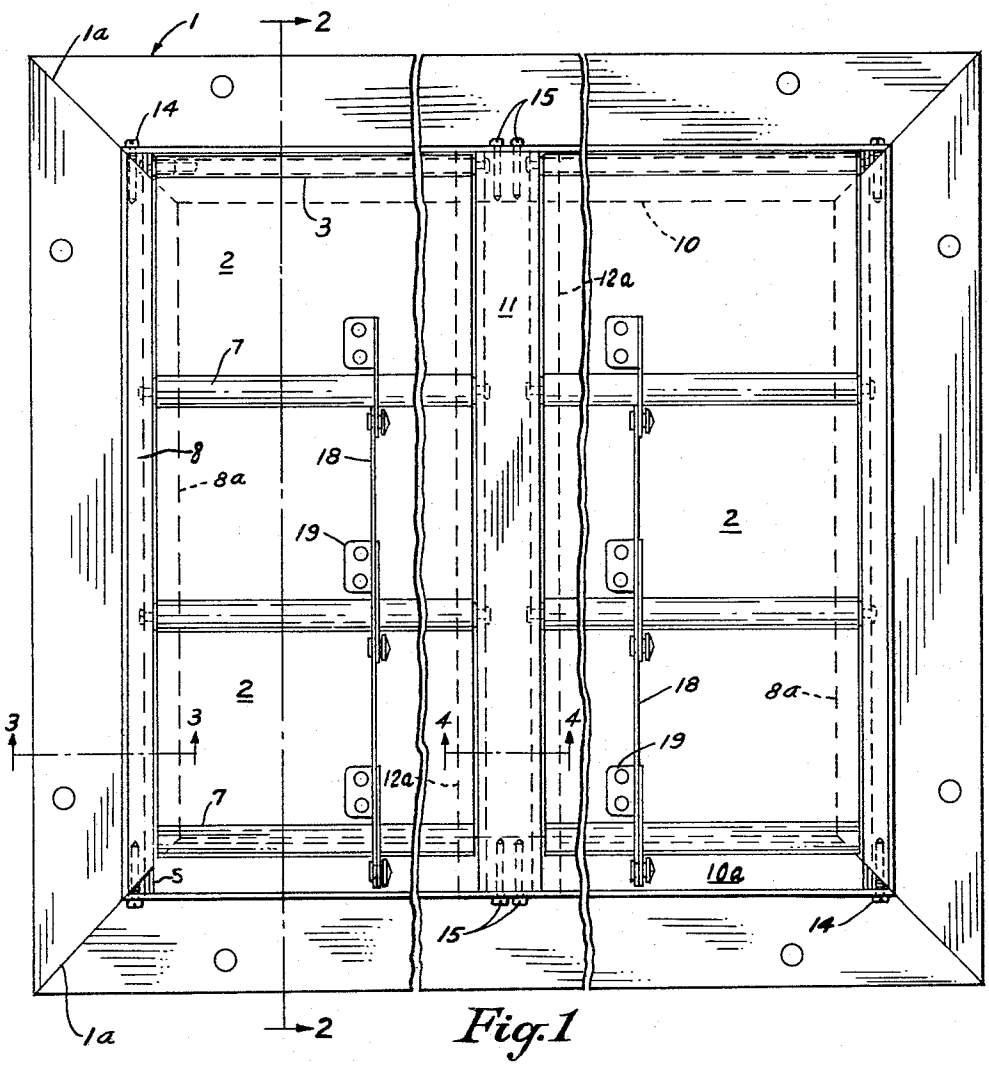


Fig. 1

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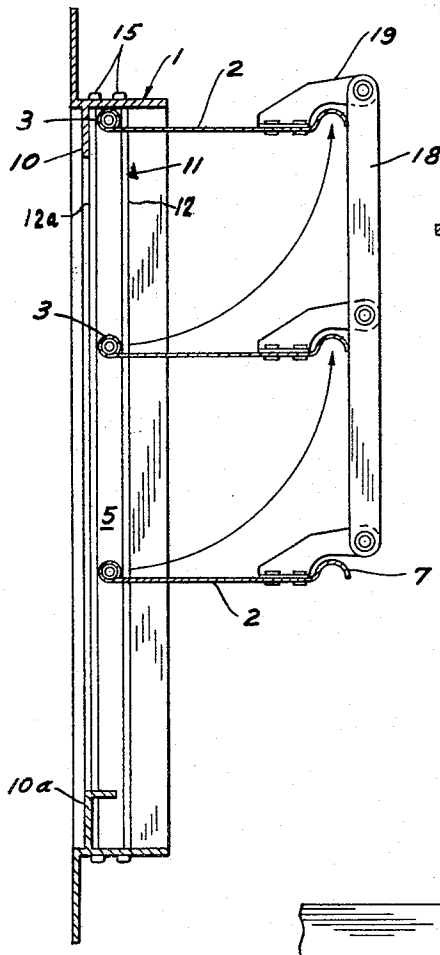


Fig. 2

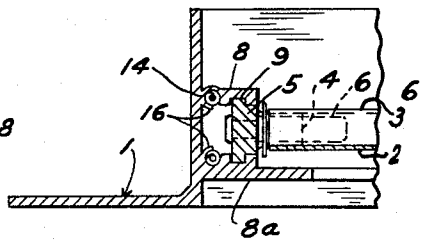


Fig. 3

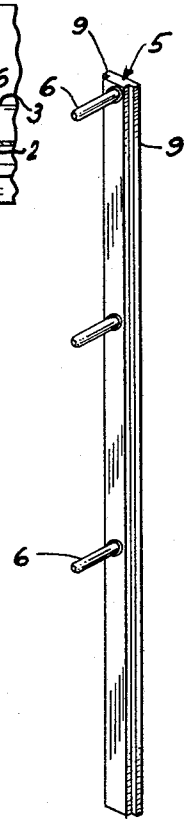


Fig. 5

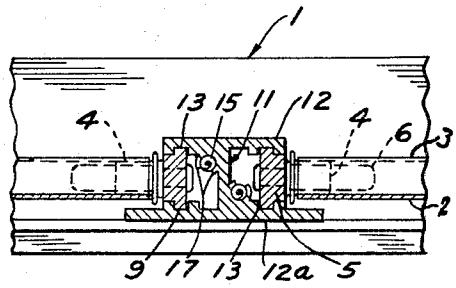


Fig. 4

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PIVOTAL LOUVER ASSEMBLY

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4 Claims. (Cl. 98—119)

This invention relates to pivotal louver assemblies and particularly such assemblies as control ventilation.

An object of the invention is to incorporate a set of louvers in a subassembly including a pair of parallel rods upon and between which the louvers are pivoted, such subassembly being slidable into or out of a suitable frame.

Another object is to mount a set of pivotal louvers in their frame in a simpler and less expensive manner than in prior practice.

Another object is to provide improved means for interconnecting the relatively transverse bars of a rectangular frame receiving a set of pivotal louvers.

Another object is to pivotally mount a set of swinging louvers upon and between a pair of parallel rods and to provide a rectangular frame with slideways into which said rods may be slid after mounting the louvers upon and between the rods.

Another object is to extrude a louver-mounting frame bar in a form adapting it to receive and retain a rod on which the louvers are pivoted, and further adapting such bar to be readily secured to companion frame bars.

These and various other objects are attained by the construction hereinafter described and illustrated in the accompanying drawings, wherein:

FIG. 1 is an exterior elevational view of a louver installation employing my improved assembly, the louvers occupying their closed position.

FIG. 2 is a vertical sectional view of said installation on the line 2—2 of FIG. 1, showing an open position of the louvers.

FIG. 3 is a cross sectional view taken on the line 3—3 of FIG. 1, and showing one of the side bars of the louver-mounting frame.

FIG. 4 is a cross section on the line 4—4 of FIG. 1 and showing a mullion bar which bisects the frame.

FIG. 5 is a perspective view of one of the rods serving to pivotally mount a set of louvers.

In these views, the reference character 1 designates a rectangular frame formed by four angle bars having their ends beveled to abut diagonally of such frame, as indicated at 1*a*. One or more sets of louvers 2 are installed in a rectangular opening formed by the frame 1, two such sets being shown. The louvers have their upper margins rolled to tubular form as indicated at 3, and bushings 4 are press-fitted in the ends of the tubes 3. The louvers of each set are mounted on and installed between a pair of slide rods 5 to each of which is riveted a set of pins 6 projecting into the corresponding bushed ends of the tubes to pivot the louvers. The free lower ends of the louvers are arched at 7 to straddle underlying tubes 3 when the louvers are closed.

Integral with each side bar of the frame and extending the full length thereof is a pair of spaced flanges 8 and 8*a* and one of the slide rods 5 is fitted in the slideway formed between each pair of such flanges. It is preferred to form each rod 5 with a coextensive pair of opposed ribs 9, the flanges being grooved to afford such ribs a sliding fit. The flanges 8*a* project into the opening formed by the frame materially beyond the flanges 8, overlapping the adjoining ends of the closed louvers and thus serving as weather-strips. The inner faces of the slide rods are flush with the inner edges of the flanges 8, thus minimizing any air leakage past the closed louvers. The upper and lower bars of the frame 1 are integrally formed with weather strips 10 and 10*a* to lap the uppermost and lowermost louvers in their closed position. The rods 5 in their use position are so fitted between the upper and lower frame bars as to prevent up or down sliding or vibration of the subassembly including such rods.

While one set of louvers has so far been described, it is evident that a plurality of such sets may be installed in a single frame in side-by-side relation, and two such sets are illustrated. Thus the frame 1 is bisected by a mullion bar 11 which preferably has an approximate I-shape in cross section. In each of the rectangular openings formed in the frame by said bar, a set of the described louvers is similarly installed. At opposite sides of its web, the bar 11 mounts two of the described slide rods 5, said bar having parallel flanges 12 and 12*a* grooved at 13 to slidingly receive and retain such rods. The flanges 12*a* project materially beyond the flanges 12 to overlap the louvers when the latter are closed, thus serving as weather strips.

The top and bottom bars of the frame 1 are rigidly secured at their respective ends to the respective side bars by screws 14, and are similarly secured to the mullion bar 11 by screws 15. To accommodate the screws 14, each side bar 1 is formed between its flanges 8 and 8*a* with two arcuate ribs 16 and these, as best appears in FIG. 3 are respectively spaced from the respective base portions of said flanges to form grooves of tubular cross section extending through approximately 270 degrees, such grooves being coextensive in length with said flanges and terminally forming sockets receiving and retaining the screws 14. The bar 11 is formed at opposite sides of its web and at the juncture of such web and the flanges of such bar with two pairs of ribs 17, each such pair being arcuately curved to form, in conjunction with the said flanges, grooves suited to terminally accommodate the screws 15.

The louvers of each set are interconnected by a link-bar 18 to assure their opening and closing travel in unison, it being preferred to secure brackets 19 similarly on the free margins of the louvers and to pivot the link-bar on such brackets.

A primary feature of the described construction is its increased adaptability for rapid and easy assembly. When the top bar and two side bars of the frame have been interconnected, with or without the disclosed mullion bar, there is upwardly slid into the frame the subassembly formed by the rods 5 and louvers. If the frame includes a mullion bar or bars, two or more subassemblies are inserted in the partially assembled frame. The assembly is then completed by securing the bottom frame bar in place.

A highly desirable feature is the adaptability of the several frame bars and the rods 5 to be formed by extrusion, such process lending itself to rapid and relatively inexpensive production. By forming the several extruded parts of a light metal such as aluminum there is achieved a considerable reduction in weight, as compared to prior practice. Such metal also adapts the screws 14 and 15 to cut mating threads in the upright members of the frame, thus eliminating tapping operations.

In use, the described assembly may be suitably secured within a ventilating opening in a wall (not shown) in opposed relation to a fan (not shown) which discharges air outwardly through such opening. Normally the louvers gravitate to their closed position (FIG. 1), being opened by air pressure when the fan is operated.

What I claim is:

1. A louver assembly comprising a frame formed with a substantially rectangular opening and comprising a first pair of parallel bars defining opposite margins of said opening and a second pair of parallel bars defining the other two margins of said opening, fasteners rigidly interconnecting the first and second pairs of bars, a pair of slideways respectively formed in said first pair of bars,

a pair of elongated parallel rods inserted in the slideways and terminally fitted between the bars of the second pair to restrain said rods from sliding, a plurality of spaced parallel pins fixed on each rod and projecting into said opening, said pins on each rod being paired and aligned with those on the other rod, a plurality of louvers disposed in said opening and pivotal to open or close said opening, said louvers each rigidly carrying a tube and said tubes being disposed at corresponding margins of the louvers, said pins being inserted in the tubes and pivotally mounting the louvers; the rods, pins, and louvers forming a subassembly for insertion in the slideways prior to applying one of the bars of said second pair to the frame, and means interconnecting the louvers for pivoting in unison on said pins.

2. A louver assembly as set forth in claim 1, said first pair of bars being extruded and each comprising a pair of extruded spaced flanges projecting into said opening from the corresponding extruded bar, said rods being respectively received between the respective flanges of each pair of said first pair of bars, said fasteners extending through said second pair of frame bars and being set into said flanges.

3. A louver assembly comprising a frame formed with a substantially rectangular opening and comprising a first pair of parallel bars defining opposite margins of said opening and a second pair of parallel bars defining the other two margins of said opening, fasteners rigidly interconnecting the first and second pairs of bars, a pair of slideways formed at opposite sides of said opening by said first pair of bars, a pair of elongated parallel rods inserted and having a sliding fit in the slideways and terminally fitted between the bars of the second pair to restrain said rods from sliding, a set of louvers installed in said opening between and transversely to said rods, means pivotally mounting the louvers on the rods to turn about parallel axes and thus either cover or uncover said opening, and means interconnecting the louvers and requiring them to turn in unison about said mounting means, the rods, louvers and mounting means forming a subassembly for insertion as a unit in said opening responsive to sliding of the rods into the slideways, prior to applying one of the bars of said second pair to the frame.

4. A louver assembly as set forth in claim 3, each of said rods being formed with a substantially coextensive pair of opposed ribs, and each of said slideways being formed by a pair of spaced flanges on the bar forming such slideway, said flanges being oppositely grooved to afford the ribs a sliding fit.

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