

Aug. 25, 1953

J. H. BAXTER ET AL

2,649,629

LOUVER CONSTRUCTION

Filed Nov. 28, 1949

2 Sheets-Sheet 1

Fig. 1

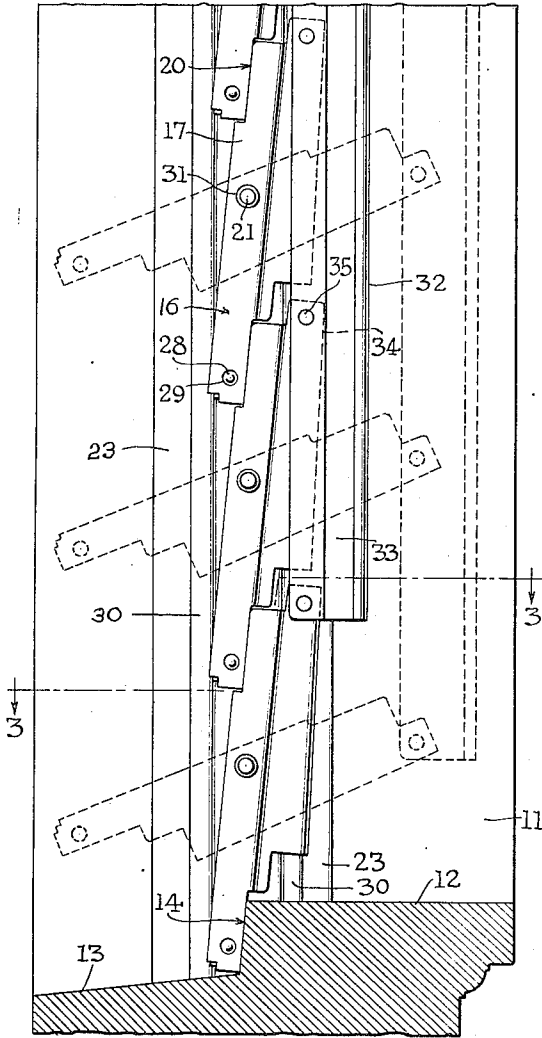


Fig. 2

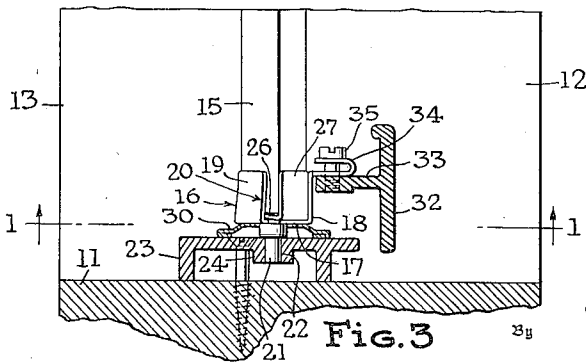
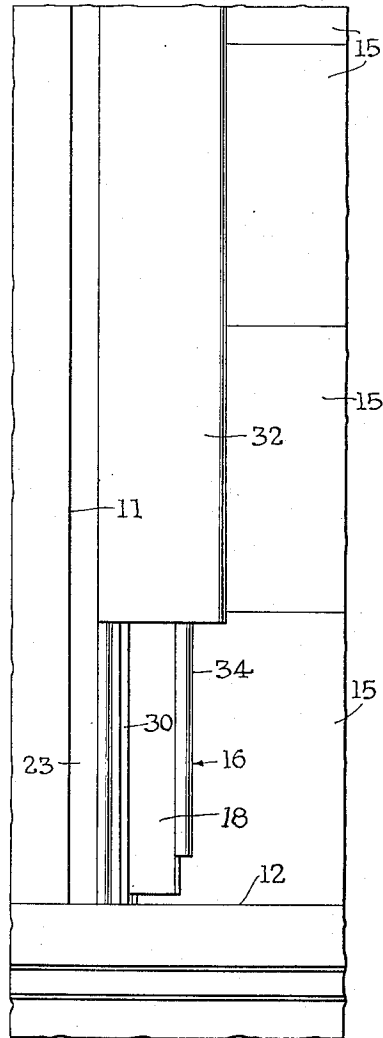


Fig. 3

Inventor  
J. H. Baxter  
and Robert B. Johnson

Donald E. Lane  
Attorney

Aug. 25, 1953

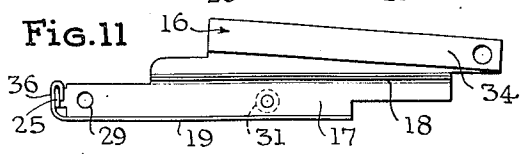
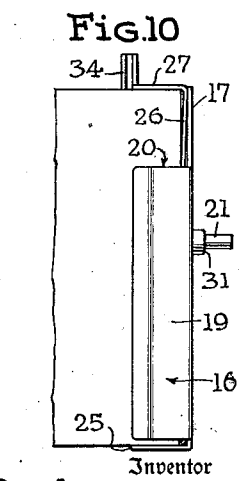
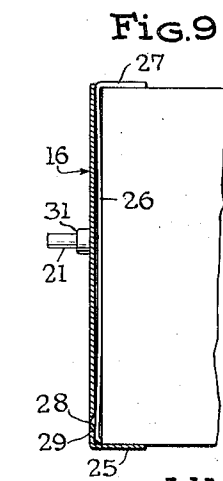
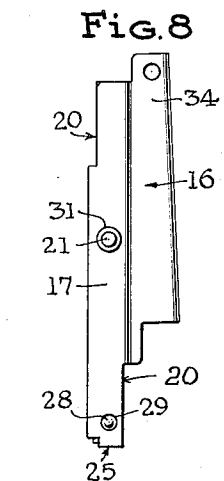
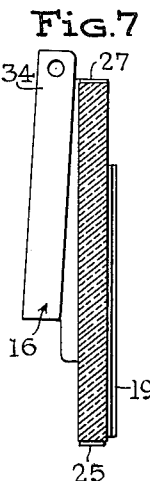
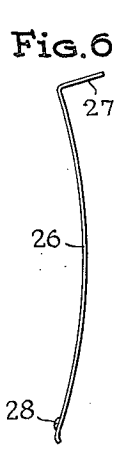
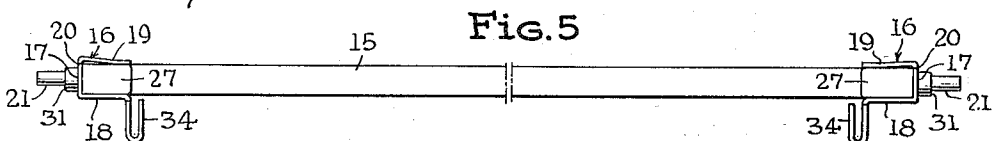
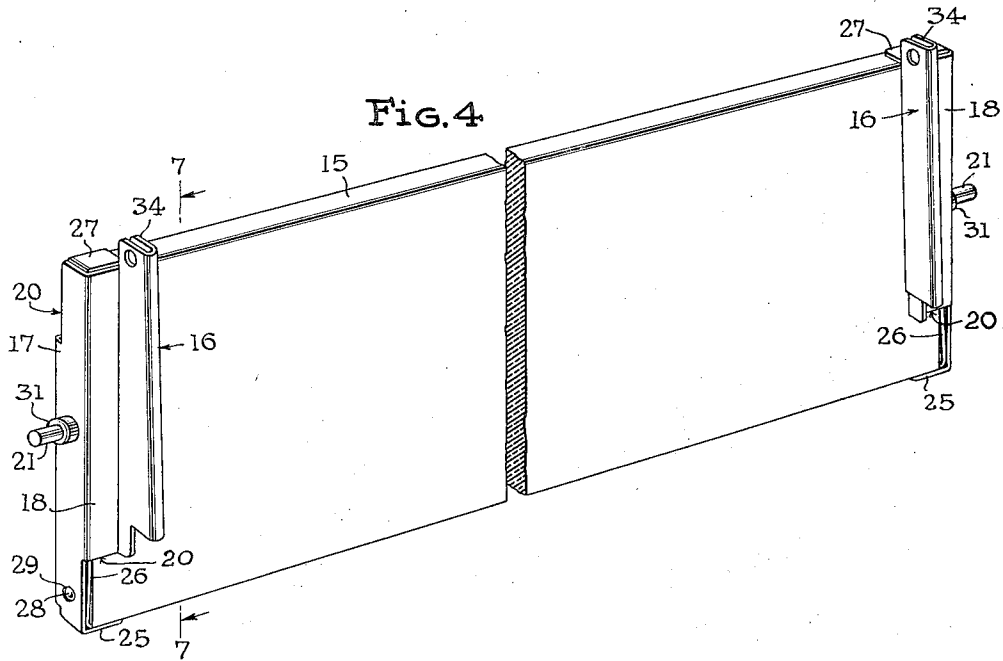
J. H. BAXTER ET AL

2,649,629

LOUVER CONSTRUCTION

Filed Nov. 28, 1949

2 Sheets-Sheet 2



Inventor  
**J. H. Baxter**  
**and Robert B. Johnson**  
*Donald E. Lane*  
Attorney

# UNITED STATES PATENT OFFICE

2,649,629

## LOUVER CONSTRUCTION

Jay H. Baxter and Robert B. Johnson,  
Port Arthur, Tex.

Application November 28, 1949, Serial No. 129,804

1 Claim. (Cl. 20—62)

1

This invention relates to a louver construction of the type having horizontally pivoted slats that provide a window closure. More particularly this invention pertains to improved means for rendering such louvers weathertight when closed, to improved means for maintaining such louvers in any selected adjusted position, to improvements in securing the louver slats in their carriers, and to a simplified construction which facilitates louver manufacture and installation.

Louvers of the type described present a difficult weatherstripping problem, particularly between the ends of the slats and the side jambs, or frame members, of the opening in which the louver is mounted. Numerous attempts have been made to make louvers weathertight at the slat ends when closed. Such attempts, however, have usually resulted in constructions that either are difficult to install, expensive, or ineffective.

Numerous constructions have also been developed for maintaining louvers in any selected position of adjustment. These constructions, for the most part, are complicated, and consequently expensive, or require undue manual manipulation to accomplish the desired result.

Louver constructions of the type under consideration, comprise a plurality of slats having slat carriers, or pivot clips, at both ends thereof for mounting the slats for rotational movement about a horizontal axis. In conventional constructions these carriers are either permanently secured to the slats, which makes for louver assembling difficulties, or readily detachable therefrom, which makes assembly easy but which renders the louvers non-burglar proof. Additionally, since it is almost impossible to prevent some slight variation in slat length, particularly when glass slats are used, present detachable slat carrier constructions permit end play of the slats with consequent objectionable rattling.

Present louver constructions also usually require the factory fabrication of pre-assembled hardware units. Hence, for practical reasons, louvers are not readily installable in off-size windows. Furthermore, most louvers require installation as a completely pre-assembled unit in a window frame, thus necessitating painting and plastering operations after such installation, which operations tend to dirty and soil the slats and their hardware.

Accordingly, it is an object of this invention to provide inexpensive means for effectively weatherstripping the ends of pivotally mounted louver slats when the louver is closed.

It is another object of this invention to pro-

2

vide simple means for maintaining a louver in any selected position of adjustment.

It is another object of this invention to provide means for securing louver slats within slat carriers during assembly of the louver in an opening, such fastening means precluding ready removal of the slats.

It is another object of this invention to provide means for compensating for variations in slat length and for snugly maintaining the slats in their carriers.

It is another object of this invention to provide louver hardware which can be easily assembled in and secured to a frame and in which the slats can be easily inserted with a minimum of skill and effort.

It is a further object of this invention to accomplish the above objects simply and inexpensively with materials that can be manufactured in bulk at low cost.

Other objects and advantages of the invention will be apparent from the following description and accompanying drawings in which:

Figure 1 is a fragmentary side view, taken substantially on line 1—1 of Figure 3, of a louver construction embodying this invention with the jamb and sealing strips removed on one side and the louvers closed.

Figure 2 is a fragmentary inside elevational view of the louver construction shown in Figure 1.

Figure 3 is a fragmentary sectional view taken on line 3—3 of Figure 1.

Figure 4 is a perspective inside view of a louver slat with slat carriers embodying this invention attached thereto.

Figure 5 is a top view of the slat and slat carrier assembly shown in Figure 4.

Figure 6 is a side view of an element used to secure the slats within the slat carriers.

Figure 7 is a sectional view taken on line 7—7 of Figure 4.

Figure 8 is an end view of the slat and slat carrier assembly shown in Figure 4.

Figure 9 is a fragmentary view partly in section of an end of the slat and slat carrier assembly shown in Figure 4.

Figure 10 is a fragmentary outside view of an end of the slat and slat carrier assembly shown in Figure 4.

Figure 11 is a view corresponding to Figure 7, but with the slat and the slat securing element removed, of a modified form of slat carrier.

Referring now to Figures 1, 2, and 3 of the drawings, a louver construction which embodies this invention is shown installed within a window

3

opening defined by the usual side jambs 11, a sill 12, and a lintel (not shown). The sill has an inclined drainage lip 13, as is customary, which is offset downwardly to provide a stop edge 14.

The louver proper comprises a series of uniformly vertical spaced, horizontally extending slats 15 which in their window closing relationship overlap slightly along their horizontal edges with the lowermost slat overlapping the stop edge 14. These slats are made of glass, as shown, wood, or any other suitable material. The slats are mounted for rotational movement about a horizontal axis in sheet metal channel-shaped slat carriers 16, each having a web 17 and inner and outer parallel side flanges 18 and 19, respectively. The slat carriers are cut away, or notched, on opposite sides at alternate ends thereof, as indicated at 20, so that the overlapping marginal portions of the slats, when closed, make glass-to-glass contact to provide a weathertight seal therebetween.

The web of each carrier is provided, substantially midway between its ends, with a pivot pin 21 which may be secured in place by welding, riveting, etc. These pins are journaled in suitable bearing apertures 22 formed in the web of channel-shaped metal jamb strips 23, which are secured to the window jambs 11 by screws, as shown, nails, or any other suitable means. Preferably the web of the jamb strip 23 is thickened, as by an inner longitudinal rib 24, to reinforce the apertures 22. The lower or outer end of the channel in each carrier is closed by an integral lip 25 which engages a side edge of a slat 15 to retain the latter in the carrier. Interposed between the web 17 of each carrier and the end of the slat supported therein is a longitudinally bowed, spring metal filler strip 26 with the convex side thereof facing the end of the slat. This filler strip thrusts equally against the end of the slat and the web 17 of the carrier to thereby constantly urge the carrier against the jamb strip 23. It is obvious that slight variations in the length of the slats may be compensated by the filler strips 26 and that end play and rattling of a slightly short slat is prevented.

The filler strips have another function, however, in addition to that described above. The upper or inner end of each filler strip has a bent over tongue 27 for engaging the side edge of the slat opposite the lip 25 to prevent withdrawal of the slat from the carrier without removal of the filler strip. The opposite end of the filler strip, i. e. the lower or outer end, is provided with a boss, or protuberance 28 that is constantly urged into a corresponding aperture 29 in the web of the carrier. Hence, the filler strip cannot be removed, after installation, without a punch or similar tool to press the boss 28 out of engagement with the aperture 29. It is to be noted that the boss does not extend completely through the web 17 for reasons which later become obvious.

Interposed between the carriers and the jamb strips 23, and substantially coextensive in length with the latter, is a transversely-bowed resilient sealing strip 30 having uniformly spaced holes aligned with the bearing apertures 22 to snugly accommodate the pivot pins 21. These sealing strips are maintained in place solely by the pivot pins and preferably have their longitudinal marginal edge portions folded under, as shown, to eliminate unconcealed raw edges. The resilient engagement between the webs 17 of the carriers, when closed, and the convex face of the sealing

4

strip 30 and between the longitudinal edges of the latter and the jamb strip 23 creates a substantially weathertight seal at the ends of the slats. Preferably the pivot pins 23 are shouldered, as at 31, to prevent their complete insertion into the bearing apertures 22 with consequent flattening of the sealing strips 30 and possible leakage of the seal.

Simultaneous pivotal movement of the slats to any position from the fully closed position shown in Figure 1 to the fully open position, shown by the broken outline, is effected by a traveller bar 32, preferably one at each side of the louver, which is pivotally connected to all of the slat carriers. These bars, if desired, may be connected top and bottom by horizontal members, not shown, to form a traveller frame. The bar 32 preferably is T-shaped in section with the leg 33 thereof connected to the carriers and the head of the T disposed parallel to the plane of the window opening. As shown best in Figures 2 and 3, the head of the T conceals the carriers and the sealing strip except at the lowermost portion of the louver. This head of the T also serves as a grip bar for manual adjustment of the louver without the need for special pull handles on the traveller bar. It also is pointed out that because of the adequate spacing between the head of the T and the slats, when closed, the fingers of an operator cannot be caught therebetween in the closing movement.

The leg 33 of the traveller bar is pivotally connected to a rebent or folded flange, or ear, 34 integrally formed on each slat carrier and extending laterally from the longitudinal edge of the inner side flange 18 thereof. At one end the rebent flange projects upwardly beyond the web of the carrier and at the other end terminates short of the lower or outer edge of the carrier to permit the slats to be pivoted to full open or closed position without interference between separate carriers or between the carriers and the traveller bar. This rebent flange 34 serves two purposes, one—strengthen and stiffen the carrier, and, two—to provide adjustable frictional resistance to pivotal movement of the slats. The traveller bar is connected to the rebent flange on each carrier by a screw 35, or other equivalent fastening means, which passes through both folds of the flange 34 and is threaded into the leg 33 of the bar. By properly tensioning the screw 35, the inherent springiness of the folds of the flange 34 can easily be varied to provide the proper amount of frictional resistance, against pivotal movement of the carriers on the traveller bar, to maintain the slats in any selected position while permitting easy adjustment to any other position. It is to be noted that the slats are substantially balanced against movement by gravity because of the central position of the pivot pins 21. Hence, the frictional resistance to movement provided by the rebent flange need not be large. Moreover, additional frictional resistance to movement is provided by the filler strips 26 and the resilient sealing strips 30. The illustrated screw connection between the bar and the carriers obviously can be adjusted to vary the frictional resistance. By providing a shoulder (not shown) on the screw 35, however, to limit the permissible spacing between the screw head and the leg 34, it is possible to provide uniform, substantially predetermined resistance to movement between the traveller bar and each carrier.

The structure described is easily assembled with a minimum of operation. The jamb strips

5

are first secured to the side jambs and necessary painting and/or plastering of the window frame completed. The sealing strips are then properly positioned on the jamb strips and held in place while the pivot pins of an opposite pair of slat carriers are inserted through the sealing strips into their bearing apertures. While these carriers are held in place a slat is inserted therein. The slat may then be locked in the carriers with filler strips. After all the slats have been so mounted the traveller bars are readily connected to the carriers with the screws 35 which are thereafter adjusted to the proper tension.

Several of the hardware elements are adapted for bulk production in continuous lengths that can be sold by the lineal foot. Thus, material for the sealing strips, the jamb strips, and the traveller bars can be manufactured in long lengths that are pre-drilled and adapted to be cut to size at the installation site. The jamb strips and traveller bars preferably are made of extruded aluminum. The slat carriers, filler strips, and slats can also be manufactured and sold in bulk quantities for assembly at the installation site. Such a marketing process is possible only because the various louver elements require no factory pre-assembling into sub-units and can be readily and completely assembled on the job with conventional hand tools. The simplified construction permits the jamb strips to be secured in place and all painting and plastering operations then completed before the remaining louver elements are installed. It is evident that in addition to this separate element construction so well adapted for simplified installation procedure, the louver hardware also lends itself to pre-assembly into sub-units. Thus, a pre-assembled hardware sub-unit for each side of the window opening may comprise a jamb strip and a sealing strip with the slat carriers permanently pivotally secured thereto by rivets, or the like (not shown) which replace the pivot pins. This sub-unit construction still permits painting and plastering to be completed before the slats and traveller bars are installed.

A slightly modified form of slat carrier 16 is shown in Figure 11. In this form the integral lip 25 is narrowed somewhat and the lower end of the outer side flange 19 is provided with an integral flange extension 36 which is folded around the lip 25 as shown. In the previously described carrier construction the integral lips 25, which are accessible from the outer side of the louver, may be bent rather easily and the slats slipped out of their carriers. The folded

6

flange extension 36, however, strengthens the lip 25 sufficiently to greatly hinder, if not entirely prevent, such slat removal, thus rendering the louver construction substantially burglar proof.

While a specific preferred embodiment of this invention has been illustrated and described for purposes of disclosure, it is obvious that various alternative constructions embodying the principles of this invention will be evident to persons skilled in the art. Therefore, this invention embraces all modifications which come within the spirit and scope of the following claim.

We claim:

In a louver construction the combination of a pair of channel-shaped slat carriers pivotally mounted on opposed window jambs, one end of said carriers being closed; a slat mounted with its ends in said carriers; and a longitudinally bowed resilient filler strip within the channel of said slat carrier and interposed between each end of said slat and the web of the corresponding carrier and thrusting oppositely there-against to resist longitudinal movement of said slat in said carrier, the concavity of each filler strip facing the carrier web and each said strip having a down-turned tongue engaging a side edge of the slat, the opposite end portion of said strip having a boss on a side thereof engaged in a corresponding aperture in the web of the slat carrier to lock said strip therein.

JAY H. BAXTER.

ROBERT B. JOHNSON.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

Number	Name	Date
687,705	Walker	Nov. 26, 1901
840,820	Brauchli	Jan. 8, 1907
1,551,753	Lane	Sept. 1, 1925
2,119,803	Brown	June 7, 1938
2,137,426	Thompson	Nov. 22, 1938
2,164,814	Griffith	July 4, 1939
2,311,300	Dubour et al.	Feb. 16, 1943
2,386,380	Andersen et al.	Oct. 9, 1945
2,457,871	Cooper	Jan. 4, 1949
2,513,250	Petit	June 27, 1950
2,531,499	Brown	Nov. 28, 1950
2,556,695	Jansen	June 12, 1951
2,565,447	Andresen et al.	Aug. 21, 1951
2,601,707	Hyland	July 1, 1952

##### FOREIGN PATENTS

Number	Country	Date
528,461	France	Nov. 12, 1921