

Nov. 17, 1964

D. D. JACOBSON

3,156,956

ADJUSTABLE WINDOW BLIND

Filed June 12, 1962

2 Sheets-Sheet 1

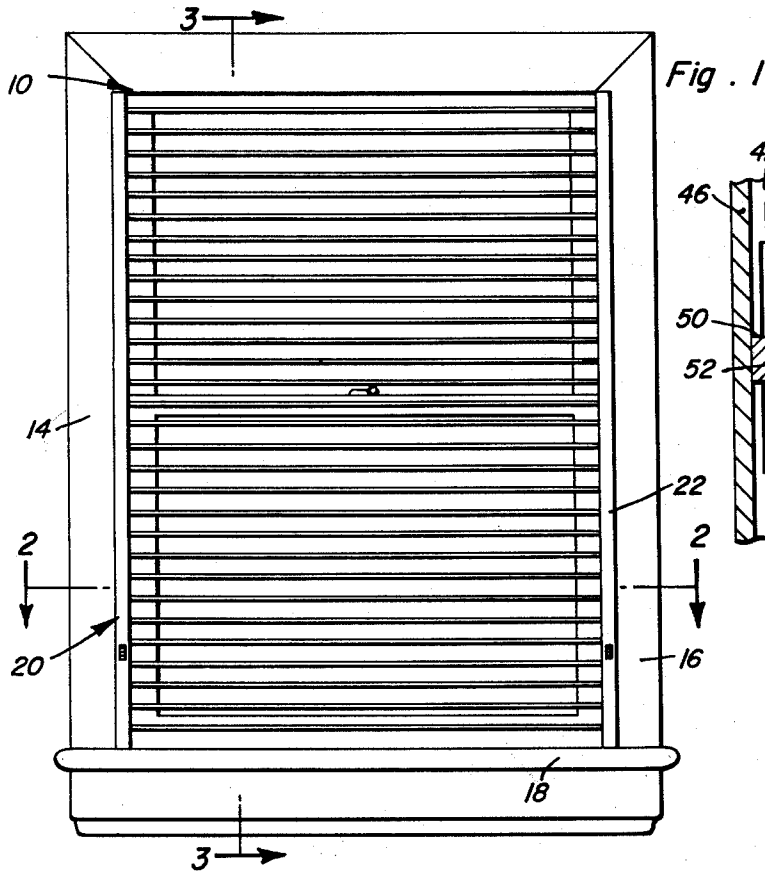


Fig. 1

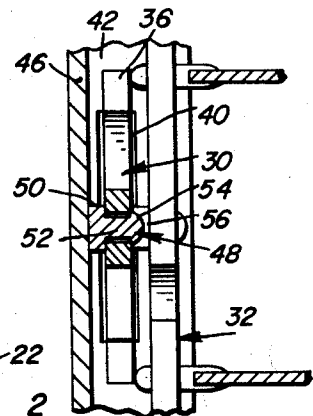
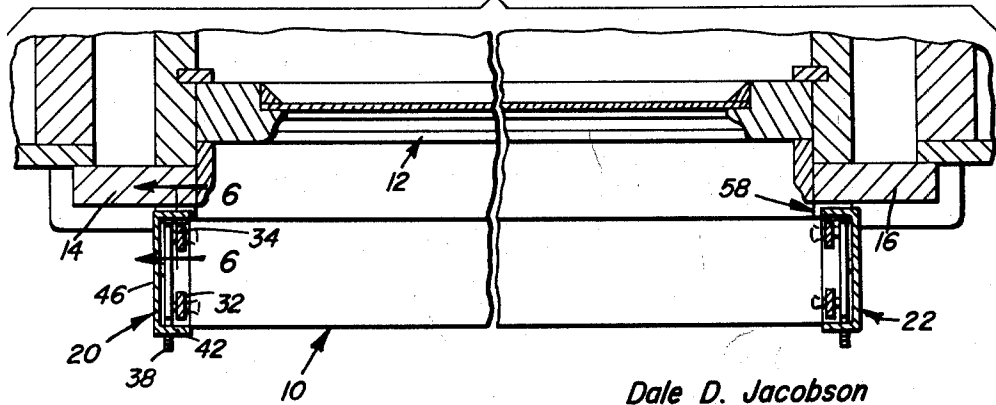


Fig. 4

Fig. 2



Dale D. Jacobson
INVENTOR.

BY *Dale D. Jacobson*
and *Harvey E. Jacobson*
Attorneys

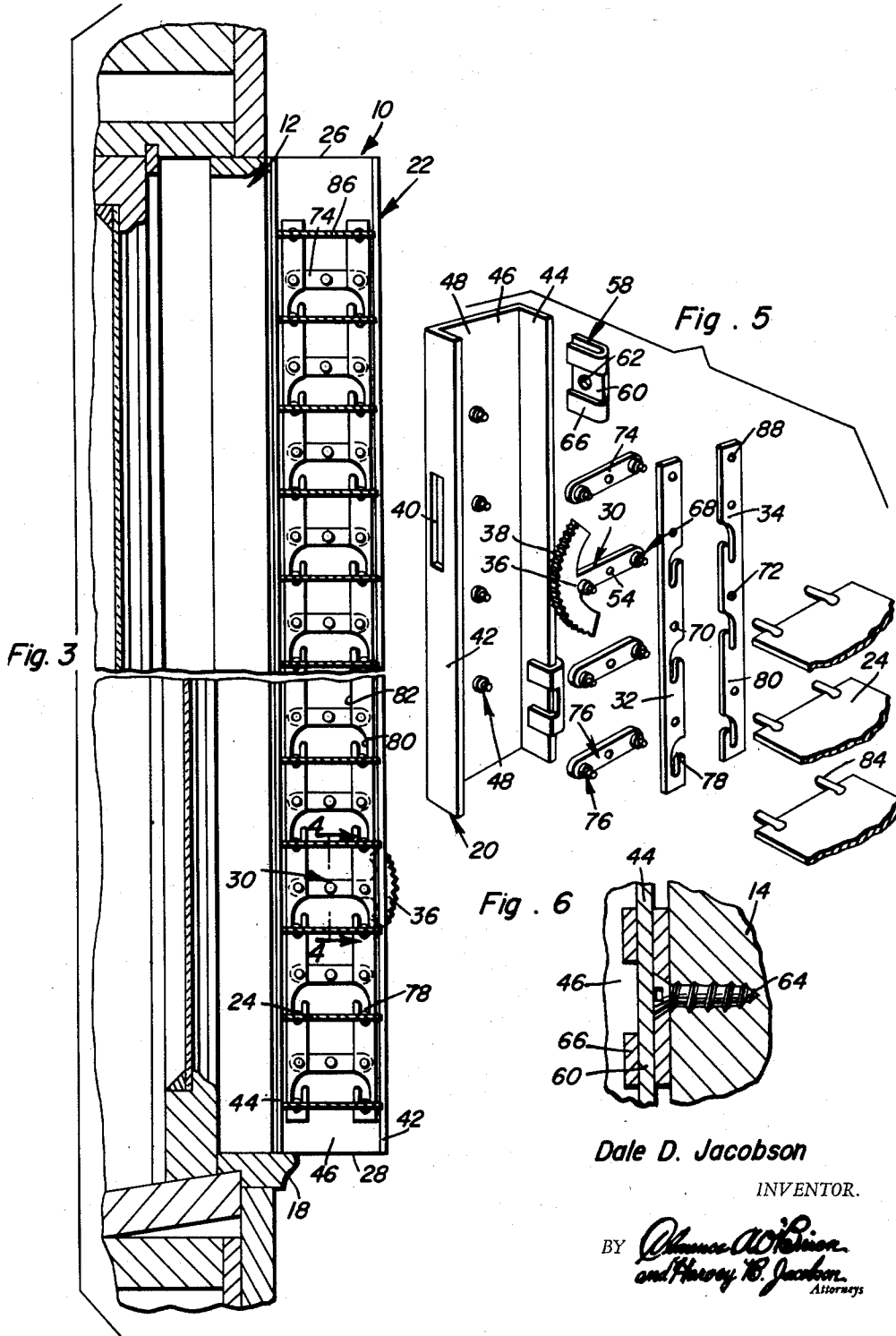
Nov. 17, 1964

D. D. JACOBSON
ADJUSTABLE WINDOW BLIND

3,156,956

Filed June 12, 1962

2 Sheets-Sheet 2



Dale D. Jacobson
INVENTOR.

BY *Charles A. Peterson*
and Harvey B. Jackson
Attorneys

1

3,156,956

ADJUSTABLE WINDOW BLIND

Dale D. Jacobson, P.O. Box 387, Estherville, Iowa

Filed June 12, 1962, Ser. No. 201,849

3 Claims. (Cl. 20-62)

This invention relates to a new and useful adjustable window blind particularly suitable for exterior openings in buildings for the purpose of eliminating or controlling the amount of sunlight entering the interior of the building.

It is a primary object of the present invention to provide an adjustable window blind assembly constructed of relatively few and interchangeable parts which are easy to manufacture, install and involves less maintenance.

Another object of this invention is to provide an adjustable window blind assembly, the parts of which are more easily removable and replaceable requiring no tools for such purpose.

A further object of this invention is to provide an adjustable window blind assembly wherein a more positive control is exercised over each of the horizontal slat members or louvers so as to avoid flexing and twisting thereof.

An additional object of the present invention is to provide an adjustable window blind assembly avoiding the use of cord, pulleys and cord tracks which present maintenance problems and are subject to more rapid wear. Thus, the window blind assembly of the present invention involves a more simpler adjustment of the horizontal slats in both directions and eliminates the relatively inaccessible adjustment control mechanism usually located on top of a window blind assembly.

In accordance with the foregoing objects, the window blind assembly is more easily and readily installed on parallel spaced vertical supporting surfaces framing a window opening. A pair of confronting channel members constituting side rail assemblies, form the support for the moving parts of the window blind assembly by mounting in equally spaced vertical relation, a plurality of studs on the connecting wall portion of the channel members between the flange portions thereof. A plurality of lever elements are mounted between the flange portions on the studs to which vertically elongated link members or ladder elements are pivotally connected for vertical movement in opposite directions. One of the lever members intermediate the upper and lower ends of the channel member, constitutes a control lever to which an adjustment sector element is connected for exposure through a slot formed in the exposed flange portion of the side rail channel member. The other flange portion of the channel side rail member is adapted to be mounted on the vertical supporting surface by clip elements. The vertically elongated link members thus vertically adjustable in opposite directions, are provided with confronting arcuate seating slots by means of which a plurality of horizontal slat members are removably connected to the link members. Each of the slats therefore has connected to opposite ends thereof, a pair of projecting pins for reception within the seating slots of the link members thereby providing pivotal connection to the horizontal slat members at four points for more positive pivotal adjustment thereof in response to vertical displacement of the parallel link members in opposite directions. The length of the side rail channel members and the parallel spaced link members may be cut to size at the installation location, the securing of the clip elements being the only connection required to the supporting wall surfaces.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the ac-

2

companying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a front elevational view of the adjustable window blind assembly of the present invention installed in front of a window opening.

FIGURE 2 is a partial sectional view taken substantially through a plane indicated by section line 2-2 of FIGURE 1.

FIGURE 3 is a partial sectional view taken substantially through a plane indicated by section line 3-3 of FIGURE 1.

FIGURE 4 is an enlarged partial sectional view taken substantially through a plane indicated by section line 4-4 in FIGURE 3.

FIGURE 5 is a perspective view of some of the disassembled parts of the adjustable window blind assembly.

FIGURE 6 is an enlarged partial sectional view taken substantially through a plane indicated by section line 6-6 in FIGURE 2.

Referring now to the drawings in detail, it will be observed from FIGURES 1, 2 and 3, that an adjustable window blind assembly generally referred to by reference numeral 10 is shown mounted in front of the window opening 12 on a pair of vertical supporting frame members 14 and 16 that frame the window opening 12 above the window sill portion 18. It will be appreciated of course, that the window blind assembly 10 may be associated with other installational arrangements disposed about a window opening as long as there are provided aligned vertical supporting surfaces such as provided by the frame members 14 and 16.

The adjustable window blind assembly consists of a pair of vertical side rail assemblies 20 and 22 which are interchangeable with each other before installation, the side rail assemblies supporting therebetween a plurality of vertically spaced slat members or louvers 24 which are angularly adjustable for controlling the amount of sunlight entering between the side rail assemblies. Pivotally mounted intermediate the upper and lower ends 26 and 28 respectively of each side rail assembly is a control lever element 30 to which a pair of vertically elongated link members 32 and 34 are connected for slidable movement in opposite directions in response to pivotal displacement of the control lever element. The control lever element 30 therefore has connected to one end thereof, an adjustment sector portion 36 having a serrated edge 38 exposed through a slot 40 formed in the exposed flange portion 42 of the vertical side rails. The edge 38 is therefore adapted to be manually displaced in order to pivot the control lever 30 and thereby adjust the horizontal slat members 24 which are pivotally connected to the parallel spaced link members 32 and 34 disposed within each of the vertical side rail assemblies 20 and 22.

Each of the vertical side rail assemblies is constituted by channel member including the exposed flange portion 42 interconnected with a mounting flange portion 44 by means of a connecting wall portion 46. Molded or otherwise secured to the connecting wall portion 46, in equally spaced relation to each other, are a plurality of stud elements 48. One of the stud elements 48 is centrally aligned with the slot 40 for pivotally mounting the control lever 30 so that the adjustment sector portion 36 thereof may be exposed through the slot. As more clearly seen in FIGURE 4, the stud element 48 includes a larger diameter shoulder portion 50 arranged to space the control lever 30 from the connecting wall portion 46, the shoulder portion being connected to a reduced diameter neck portion 52 adapted to be loosely journaled within an aperture 54 formed in the control lever 30 for such purpose. The end of the stud element remote from the shoulder portion 50, is formed with a head portion 56, the diameter of which is slightly larger than the aperture

54 so that the head portion may be forced through the aperture 54 in order to thereafter hold the control lever 30 in assembled relation journalled on the neck portion 52. Assembly of the control lever on the side rails channel member with which it is associated, is thereby facilitated. The side rail member and studs 48 mounted thereon may therefore be made of suitable material such as plastic in which case the stud element may be molded to the interior of the channel member or the channel member may be made of metal while the stud elements 48 are made of suitably rigid yet deformable material so as to permit assembly of the control lever 30 thereon as described. In order to mount the side rail assembly on the supporting surface, the mounting flange portion 44 is adapted to be removably attached by means of the clip element 58.

Referring now to FIGURES 5 and 6 in particular, it will be observed that the clip element 58 includes a flat portion 60 having a countersunk aperture 62 formed therein for receiving a mounting screw member 64 by means of which the clip element 58 is secured to the supporting surface. Closely spaced from the flat mounting portion 60 are a pair of tabs 66 arranged to grip the mounting flange portion 44 in order to removably mount the side rail assembly. Once the clip elements have been properly secured to the supporting surface, the side rail assemblies may be easily installed or removed when desired.

The control lever element 30 has secured thereto on opposite sides of the aperture 54, a pair of stud elements 68 identical in construction and mounting procedure to the stud elements 48. The stud elements 68 on the control lever are thus adapted to be received through one of a plurality of vertically spaced apertures 70 and 72 formed respectively on the vertically elongated link members 32 and 34. Also, a plurality of vertically spaced tie bar elements 74 are pivotally mounted on the stud elements 48 on either side of the control lever element 30, the tie bar elements also being provided with pairs of projecting stud elements 76 for projection through the apertures 70 and 72 on the link members 32 and 34. Thus, the link members are constrained to movement in vertical planes fixedly spaced on opposite sides of the window opening and closely spaced from the longitudinal ends of the assembled slats 24. Each of the link members is provided with a plurality of vertically spaced seating slots 78 disposed in confronting relation to each other. Each seating slot is thus formed with an arcuate portion 80 where it intersects the confronting edges 82 of the link members 32 and 34. It will also be observed, that the seating slots are disposed on opposite sides of each of the apertures 70 or 72. The seating slots 78 are therefore adapted to receive the pair of pins 84 secured to each end of the horizontal slat members 24. It will therefore be apparent, that each of the slat members 24, may be independently removed by raising of the slot member upwardly in the vertical portion of the seating slot 78 then pivotally displacing one longitudinal side for removal of the slat member. Also, it will be appreciated, that when seated within the slots 78, four pivotal connections will be made between the horizontal slat member and the pair of link members 32 and 34 disposed on opposite ends thereof, for positive adjustment of the slat members thereby effected upon vertical displacement of the link members 32 and 34 in opposite directions under control of the control lever element 30.

From the foregoing description, the operation, utility and construction of the adjustable window blind assembly of the present invention will be apparent. To install the window blind assembly at some installation, the closest standard length of the side rails are selected and cut at the bottom to the proper length. The side rails may then be installed after securing the clip elements 58 to the supporting surfaces. Then, the control levers 30 and

the tie bar elements may be mounted on the studs 48, after which the link members 32 and 34 are pivotally connected by means of the studs 68 and 76 on the control lever 30 and the tie bars 74, spaced between the link members and the connecting wall portion 46 in concealed relation between the flange portions 42 and 44 of the side rail assemblies. The control lever 30 may then be displaced to each of its extreme positions and in each position, that portion of the link member 32 or 34 that projects below the bottom end 28, may be cut off. The horizontal slats 24 may then be removably mounted within the seating slots 78 while a top slat 86 is installed permanently by projection of the pins 84 thereon through the top apertures 88 at the upper ends of the link members 32 and 34. It will be appreciated from the foregoing, that the adjustable window blind assembly in addition to being easily removed completely or partially for maintenance purposes, is also composed of relatively few parts capable of manufacture with economy, most of the parts also being interchangeable such as the side rail assemblies, the clip elements, the tie bar elements, control lever elements and the horizontal slat members. Also, the side rail assemblies and the link members may be cut to the proper length at the installation location requiring no precision adjustment for such purpose. It will be further appreciated, that the adjustment control mechanism will be disposed in concealed relation within the side rail assemblies, be more positive acting and simpler. Thus, the window blind assembly of the present invention has significant advantages over the permanently installed type and also embodies removability features both as to its mounting and removal of the horizontal slats that are of obvious advantageous import.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. An adjustable window blind assembly comprising, a pair of spaced confronting channel members having flange portions extending toward each other, said flange portions of the respective channel members being interconnected by wall portions, vertically spaced stud elements mounted on said wall portions, lever elements rotatably mounted on said stud elements between the flange portions, parallel spaced link members pivotally connected to each of said lever elements between the flange portions of each channel member, said link members being provided with vertically spaced, confronting arcuate slots, a plurality of slats having spaced pins projecting from opposite longitudinal ends thereof seated in said confronting slots, and an adjustment sector portion connected to at least one of said lever elements projecting through a slot formed in one of the flange portions of the channel member.

2. An adjustable window blind assembly adapted for easy installation and maintenance removal comprising, vertical rail means, control lever means pivotally mounted on said rail means in concealed relation, adjustment means connected to the control lever means and exposed through the rail means, elongated parallel spaced link means pivotally connected to said control lever means for slidable movement within the rail means in opposite directions, pin receiving seat means formed in said link means, slat means having spaced pins projecting from opposite ends thereof for removable reception in said pin receiving seat means by slidable and pivotal displacement of the slat means, tie bar means pivotally mounted by said rail means in equal vertically spaced relation on either side of the control lever means for pivotally interconnecting said spaced parallel link means at vertically spaced locations therealong on opposite sides of said seat

5

means, a plurality of studs mounted on said rail means, tie bar means and control lever means for pivotal connection of the control lever means and tie bar means to the rail means and the link means respectively through apertures formed in the control lever means, tie bar means and link means, each stud including a spacing shoulder, a neck portion of smaller diameter than the apertures and a head portion of smaller diameter than the spacing shoulder but slightly larger than said apertures for forced projection therethrough, whereby said control lever means and tie bar means are pivotally mounted in spaced relation between the rail means and link means.

3. The combination of claim 2, wherein said rail means comprises a pair of parallel spaced confronting channel members each having vertical flange portions interconnected by a connecting wall portion which pivotally mounts said control lever means and tie bar means thereon between said flange portions, one of said flange portions having said slot formed therein intermediate upper

6

and lower ends of the channel members, the other of said flange portions being removably mounted on a supporting surface.

References Cited in the file of this patent

UNITED STATES PATENTS

857,642	Lorenz	June 25, 1907
1,583,597	Lafferty	May 4, 1926
2,103,395	Wade et al.	Dec. 28, 1937
2,167,840	Hepworth	Aug. 1, 1939
2,288,260	Toughstone	June 30, 1942
2,297,627	Loehr	Sept. 29, 1942
2,389,956	Castilonia	Nov. 27, 1945
2,521,151	Cusick	Sept. 5, 1950
2,610,371	Hite	Sept. 16, 1952
2,625,220	Ferreira	Jan. 13, 1953
2,786,242	Wiborg	Mar. 26, 1957
2,820,260	Tucker	Jan. 21, 1958
2,952,051	Scott	Sept. 13, 1960