April 2, 1957 A. BRENNER 2,787,032

COMBINATION AWNING AND WINDOW STRUCTURE

Filed March 7, 1955 2 Sheets-Sheet 1

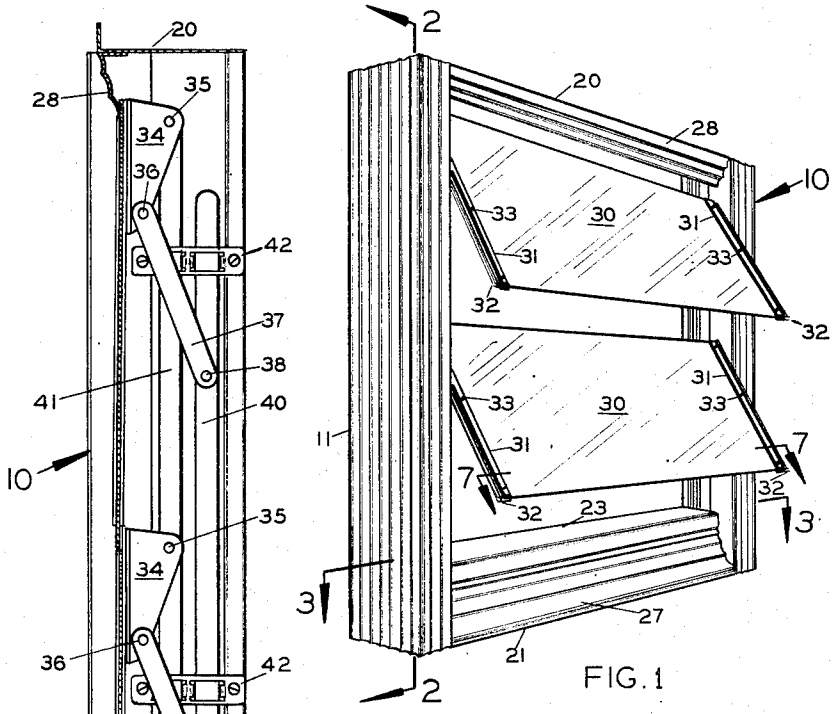


FIG. 1

FIG. 2

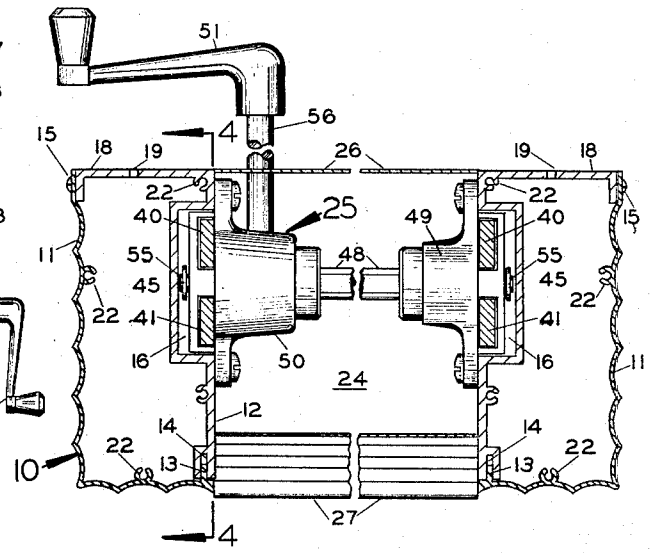


FIG. 3

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COMBINATION AWNING AND WINDOW STRUCTURE

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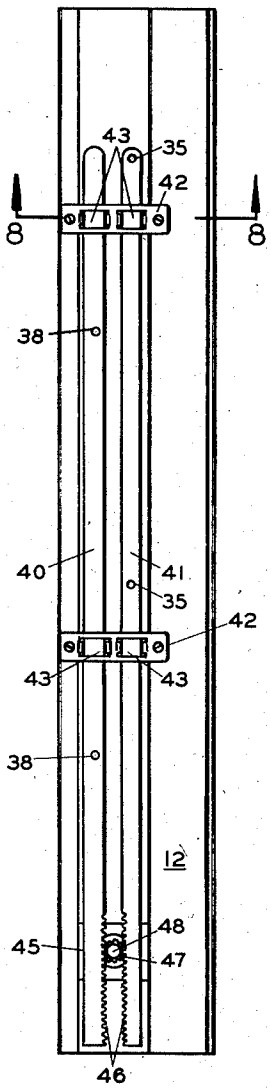


FIG. 4

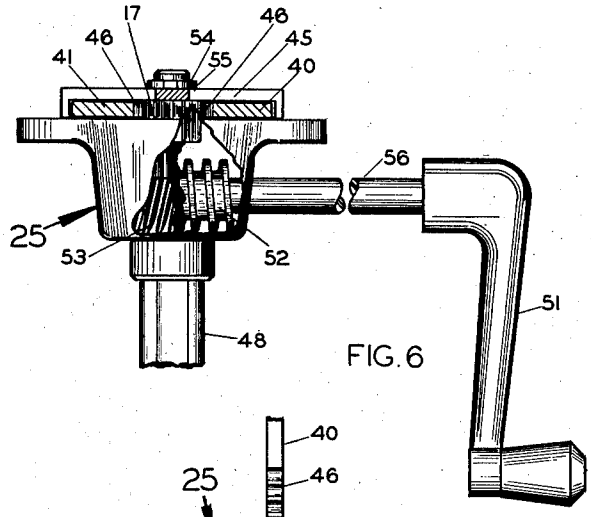


FIG. 6

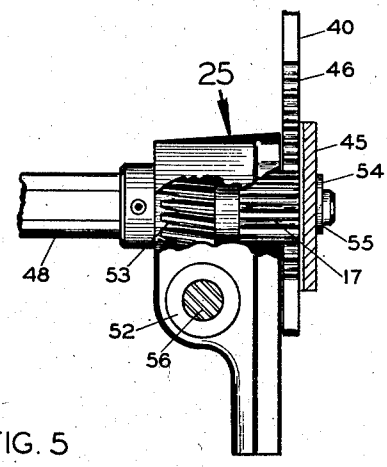


FIG. 5

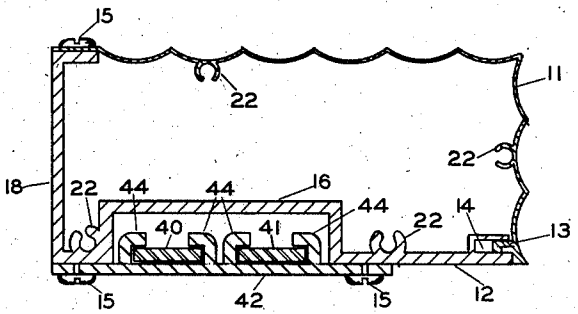


FIG. 8

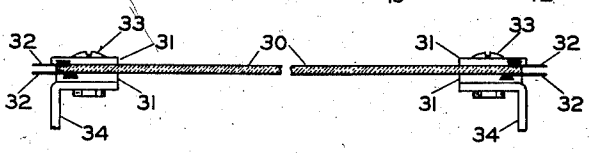


FIG. 7

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COMBINATION AWNING AND WINDOW STRUCTURE

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Application March 7, 1955, Serial No. 492,390

8 Claims. (Cl. 20—62)

This invention relates to window structures and is more particularly directed to a window construction which is adapted to be used as an awning or as an awning window.

A principal object of the present invention is to provide a combination awning and awning type window having one or more louvers which are so balanced that a very slight force is required to open or close the louvers.

A further object of the present invention is to provide a window structure which may be readily mounted over a window so as to operate as an awning or may be utilized as a window itself.

A further object of the present invention is to provide a combination window and awning which is very simple and inexpensive in construction, simple to mount as either a window or an awning and most effective in operation as either an awning or as a window.

A still further object of the present invention is the provision of a window structure characterized as above which is provided with an unbroken seal or weather stripping along the sides of the louvers to form a weather tight juncture between the louvers and the window frame.

A still further object of the present invention is to provide a combination window and awning described as above, whose louver operating mechanism consists of a pair of slide bars carrying pivot pins for the louvers upon which pivot pins the louvers are mounted in a balanced condition and remain balanced at all positions of the louvers.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming a part of this specification, with the understanding, however, that the invention is not confined to any strict conformity with the showing of the drawings but may be changed or modified so long as such changes or modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:

Figure 1 is a perspective view of an awning type window embodying my invention.

Figure 2 is a vertical sectional view taken along the line 2—2 of Figure 1.

Figure 3 is a horizontal sectional view taken along the line 3—3 of Figure 1.

Figure 4 is a sectional view taken along the line 4—4 of Figure 3.

Figure 5 is a front elevational view of the operating mechanism with the casing broken away to show the gear mechanism.

Figure 6 is a top plan view of the mechanism shown by Figure 5.

Figure 7 is a cross sectional view of a louver taken along the line 7—7 of Figure 1.

Figure 8 is a cross sectional view taken along the line 8—8 in Figure 4.

Referring to the drawings wherein like numerals are used to designate similar parts throughout the several views, the numeral 10 refers generally to an awning type window embodying my invention which is adapted to be used as a window or as an awning shutter. The window 10 is provided with a frame consisting of hollow side members formed by extruded L-shaped metal stiles 11 and 12 secured together at their end portions. The stiles 11, which face the front and sides of the window 10 are fluted as shown to give a desirable and pleasing appearance and are provided with a lug 13 which is received by a slot 14 formed at one end of the stiles 12 while the other ends of the stiles 11 and 12 are bolted or otherwise secured together as at 15. A recess 16 is formed in each of the stiles 12 to receive operating mechanism for opening and closing the window as is explained in greater detail hereinafter.

The rear wall 18 of the stiles 11 are provided with bores 19 to receive bolts (not shown) for securing the window 10 to a building wall about an opening therein to be protected by the window 10. If the opening in the building contains a window then the window 10 will operate as a shutter, otherwise the window 10 will be utilized as an awning type window. Horizontal members or headers 20 and 21 are secured at the top and bottom of the stiles 11 and 12 by screw bolts (not shown) received by extruded bolt seats 22 formed on the inner portions of the stiles 11 and 12. A horizontally disposed sill 23 extends between the stiles 12, 12 in spaced relation with the lower header 21 to form a chamber 24 in which is housed gear mechanism generally designated by the numeral 25. Means are provided for enclosing the chamber 24 comprising a rear panel 26 and a fluted front panel 27 which extend vertically and have their end portions secured to the stiles 12, 12. A further horizontally disposed fluted panel 28 extends between the stiles 12, 12 and depends from the lower wall of the top header 20 to complete the frame of the window 10.

The window 10 is shown provided with a plurality of window panels or louvers 30 preferably made of translucent plastic material, though any similar material with any desired degree of transparency or opaqueness may be utilized. Along each side edge of the louvers 30 and on either side are mounted a pair of elongated metal strips 31 to provide the panels 30 with rigidity and to secure in position a pair of flexible sealing members 32. The flexible members 32 which act as weatherstripping extend beyond the edge of the panels 30 to which the member 32 and the metal strips 31 are secured by bolts 33. The horizontal edges of the panels 30 are rendered weathertight by overlapping the upper and lower edges thereof with the panels 23 and 28 and overlapping each other. If desired, these overlapping portions may be provided with weatherstripping similar to the flexible member 32 to render them further weathertight if the windows 10 are installed in those climates that require protection against cold and freezing temperatures.

Means are provided for pivotally mounting and actuating the window panels 30 comprising pivot clips 34 secured at the top portion of the sides of the windows 30 on the metal strips 31. Each of the pivot clips 34 has a pair of pivot pins 35 and 36 mounted thereon at the upper and lower end portions of the pivot clips 34. A link 37 is pivotally mounted at one end to each of the lower pivot pins 36 while its other end is pivotally mounted on a pin 38 secured to a slide bar 40 which is mounted vertically in the recess 16 in parallel relation to a second slide bar 41.

The slide bars 40 and 41 are slidably mounted in the recess 16 by a plurality of horizontally disposed support plates 42 which bridge the recess with their end portions secured to the side members 12. Each of the support plates 42 have openings 43 at the position of the slide bars 40 and 41 formed by punching the metal to the rear to form a pair of leg portions 44 and bent as shown best

by Figure 8 to engage the slide bars 40 and 41. The lower portion of the slide bars 40 and 41 are slidably mounted in a support block 45 suitably recessed to receive the slide bars 40 and 41 at which position the latter are provided with gear teeth 46.

Gear wheels 17 and 47 which are rotatably mounted on the support blocks 45 are in mesh engagement with the gear teeth 46 of the slide bars 40 and 41 and mounted on the ends of a shaft 48. The shaft 48 extends horizontally in the chamber 24 and has its end portions secured to the gear wheels 17 and 47 and extending through and rotatably mounted on the support blocks 45. Gear housings 49 and 50 are secured to the side walls 12 and contain the gear wheels 47 and rotatably mount the shaft 48. In addition, the gear housing 50 has an operating gear shaft 56 rotatably mounted thereon, on whose inner end portion a worm gear 52 is mounted within the housing 50. A further gear wheel 53 is mounted on the shaft 48 in mesh engagement with the worm gear 52 so that upon the operation of the worm gear 52 and shaft 56 by a handle 51, the worm gear 52 causes the rotation of the gears 53, 17 and the shaft 48 thereby compelling the gear 47 to rotate and the slide bars 40 and 41 to slide in a vertical direction. Each of the slide bars 40 will slide in an opposite direction to that of the slide bars 41 whereby the pivot pins 35 and 38 will move in opposite directions.

If the handle 51 is rotated so as to cause the slide bars 41 to slide downwardly while the slide bars 40 will slide upwardly, the pivot pins 35 will move in a downward direction as the pivot pins 36 will be made to move upwardly by the links 37. These movements will cause the pivot clips 34 to swing in a clockwise direction as viewed in Figure 2 and the windows 30 to come to an open position, the amount of opening being determined by the amount of relative sliding movements of the slide bars 40 and 41. By reversing the operation of the operating handle 51, the slide bars 40 and 41 will reverse their sliding movements, and cause the windows 30 to reverse their swinging movements, and thereby brought to their closed positions.

What I claim as new is:

1. A window structure comprising a frame, a vertically swinging panel mounted on said frame, a pair of slide bars mounted in said frame adjacent one edge of said panel, a pivot clip secured on said edge of said panel, means pivotally securing said pivot clip to each of said slide bars, said slide bars each having a toothed portion, and operating means engaging said toothed portion for opening and closing said panel.

2. A window structure comprising a frame, a vertically swinging panel mounted on said frame, a pair of vertically disposed slide bars mounted on said frame adjacent a side edge of said panel, a pivot clip mounted on said edge of said panel, a pair of pivot pins mounted on said pivot clip, one of said pivot pins being secured to one of said slide bars, a link, pivot means mounting one end of said link to said other slide bar and said other end of said link to said other of said pivot pins, toothed means mounted on the lower portion of said slide bar, a gear engaging said toothed means, and operating means mounted on said frame in engagement with said gear for opening and closing said panel.

3. The structure as recited by claim 2 and sealing means mounted on said side edge of said panel along the full length thereof.

4. A window structure comprising a frame having vertically disposed side wall members, said side wall members each having a recess extending along the full length thereof, a plurality of vertically swinging panels mounted on said frame, a pair of slide bars positioned in each of said recesses, slide bar support means secured to said side wall members engaging said slide bars, pivot clips

mounted on said panels adjacent said slide bars, pivot means mounting each of said pivot clips to said pair of slide bars, said slide bars each having a toothed portion, a shaft extending between said side wall members, gear means mounted on said shaft in mesh engagement with said toothed portions, and operating means mounted on said frame in engagement with said shaft for opening and closing said panels.

5. The structure as recited by claim 4 wherein said slide bar support means comprises an elongated member and a pair of punched out portions formed on said elongated member, each of said punched out portions comprising leg portions for engaging said slide bars.

6. A window structure comprising a frame having vertically disposed side walls members, said side wall members each having a recess extending the full length thereof, a plurality of vertically swinging panels mounted on said frame, a pair of slide bars positioned in each of said recesses, slide bar support means secured to said side wall members engaging said slide bars, pivot clips mounted on said panels adjacent said slide bars, a pair of pivot pins mounted on each of said pivot clips, one of said pivot pins of each of said pivot clips being pivotally secured to one of said slide bars, a plurality of links, means pivotally mounting one end of each of said links to said other of said slide bars and said other end to said other of said pivot pins of each of said pivot clips, toothed means mounted on the lower portion of each of said slide bars, a horizontally disposed shaft extending between said side wall members, gearing means mounted on said shaft in mesh engagement with said toothed means, and operating means mounted on said frame in engagement with said shaft for opening and closing said panels.

7. A window structure comprising a frame having vertically disposed side wall members, said side wall members each having a recess extending the full length thereof, a plurality of vertically swinging panels mounted on said frame, a pair of slide bars positioned in each of said recesses, slide bar support means secured to said side wall members engaging said slide bars, pivot clips mounted on said panels adjacent said slide bars, a pair of pivot pins mounted on each of said pivot clips, one of said pivot pins of each of said pivot clips being pivotally secured to one of said slide bars, a plurality of links, means pivotally mounting one end of each of said links to said other of said slide bars and said other end to said other of said pivot pins of each of said pivot clips, each of said slide bars having teeth at the lower inner portions thereof, a horizontally disposed shaft extending between said side wall members, a gear mounted at each end of said shaft, each of said gears being in mesh engagement with said teeth of said pair of slide bars, a further gear mounted on said shaft, an operating lever mounted on said frame, a worm gear mounted on said operating lever in mesh engagement with said further gear whereby said panels may be opened or closed upon actuation of said operating lever.

8. The structure as recited by claim 6 wherein said slide bar support means comprises an elongated member, a pair of openings formed on said elongated member, and a pair of leg portions extending from each of said openings engaging said slide bars.

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