Sept. 30, 1958 M. E. PEEPLES 2,854,102

COMBINED INSULATED WINDOW SASH AND BLIND STRUCTURE

Filed May 18, 1956 2 Sheets-Sheet 1

Fig. 2.

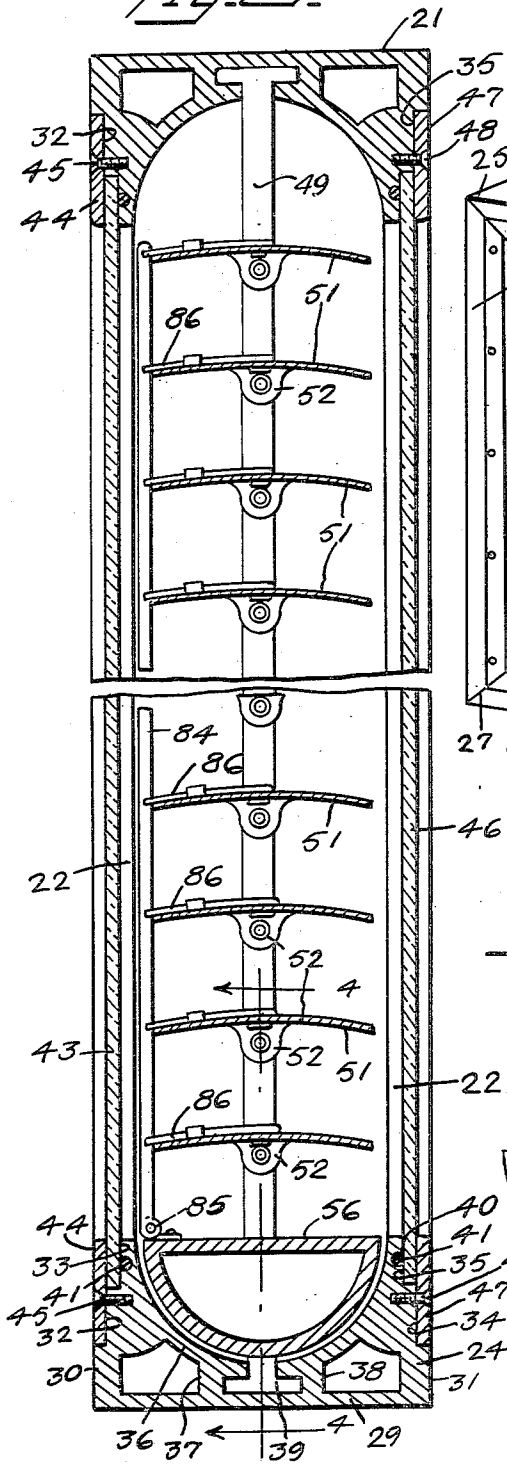


Fig. 1.

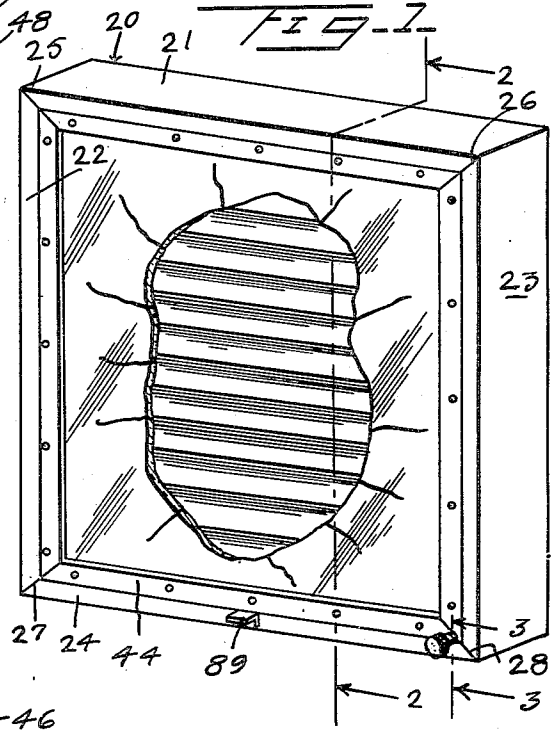


Fig. 9.

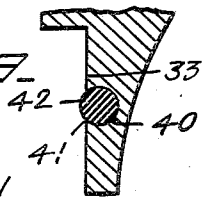
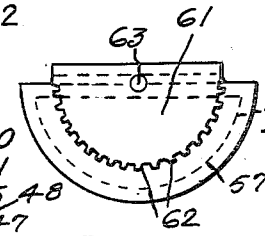


Fig. 7.



INVENTOR

Maurice E. Peeples

BY Kimmel & Crowell

ATTORNEYS

Sept. 30, 1958 M. E. PEEPLES 2,854,102

COMBINED INSULATED WINDOW SASH AND BLIND STRUCTURE

Filed May 18, 1956 2 Sheets-Sheet 2

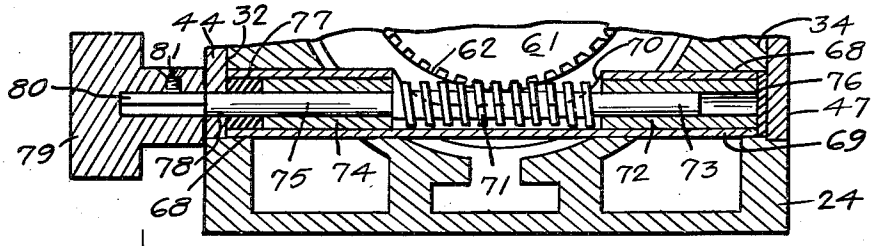
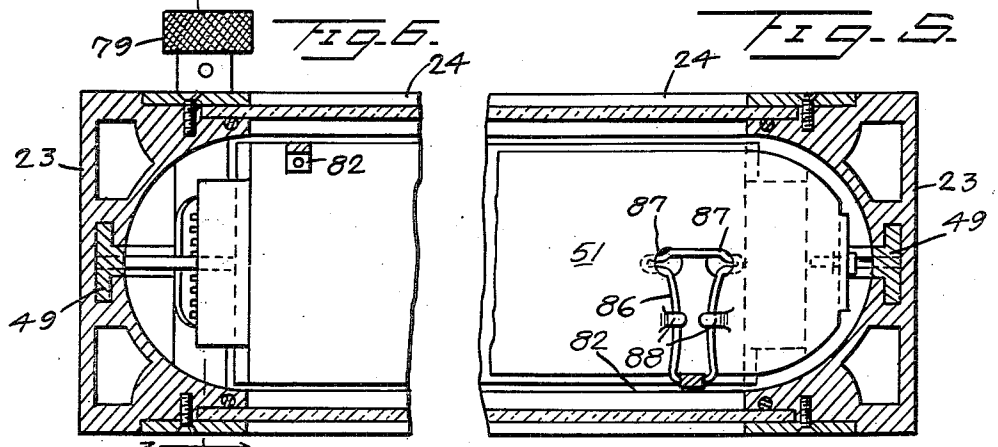


Fig. 3.



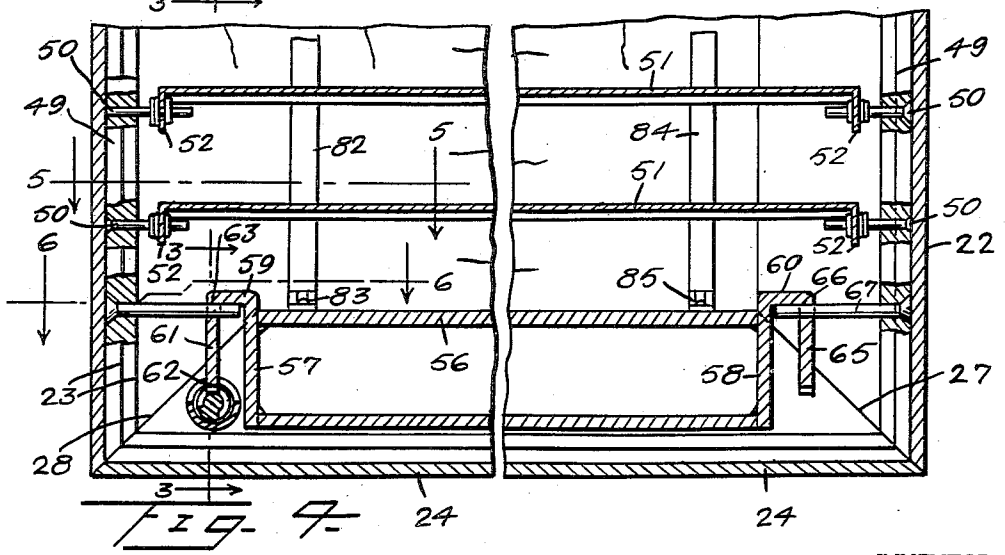


Fig. 4.

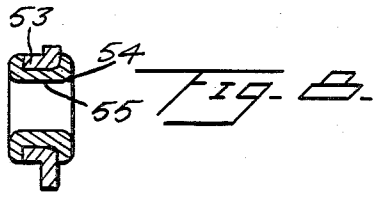


Fig. 8.

INVENTOR

Maurice E. Peeples

BY Kimmel & Crowell

ATTORNEYS

United States Patent Office

2,854,102

Patented Sept. 30, 1958

2,854,102

COMBINED INSULATED WINDOW SASH AND BLIND STRUCTURE

Maurice E. Peeples, Kingsland, Ga.

Application May 18, 1956, Serial No. 585,657

1 Claim. (Cl. 189—62)

The present invention relates to a double glazed window sash combined with a pivotal blind mounted between the glass panels.

The primary object of the invention is to provide a combination window sash and blind structure in which the blind structure is positioned between glass panels and is tiltable from a remote point of control.

Another object of the invention is to provide a structure of the class described in which each of the frame members are formed of an identical extruded metallic member.

A further object of the invention is to provide in a device of the class described a blind support carried by the side frame members.

Another object of the invention is to provide a combined window sash and blind structure in which the blind is sealed in an air tight pocket between spaced glass panels so as to be completely dust free as well as providing an insulating dead air space to assist in insulating the building in which it is used.

A further object of the invention is to provide a combined blind and window construction as described above in which the provision of spaced glass panels materially reduces the sound transmission factor thus tending to eliminate noises within the building.

A still further object of the invention is to provide a combined insulated window sash and pivotal blind construction which will be inexpensive to manufacture, simple to install and use and easy to clean and maintain.

Other objects and advantages will become apparent in the following specification when considered in the light of the attached drawings, in which:

Figure 1 is a perspective view of the complete sash with parts broken away for clarity;

Figure 2 is an enlarged fragmentary vertical transverse cross section taken on line 2—2 of Figure 1, looking in the direction of the arrows;

Figure 3 is a fragmentary enlarged vertical cross section taken along the lines 3—3 of Figures 1, 4 and 6, looking in the direction of the arrows;

Figure 4 is a fragmentary longitudinal vertical cross section taken along the line 4—4 of Figure 2, looking in the direction of the arrows;

Figure 5 is a horizontal cross section taken along the line 5—5 of Figure 4, looking in the direction of the arrows;

Figure 6 is a horizontal cross section taken along the line 6—6 of Figure 4, looking in the direction of the arrows;

Figure 7 is a detailed end view of the operating bar illustrating the control gear;

Figure 8 is a detailed enlarged cross section of the blind slat pivot construction; and,

Figure 9 is an enlarged detailed cross section of the glass seal.

Referring now to the drawings in detail wherein like reference numerals indicate like parts throughout the several figures, the reference numeral 20 indicates generally

a window sash constructed according to the invention and consisting of a top frame member 21, a side frame member 22, a second side frame member 23, and a bottom frame member 24, frame members 21, 22, 23 and 24 being beveled at their opposite ends and joined by welding as at 25, 26, 27 and 28. The frame members 21, 23 and 24 are each formed of an identical extruded metallic form having a base member 29, a pair of upstanding side members 30 and 31 extending parallel to each other and perpendicular to the base member 29. An inwardly offset shoulder portion 32 extends upwardly from the side member 30 and a second inset shoulder member 33 extends upwardly from the shoulder 32. A shoulder 34 is inset from the side member 31 and extends upwardly therefrom and a shoulder 35 in inset from the shoulder 34 and extends upwardly therefrom to form inwardly stepped sides extending upwardly from the base 29, a semi-cylindrical portion 36 extends downwardly between sides 30 and 31 and is supported from the base 29 by support webs 37 and 38. A T-shaped slot 39 is formed in the base of each of the frame members 21, 23 and 24 with the leg of the T extending through the semi-cylindrical member 36. Each of the shoulders 33 and 35 are provided with semi-cylindrical seal-receiving groove 40 which is adapted to receive a tubular resilient seal 41 which extends outwardly from the groove 40 as at 42 to project from the face of the shoulders 33 and 35. A window glass 43 is positioned in engagement with the seal 41 and the shoulder 33 on one side of the sash 20 and is secured thereto by a clamping strip 44 secured to the shoulder 32 by means of stud shoulders 45. A window glass 46 is likewise positioned against the shoulder 35 on the opposite side of the sash 20 and is clamped in position thereon by a clamping strip 47 secured by stud shoulders 48 extending therethrough. A T-shaped blind support 49 extends through the T-shaped slot 39 in the side members 22 and 23. Blind pivot pins 50 extend through the T-shaped member 49 in vertical spaced-apart relation. A plurality of blind slats 51 are positioned between window glasses 43 and 46 in vertical spaced-apart relation and each is provided with a depending pivot bearing lug 52 at each end thereof. The pivot bearing lugs 52 at the opposite ends of each blind slat 51 extend parallel to each other and generally perpendicular to the blind slat 51. Each pivot lug 52 is punched to provide a reinforced opening 53 therethrough and a grommet type bearing 54 is positioned in the reinforced portion 53 to provide a sleeve bearing opening 55 to engage over the pivot pins 50, a tubular semi-cylindrical operating bar 56 is positioned within the semi-cylindrical portion 36 of the frame member 24 and is provided with end plates 57 and 58 which are secured thereto by welding or the like. The end plates 57 and 58 each have a horizontally extending upper flange 59 and 60, respectively. A gear segment 61 depends from the flange 59 in spaced-apart parallel relation to the end plate 57 and is provided with gear teeth 62 formed in semi-circular relation on the free edge thereof. A pivot opening 63 is formed in the gear segment 61 to engage over a pivot pin 64 supported in the lower end of the T-shaped blind support 49. A similar gear segment 65 depends from the flange 60 in spaced-apart parallel relation to the end plate 58 and is provided with an opening 66 to receive a pivot pin 67 carried in the lower end of the opposite T-shaped blind support 49. The end plates 57 and 58 with their flanges 59 and 60 and gear segments 61 and 65 are constructed identically although the gear teeth 62 of the end plate 57 are the only gear teeth utilized in the operation of the device as will be later explained.

The bottom frame member 24 is provided with a bore 68 extending transversely thereof through the shoulders 32 and 34 in aligned relation to the plane of the gear

segment **61**. A tube **69** extends through the bore **68** and is provided with a cutout central portion **70** for reasons to be explained.

A worm gear **71** is positioned within the tube **69** in engagement with the teeth **62** on the gear segment **61**. A bushing **72** is positioned within the tube **69** at one end thereof to support a stub shaft **73** extending from the worm gear **71**. A bushing **74** is positioned within the tube **69** at the opposite end thereof to support the drive shaft **75** of the worm gear **71**. A disk-like rubber seal **76** is positioned against the end of the tube **69** and its concentrically positioned bushing **72** and engages against the inner face of the clamping strip **47**. A rubber seal **77** is positioned within the tube **69** and engages about drive shaft **75** to form a seal therebetween. The clamping strip **44** is engaged against the end of the tube **69** opposite the clamping strip **47** and is provided with a bore **78** through which passes the drive shaft **75**. A knob **79** is mounted over a squared end portion **80** on the drive shaft **75** and is secured thereto by a locking bolt **81**. An operating strap **82** is pivotally secured to the operating bar **56** at **83** and a similar operating strap **84** is pivotally secured to the operating bar **56** at **85** in spaced-apart parallel relation to the operating strap **82**. The operating straps **82** and **84** are pivotally connected to each of the spaced-apart blinds **51** by means of clips **86** constructed in accordance with the construction illustrated in my prior Patent 2,733,486, issued February 7, 1956, and having a portion thereof extending through openings **87** in the blind slat **51** and additional portions thereof secured to the blind slat **51** by cleats **88** struck from the blind slat **51**. A hand grip **89** is secured to the inner face of the bottom frame member **24** to assist in raising and lowering the sash **20** when desired.

In the use and operation of the invention the blind slats **51** are pivotally mounted on the pins **50** and operatively connected by operating straps **82** and **84** which are secured to the operating bar **56**. Rotation of the knob **79** will rotate the worm gear **71** meshed with the teeth **62** on the gear segment **61** to rotate the gear segment **61** and hence the operating bar **56** about its longitudinal axes. This movement of the operating bar **56** will raise or lower the operating straps **82** and **84** and pivot the slats **51** on their longitudinal axes so as to open or close the blind slats **51**. The window glasses **43** and **46** are sealed against the resilient sealing members **41** and may be additionally sealed by having the edges thereof taped in any conventional manner (not shown). In the assembly of the device the blind supports **49** are positioned with the T slots **39** of the sides **22** and **23**. The top frame **21** and the bottom frame **24** are then welded or otherwise secured to the side frame **22**. The operating bar **56** is then positioned within the bottom frame **24** whereupon the side frame **23** is welded to the top frame **21** and bottom frame **24** to complete the frame structure of the sash **20**. The blind slats **51** are inserted by slightly pulling them at their centers to permit them to be engaged over the pivot pins **50** and the operating straps **82** and **84** are then connected to the slats **51** and the operating bar **56**. It should be noted that the operating straps **82** and **84** will maintain the slats **51** in vertical alignment.

The window glasses **43** and **46** are then inserted on opposite sides of the sash **20** and clamped into position by means of the clamping strips **44** and **47**. It can be easily seen that to repair or clean the blind structure either window glass **43** or **46** can be readily removed to gain access to the blind.

Having thus described the preferred embodiments of the invention, it should be understood that numerous modifications and structural adaptations may be resorted to without departing from the scope of the appended claim.

What is claimed is:

A combined blind and sash structure comprising a rectangular metallic frame having spaced apart parallel upright side members connected at their upper and lower ends by vertically spaced parallel horizontal members, said members each having a longitudinally extending semi-cylindrical recess formed therein with said recess being formed in the facing sides of opposing members, said members each having a T-shaped slot extending longitudinally thereof centrally of said recess, a T-shaped member supported in the T-shaped slots of each of the opposite side members of said frame extending from one of said horizontal members to the other, vertically spaced parallel pivot pins mounted in each of said T-shaped members and extending inwardly therefrom, a plurality of vertically spaced parallel blind slats, depending lugs integrally formed on each end of each of said slats, a grommet bearing secured to each of said lugs with one of said pivot pins engaging therethrough to mount said slats for pivotal movement, an operating bar positioned adjacent one of said horizontal members in parallel relation thereto and to said slats, means on said T-shaped members pivotally mounting said operating bar therebetween, vertically extending means connecting vertically aligned edges of said blind slats with one side edge of said operator bar, a gear segment integrally formed on said operating bar, a worm gear journalled in said frame in meshing relation with said gear segment, and a hand operating knob fixed to said worm gear for rotating said worm gear whereby said operating bar and said slats are pivoted simultaneously.

References Cited in the file of this patent

UNITED STATES PATENTS

1,763,838	Vernet	June 17, 1930
2,239,528	Knudsen	Apr. 22, 1941
2,280,540	Persson	Apr. 21, 1942
2,288,465	Knudsen	June 30, 1942
2,557,978	Krumm	June 26, 1951
2,577,072	Cotner	Dec. 4, 1951
2,631,339	Pratt	Mar. 17, 1953
2,651,085	Kopp	Sept. 8, 1953
2,733,486	Peeples	Feb. 7, 1956